BEFORE THE NATIONAL GREEN TRIBUNAL,

WESTERN BENCH AT PUNE

APPEAL NO. 30 of 2024

IN THE MATTER OF:

RAMESH SAZO GAUNS ... APPELLANT

versus

UNION OF INDIA & OTHERS ... RESPONDENTS

NEXT DATE OF HEARING 22.05.2024

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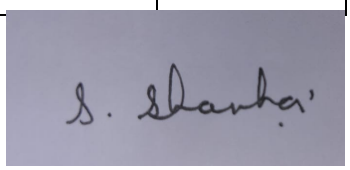

Dated:20.05.2024
Pune

Shivshankar Swaminathan
ADVOCATE FOR THE RESPONDENT NO. 4
15 & 22, P.J. Chambers | Off Mumbai Pune Road |
Pimpri, Pune 411018 India
Tel: +91 20 2742 2068 Mob: +917875874915, 99531 19883
shivshankar.swaminathan@yutilaw.com

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REPLY ON BEHALF OF THE RESPONDENT NO. 4

1. At the outset, the Respondent No. 4 (the "**Answering Respondent**") denies all and singular the contents of the captioned Appeal and no part thereof be deemed admitted for the lack of specific traverse.

PRELIMINARY OBJECTIONS

Limitation

2. At the further outset, the Answering Respondent submits that the captioned Appeal is *ex facie* barred by limitation.

3. The Appeal paper-book as served upon the Answering Respondent at Page 67 carried the date of filing as 20.04.2024 and at Page 69 carried a verification clause of the date 08.01.2024 with a notarization date of 22.04.2024. The said discrepancy was brought to the notice of this Hon'ble Tribunal by the counsel for the Answering Respondent when the Appeal came to be listed on 24.04.2024.

4. In view of the aforesaid discrepancies, the Answering Respondent, through its advocate sought inspection of the records in this Appeal, as contemplated in Rule 29 of the NGT (PRACTICES AND PROCEDURE) RULES, 2011. During this inspection, it emerged that the Appeal was originally filed on 22.02.2024 and it also emerged that:
   a. The Appeal as filed then carried an entirely different index, with the documents enumerated in the said index having no nexus to the Answering

Respondent's project i.e., the Bicholim mine in Goa or the EC granted to the same.

b. In fact, even the annexures filed along with the original Appeal were different from those which eventually form a part of the Appeal paper-book. For instance, now the first annexure marked after the EC is a copy of Form I – Application for grant of EC. This annexure, however, like several others, was not a part of the originally filed Appeal.

c. More curiously, the grounds of the Appeal as were then filed pertained entirely to a project in Chanderia, Rajasthan. The grounds as initially filed were 47 in number spanning over pages 16 - 33, while in the newly filed Appeal, the grounds are 61 in number spanning over pages 18 - 65.

5. In view of the aforesaid startling scenario, the Answering Respondent, through its advocate applied for a certified copy of the Appeal, as filed on 22.02.2024.
A certified copy of Appeal No. 30 of 2024 as filed on 22.02.2024 as received by the Answering Respondent from the registry of the Tribunal is hereto marked and annexed as **Annexure R4-1**.

6. A comparison of the Appeal, as filed on 22.02.2024, and that refiled on 22.04.2024 would reveal that the Appeal as initially filed was entirely different save and except for the cause title, the brief narration of facts, which too are not identical and the prayer. In other words, the Appeal, as filed on 22.02.2024, pertained to an entirely different project in Rajasthan rather than the mine in Goa.

7. Hence, it is apparent that an incoherent and irrelevant document was filed in the Registry of this Hon'ble Tribunal on 22.02.2024 only for the purposes of creating an impression of having filed an appeal within the limitation period of 30 days as contemplated u/s 16 of the NATIONAL GREEN TRIBUNAL ACT, 2011 (the "NGT Act").

8. In the above conspectus, it is submitted that, the Appeal as previously filed on 22.02.2024, cannot be considered an appeal in the eyes of law and certainly not for the purposes of reckoning limitation u/s 16 of the NGT Act.

9. This gains great significance in view of the following chronology of events:

23.01.2024	EC granted to the Answering Respondent.
22.02.2024	30-day limitation in terms of Sec. 16 of the NGT Act expired.
22.02.2024	Appeal No. 30 of 2024 as originally filed came to be filed with grounds relating to a project in Rajasthan.
22.04.2024	The condonable period of 60 days under the proviso to Sec. 16 of the NGT Act expired.
22.04.2024	Appeal No. 30 of 2024 came to be refiled purportedly to cure defects raised by the Registry but was in fact entirely overhauled with a new set of grounds and annexures.

10. It is pertinent to note that Rule 10 of the NGT (PRACTICES AND PROCEDURE) RULES, 2011 allows for refiling "for rectifying" defects as notified by the Registrar or the authorised officer of the Registry. The said Rule is reproduced below for ease of reference:

> "10. Rectification of defects. - (1) If on scrutiny, any application or pleadings filed in the Tribunal is found to be defective, the Registrar or the authorised officer of the Registry shall notify in Form V on the Notice Board of the Tribunal fixing the time **for rectifying the same**.
> (2) The papers shall be returned to the party or his legal practitioner only after obtaining acknowledgment thereof in the Inward Register.
> (3) The Registrar may, for good and sufficient reasons extend the time for rectifying the defects, provided the total period for rectification including the extended period does not exceed thirty days.
> (4) If the party or his legal practitioner contests the office objection and the Registrar is not satisfied, the matter shall be placed before the Tribunal for appropriate orders.
> (5) If the party or his legal practitioner rectifies the defects and represents the application or appeal or pleading within the time granted, the Registrar on being satisfied may order for its registration and acceptance and numbering as specified in rule 9." [emphasis added]

11. Surely, the refiling contemplated in this Rule cannot be employed by a litigant to file an entirely new appeal or to set up an entirely new case.

12. In fact, this Hon'ble Tribunal, has by an order dated 01.05.24, in near identical circumstances in Diary No. 2704138001882024, directed that the Applicant therein file an application for condonation of delay in view of the fact that the Application as previously filed was an entirely different document.

13. Pertinently, the limitation clause as contained at Page 66 of the Appeal Memo proceeds on the premise that the Appeal is filed within time and makes such assertions solely on the ostensible basis that the Appeal involves a substantial question relating to the environment.

14. Since the limitation period expired on 22.02.2024, and since an entirely new Appeal has been filed on 22.04.2024, the latter date would be the point to reckon limitation and hence, the Appeal has been filed beyond limitation, albeit within the condonable period. Hence, the Appellant must necessarily explain the delay and must seek condonation after demonstrating that there is sufficient cause meriting such condonation.

15. In this regard, it is pertinent to note that assuming there is a typographical error in the date mentioned in the affidavit filed with the original appeal (as stated by the counsel appearing for the Appellant) and the same was verified on 08.02.2024, there is no justification as to why the appeal complete in all respects (as filed on 22.04.2024) could not have been filed within the prescribed period of limitation i.e., by 22.02.2024.

16. Significantly, the Eastern Zone Bench of this Hon'ble Tribunal has on 13.02.2024 in ***Prafulla Samantara & Ors. v. Union of India and Ors.*** Appeal No. 01.2024/EZ, while considering a similar factual scenario on the issue of limitation (i.e., where the affidavit clearly showed that the appeal was prepared within the period of limitation of 30 days, yet it was filed late) has dismissed the application for condonation of delay stating that there could have been no justification for such a delay. An appeal against the said order of the Eastern Zone Bench has been

dismissed by the Hon'ble Supreme Court on 17.05.2024, being CA No. 6069/2024.

A copy of the judgment dated 13.02.2024 in ***Prafulla Samantara & Ors. v. Union of India and Ors.*** Appeal No. 01.2024/EZ is hereto annexed and marked as **ANNEXURE R4-2.**

17. In conclusion, it is submitted that, the captioned Appeal is barred by limitation and at the very least, the Appellant must be directed to explain the delay and to demonstrate sufficient cause for condonation, if any.

18. The facet of limitation apart, it is submitted that, the actions of the Appellant in adopting a subterfuge i.e., by filing one Appeal initially and replacing the same by an entirely new one, to overcome limitation, calls for a dismissal of the Appeal on this ground alone, on account of abuse of process.

Lack of bona fides

19. Apart from the issue of limitation, the Answering Respondent submits that the captioned Appeal is not a *bona fide* action and is actuated by ulterior motives which are apparent from the record:

    a. The Appellant herein had participated in the public hearing held on 11.08.2023, which is evident from the record since his objections are set out at page 253 of the Appeal paper-book at Serial No. 124. Pertinently, one of the objections noted reads as follows: "*he states that he is still fighting the cases his ancestors have filed against the company* ***for his land***". Thus, it is evident that the real grievance of the Appellant is to do with the loss of land on account of mining.

    b. The aforesaid revelation is further confirmed from Ground 10 of the Appeal at pages 25-26 of the Appeal paper-book, wherein the grievance of the Appellant is that 70.7446 ha of the mining lease area has not been acquired by the Answering Respondent.

20. It is thus apparent from the above that the Appellant's grievance is with respect to the non-acquisition of his land, and not with the validity of the EC granted to the Appellant. In this regard, it is pertinent to note that the Appellant's real grievance is, in fact, sufficiently addressed by the MINES AND MINERALS DEVELOPMENT AND REGULATION ACT, 1957 and the MINERAL (OTHER THAN ATOMIC AND HYDRO CARBONS ENERGY MINERALS) CONCESSION RULES, 2016, in particular Rule 52 thereof, whereunder the owner of surface rights is entitled to compensation for the period of the mining operations being conducted on his/her land. In other words, the owner of surface rights cannot obstruct or impede the mining operations but is entitled to compensation. Surely, this cannot be set up as a ground to challenge the EC.

21. Lastly, it is submitted that the Appellant, has in Ground 31, admitted to having a copy of the EIA report. This is a material document since it contains particulars of the studies carried out by the Answering Respondent, and the assessment carried out to study the impact of the proposed activity. Curiously, the same has not been placed on record by the Appellant.

22. The actions of the Appellant in not placing the same on record gains further significance since a large number of the allegations made in the grounds already stand addressed in the EIA report submitted by the Answering Respondent. Thus, it is submitted that the EIA report has not been placed on record in a conscious effort to suppress material facts and mislead this Hon'ble Tribunal.
A copy of the EIA report (without annexures & Appendices) prepared in August 2023 and submitted on 01.09.2023 is hereto annexed and marked as **ANNEXURE R4-3**.

THRESHOLD FOR JUDICIAL REVIEW IN CHALLENGE TO EC

23. Before delving into the merits of the challenge to the EC, it is submitted that, the threshold for such a challenge as laid down by the Hon'ble Supreme Court in ***Rajeev Suri v. DDA,*** (2022) 11 SCC 1 ought to be noted and borne in mind while

judging each of the grounds of challenge. The Hon'ble Court observed in Paras 509 and 529 as follows:

> "509. Once an expert committee has duly applied its mind to an application for [an] EC, any challenge to its decision has to be based on concrete material which reveals **total absence of mind**. Absent that material, due deference must be shown to the decisions of experts [….]". [emphasis added]
>
> "529. [….] The expertise developed by the EAC cannot be undermined in a light manner and as noted above, **due deference must be accorded to expert agencies when their decisions do not attract the taint of legal unjustness** [….]". [emphasis added]

24. When one considers the actions of the EAC on the touchstone of the aforesaid yardstick, there can be no doubt that the same is not met in the instant case and hence, the EC does not merit any interference by this Hon'ble Tribunal. Shorn of the details, the following facts would by themselves suffice to reject the present Appeal:

    a. On 11.08.2023, a public hearing was carried out with respect to the proposed project, where, amongst others, the Appellant was present, and raised the very same objections which have been raised as Grounds in the captioned Appeal. On 28.08.2023, the Answering Respondent provided its clarifications to the objections raised during the public hearing to the Member Secretary, Goa State Pollution Control Board.

    A copy of the letter dated 28.08.2023 from the Answering Respondent to the Member Secretary, Goa State Pollution Control Board is hereto annexed and marked as **ANNEXURE R4-4**.

    b. On 22.09.2023, the EAC after considering the Answering Respondent's project at its 20th Meeting sought additional details from the Answering Respondent. Significantly, these minutes record that the Department of Mines and Geology was called as a special invitee, and that they would provide a copy of the report from the SIT and provide the same to the MoEF. Thus, making it evident that they were well aware that mining had taken place in the subject lease in the past.

A copy of the Minutes of the 20th Meeting of the EAC held on 22.09.2023 is hereto annexed and marked as **ANNEXURE R4-5**.

c. The EAC accordingly considered the Answering Respondent's project on 22.09.2023 at its 20th meeting, wherein it noted the details of the project and then observed that "*a site visit needs to be conducted by a subcommittee comprising of EAC members and officers from MoEFCC….*". Further, the EAC deferred the proposal for want of certain additional information *inter alia* with specifics of the settling ponds, whether any illegal mining in the project can be attributed to the project proponent, and also sought a video recording of the public hearing.

d. Thereafter, the site visit as contemplated above was conducted on 30.10.2023, and a site inspection report was submitted by the Sub-Committee. While a copy of the same was not provided to the Answering Respondent, the observations and recommendation of the same have been reproduced by the EAC in the minutes of its 22nd Meeting held on 14.11.2023. Significantly, this report has noted, amongst others, the stagnation of water in the mining pits as well as the settling ponds, which the Appellant alleges today to be water bodies. The said report also made certain recommendations.

e. At the said 22nd meeting, the EAC considered in great detail the site visit report prepared by the EAC subcommittee and agreed that the Answering Respondent ought to implement the recommendations made in the said report. Consequently, it deferred the consideration of the project to await compliance with the recommendations in the said report.

f. After complying with the recommendations of the subcommittee, the Answering Respondent by a letter dated 01.12.2023 submitted the additional details sought by the EAC along with the proof of compliance on 04.12.2023 on the *Parivesh* portal. It is significant to note that in response to Point No. 3, the Answering Respondent has specifically noted that there are "*12 nos. of interlinked siltation ponds*". It is these ponds, which the Appellant has mischievously characterised as "lakes".

A copy of the letter dated 01.12.2023 from the Answering Respondent to the Ministry of Environment and Forest is hereto annexed and marked as **ANNEXURE R4-6.**

g. It is also pertinent to note that the Answering Respondent provided the various surface features in this report, which were also noted by the inspection team during the site visit held on 30.10.2023.

h. Furthermore, the Answering Respondent also placed on record a Letter dated 22.12.2023, wherein the Forest Department of the State of Goa had confirmed that the lease does not include any forest land.

A copy of the letter dated 22.12.2023 from the Forest Department of the State of Goa to the Answering Respondent is hereto annexed and marked as **ANNEXURE R4-7.**

i. The Answering Respondent in response to the query as to whether it was the erstwhile lessee who was responsible for illegal mining in the said lease previously, placed on record a letter dated 25.07.2023 from the Directorate of Mines and Geology, wherein it has confirmed that the Answering Respondent was not the erstwhile lessee of the said lease.

A copy of the letter dated 25.07.2023 from the Directorate of Mines and Geology to the Answering Respondent is hereto annexed and marked as **ANNEXURE R4-8**.

j. Eventually the EAC considered the project of the Answering Respondent at its 24th meeting on 26.12.2023, where it examined the steps taken by the Answering Respondent to comply with the recommendations made in the site visit report, and upon being satisfied with the same, it recommended the project for the grant of an EC, while imposing 32 specific conditions on the Answering Respondent, apart from the standard conditions for mining projects.

25. The above chronology and the level of circumspection and scrutiny demonstrated by the EAC, when judged on the yardstick laid down in ***Rajeev Suri*** (supra), in

the humble submission of the Answering Respondent cannot possibly be suggestive of "*total absence of mind*".

26. The level of scrutiny that the project of the Answering Respondent has undergone with the EAC apart, it is pertinent to note that literally every single objection sought to be raised in the present Appeal had already been raised by the Appellant at the public hearing, as is evident from pages 253 and 266-268 of the Appeal paper-book, which reveals that each of his objections were elaborately responded to by the Answering Respondent.

MERITS

27. Though the Appeal Memo contains 61 Grounds, they are essentially ten (10) issues that the Appellant has sought to urge to challenge the EC dated 23.01.2024. They are as follows:

i. That the project has been wrongly classified as a greenfield project.

ii. That there are 13 lakes in the mining lease area which have not been disclosed.

iii. That the Answering Respondent ought to incur the liabilities of the erstwhile lessee since it is an associated entity.

iv. That the auction of the mine is bad for want of consultation of the local population.

v. That the MoEFCC has not considered the North Goa Disaster Management Plan, 2023.

vi. That the Answering Respondent has not acquired the entire land mass that forms part of the mining lease area.

vii. That the Answering Respondent's project will lead to drying of wells in the vicinity.

viii. That the mining lease area was a forest 82 years ago.

ix. That the Answering Respondent failed to conduct proper inspection with respect to schools in the nearby area.

x. That the Answering Respondent did not conduct the public hearing in accordance with the EIA Notification.

28. The Answering Respondent shall demonstrate how each of the abovementioned issues are devoid of merit.

CLASSIFICATION OF PROJECT AS GREENFIELD MAKES NO DIFFERENCE TO THE EIA PROCESS

29. The Appellant, in Grounds 1 & 7, has alleged that since the Answering Respondent's project is not a greenfield project, the rules applicable to a greenfield project will not apply here.

30. At the very outset, it is submitted that the ENVIRONMENTAL IMPACT ASSESSMENT NOTIFICATION, 2006 (the "EIA Notification") does not provide for the categorisation of a project as greenfield or as brownfield.

31. The only categorisation of projects is made in Para 4 (i) of the EIA Notification i.e., 'Category A' and 'Category B' projects. Category B projects and activities are further classified into B-1 (those which require an EIA) and B-2 (those which don't require an EIA) projects. Accordingly, the rules apply differently to such projects.

32. The Answering Respondent's project has been recognized as a Category – A project, which essentially means that it requires prior EC from the Central Government. Apart from this, there is no difference in the rules applicable to projects under the EIA Notification. This is further substantiated by the fact that, Paras 4 (ii) & (iii) of the EIA Notification, while categorising projects state that both Category A & B projects include "expansion and modernization of existing projects and activities". This evinces that the EIA Notification and the rules made thereunder apply to both greenfield and brownfield projects uniformly.

33. However, the EIA notification, under Cl. 2 classifies projects as a new project or expansion/modernisation of an existing project or activity. Cl. 2 of the EIA Notification is reproduced below for ease of reference:

> "2. Requirements of prior Environmental Clearance (EC):-
> … :
> (i) All **new projects** or activities listed in the Schedule to this notification;
> (ii) **Expansion and modernization of existing projects** or activities listed in the Schedule to this notification with addition of capacity beyond the limits specified for the concerned sector, that is, projects or activities which cross the threshold limits given in the Schedule,
> after expansion or modernization;
> (iii) Any change in product - mix in an existing manufacturing unit included in Schedule beyond the specified range." [emphasis added]

34. Thus, a greenfield project would be one which falls within Cl. 2(i) of the EIA Notification, while a brownfield project is one which falls under Cl. 2(ii) of the EIA Notification and pertains to expansion and modernization of existing projects.

35. That such is the understanding of the MoEFCC is evident from a PIB note dated 19.12.2011 titled "Implementation of Green Field Projects", the relevant portion of which reads as follows:

> "The Environmental Impact Assessment (EIA) Notification, 2006 provides that all developmental projects, listed in the Schedule-1 to the Notification require prior environmental clearance for **establishment of new (Greenfield)** projects or for **expansion (Brownfield) of existing projects**." [emphasis added]

A copy of the Press Information Bureau note dated 19.12.2011 titled "Implementation of Green Field Projects" is hereto annexed and marked as **ANNEXURE R4-9.**

36. In fact, in keeping with the above, instructions were issued by the MoEFCC in its Agenda for the 14th EAC Meeting, wherein Para 11 of the said instructions, provided as follows:

> "11. PP needs to submit the documents w.r.t. validity of the mining lease (brown filed projects) and **letter of intent (green filed projects)** along with supporting documents. PP should submit the details of lease renewal/ transfer/surrender in chronological manner." [emphasis added]

A copy of the Agenda for the 14th EAC Meeting issued by the MoEFCC dated 03/04.05.2024 is hereto annexed and marked as **ANNEXURE R4-10.**

37. Thus it is evident that the EAC considers a subsisting mining lease as a brownfield project and a freshly granted mine, (by way of a letter of intent pursuant to an auction) to be a greenfield project.

38. It is submitted that the only consequence flowing from such classification is that Paragraph 7 of the EIA Notification allows a brownfield project i.e., an expansion project to leapfrog to the stage of appraisal by the EAC without having to go through the stages of Screening and Scoping. In some scenarios, such brownfield projects, where there is no increase in the pollution load are not put through any rigours of the EIA process.

39. Hence, it is clear that classification of a project as a greenfield project only implies that a project proponent has to make a *de novo* application and has to undergo the rigours of all the steps contemplated in the EIA Notification.

40. It is from this perspective that the MoEFCC has clarified by an OM dated 31.03.2011, bearing reference no. No. J-11015/200/2008-IA.II(M), as follows:

> "III. Greenfield Projects:
> …
> (iii) All cases of grant/renewal of EC for any **abandoned mine or sick project under revival etc. would be considered as a green field project** for appraisal under EIA Notification, 2006 and the procedure mentioned above will be followed." [emphasis added]

A copy of the Office Memorandum dated 31.03.2011 bearing reference no. No. J-11015/200/2008-IA.II(M) is hereto annexed and marked as **ANNEXURE R4-11.**

41. The Answering Respondent's project being a freshly granted mine through an auction process, having been issued with a Letter of Intent in this regard, being akin to the aforesaid scenarios, noticed in the OM of 2011, has been classified as a greenfield project as per the instructions issued by the MoEFCC in its Agenda for the 14th EAC Meeting.

42. Thus, even assuming without admitting that the EIA Notification requires that a project be classified as a greenfield or a brownfield project, the Answering

Respondent has correctly classified the project as a greenfield project since there was no existing EC or activity of which expansion had been sought. In other words, the Answering Respondent in the absence of an existing EC could only have applied as a greenfield project, and the Appellant's argument is without merit since it is based on an erroneous understanding of a greenfield and brownfield project.

43. It is also pertinent to note in this regard that the EIA report specifically discloses the fact that this mine has been worked upon in the past. Hence, the mere mention of the word "greenfield" in a part of the application is a matter of semantics and an exercise of hair splitting being adopted by the Appellant. For instance, the following paragraphs of the EIA report (at pg. 2) mention the fact that mining has been undertaken in the past:

> "The said Block-I Bicholim Mineral Block was earlier **operated by Sesa Mining Corporation Ltd. (SMCL) formerly known as Dempo Mining Corporation Ltd.** Pursuant to Supreme Court judgement in Goa Foundation 2 dated 07.02.2018, all the mining leases granted by the State Government were cancelled. Thereafter, State Government in terms of the said order and as per the provisions of MMDR Act put this block for auction as a fresh lease grant." [emphasis added]

44. Moreover, that the EAC was very well cognisant that the mine had been worked in the past is evident from Specific Condition No. 4.6 of the TOR, wherein the EAC sought a clarification as to whether the Answering Respondent was responsible for illegal mining. The said Condition is reproduced below:

> "During the meeting, the EAC **noted that old excavated pits exist within the mine lease area**. Hence, the Project Proponent needs to submit a letter from the Department of Geology and Mining, Government of Goa clarifying whether any illegal mining within the mine lease area has been carried out or not and whether the same has been carried out by M/s. Vedanta Limited or not?"
>
> [emphasis added]

45. The Answering Respondent, therefore, addressed a Letter dated 18.05.2023 seeking a clarification in this regard from the Directorate of Mines and Geology, which by a Letter dated 25.07.2023, expressly stated that the Answering Respondent **"was not the erstwhile lessee of the said Block prior to auction".**

NO LAKES IN LEASE AREA

46. The Appellant has raised the same concern in numerous Grounds including 2, 4, 16, 38, 39, 40, 42, 43, 44, and 45, alleging that the Answering Respondent has not disclosed the presence of 13 lakes in the mining lease area. At the very outset, the Answering Respondent has disclosed the presence of five (5) water bodies near the mine lease area: (i) Assnora River: touching lease boundary at one point; (ii) Bicholim River: 0.23Km; (iii) Mandovi River: 2.3Km; (iv) Chapora River: 7.5Km; and (v) Mayem Lake: 0.46Km.

47. Moreover, the Answering Respondent had submitted as a part of its EIA Report a Land Use & Land Cover Plan which contains satellite images obtained from the NATIONAL REMOTE SENSING CENTRE, Hyderabad depicting all the surface features including water bodies within the mining lease and its 10 km buffer zone. This apart, the EIA Report also contained a Drainage Map (obtained from Survey of India) which showing all the water drainage network within the study area.

48. In fact, there has been no non-disclosure by the Answering Respondent regarding the presence of water bodies in the mine lease area as it has been categorically stated by the Answering Respondent in responding to a query raised by the Appellant himself during the public hearing that "*All the water bodies within the buffer-zone are covered under the Land Use Pattern under Chapter 3 of the EIA Report.*"

49. Further, taking into account that the Assnora river touches the lease boundary at one point, the Answering Respondent has undertaken an impact assessment study of the mining operations on the said river. This shows that the Answering Respondent and consequently the EAC, have been cognisant of the presence of water bodies near the mine lease area.

    A copy of the Additional Study of Silt Load calculation, De-siltation management and likelihood of seepage from Assonora River is hereto annexed and marked as **ANNEXURE R4-12**.

50. Furthermore, the Answering Respondent had engaged the service of Mr. M.C. Reddy, Former regional Director, CENTRAL GROUND WATER BOARD, Ministry of Water Resources, to prepare a "*Hydrogeology And Impact Assessment Of Ground Water In Respect Of Block -I Bicholim Mineral Block Located In Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao Villages Of Bicholim Taluka, North Goa District, Goa Of Vedanta Limited, (Goa)*". This report categorically records as follows:

> "5. Block-I Bicholim Mineral Block is situated on a hilly region at an elevation of about 169.14m amsl and **does not have any surface water bodies**. It was observed from the studies carried out on the open wells that water levels in Phreatic aquifer is mostly shallow where the ground water abstraction structures are located at an elevation of 15m to 125m (a msl). Borewells are located at an average elevation of 35 m amsl having drilling depths of 30 m (bgl) indicate the presence of shallow aquifers in the buffer area." [emphasis added]

A copy of the *Hydrogeology And Impact Assessment Of Ground Water In Respect Of Block -I Bicholim Mineral Block Located In Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao Villages Of Bicholim Taluka, North Goa District, Goa Of Vedanta Limited, (Goa)* is hereto annexed and marked as **ANNEXURE R4-13**.

51. In this regard, it is further submitted that, the "13 lakes" as mentioned by the Appellant is a misnomer. It is stagnant rain water in the mine pit, which looks like a lake from an aerial view to an untrained eye. The presence of such stagnant rain water in the mine pit, being projected as lakes by the Appellant, has been confirmed by the subcommittee during their site visit from 30.10.2023, at page 156 of the Appeal paper-book. This position i.e., that the waterbodies are settling ponds has also been confirmed by the Answering Respondent in its compliance report filed with respect to the recommendations made in the site inspection report. Moreover, it has already been informed by the Answering Respondent to the EAC that the rain water in the mine pit is being used for dust suppression and agricultural purposes by the local farmers and the same will be pumped out and will be channelized through a network of pipes and will be discharged into settling ponds.

ANSWERING RESPONDENT CANNOT BE SADDLED WITH LIABILITIES ON ACCOUNT OF THE ERSTWHILE LESSEE

52. With respect to Grounds 3 and 8 of the captioned Appeal, the Appellant has sought to argue that the Answering Respondent is an associate of the previous lessee and hence, should be held liable for the action of the previous lessee.

53. The contention of the Appellant that the Answering Respondent is an associate entity of the erstwhile lessee and hence, should incur its previous liabilities, is untenable in light of the fact that a *fresh lease* has been granted to the Answering Respondent. Pursuant to the Hon'ble Supreme Court's judgment in ***Goa Foundation v. Sesa Sterlite Limited and Ors.,*** (2018) 4 SCC 218 dated 07.02.2018, all mining leases granted by the State Government to Sesa Mining Corporation Ltd. (who was previously operating Block-I Bicholim Mineral Block) were cancelled and consequently the said Block was put for auction. The Answering Respondent emerged as the highest qualified bidder having submitted the highest final price offer and was declared as the preferred bidder on 13.01.2023 by issuance of a Letter of Intent, bearing reference no. DMG/25/Auction Cell/LOI-function/2023/2801, by the Goa Government.

A copy of the Letter of Intent dated 13.01.2023 bearing reference no. DMG/25/Auction Cell/LOI-function/2023/2801 issued by the Goa Government is hereto annexed and marked as **ANNEXURE R4-14.**

54. In this regard, the Directorate of Mines and Geology, has by a Letter dated 25.07.2023, expressly stated that the Answering Respondent **"*was not the erstwhile lessee of the said Block prior to auction*".**

55. This apart, it is submitted that any suggestion to the contrary would be against elementary company law jurisprudence and will necessitate obliteration of the distinct juristic identity of the Answering Respondent.

CUMULATIVE IMPACT ASSESSMENT

56. In Grounds 12, 48, 49, 54, 56, and 59, the Appellant has alleged that the Answering Respondent has failed to undertake a "*cumulative impact assessment*" of the

project in question. However, the scope and meaning of a cumulative impact assessment as endorsed by the Appellant seems to be misplaced.

57. In Ground 3 at page 19 of the Appeal paper-book, the Appellant has stated that "*Cumulative impact consists of an impact that is created as a result of the combination of the project evaluated in the EIA* ***together with other projects in the same vicinity*** *causing related impacts. These impacts occur when the incremental impact of the project is combined with the cumulative effects of* ***other past, present and reasonably foreseeable future projects***."

58. The argument of the Appellant is in complete contradiction of the view taken by the Hon'ble Supreme Court in ***Rajeev Suri*** (supra) at para 486, wherein the Court held as follows:

> "486. [….] The meaning of the expression "cumulative impact/effect" is not to be understood as an expression of art. It does not shun segregating an independent project. In an examination of this nature, the foremost requirement is to identify the **precise expanse of a project.** It does not mean connecting independent projects upon a subjective notion that it is necessary to do so for a collective appraisal **merely because such projects fall in the same region.** The word "cumulative" is to be read in conjunction with the word "project" and idea behind examination of cumulative impact is to assess the impact of the project including all its **functional components, and not of all development activities going on in a region**". [emphasis added]

59. In view of the aforesaid, it is clear that, in order to take a cumulative impact assessment, it is not necessary to consider the effects of past, present and reasonably foreseeable future projects. The only requirement is that the project proponent must take an impact assessment of all the components of a project such as air, water, noise, soil quality, land use, socio-economic, ecology & biodiversity components etc. Such a cumulative impact assessment has been duly undertaken by the Answering Respondent and forms a part of the EIA report.

60. As for Ground 59, it is pertinent to note that contrary to the averments made by the Appellant, an impact study on the local population was in fact carried out by

the Answering Respondent, and details of the same can be found in Chapter - 4 of the EIA report, in particular Para 4.9.

EC MADE SUBJECT TO OUTCOME OF CHALLENGES TO THE AUCTION PROCESS AND SUBSEQUENT GRANT OF LEASE

61. Challenge *sub judice*: The Appellant, in Ground 6, has alleged that the auction of the mine is bad for want of consultation of the local population. It is pertinent to note that the EC dated 23.01.2024 granted to the Answering Respondent has been made subject to the outcome of the ***Suresh Govind Gaonkar & Ors. v. Directorate of Mines and Geology & Ors.***, PIL WP 2029/2023 (F), challenging the State's decision to go ahead with the auction of the mining block. In this case, the primary grievance of the petitioners is that village settlements are included within the auctioned mining blocks. Therefore, the determination of illegalities in the auctioning process, *if any*, including non-consultation with the local population, is *sub judice* and the same cannot be brought as a ground to challenge the grant of the EC to the Answering Respondent.

62. In this regard, the Hon'ble Supreme Court has, in ***State of A.P. v. Raghu Ramakrishna Raju Kanumuru***, (2022) 8 SCC 156, held that this Hon'ble Tribunal ought not to continue with proceedings when the Hon'ble High Court is already seized of the matter. The said judgment has been followed by this Hon'ble Tribunal in its judgment dated 04.05.2023 in ***Pravir Prabhakar Fadte v. MoEF & Ors.***

63. Challenge dismissed: Notably, the EC dated 23.01.2024 was made subject to the outcome in ***MSPL v. State of Goa & Ors.,*** WP 592 of 2022. This Writ Petition sought to challenge the constitutionality of the tender documents of Phase I auction of Goa mines on grounds of non-disclosure of essential facts such as bore hole data, approved mining plan, production data of previous five years etc. However, the said Writ Petition was dismissed by the Bombay High Court at Goa by Order dated 12.02.2024 on the ground that there was no illegality in the auction process.

NORTH GOA DISASTER MANAGEMENT PLAN, 2023 CONSIDERED BY EAC

64. The Appellant, in Ground 9, has alleged that the mining project of the Answering Respondent should not be permitted owing to the North Goa Disaster Management Plan, 2023, which foresees landslides due to the mining in three villages. Further, the Appellant, in Grounds 21, 22, 24, 37, and 41, has alleged that the Answering Respondent's project has and will lead to floods.

65. These concerns have already been considered by the subcommittee during its site visit as is evident from its recommendations at pages 161-162 of the Appeal paper-book. Moreover, the Answering Respondent has communicated its compliance with these recommendations as on 04.12.2023, based on which the EAC in its 24th meeting has granted the EC to the Answering Respondent. Therefore, it cannot be said that the EC has been granted while keeping in abeyance the North Goa Disaster Management Plan, 2023.

66. In this regard, the Answering Respondent, at Chapter 6.1.3.5 of the EIA Report, has informed that surface water samples shall be collected at 8 locations which will include all mine discharge points and upstream and downstream of Bicholim and Asnora rivers. Such samples shall be collected once a month.

67. Further, the Answering Respondent, in its reply to an observation made by the EAC during its site visit, has stated (at page 88 of the Appeal paper-book) that, during the monsoon season, in addition to the monthly monitoring, all the discharge points will be regularly monitored on **all rainy days** and the TSS levels will be checked.

68. Furthermore, the Answering Respondent has submitted that the dimensions of the drains will be maintained with the width of 2m and 1.5m in depth everywhere in the mine. A proper height will be maintained on the sides of the garland drain so that the water does not get overflooded from the drains. The available garland drains are 11313m in length which covers all the dumps in the mine area and the same will be strengthened and maintained before the onset of the monsoon. Thus,

the Answering Respondent has already taken note of the rainfall in the mining area and has devised an action plan for monitoring the same, thereby precluding the chances of disasters.

NO NECESSITY TO ACQUIRE LAND
IN VIEW OF STATUTORY FRAME WORK FOR SURFACE RIGHTS

69. With respect to Ground 10, wherein the Appellant has contended that the Answering Respondent has failed to acquire land which forms a part of the lease, it is respectfully submitted that the same is without any merit, and in any case, in terms of the MINERAL (OTHER THAN ATOMIC AND HYDRO CARBONS ENERGY MINERALS) CONCESSION RULES, 2016 (MCR 2016), there is no necessity for the lessee to acquire the surface rights i.e., the project proponent is not required to acquire the entire land mass overground.

70. In this regard, it is significant to note that Rule 52 of the MCR 2016 provides for the manner in which compensation is to be paid to the owner of the surface rights which makes it amply clear that there is no necessity to acquire the surface rights. The said Rule is reproduced below for ease of reference:

> "**52. Payment of compensation to owner of surface rights etc.-** (1) The holder of a mineral concession shall be liable to pay to the occupier of the surface of the land over which he holds the concession, such annual compensation as may be determined by an officer appointed by the State Government by notification in this behalf in the manner provided in sub-rules (2) to (4).
> (2) In the case of agricultural land, the amount of annual compensation shall be worked out on the basis of the average annual net income from the cultivation of similar land for the previous three years.
> (3) In the case of non-agricultural land, the amount of annual compensation shall be worked out on the basis of average annual letting value of similar land for the previous three years.
> (4) The annual compensation referred to in sub-rule (1) shall be payable on or before such date as may be specified by the State Government in this behalf." [emphasis added]

71. At the cost of repetition, it is reiterated that the very fact that the Appellant is raising this issue reveals the ulterior motive and personal interest involved in this Appeal, which disqualifies the issues raised by the Appellant from being termed as "substantial questions of law relating to the environment".

IMPACT OF MINING ON WATER TABLE DULY CONSIDERED

72. The Appellant, has in Ground 18 of the captioned Appeal, alleged that the impact of mining in the lease on the water table has not been considered. However, even this Ground is devoid of merit.

73. The Answering Respondent undertook a hydrogeological study in March, 2023 to assess the impact of mining operations on groundwater table (bore wells). A water quality study was also conducted in May 2023, wherein 10 samples of groundwater were taken (which were 10 wells in the study area of 10km radius). The Study concluded that the core and buffer area of the mining lease area is free in respect of ground water development and management. The groundwater extraction in the mining lease area is negligible and hence, there would be no adverse impact on the wells in the proximity.

74. There are additional safeguards in place as well. For groundwater withdrawal, the Answering Respondent must obtain a NoC from the Central Ground Water Authority (CGWA)/Concerned Local Authority as the case may be. The State Pollution Control Board (SPCB) has been directed to not issue a CTO before such permission is taken by the Answering Respondent. This measure, which has been imposed as a Specific Condition on the Answering Respondent, will help keep in check the withdrawal of groundwater for project activities [see page 73 of the Appeal paper-book]. In compliance with this condition, the Answering Respondent has applied for and obtained an NOC from the Office of the Executive Engineer & Ground Water Officer, Water Resources Department, Goa on 21.09.2023.

A copy of the NOC dated 21.09.2023 issued by the Office of the Executive Engineer & Ground Water Officer, Water Resources Department, Goa is hereto annexed and marked as **ANNEXURE R4-15.**

LEASE AREA NOT A FOREST

75. The Appellant, in Ground 20, has alleged that the mining area "*was"* a forest when the lease was granted 82 years ago. This concern was raised by the EAC at its 20th

meeting held on 21 – 22 September, 2023, and was duly responded to by the Answering Respondent.

76. In this regard, it is pertinent to note that: *firstly,* the Appellant himself admits that what he alleges as a forest is a matter of the past. It follows that the land being a forest 82 years ago will obviously not be relevant today.

77. *Secondly*, as for the status of the land on the date it was acquired by the Answering Respondent, the same was confirmed to not be a forest by a letter dated 22.12.2023 from the Dy. Conservator of Forest to the Director of Mines and Geology.

78. *Thirdly,* adequate disclosures have been made by the Answering Respondent with respect to the presence of forest land in the mine lease area. The Answering Respondent has disclosed that the Mayem Forest has a common boundary with the mine lease area. Further, reserved forests within 10Km radius of the mine lease area including Kharapal RF - 6.7km; Kasarpal RF – 5.1KM; and Ambadgaon RF – 7.6Km, have also been disclosed. Therefore, it is clear that the mine lease area itself is not a forest land and the Answering Respondent has not given any misleading information.

79. The Answering Respondent submitted a letter from the Office of the Deputy Conservator of Forests, North Goa Division dated 12.04.2023, stating the detail of village wise Survey Nos. within Block-I of Bicholim Mineral Block, which was verified and it was found that the area under these Survey numbers was neither a govt. forest nor could it be identified as private forest by the State Level Expert Committee.

80. The Answering Respondent has also submitted the Letter dated 23.01.2023 from the Office of the Deputy Conservator of Forests stating that the mining lease area is not situated within 10Km radius from the boundary of any protected area in the State of Goa.

PROPER INSPECTION CARRIED OUT WITH RESPECT TO SCHOOLS IN THE NEARBY AREA

81. The Appellant, in Ground 52, has alleged that the proximity of the lease from various schools has not been considered.

82. The Answering Respondent, in the EIA Report at Chapter 7.5.1 and Chapter 10.12, has taken note of the presence of: (i) Manaswada Govt. School, which is located at a distance of 138m with approximately 12 number of students, from which a buffer of 120m will be maintained; and (ii) The Gaonkarwada Govt. School, which is located at a distance of 190m and is non-operational, and has specifically stated the measures which would be taken. It is also specifically stated that "There is no drilling and blasting proposed during the mining operations and as such there is no possibility of fly rock or ground vibrations."

83. Further, a Specific Condition (in addition to standard conditions for mining projects) has been imposed on the Answering Respondent to establish an in-house/at the project site environment laboratory for the measurement of environment parameter with respect to air and water (surface and ground) quality. Such environment laboratory shall consist of environment engineers, laboratory chemist, and staff for monitoring air and water quality parameters on a routine basis [See page 72 of the Appeal paper-book].

PUBLIC HEARING CARRIED OUT IN ACCORDANCE WITH THE EIA NOTIFICATION

84. The Appellant, in Grounds 31, 32, and 53 of the captioned Appeal, has alleged that the public hearing was not conducted properly.

85. At the very outset, it is submitted that the Appellant has, in Ground 31, admitted to having a copy of the EIA Report. Curiously, the same has not been placed on record by the Appellant, in a conscious effort to suppress material facts, and mislead this Hon'ble Tribunal.

86. It may not be out of place to point out that the Appellant himself was present at the public hearing, and raised various queries. The Answering Respondent duly responded to these queries, subsequent to which the EC of the Answering Respondent was taken up for appraisal by the EAC and was recommended for a grant in its meeting held on 26 – 28th December, 2023.

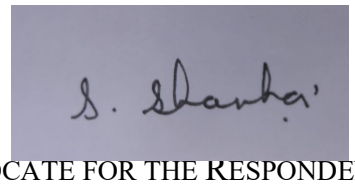
87. Therefore, the aforesaid Grounds are also devoid of merit. The Public Hearing was conducted by the Answering Respondent on 11.08.2023 in accordance with the requirements of the EIA Notification. The Answering Respondent, while responding to a query raised in the EAC meeting held on 21 – 22nd September, informed the EAC that the Goa SPCB by its Letter dated 22.09.2023 has submitted all documents related to the public hearing including a video recording of the same to the Member Secretary, EAC. The EAC, at the said meeting has thereafter, considered the manner in which the public hearing was conducted, noted the response of the Answering Respondent and after careful application of mind, has granted the EC to the Answering Respondent.

88. In this respect, a Specific Condition (in addition to standard conditions for mining projects) has been imposed on the Answering Respondent to allocate a budget of Rs. 309.3 Lakhs to address the concerns raised in the public hearing and the same has to be addressed by the Answering Respondent within 3 years from the date of start of mining operations. Further, it has also been clarified that such activities, taken as part of the public hearing, shall be different from the CSR activities of the Answering Respondent.

89. Hence, any argument as to the public hearing is without basis.

90. In summary, it is submitted that, on a consideration of the EIA Report, and the level of scrutiny to which the same has been put by the EAC, and further the elaborate consideration of grievances raised at the public hearing, coupled with the responses thereto, it is evident that the threshold for judicial review as laid down by the Supreme Court in ***Rajeev Suri*** (supra) i.e., “total absence of mind” is

not met in the instant case. Furthermore, given the elaborate disclosures made in the EIA report, observations of the EAC sub-committee, and so also the queries raised by the EAC and responses thereto, there can be no suggestion whatsoever of concealment against the Answering Respondent herein. .



Dated:20.05.2024
Pune

ADVOCATE FOR THE RESPONDENT NO. 4

BEFORE THE NATIONAL GREEN TRIBUNAL,
WESTERN BENCH AT PUNE
APPEAL NO. 30 of 2024

IN THE MATTER OF:

RAMESH SAZO GAUNS ... APPELLANT

versus

UNION OF INDIA & OTHERS ... RESPONDENTS

AFFIDAVIT

I, Jagdish Ravindranath Desai, son of Ravindranath Govind Desai, major of age, married, Indian National, residing at UG3, B1, Milroc Temple Towers, Opposite Swami Samarth Temple, Merces, Goa, the authorised representative of the Respondent No. 4 in the captioned appeal, do hereby solemnly affirm and declare as under:-

1. That I am the Head Environment – Sesa Goa – Vedanta Limited of the Respondent No. 4 in the captioned matter and hence am aware of the facts of this case and I have been dely authorised, hence I am competent to swear this affidavit.
2. That contents of the accompanying reply at para 1 to 90 have been drafted by my counsel under my instructions and after going through and carefully understanding the same I state the same to be true and correct to the best of my knowledge and belief based on the records of the case available at hand and the legal submissions made therein are based on legal advice which I believe to true. No part thereof is false and nothing material has been concealed therefrom.
3. That the annexures enclosed with the said reply are true and/or typed copies of their respective originals.
4. That the contents of this affidavit are true and correct.

DEPONENT

VERIFICATION

Verified at Panaji, Goa on this 20th day of May, 2024 that the contents of foregoing

affidavit are based on my knowledge and belief and that no part thereof is false and that nothing material has been concealed therefrom.

VEDANTA LIMITED * PANAJI GOA *

DEPONENT

BEFORE ME

SHRI FRANCIS D'SOUZA
NOTARY FOR TISWADI TALUKA
STATE OF GOA (INDIA)

NOTARY Francis D'Souza Tiswadi Taluka Expiry Date 29-3-2029 GOVT OF GOA NOTARIAL

I hereby attest the above signature/~~L.H.I.~~ of ~~Shri/Smt./Miss~~ Jagdish Ramdranath Dhari the deponent above named who has been identified before me by .....who is personally known to me registered under No. 650/2024 Dtd 20.05.2024

ADV. FRANCIS D'SOUZA
NOTARY
KAMAKSHI PRASAD BLDG
THIRD FLOOR, FLAT NO. 304
PATTO, PANAJI
TISWADI GOA - 403 001

ANNEXURE-R4-1

BEFORE THE NATIONAL GREEN TRIBUNAL,

WESTERN ZONE BENCH AT PUNE

APPEAL No. _____OF 2024

IN THE MATTER OF:

RAMESH SAZO GAUNS ....APPELLANT

VERSUS

UNION OF INDIA & OTHERS ....RESPONDENTS

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FILED BY

BISWARANJAN PARAMGURU

ADVOCATE

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BEFORE THE NATIONAL GREEN TRIBUNAL,

WESTERN ZONE BENCH AT PUNE

APPEAL No. _____OF 2024

IN THE MATTER OF:

RAMESH SAZO GAUNS ....APPELLANT

VERSUS

UNION OF INDIA & OTHERS ....RESPONDENTS

Ramesh Sazo Gauns, S/o: Sazo Gauns,
residence of H No. 1724, PazWada,
Near Hira Talkies Theatre, Bicholim,
North Goa, State: Goa, PIN: 403504 .....**APPELLANT**

VERSUS

1. **UNION OF INDIA**

   Ministry of Environment and Forest and Climate Change (MOEF&CC)

   Through the Secretary, Indira Pryabaran Bhawan,

   Jor Bagh Road, New Delhi-110003

   Email:- secy-moef@nic.in

2. Central Pollution Control Board(CPCB)

   The Member Secretary

   Parivesh Bhawan, East Arjun Nagar, Delhi-110032

   Email:- mscb.cpcb@nic.in

3. Goa State Pollution Control Board (GSPCB)
   The Member Secretary

4. M/s VEDANTA LIMITED,

   Sesa Ghor, 20 EDC Complex, Patto,

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Panjim, NORTH GOA, GOA, 403001 ...RESPONDENTS

BRIEF FACTS

1. We strongly object to the commissioning of Block-I Bicholim Mineral Block by Project Proponent (PP)Vedanta Limited on following grounds:

2. PP applied to MoEF & CC for Terms of Reference to Prepare EIA report on 16 March 2023. In their application PP disclosed that their period of baseline data collection lasted from 01 October 2020 to 31 December 2020 covering one post monsoon season. Executive summery (Page 04) of Block-I Bicholim Mineral Block states that MoEF&CC accorded Terms of Reference on 16 June 2023 and Baseline Data was collected during the period from March to May 2023. So there is fraud committed by PP by providing two different dates of periods of baseline data collection. This is indeed a fraud because EIA report does not mention anything about baseline data collection period of 01 October 2020 to 31 December 2020. Moreover that was time of Covid-19 lockdown in Goa. In view of these fraudulent manipulations and inconsistencies observed baseline data collection period is a suspect. PP therefore be directed to prepare fresh EIA without any inconsistencies on period of data collection and conduct fresh Public Hearing as per ToR no.70.

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3. Neither the PP nor the Goa Government has consulted local decision making bodies namely the Panchayats

before going for auctioning of the mine. This way of functioning is completely anti-democratic. We therefore strongly object to the way auctioning process itself has been carried on.

4. We take strong objections to the Reference to this mine in EIA as "Green Field Project". This amangation of 05 mines is operating as per available records from the year 1941 and has completes 82 years of its functioning on 20 August 2023. Moreover as per online sources PP is associated with these Mines from 2009 and as per records with Department of Mines and Geology PP proponents logo appears on large number of correspondence concerning these amalgamated Mines like the letter of Agent M.K. Reddy to the Central Empowered Committee (CEC) dated 14 November 2012 denying illegal mining and encroachment by M/s Dempo & Souza (Sesa Resource). Moreover page 16 of EIA admits that there are totally 5 pits within the proposed mining lease and Table 2.5 even presents details of Active pits. Further Mines Minister and Chief Minister of Goa Dr. Pramod Sawant on 09 August 2023 has stated on the floor of the Goa State Assembly that these amalgamated Mines in under EIA consideration are granted for the same company who used to operate before 2012 Supreme Court ban. Video online Facebook link to the entire mining debate under reference here is available

here: https://fb.watch/mjb2PK3tbt/?mibextid=Ol9HDD

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5. PP therefore inherit all the liabilities of all the five Dempo amalgamated Mines: 11/1941, 12/1941, 13/1941, 14/1941 and 15/1941. Dempo mining corporation private limited was renamed as Sesa Mining Corporation Limited on 18 November 2010. There already exists sufficient evidence of public nuisance and environmental security threats already created by these amalgamated Mines over the past 82 years of which PP is associated directly and indirectly from 2009 for 14 years. Research Article published in Research Journal of Environmental and Earth Sciences 11(1): 1-13, 2019 titled "Impact of Past Iron Ore Mining on the Sediment Ore of Rivers of Goa: West-coast of India by N.T.Rane and V.M. Matta of the Department of Marine Science, Goa University has made critical observations regarding Bicholim River that according to the Executive Summery flows at the distance of 0.23 kms from the Lease boundary carry large amount of polluted water into its waters. Abstract of this scientific study notes "the study revealed that the Bicholim river is strongly polluted with Fe & Pb...High contamination of Fe and MN and considerable contamination for Pb and Cr in Bicholim River sediment core can be attributed to enormous mining activities and discharge of wastes in this region." In the light of this study commissioning of Block-I Bicholim Mineral Block will further aggravate ecological health of Bicholim River that connects Mandovi river. Thus study has been ignored by PP thereby for their ulterior motives to contaminate and pollute Bicholim River.

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6. North Goa Disaster Management Plan 2023 on page 184 foresees landslides due to mining in three Villages due to this amalgamated mine. In Mulgao survey numbers 116 and 117, 80 houses and 55 hectares of land is forecasted to be impacted. In Maem 30 houses and 25 hectares of crops are predicted to be negatively affected. In Sirigao survey numbers 81 & 85 are classified to be likely damaged due to mining triggered landslides. Goa Government has already accepted landslides threats due to mining. Actual threats are much more serious and dangerous. On this ground too Block -I Bicholim Mineral Block must not be permitted to be commissioned.

7. Modification to Approved mining Plan dated 26 October 2017 presented on the floor of the Goa Legislative Assembly by Chief Minister Dr. Pramod Sawant in response to LAQ from Yuri Alemao states name of this mining lease as M.L. No. 08/AMLG(MG-5)SMCL/17. This information is concealed in EIA. Further page no. 07 states that out of 478.5206 Ha lease area of this mining lease 407.7446 Ha is acquired. That means 70.7446 Ha of land is not aquired. Which are the survey numbers and villages where this yet to be aquired land is located? This information is concealed in presented EIA report by PP. Further Page no. 09 of the modification to Approved mining Plan states that Bicholim Amalgamated mine was granted lease on 20 August 1941 and expires on 21 November 2027. All these details are concealed from EIA report. Information furnished in EIA Study is defective and

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misleading and PP be directed to prepare fresh EIA and hold Public Hearing afresh.

8. This amalgamated Mine PP is involved illegal mining activities and owes more than 100 crores of Rupees to the Goa State as revealed from the LAQ discussion on the floor of Goa Legislative Assembly on 09 August 2023. Print copy of the colored Google map attached as Annexure I in the 11/1941 mining lease file at the Goa Department of Mines and Geology, reveals investigations by Shah Commission revealing expansion of mining activities beyond lease boundary taken by hand held GPS and Sesa Goa Limited Lease boundary taken by DGPS. Its illegalities are confirmed. EIA reports has not attached any document certifying that PP are not involved in illegal mining at this amalgamated mining site. This I in violation of ToR no. 07 and among major grounds for rejecting PP application to commission mining at the proposed site.

9. EIA report does take into account destruction of paddy fields, drying of ground water of 60 wells in Sirigao village due to mining activities of the PP together with other two existing Mines of Chowgules and Bandekars. Cummilitive impact of the village due to operation of these Mines is already a mega disaster encompassing human habitation and religious structures. The to Assanora river due to seepage of river water into mining pit is grave and have not been dealt with in adequate manner. Moreover objections of the villagers against commissioning of auctioned Mines in the village filed before the Goa Government authorities

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are ignored by the PP. NEERI report has already proved thar siltation of Sirgao paddy fields is due to mining leases operating in the village including the mine that PP desires to commision.

10. PP has pathetic track record in treatment of people and ecology. They are involved in Nadidihi Iron Ore mine of ESL Steel Limited in Jharkhand, India. Currently people residing nearby are compeled to use polluted and untreated beneficiated water from its mines for drinking purpose.

11. Such glaring violations are carried on by PP by efficient Public Relations. In fact one ex-officer of PP is currently Chairman of the Goa State Pollution Control Board named Mahesh Patil.

12. Conduct of the PP can be understood from the observations made in its Judgement in T.N.Godavarman Thirumulpad....(Petitioner) versus Union of India....(Respondents)and in the matter of Vedanta Alumina Ltd ...(Applicant) of 23 November 2007. Four observations of construction Supreme Court we quote here. (1) NORWAY has dropped British mining and metals group Vedanta Resources from its $ 350 billion oil fund at the recommendation of the Fund's Ethics Council, which blamed it for environmental damage and human rights violations, the Finance Ministry said. (2) Vedanta Resources is accused of having caused environmental damage and contributed to human and labour rights violations. (3) We cannot take the risk of handing over an important asset into the hands of the company unless we

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are satisfied about its credibility. (4) In the corvumstances keeping in mind the totality of the above factors, we are not inclined to clear the Project. Company with such a dubious record must not be allowed to commission the amalgamated lease.

13. Major water bodies such as lakes five lakes in Mulgao and seven lakes in Lamgao village are not included in the baseline data of the presented EIA/EMP report. Lakes in Mulgao occupy 21,050 square meters of land covering survey nos. 71/0, 69/1, 61/2, 257/1 and 117/1. In Lamgao seven lakes cover area of 6,925 square meters of land covering survey nos. 5/18, 8/1, 14/1, 14/3, 22/9 and 25/1. Additionally several fresh water springs in Maem village is excluded from baseline data in EIA. Total lake area amounts to nearly 03 ha. PP be directed to conduct fresh EIA with correct baseline data and go go for fresh Public Hearing.

14. Maem lake springs numbering two dried up. Before the mining pit was excavated for the ore for more than 50 years resulted in drying up of two springs that emptying water into Maem lake. This is because ground water regime got disrupted as the depth of the mining pit increased steadily.

15. In the close proximity of this mining project there are 25 wells in Bicholim with water. PP carried on the study on ground water from the various villages beyond Bicholim Town. Wells are the indicators of the ground water existence in the region. There are at least 25 wells in the close proximity of mining area. Consultants should have

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studied water levels in the wells in the lean period of summer that is May but this is not done as per EIA. Sirigao and Pissurlem are classic example where wells have dried up due to the mining pits which have gone below 50 to 60 meter depth and resulted in drying up of wells. This fact has been denied by all the mining companies in Sirigao that their mining pit caused it. Histoy of wells going dry will repeat in all the wells situated in close proximity to the mine and trigger off blame game between the locals and the PP. PP should have consulted Water Resources Department, Government of Goa on the question of ground water. In Maem at the foot hill of 2 Top Hillock there are 2 small lakes (tanks) which go dry in the month of March, April and May. Springs also dry up due to the mining pit on the other side of 2 Top.

16. EIA Executive summery page 07 states "Mine does not have any forest land within the lease. The area is located on the foot hills of western ghats belt." It is not true that the area is located on the foot hills of the western ghats belt. The distance between this mining project and the foot hills of western ghats is around 22 kms. In the foot hills of the Western Ghats is Taluka of Sattari. Whereas the Bicholim Taluka where this mine is located is Plateau region. Therefore the baseline data appears to be the cut and paste job. Hence this EIA study cannot be accepted for this Public Hearing to avail EC.

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17. EIA Executive summery comment on page 07 "Mine does not have any forest land" is misleading. Name of at least

one of the amalgamated mine 12 of 1941 indicates that there was forest here when the lease was granted 82 years ago. The name of this mine is Vagachiper that mean tiger favoured spot.. Tiger need forest as habitation and this mine was forest in 1941 until mining destroyed the same. Similarly mining lease 14 of 1941 that is part of amalgamated mine is named Toticho mor which means Peacock with a beak. This indicate that then existed forest where there were plenty of Peacocks. There is still Government Forest that is encroached by mining company in Mayem village. Boundary limit of 2 top in Maem is covered under forest land currently under company's illegal possession.

18. Mining as serial disaster:This amalgamated mine has a history of triggering disasters. BIcholim was flooded on 13 June 1981 causing huge damage to the property. Government appointed expert committee to investigate the occurrence of flood in BIcholim. Page 236 of Fish, Curry and Rice: A source book on Goa, its ecology and lifestyle (2002) has reported that government appointed committee concluded that 1981 Bicholim floods were because of nearby mine. Nearby mine then belonged to Dempo Mining Corporation. In Accident of 1991 at Valshi in Bordem wherein 04 pople were killed, 06 injured and 144 farmers lost their paddy crop. Mining accident on 20 November 2011 in Mulgao caused breach of bund leading to siltation of paddy fields, siltation of arecanut plantations and silt entered nearby village temple. There was huge run off in

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2009 at Paj wadda, Bicholim during rainy season. Water gushed down into locality carried mining silt, stones, mud on the entire road from Zantye Cashew factory to the building where LIC office is located. Cause stretched upto Petrol Pump and Shops. Nearly all the houses in Paj wadda had generous deposit of mining silt.

19. Page 07 of Executive Summery notes "The general elevation of ML area varies from 169.14 m to -37.24 m above MSL." With 169.14 m elevated location disasters cannot be managed. In spite of all the precautions disasters are bound to occur. We recommend that since disasters cannot be avoided this mining project must be closed.

20. EIA does not mention anything about beneficiation plan. It gives an impression that ore will be exported without washing. However the approved modified plan tabled in the Goa State Legislative Assembly mentions wet beneficiation plan for at Mine portion at Top Pit 1.

21. Page 16 of EIA notes that the "slope of Overburden and Mineral benches shall be maintained at 70 degree and overall slope of <26 degrees respectively." What is the gradient of highest point of the core zone with respect o Town of Bicholim, River Bicholim, villages of Lamgao, Mulgao, Sirigao, Bordem and Maem? With 3500 mm of rainfall mentioned in the EIA report with 70 degrees gradient of overburden disaster in monsoon season is inevitable with elevation of 169.14 meters. Gradient of mining site without overburden is not given in EIA study.

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22. Page 17 of EIA has Table 2.7 Raw Ore Material (ROM) quantity if given as 3000000 tonnes. According to Vedanta letter dated to the Director General (Statistics), Nagpur ROM was reported as NIL. Letter is filed as page 277/C in Mining lease file of 11/1941 at Goa Department of Mines and Geology. In 2015 there is no ROM and then suddenly PP has reported huge quantity of ROM as 3000000 tones. How this discrepancy can be accounted?.

23. EIA of 2003 of Dempo mining corporation gave ore to waste ration as 1:2.5 and the production of 2 million tonnes per annum. The present PP is trying to win 3 million tonnes per annum and also encountering ore to waste ratio as 1:8.39. This is absurd. Possible the exaggerated figure of the ore to waste ration is intentionally given to go for robbing of ore. Considering that illegalities committed by Vedanta in parts of the world and in India too the possibility of the PP carrying day light robber of Goa's ore is highly possible.

24. Page 149 of EIA at point 4.10 has table that provides trips per day as 1205 tones of iron raw. On calculation it was found that for 30 days it is 36150 tones. Therefore figure for 12 months is 433800 tones. PP has given figure as 3000000 tones. But based on calculations of trips per day annual production doesn't touch half a million tones per annum. The figures given of tones per day and trips per day do not match the quantity given of 3000000 tones.

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25. From 2011 to 2013 Vedanta was alleged by Directorate of Mines and Geology of carrying on illegal mining of 2076746

tones worth Rs. 97.48 crore. Vedanta is habitual perpetrator of economic crimes related to mining. Therefore PP cannot be expected to function at any point without committing illegalities.

26. According to Supreme Court of India Vedanta land for University in Odisha was illegal along Puri and Konark marine drive. Supreme Court stated "It is not appreciable why the government offered such an undue favour in favour of one Trust/Company". Replica of the this situation has happened in Goa. Vedanta owes 100 crore to Goa Government as per the proceedings of the Goa legislative assembly on 09 August 2023.

27. PP has not consulted any bio-diversity registers at any of the 56 Panchayats and 12 Municipalities in core zone and buffer zone of the mine. Therefore flora and fauna baseline data collection method is faulty and strong ground to reject EIA and direct to prepare fresh one with correct method.

28. We hereby suggest that EIA having more than 600 pages to read for a common people is very difficult but beyond that to expect common man to study and participate in the Public Hearing is an impossible task. So either the Pollution Control Board or the consultant of the concern EIAs should bear the responsibility to explain how to study and comprehend technical data by going to the Panchayat or Municipalities. Or if the EIA study exceed 300 pages Public Hearing should be conducted after 60 days.

29. Public Hearing conducted away from the project site

30. Cummilative mining assessment not done

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31. Restoration of Mines not carried on
32. Existence of 12 Lakes within project site including one classified Ramsar site.
33. Project of Bicholim Mines is claimed in EIA Report as located at the foothills of western ghats mountains while foothills are at the distance of 24 kilometers away.
34. It is estimated in EIA Study that Bicholim mine is going to generate rejection of 2.56 crore tonnes per annum. What is going to be the consequences with locality having 400 mm of rainfall in monsoon and hiegth of mining site being 169 meters as per EIA study.
35. EIA study is carried on during Corona lockdown period.
36. After 2018 Goa Foundation judgment All mining companies were required to vacate the Mines as all were found to be functioning illegally.
37. As per section 4-A of MMDR Act 1956 flooding is one of grounds for termination of mining leases. Bucholim Mines has been causing floods often in Bicholim. June 13, 1981 was worst wherein law and order situation collapsed too. Government ordered investigation and found that Bicholim Mines is the cause of flooding. However Mining lease is not terminated.
38. From mining lease Perennial spring flows from government lake known as thorlem tallem (big lake)
39. On record there is 16,000 square meters of lake within mining lease of Bicholim Mines. There is local Panchayat resolution against mining activities affecting this lake. There

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is also Mamlatdar report on lakes withing Bicholim Mines lease area.

40. Additionally at the bottom hindsight of 3 Top where there is forest there are two lakes and five springs.
41. If over burden is dumped out side lease anywhere that is the catchment area of flood prone Bicholim river.
42. Mayem tourist lake and dhabdhaba mining pit distance is hardly 200m and not more than 1km as given in eia.
43. Apart from lakes there are number of perinial springs with perinial flow.
44. There are 5springs within the lease are in lamgao all are perinial.
45. Behind the 3 top foot hill there are 2 lakes 5 perinial springs in maye village and they will be damaged due to the mining pit of the operated mine on the other side I.e. 3 top bottom. These lakes and springs feed hacters of beettl nut plantation as well as paddy cultivation. Both sustainable economic activities give 50 to 60 people an earning source.
46. Lamgao crematorium within the mining lease. Mulgao is on the immediate boundary of lease , gaonkerwada bicholim is in lease area,Bicholim municipal crematori is 60m from mining pit and water storage tank supplying water to the town bicholim is hardly 25m from the lease .these all are not in EIA.

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GROUNDS

That the appellants are filing the present appeal on following amongst other grounds, which the appellant may take up at the time of hearing of the case:

1. Because the right to healthy Environment is part of Article 21 of the constitution.

2. Because the Project Proponent gives contradicting statements on the baseline data collected during Oct to December, 2020. In the MOM of 32nd meeting of the reconstituted EAC(Industry-1) held on 15th -17th March,2021, the Committee observed that " iv. Consultant made contradicting statements on the baseline data collected during Oct to December, 2020 with respect to the prevailing meterologocal conditions, location of sampling stations and parameters monitored for the different environmental Components. vi. Scoping for carrying out cumulative impact assessment including fertiliser concept has not been considered." (Please vide Annexure-22,23&24). This project proponent also failed to Scoping for carrying out cumulative impact assessment including fertiliser concept. Though show cause notice was issued under Section 5 of the Environment (Protection) Act, 1986, on 31st August, 2021, in spite of many allegation against Chanderia Hindusthan Zinc Limited, MOEF & CC wrongly withdraw the show cause notice and failed to take action against the present project proponent.

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3. Because this project proponent gives false data wrt its land as it encroached upon common land in violation of Supreme Court

Judgement Judgement of Supreme Court of India Jagpal Singh & Ors vrs. State of Punjab & Ors, (2011) 11 SCC 396. (Please Vide Annexure 2,3,4,8&13). The Project proponent also gives false information about its green belt.(Vide Annexure13 at Page 321 to 325 & its English translation at Para 9 of the brief facts).

4. Because the expansion of the project proponent should not be allowed as there is no sufficient water for industrial purpose use. That artificial rain fall through cloud seeding was made due to lack of water in Ghosunda Dam as there is no water for agriculture and drinking purpose. (Please vide

Annexure-20 at page 365-372).

5. Because the project proponent superficially and wrongly choose the site Biliya over Debari, Zawar, Dariba and decided to set up the proposed industry in the green belt area of the Parent Industry. The Project Proponent failed to analyse the alternative land site comprehensively in true sense. The

alternative analysis is not carried out on various possible sites based on the environmental, economic and geographical consideration. The analysis of each site with suitability assessment should be done as per: Site Suitability Assessment. Land, water,Power, grid, Raw Material, Network, Environment Sensitivity. The above named industry failed to consider the above Technical, location and environmental sensitivity while selecting the most suitable location for this proposed project. The proponent failed to consider other

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feasible approaches including alternative project locations, scales, processes, layouts, operating condition and the no action option.

6. Because Environmental Clearance granted by MOEF to the above named project proponent for setting up Ammonium Phosphate Fertiliser Complex of 1.02 MTPA in the Green belt Area of its Parent Industry at Village Biliya, Tehsil and District: Chittorgarh, State:Rajasthan.

7. Because the Project Proponent failed to conduct the Cumulative Impactm Assessment Study while decide to set up a new industry to come in an area which is already an industrial estate having a lot of polluting industries and non-conducting of such a study and suppression of certain material facts by the project proponent will be a ground of setting aside the environment

clearance.

8. Because the Project Proponent failed to adopt all precautionary methods to combat the irreversible impact on Environment. Villagers who reside surrounding its Parent industry HZL, Biliya suffers a lot due to the pollution committed by the HZL,Biliya. Under Section 20 of the National Green Tribunal Act, 2010, the Tribunal after considering these aspects apply the principle of Sustainable Development, Precautionary Principle, Polluter Pay Principle and Inter-generation Equity Principle etc. and only if this Tribunal found that coming up of such industry in spite of applying all such precautionary methods will have irreversible impact on environment, then only the Tribunal can prevent such units being coming up in a particular area. There is no

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dispute regarding the principle laid down in the decisions reported in Namit Sharma vs. Union of India (2013) 1 SCC 745, Ravi yashwant Goel vs. Collector 2004 SCC 407 Maharashtra State Board of Secondary Education vs. K.S. Gandhi (1991) 2 SCC 716 and Samdha vs. Union of India & Ors. 2014 All India NGT Reporter 1 South Zone page 1 of the National Green Tribunal.

9. Because the Project Proponent failed to conduct ambient air quality modelling with all respect and also failed to conduct study with the purpose of getting Environmental Clearance and also failed to identify the deficiency. In the decision rendered by the Principal Bench in Appeal No. 50/2012

T.Murganadan & Ors vs. Union of India & Ors had considered the necessity for conducting ambient air quality modelling and what are all the things to be looked into for the purpose of conducting study and if there is any deficiencies in the same, what is the nature of directions to be given etc. The environment clearance granted to IL&FS Tamil Nadu Power limited based on imported coal was considered in that case in an Appeal filed earlier when the environment clearance was granted on 31.05.2010 was under challenge and the Tribunal by Judgment dated 23.05.2012 in (Appeal No. 17/2011) passed the following directions: "However, we direct MoEF to review the EC based on the cumulative impact assessment study and stipulate any additional environmental conditions if required. Updated EIA report may be shared with Appellants and they may be invited in the EAC meeting and may be heard before a

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decision is taken by EAC/MoEF, till then the EC shall remain suspended."

10.Because it is clear from the above decision that the necessity for conducting the Cumulative Impact Assessment Study is a must for considering the question of allowing a new industry to come in an area which is already an industrial estate having a lot of polluting industries and non-conducting of such a study and suppression of certain material facts by the project proponent will be a ground of setting aside the environment clearance or suspending the environment clearance and direct the project proponent to conduct further study on that aspect and revisit these aspects by the

recommending and issuing authority and impose further condition, if any, necessary.

11.Because in the decision of Principal Bench in Appeal No. 07/2011-Krishi Vigyan Arogya Sanstha & Ors. Vs. Union of India & Ors. regarding the necessity for conducting Radio Activity Study in respect of coal to be used on the basis of the specific coal availability which is to be used as fuel by the proposed thermal power plant was considered and disposed of Appeal with following directions: "However, the Environmental Impact Assessment as well as Expert Appraisal Committee have completely ignored by objections raised by Mr. Paliwal and others regarding nuclear radiation that would be caused by the proposed project. But we are of the opinion that in a project of this nature, as stated by Mr. Paliwal, in the public hearing, the effect of nuclear radiation was neither studied nor examined and

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it was simply brushed aside in the arguments before this Tribunal stating that there was no necessity of examining the project from nuclear radiation point of view as no such plant would cause nuclear 46 radiation which harms the human habitation or the environmental ecology in the surrounding area. .... 10.Taking all the above into consideration, we are of the considered opinion that this appeal requires to be disposed of with the following directions keeping in view the principles of sustainable development and precautionary principle.

a. The first respondent, Ministry of Environment and Forests is directed to look into the matter as to long term impacts caused by nuclear radiation from the thermal power projects, by instituting a scientific long term study involving Bhabha Atomic Research Agency or any such other recognised scientific institution dealing with nuclear radiation with reference to the coal ash generated by thermal power project (Respondent no. 3) particularly the cumulative effect of a number of thermal power project located in the area on human habitation and environment and ecology. The study shall also take into consideration the health profile of the residents within the area in which the pollutants are expected to spread from the thermal power project. ....

c. The Ministry of Environment and Forests shall include in the Terms of Reference of all the future projects asking the proponent to furnish details of possible nuclear radio-activity levels of the coal proposed to be used for the thermal power plant.

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d. The Ministry of Environment and Forests shall get the national standards prescribed, if not already available, from the Department of Atomic Energy, Government of India within a period of one year from the date or receipt of this order, as to permissible levels of nuclear radiation in residential, industrial and ecologically sensitive areas of the country.

12.Because proper public consultation was not done properly. There was illegality or impropriety committed by the project proponent or the authorities in conducting the public consultation as required under EIA Notification, 2006. There is no Proper study about the impact on agricultural fields in terms of heavy metal in food chain and ground water/soil. Detailed report not furnished on water drawl, water channels and diversion duly certified by the Irrigation & Flood Control Department of the State Government, Satellite map showing the existing green belt in minimum 33% area. Regarding occupational health, no extensive study or survey conducted by this project proponent.

13.Because the Project Proponent failed to conduct study regarding the impact on agricultural fields in terms of heavy metal in food chain and ground water/soil for a period of one year and the report submitted to the Ministry.

14.Because as regards the health study is concerned, the project proponent failed to conduct a details of epidemic health survey of individuals in 15 km radius of the project area by the NEERI

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15.Because there was no proper health study conducted and on that ground the environment clearance has to be set aside. Because as a Precautionary Principle such a regular study to be conducted by the unit in future and remedial measures will have to be taken for providing necessary health care to the people who are likely to be affected on account of such activity if it is reported.

16.Because as regards the extraction of ground water is concerned, there was no study conducted by the expert agency appointed to prepare the environment impact assessment report regarding the amount of ground water to be extracted for the purpose of construction activities and that report has not been specifically envisaged or anticipated in the environment impact assessment report and that has not been considered either by the Expert Appraisal Committee or by the MoEF&CC.

17.Because it is highly necessary to conduct environment impact assessment on the basis of the radio-activity and heavy metal presence in the coal to be used and that must be made available for appraisal by the Expert Appraisal Committee and the MoEF&CC before recommending or issuing theclearance to the proposed project.

18.Because the parent industry HZL, Biliya of Project Proponent failed to install the FGD system and Nox control measures such as SCR/SCNR/De-NOX burners to achieve the revised emission norms. Thus pollutes the environment a lot.

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19.Because the Project Proponent failed to conduct a study wrt the Cumulative impacts including the rise in temperature within 15 kms.

20.Because the Project Proponent failed to analyse the Cumulative impact of all sources of emissions (including transportation) on the AAQ of the area. The air quality contours should be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any.

21.Because the Project Proponent failed to conduct analysis of total impact resulting from the interaction of the project with other project activities around it-past, present and those to come up in future. The necessity for conducting Ambient Air Quality Modelling in a cumulative manner takinginto consideration the institutions available in the locality. In T. Muruganandam & Ors. Vs. Union of India & Ors Appeal No. 50 of 2012 as follows: "41.... Thus, the cumulative Impact as the term indicates is not the impact of any project in isolation but it is a total impact resulting from the

interaction of the project with other project activities around it-past, present and those to come up in future. It is a comprehensive view of the impacts resulting from all the projects- past, present or planned ones on the environment. Cumulative Impact may be same or different and those arising out of individual activities and tend to be larger, long lasting and spread over a greater area within the individual impact. Such studies are therefore commonly expected to: 1. Assess effects over a larger area that may cross jurisdiction boundaries; 69 2. Assess effects during a longer period of timeinto the

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past and future; 3. Consider effects on other eco-system components due to interactions with other actions and not just the effect of the single action under review; 4. Include other past, existing and future (reasonably foreseeable) action; and 5. Evaluate significant effect in consideration of other than just local and direct effects." 56. Further it will be seen from the

EIA study conducted that number of locations taken were only four depending upon the wind which reads as follows: Table-3.4.1 DETAILS OF

AMBIENT AIR QUALITY MONITORING LOCATIONS Station Code Name of the Station Distance w.r.t proposed plant (Km) Direction w.r.t proposed plant Zone Environmen tal Setting AAQ1 Proposed plant site ---- -- -- Industrial -- AAQ2 Mallialpall i 2.5 W Residential Downwind AAQ3 Malkapur 1.8 NE Residential Upwind AAQ4 Near FCI Gate 2.1 SE Residential Crosswind 57. Further, they have only taken distance of 2 to 3 kms only for even locating the areas where study has to be conducted.

22.Because the Project Proponent failed to conduct a modelling study though primary data was collected for one season and also failed to mathematically calculate the impact after taking into the account the secondary data for different seasons in respect of 15 kms radius taking into account all industries operating and proposed to start during that time. Such an exercise was also not properly conducted by the Expert agency appointed by the project proponent.

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23.Because the MoEF&CC failed to direct the project proponent to conduct a proper cumulative impact assessment of ambient air quality modelling taking into account 15 km radius and also taking more numbers of location in different areas within 15 km radius depending upon the nature of polluting industries located including its parent industry HZL,Biliya.

24.Because the Parent Organisation of the Project Proponent, HZL failed to install FGD for considering the impact of fly ash and minimise the impact of fly ash in respect of SO2 and NOX no, study was conducted regarding the nature of technology to be applied by the project proponent in this regard except stating that they are committed to implement the directions issued by the MOEF&CC for installation of FGD for their unit. The present Industry pollutes the Environment, Agricultural field by emitting the pollutant gases beyond prescribed limit.

25.Because the project proponent failed to submit the report wrt the water quality also shows that there are certain aspects where the criteria is not confirmed with the standard provided and number of other metals were also not considered while conducting the impact of discharge of water from such units.

26.Because the Project Proponent failed to conduct a detailed study wrt the quantity of water that they are going to use and the quantity of waste water to be generated and how much they are going to reuse or recycling and other purposes without discharging the same to show that there will not be waste water available for discharging

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the same either into the water bodies even during monsoon season which was expected to be discharged on the ground as per EIA report submitted by them. So under such circumstances, the details regarding the same, at least on mathematical basis though not on actual precise calculation has to be conducted for studying the hydrogeological impact on ground water and the water bodies in that area.

27.Because MOEF& CC failed to sufficient applying its mind wrt the Precautionary Principle and Sustainable Development while granting the clearance. Because the project proponent failed to have a wider study of probable impact that is likely to be caused and mitigation measures taken by them are sufficient to meet the same for this purpose and that must be satisfied by the authorities before granting the clearance.

28. The project proponent failed to conduct cumulative impact assessment of ambient air quality modelling for a radius of 15 kms from the project area by collecting primary data regarding air quality for another season other than the winter season during the relevant period and also taking more number of locations within 15 kms radius selecting the probable polluting industries situated and the impact of the present as the proposed projects

29. Because Gramsabha unanimously opposed the project proponent for setting up its new plant in its green belt area as present plant is a serial polluter, for which the community who reside near HZL suffers from various diseases.

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30.Because the Project proponent failed to conduct the Environmental impact assessment as per the Environmental Impact Assessment Notifiction, 2006. The project proponent while assessing the environmental impact of the proposed project failed to analyse the social impact, Environmental risk, Health Impact, Regulatory impact, Species Impact, technology, Economic, Cumulative impact, Strategic Environmental Integrated Impact, Life Cycle Analysis and Energy Analysis. The project proponent got the Environmental Clearance in clear violation of the requirements of EIA Notification, 2006.

31.Because the project proponent failed to study on soil characteristics, existing

land use and topography, landscape and drainage patterns within the impact zone. Estimation of

impacts of project on land use, landscape, topography, drainage and hydrology. Identification of potential utility of treated effluent in land application and subsequent impacts. Estimation and Characterisation of solid wastes and delineation of management options for minimisation of waste and environmentally compatible disposal.

32.Because the action of RPCB is a glaring example of non-application of mind and flagrant violation of the principle of natural justice.

33.The appeal filed against the project proponent on the grounds that the public hearing was not conducted properly. MOEF had failed to verify the information regarding source of irrigation, proximity of agricultural land, presence of corridor through the reserved forest for

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wild life, distance of the project from the wildlife sanctuary and national park, depth of ground water.

34.The project proponent also failed to determine the meaning and interpretation of the expression residential area. Residential area includes an educational institution. The guidelines issued by pollution control board that an 'A' category project cannot be permitted to be established within 500 mtrs of an educational institution is clearly violated.

35.Because the respondents failed to conduct fresh inspection wrt the air, noise and water pollution keeping in view the proximity of the school nearby the Project area.

36.Because the present EIA Report of the project proponent is not scientific, trustworthy and unambiguous. The Respondents failed to conduct the Public hearing, on the principles of participatory democracy and also failed to ensure the community participation and the voice of affected persons is heard and respected. The respondents failed to comply the mandatory requirement for a proper and valid public hearing, hence, the entire process of grant of EC was vitiated true sense.

37.Because the Project proponent failed to conduct the EIA Studies in all respect.

1.Site Selection Studies:The project Proponent failed to evaluate the alternative sites with respect to Environmental and project attributes and also failed to rank site alternatives for objective decision making.

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2. Regional Studies: The Project proponent failed to develop a region based on seasonal data collection and address themselves to the analysis of assimilative capacity of air, water and land components of the environment.

38.Because the Rajsthan Pollution Control Board failed to periodically monitor the project to ensure that the ground water is not utilised for the project. The project proponent failed to engage a Competent Environment consultant for conducting primary socio Economic survey in the area of influence, wherein, special attention shall be paid to cover the details of progressive farmers and

cultivation practices.

39.Public Consultation and participation Because the appellants challenged the environmental clearance granted by MOEF in favour of HZL, Biliya on the ground that the necessary and proper public hearing was not conducted in true sense during the process of grant of Environmental Clearance. The EIA Notification, 2006 was applicable to the facts of the case. The environmental clearance was challenged on the ground that despite serious objections concerning environment raised during the public hearing, the clearance has been granted in favour of the project proponent without considering the adverse impact upon the villagers of the villages surrounding HZL, Biliya. In view of the precautionary principle and sustainable development approach, the cumulative impact assessment studies are required to be done in order to suggest adequate measures and environmental safeguards to avoid any adverse impact on ecologically

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fragile eco-system of the Chittorgarh Area. Video recording-the said public hearing was nothing but a mockery of the concept of public hearing. The persons raised slogans against the proposed project and were forcefully driven out from the venue of public hearing upon use of police force. No proper opportunity was given to the local inhabitants to submit their objections during the course of public hearing. The district administration abruptly declared that the proceedings to have been properly conducted and completed and submitted its report wrt public hearing. The present case is a classic example of violation of rules and principles of natural justice and the public hearing should be declared to be nullity in the eye of law.

40.Because the Villagers raised strong objections against the action of EIA Consultant of this project proponent who furnished false details with regard to the Green belt and villages surrounding HZL.

41.Because the respondents failed to address the issue with respect to the severe pollution committed by the parent industry HZL, Biliya, which is a serial polluter industry.

42.Because the order of MOEF granting Environmental Clearance to this Project Proponent was found to be violative of the principles of natural justice but also arbitrary in nature.

43.Because the environmental clearance was granted to the project proponent without properly examining the environmental problems and threat to the community at large. Neither the public hearing was conducted properly nor did the concerns raised on behalf of the villagers regarding the pollution cause to the river, which flows

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adjacent to HZL, Biliya, were taken into account by the Environmental Assessment Committee. It was alleged that even after grant of Environmental Clearance, the parent industry was not properly managed nor any precautionary measure was suggested by the authorities were adhered to by the project proponent. The appellants appealed, therefore, that in view of the illegalities and irregularities committed by the respondents, the environmental clearance should be quashed and set aside.

44.Because while applying all the three principles of Section 20 of NGT Act i.e. Sustainable development, Precautionary measures and Polluter pay principle, the Hon'ble tribunal be requested to quash the EC already granted to the project proponent as Chittorgarh area is an over exploited area.

45.Because the project proponent failed to capture, store, manipulate, analyse, manage and present all type of geographical data with respect to the Bilia Village and its surrounding areas and especially the community at large. The respondents also failed to analyse the geospatial data in determining the location of features and relationships to other features, where the most and/or least of some features exists, the density of features in a given space, what is happening in the area of interest (AOI), what is happening nearby some feature or phenomenon and how a specific area has changed over time and in what way. The respondents failed to map the spatial location of real-world features and visualize the spatial relationships among them. The respondents also failed to map concentrations, or a quantity normalized by area of total number. The respondents also

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failed to determine what is happening or what features are located inside a specific area/region. They also failed to determine the characteristics of "inside"by creating specific criteria to define an Area of Interest. The respondents also failed to map the change in a specific geographic area to anticipate future condition.

46. Because the project proponent failed to assess the impact on the local community including demographic changes, economic status, human health and increased traffic.

47.Because the project proponent failed to identify the possible alternatives and environmental & environmental attributes for its project. For every project, possible alternatives need to be identified and environmental attributes compared. The alternatives identified must cover

project location and process technologies including the no-project option and the alternatives need to be ranked for selection on the basis of optimum economic benefits to the community at large. Once the alternatives have been reviewed, a mitigation plan supplemented with an environmental management plan(EMP) needs to be drawn up for the selected option to guide the proponent towards environmental improvements. Note that the EMP is a crucial input to monitoring the clearance conditions, and therefore, it must contain the details of monitoring. A EIA report, thus, needs to provide clear Information to the decision-maker on the different environmental scenarios without the project, with the project and with project alternatives. This includes uncertainties. MOEF has issued sectoral

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guidelines and environmental appraisal questionnaires for obtaining the clearance and seeks the following documents.

LIMITATION

This Application is filed under section 16 of the National Green Tribunal Act, 2010, since it involves substantial question relating to environment and also involves prayer for quashing the order of MOEF&CC granting Environmental Clearance to the above named project proponent. This present appeal is filed before the Hon'ble tribunal within limitation period.

PRAYER

In the facts and circumstances stated above, it is therefore, most respectfully prayed that this Hon'ble Tribunal may be pleased

a. to quash and set aside the Order of MOEF granting Environmental Clearance dated 23.01.2023 to M/s Vedanta Limited Bicholim Mineral Block- Block 1 (Auction Block) of M/s Vedanta Limited for mining of Iron Ore with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA(Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located atBicholim, Bordem, Lamgao, Mulgoa, Mayem&Sirigao Villages of Bicholim Taluka of North Goa District, Goa

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NOTARY
Ramesh L Gauns
Bicholim Taluka
Regd. No. 207
Exp Dt
14/10/2024
GOVT. OF GOA/INDIA

BEFORE THE NATIONAL GREEN TRIBUNAL, WESTERN ZONE BENCH AT PUNE

Appeal No. _____OF 2024

IN THE MATTER OF:

RAMESH SAZO GAUNS ....APPELLANT

Vrs

UNION OF INDIA & OTHERS ....RESPONDENTS

AFFIDAVIT

I, Ramesh Sazo Gauns, S/o: Sazo Gauns, the above named deponent, residence of H No. 1724, Paz Wada, Near Hira Talkies Theatre, Bicholim, North Goa, State: Goa, PIN: 403504 do hereby solemnly affirm and declare as under:

1. That I am the Appellant in this Appeal and I am fully conversant with the facts and circumstances of this Appeal.

2. That, I state that, I have read and understood the contents of this Appeal which have been drafted under my instructions and I state that

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the contents of the same are true to the best of my knowledge and belief, and have been read over and explained to me in my vernacular language.

DEPONENT

VERIFICATION

Verified on 08/01/2024 that the contents of the above mentioned affidavit are true and correct to the best of my knowledge and belief. No part of it is false and nothing material has been concealed therefrom.

DEPONENT

SOLEMNLY AFFIRMED BEFORE ME BY
Shri. Ramesh Sago
Gaunsmo Bicholim
known to me personally and who is personally known to me on this 22nd day of February year 2024
at the office of the notary at Bicholim
Registration No. 1053/2024

22/2/2024
SHRI. R. L. MAPARI
ADVOCATE & NOTARY
BICHOLIM - GOA

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सत्यमेव जयते

File No.: IA-J-11015/3/2023-IA-II(NCM)
Government of India
Ministry of Environment, Forest and Climate Change
IA Division
***

Dated **23/01/2024**

To,

M/s VEDANTA LIMITED
Sesa Ghor, 20 EDC Complex, Patto, Panjim, NORTH GOA, GOA, 403001
MK.Reddy@vedanta.co.in

Subject: **Bicholim Mineral Block- Block 1 (Auction Block) of M/s Vedanta Limited for mining of Iron Ore with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA(Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located atBicholim, Bordem, Lamgao, Mulgoa, Mayem&Sirigao Villages of Bicholim Taluka of North Goa District, Goa - Environmental Clearance (EC) - reg.**

Sir/Madam,

This has reference to the online proposal no. IA/GA/MIN/442593/2023 dated 1.09.2023 for grant of Environmental Clearance (EC) to the project for Bicholim Mineral Block- Block 1 (Auction Block) of M/s Vedanta Limited for mining of Iron Ore with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA(Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located atBicholim, Bordem, Lamgao, Mulgoa, Mayem&Sirigao Villages of Bicholim Taluka of North Goa District, Goa.

2. The particulars of the proposal are as below :

(i) EC Identification No.	EC23A0000GA5507405N
(ii) File No.	IA-J-11015/3/2023-IA-II(NCM)
(iii) Clearance Type	Fresh EC
(iv) Category	A
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vi) Sector	Non-Coal Mining
(vii) Name of Project	Block 1- Bicholim Mineral Block for Iron Ore
(ix) Location of Project (District, State)	NORTH GOA, GOA
(x) Issuing Authority	MoEF&CC
(xii) Applicability of General Conditions	No

3. In view of the particulars given in the Para 1 above, the project proposal interalia including Form-1(Part A, B and C)/

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EIA & EMP Reports were submitted to the MoEF&CC for an appraisal by the EAC under the provision of EIA notification 2006 and its subsequent amendments.

4. The above-mentioned proposal has been considered by EAC in the meeting held on 22.09.2023 and 26.12.2023. The minutes of the meeting and all the project documents are available on PARIVESH portal which can be accessed from the PARIVESH portal by scanning the QR Code above.

5. The EAC, After detailed deliberations made by the Project Proponent and the EIA Consultant, the EAC in its meeting held during 26th December, 2023 under the provisions of EIA Notification 2006 and its subsequent amendments, **recommended** the proposal for grant of Environmental Clearance (EC) to Bicholim Mineral Block- Block 1 (Auction Block) of M/s Vedanta Limited for mining of Iron Ore with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA(Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located at Bicholim, Bordem, Lamgao, Mulgoa, Mayem & Sirigao Villages of Bicholim Taluka of North Goa District, Goa subject to the following certain specific conditions in addition to the standard EC conditions applicable for non-coal mining projects (Annexure 1).

6. The matter was examined in the EAC in accordance with the Environmental Impact Assessment Notification, 2006 and further amendments thereto and the undersigned is directed to say that the Ministry of Environment Forest & Climate Change after accepting the recommendation of EAC in its meeting held during 26th December, 2023 hereby accords the Environmental Clearance (EC) to M/s Vedanta Limited for Bicholim Mineral Block- Block 1 (Auction Block) for mining of Iron Ore with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA(Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located atBicholim, Bordem, Lamgao, Mulgoa, Mayem&Sirigao Villages of Bicholim Taluka of North Goa District, Goa, subject to compliance of the terms & conditions and the environmental safeguards mentioned at Annexure 1.

7. The Ministry reserves the right to stipulate additional conditions, if found necessary.

8. The Environmental Clearance to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.

9. The PP is under obligation to implement commitments made in the Environment Management Plan, which forms part of this EC.

10. The project proponent shall prominently advertise it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days indicating that the project has been accorded environment clearance and the details of MoEF&CC website where it is displayed.

11. The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn must display the same for 30 days from the date of receipt.

12. The project proponent shall have a well laid down environmental policy duly approved by the Board of Directors (in case of Company) or competent authority, duly prescribing standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest / wildlife norms / conditions.

13. Action plan for implementing EMP and environmental conditions along with responsibility matrix of the project proponent (during construction phase) and authorized entity mandated with compliance of conditions (during operational phase) shall be prepared. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Six monthly progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six-Monthly Compliance Report.

14. Concealing factual data or submission of false/fabricated data may result in revocation of this environmental

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clearance and attract action under the provisions of Environment (Protection) Act, 1986.

15. The Regional Office of this MoEF&CCshall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.

16. Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

17. This issue with an approval of the Competent Authority.

Copy To

1. **The Secretary,** Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. **The Secretary,** Department of Mines and Geology, Ground Floor of Institute Menezes Braganza, Government of Goa.
3. **The Director,** Department of Environment and Climate Change (DoE and CC), Government of Goa.
4. **The Secretary,** Department of Forests, Government of Goa, Goa Van Bhavan, Goa.
5. **The Chief Wildlife Warden**, Goa Van Bhavan, Forest Department, Altinho, Panaji Goa. 403001.
6. **The Deputy Director General of Forests (C)**, Ministry of Env., Forest and Climate Change, Integrated Regional Office, Kendriya Sadan, 4th Floor, E&F Wings, 17th Main Road, Koramangala II Block, Bangalore - 560034.
7. **The Member Secretary,** Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
8. **The Member Secretary,** Central Ground Water Authority, 18/11, Jam Nagar House, Man Singh Road, New Delhi-110011.
9. **The Member Secretary,** Goa State Pollution Control Board, Nr. Pilerne Industrial Estate, Opp. Saligao Seminary, Saligao, Goa 403511.
10. **The Controller General,** Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur- 440 001.
11. **The District Collector**, North Goa District, Government of Goa.
12. **Guard File**.
13. **PARIVESH Portal.**

Annexure 1

Specific EC Conditions for (Mining Of Minerals)

1. Court Case

S. No	EC Conditions
1.1	The instant Environmental Clearance (EC) is subject to the outcome of the WP 592 of 2022 (MSPL v. State of Goa & Ors.) regarding challenging the constitutionality of the tender documents of Phase I auction of Goa mines and PIL WP 2029/2023 (F) (Suresh Govind Gaonkar & Ors v. Directorate of Mines and Geology & Ors) regarding challenging the state's decision to go ahead with the auction of the mining block.

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2. Environment Monitoring & Reporting

S. No	EC Conditions
2.1	The Project Proponent shall monitor the air quality, noise level, water quality, water level and ground vibration during drilling and blasting at the edge of the mine, near the village, crusher and at other sensitive receptors and such collected data shall be submitted quarterly to the Ministry's Regional Office.

3. Public Hearing Concerns

S. No	EC Conditions
3.1	The budget of Rs 309.3 Lakhs to address the concerns raised by the public in the public consultation to be completed within 3 years from the date of start of mining operations. PP shall comply with all action plans made for public hearing concerns and make regular maintenance and record the progressive activity outcomes. The Project proponent shall ensure that the activities proposed under the public hearing is different from the CSR activities.

4. Awareness On Single Use Plastic (Sup)

S. No	EC Conditions
4.1	The Project Proponent shall create awareness among the local people working within the project area as well as its surrounding area on the ban of Single Use Plastic (SUP) in order to ensure the compliance of Notification published by MoEF&CC on 12/08/2021. A report, along with photographs, on the measures taken shall also be included in the six monthly compliance report.

5. Implementation Of Emp

S. No	EC Conditions
5.1	The Project Proponent should adopt the proper mitigation measures as proposed under EMP with budgetary provision of Rs 72 Cr. The adoption of mitigation measures and monitoring of the same as proposed in the EMP shall be done under the supervision of the qualified environmental personnel. The implementation status of the same shall be submitted to the Ministry's Regional Office.
5.2	The Project Proponent should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground). A dedicated team to oversee environment management shall be setup at site which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis instead of engaging environment monitoring laboratories/consultants. Any non-compliance or infringement should be reported to the concerned authority.

6. Cleaner Production

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S. No	EC Conditions
6.1	The Project Proponent shall explore the possibility of using atleast 20% of Electric vehicles/CNG/Solar instead of diesel operation within three years.

7. Permission For Groundwater Withdrawal

S. No	EC Conditions
7.1	NoC from the Central Ground Water Authority (CGWA)/ Concerned Local authority, as the case may be, shall be obtained before drawing the ground water for the project activities. State Pollution Control Board / Pollution Control Committees shall not issue the Consent to Operate (CTO) under Air (Prevention and Control of Pollution) Act and Water (Prevention and Control of Pollution) Act till the project proponent shall obtain such permission.

8. Training Program

S. No	EC Conditions
8.1	The Project Proponent shall also organize employment-based apprenticeship/ internship training program every year with appropriate stipend for the youth and other programs to enhance the skill of the local people. The data should be maintained for the training imparted to the persons and the outcome of the training, for the assessment of the training program should be analyzed periodically and improved accordingly. The preference shall be given to the local people for the purpose of employment as committed before the EAC.

9. Occupational Health Checkup

S. No	EC Conditions
9.1	The Project Proponent should periodically monitor and maintain the health records of the mine workers digitally prior to mining operations, at the time of operation of mine and post mining operations. Regular surveillance on occupational health shall be carried out every year for mine workers. PP shall also organize medical camp for the benefit of the local people and also the monitor the health impacts due to mining activity.

10. Regrassing

S. No	EC Conditions
10.1	The mining lease holders shall, after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. The implementation report of the above said condition shall be submitted to the Ministry's Regional Office.

11. Capping

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S. No	EC Conditions
11.1	The Hon'ble Supreme Court has imposed a capping on mining of iron ore to 20 MTPA for the entire State of Goa. Accordingly, the Project Proponent shall first obtain the necessary permission from the competent authority with regard to the amount of mineral they can mine per year, before starting its mining operation.

12. Common Boundary

S. No	EC Conditions
12.1	The Project Proponent needs to obtain prior permission from the MoEF&CC for mining in common boundary as and when required.

13. Conveyor Belt

S. No	EC Conditions
13.1	As committed before the EAC, the Project Proponent needs to explore the feasibility for installing conveyor belt system for transportation.

14. Ecology Restoration

S. No	EC Conditions
14.1	The mined out pits will be converted into water reservoirs, pond with other ecotourism facilities like water sports, boating, fishing etc., Pisciculture in mine pits will be developed and also the local community will be involved for cage fishing to make it a commercially viable venture.
14.2	The ecology restoration or mine reclamation activities shall be carried out concurrently with mining operations. The Project Proponent shall ensure that the restoration models demonstrated before the EAC shall be developed in association with research institutes like NEERI, Goa University etc.

15. Surface Water Monitoring

S. No	EC Conditions
15.1	Regular monitoring and analysis of discharge water and at upstream and downstream of Bicholim and Asnora river needs to be carried out quarterly through NABL/MoEF&CC accredited laboratory.

16. Green Belt And Plantation

S. No	EC Conditions
16.1	Extensive native fruit bearing plantation shall be carried out in all safety zones with density of 2500 trees/ha.
16.2	The Project Proponent needs to complete the entire peripheral plantation under green belt, safety

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S. No	EC Conditions
	barrier plantation and gap plantation within three years from the start of mining operations. The Project Proponent should plant quality sapling of appropriate height of native and fruit bearing species. In case of tall transplants (seedlings) the seedlings should have proper trained root stock with root biomass commensurate with seedling height to ensure good growth after out planting. Plantation shall be undertaken in consultation with the State Forest Department. The Project Proponent shall make the actual count on the saplings planted and its survival rate and in case of failure of achievement of 95% survival rate, action plan for achieving the target survival rate shall be submitted to the Ministry's Regional Office.

17. Soil Erosion

S. No	EC Conditions
17.1	The waste dump slopes shall be covered with laterite material and then with biodegradable geotextile mats to prevent the soil erosion of the dump slopes so as to facilitate the growth of native species.

18. Air Pollution

S. No	EC Conditions
18.1	The Project Proponent needs to install the permanent water sprinklers along 3.40 km haul road within the ML area and 2.80 km length outside the ML area on either side of the road.
18.2	As committed by the Project Proponent, existing trucks of 10.5 Tonnes shall be replaced with higher capacity trucks of 25 Tonnes in phased manner to reduce traffic load and emissions per tonne/km.
18.3	Fugitive dust monitoring during transportation shall be monitored regularly at all the sensitive receptors and report shall be submitted quarterly to the Regional Office of MoEF&CC. Regular sprinkling shall be done on roads to suppress the dust at the source.
18.4	The Project Proponent shall adhere to the pollution control measures suggested by the Central Pollution Control Board (CPCB) in the environmental guidelines for crushing/screening activity.

19. Wheel Washing

S. No	EC Conditions
19.1	The wheel washing facility for the ore transport vehicles shall be provided at the exit point of the mine.

20. Underpass

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S. No	EC Conditions
20.1	The Project Proponent needs to speed up the process of construction of underpass.

21. Settling Pond

S. No	EC Conditions
21.1	The Project Proponent needs to strengthen the settling pond with proper stone pitching in line with the design of settling pond considering the annual rainfall, flow rate, catchment area and its discharge.
21.2	The catch drains and siltation ponds needs to be regularly maintained to arrest silt and sediments flow from dumps.

22. Nursery

S. No	EC Conditions
22.1	The Project Proponent needs to develop a nursery adjacent to the mineral block (Survey no 72/4 in Bicholim Village) for an area of about 1100 sq.m in consultation with State Forest Department. PP shall develop theme-based gardens like medicinal gardens, horticulture gardens, spice gardens etc.,

23. Crushing/screening

S. No	EC Conditions
23.1	The Project Proponent needs to modify the crushing & screening units within 4 months from the date of issue of this EC.

24. Conservation Of Wildlife

S. No	EC Conditions
24.1	The Project Proponent needs to use modern equipment's such as Camera Traps for ensuring presence and movement of wild animals in the vicinity of the mine lease area as well as in study area in consultation with Wildlife Wing of Forest Department. Appropriate interventions shall be taken to minimise stress conditions for wild animals and to avoid Man-Animal conflict.
24.2	The Project Proponent needs to explore the possibility of using advanced/ latest mining technologies available so as to minimize the ecological impacts.
24.3	The Project Proponent should follow-up the status of implementation on Wildlife Conservation Plan from the Forest Officials and the same shall be submitted to the Ministry's Regional Office in the six monthly compliance report.

25. Continuous Ambient Air Quality Monitoring System (Caaqms)

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S. No	EC Conditions
25.1	The Continuous Ambient Air Quality Monitoring Stations (CAAQMS) shall be installed and commissioned in consultation with CPCB. The real time data so generated should be displayed digitally at entry and exit gate of mine lease area for public display and shall be linked to server of CPCB/SPCB.

Standard EC Conditions for (Mining of minerals)

1. Statutory Compliance

S. No	EC Conditions
1.1	This Environmental Clearance (EC) is subject to orders/ judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.
1.2	The Project proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India &Ors before commencing the mining operations.
1.3	The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors.
1.4	The Project Proponent shall follow the mitigation measures provided in MoEFCC's Office Memorandum No. Z-11013/57/2014-IA.II (M), dated 29th October, 2014, titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area".
1.5	A copy of EC letter will be marked to concerned Panchayat / local NGO etc. if any, from whom suggestion / representation has been received while processing the proposal.
1.6	State Pollution Control Board/Committee shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector's office/ Tehsildar's Office for 30 days.
1.7	The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board/Committee and web site of the Ministry of Environment, Forest and Climate Change (www.parivesh.nic.in). A copy of the advertisement may be forwarded to the concerned MoEFCC Regional Office for compliance and record.
1.8	The Project Proponent shall inform the MoEF&CC for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred. PP needs to apply for transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.

2. Air Quality Monitoring And Preservation

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S. No	EC Conditions
2.1	The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring locations to monitor critical parameters, relevant for mining operations, of air pollution viz. PM10, PM2.5, NO2, CO and SO2 etc. as per the methodology mentioned in NAAQS Notification No. B-29016/20/90/PCI/I, dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.
2.2	Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from all sources shall be regularly controlled by installation of required equipments/ machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEFCC/ Central Pollution Control Board.

3. Water Quality Monitoring And Preservation

S. No	EC Conditions
3.1	In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEFCC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro-geological study of the area.
3.2	Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.
3.3	The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease including upstream and downstream. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. The parameters to be monitored shall include their water quality vis-à-vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/ or alteration be made to water bodies during mining operations without justification and prior approval of MoEFCC. The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre- monsoon (April May), monsoon (August), post-monsoon (November) and winter (January) and the record of monitored data may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six-monthly

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S. No	EC Conditions
	basis.
3.4	Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run-off; acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TDS), Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J- 20012/1/2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.
3.5	Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area in consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office MoEFCC annually.
3.6	Industrial waste water (workshop and waste water from the mine) should be properly collected and treated so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.
3.7	The water balance/water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEF&CC and State Pollution Control Board/Committee.

4. Noise And Vibration Monitoring And Prevention

S. No	EC Conditions
4.1	The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.
4.2	The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day /night hours.
4.3	The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM, etc. should be provided with ear plugs /muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.

5. Mining Plan

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S. No	EC Conditions
5.1	The Project Proponent shall adhere to approved mining plan, inter alia, including, total excavation (quantum of mineral, waste, over burden, inter burden and top soil etc.); mining technology; lease area; scope of working (method of mining, overburden & dump management, O.B& dump mining, mineral transportation mode, ultimate depth of mining, concurrent reclamation and reclamation at mine closure; land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life; etc.).
5.2	The land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-à-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self-sustaining. The compliance status shall be submitted half-yearly to the MoEFCC and its concerned Regional Office.

6. Land Reclamation

S. No	EC Conditions
6.1	The Overburden (O.B.), waste and topsoil generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB / waste dumps / topsoil dump like height, width and angle of slope shall be governed as per the approved Mining Plan and the guidelines/circulars issued by D.G.M.S. The topsoil shall be used for land reclamation and plantation.
6.2	The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/ compactors thereby ensuring proper filling/ leveling of dump mass. In critical areas, use of geo textiles/ geo-membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.
6.3	Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and Top Soil/OB/Waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.
6.4	Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the corners of the garland drains.

7. Transportation

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S. No	EC Conditions
7.1	No Transportation of the minerals shall be allowed in case of roads passing through villages/ habitations. In such cases, PP shall construct a 'bypass' road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers. [If applicable in case of road transport]..
7.2	The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.

8. Green Belt

S. No	EC Conditions
8.1	The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.

9.

S. No	EC Conditions
9.1	The Project Proponent shall carryout plantation/ afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/ Tribal Welfare Department/ Gram Panchayat such that only those species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary provision shall be made for protection and care of trees.
9.2	The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State

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S. No	EC Conditions
	Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.

10. Public Hearing And Human Health Issues

S. No	EC Conditions
10.1	Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated with STP in order to avoid contamination of underground water.

11. Corporate Environment Responsibility (Cer)

S. No	EC Conditions
11.1	The Project Proponent shall submit the time- bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of environmental clearance for undertaking the activities committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEF&CC Office Memorandum No.22-65/2017-IA.III dated 30 September, 2020. The action plan shall be implemented within three years of commencement of the project.

12. Miscellaneous

S. No	EC Conditions
12.1	The Project Proponent shall prepare digital map (land use & land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEF&CC.
12.2	The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
12.3	The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MOEFCC & its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board.
12.4	A separate 'Environmental Management Cell' with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF&CC.

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S. No	EC Conditions
12.5	The concerned Regional Office of the MoEF&CC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF&CC officer(s) by furnishing the requisite data / information / monitoring reports.
12.6	In pursuant to Ministry's O.M No 22-34/2018-IA.III dated 16.01.2020 to comply with the direction made by Hon'ble Supreme Court on 8.01.2020 in W.P. (Civil) No 114/2014 in the matter Common Cause vs Union of India, the mining lease holder shall after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to other mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
12.7	The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.
12.8	Concealing factual data failure to comply with any or submission of false/ fabricated data and of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
12.9	The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/High Court and any other Court of Law relating to the subject matter.
12.10	Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

Additional EC Conditions

N/A

Annexure 2

tails of the Project

S. No.	Particulars	Details
a.	Details of the Project	Block 1- Bicholim Mineral Block for Iron Ore
b.	Latitude and Longitude of the project site	15.5723661773,73.9013208291 15.615004877,73.9525140757
c.	Land Requirement (in Ha) of the project or activity	**Nature of Land involved** / **Area in Ha** Non-Forest Land (A) / 0

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S. No.	Particulars	Details
		Nature of Land involved / **Area in Ha** Forest Land (B) / 0 Total Land (A+B) / 478.5206
d.	Date of Public Consultation	Public consultation for the project was held on
e.	Rehabilitation and Resettlement (R&R) involvement	NO
f.	Project Cost (in lacs)	25000
g.	EMP Cost (in lacs)	72
h.	Employment Details	

Details of Minerals Products & By-products

Name of the Mineral to be mined	Classification of mineral [Major/Minor]	Production capacity in MTPA	Remarks
Iron Ore	Major	3.0	

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Annexure 2

The details of the project

The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under: -

i. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mining lease area is greater than 250ha and appraised at the Central level.

ii. The mine lease area is located between Latitude: 15°34'20.518"N to 15° 36'54.018"Nand Longitude: 73°54'4.754"E to 73°57'09.51"E. The mine lease area falls under the Survey of India Toposheet No: D43B14 and falls in Seismic Zone-II.

iii. The proposal was earlier considered in the 20thEAC (Non Coal Mining) meeting held during 21-22 September, 2023 wherein the EAC deferred the proposal for want of requisite information and site visit report of the subcommittee. Accordingly, site visit was carried out during 29-31 October, 2023 and then the Project Proponent submitted the information along with compliance of site visit report on 04.12.2023 in Parivesh portal and hence the proposal was considered in the 24th EAC (Non-Coal Mining) meeting held during 26-28 December, 2023.

Based on observation of EAC in its meeting held during 21-22 September, 2023 and observations of sub-committee during site visit (29-31 October, 2023), the project proponent provided the following compliances:-

S. No	Observation of subcommittee during site visit held during 29-31 October, 2023	Reply by Project Proponent
1	The Project Proponent needs to submit the techno economic feasibility report for laying Over Land Belt Conveyor (OLBC) from the mine lease area to Sarmanas Jetty.	The Project Proponent submitted that transportation route from mine site to jetty currently covers a total distance of 5.48 kms (4.54 dedicated road and 0.94 km MDR-20 Public Road). Based on the present capacity of the tippers, 1205 trips are required per day and the present road network is adequate for the purpose with widening and strengthening of some patches. The preliminary Techno-Economic feasibility study has been undertaken and prima facie it does not look feasible to switchover to OLBC system considering the terrain of the likely route having mounds and low-lying areas, vegetation/forest patches and its likely degradation, accessibility, environmental impacts and safety issues, technologies available, cost of the system, implementation period via-a-vis remaining reserves in the mining lease.

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		The Project Proponent also submitted the preliminary Techno-Economic feasibility issues for laying Over Land Belt Conveyor (OLBC) from the mine lease area to the Sarmanas Jetty along with cost and timeline comparison for conveyor system and dedicated road.
2	The subcommittee asked the Project Proponent to submit the ecology restoration plan for mined out pits for using as Water reservoir/Pisci culture.	The Project Proponent submitted that the Ecology Restoration or Mine Reclamation activities at Block I Bicholim Mineral block will be carried out concurrently with mining operations. The company has in-house experienced team having experience of mine land reclamation. The company also proposes to collaborate and take support of various reputed institutes and consultancy firms in ecology restoration of the area more importantly the local stake holders will be consulted in the process of ecology restoration. The Project Proponent also submitted that at conceptual stage, 20 ha area will be converted into water reservoir & 293.5 ha will be converted into backfilled area. Backfilled area will be reclaimed & rehabilitated by the plantation. At conceptual stage around 105 ha (21.94% of the total project area) of land will be brought under plantation.The plantation will comprise of saplings of native species which are generally grown in the state of Goa.The plantation would be a mix of various forest and fruit tree species and technical advice would be taken from state forest and agriculture departments. The saplings will be procured from various nurseries like forest department nursery, nurseries developed by locals and also from companies in-house root trainer nursery. Further, the Project Proponent submitted that the Block-I Bicholim Mineral Block is already having a 7.5m wide green belt all along the mine block boundary except the areas where the mine block shares a common boundary with adjoining mine block. A 50m green belt exists towards the habitation within the lease and the same would be further strengthened and maintained. A dedicated 200m green belt would be developed and maintained towards the Idgah area. A density of 2500 saplings per ha will be maintained. Extensive plantation would also be done along the sides of connecting roads. The waste dump slopes will be covered with laterite material and then with biodegradable geotextile mats which will prevent soil erosion of the dump slopes and thus will facilitate the growth of native species. Grass seeds will be sprinkled on the dump slopes so that the same germinate during rains. The top of dump areas / levelled areas will be properly planned and developed in to theme based gardens which can be a attraction for school students, tourist etc.

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		Some of the mined-out pits will partially backfilled and retained as water bodies.For instance, 1 Top pit and 5 Bottom pits will be finalized by end of first mine plan period and will be taken up for ecology restoration initiatives. The company will collaborate with state fisheries department to develop Pisciculture in the water body developed in the mine pits. Local youth will be provided training through the fisheries department so that they manage and maintain the Pisciculture project.
3	The subcommittee noted that the transfer of material from one pit to other working pit will lead to transportation issues. The subcommittee asked the Project Proponent to identify the shortest lead distance and also to explore the possibility of concurrent backfilling. The Project Proponent also needs to submit the sequential stage wise mining in top and bottom working pits and their backfilling plan.	The Project Proponent submitted that as suggested by the Hon'ble Committee detailed study of mineral transportation from one pit to another pit including sequential mining has been carried out. The company has explored the possibility of concurrent backfilling and it will be possible only from 5thto 10thyear. The Project Proponent submitted the google image showing the existing available pits for backfilling and proposed pits for backfilling. The Project Proponent also submitted the details of existing pits, area, depth and volume for backfilling and also the proposed working pits, area, depth and volume available for backfilling. Further, the Project Proponent submitted the year wise sequential mining & backfilling plan.
4	The Project Proponent needs to submit the action plan for strengthen the settling pond with proper	The Project Proponent submitted that at conceptual stage, total 12 no.s of settling ponds will be developed and these will be strengthened by the stone pitching. About 6 numbers of earlier mined out abandoned pits and 12 nos of interlinked siltation ponds have been identified for collecting surface run off from respective catchment sub basins. The Project Proponent also submitted the map showing the settling ponds and drainage network and design of settling ponds.

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	stone pitching in line with the design of settling pond considering the annual rainfall, flow rate, catchment area and its discharge. The action plan for monitoring the water level and water quality before discharge needs to be submitted.	The Project Proponent submitted that a total of 5.49 Million CuM of void volume is available for surface run-offf holding in six pits having a cumulative area of 58.11 Ha which have a total catchment area of 160 Ha. During entire mine life water holding capacity of 5.49 or more than 5.49 Million CuM will be available at any time. Further, a total 12 nos of settling ponds have been earmarked within and outside the ML Area for collecting surface run off. A total of 0.38 Million M3 of void volume is available for surface run-offf holding in 12 nos settling ponds having a cumulative area of 8.84 Ha. Considering five fillings in a year, the gross volumes of settling ponds will be 1.90 Million M3. Further, the Project Proponent submitted that entire monsoon runoff is channelized into mine pits and supernatant water flows into series of settling ponds through drains. The clear water is allowed to naturally overflow by Header arrangements or through check dams.In case required, Lime or combination of Lime and flocculent is used in the mine pit or settling pond so that the particles settle, and clear water is discharged. The discharge water is monitored regularly so that water quality meets the prescribed limits. The inhouse Environment management cell will undertake the regular monitoring and analysis of discharge water through Environment laboratory recognized by MoEF&CC. The monitoring reports will be submitted to Goa State Pollution Control Board on monthly basis and MoEF&CC Regional office on six monthly basis. Surface water samples shall be collected at 8 locations which include all the mine discharge points and upstream and downstream of Bicholim and Asnora river. Samples shall be collected once a month. The parameters listed in IS: 2296 shall be monitored. During monsoon season, in addition to the monthly monitoring, all the discharge points will be regularly monitored (on all the rainy days) and the TSS levels will be checked.
5	The design of garland drain around the waste dumps to divert the water to settling ponds and the measures to be taken to arrest the suspended solids needs to be submitted.	The Project Proponent submitted that the dimensions of the drains will be maintained with width of 2m and 1.5 m in depth everywhere in the mine. A proper height will be maintained on the sides of the garland drain so that water does not get overflooded from the drains. The available garland drains are 11313 m in length which covers all the dumps within the mine lease area. The same will be strengthened and maintained before the onset of monsoon. The daily average surface run-off is estimated as 14003 m^3. The garland drains have the capacity to accommodate instant volume of 33939 m^3 as per above dimensions. Therefore, garland drains capacity is more than sufficient to take care of average daily surface run off during raining period. Additional drains are proposed to take

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<table>
<tr><td></td><td>The measures to be taken for preventing the soil erosion on slope of waste dumps needs to be submitted.</td><td>care of peak run off during the plan period. Therefore, water management structures comprising of drains, settling ponds and mined out pits are available as well as planned to address the catchment area run-off for conceptual period.

The Project Proponent also submitted the measures to be taken to arrest the suspended solids and for preventing the soil erosion on slopes of waste dumps for preventing the soil erosion on slope of waste dumps which are as follows:
i. Inward slope will be provided to all the dump benches so that the water doesn't flow over the slope and erodes the dump slope surface
ii. Covering the finalised dump slope with lateritic material and then covering with coir geotextiles
iii. Use of ERW pipes between benches to channelise the surface runoff water and diverting to settling ponds.
iv. Boulder walls 1.5m ht and 2m wide will be provided at the toe of the dump to arrest the flow of silt.
v. Garland drains around the dump is constructed 1m bottom width, 2m top width and 1m deep with a length of 6100 m to divert water to settling pond for arresting the suspended solids.
vi. Use of Stylo grass seeds and Glyricidia cuttings at the onset of monsoon to create green cover on the dump slopes.
vii. Annual Plantation of native species on waste dump.
viii. Safety green belt /barrier of 50 mts shall be maintained near the Assonora river from the mine pit.
ix. Annual de-siltation of the settling ponds, drains.
x. Use of lime and flocculants in case required so as to settle the suspended solids in settling pond.</td></tr>
<tr><td>6</td><td>The Project Proponent needs to submit the action plan for installing permanent water sprinklers.</td><td>The Project Proponent submitted that permanent water sprinklers with 3.40 km length along the haul road within the ML area and 2.80 km length outside the ML area on either side of the road will be installed. Sprinklers will be spaced at 12m distance covering 6m radius at 180 degree. Estimated budget for the installation of the same is Rs. 191.60 Lakhs.
<table>
<tr><th>S. No</th><th>Description</th><th>Cost (Rs. In Lakh)</th></tr>
<tr><td>1</td><td>Civil Works</td><td>20.0</td></tr>
<tr><td>2</td><td>Pump & Sprinkler System</td><td>88.0</td></tr>
<tr><td>3</td><td>Pipeline</td><td>75.60</td></tr>
<tr><td>4</td><td>Electrical Works</td><td>8.0</td></tr>
<tr><td></td><td>Total</td><td>191.60</td></tr>
</table>
The Project Proponent also submitted the map showing the layout of proposed water sprinklers within mine lease area and along dedicated road.</td></tr>
<tr><td>7</td><td>The Project Proponent needs to</td><td>The Project Proponent submitted that Crushing &screening units will be modified within 4 months after obtaining the Clearances. Budget proposed for the same is Rs. 6.97</td></tr>
</table>

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	submit the action plan and timeline to modify the crushing and screening units. The Project Proponent also needs to submit the material flow sheet and material balance.	Crore.The Project Proponent alsosubmitted the flow Sheet of Crushing & Screening Unit.
8	The Project Proponent needs to submit the action plan for developing their own nursery by mentioning the details of the area to be covered, species to be planted and budget proposed. Most of the standing vegetation in the lease area constitutes of Acacia auriculiformis and Casuarina equisetifolia and it is further invading the open areas through natural regeneration. The invasion may be checked through planting native	The Project Proponent submitted that it is proposed to develop nursery adjacent to the mineral block (Survey no 72/4 in Bicholim Village). Around 1100 sq.m of area will be utilized for the nursery. A budget of Rs. 5 lakh is kept for the same.The nursery will comprise of following: i. A poly house/ nursery shed will be developed where in a root trainer nursery will be established. ii. Production area wherein various jobs like filling of root trainers/polybags will be undertaken store room wherein the nursery equipment's will be stored iii. Only native / local species of various horticultural and forest species will be grown in inhouse nursery or sourced from forest department nursery for planting in the finalised areas within the Mineral block. iv. Necessary technical support will be taken from state forest department. Company also carries out collaborative mine reclamation projects in association with research institutes like NEERI, Goa university etc. v. Horticultural species like Mango, Cashew, Ber, Aonla, Jambul, Tamarind, Jackfruit, citrus species, etc will be grown vi. Forest species like various. Terminalia tomentosa, Terminalia bellerica, Bauhinia species, Teak, Cassia fistula, Arjun, Assan, lagerstromia species, Shiwan, Ficus species, Pongamiapinnata, Reetha, Rain tree, Pangara, Peltoforum, Palas, Saton, Mahagony, bamboo species etc. The Project Proponent also submitted that during plan period an area of 9.7288 ha (24,322 no. of plants) will be developed under 7.5m safety zone, Buffer towards habitation, archaeological site, & river and an area of 9.4435 ha (23,609 no. of plants) will be developed on backfilled area. A budget of Rs 28.83 Lakhs has been earmarked towards the same.

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<table>
<tr><td></td><td>species in the region.</td><td></td></tr>
<tr><td>9</td><td>The Project Proponent needs to ensure that whether any other Schedule-I species has been added as per latest Wildlife (Protection) Amendment Act 2022 or not. Accordingly, the Project Proponent shall submit the revised authenticated Schedule-I species.The Project Proponent also needs to submit the breakup of the conservation activities proposed under Wildlife Conservation Plan.</td><td>The Project Proponent submitted that the authenticated list of Schedule I Species as per Indian Wildlife Protection Act 1972 as amended Gazette Notification of Wildlife (Protection) Amendment Act, 2022 has been obtained from the Dy. Conservator of Forests Wildlife & Eco-Tourism (North), Panji-Goa vide letter no. 1-576-WL&ET(N)/2023-2024/3312, dated 27.11.2023. According to this authenticated list, 29 Schedule I Species have been recorded within 10 km study area.

As suggested by the Hon'ble EAC the company revised the break-up of conservation activities proposed under Wildlife Conservation Plan and same will be finalized after discussion with the Forest Dept. The break-up of the conservation activities proposed under Wildlife Conservation Plan are as follows:-
<table>
<tr><th>S.No</th><th>Particulars</th><th>1st year</th><th>2nd year</th><th>3rd year</th><th>4th year</th><th>5th year</th></tr>
<tr><td>1</td><td>Enrichment of forest areas with suitable indigenous species for wild life habitat improvement</td><td rowspan="5">12</td><td rowspan="5">12</td><td rowspan="5">12</td><td rowspan="5">12</td><td rowspan="5">12</td></tr>
<tr><td>2</td><td>Creation/ maintenance of habitat for herbivores/ avian fauna</td></tr>
<tr><td>3</td><td>Management interventions for facilitating water availability to the wild life in forest areas/ Improvement of soil and water regime of forest areas</td></tr>
<tr><td>4</td><td>Financial support to the department for conducting awareness campaigns for various stakeholders</td></tr>
<tr><td>5</td><td>Financial support to the department for celebrating events like Wildlife week</td></tr>
</table>
</td></tr>
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			and sponsoring the prizes for the competitions					
			Total	Rs 60.0 Lakhs				

10	The Project Proponent needs to submit the map demarcating the surface features in the mine lease area and their safety distances left/maintained as per mines acts and rules.	The Project Proponent submitted the map demarcating the surface features in the mine lease area. The Project Proponent also submitted the safety distances left/maintained as per mines acts and rules as given below in table:

S.No	Features inside lease	Distance from Ultimate Pit Limit (UPL)	Statutory Distances as per MMR
1	ManasbagMulgao village	120 m	45 m
2	Mulgao village	58 m	
3	Lamgao village	56 m	
4	Manaswada Govt. School within habitation	138 m (12 Students)	45 m
5	Gaonkarwada Govt. School within habitation	190 m (not functional)	
6	Old Lairai Temple	126m (From 5 Bottom Backfilling site)	45 m
7	Mahadev&Sateri Temple	280 m	
8	Kelbai Temple	205 m	
9	Sateri Temple	130 m	
10	Matrai Temple	150 m	
11	Nimuzgah	210 m	
12	Lamgao Caves	300 m	45 m

11	The Project Proponent needs to provide proper treatment of channels and nallas flowing in the lease area for soil and water conservation. Scientifically designed and placed check dams and other engineering	The Project Proponent submitted that Silt load study was carried out through Center for Advance studies department of geology, University of Delhi and it was concluded that, all the structures made for the settling of sediments are found to be more than sufficient to accommodate sediments even during peak rainfall. The Project Proponent submitted that the a) Total length of the Garland drain = 11313 m b) Peak rainfall = 154 mm/day c) Peak runoff in a day = 110590 m3 d) Capacity of garland drain = 33939 m3. The garland drains are made such that from upstream to the downstream where the drains are meeting the settling ponds will show decrease in elevation, to maintain a free-flowing gradient of rainfall runoff. The dimension of the drains is maintained to be 2m in width and 1.5m in depth at everywhere in the mine site. A proper height has been maintained on the

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<table>
<tr><td></td><td>structures at different places can help control the erosion and loss of productive soil. Necessary study from competent institution/individuals may be done for this purpose.</td><td>sides of the garland drain so that water don't' get over-flooded from the drain.</td></tr>
<tr><td>S. No</td><td>Observation of EAC in its meeting held during 21-22 September, 2023</td><td>Reply by Project Proponent</td></tr>
<tr><td>1</td><td>The site visit report of the subcommittee.</td><td>The Project Proponent submitted the observations to the subcommittee recommendations during the site visit 29-31Oct., 2023 are complied and submitted in Parivesh portal.</td></tr>
<tr><td>2</td><td>The Project Proponent needs to revisit the plan for backfilling with clearly indicating the voids area and the capacity available/required for backfilling.</td><td>The Project Proponent submitted that 5 numbers of earlier mined out pits have been identified for backfilling purpose to accommodate waste to be generated in future besides additional pits to be made available progressively with mining till conceptual period. The physical details of available pits to be converted into backfilled areas are as follows:
<table>
<tr><th>Mine pit location/ ID</th><th>Total area of pit (ha)</th><th>Area Available for Backfilling (Ha)</th><th>Depth (m)</th><th>Top RL (m)</th><th>Bot RL (m)</th><th>Vol (m^3)</th></tr>
<tr><td>1 Top</td><td>22.4367</td><td>20.9942</td><td>99</td><td>62</td><td>-37</td><td>19356183</td></tr>
<tr><td>2 Top</td><td>13.0803</td><td>9.9465</td><td>60</td><td>60</td><td>0</td><td>2968920</td></tr>
<tr><td>3 Top</td><td>16.0596</td><td>13.1650</td><td>70</td><td>110</td><td>40</td><td>2240000</td></tr>
<tr><td>¾ Bottom</td><td>-</td><td>-</td><td>109</td><td>102</td><td>-7</td><td>-</td></tr>
<tr><td>5 Top</td><td>37.0242</td><td>35.7242</td><td>78</td><td>98</td><td>50</td><td>14213124</td></tr>
<tr><td>5 Top CB</td><td>-</td><td>-</td><td>77</td><td>124</td><td>47</td><td>-</td></tr>
<tr><td>5 Bottom</td><td>15.4196</td><td>12.0840</td><td>92</td><td>87</td><td>-5</td><td>7035240</td></tr>
<tr><td>Total</td><td>104.0204</td><td>91.9139</td><td></td><td></td><td></td><td>45813467</td></tr>
</table>
</td></tr>
</table>

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Further, the details of pits to be made available progressively with mining till conceptual period and converted into backfilled areas are as follows:

Mine pit location/ ID	Total area of pit (ha)	Area Available for Backfilling (Ha)	Depth (m)	Top RL (m)	Bot RL (m)	Vol (m^3)	Void availability for backfilling
2 Top	43.1944	39.2331	116	91	-25	10518996	5th year
¾ Bottom	39.4606	34.6140	169	102	-67	15412643	End of 3rd year
2 Top	68.52	65.6420	113	103	-10	47912000	6th to 10th year
3 Top/2 Top combined	38.2545	36.6500	118	108	-10	38161200	11th to 13th year
4 Top/3 Top Combined	-	-	84	73	-11	-	11th to 13th year
5 Top CB Pit	-	-	168	94	-74	-	11th to 13th year
Total	189.425	176.1391				112004839	

As shown in the above tables, five numbers of earlier worked out pits will have void volume of 45.81 million m3 and during the Plan & Conceptual period progressive excavation, 112 million m3 of void volume will be available for backfilling. Therefore, a total of 157.98 million M3 of void volume will be available for backfilling in mined out pits having a cumulative area of 268.05 Ha. Additionally, area of 62 Ha will be available as voids including 22 ha of water reservoir for storing rain water.

The Project Proponent also submitted that the Conceptual waste generation shall be 124.9 million Cum which will have a swelled volume of 149.90 million CuM (say 150 million CuM). The 0.2 million CuM of swelled waste will be dumped over top of backfilled pits as surface dumps. Sufficient space is

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<table>
<tr><td></td><td></td><td>available to accommodate waste generated during life of mine considering swell factor of 1.2.Annual waste generation is in range of 4.35 to 12.58 million cum per year with an average of 9.61 million cum per year considering life of the mine as 13 years based on the presently available mineable reserves. Life of the mine may reach upto 30 years if entire resources are converted to reserves by removing all encumbrances.</td></tr>
<tr><td>3</td><td>The Project Proponent needs to submit the design of settling ponds by considering the annual rainfall, catchment area and its discharge.</td><td>The Project Proponent submitted that at conceptual stage, total 12 no.s of settling ponds will be developed and these will be strengthened by the stone pitching. About 6 numbers of earlier mined out abandoned pits and 12 nos of interlinked siltation ponds have been identified for collecting surface run off from respective catchment sub basins. The Project Proponent also submitted the map showing the settling ponds and drainage network and design of settling ponds.

The Project Proponent submitted that a total of 5.49 Million CuM of void volume is available for surface run-offf holding in six pits having a cumulative area of 58.11 Ha which have a total catchment area of 160 Ha. During entire mine life water holding capacity of 5.49 or more than 5.49 Million CuM will be available at any time. Further, a total 12 nos of settling ponds have been earmarked within and outside the ML Area for collecting surface run off. A total of 0.38 Million M3 of void volume is available for surface run-offf holding in 12 nos settling ponds having a cumulative area of 8.84 Ha. Considering five fillings in a year, the gross volumes of settling ponds will be 1.90 Million M3.
<table>
<tr><td>Particulars</td><td>Details</td></tr>
<tr><td>Catchment area of pits</td><td>160 ha</td></tr>
<tr><td>Rainfall received</td><td>160 ha x 3500 mm = 5.6 Million CuM</td></tr>
<tr><td>Effective surface runoff to be accumulated in voids</td><td>5.6 x 0.7 = 3.92 Million CuM</td></tr>
<tr><td>Pits water holding capacity</td><td>5.49 Million CuM</td></tr>
<tr><td>Gross settling ponds capacity</td><td>1.90 Million CuM</td></tr>
<tr><td>Total water holding capacity of mined pits and settling ponds</td><td>7.39 Million CuM</td></tr>
</table>
Further, the Project Proponent submitted that since total water holding capacity in pits and settling ponds (7.39 Million CuM) is more than rainfall and surface runoff volume from catchment (3.92 Million CuM), there is sufficient space for effective surface runoff management in during extreme precipitation times. The dimensions of the drains to be maintained will be 2m in width and 1.5 m in depth everywhere in the mine. A proper height will be maintained on the sides of the garland drain so that water does not get over-flooded from the drains. The available garland drains are 11313 m in length and daily average surface run-off is estimated as 14003 m3. The</td></tr>
</table>

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<table>
<tr><td></td><td></td><td>garland drains have capacity to accommodate instant volume of 33939 m3 as per above dimensions. Therefore, garland drains capacity is more than sufficient to take care of average daily surface run off during raining period. Additional drains are proposed to take care of peak run off during the plan period. Therefore, water management structures comprising of drains, settling ponds and mined out pits are available as well as planned to address the catchment area run-off for conceptual period. The overflow discharge water will be regularly monitored so that quality of water is maintained as per the prescribed standards and always clear water from ponds / pits meet the natural system. In case required, water treatment would be done in the pits by using lime and flocculants or other organic chemicals.</td></tr>
<tr><td>4</td><td>The Project Proponent needs to bypass the public road and also to explore the possibility of increasing the capacity of the truck so as to reduce the no. of trips. The EAC opined that the Project Proponent needs to revisit the traffic load by considering the cycle time and waiting time. The Project Proponent needs to submit the action plan for strengthening the road and for converting the unpaved road into concrete road.</td><td>The Project Proponent submitted the map showing the transportation route comprising of dedicated road corridor and public road. The total travel distance upto Jetty is 5.48 kms (4.54 km dedicated road and 0.94 km MDR-20 Public Road).Traffic load and effective distance between two trucks are as follows:-
<table>
<tr><th>S.No</th><th>Transportation working days</th><th>Quantity (In TPA)</th><th>Tonnes / Day</th><th>Trips per day</th><th>Mode of transport</th></tr>
<tr><td>1</td><td>237</td><td>30,00,000</td><td>12658</td><td>1205</td><td>Road</td></tr>
<tr><td></td><td colspan="3">Total Trips per day</td><td>1205</td><td></td></tr>
</table>
The Road width details for various segments are as follows:
<table>
<tr><th colspan="2">Dedicated Road corridor</th><th>Public Road</th></tr>
<tr><td>3.31 km</td><td>1.23 km</td><td>0.94 km</td></tr>
<tr><td>12-15 mts wide Road</td><td>7 mts wide Road</td><td>7 mts wide Road</td></tr>
</table>
Further, the Project Proponent submitted the following details:-
i. Capacity of truck is 10.5 tons as per directives of Deptt. of Mines & Geology, Goa
ii. Total Handling per day is 12658 tons /day
iii. Transportation timings are 6.00 am to 7.00 am, 8:00 am to 12.45 pm and 2:00 pm to 5.45 pm. Therefore, the effective transportation time is 9.30 hrs.
iv. Per Hour Handling is: 1332 tons/hour
v. No. of Vehicles per Hour (One way): 127 vehicles
vi. No. of Vehicles per Hour (to and fro): 254 vehicles
vii. The Speed of vehicle is 25 KMPH and the lead distance is 5.48 kms
viii. The time taken for 5.48 km is 13.15 mins for each truck and loading time is 1min, weighment time at both source location is 2 min, Tarpaulin tying and untying</td></tr>
</table>

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		time is 2 min, unloading time 1 min and waiting time 10 min. ix. Each truck length is 15'. 5" (4.58 m) x. Distance from truck to truck is 5 m both side = 10 m xi. Each vehicle occupies a min. distance of 14.58 m = ~ 15 m xii. The length of road is 5.48 Km = 5480 m xiii. No. of vehicle which can travel on this road for one side= 5480 /15 = 365, However we would be plying only 127 trucks hence effective distance between two vehicles is 43 m. The Project Proponent submitted the following mitigation measures for transportation:- i. Public road is hot mixed and same will be maintained. ii. Dedicated road is proposed to be hot mixed in phased manner. iii. Entire Dedicated transportation route is surrounded by thick Green Belt iv. Transportation vehicles shall be properly maintained to minimize the exhaust emission. v. Regular tests shall be carried out to check exhaust emission and PUC certification of transportation vehicles at prescribed interval. vi. Transportation trucks will be loaded with prescribed capacity and covered with tarpaulin before leaving mines premises. vii. Overloading of the material will be avoided. viii. Regular monitoring of the emission levels. ix. Over speeding of Vehicle will not be allowed. x. Traffic Marshals shall be provided for regulating movement of vehicles as well as for safety of persons. xi. Training will be given to all drivers about safe driving. xii. Regular water sprinkling by means five hired water tanker of 10KL capacity on haul road and Loading points will be carried out xiii. Used of fixed dust suppression system on haul roads xiv. Installation of two wheel washed system (one each at the exit of the dedicated road and jetty exit respectively xv. Manual and mechanised machines for road sweeping xvi. Washing of mine exit points/Junctions (Mayem, Pilgao and Jetty exit area) after transportation hours/at night with water tanker having pipe arrangements xvii. Underpass proposed at Mayem junction to prevent interface with public. The Project Proponent submitted that the regular mining in the state of Goa stopped since 2012 (it started for brief period in 2018 and again stopped). The truck owners who have already invested in the 10.5 T trucks are severely affected due to the

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		stoppage of mining activity and are against procurement of new / high-capacity trucks, till their losses are covered. The company has already conducted series of meetings with the truck owner's associations for the higher capacity trucks and the truck owners are not agreeing to any changes in short term of 5 years. However, the engagement with the truck owners for higher capacity truck will continue. Company will also engage with all stake holders to explore the feasibility for installing conveyor belt system for transportation in near future, if permitted. The public road which is used for transportation is only 0.94 km long and the same is a hot mix road and in well maintained condition. The dedicated road of 4.54 km has very thick green belt on both the sides. There is no habitation along the dedicated road. Nearest habitation will be more then 250m from the road. The dedicated road before joining the public road is concreted and provided with the wheel wash system. Dedicated road sweeping machine will also be deployed to maintain the public road clean. The company also undertakes to hotmix the stretch of 4.54 km of dedicated road in a phased manner in three years' time frame. The estimated cost towards hot mixing is worked out as INR 18 crores.
5	Since the mine lease area is sharing the Mayem Forest common boundary, the Project Proponent needs to submit the letter from the State Forest Department regarding the involvement of forest land in the mine lease area.	The Project Proponent submitted the letter from the Office of theDy. Conservator of Forests, North Goa Division Sensitivity: Public (C4) vide letter no. 5/MINES-GEN/DCFN/TECH/2023-24/56, dated 12.04.2023 stating that the detail of village wise Survey No.s within Block-1 of Bicholim Mineral block was verified and found that the area under the above mentioned Survey Nos is not a Govt. Forest and also does not identified as Private Forest by State Level Expert Committee headed by Sawan/Dr. Karapurkar/V.T. Thomas.
6	The Project Proponent needs to submit a letter from the Department of Geology and Mining, Government of Goa clarifying	The Project Proponent submitted the letter from the Directorate of Mines & Geology vide Lr. No. 03/24/2023/ Major/Mines/Part/489 dated 25.07.2023 stating that a) M/s. Vedanta has been declared as Preferred Bidder for Bicholim Mineral Block- Block I through an auction process conducted by the Government of Goa as per the Mineral Auction Rules, 2015. b) M/s. Vedanta Ltd., was not the erstwhile lessee of the said Block prior to auction.

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	whether any illegal mining within the mine lease area has been carried out or not and whether the same has been carried out by M/s. Vedanta Limited or not?	c) The matter of illegal mining in the State of Goa is under investigation by the Special Investigation Team (SIT). The Project Proponent also submitted that the Block-I Bicholim Mineral Block was earlier operated by Sesa Mining Corporation Ltd. (SMCL) formerly known as Dempo Mining Corporation Ltd. Pursuant to Supreme Court Judgment in Goa Foundation order dated 07.02.2018, all the mining leases granted by the State Govt. were cancelled. Thereafter, State Govt. in terms of the said order and as per the provisions of MMDR Act put this block for auction as a fresh lease grant. The e-auction process was conducted in accordance with the Tender Document for said Mineral Block. Vedanta Limited emerged as the highest qualified bidder having submitted the highest final price offer and was declared as the preferred bidder under Rule 9(9) (iii) of auction Rules. Further, upon submission of the first Installment, being 20% of the upfront payment, Government of Goa issued a Letter of Intent (LOI) vide letter no. DMG/25/Auction Cell/LOI-function/2023/2801 dated 13.01.2023 for the grant of a mining lease for Block-I Bicholim Mineral Block in Bicholim, Bordem, Lamgao, Mulgao, Mayem&Sirigao Villages, of Bicholim Taluka, North Goa District, Goa State over an area of 478.5206 Ha over a period of 50 years.
7	The Project Proponent needs to submit the video recording of the public hearing.	The Project Proponent submitted that Goa State Pollution Control Board vide their letter No. 11/15/2023-PCB/ Leg/13555 dated 22/09/2023 submitted all the documents related to public hearing including public hearing video to the Member Secretary, EAC (Non Coal Mining).

iv. Details of Terms of Reference (ToR):

Date of application	File. No/ Proposal No	Consideration	Details	Date of accord
16.03.2023	F.No: IA-J-11015/3/2023-IA-II(NCM) IA/GA/MIN/ 422323/2023	3-4 May, 2023	Terms of Reference (ToR) to M/s Vedanta Limited for mining of Iron Ore in Bicholim Mineral Block – Block 1 (Auction Block) with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA (Total Excavation: 28.162 MTPA) along with crushing and screening plant	16.06.2023

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			capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located in Bicholim, Bordem, Lamgao, Mulgoa, Mayem & Sirigao Villages of Bicholim Taluka of North Goa District, Goa	

v. Details of Mine Lease:

a) The Project Proponent has submitted the Letter of Intent (LoI) granted by the Government of Goa vide Lr No: DMG/25/Auction Cell/LOI-function/2023/2801 dated 13.01.2023 for grant of mining leasefor Block I - Bicholim Mineral Block for Iron Ore in Bicholim, Bordem, Lamgao, Mulgao Mayem & Sirigao villages, Bicholim Taluka, North Goa District over an area of 478.5206 Hectare for a period of 50 (fifty) years in pursuant to Rule 10(2) of the Auction Rules. This letter of intent is valid for a period of 3 (three) years from the date of its issuance.

vi. Land Use/Land Cover of the Mine Lease Area:

Private land	421.1153 Ha
Government land	57.4053 Ha
Total Mining lease area (MLA)	478.5206 Ha
Private land for crusher, workshop & other infrastructure outside the MLA	Not Applicable

vii. Details of Mining Plan:

Review and Mining Plan approved by Indian Bureau of Mines, Goa	Letter No.	No. MCDR-MPC|1|2023-GOA-IBM_ RO_ GOA
	Date	26.05.2023
	Mine Lease Area	478.5206 Ha
	Mineral	Iron Ore (Major Mineral)
Mining Parameters	Quantitative Description	
Method of Mining	Opencast mechanized mining without Drilling & Blasting	
Drilling/Blasting	Not Applicable	
Total Reserves and Resources	84.73 Million Tonnes	
Proved Mineral Reserve	36.071 Million Tonnes	
Life of mine	30 years	
Bench Height	7 m	

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Bench Width	10 m
Individual bench slope	70^0
Overall pit slope	$<26^0$
RoM output size	Less than 500 mm
Crushing/Screening	Mobile Dry Crushing and Screening plant shall be available within the proposed mine to handle 4 MTPA of crude ore. The primary crusher will consist of 1 no. of Jaw crusher of capacity 120 TPH with an input feed of -500mm and shall produce output of -70 mm. It shall be followed by secondary crushers, 2 no.s of capacity 300 TPH and 200 TPH respectively. The input feed size shall be -70mm and output feed size obtained shall be -40mm. The Screening Plants of capacity -600TPH shall be installed where input the feed size shall be -70mm to obtain product of -40mm lumps & -10mm fines.
Transportation details	ROM/Iron ore or Screened/crushed material will be transported by 10.5 Tonne trippers from Mine to Sarmanas jetty through a dedicated road. The total distance from the mine to Jetty is 5.58 km of which 0.94 km stretch is public road and remaining 4.64 km is company owned dedicated road.
Dumpers capacity	40 tonne (within mines)
Waste handling and Disposal	During the mining period, the waste generated by mining will be temporarily stacked within the mining lease area as surface dump and backfilled in the exhausted portion of the pits. The total waste to be generated during the plan period is about 69.85 million tonnes. An area of 6.7146 Ha shall be utilized for Dumps and Material stocking at the conceptual stage of mining.

viii. Water requirement:

Total water requirement	664 KLD	Pit Water	628 KLD
		Ground water	36 KLD
Source	Water from Mine Pit will be used for dust suppression, Vehicle washing and Green belt. Water for domestic requirement will be met from bore well.		
Permission	The Bore wells are registered with Goa State Water Resource department. Application for using mine pit water will be submitted.		

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ix. Nearest village / town/ highway/railway station / water bodies/monument:

Particulars	Particular's Name	Distance & Directions
Village	Lamgoa	Within the lease area
Town	Bicholim Town	0.5 km, East
Road	State Highway SH-1	0.65 km, East
Railway Station	Tivim Railwaystation	10.5 km, North
Water Bodies	Asnora River Mayem Lake Mandovi River	Touching lease boundary at one of the points 0.46 km 2.3 km, SW
School	Mulgao Govt. Primary School	Within the lease area
Worship places	Namuzgah/Idgah Shri Lairae Temple	Within the lease area 0.86 km
Caves/Fort	300m buffer from Lamgao caves Khorjuvem Fort: 2 km	

x. Presence of Environmentally Sensitive areas in the study area:

Forest Land/Protected Area/Environmental Sensitivity Zone	Yes/ No	Details of Certificate/letter/Remarks
Forest Land	Yes	Mayem Forest Common Boundary with the mine lease area The following Reserve Forests are located within 10 km radius of the mine lease area such as Kharapal RF -6.7 km Kasarpal RF - 5.1 km Ambadgaon RF - 7.6 km
National park	No	The Project Proponent has submitted the letter from the Office of the Dy. Conservator of Forests vide Lr No: DCF(WP)/Tech/Digi/Vol-I/75/2022-23/ 968 dated 23.01.2023 stating that the proposed Bicholim Mineral Block-I is not situated within 10 km radius from the boundary of any the protected area in the State of Goa. PP also submitted the authenticated map dated 24.01.2023 showing the distance of the following Wildlife Sanctuary from the mine lease area. i. Madei Wild life Sanctury-14.105 km, E ii. Salim Ali Bird Sanctuary -10.553 km, SW iii. Bondla Wild life Sanctuary -20.476 km, SE
Schedule-I species	Yes	The Project Proponent has submitted the letter from the Office of the Dy. Conservator of Forests vide Lr No: 5/FCA/GEN/F&F/DCFN/TECH/2022-23 dated 04.04.2023 with regard to list of Flora and Fauna species present in core and buffer zone.

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		The following Schedule-I species are found in the study area such as 1 Common leopard (*Felidae*) 2 White-bellied Sea-Eagle(*Accipitridae*) 3 Indian Peafowl (*Phasianidae*) 4 Crimson rose- Butterfly (*Papilionidae*)
Status of Wildlife Conservation Plan	Yes	Wild Life Conservation Plan is prepared and submitted for approval of Chief Wildlife Warden (CWLW) on 19.06.2023. PP has submitted the copy of the acknowledgement from Chief Wildlife Warden.

xi. Green belt/plantation details:

Proposed area for green belt/plantation	105.8894 ha
Budget for green plant& plantation till the end of life of mine.	Rs159.0Lakhs
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	25 ha
50 m safety zone of nallah, roads, electric lines	
Additional information (if any)	80.8894 ha (on backfilled area)

xii. Details of Baseline data:

Baseline Data (Air / Water / Noise / Soil / Ground water table/ others)			
Period of baseline data collection	March, 2023 to May, 2023		
Season (Summer / Pre-monsoon / Post-monsoon / Winter)	Summer Season		
Ambient Air Quality (no. of locations) and results	No. of Locations	Parameters	Results
	9	PM10	27.0 to 56.0 µg/m^3
		PM2.5	14.0 to 36.0 µg/m^3
		SO2	4.0 to 13.0 µg/m^3
		NO2	<4.0 to 18.0 µg/m^3
Noise level (no. of locations) and results	No. of Locations	Parameters	Results
	09	During Day Time [Leq dB(A)]	43.1 to 61.7
		During Night Time [Leq dB(A)]	35.9 to 49.3

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<table>
<tr><td>Water Quality (no. of locations) and results</td><td>Surface water quality
<table>
<tr><th>No. of Locations</th><th>Parameters</th><th>Results</th></tr>
<tr><td rowspan="8">07</td><td>pH</td><td>6.35 - 7.39</td></tr>
<tr><td>TDS (mg/l)</td><td>72 - 11240</td></tr>
<tr><td>Fluoride (mg/l)</td><td><0.1</td></tr>
<tr><td>Chloride (mg/l)</td><td>18 - 5620</td></tr>
<tr><td>Fe (mg/l)</td><td><0.05</td></tr>
<tr><td>Dissolved Oxygen (as O_2), mg/l</td><td>6.2 – 6.9</td></tr>
<tr><td>Biochemical Oxygen Demand (as O_2), mg/l</td><td><3.0</td></tr>
<tr><td>Chemical Oxygen Demand (COD) mg/l</td><td>22.0 – 26.0</td></tr>
</table>
Groundwater Quality
<table>
<tr><th>No. of Locations</th><th>Parameters</th><th>Results</th></tr>
<tr><td rowspan="4">10</td><td>pH</td><td>5.63 – 7.07</td></tr>
<tr><td>TDS (mg/l)</td><td>20 – 150</td></tr>
<tr><td>Fluoride (mg/l)</td><td>0.1</td></tr>
<tr><td>Chloride (mg/l)</td><td>5.0 - 19.0</td></tr>
</table></td></tr>
<tr><td>Soil Quality (no. of locations) and results</td><td>
<table>
<tr><th>No. of Locations</th><th>Parameters</th><th>Results</th></tr>
<tr><td rowspan="5">07</td><td>pH</td><td>5.38 to 5.78</td></tr>
<tr><td>Electrical Conductivity (mohs/cm)</td><td>0.28 to 0.318</td></tr>
<tr><td>Nitrogen (kg/ha)</td><td>200 to 275</td></tr>
<tr><td>Phosphorus (kg/ha)</td><td>14.3 to 17.8</td></tr>
<tr><td>Potassium (kg/ha)</td><td>230 to 263</td></tr>
</table></td></tr>
</table>

xiii. Public Hearing (PH) Details:

Advertisement for PH with date	07.07.2023 Regional: Bhangar Bhui, Heraldo, Lokmat & Free press journal (Mumbai Edition) News papers
Date of PH	11/08/2023
Venue	Narayan Zantye Multipurpose Sports Complex, Sarvan, Bicholim, Goa
Chaired by	District Collector, North Goa
Main issues raised during PH	Pollution, impact on ponds, Support for Education, Health, Agriculture Development & Skill Development, Employment.
Budget proposed for addressing issues raised during PH	Rs 309.3 Lakhs

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xiv. Rehabilitation & Resettlement:

R & R details	There is presence of habitation within ML Area at Mulgao and Iamgao villages. Safety Buffer of 50m will be maintained from the habitations. No Rehabilitation & Resettlement Plan is proposed during life of mine.

xv. Court case details:

Court Case	Yes
Additional information (if any)	First Case: 1. WP(Civil) 2478 of 2022 (Filing number) before the High Court of Bombay at Goa 2. The said writ petition has been filed against the State Government and seeks to challenge the identification of properties bearing survey no. 90/1(part) and 96/0 as part of the recently auctioned Bicholim mine. The petition alleges violation of Rule 5 &6 of Mineral Evidence Rules and Section 10B of MMDR, Act by the State of Goa and DMG. The petitioner has prayed for quashing of auction notice to the extend it includes the property of the petitioner and grant a writ of mandamus against the Respondents. 3. Case status is pending. 4. No adverse orders have been passed. 5. As per the last order the matter has been disposed of by the HC on 17th July 2023 with a direction to the Petitioner to make a representation before the Government and the Government is to dispose of the same within four months. Second Case: 1. WP 592 of 2022 The said writ petition seeks to challenge the constitutionality of the tender documents of Phase I auction of Goa mines. The petition alleges violation of Rule 5 & 6 of Mineral Evidence Rules by the State of Goa and DMG. The petition alleges non-disclosure of essential facts such as bore hole data, approved mining plan, production data of the previous five years and exploration data. The petitioner has prayed for quashing of auction notice to the extend it fails to

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	include the essential facts and in the alternative to stay the auction. 2. Case status is pending 3. No adverse orders have been passed. 4. As per the last order the matter is listed on 01.09.2023.

xvi. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent has submitted the Affidavit in a non-judicial stamp paper of Rs 100 bearing no: A807037 dated 24.04.2023 stating that they will comply to the directions issued by MoEF&CC vide Office Memorandum F.No.3-50/2017.IA.III (Pt) dated 30th May, 2018 in terms of directions given Hon'ble Supreme Court in judgment dated 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India & Ors.
Undertaking of Project Proponent	The Project Proponent has submitted an undertaking stating that the Environmental Impact Assessment Report of Block-1 Bicholim Mineral Block of M/s Vedanta Ltd was prepared by M/s Mineral Engineering Services, QCI/NABET Accredited EIA Consultant at Sr.No. 55 as per list of list of accredited consultant/organizations. The Project Proponent has submitted an undertaking that the information and data provided in the EIA report and submitted to the Ministry are factually correct and they are fully accountable for the same.
Consultant submitted an Undertaking vide letter dated 02.06.2023	This is to declare that the prescribed ToRs have been complied with and that the data submitted are factually correct in respect of EIA & EMP report prepared for Block-1 Bicholim Mineral Block of M/s Vedanta Ltd, Goa.

xvii. Details of the Environmental Management Plan (EMP):

Activities	Capital cost (Crores)	Recurring cost (Lakhs/annum)
Plantation	-	7.5
Environment monitoring	44	44
Air pollution control measures	20	300
Water Treatment	-	11
Erosion control /monsoon measures	-	221
Personal protective equipment	-	15
Maintenance of fire protection systems	-	1.5

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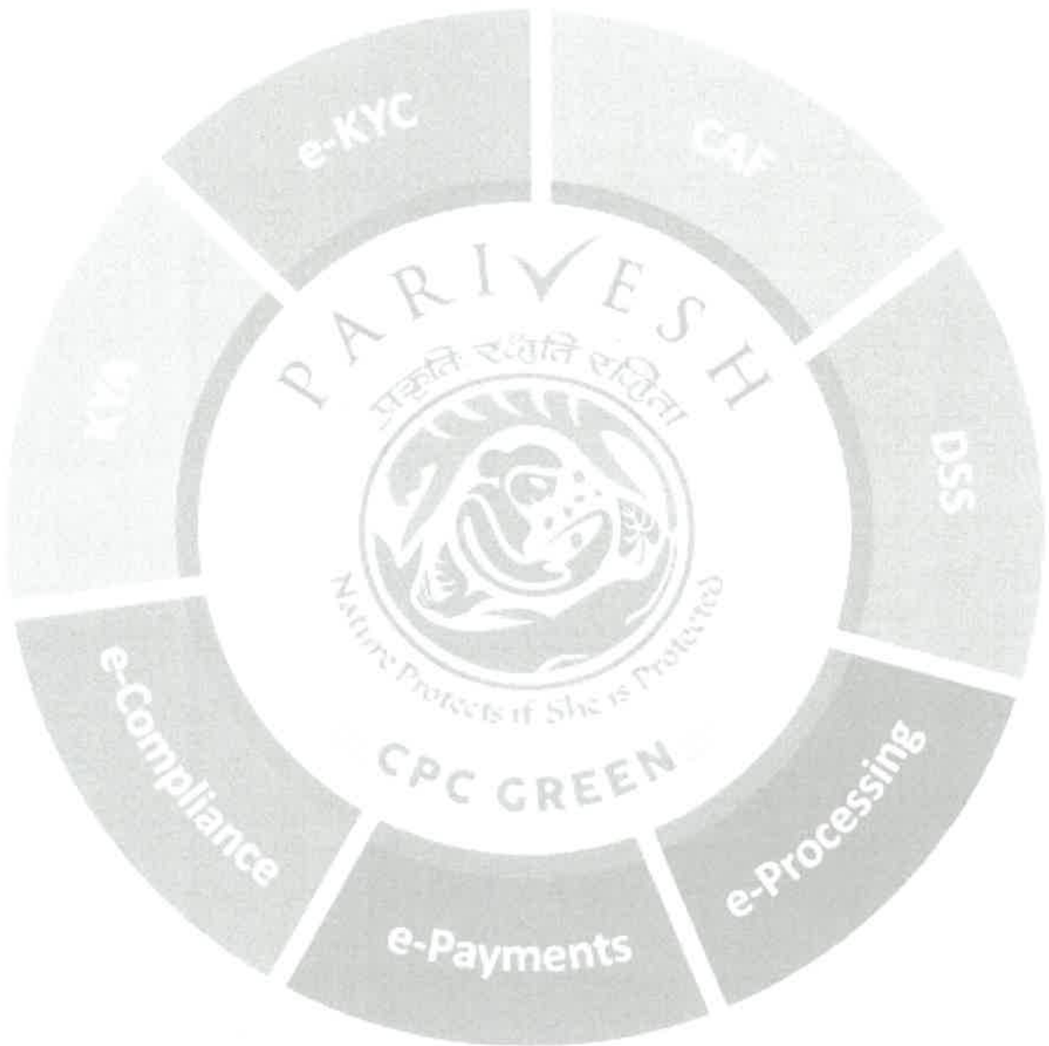
Environment awareness & training	-	5
Health	8	16
Total	72	621

xviii. Details of project cost and employment:

Particulars	(Rs. In lakhs)
Project Cost	25000 Lakhs
Employment	716 no.s

***



Signature Not Verified

Digitally Signed by : Mr Pankaj Verma
Member Secretary, MoEFCC (EC)

Date: 23/01/2024

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FORM I & XIV

नमुना नं १ व १४

100017819642

Date : 09/09/2023

Page 1 of 1

Taluka तालुका	BICHOLIM	**Survey No.** सर्वे नंबर	69
Village गांव	Mulgao	**Sub Div. No.** हिस्सा नंबर	1
Name of the Field शेताचें नांव	Voile Tale	**Tenure** सत्ता प्रकार	

Cultivable Area (Ha.Ars.Sq.Mtrs) लागण क्षेत्र (हे. आर. चौ. मी.)

Dry Crop जिरायत	Garden बागायत	Rice तरी	Khajan खाजन	Ker केर	Morad मोरड	Total Cultivable Area एकूण लागण क्षेत्र
0000.00.00	0000.00.00	0000.00.00	0000.00.00	0000.00.00	0000.00.00	0000.00.00

Un-cultivable Area (Ha.Ars.Sq.Mtrs) नापिक क्षेत्र (हे. आर. चौ. मी.)

Pot-Kharab पोट खराब

Class (a) वर्ग (अ)	Class (b) वर्ग (ब)	Total Un-Cultivable Area एकूण नापिक जामीन	Grand Total एकूण
0000.00.00	0001.60.00	0001.60.00	0001.60.00

Remarks शेरा

Assessment : आकार	Rs. 0.00	Foro फोर	Rs. 0.00	Predial प्रेदियाल	Rs. 0.00	Rent रेंट	Rs. 0.00

S.No.	Name of the Occupant कब्जेदाराचे नांव	Khata No. खाते नंबर	Mutation No. फेरफार नं	Remarks शेरा
1	Communidad Mulgao		70	

S.No.	Name of the Tenant कुळाचे नांव	Khata No. खाते नंबर	Mutation No. फेरफार नं	Remarks शेरा
1	----------Nil----------			

Other Rights इतर हक्क Name of Person holding rights and nature of rights: इतर हक्क धारण करणा-याचे नांव व हक्क प्रकार	Mutation No. फेरफार नं	Remarks शेरा
----------Nil----------		

Details of Cropped Area पिकाखालील क्षेत्राचा तापशील

Year वर्ष	Name of the Cultivator लागण करणा-याचे नांव	Mode रीत	Season मौसम	Name of Crop पिकाचे नांव	Irrigated बागायत Ha.Ars.Sq.Mts हे. आर. चौ. मी.	Unirrigated जिरायत Ha.Ars.Sq.Mts हे. आर. चौ. मी.	Land not Available for Cultivation नापिक जमीन Nature प्रकार	Area क्षेत्र Ha.Ars.Sq.Mts हे. आर. चौ. मी.	Source of irrigation सिंचनांचा प्रारि	Remarks शेरा
	----------Nil----------									

End of Report

For any further inquires, please contact the Mamlatdar of the concerned Taluka.

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GOA STATE WETLAND AUTHORITY (GSWA)
Department of Environment and Climate Change,
O/o Goa State Biodiversity Board, DSTE campus,
Opp. Saligao Seminary, Saligao, Bardez, Goa – 403511
Email ID: ms-gswa.goa@gov.in Website – www.gswa.goa.gov.in
Phone No-(0832)2407032

No.12-5/GSWA/2023-2024/Project/ 174 **Date: 05/10/2023**

To,

Dr. Mandar Nanajkar
Senior Scientist,
CSIR – National Institute of Oceanography
Dona Paula – Goa
403004

Sub: Request for notification of Wetland.

Sir,

Goa State Wetland Authority (GSWA) is in receipt of the communication no. VPM/Bich/F-BMC/2023-24/06 dated 15/09/2023,p received from Shri. Swapnesh Sherlekar, Chairperson, Mulgao Biodiversity Management Committee regarding the subject matter, copy of the same is enclosed herewith as **Annexure – I**. In this regard you are kindly requested to conduct site visit of the water body and prepare the brief document for the same, so that it can be further assessed as the potential wetland to be notified under Wetland (Conservation and Management) Rules, 2017 in the State of Goa. For on ground assistance you may contact Shri. Swapnesh Sherlekar, Chairperson, Mulgao Biodiversity Management Committee on 9372730066

This is for your information and further necessary action at the earliest.

Thanking you.

SALIGAO GOA

Yours faithfully

Dr. Pradip Sarmokadam
Head of the Nodal Agency
Goa State Wetland Authority

Copy to:

1. The Chairperson/Secretary, Mulgao Biodiversity Management Committee,C/o Village Panchayat Mulgao, Bicholim – Goa. 403503
2. The Member Secretary, Goa State Biodiversity Board, Saligao, Bardez – Goa.
3. The Sarpanch/Secretary, Village Panchayat Mulgao, Mulgao, Bicholim – Goa. 403503

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VILLAGE PANCHAYAT MULGAO
TALUKA: BICHOLIM GOA. 403 503
ग्रामपंचायत कार्यालय, मुळगाव
ता. डिचोली - गोवा. ४०३ ५०३ Ph.:0832-2215261

Ref. No.:-VP/MUL-BICH/2023-24/ Date:- /09/2023

Resolution No. 5/1 Gram Sabha Meeting dated 27.08.2023

Resolution No. 5(1)

It was unanimously resolved to approve the resolution of BMC for submitting a request to Wetland authority for notifying the village lakes available at survey no. 69/1 of Mulgao village of Bicholim taluka.

Proposed by – Vasant Ramakant Gad.

Seconded by – Prakash B. Parab.

SARPANCH
V. P. MULGAO
BICHOLIM - GOA

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MULGAO BIO-DIVERSITY MANAGEMENT COMMITTEE

MULGAO BICHOLIM TALUKA: BICHOLIM GOA. 403 503

REF. No. VPM/Bich/F-BMC/2023-24/03 **DATED:- 11/09/2023**

Resolution No. 3 BMC Meeting Dated 26.08.2023

3. Discussion on wetlands available in village.

Dr. Varsha Hoble guided the BMC on the procedure as to how to get a wetland notified as wetland. Accordingly, a lake available in Mulgao village at survey no. 69/1 was unanimously decided to be proposed for wetland registration before the Wetland authority.

The same resolution to be wetted in Mulgao VP Gram Sabha meeting scheduled on 27/08/2023 and also a NOC to be taken from the Communidade of Mulgao as being the owner of the lake.

Proposed by:- Akash M. Morajkar.

Seconded by:- Dattaguru M. Kavlekar.

BIODIVERSITY MANAGEMENT COMMITTEE MULGAO BICHOLIM GOA

Chairperson
Mulgao B.M.C.
Bicholim Goa.

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G/F

GOA STATE WETLAND AUTHORITY (GSWA)
Department of Environment and Climate Change,
O/o Goa State Biodiversity Board, DSTE campus,
Opp. Saligao Seminary, Saligao, Bardez, Goa – 403511
Email ID: ms-gswa.goa@gov.in Website – www.gswa.goa.gov.in
Phone No-(0832)2407032

No.12-5/GSWA/2023-2024/Project/ 174 **Date: 05/10/2023**

To,

Dr. Mandar Nanajkar
Senior Scientist,
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This is for your information and further necessary action at the earliest.

Thanking you.

SALIGAO GOA

Yours faithfully

Dr. Pradip Sarmokadam
Head of the Nodal Agency
Goa State Wetland Authority

Copy to:

1. The Chairperson/Secretary, Mulgao Biodiversity Management Committee,C/o Village Panchayat Mulgao, Bicholim – Goa. 403503
2. The Member Secretary, Goa State Biodiversity Board, Saligao, Bardez – Goa.
3. The Sarpanch/Secretary, Village Panchayat Mulgao, Mulgao, Bicholim – Goa. 403503

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Gmail

Mulgao Biodiversity Committee <bmcmulgao@gmail.com>

Request for Notification of Wetland

1 message

Mulgao Biodiversity Committee <bmcmulgao@gmail.com> Thu, Sep 14, 2023 at 3:47 PM
To: goanbiodiversity@gmail.com
Cc: vpmulgao@gmail.com

Sir / Madam,

Please find attached the resolutions of (i) Mulgao Village Biodiversity Committee, and (ii) Gram Sabha meeting of Mulgao village Panchayat dated 26/08/2023 and 27/08/2023 respectively, adopted for recommending lake(s) available in survey no. 69/1 of Mulgao village of Bicholim taluka, as WETLAND.

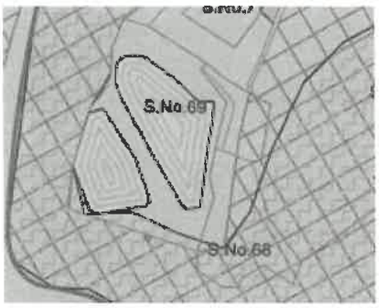
Kindly acknowledge the same and proceed for identification and notification of the lake(s) as WETLAND in accordance to Wetland (Conservation & Management) Act / Rules.

Thanking you in advance.

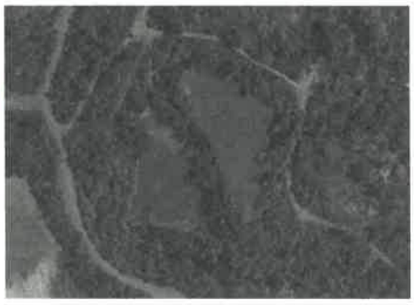
Your's faithfully,

Swapnesh Sherlekar
Chairman - Mulgao Biodiversity Committee

4 attachments



RP 2021 Image.jpg
34K



Google Earth Image.jpg
85K

Form 1&14.pdf
129K

Gram Sabha & BMC Resolution.pdf
351K

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Exhibit

Paryavaran Bhawan
CGO Complex, Lodi Road
New Delhi-110003

Dated: 17th November 2005

To
Shri P.K.Joshi,
Manager (Mining),
M/s Dempo Mining Corporation Pvt. Ltd.,
Dempo House, Campal,
PANAJI – 403001,
Goa.

Sub: Bicholim Iron Ore Mine (2 MTPA of processed ore) of M/s Dempo Mining Corporation Pvt. Ltd., located in villages Bicholim, Mayem, Maigao, Bordem, Sirigao, Lamgao, Taluk Bicholim, District North Goa, Goa – Environmental Clearance – reg.

Sir,

This has reference to your letter dated 24.02.2005 submitting the application on the aforesaid subject and subsequent letters dated 11.03.2005, 27.06.2005, 13.09.2005, and 07.10.2005 in regard to the above-mentioned subject. The Ministry of Environment and Forests has examined the application. It has been noted that the proposal is for expansion in production of iron ore in Bicholim Iron Ore Mine which consists of five leases – Vagachiper (99.96 ha), Lamgao (89.92 ha), Chotoor (90.15 ha), Totichomor Dongar (99.73 ha) and Mandoorbaga (99.55 ha) in a total lease area of 479.30 ha. The mining operations and reclamation activities in the 5 leases are seamless and contiguous. Of the total lease area, 7.28 ha is agricultural land, 422.78 ha is wasteland, 19.01 ha is for township and 30.219 ha is private land. No forestland is involved. Dr.Salim Ali Bird Sanctuary is located at a distance of 2 km from the core zone. Bicholim River flows adjacent (0.2 km) from the lease boundary and Mandori River flows at a distance of 4 km from the mine lease. It is not proposed to modify the existing natural drainage of the area. Of the total lease area, area to be excavated is 92.22 ha, 50.55 ha is for OB dumps, 8.42 ha is for mineral storage, 7.63 ha is for infrastructure, 2.68 ha is for roads, 132.21 ha is for green belt, 3.96 ha is for mineral separation plant, 19.019 ha is for villages (undisturbed) and 162.55 ha is others. Expansion of annual rated capacity of the mine is from 1.6 million tonnes per annum (MTPA) to 2 MTPA of processed iron ore. Mining is by opencast mechanised method using ripper-dozer. Blasting is not involved. Dry screening, crushing operations and wet mineral beneficiation of mineral ore are undertaken within the lease area. Mineral transportation of 6000 TPD is by road. Ultimate working depth of 40m below ground level has been already reached. Mining has intersected water table. Peak water requirement of 8201 m^3/day is for dust suppression (600 m3/d), beneficiation (7500 m3/d), green belt (23 m3/d), drinking/domestic (63 m3/d), garage (15m3/d). This is being met from river (saline water)- 7500 m3/d for mineral beneficiation, of which 5250 m3/d is reciculated, 688 m3/d is from mine pit water and 63 m3/d is from tube wells. An estimated 202 mill. m3 of OB will be generated over the balance life of mine in addition to 4.2 mill. m3 of OB already generated. Backfilling has already begun and the entire OB will be backfilled. Life of the mine at the rated capacity of 2 MTPA is 10 years. Approval of IBM for Mining Plan was obtained on 12.07.2004. NOC from Goa State Pollution Control Board has been obtained on 14.09.2004. Public Hearing was conducted on 08.12.2003. Capital cost of the Project is Rs. 13.54 crores.

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2.0 The Ministry of Environment and Forests, hereby accords [illegible] ... to Birla [illegible] ... area of 479.30 ha for ... the provisions of the Environment Impact Assessment Notification, 1994 and subsequent amendments ... that are subject to terms and conditions mentioned below:

A. Specific Conditions

(i) Prior approval of the Chief Wildlife Warden, Government of Goa shall be obtained for mining within 10 km of the buffer zone of the Dr.Salim Ali Bird Sanctuary.

(ii) No dumping of OB where natural slope is already exceeding 28° angle.

(iii) Top soil should be stacked properly with adequate measures at earmarked sites. It should be used for green belt development and for reclamation and rehabilitation of the mined out areas.

v) OB and other wastes should be stacked at earmarked sites only and should not be kept active for long periods of time.

Plantation should be taken up for soil stabilisation along the slopes of the dump and terraced after every 5-6 m of height and overall slope angle shall be maintained at 25-26°. Sedimentation pits shall be constructed at the corners of the garland drains. Retention/Toe walls shall be provided at the base of the dumps.

Use of geotextiles for dump stabilisation shall be taken up in the critical areas.

Catch drains and siltation ponds of appropriate size, gully plugs and check dams should be constructed to arrest silt and sediment flows from the mining operations. Desilting operations shall be undertaken regularly and particularly after very monsoon.

Garland drain (size, gradient & length) shall be constructed for both mine pit and for the waste dump. Sump capacity should be designed keeping 50 % safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains. Desilting operations shall be undertaken after very monsoon.

No ...illing and blasting shall be undertaken without approval of the competent authorities.

Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral ore. The vehicles should be covered with tarpaulin and should not be overloaded.

Plantation shall be done which includes a green belt of adequate width around the ML area, along roads, OB dumps (38.558 ha), plant area by planting suitable native species in consultation with the local DFO/Agriculture Department. The density of trees should be

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GOA STATE POLLUTION CONTROL BOARD
गोंय राज्य प्रदुशण नियंत्रण मंडळ

Nos : 91-832 2438567, 2438528
2438563, 2438550
832-2438529

Dempo Towers, 1st Floor,
EDC Plaza, Patto,
Panaji 403 001, Goa.

No.S/33/09-PCB/Vol. VII/ 6657 , 8 /12/09

To,
Shri. Ramesh Gauns,
Paj- Wada,
Bicholim - Goa.

Sub: Information under Right to Information Act.
Ref: Your application dated 23/11/09

Sir,

I am to refer to your application dated 23/11/09 regarding information rtaining to TC/ML No. 11/41, 12/41, 13/41, 14/41 and 15/41 of M/s Dempo ining Corporation located in Bicholim and inform you as under:-

1) **As regards to item No. (1) & (2):-** As per the observation made by the Board Officials, during the inspection conducted on 24/11/09 there are two water bodies i.e. Thorli Tali & Matrai Lake located within the mining lease area.

2) **As regards to item No. (3) :-** The mining company was granted Environmental Clearance by Ministry of Environment and Forests, Govt. of India, New Delhi, vide No.J-11015/45/2005-IA.II(M) dated 17/11/05.

3) **As regards to item No. (4):-** The Goa State Pollution Control Board has granted Consent to Establish (NOC) dated 14/09/04, Consent to operate under Water Act dated 4/05/06 and renewal of the same dated 07/12/07 valid upto 31/7/08 and 12/09/08 valid upto 31/07/2010 and under the Air Act on 04/05/06, received on 14/12/07, 24/11/09, valid upto 31/12/09.

As regards to item No. (5) & (6): - The Board conducted inspections of the mining lease on 7/12/07, 19/7/06 and 24/11/09.

As regards to item No. (7):- The Board officials inspected the site, on 24/11/2009 and observed that the thorli tali, Dhakli lali and

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Matrai lake was completely silted. Issue of appropriate direction to the mining company is under process.

As regards to item No.(8) :- The Board has renewed the consent to operate under the Water Act on 14/9/06 valid upto 31/07/08 and under Air Act on 14/12/07 valid upto 31/12/09.

As regards to item No.(9) & (10): - Yes

As regards to item no (11) :- Copy of the report is enclosed herewith.

Yours faithfully,

Member Secretary/PIO
For Goa State Pollution Control Board

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Exhibit-F.

The most serious analysis to date are that of an expert committee, constituted by the Govt. comprising representatives of the PWD, Captain of Ports, Directorate of Mines and Industries and Agriculture Department to investigate heavy flooding experienced in Bicholim on the night of June 13, 1981, The committee submitted its reports which was clear indictment of one of Goa's major mine lessess, M/s V.S Dempo Limited. It stated:

"In the catchment area of the river lie some mines, where mining activity is being under taken for the last 30yrs or so because of mining, developmental activity and deforestation occurring in the catchment area of the river, the soil mantle gets displaced, with the result that loose soil finds itself transported by the rain waters to the water courses, because of the steepness of the bed slopes in the upper reaches of these water courses, the carrying channel acquires, considerable velocity, which is further scouring or eroding the bed of the channel. However, when the river or water course traverses flat terrain, the velocity gets reduced and the material which is carried in suspension gets settled in the channel, causing silting & reduction in the carrying capacity of the channel, resulting ultimately in the overflowing of banks and inundation of low lying area along the banks"

(Source - Fish Curry and Rice, Goa foundation, addition- 2003)

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Ramesh S. Gauns
Pajwada-Bicholim
GOA
2.07.2009.

To
The Member Secretary
Goa State Pollution Control Board
EDC- Patto plaza.
Panaji. Goa.

Sub: Pollution and siltation of the water bodies and stream of River Bicholim due to Sesa Goa mine.

Sir
It was brought to your notice last year during monsoon vide letter dated 14.8.2008sent by me, with photographs on the issue of pollution of the river Bicholim, (a flood prone river) and its stream, coming from village Lamgao of Bicholim taluka. The same stream is under going desiltation work, carried out by the government of Goa in the month of May 2009 as a measure to control flooding! But no action to book the culprit who is at the root cause for the siltation,has been taken as on this day !

This year it is yet to rain as usual in Goa and in Bicholim in particular, in spite of this the same stream of the Bicholim river is being polluted as seen in Exhibits-A,B,C and D. The photographs are taken on 29.6.2009 of the same stream of river Bicholim, coming from the closest part of the mining lease in village Lamgao, flowing down to the town of Bicholim. The water looks nothing less than mining slurry in all the exhibits!

All the exhibits clearly shows that the concern Mine owner is in total violation of Environmental Clearance specific conditions no. v and vi, –Exhibit-E, and also Water Act1974,by virtue of polluting the fresh perennial water bodies.

It is to be noted seriously that despite the check dams, if such a huge amount of mining rejection flows down into the water bodies than it is obvious that the check dams are of no use to arrest silt/dumped rejection and prevent water bodies from getting polluted, as seen in the Exhibits-A to D, mentioned above. Therefore the idea of putting specific conditions pertaining to check dams in the Environmental Clearance order should be reviewed seriously by the Ministry of Environment & Forest, rather than allowing the Mine owners to make a mockery of their E.C. order.

It has been a common practice adopted by the mine owners, in all the mining areas to allow huge amount of rejection to run into the water bodies and paddy fields. River Bicholim is one of the classic example of how severely water bodies are polluted and silted due to mindless and hazardous ways of mining activities adopted

6/7/09

Goa State Pollution Control Board
E.D.C. Plaza Patto
PANAJI-GOA-403001

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by the mine owners. Infact River Bicholim is prone to flooding during monsoon but no concerned Government agencies seem to be serious on the matter. The siltation of the catchment area of the stream of river Bicholim has already been the cause for severe flooding of 13 June1981, as seen in Exhibit-F. In addition to this, serious kind of pollution and siltation of the lakes is also caused by the said miner. The Exhibit-G, shows how serious is the problem of siltation of lake, which is on the verge of extinction. The Exhibit-H shows the second lake turning to a tailing pond! A phenomenal transformations in the natural status of the water bodies-perhaps its called 'Ecofriendly ' mining! Interestingly both these lakes are within the mining lease,and the fact is conveniently being concealed by the mine owner !

The photographs are of the two lakes at Lamgao in Bicholim, taken in the month of April 2009 on Good Friday, the day on which Jesus Christ was crucified. This is done to symbolize crucification of the lakes by the Mine owners! With all the photographs, it is evident that the mine owner has imposed upon the lakes an inevitable, unnatural death!

So to save these water bodies I urnestly request you to revoke NOC granted - Consent to Establish the mine- under Water Act 1974 and the Environmental Clearance be put in abeyance at the earliest.

A high level committee constituted to look into this serious matter shall highly be appreciated ..

.Looking forward to your timely action to save these natural water bodies from Sesa Goa(Vedanta)-earlier it was M/s Dempo Mining Corporation Ltd.

Thanking you

Yours truly,

Ramesh S. Gauns
(National Award teacher).

Enclosures : Exhibits-A to H.

CC To

1) The Chief Secretary –Govt. of Goa.

2) The Minister .for Environment. Govt. of Goa.

3) The Minister for Environment & Forest-N.Delhi-(By Reg.A.D.)

TRUE COPY

89

From,
Sudhakar Vaigankar & Others,
Bag Wada, Pilgaon,
Bicholim, Goa.

Date : 24/05/2024

To,
The Deputy Collector,
Office of the Deputy Collector,
Bicholim, Goa.

Sub: Restoration of our Agricultural land.

Sir,

We the farmers of Pilgoan village having fields of agricultural land with in the jurisdiction of Village Panchayat Pilgaon would like to state as under:

1. We have our agricultural land in Pilgaon Village having survey no: 168/7, 11,12,17,22,26,32,38,44,153/4,9,168/16,168/11,21/28,34,40,49,53,153/1,153/2, 153/10,153/8,153/6,16,8/4,168/10,168/15,168/20,168/23,163/29,163/41,163/47, 163/52,168/3,5,9,14,24,30,36,42,46,51,153/7,165/1,165/7.

2. The afore said survey numbers were affected due to mining activities carried out in the nearby areas in past which resulted into low fertility.

24/5/2024
DESPATCH CLERK
Office of the Dy. Collector & S.D.O
Bicholim Goa

NATIONAL GREEN TRIBUNAL PUNE

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3. The issues were bought to the notice of the Management of the Dempo Mining Corporation ltd which was subsequently taken over by Sesa Mining Corporation ltd (Group of Vendana Ltd)

4. Based on the loss incurred in our fields some of the members were offered with jobs by the management on compensatory grounds mutually agreed in past to take care of daily living.

5. Now due to closure of Mining industry the person who were offered with jobs are retrenched by the Management of Sesa Mining Corporation ltd (Vedanta group).

6. We have decided to once again start the agriculture work in our fields as there is no other option to earn the daily livings nor we have received any financial packages.

7. The fields bearing above survey numbers are now totally damaged with mining silt and dump as management failed to manage the silt and waste water generated out of mining activity and untreated water was allowed in fields and the same is not in condition for agricultural activity.

8. We have informed the same to the management on number of occasion and they are not reverting any thing in this matter.

In Context of the above we request you to Kindly intervene and issue instruction to the management of Sesa Mining Corporation ltd / Vedanta Ltd to restore our fields in original condition in order to cultivate the same. We also request you to initiate action against the management of the aforesaid company for damaging agricultural land without any permission from farmers and competent authority.

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Kindly note the same and do the needful.

Thanking You,

Yours Sincerely,

Sudhakar Vaigankar & Others

TRUE COPY

92

Farmers from Piligao Village,
Piligao, Bicholim, Goa.

Date: 13/1/2024

To,
The Mines Manager,
Sesa Mining Corporation,
Dhabdhaba, Bicholim, Goa

CC: 1. Sarpanch/Secretary, Village Panchayat Piligao, Bicholim
2. Police Inspector, Bicholim Police Station, Bicholim.
3. Dy. Collector & S. D. O., Bicholim Office, Bicholim

Sub: REMINDER LETTER for letter written of 22/11/2023 with subject "Urgent request for desilting of agricultural land in below mentioned properties of various Survey Numbers in our Village" with request for URGENT ACTION.

Sir,
Having written a letter on 22/11/2023 with subject "Urgent request for desilting of agricultural land in below mentioned properties of various Survey Numbers in our Village" as detailed again below with request for URGENT ACTION.

"We the undersigned, farmers from Piligao Village have been facing various issues that are damaging fallout of mining industry in our village. One of the main issue among that is of useless mining overflowing water that brings in mining waste dump mud to our farms.

Our farms are full of these overflowed muds that necessities desilting of our farming areas from the mining company so that we can use our agricultural areas for agricultural usage again as required by Government of Goa.

The agricultural properties with Survey numbers that are deeply affected for last 25 years are as follows;
168/7, 11, 12, 17, 22, 26, 32, 38, 44, 153/4, 9, 168/16, 168/11, 21/28, 34, 40, 49, 53, 153/1, 153/2, 153/5, 153/10, 153/8, 153/6, 153/3, 16, 8/4, 168/10, 168/15, 168/20, 168/23, 163/29, 163/41, 163/47, 163/52, 168/3, 168/5, 168/9, 168/14, 168/24, 168/30, 168/36, 168/42, 168/46, 168/51, 153/ 7, 165/1, 165/7.

Kindly carry out desilting work for above properties at the earliest, especially before mining begins and make sure that same problem does not occur again by building a barrier necessary.

Thanking you in anticipation,
Yours faithfully,

Farmers from Piligao with signatures appended....

RECEIVED
SIGN. Raulekar
DATED 16/01/2024

16/01/2024
DESPATCH CLERK
Office of the Dy. Collector & S.D.O.
Bicholim-Goa.

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Name of farmers 93	Signature
1) Sunaina Ramdas Halarnkar	
2) Damodar K. Jambavalikar	
3) Krishna Datta Halarnkar	K D Halarkar
4) Ramdas Sagun Kavlekar	
5) Dinesh Ankush Kavlekar	
6) Mahesh Santosh Pednekar	
7) Datta Gundas Halarnkar	

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From
Farmers from Pilgao Village,
Pilgao, Bicholim, Goa.

Date: 22/11/2023

To,
The Mines Manager,
Sesa Mining Corporation,
Dhakdhaka, Bicholim, Goa

CC: 1. Sarpanch/Secretary, Village Panchayat Pilgao, Bicholim
2. Police Inspector, Bicholim Police Station, Bicholim
3. Dy. Collector & S. D. O., Bicholim Office, Bicholim

Sub: Urgent request for desilting of agricultural land in below mentioned properties of various Survey Numbers in our Village.

Sir,

We the undersigned, farmers from Pilgao Village have been facing various issues that are damaging fallout of mining industry in our village. One of the main issue among that is of useless mining overflowing water that brings in mining waste dump mud to our farms.

Our farms are full of these overflowed muds that necessities desilting of our farming areas from the mining company so that we can use our agricultural areas for agricultural usage again as required by Government of Goa.

The agricultural properties with Survey numbers that are deeply affected for last 25 years are as follows;

168/7, 11, 12, 17, 22, 26, 32, 38, 44, 153/4, 9, 168/16, 168/11, 21/28, 34, 40, 49, 53, 153/1, 153/2, 153/5, 153/10, 153/8, 153/6, 153/3, 16, 8/4, 168/10, 168/15, 168/20, 168/29, 163/29, 169/41, 169/47, 163/52, 168/3, 168/5, 168/9, 168/14, 168/24, 168/30, 168/36, 168/42, 168/46, 168/51, 153/ 7, 165/1, 165/7.

Kindly carry out desilting work for above properties at the earliest, especially before mines keeps and make sure that same problem does not occur again by building a [illegible] necessary.

Thanking you in anticipation,

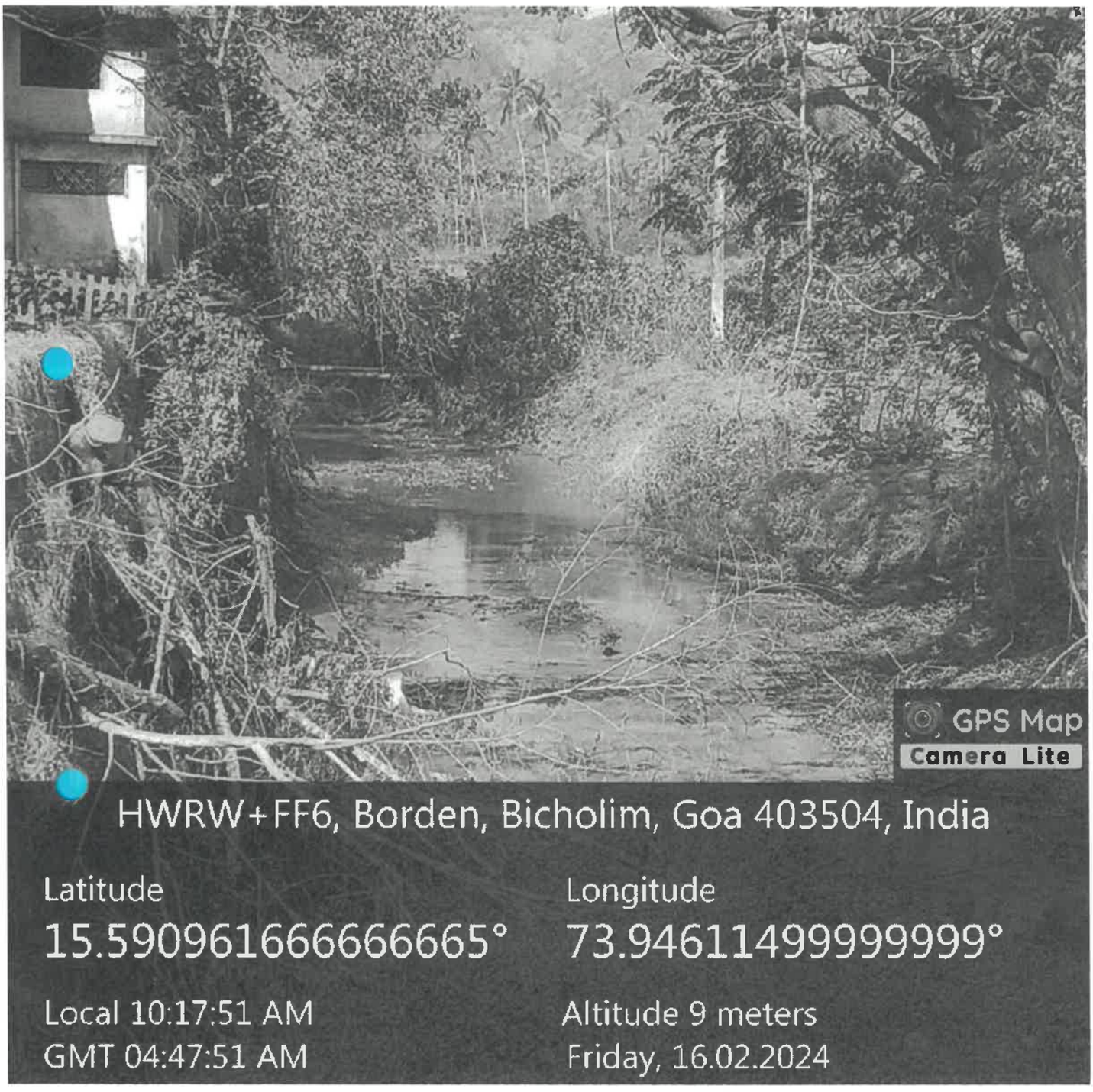
Yours faithfully,

Farmers from Pilgao with signatures appended....

RECEIVED
23/11/2023
Entry Clerk
Office of the Deputy Collector & SDO
Bicholim Taluka

NATIONAL GREEN TRIBUNAL PUNE
TRUE COPY

95

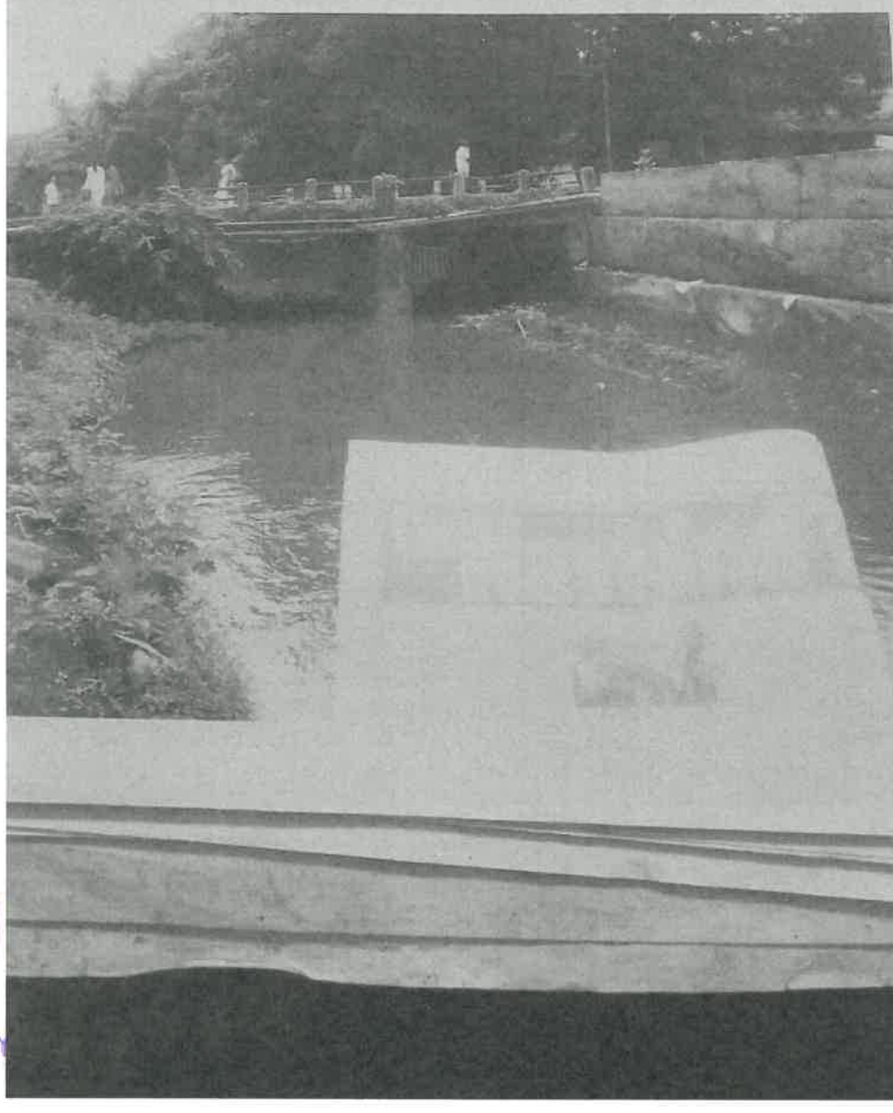


NATIONAL GREEN TRIBUNAL PUNE
TRUE COPY

96

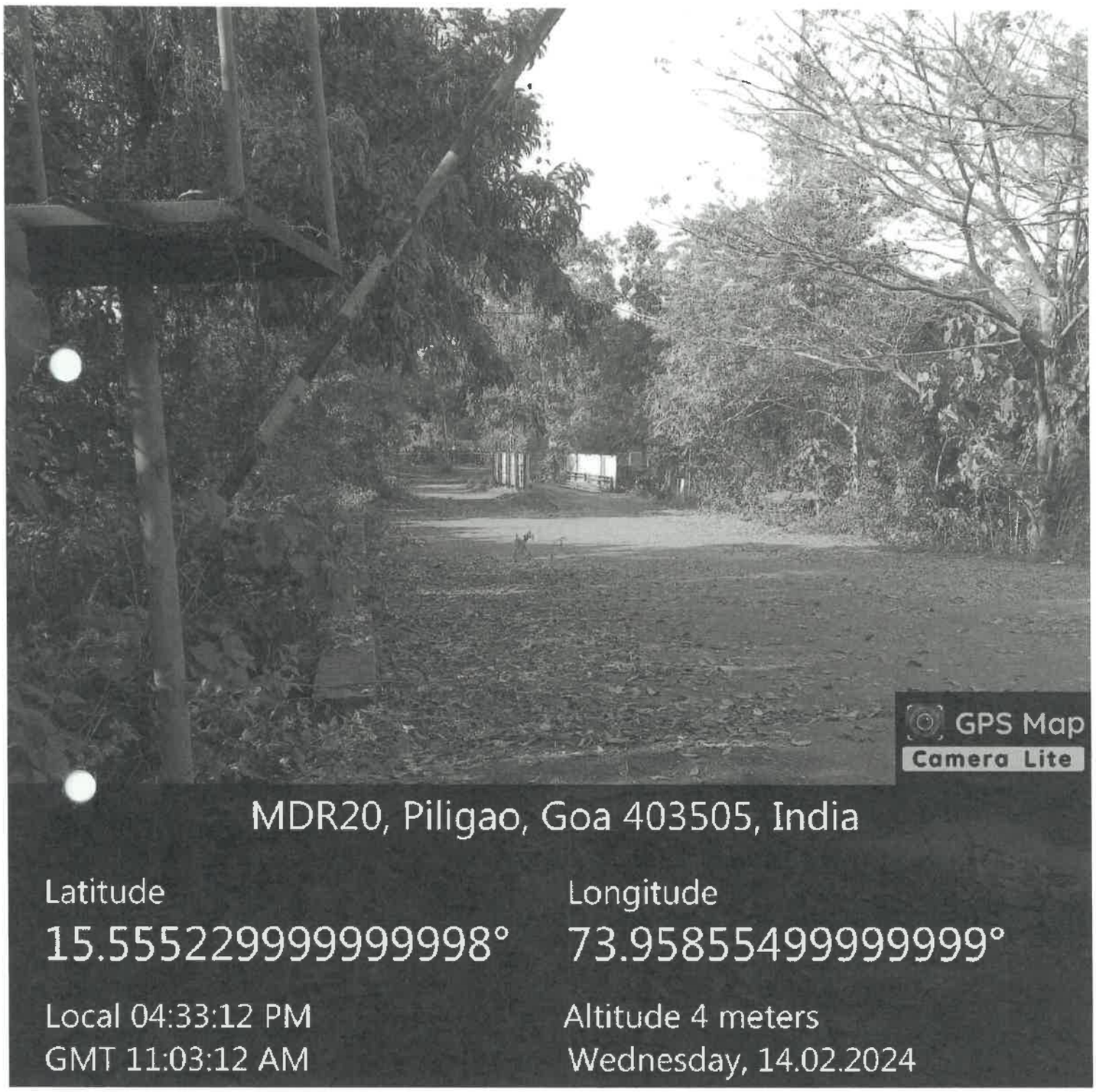
Exhibit-A

Exhibit-B



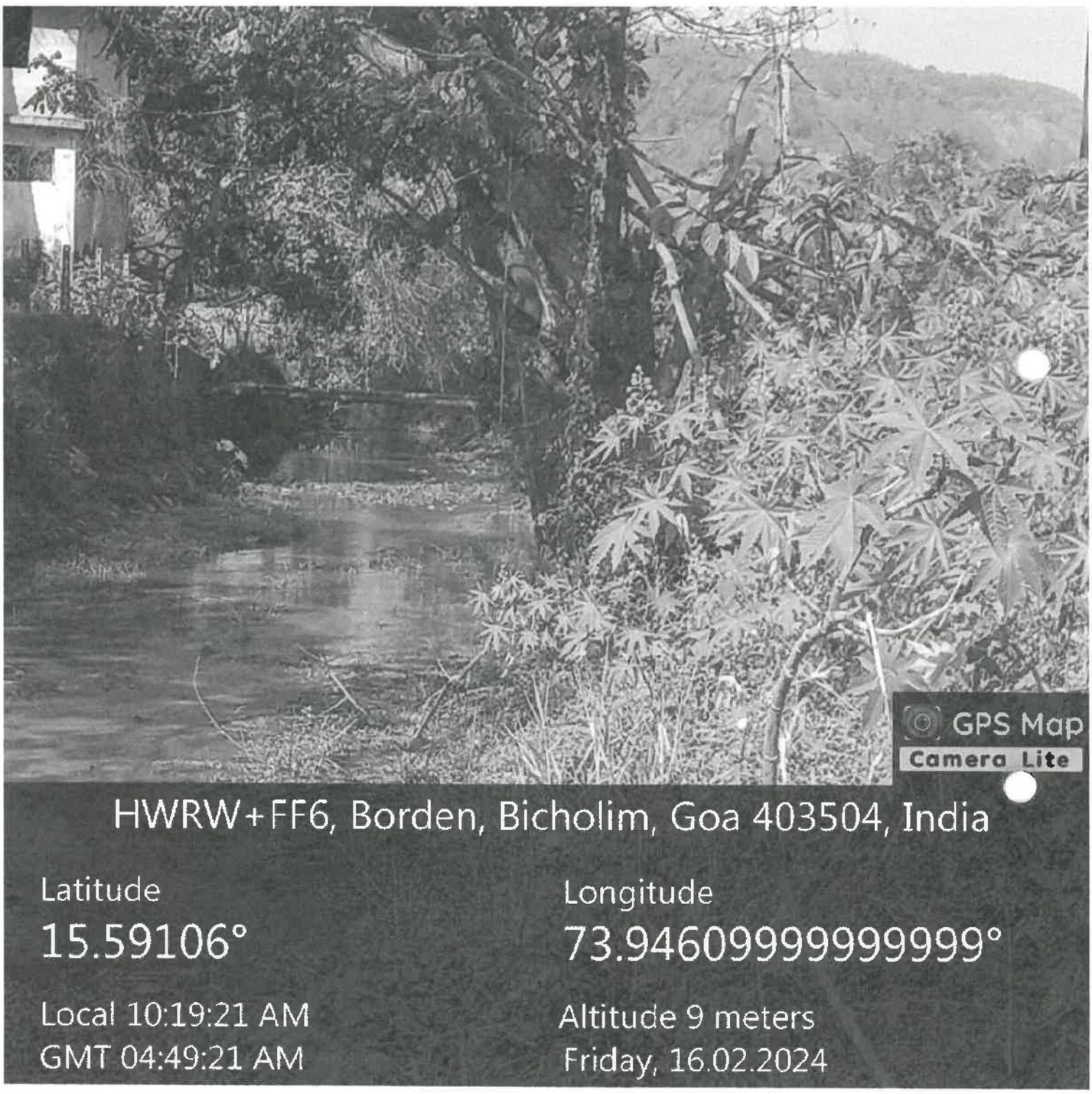
NATIONAL GREEN TRIBUNAL PUNE
TRUE COPY

97


GPS Map
Camera Lite
MDR20, Piligao, Goa 403505, India
Latitude
15.555229999999998°
Longitude
73.95855499999999°
Local 04:33:12 PM
GMT 11:03:12 AM
Altitude 4 meters
Wednesday, 14.02.2024

TRUE COPY

98


GPS Map
Camera Lite
HWRW+FF6, Borden, Bicholim, Goa 403504, India
Latitude
15.59106°
Longitude
73.946099999999999°
Local 10:19:21 AM
GMT 04:49:21 AM
Altitude 9 meters
Friday, 16.02.2024

TRUE COPY

99

TRUE COPY

100

NATIONAL GREEN TRIBUNAL
TRUE COPY

101

NATIONAL GREEN TRIBUNAL
TRUE COPY

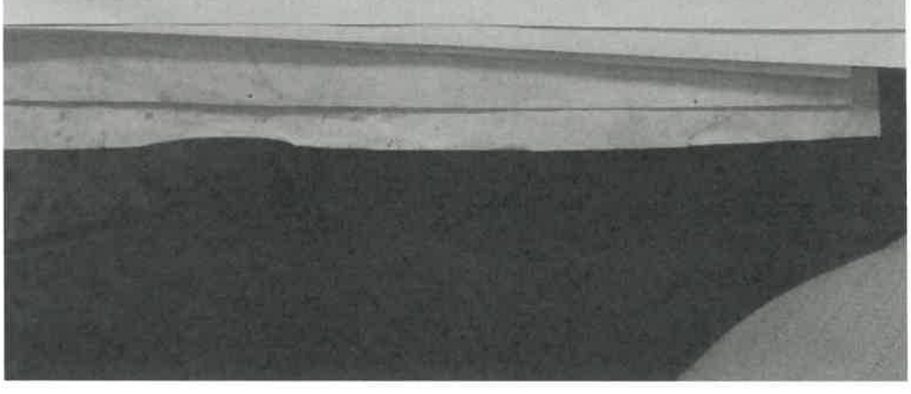
102

NATIONAL GREEN TRIBUNAL
TRUE COPY

103

Exhibit-G

Exhibit-H



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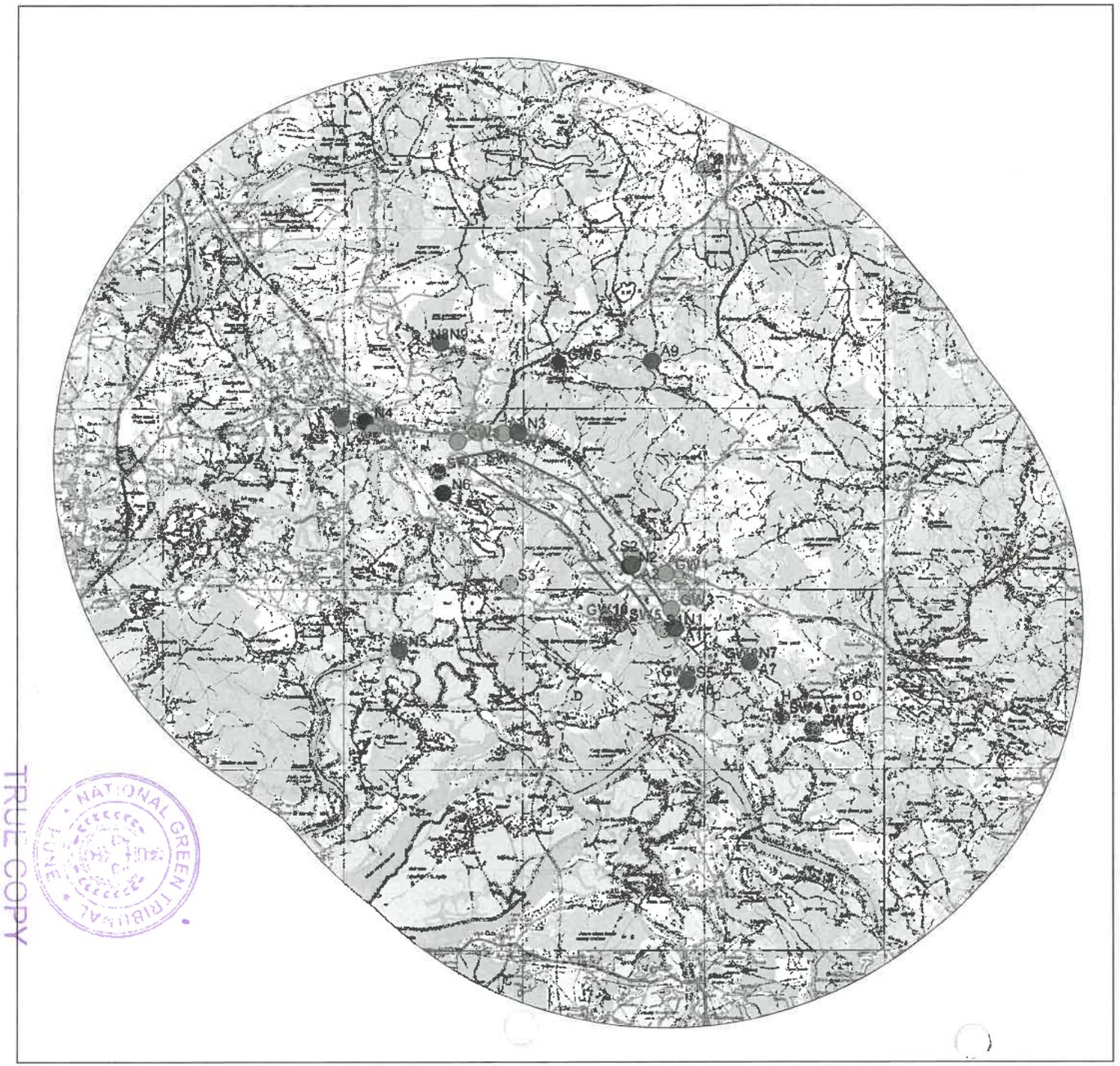
Key plan Showing Monitoring Location



N
W E
S

1:100,000

0 5 10 Km

Legend

- Air
- Water
- Noise
- Soil
- Bicholim Mine
- bufferzone

BLOCK I - BICHOLIM MINERAL BLOCK M/S. VEDANTA LIMMITED		
BICHOLIM,LAMGAO,BORDEM, MAYEM ,MULGAO & SIRIGAO DISTRICT: NORTH GOA STATE : GOA		
TITLE	Location Monitoring Stations	
SCALE	1:1,00,000	
Topo sheets No.	New D43B14, D43B15 D43C2 & D43C3	Old 48E/14, 48E/15 48I/2 & 48I/3

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NATIONAL GREEN TRIBUNAL

EXECUTIVE SUMMARY

of

Block-I Bicholim Mineral Block

Area : 478.5206 Ha.
Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages of Bicholim Taluka, North Goa District, Goa State

PROPONENT
Vedanta Limited
Sesa Ghor, 20 EDC Complex, Patto, Panjim
Goa- 403001

June-2023

EIA Consultant
MINERAL ENGINEERING SERVICES
25/XXV, Club Road, BALLARI-583103, Karnataka
email : mes_msraju@yahoo.co.uk
Tel: 08392-267421

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1.0 INTRODUCTION

In pursuant to the notice inviting tender dated 30.09.2022 by the Government of Goa in accordance with Mines and Minerals (Development and Regulation) Act 1957, and the Mineral (Auction) Rules, 2015 and as amended from time to time, Vedanta Limited intends to obtain prior Environmental clearance from MoEF&CC for the production of 3.0 MPTA in Block-I Bicholim Mineral Block located in Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages of Bicholim Taluka, North Goa District, Goa State.

The said Block-I Bicholim Mineral Block was earlier operated by Sesa Mining Corporation Ltd (SMCL) formerly known as Dempo Mining Corporation Ltd. Pursuant to Supreme Court judgement in Goa Foundation 2 dated 07.02.2018, all the mining leases granted by the State Government were cancelled. Thereafter, the State Government in terms of the said order and as per the provisions of MMDR Act put this block for auction as a fresh lease grant.

The e-auction process was conducted in accordance with the Tender Document for said Mineral Block. Vedanta Limited emerged as the highest qualified bidder having submitted the highest final price offer and was declared as the preferred bidder under Rule 9(9) (iii) of Auction Rules.

Further, upon submission of the first installment, being 20% of the upfront payment, Government of Goa issued a **Letter of Intent (LOI) vide letter no. DMG/25/Auction Cell/LOI-function/2023/2801 dated 13.01.2023** for the grant of a mining lease for Block-I - Bicholim Mineral Block in Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, of Bicholim Taluka, North Goa District, Goa State over an area of 478.5206 Ha over a period of 50 years.

1.1 PROJECT DESCRIPTION

The Block area of 478.5206 Ha falls under Block 1 - Bicholim Mineral Block in Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages of Bicholim Taluka, North Goa District, Goa State.

The proposed mineral block area is having about 84.743 million tonnes of mineral reserves & resources. The mined Iron Ore shall be utilized at the company-owned pig iron plant, other domestic and export markets.

The block area falls under the Toposheet No. 48 E/14, Survey of India and bounded by latitude of 15° 34' 20.518" N to 15° 36' 54.018" N & longitude of 73°54' 4.754" E to 73° 57' 09.51" E.

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The general elevation of mineral block area varies from 169.14 m to -37.24 m above MSL. State Highway SH-1 is about 0.65 km from ML area, the nearest Railway station is Thivim Railway station which is at a distance of 10.5 km by road, the nearest Air port is Mopa Airport at a distance of 27.3 km.

ENVIRONMENTAL SENSITIVITY

Land Details & Survey Nos	478.5206 Ha **Sy.Nos** : Bordem : Parts of Survey No. 19, 21, 23, 31, 32, 33, 34, 40, 41, 42, 43, 44 Bicholim : Survey No. 80, 81 & Parts of Survey No. 72, 77, 78, 79, 82, 83, 84, 86, 88, 89, 90, 95, 96 & 99 Lamgao : Survey No. 20, 24, 25, 26 & Parts of Survey No. 1, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 21, 22, 23, 27, 28, 29, 30 & 46 Mayem : Survey No. 145, 164, 165 & Parts of Survey No. 84, 85, 86, 114, 142, 143, 144, 146, 162, 163, 166 &167 Mulgao: Survey No. 34, 62, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 89, 91, 110, 114, 115, 116 & Parts of Survey No. 33, 35, 48, 61, 63, 79, 80, 81, 86, 88, 90, 92, 93, 94, 95, 96, 101, 102, 103, 104, 109, 111, 112, 113, 117, 118 & 124 Sirigao : Parts of Survey No. 70, 75, 76, 77, 78, 79, 80, 81 & 82	
Geographical Coordinates	Latitude 15° 34' 20.518" to 15° 36' 54.018" N & longitude of 73°54' 04.754" to 73° 57' 09.51" E.	
Survey of India (SOI) Topo-sheet No	48 E/14	
Water requirement	664 KLD	
Power requirement	5.8 MW	
Sanctuary / Tiger Reserve/Elephant / any other Reserve Forest	No sanctuary /Tiger reserve within study area	
	Mayem Forest Kharpal RF Kasarpal RF Ambadgaon RF	Common Boundary with the lease area 6.7 Km 5.1 Km 7.6 Km
Biosphere Reserve	None	-
Water Bodies	Assnora river	Touching lease boundary at one point
	Bicholim River	0.23 Km
	Mandovi River	2.3 kms
	Chapora River	7.5 km
	Mayem Lake	0.46km
Defence Installation	None	--
Nearest airport	Mopa	27.3 Kms
Nearest Railway Station	Tivim	10.5 kms
Nearest Highway	SH-1	0.65 KM from ML area
Seismic Zone	III	--
Nearest Habitat	Within the lease	Min Buffer of 50mts shall be provided and no

Sensitivity: Public (C0)

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		drilling and blasting shall be carried out.
Environmental Protection Cost	Capital Cost: Rs. 72 lakhs Recurring Cost: Rs. 621 Lakhs	--
Project Cost	25000 lakhs	
Man Power Requirement	716	Both Direct & Indirect employment
Archaeological monuments/ places of worships/public utilities etc.	Namuzgah/Idgah ;	Archaeological monuments Within ML area. (200m buffer will be maintained from Idgah;
	Lamgao caves Sateri Temple Mhatrai temple Kelbai Temple Mahadev Temple Lairaee Temple (Old) Shri Lairae Temple(new) Saptakoteshwar temple and at Narve	300m buffer from Lamgao caves) With in the ML Area 0.86 km from ML Area. 2.5 km There are other monuments within 10km radius namely temples, Churches at Old Goa, Site at Gujir,
	Amthane Dam	7 kms
	Fort at Khorjuvem	2 kms, there are few other forts also within study area like fort at Colvale & Sanquelim
	Public ferry point at sarmanas at Pilgao village at an aerial distance of 2.45 km	
Coastal Regulation Zone (CRZ)	--	--
Distance from the HFL of the river in m	Assnora river is touching one part of the lease boundary	Assnora river is touching one part of the lease boundary but the elevation difference is min 10mts.

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<table>
<tr><td>Nearest School</td><td>Mulgao Government Primary School (2 schools)

Lamgao Government Primary School</td><td>Within Lease (Gaonkarwada School is nonfunctional since last few years; A buffer of 120m will be maintained from Manaswada habitation wherein the school is located.)

0.015 kms outside the mine lease</td></tr>
<tr><td>List of Schools</td><td colspan="2"><table>
<tr><th>Sr. No.</th><th>School Name</th><th>Strength</th><th>Distance from block boundary in meters</th><th>Direction from Block</th></tr>
<tr><td>1</td><td>Ideal High school, Pilgao</td><td>292</td><td>1525</td><td>S</td></tr>
<tr><td>2</td><td>Govt. high school Sirigao</td><td>56</td><td>874</td><td>W</td></tr>
<tr><td>3</td><td>Govt. high school, Mulgao</td><td>117</td><td>608</td><td>N</td></tr>
<tr><td>4</td><td>Govt. high school, Shriodwadi, Mulgao</td><td>50</td><td>702</td><td>N</td></tr>
<tr><td>5</td><td>Vijyanand high school, Mayem</td><td>94</td><td>3958</td><td>S</td></tr>
<tr><td>6</td><td>Shree Mahamaya High school, Mayem</td><td>170</td><td>1245</td><td>SW</td></tr>
<tr><td>7</td><td>Our lady of grace high school, Bicholim</td><td>1106</td><td>505</td><td>NE</td></tr>
<tr><td>8</td><td>Shree Shantadurga high school, Bicholim</td><td>1286</td><td>616</td><td>NE</td></tr>
<tr><td>9</td><td>Radhakrishn high school, Bicholim</td><td>343</td><td>307</td><td>NE</td></tr>
</table></td></tr>
<tr><td>Mangrove</td><td>Assnora Creek Mangrove</td><td>210 mts from ML area</td></tr>
<tr><td>Industries</td><td>Cashew factory within the mineral block at Bicholim (85m buffer will be maintained)</td><td>Iron ore Beneficiation plant of SMCL at a distance of 1.2 km from mineral block;
Iron ore barge loading jetty of SMCL at aerial distance of 3km
There are other industrial areas within the study area namely Bicholim</td></tr>
</table>

TRUE COPY

		Industrial estate (0.42km), and other estates at Mapusa, Thivim, Colvale and Corlim beyond 8km.

1.2 GRANT OF TOR & BASE LINE DATA MONITORING

The MOEF&CC accorded the TOR for the Project vide TOR identity TO23A0000GA5700309N dated 16/06/2023 The Baseline Data was collected during the period from March to May 2023.

2.0 MINING METHODOLOGY

The proposal of obtaining environment clearance for 3.0 Million tonnes per year with overall overburden ratio of 1: 8.39. Mining operations will be by way of mechanized opencast method without drilling & blasting, complying with all the statutory requirements using Heavy earth moving machinery like Rippers and Dozers, shovels, dumpers, wheel loaders, and tippers. Rippers and Dozers will be used for ripping of hard material and wheel loaders are used for loading and dozers for levelling. The Run of Mine (ROM) Iron Ore will be subjected to dry crushing and screening in the crushing and screening plant of 4MTPA located inside the block area. Finished product (Lumps & Fines)/ROM will be utilized in the Pig Iron plant of the company other domestic and export markets. The ore transportation from mine to the jetty will be carried out by tippers with the capacity of 10.5 Tonnes. Most of the transportation will happen through company owned dedicated road, only 0.94km. of public road will be used.

2.1 PRODUCTION, RESERVES AND LIFE OF MINE

The total reserves/resources as on 13.01.2023 are 84.743 Million Tonnes, which is considered for defining the Life of the Mine. The life of the mine will be 30 years which may enhance based on the future results of exploration planned during the Mining Plan period. However, the lease is valid till 50 years .

2.2 MANPOWER, WATER & POWER REQUIREMENT

MAN POWER: The Project shall provide direct employment to about 521 people, which includes mine officials, skilled, semi-skilled and unskilled labour and about 195 indirect employment opportunities to the locals. Over and above this a lot of employment will be generated in the form of contracts like transportation, plantation, workshops and garages,

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and allied activities.

S.No	Designation	Nos
1	Mines Manager (1st Class)	5
2	Mines Manager (2nd Class)	8
3	Mining Engineer	21
4	Geologist	3
5	Mechanical Engineer	12
6	Electrical Engineer	8
7	Mining Foreman	20
8	Mine-mate	12
9	Skilled workers/operators	220
10	Semi-Skilled	70
11	Unskilled	128
12	Other	14
	Total	**521**

WATER: The entire water requirement except that of domestic consumption will be met through Rain water harvested within the mine pits .Efforts will be put for reduction of specific water consumption year on year by adopting best practices .

Purpose	QTY (KLD)	Source
Dust Suppression	600	Rain water harvested in mine pit
Green Belt	20	
Vehicle Washing	8	
Domestic	36	Bore Well
Total	664	

The project proponent has already applied for permission for withdrawal of ground water from Water Resource Department, Goa

POWER REQUIREMENT: The estimated overall power requirement including utilities and auxiliary facilities for the proposed mine are indicated below:

• Energy consumption per day: 5.8 MW

Sensitivity: Public (PU)

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Source of Power: Electric power supply is available from State Grid.

Standby DG Set with capacity of 1000 KVA 1 no., 500 KVA 1 no., 200 KVA 3 nos

2.3 RESETTLEMENT & REHABILITATION

There is no proposal for Resettlement &Rehabilitation during the entire life of the mine.

3.0 DESCRIPTION OF THE ENVIRONMENT

The Block-I Bicholim Mineral Block is the core zone for the present EIA study. The area encompassing 10 km radius from the boundary of the core zone has been defined as the buffer zone. The core zone and the buffer zone together constitute the study area. The Baseline Environmental data with respect to Air, Water, Noise and Soil Quality in the study area for the present EIA study is considered for the Summer Season 2023. Various studies on hydrogeology, flora, fauna, and socioeconomic study were also conducted during the same period. Sampling and analysis have been carried out by M/s. Environmental Laboratory (Unit of Mineral Engineering Services), Bangalore, Laboratory accredited by NABL and recognized by CPCB/MoEF&CC.

Environmental component	Monitoring period	Number of Sampling Stations	Parameters
Micro-Metrology	Mar to May 2023	one	Temp, Relative humidity, Rainfall, Wind speed, wind direction
Air Quality	Mar to May 2023	9 Stations	PM_{10},$PM_{2.5}$,SO_2,NO_2,CO,NH_3,C_6H_6,B(a)P,As, Lead O_3 & Nickel
Water Quality	May 2023	7 Samples Surface water & 10 Samples Ground water	IS-10500:2012 & CPCB NORMS
Noise	April-2023	9 Stations	L_{day},L_{night}, & L_{eq}
Soil	May-2023	7 Samples	Physical & Chemical parameters of Indian standards IS: 2720
Land use	May-2023	Core & Buffer Zone	--
Ecology & Biodiversity	January-April-2023	Core & Buffer Zone	Flora & Fauna Survey
Socio-Economic	April -2023	10Kms Study area	Need base Assessment Survey
Hydrogeology	Mar-2023	Core & Buffer Area	Bore well study

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3.1 Topography

The topography is undulating low hill terrain extending all along the mining block in the Northwest and South East direction. Mine does not have any forest land within the lease. The area is located on the foothills of Western Ghats belt and receives heavy rainfall during monsoon season, the average annual rainfall is about 3500mm.

The Block I- Bicholim Mineral Block is situated in North Goa district and extends between Lat 15° 34' 20.518" N to 15° 36' 54.018" N & longitude of 73°54' 4.754" E to 73° 57' 09.51" E. The mine block area is about 478.5206 ha. The Mine is located on a hill range running in a SE-NW direction. The general elevation of ML area varies from 169.14 m to -37.24 m above MSL .

The drainage pattern in the study area is dendritic and sub dendritic. Bicholim Mineral Block study area falls under Mondovi River basin of Taluka Bicholim, Bardez, Satari, Sanguem, Tiswadi & Ponda. The catchment area of Mondovi River 1580 Sqkm. The Sahyadri hill ranges in the east form the main watershed. The streams originating here flow in west and northwest direction to join the Arabian Sea. The study area drainage pattern is dendritic and sub dentric

3.2 Ambient Air Quality

For Ambient air quality 9 stations have been fixed covering all the directions; the frequency of monitoring is 2 days/ week for 3 months and the parameters covered were as per CPCB NAAQS guidelines.

The statistical analysis of Ambient Air Quality is as follows, the maximum values of SO_2, NO_2, PM_{10} & $PM_{2.5}$ in the core zone station were found to be 13, 16, 53 & 36 µg/m3 and in the Buffer zone villages the maximum values were found to be 13,18,56 & 36 µg/m3.

All other parameters like CO, O_3,NH_3, Pb,As,Ni,,Benzene(C_6H_6),&Benzo(a)Pyrene (BaP), are also sampled and results of analysis were found to be within the limits of NAAQ's.

3.3 Noise Levels

For noise quality 9 stations including one station in core zone and 8 in buffer zone villages were sampled and Leq during day & night are observed. The Leq value during day time in the core zone station were found to be 61.7 dB(A) and during night time the noise levels were found to be 49.3 dB(A). In the buffer zone villages the noise levels were found to be in the range of 43.1 to 61.2 dB(A) and during night time the noise levels were found to be in the range of 35.9 to 44.9 dB(A) . The noise levels both in the core zone and buffer zone were found to be within the limits of Noise Quality Standards for Industrial, Commercial and Residential areas.

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3.4 Water quality

Water Quality Monitoring was done by grab sampling once in a season for 7 surface Water and 10 Ground Water samples. IS: 3025, APHA, & IS:1622 standards are used for analysis. Thus, the analysis results are compared to IS standards IS:2296 & IS:10500:2012. The results of few surface water samples shows high TDS, Total hardness, Sulphates, and Chlorides. This is mainly because of the influence of creek water. The open well samples were found to have pH slightly acidic in nature. This is possibly due to the occurrence of lateritic ore. Whereas other parameters are within permissible limits of respective standards.

3.5 Soil Quality

Soil Quality Monitoring at 7 locations including one from the Mine Block and others from nearby village agricultural fields are collected and analyzed, during the study period for Physical Parameters and chemical parameters. They are all observed to be within normal soil quality fit for cultivation.

3.6 Land Environment

The existing major land use of study area covering 10 km radius are 6.61% of water bodies, 0.9% reserve forests, 2.12% of mangroves, 6.23% of agriculture land, 20.97% of scrub land and 15.41% of Settlement area.

Sl.no	Particulars	Area Ha	%
1	Forest Area	429.5	0.92
2	Mangroves	991.0	2.12
3	Water Bodies	3092.1	6.61
4	Open mixed forest/Cashew Plantation	21017.0	44.91
5	Flooded Vegetation	1328.0	2.84
6	Agricultural Land	2917.5	6.23
7	Settlements	7210.2	15.41
8	Scrub Land	9811.9	20.97
Total Area		46797	100.00

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After the ore is exhausted in the pits the broken-up land will be backfilled and will be progressively afforested and rehabilitated with local species like Cashew, mango, Jamun, Cocum, Terminalia etc. All the efforts will be taken for maximum survival and growth of the plants. Some of the areas will be developed as water bodies.

3.7 BIOLOGICAL ENVIRONMENT

The Mine area is located at the distance of around 10.553 km from the Salim Ali Bird Sanctuary, hence, there is very less chance of threat to the sanctuary and mangrove ecosystem, however, mine management could work with downstream riparian and mangrove forest and assist ecologically restoration as per the EMP suggested species.

The Mine pit area is already degraded and away from community settlement usage, hence there is not much additional impact or social ecological constraints.

In case of conservation of flora and fauna as per suggested EMP, greenbelt shall be developed all along the boundary, unused areas, inactive dump slopes and roadside of core and buffer areas. The proposed biodiversity management plan will be implemented through State Forest Department.

Budget allocations and time bound interventions will be monitored by local authority to ensure that the conservation of biodiversity and no damage occurs to the existing ecosystem habitats in the study area. The dominant species in the reserved forest were Anacardium occidentale, and Acacia Auriculiformis, which have been promoted significantly on both private and degraded government land.

The Mango and Coconut orchards is significantly promoted to farmers on agricultural bunds and house backyards. There are no endangered or endemic species of flora or fauna in the core zone.

3.8 SOCIO-ECONOMIC ENVIRONMENT

There are 68 villages/towns - 56 villages and 12 census towns (CT), in the buffer zone. Of these, 68 villages/towns, 48 villages and 12 towns are located in 6 talukas of North Goa and 8 villages in one taluka in Maharashtra. As the data pertains to large number of villages and towns are in North Goa, the buffer zone is compared to North Goa District.

Usually, villagers grow coconuts, cashew, or mango in the small piece of land. In the absence of mining activity agriculture and tourism are the only sources of employment.

The infrastructure and amenities available in the study area denotes the economic well-being of the region. It is observed that good infrastructure facilities are available in the project study

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area, which consists of education, health care, drinking water facilities, communications, transportation, etc. Due to the proposed mining activity, no significant adverse changes are visualized in the traditional way of life of the people residing in the villages in the buffer zone. Further people residing in the nearby villages will be benefited by the direct and indirect employment opportunities created by the mining activities along with the various socio economic development activities taken by company. The communication, health and education facilities will improve and thus the mining activity will be beneficial and will have a positive impact in the region.

4.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The Block-I Bicholim Mineral Block is yet to start mining and shall operate taking all precautionary measures to reduce the impact of mining operations on Air, Water, Noise and Soil and ensuring all control measures to comply with the prescribed standards.

4.1 AIR ENVIRONMENT

The impacts on Air Environment is assessed through Aermod Modelling and results show that the cumulative impacts on the surrounding buffer zone villages after commencement of mining operations will be within the permissible limits

Following measures will be undertaken to control the Air pollution/dust generation during the mining activities: -

- Due to high inherent moisture of the ore as well as waste, generation of dust while loading will be minimal. The speed limit of transport vehicles will be enforced.
- Transportation trucks will be loaded to the prescribed capacity and covered with tarpaulin.
- Dust Sprinkling system with a fine mist spray will be used for dust suppression along the road as well as stacks.
- The dump slopes will be covered with geotextiles, which will prevent generation of dust. During the monsoon the finalized geotextile laid areas will be taken up for plantation.
- Plantation done on the slope of waste dump itself acts as a wind breaker.
- The latest machinery having air-conditioned cabin will be used for loading and dozing operations.

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- Proper maintenance of transport machinery with regular PUC will be done.
- Providing acoustic enclosure and proper exhaust chimney height to DG set.
- Proper dust suppression measures at crushing and screening plant.
- General aspects of air quality management will be included in induction training to be provided to all employees.
- Installation of Wheel wash at mine exit
- Manual and mechanized machine for road sweeping, washing of mine exits, junctions after transportation hours.

4.2 WATER ENVIRONMENT

The rain water is harvested into mine pits will be used for various activities like dust suppression, vehicle washing, gardening etc. Though the ground water shall be encountered in the pit, there shall be no adverse impact due to pit dewatering as the radius of influence due to pit dewatering falls 10m from the periphery of the ML area. The protective measures in the form of use of geotextiles to cover dump slopes, garland drainages, trenches, settling tanks, laterite boulder walls application of coco logs will be undertaken to control the water pollution.

Thus, there shall be no adverse impacts on surface and ground waters. In fact the local villagers will be benefited by discharge of clean rain water harvested inside the pit.

The impact of Mining operations on the Assnora river and management

The detailed study was concluded on Assnora river which touches one end of the lease boundary the study concluded that the existing garland drains, settling pits and check dams are made properly in the Mineral Block area and shall be maintained for the proper flow of rainfall runoff generated during the year. The de-siltation work will also being monitored and done before the monsoon season. The daily silt load calculated is found to be 53.82 mg/l.

The likelihood of seepage from Assonora River in the 5 bottom pit is studied very carefully and in a detailed manner. Further no mining has to be done from the 5 bottom pit. The lithology of the beds nearby the river and pit is observed through borehole logs and cross-section which clearly depicts that the dip of the bedding plane and the impervious clay rich lithology prevents the seepage of water from the river in to the 5 Bottom Pit. The depth of the river nearby pit is only 2.5 meter and underlain by 15 m impervious thick clay rich lithology, so there is no seepage of Assonora River water inside the 5 Bottom Mine Pit.

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The impact of Mining operations on Hydrogeology

Hydrogeological studies were conducted to know the impact of mining activities on Ground water table. The study concluded the core and buffer area of the Mining Lease is declared as SAFE in respect of ground water development and management. The groundwater extraction in the Mining Lease is negligible and hence there is no adverse impact is created due to mining & allied activities in the surrounding 10 Km radius of buffer area.

4.3 NOISE ENVIRONMENT

Maximum noise is produced from the operation of earth moving machineries & movement of dumpers. No drilling and blasting operations are involved. Wide green belt shall be provided surrounding ML to attenuate noise pollution. Regular maintenance of mining equipment, machinery & all vehicles as per the manufactures recommendations to minimize the Noise generation shall be followed.

Following management measures will be adopted to control noise levels:

1. Provision of acoustic cabins for operators deployed on HEMM.
2. Selection of new low-noise equipment from the manufacturers failing which use of additional retrofits if available.
3. Green belt developed all around the mine and haulage roads act as an acoustic barrier.

4.4 IMPACT ON LAND ENVIRONMENT

At the conceptual stage around 105 ha of land will be brought under plantation by planting mix of fruit bearing trees like Cashew, Jack fruit and forestry species. Around 20 Ha of the area will be reclaimed by forming a water reservoir. This water reservoir will serve in augmenting the ground water condition of the region and also the pit discharge water will be supplied to local villagers for agricultural purpose.

The BEES methodology was employed to evaluate the impact on Environmental Pollution Parameter and the Impact score obtained was -8.

4.5 IMPACT ON BIOLOGICAL ENVIRONMENT

As there exists schedule I species falling within 10 km radius of the ML, a full-fledged biodiversity assessment study was taken up by the proponent along with wildlife conservation

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plan with financial outlay to assist the local forest department. The proponent shall take mitigation steps within ML area for immigration of wildlife through massive afforestation. The BEES methodology was employed to evaluate the impact and the impact score obtained was +6. This positive score is due to the massive afforestation the project proponent has proposed to be taken up on the already stripped area.

4.6 IMPACT ON SOCIO ECONOMIC ENVIRONMENT

This mine shall provide direct employment to about 521 people, which includes mine officials, skilled, semi-skilled and unskilled labour and about 195 indirect employment opportunities to locals. Over and above this a lot of employment will be generated in the form of contracts like transportation, plantation, workshops and garages, and allied activities.

The mining activities help in sustainable development of this area including further development of physical & social infrastructural facilities. The mining activity provides revenue to the state and center in form of taxes and royalty etc.

The project proponent shall assess the health conditions of the workers as per the DGMS guidelines. Noise, air, water quality will be maintained well within the limits. The BEES methodology was employed to evaluate the impact and the score obtained was +45.

The overall impact score obtained from BEES methodology is +42 which shows the project shall be beneficial to the local community and the local Government.

5.0 ADDITIONAL STUDIES

In additional studies, Risk Analysis followed by Disaster Management Plan, which will help in identifying the possible risks and to promote towards preparedness to counter any mishap. Risk analysis and disaster management plan have been prepared and incorporated in EIA Report.

6.0 ENVIRONMENT MANAGEMENT PLAN

A Comprehensive Environment Management Plan including development of Green Belt has been suggested. Identification of all potential environmental impacts of a project is an essential step of Environmental impact Assessment. These are critically examined, and major impacts are further studied. In the case of mining projects, change in topography and land use, air pollution, water pollution, waste management, biodiversity and socio-infrastructure issues are significant. The Mine will be operated taking all precautionary measures to reduce the impact of mining operations on Air, Water, Noise and Soil and ensuring all control measures to

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comply with the prescribed standards. The impact of change of land use will be positive only, as portion of abandoned pit is partly backfilled and afforested and balance portion is left as water reservoir beneficial to local villagers. Development of green belt along the boundary of ML area will ensure a better environment. The budgetary cost towards EMP proposed is Rs 621 Lakhs per annum.

6.1 CORPORATE SOCIAL RESPONSIBILITY

The Lessee proposes to undertake several activities under the Corporate Social Responsibility Initiative during the operation of Mining Project. The company carries out CSR activities under following thematic areas namely Agriculture, Health care, Education, Skill development, Sports, women empowerment etc. The CSR interventions by the company will help to improve social economic status surrounding villages.

Sr. No.	Thematic area	1st year	2nd year	3rd year	4th year	5th year
1	Agri & Animal Husbandry	1,000,000	1,200,000	1,500,000	1,500,000	1,700,000
2	Health Care	1,000,000	1,200,000	1,500,000	1,500,000	2,000,000
3	Education	4,850,000	4,200,000	4,200,000	4,400,000	4,300,000
4	Community Asset	700,000	900,000	1,000,000	1,200,000	1,500,000
5	Drinking water & sanitation	600,000	700,000	700,000	700,000	700,000
6	Skilling	500,000	750,000	750,000	800,000	800,000
7	Cultural	100,000	100,000	200,000	200,000	200,000
8	Sports	100,000	100,000	200,000	200,000	300,000
9	Women Empowerment	800,000	1,000,000	1,000,000	1,200,000	1,200,000
10	Environment - Community plantation	100,000	100,000	100,000	100,000	100,000
	Total	**9,750,000**	**10,250,000**	**11,150,000**	**11,800,000**	**12,800,000**

6.2 CORPORATE ENVIRONMENT RESPONSIBILITY

In addition to the CSR, the Lessee proposes to undertake a number of activities as one time measure under the Corporate Environment Responsibility Initiative during the operation of

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Mining Project. The demands made in public hearing and during consultation with public representatives. The list of activities envisaged with a total cost of **Rs. 309.3** lakhs is presented in the EIA/EMP report.

7.0 ENVIRONMENTAL MONITORING PROGRAM

Environmental monitoring is required to know the Quality of Ambient Air, Water and Noise Levels during the operation phase of the proposed project and take required corrective measures, in case of any non-compliance with the norms stipulated by regulatory authorities. The methodologies adopted for environmental monitoring will be in accordance with the CPCB. SPCB and Indian Bureau of Mines requirement.

Proposed Monitoring Schedule for Environmental Parameters

S.No.	Particulars	Frequency of Monitoring	Sampling	Parameters Required to be Monitored
Air Quality				
1	Ambient Air quality in and around the Mine	Twice a week	24 hours continuously	$PM_{2.5}$, PM_{10}, SO_2 & NO_2
Water Quality				
2	Water Quality around the Mine (Surface & Ground Water)	Once in a Month	Grab Sampling	As per IS: 10500
Noise Level Monitoring				
3	Ambient Noise levels & work place Noise monitoring	Once in a Quarter	Continuous for 24 hours with 1-hour interval	Noise Level
Soil Quality				
4	Soil Quality around the Mine	Once in a year	Grab Sampling	IS: 2720

8.0 EXPLANATION ON HOW ADVERSE EFFECTS ARE MITIGATED

The EIA/EMP Report has established the Base Line Environment of the Project Area and has assessed anticipated impacts of the Project on the overall ecology & environment. Accordingly, general as well as specific mitigation measures for management of the Key Environmental

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Parameters have been suggested. Further, specific measures towards monitoring and implementation of the Environment Management Plan along with details of the funds required towards implementation of the Pollution Control Measures are also included in the Report. By implementing the suggested Environment Management Plan adverse effects of the Project can be mitigated.

9.0 CONCLUSION

The Block- I Bicholim Mine Block is a newly auctioned mineral block. The Impacts predicted for various Environmental Attributes were found to be on the positive scale. The EMP proposed will have a positive impact on the surrounding environment and the landscape of the area. The local population will benefit from this project by way of employment and CSR activities carried out by the company.

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123 ANNEXURE-1

गोवा राज्य प्रदूषण नियंत्रण मंडळ
गोंय राज्य प्रदूषण नियंत्रण मंडळ
(आयएसओ ९००१-२०१५, आयएसओ १४००१:२०१५, आयएसओ ४५००१:२०१८ प्रमाणित मंडळ)
फोन क्र: ०८३२-२४०७७००, २४०७७०१, २४०७७०३
ईमेल आयडी:
अध्यक्ष, जीएसपीसीबी: chairman-gspcb.goa@nic.in
सदस्य सचिव, जीएसपीसीबी: ms-gspcb.goa@nic.in
कार्यालय: mail.gspcb@gov.in

क्र. ११/१५/२०२२ - पीसीबी/फायदेशीर/७८७१ दिनांक: ०५/०७/२०२३

पर्यावरणीय सार्वजनिक सुनावणीसाठी जाहीर सूचना

जसे की, पर्यावरण, वन आणि हवामान बदल मंत्रालय, भारत सरकार यांनी सुधारित केलेल्या दि. १४/०९/२००६ रोजीच्या पर्यावरणीय प्रभाव मूल्यांकन सूचना क्र. १५३३ (ई) अनुसार सदर सूचनेच्या पत्रक I मध्ये येत असलेल्या प्रकल्पाने प्रकल्पग्रस्त होत असलेल्या व्यक्तींच्या अडचणीची खातरजमा करण्यासाठी परिशिष्ट IV मध्ये विहित नमुन्यात दिल्याप्रमाणे जिल्हावार-प्रकल्पांच्या जवळील परिसरासाठी किंवा सदर प्रकल्पांच्या ठिकाणी पर्यावरणीय सार्वजनिक सुनावणी घेण्यात येणार आहे.

त्या अनुषंगाने, सुधारित केलेल्या दि. १४/०९/२००६ रोजीच्या पर्यावरणीय प्रभाव मूल्यांकन सूचनेमध्ये घालून देण्यात आलेल्या प्रक्रियेनुसार, जिल्हाधिकारी किंवा अतिरिक्त जिल्हाधिकारी किंवा उपजिल्हाधिकारी यांनी वर सांगण्यात आलेल्या पर्यावरणीय सार्वजनिक सुनावणीस अध्यक्षपदी उपस्थित असावे.

जसे की, अपेक्षित असलेप्रमाणे, पुढील प्रकल्पाकरिता खाली सांगण्यात आलेल्या तारखेस, वेळेस आणि ठिकाणी सदर पर्यावरणीय सार्वजनिक सुनावणी ही गोवा राज्य प्रदूषण नियंत्रण मंडळाने जिल्हाधिकारी यांच्याशी सल्लामसलतीने आयोजित करावी असे प्रस्तावित करण्यात आले आहे.

अनु. क्र.	प्रकल्पाचा तपशील	तारीख	वेळ	स्थळ
१	डिचोली, बोर्डे, लामगाव, मुळगाव, मये आणि शिरगाव या तालुका डिचोली, जिल्हा उत्तर गोवा, गोवा राज्यातील गावांमध्ये स्थित ४७८.५२०६ हेक्टर क्षेत्रफळ असलेल्या ब्लॉक I डिचोली खनिज ब्लॉकच्या बाबतीत मे. वेदांता लि.च्या ३.० एमपीटीए लोहखनिज उत्पादनाकरिता पर्यावरणीय प्रभाव मूल्यांकन २००६ नुसार सार्वजनिक सुनावणी	११/०८/२०२३	स. १०.३० वा.	नारायण झांट्ये बहुपयोगी क्रीडा संकुल, सर्वण, डिचोली, गोवा

प्रकल्पाने प्रकल्पग्रस्त होत असलेल्या व्यक्तींच्या अडचणीची खातरजमा करण्यासाठी पर्यावरणीय सार्वजनिक सुनावणी घेण्यात येणार आहे, ज्यामध्ये प्रकल्प प्रस्तावकांसमोर ते आपले मत प्रदर्शित करु शकतील किंवा माहिती किंवा स्पष्टीकरण मागतील.

आपले मत मांडण्यासाठी किंवा बोलण्यासाठी जे लोक सहभागी होऊ इच्छित आहेत, त्यांनी सदर सुनावणीच्या दिवशी स. ९.३० वा. ते दु. १२.०० वा. पर्यंत या वेळेत आपली स्वतंत्रपणे नाव नोंदणी करावयाची आहे.

ज्या संबंधित व्यक्तींचा या प्रकल्पाच्या बाबतीत पर्यावरणविषयक गोष्टींमध्ये वाजवी सहभाग असेल त्यांनी आपली मते, सूचना, वक्तव्ये आणि हरकती ह्या सदर सार्वजनिक सुनावणीच्या ठरलेल्या तारखेस किंवा त्याआधी अतिरिक्त संचालक, पर्यावरण, वन आणि हवामान बदल मंत्रालय, (आयए-III विभाग), पर्यावरण भवन, सीजीओ संकुल, लोधी मार्ग, नवी दिल्ली - ११०००३ किंवा गोवा राज्य प्रदूषण नियंत्रण मंडळ, साळगाव सेमिनरी समोर, पिळर्ण औद्यो. वसाहतीजवळ, साळगाव, बार्देश, गोवा यांना लेखी स्वरुपात पाठवावे.

प्रकल्प प्रस्तावक यांच्याकडून सदर पर्यावरण प्रभाव मूल्यांकन अहवालाचा मसुदा त्याच्या कोंकणी आणि इंग्रजी भाषेमधील कार्यकारी सारांशासोबत सॉफ्ट/हार्ड कॉपीमध्ये सादर करण्यात आलेला आहे आणि तो पुढील कार्यालयांमध्ये माहितीकरिता उपलब्ध करण्यात आलेला आहे. त्याची सॉफ्ट कॉपी ही गोवा राज्य प्रदूषण नियंत्रण मंडळाच्या www.goaspcb.gov.in या संकेतस्थळावरसुद्धा माहितीकरिता देण्यात आलेली आहे.

सदर पर्यावरणीय सार्वजनिक सुनावणीची कार्यवाही ही या बाबतीत पुढील योग्य कृतीसाठी पर्यावरण, वन आणि हवामान बदल मंत्रालय, भारत सरकार, नवी दिल्ली यांना पाठविण्यात यावी.

सही/-
(डॉ. शमिला मॉंतेरो)
सदस्य सचिव
गोवा राज्य प्रदूषण नियंत्रण मंडळाकरिता

Jul 31, 2023, 13:00

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124 ANNEXURE-2

From,

Ramesh S. Gauns

1724, Pajwada, Bicholim,

Goa

Mobile : 9270085105

Date: 31 August 2021

To,

The Public Information Officer,

Village Panchayat of Alorna,

Pernem, Goa

Subject: Application under Right to Information Act 2005

Sir/Madam,

Kindly issue me certified copy of the following information:

1. Date on which FAC/EMP report and Executive Summery of Block I Bicholim Mineral Block of the Project Proponent Vedanta Limited from Goa State Pollution Control Board with covering letter no. 11/1/2022-PCB/Leg 01/7838 was in-warded in the Panchayat office.

I am citizen of India.

Thanking you,

Yours Truly,

Ramesh S. Gauns

14/9/2023

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From

Ramesh S. Gauns

House No.1724 Pajwada

Bicholim

Dated :4/9/2023.

To

The Public Information officer
Directorate of Mines and Geology.
Panaji.

Subject: Information under RTI Act 2005

Sir

Kindly give the following information under RTI.

1.Number of years for which ML 11/41 to 15/ 41 were under operation till the ban by Supreme Court.(Maye, Bicholim, Mulgao,Lamgao, Bordem& Sirigao).

2.Kindly give the survey numbers which were the part of above mentioned MLs respectively.

3.Kindly give the survey numbers of the same MLs, as asked in point 2,which are the part or included in Block-1 Bicholim Mineral Block., which is auctioned.

4.Kindly give the number of mining pits exists in the above mentioned Block.

Yours truly

[Ramesh S Gauns]
Mob. 9270085105.

Received on 4/9/23
Directorate of Mines and Geology

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By Registered A/D

126

ANNEXURE-3

Government of Goa
Directorate of Mines Geology
Institute Menezes Braganza, Panaji-Goa
Website:goadmg.gov.in **e-mail:dir-mine.goa@nic.in**

No.05/154/2023/RTI/Mines/2130 Date:28/09/2023

To,
Shri Ramesh S.Gauns
House No.1724 Pajwada
Bicholim

Sub: Information under RTI Act, 2005.

Sir,

Please refer to your application dated 04/09/2023, on the above mentioned subject. In this connection, the information requested by you is as follows :-

As regards to Sr. No 1 it is informed that as per available Office records the erstwhile mining leases bearing T.C Nos.11/41,12/41,13/41,14/41 and 15/41 were operational from 1985 to 2012 and from 2015 to 2018.

In respect of Sr. Nos. 2 & 3 it is informed that the information as per Office records may be collected from this office upon prior intimation on any working day during office hours on payment of Rs.28 /- (14 pages x Rs.2).

As far as information sought at Sr. No 4 is concern it is informed that as per the Geological Report presently there are 5 pits in Mineral Block I.

In case, if you are not satisfied with the information and further wish to file an appeal, the appeal may be preferred to the First Appellate Authority; Deputy Director, Directorate of Mines & Geology under the provisions of the RTI Act, 2005 within a period of 30 days from the receipt of this letter.

Yours faithfully,

(Nelita O. Fernandes e D'Silva)
Assistant Geologist
Public Information Officer

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ANNEXURE-4

VILLAGE PANCHAYAT ALORNA
PERNEM - GOA

Email:vpalorna@gmail.com Ph.7823024398

Ref.No.VP/ALO/PER/RTI/2023-2024/389 Date: - 29.09.2023

To,
Ramesh S. Gauns,
1724,Pajwada,
Bicholim Goa.
Mobile:-9270085105

Sub: Issue of Information under Right to Information Act 2005.
Ref. Application Inward Dt. 14/09/2023 .

Sir,

With reference to your application under RTI Act 2005, on the above cited subject, I am furnishing information pertains to your application.

- Asper Point No. 1:- Letter from Goa State Pollution Control Board was inwarded in the office of Village Panchayat Alorna pernem Goa on 13.07.2023.

With this information your application under Right to Information Act 2005 is hereby disposed.

Yours faithfully,

P. I. O.
Cum V. P. Secretary
V. P. Alorna
Pernem - Goa

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ANNEXURE-5

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
(IMPACT ASSESSMENT DIVISION)
NON-COAL MINING SECTOR
***

SUMMARY RECORD OF 20TH MEETING OF THE COMMITTEE OF THE RE-CONSTITUTION OFEXPERT APPRAISAL COMMITTEE FOR ENVIRONMENTAL APPRAISAL OF NON-COAL MINING PROJECTS CONSTITUTED UNDER THE EIA NOTIFICATION, 2006.

The 20th meeting of the Re-constitution of Expert Appraisal Committee (EAC) for Environmental Appraisal of Mining Projects (Non-Coal) of the Ministry of Environment, Forest and Climate Change was held during 21-22 September, 2023 through video conference. The list of participants is annexed herewith. After login of the Committee Members through video conference link provided by NIC discussion on each of the Agenda Items was taken up ad-seriatim.

(1.0) Deliberation & Circulation on the Minutes of 19thEAC (Non-Coal Mining) meeting held during 24-25 August, 2023:

The minutes of the 19th EAC meeting held during 24-25 August, 2023 were placed before the members of the EAC.

Day 1: 21st September, 2023 (Thursday)

1.1 Proposal for Mining of Iron Ore in Jilling Langalotta Iron Ore Mine of M/s Odisha Mining Corporation Limited with total excavation of 17.4385 Million TPA [Saleable Iron ore- 7.7723 Million TPA, Mineral rejects-2.2276 Million TPA, Waste-7.4385 Million TPA, Topsoil: Nil] along with existing: 5 nos. with Total Capacity - 1400 TPH (Stationary Crushing Unit), 2 x 300 TPH, 2 x 200 TPH, 1 x 400 TPH, Existing: 3 nos. with Total Capacity - 150 TPH (Mobile Screening Unit), 1 x 150 TPH Mobile Screening Plant 1 x 50 TPH, Stationary Screening Plant, 1 x 100 TPH Mobile Screening Plant, New: 10 nos. with Total Capacity - 4550 TPH (Crushing Unit), 1x800 TPH, 3 x 600 TPH, 3 x 400 TPH, 1 x 300 TPH, 1 x 250 TPH, 1x 200 TPH, New: 4 nos. with Total Capacity - 1000 TPH (Portable Screening Units), 4 x 250 TPH in the mine lease area of [456.037 ha (as per DGPS)/456.100 ha (as per RoR)] located at Village(s) Jalahari, Jurudi, Banspani, Khuntapani, Bholebeda, Jajang, Baitarani Reserve Forest in Barbil Tehsil, Keonjhar District, Odisha - [Proposal No: IA/OR/MIN/440292/2023, IA-J11015/34/2021-IA-II(M), EIA Consultant: M/s. MECON Ltd] - Environmental Clearance (Auction mine)

The instant proposal is for mining of Iron Ore in Jilling Langalotta Iron Ore Mine of M/s Odisha Mining Corporation Limited with total excavation of 17.4385 Million TPA

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[Saleable Iron ore- 7.7723 Million TPA, Mineral rejects-2.2276 Million TPA, Waste-7.4385 Million TPA, Topsoil: Nil] along with existing: 5 nos. with Total Capacity - 1400 TPH (Stationary Crushing Unit), 2 x 300 TPH, 2 x 200 TPH, 1 x 400 TPH, Existing: 3 nos. with Total Capacity - 150 TPH (Mobile Screening Unit), 1 x 150 TPH Mobile Screening Plant 1 x 50 TPH, Stationary Screening Plant, 1 x 100 TPH Mobile Screening Plant, New: 10 nos. with Total Capacity - 4550 TPH (Crushing Unit), 1x800 TPH, 3 x 600 TPH, 3 x 400 TPH, 1 x 300 TPH, 1 x 250 TPH, 1x 200 TPH, New: 4 nos. with Total Capacity - 1000 TPH (Portable Screening Units), 4 x 250 TPH in the mine lease area of [456.037 ha (as per DGPS)/456.100 ha (as per RoR)] located at Village(s) Jalahari, Jurudi, Banspani, Khuntapani, Bholebeda, Jajang, Baitarani Reserve Forest in Barbil Tehsil, Keonjhar District, Odisha.

2. The details of the project as ascertained from the documents submitted by the Project Proponent and as revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude 21°56'37.5297"N to 21°08'53.4185"N and Longitude: 85°25'08.8832"E to 85°26'37.1370"E. The mine lease area falls under the Survey of India Toposheet No: 73F/8 and 73G/5 and falls in Seismic Zone-II.

ii. The proposed project activity is listed at Schedule no. 1(a) Mining of Minerals of the schedule of the EIA Notification, 2006 and falls under Category "A" as the mining lease area is greater than 250ha and appraised at the Central level.

iii. The Project Proponent has submitted that the previous lessee obtained Environmental Clearance for a production capacity of 6.28 MTPA of Iron Ore vide EC letter J-11015/959/2007-IA-II (M) dated 7th June 2012.

iv. Details of Terms of Reference (ToR):

Date of application	File. No/ Proposal No	Consideration	Details	Date of accord
13.04.2021	IA-J11015/ 34/2021-IA-II(M) IA/OR/MIN/ 207724/2021	13-16 July, 2021	Terms of Reference of M/s Odisha Mining Corporation for Jilling Langalotta Iron Ore Mine [456.037 ha (as per DGPS)/456.100 ha (as per RoR)] with total excavation of 15.668 Million TPA [Saleable Iron ore- 9.239 Million TPA, Mineral rejects-0.761 Million TPA, Waste 5.668 Million TPA, Topsoil: Nil] with	04.08.2021

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			proposed 1 x 2000 TPH stationary multistage crushing & screening plant along with existing 1x300 TPH Stationary Crusher Plant (In pit plant), 1x300 TPH Stationary Crusher Plant (OCU1), 1 x 200 TPH Stationary Crusher Plant (OCU-2), 1 x 300 TPH Stationary Crusher Plant (OCU-3), 1 x 200 TPH Stationary Crusher Plant (OCU-5), 1 x 400 TPH Mobile Crusher Plant, 1 x 50 TPH Stationary Screening Plant, 1 x 150 TPH Mobile Screening Plant, 1 x 100 TPH Mobile Screening Plant, 5 x 150 TPH Mobile Screening Plant at Village(s) Jalahari, Jurudi, Banspani, Khuntapani, Bholebeda, Jajang, Baitarani Reserve Forest in Barbil Tehsil, Keonjhar District, Odisha	
26.10.2022	IA-J11015/ 34/2021-IA-II(M) IA/OR/MIN/ 292822/2022	9-11 November, 2022	Amendment in Terms of Reference (ToR) dated 04.08.2021 for M/s Odisha Mining Corporation Limited for Jilling Langalotta Iron Ore Mine [456.037 ha (as per DGPS)/456.100 ha (as per RoR)] with total excavation of 17.4385 Million TPA [Saleable Iron ore- 7.7723 Million TPA, Mineral rejects-2.2276 Million TPA, Waste-7.4385 Million TPA, Topsoil: Nil] along with Existing: 5 nos. with	28.11.2022

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			Total Capacity - 1400 TPH (Stationary Crushing Unit), 2 x 300 TPH, 2 x 200 TPH, 1 x 400 TPH, Existing: 3 nos. with Total Capacity - 150 TPH (Mobile Screening Unit), 1 x 150 TPH Mobile Screening Plant 1 x 50 TPH, Stationary Screening Plant, 1 x 100 TPH Mobile Screening Plant, New: 10 nos. with Total Capacity - 4550 TPH (Crushing Unit), 1×800 TPH, 3 x 600 TPH, 3 x 400 TPH, 1 x 300 TPH, 1 x 250 TPH, 1× 200 TPH, New: 4 nos. with Total Capacity – 1000 TPH (Portable Screening Units), 4 x 250 TPH, located at Village(s) Jalahari, Jurudi, Banspani, Khuntapani, Bholebeda, Jajang, Baitarani Reserve Forest in Barbil Tehsil, Keonjhar District, Odisha	

v. Details of Mine Lease:-

S. no	Grant of PI/mine lease/ Order	Date of the grant	Name of the Mineral	Period of Grant	Granted by	Mine lease area in Ha
1	Reservation of Jilling-Langlotta Iron Ore vide No 299/ IV(AB)SM-01/ 2021/SM, Bhubansehwar	11.01.2021	Iron Ore	10 years	Govt of Odisha	456.037 ha (as per DGPS)/ 456.100 ha ha (as per RoR)
2	Letter of Intent vide 307/IV(AB) SM-01/2021/SM, Bhubansehwar	11.01.2021	Iron Ore	10 years	Govt of Odisha	456.037 ha (as per DGPS)/ 456.100 ha ha (as per RoR)
3	Order No 317/IV	11.01.2021	Iron Ore	10 years	Govt of	456.037 ha (as

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	(AB) SM-01/ 2021/SM and Order is valid for a period of 2 years from the date of execution of the lease deed or till the date of getting fresh approvals, clearances, licenses, permits and the like whichever is earlier.				Odisha	per DGPS)/ 456.100 ha ha (as per RoR)
4	Grant of mining lease vide order no 338/SM	11.01.2021	Iron Ore	10 years	Govt of Odisha	456.037 ha (as per DGPS)/ 456.100 ha ha (as per RoR)

vi. Details of executed Mine leases

S.no	Date of grant of Lease execution	Period of Grant		Details
		From	To	
1	Date of entering into original lease deed.	11.01.2021	10.01.2031	Certificate No: IN-OD01560940427432T

vii. Land Use/Land Cover of the Mine Lease Area:

Private land	42.001 ha
Forest Land	392.289 ha
Non-Forest Govt. Land	21.747 ha
Total Mining lease area (MLA)	456.037 ha (as per DGPS Survey)
Private land for crusher, workshop & other infrastructure outside the MLA	All facilities within ML Area
Additional information(if any)	ML Area 456.100 ha as per RoR

viii. Details of Mining Plan: -

Modification of Mining Plan along with Progressive Mine Closure Plan approved by Indian Bureau of Mines	Letter No.	Lr No. MPM/A/15-ORI/BHU/2021-22/1241
	Date	18.11.2021
	MLA	456.037 ha (as per DGPS)/ 456.100 ha ha (as per RoR)
	Mineral	Iron Ore (Major Mineral)
	Validity	Up to 2024 - 25

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Additional information (if any)	On account of correction in the waste quantity, a corrigendum to the Mining Plan Approval Letter was issued by IBM vide letter No. ORI/IRON/KJR/MCDR-93/BBS dated 11.10.2022
Mining Parameters	Quantitative Description
Method of Mining	Fully Mechanised Open Cast Mining
Drilling/Blasting	In Jilling-Langalotta, Jilling-Gangaigora and Appahatu quarries 13 m and 11 m deep boreholes respectively will be drilled using 115 - 150 mm dia DTH drills. These will be filled with explosives and blasted. The powder factor has been estimated to be 12 t/kg. The explosives consumption at the 6.28 MTPA stage ~875 t/yr which is expected to increase to 1306 t/yr at the 10 MTPA stage.
Bench Height	10 m
Bench Width	10 - 15 m
Individual bench slope	80° - 85°
Overall pit slope	45°
Life of mine	8 years incl. present plan period. May be revised on basis if reserves are updated on basis of further detailed exploration
RoM output size	10.0 MTPA
Transportation details	At least 70% of the production will be despatched by railway wagons from private siding located within ML area. Max. 30% of production will be despatched by road.
Dumpers capacity	28 nos. 60 t capacity + 40 nos. 80 t capacity
OB/Waste	About 11.59 Mm3 overburden will be generated and 1.74 Mm3 will be dumped in existing active external OB dump within ML. About 0.528 Mm3 will be dumped in 2 new external OB dump within mine lease. Balance 9.32 Mm3 will be used for backfilling exhausted quarries. All mineral rejects, generated during the residual mine life to be blended with high quality iron ore & sold. Accumulated stock of mineral rejects, presently dumped in 2 nos. external dumps to be re-handled and sold off with / without blending. Any top soil to be generated shall be concurrently used in plantation.
Additional information (if any)	One of the existing open cast quarries (out of the four) exhausted. These will be backfilled.

ix. Water requirement:

Total water requirement	1166 m^3/day	Fresh water	916 m^3/day
		Treated water	250 m^3/day
Source	Ground water and Surface water		
Permission	No Objection Certificate has been obtained from CGWA vide letter no. CGWA/NOC/MIN/REN/1/2023/7964 dated 22-06-2023 for abstraction of fresh water of 480 m^3/day and is valid up to the period 30.03.2024.		
Additional	In future, about 916 m^3/day of fresh water is required, 436 m^3/day		

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information(if any)	shall be drawn from DalkoNala which flows through the ML area. OMC is submitting an application to the Department of Water Resources, Govt. of Odisha for drawal of water from DalkoNala. The balance 480 m^3/day (only for potable use) shall be drawn from bore-wells.

x. Nearest village / town/ highway/railway station / water bodies/monument:

Particulars	Particular's Name	Distance & Directions
Village	Jalahari Jurudi	Part of Village located within NW part of ML area Adjacent to M.L. area on West
Town	Joda	~2.5 km N
Highway	Expressway No. 2 NH-215	Expressway No. 2 passes through ML area NH-520: ~6.8 Km N
Interstate Boundary	Odisha-Jharkhand	~15.2 km, NE
Railway Station/line	Jalhari	~0.7 km W of ML
	SE-Rly.'s Padapahar Jn.– Banspani – Keonjhar – Jakhapura Jn. B.G. Main Line passes through ML	
Water body	DalkoNala Baitarani River	Flows from W to E through approx. Middle of ML area ~0.5 km, E
Monument	None within 15 km	

xi. Presence of Environmentally Sensitive areas in the study area:

Forest Land/Protected Area/ Environmental Sensitivity Zone	Yes/ No	Details of Certificate/letter/Remarks
Forest Land	Yes	An area of 392.289 ha of forest land lies within mine lease area. Stage II FC obtained vide Lr No F.No-8-49/98FC(pt) dated 8th October 2014 for an area of 342.602 ha of forest land. An application for diversion of balance area of 22.697 ha of forest land has been submitted vide proposal no. FP/OR/MIN/142115/2021 dated 08.05.2021. Compliance to the ADS sought by MoEFCC during scrutiny of Stage-I FC compliance is under recommendation process by State Forest Dept. Net Present Value (NPV) of the Forest amounting to Rs. 27,71,46,750/- has been paid.
National park	No	Nil within 10 km radius
Wildlife Sanctuary	No	
Eco-Sensitive Zone(ESZ)/Eco-	No	

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Sensitive Area(ESA)		
Wildlife corridor, migration route etc.	No	Karo-Karampada Elephant corridor: ~18 km, NW
Schedule-I Species	Yes	Indian Elephant, Sloth-bear & Mouse Deer as per the list authenticated by DFO Keonjhar Division.
Wildlife Conservation Plan	Yes	Site-Specific Conservation Plan has been prepared and approved by the PCCF (WL) vide letter No.10895 dt.15.12.2010. Total financial out lay: Rs.412.00 lakhs .

xii. Green belt/plantation details:

Proposed area for green belt/plantation	183.718 ha at Conceptual Stage
Budget for green plant& plantation till the end of life of mine.	Rs 4,54,50,000/- (Rupees Four Crore Fifty Four Lakhs Fifty Thousand Only)
Budget for nursery	Nil as plantation will be outsourced to Odisha State Forest Development Corporation (a Govt. of Odisha entity) who has their own nurseries.
7.5 m barrier & non-mineralized zone	*83.0191 ha (40.696 ha over external dumps + 39.5539 ha mineral storage area + 2.7692 ha mineral processing area)*
50 m safety zone of nallah, roads, electric lines	Included in above
500 m safety zones of nearest habitation villages	-
Additional information (if any)	Plantations over an area of 1.91 ha of exhausted quarry benches & backfilled areas

xiii. Baseline details:

Baseline Data (Air / Water / Noise / Soil / Ground water table/ others)			
Period of baseline data collection	01-10-2021 to 31-12-2021		
Season (Summer / Pre-monsoon / Post-monsoon / Winter)	Post-Monsoon Season		
Predominant Wind direction (From)	West		
Ambient Air Quality (no. of locations) and results	No. of Location	Parameters	Results
	9	PM10	44.0 to 95.0 µg/m^3
		PM2.5	27.0 to 55.0 µg/m^3
		SO2	4.0 to 10.2 µg/m^3
		NO2	10.3 to 22.0 µg/m^3
		CO	0.087 to 1.654 mg/m^3

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<table>
<tr><td>Noise level (no. of locations) and results</td><td>
<table>
<tr><td>No. of Location</td><td>Parameters</td><td>Results</td></tr>
<tr><td rowspan="2">08</td><td>During Day Time [Leq dB(A)]</td><td>38.1 to 56.4</td></tr>
<tr><td>During Night Time [Leq dB(A)]</td><td>37.1 to 45.8</td></tr>
</table>
</td></tr>
<tr><td>Water Quality (no. of locations) and results</td><td>Ground water quality
<table>
<tr><td>No. of Location</td><td>Parameters</td><td>Results</td></tr>
<tr><td rowspan="5">06</td><td>pH</td><td>6.71 to 7.08</td></tr>
<tr><td>TDS (mg/l)</td><td>54 to 306</td></tr>
<tr><td>Fluoride (mg/l)</td><td>0.1 to 0.24</td></tr>
<tr><td>Chloride (mg/l)</td><td>13.5 to 61.7</td></tr>
<tr><td>Fe (mg/l)</td><td>0.05 to 1.96</td></tr>
</table>
Surface Water Quality
<table>
<tr><td>No. of Location</td><td>Parameters</td><td>Results</td></tr>
<tr><td rowspan="4">06</td><td>pH</td><td>6.94 to 7.26</td></tr>
<tr><td>DO (mg/l)</td><td>5.6 to 6.8</td></tr>
<tr><td>BOD (mg/l)</td><td>2.0 to 3.0</td></tr>
<tr><td>Total Coliform (MPN/100 ml)</td><td>1000 – 1700</td></tr>
</table>
</td></tr>
<tr><td>Soil Quality (no. of locations) and results</td><td>
<table>
<tr><td>No. of Location</td><td>Parameters</td><td>Results</td></tr>
<tr><td rowspan="6">06</td><td>pH</td><td>5.67 to 7.62</td></tr>
<tr><td>Electrical Conductivity (µS/cm)</td><td>49.7 to 254</td></tr>
<tr><td>Organic Matter (%)</td><td>0.84 to 5.91</td></tr>
<tr><td>Available Nitrogen (kg/ha)</td><td>50 to 188</td></tr>
<tr><td>Available Phosphorus (kg/ha)</td><td>0.2 to 3.1</td></tr>
<tr><td>Available Potassium (kg/ha)</td><td>98 to 476</td></tr>
</table>
</td></tr>
<tr><td>Traffic study (no. of locations) and results</td><td>The maximum daily traffic on this road as monitored in December, 2021 was 12697 PCUs (see Table 3.53.2 in Chapter 3). It is expected that expansion of the mine will lead to increase in vehicular traffic by ~1140 PCUs per day (1 truck = 3 PCUs). Thus the resultant vehicular traffic (~13,840 PCUs/day) will remain much below the maximum design service volume. The maximum daily traffic on this road as monitored in December, 2021 was 12697 PCUs. It is expected that expansion of the mine will lead to increase in vehicular traffic by ~1140 PCUs per day (1 truck = 3 PCUs). Thus the resultant vehicular traffic (~13,840 PCUs/day) will remain much below the maximum design service volume.</td></tr>
</table>

xiv. Public Hearing (PH) Details:

Advertisement for PH with	❖ English daily newspaper: "The New Indian

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date	Express", Bhubaneshwar edition dated 06 April, 2023 ❖ Odiya daily newspaper: "The Pragatvadi", Bhubaneshwar edition dated 06 April, 2023
Date of PH	09th May, 2023
Venue	JalahariMouza (Khata No. 34, Plot Nos. 253, 254 &253/431), Barbil Tehsil, Keonjhar District
Chaired by	ShriJadumaniMahala, OAS, (SAG), Addl. District Magistrate (Revenue), Keonjhar
Main issues raised during PH	a) Employment b) Supply of clean drinking water c) Improvement in education facilities and infrastructure d) Improvement in health care delivery systems e) Air pollution and diseases due to air pollution f) Poor conditions of roads g) Need for support to Self Help Groups (SHGs) I) Garbage disposal
Budget proposed for addressing issues raised during PH	Rs. 1865.582 Lakhs (To be spent over 3 years)
Additional information (if any)	Meeting attended by 482 persons including 328 persons from the Core Zone Villages. 39 persons (37 from the Core Zone villages). 33 written representations also havebeen received.

xv. Details of CTE, CTO, Certified Compliance Report and Past production details:-

Consent to Establish (CTE)	Odisha State Pollution Control Board granted the Consent to Establish vide order dated 09.08.2018 in favour of M/s Essel Mining and Industries Limited.
Consent to Operate (CTO)	Odisha State Pollution Control Board granted the Consent to Operate vide order dated 31.03.2022 for production of Iron Ore (ROM) 6.28 MTPA and the consent order is valid for the period 01.04.2022 to 31.03.2023 in favour of M/s OMC Ltd.
Certified Compliance Report (CCR)	Certified Compliance report issued by the Regional Office, MoEF&CC vide F.No: 101-420/23/EPE dated 09.08.2023 for the EC dated 07.06.2012. Site visit was conducted on 07.07.2023.
Past production	Certified production details issued by the Dy. Director of Mines vide Lr.Memo No: 2265/Mines, dated 18.05.2021 for the period 1994-95 to 2022-23.

Year of Production	EC sanctioned capacity (t)	Actual Production (t)	Excess Production beyond the EC

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				sanctioned capacity
	1993-94	-	-	-
	1994-95	-	442127	-
	1995-96	-	555942	-
	1996-97	-	622305	-
	1997-98	-	922181	-
	1998-99	-	934156	-
	1999-00	-	819426	-
	2000 – 01	-	1277927	-
	2001 – 02	-	1613107	-
	2002 – 03	-	1967094	-
	2003 – 04	-	2054898	-
	2004 – 05	-	3378059	-
	2005 – 06	4200000	3856454	-
	2006 – 07	4200000	3460258	-
	2007 – 08	4200000	3997499	-
	2008 – 09	4200000	4599848	399848
	2009 – 10	4200000	4224984	24984
	2010 - 11	4200000	*2947756*	0
	2011 - 12	4200000	172558	0
	2012 - 13	6280000	2306742	0
	2013 - 14	6280000	2683497	0
	2014 - 15	6280000	0	0
	2015 - 16	6280000	0	0
	2016 - 17	6280000	0	0
	2017– 18	6280000	447629	0
	2018– 19	6280000	6271381	0
	2019 - 20	6280000	6268396	0
	2020 - 21	6280000	196350	0
	2021 - 22	6280000	5653000	0
	2022 - 23	6280000	6280000	0
Compliance of Hon'ble Supreme Court order dated 02.08.2017	A request letter was submitted by OMC to Jt. Director of Mines, Joda, Dept. of Steel & Mines with a request to duly authenticate the production figures since inception of mine and to provide the details of demand served to the ex-lessee, if any, for the Ores/Minerals raised in excess of the approved quantity with respect to EC for violation of EP Act, 1986 and violation of Mining Plan and CTO pertaining to Jilling-Langalotta Iron Ore Mining Project. In response to the above, Joint Director Mines, Joda, District Keonjhar vide letter dated 30.12.2021 has provided the certificate regarding			

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payment towards compensation for excess production made by Ex-lessee.

Details of Demand Notices and Status-Common Cause Judgement

S.No	Details of Violation	Demand Notice	Amount
1	EC	Demand Notice No. 4040/ Mines dt.02.09.2017	Rs.641,2432,386/-
2	FC	Demand Notice No.6375/Mines, dt. 26. I2.2017	Rs.1056,05,98,961/-
3	MP/CTO	Demand Notice No.3862/Mines, dt. 19.09.2018	Rs. 128,12,05,207/-

As per records available, M/s. Essel Mining & Industries Ltd, had deposited a total of Rs. 1825,87,36,554/- towards the compensation amount in the designated bank account as directed by the Hon'ble Supreme Court vide order W.P. (C) No. 114/2014 (Common Cause) dated 02.08.2017. Further, OMC started operating Jilling-Langalotta Mine with effect from28-02-2021. Since then, no Environment & Forest related violation has been reported in respect of Jilling-Langalotta Iron Ore Mines.

Project Proponent has submitted the Certificate from the Office of the Joint Director Mines Joda, Dist; Keonjhar vide No. 7304/Mines, dated 30.12.2021 certifying that the present lessee M/s Odisha Mining Corporation Limited is confined the mining activity within the granted and executed leasehold area.

Project Proponent also submitted the Affidavit in a non-judicial stamp paper of Rs 100 bearing no. M 054791 dated 09.07.2021 stating that the M/s OMC shall comply with all the statutory requirements and judgement of Hon'ble Supreme Court dated 02.08.2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India and Others before grant of ToR/EC pertaining to Jilling-Langalota Iron Ore mining project.

xvi. Rehabilitation & Resettlement (R&R):

R & R details	Present proposal does not involve any land acquisition. There are some patches of private land within the ML area but these will not be acquired.

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	Thus the project does not involve any R & R of land oustees.

xvii. Court case details:

Court Case	The Project Proponent submitted they do not have any litigation and also not received any court notice so far in respect of Jilling-Langalotta Mines after allotment of the mine to OMC.

xviii. Affidavit/Undertaking details:

Project Proponent submitted an Undertaking vide letter dated 09.08.2023	The Project Proponent has submitted an undertaking stating that the prescribed Terms of Reference has been complied while conducting the EIA Studies. The contents (information and data) as given by the Consultant in the EIA/EMP report are factually correct with full knowledge.
Consultant submitted an Undertaking vide letter dated 10.08.2023	The EIA/EMP report has been prepared as per ToR prescribed by MoEF&CC vide ToR letter dated 04.08.2021 and amended ToR letter dated 28.11.2022 based on baseline environmental data monitored by Environmental Engineering Laboratory, MECON Limited (CPCB recognized Laboratory) during Post-Monsoon Season 2021 and ToR prescribed for above mentioned project has been complied while conducting the EIA-EMP studies and the data submitted is factually correct.

xix. Details of the Environmental Management Plan (EMP):

Activities	Recurring cost (Lakhs Rs./yr)	Capital cost (Lakhs Rs.)
Pollution control	45	423[a]
Pollution monitoring (laboratory)& CAAQMS	42[b]	400
Occupational safety	50[c]	20[d]
Green belt & plantation at safety zone	-	454.5[e]
Net Present Value(NPV) of Forest	-	2771.47
Compensatory Afforestation	-	61.995
Wildlife Conservation	6.55[g]	346.50[f]
Socio-economic welfare measures in nearby villages (CSR budget)	57.51[h]	-
Budget for addressing Public Hearing commitments (erstwhile known as CER)	-	1865.58[i]
Total	201.06	~6343.045

Note:
a =Surface drainage (garland drains, settlement pits, retaining wall etc.) + dust suppression system.
b =Cost for EMC (Environmental monitoring work is outsourced to accreditedlabs)& AMC of CAAQMS installed

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c =Cost towards routine medical examinations, training & awareness
d =Cost of safety appliances procurement
e =On Basis of costs prevailing in 2022 – 23.
f = To be deposited with Divisional Forest Officer
g = Rs. 65.5 Lakhs to be spent over 10 years
h = Budget for 2022-23. Likely to be revised every year.
i = This money will be spent over a period of three years

xx. Details of project cost and employment:

Particulars	(Rs. In Crore)
Total cost of EMP (Capital Cost of EMP)	EMP Capital Cost: Rs.44.77 Crores
Project Cost	Rs.431 Crores
Employment	488 Nos.

3. Observation and Recommendation of the EAC: -

The Project Proponent and the Consultant presented the KML file to indicate the site features in the vicinity of the mine lease area and in the study area of 10 km radius. The Project Proponent has shown the boundary of the mine lease area and also the active quarries i.e., on the north western side and other one in southern side in the mine lease area. One Quarry i.e., Khuntapani was exhausted. A private railway siding is located on the north western side to dispatch the material. Backfilling has been started in the center quarry of the mine lease area. Some part of the area in the north eastern side has been taken by the State Govt for supply of water to the Joda Town. A small township is located within the mine lease area. There is a small stream (Dalko Nallah) passing from west to east in the mine lease area which is joining the Baitarani River located at a distance of about 0.5 km on the eastern side of the mine lease area. Adequate safety zone of about 13 ha will be maintained all along the nallah. No proposal to divert Dalko Nallah. NH-520 is located about 7km from the mine lease area. Other mines such as Tata Steel Ltd is located on the northern side of the mine lease area and Rungta Mines is located on the southern side of the mine lease area.

The Project Proponent has briefed about the chronology of the auction of the mine lease area. The Transfer of EC has been obtained in the name of M/s Odisha Mining Corporation Ltd and due to technical error in Parivesh portal the same could not able to download. In the instant proposal, there is no proposal for setting up of beneficiation plant in the mine lease area. The Project Proponent has informed the EAC that the total mine lease area is 456.037 ha (as per DGPS Survey), out of which 42.001 Ha is a Pvt land, 329.289 ha is a Forest land and 392.289 ha is a non-forest land. Stage II FC has been obtained vide letter dated 8th October 2014 for diversion of forest land of 342.602 ha in the name of M/s Essel Mining & Industries Ltd. Transfer of FC is under process with the State Govt. An application for diversion of balance area of 22.697 ha of forest land has been submitted vide proposal no. FP/OR/MIN/142115/2021 dated

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08.05.2021 and is under process. Life of the mine is 8 years and is likely to increase with updation of reserves by further exploration. All mineral rejects, generated during the residual life of mine will be blended with high quality iron ore & sold out. The mineral dispatch is carried out at least 70% through rail from pvt. sidings within mine lease and balance 30% by road. No R&R involved in this proposal.

The Project Proponent has informed the EAC that there is no wildlife corridor and migration route within the study area. Karo-Karampada Elephant corridor is located at a distance of about 18 km on the North Western side and there is no movement of elephants in the study area. The EAC not convinced with the statement of the Project Proponent. The Project Proponent has informed the EAC that there is only occasional movement of elephants in the study area and it is not a habitat of elephants. Site-Specific Conservation Plan has been approved by the PCCF (WL) in the year 2010. The implementation status is under process. Long term regional level elephant management plan by Wildlife Institute of India is also under process. The EAC noted that National Highway also have specific elephants crossing area in Odisha. The EAC was of the view that the linear barriers created for movement of elephants and habitat use needs to be properly addressed in terms of scientific management and a plan for movement of elephants from one forest to the other forest area shall be included in the conservation plan. The EAC asked the Project Proponent to submit the activities proposed under Wildlife Conservation Plan along with the budget.

The EAC asked the Project Proponent that whether the quality of surface water is being monitored at Baitarani River during the monsoon. The Project Proponent has informed the EAC that the quality of surface water is being monitored regularly and submitted to the State Pollution Control Board. The Project Proponent has shown the retaining wall and garland drain around OB dump. The EAC opined that the Project Proponent needs to strengthen the garland drain. The EAC asked the Project Proponent whether railway line passing through the mine lease area or not. The Padapahar Jn. – Joda – Kendujhargarh - Jakhapura Railway Line passes through the ML area occupying 34.967 ha area. This includes 26.990 ha of Forest Land. Indian Railways had taken separate permission for construction of this Railway Line. OMC's existing operations are beyond this railway corridor and the status quo shall be maintained.

The Project Proponent has informed the EAC that the Joint Director of Mines, Joda, District Keonjhar vide letter dated 30.12.2021 has provided the certificate regarding payment towards compensation for excess production made by Ex-lessee. As per records available, M/s. Essel Mining & Industries Ltd, had deposited a total of Rs. 1825,87,36,554/- towards the compensation amount in the designated bank account as directed by the Hon'ble Supreme Court vide order W.P. (C) No. 114/2014 (Common Cause) dated 02.08.2017. Project Proponent also informed the EAC that M/s OMC

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started operating Jilling-Langalotta Mine with effect from 28-02-2021. Since then, no Environment & Forest related violation has been reported in respect of Jilling-Langalotta Iron Ore Mines. Further, the Project Proponent has informed the EAC that a Certificate has been obtained from the Office of the Joint Director Mines Joda, Dist; Keonjhar vide letter dated 30.12.2021 certifying that the present lessee M/s Odisha Mining Corporation Limited is confined the mining activity within the granted and executed leasehold area.

The Project Proponent has shown the Certified Compliance report issued by the Regional Office (RO), MoEF&CC vide letter dated 09.08.2023 for the EC dated 07.06.2012. Site visit was conducted on 07.07.2023. Regional Office has mentioned that the greenbelt development may be increased, reclamation of backfilled area with vegetation may be initiated and density of plantation may be increased. The EAC asked the Project Proponent whether the action taken report has been submitted to the Regional Office or not. The Project Proponent has informed the EAC that they will submit the action taken report. The EAC also asked the Project Proponent to clarify whether any court case/litigation pending against the previous lessee w.r.t temporary working permit and whether the same has been transferred to M/s Odisha Mining Corporation Ltd or not. Based on the discussions held, the EAC **deferred** the proposal for want of following additional information: -

i. The Project Proponent needs to submit the action plan for strengthening the garland drains including their dimensions along with the timeline.

ii. The EAC was of the view that the linear barriers created for movement of elephants and habitat use needs to be properly addressed in terms of scientific management and a plan for movement of elephants from one forest to the other forest area shall be included in the conservation plan. Accordingly, the Project Proponent needs to submit the activities proposed under Wildlife Conservation Plan along with the budget.

iii. The Project Proponent needs to submit the action taken report for the non-compliances identified by the Regional Office.

iv. The Project Proponent needs to submit the treatment methods to eliminate iron in groundwater so as to make it fit for drinking purpose.

v. The Project Proponent needs to clarify whether any court case/litigation pending against the previous lessee w.r.t temporary working permit and whether the same has been transferred to M/s Odisha Mining Corporation Ltd or not.

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vi. The Project Proponent should submit measures taken to prevent contaminated water meeting Baitarani river.

vii. The Project Proponent needs to submit the action plan for effective dust suppression system near haul roads and crushers with a provision for installation of online dust monitoring system.

1.2 Sarah Kishnayat Ball Clay, Fire Clay, Red & Yellow Ochre Mine lease of M/s Deepak Mineral Industries for enhancement of production capacity from 20,000 TPA to 5,35,880 TPA (ROM) (Overburden: 2,35,880 TPA, Marketable mineral: 2,70,000 TPA, Mineral Waste: 30,000 TPA) in the mining lease area of 69.59 ha, located Near Village Sarah Kishnayat, Tehsil- Kolayat, District Bikaner, Rajasthan - [Proposal No: IA/RJ/MIN/435186/2023, F.No: J-11015/269/2005-IA.II(M); EIA Consultant: M/s Fulgro Environmental & Engg. Services India Pvt. Ltd.] – Terms of Reference (ToR)

The instant proposal of M/s Deepak Mineral Industries is for mining of Ball Clay, Fire Clay, Red & Yellow Ochre Mine with enhancement in production capacity of Ball Clay from 20,000 TPA to 5,35,880 TPA (ROM) (Overburden: 2,35,880 TPA, Marketable mineral: 2,70,000 TPA, Mineral Waste: 30,000 TPA) in the mining lease area of 69.59 ha, located near Village Sarah Kishnayat, Tehsil- Kolayat, District Bikaner, Rajasthan.

2. Observation and Recommendation of the EAC: -

The Project Proponent informed the EAC that the instant proposal was earlier was earlier considered in the EAC meeting held during 14-15 May, 2018 and the Ministry informed the Committee that PP had enhanced the production capacity without EC and in light of the Common Cause Judgment pronounced by the Hon'ble Supreme Court on dated 02.08.2017 this is a case of violation. The Committee, therefore, deferred the proposal noting that a separate Committee has been constituted for dealing with the projects involving violation of EPA, 1986 vide notification issued by the Ministry on 14.03.2017.

The EAC noted that the Project Proponent has submitted the fresh proposal for grant of Terms of Reference. The EAC asked the Project Proponent that whether the proposal submitted during the year 2018 and at present is same or different or whether there is a change in the scope or not? The Project Proponent has informed the EAC that during the year 2018, the proposal for Terms of Reference (ToR) was submitted for enhancement of production capacity from 20,000 TPA to 3,00,000 TPA (ROM) and now the proposal has been submitted for enhancement in production capacity of Ball Clay from 20,000 TPA to 5,35,880 TPA (ROM). The Project Proponent also informed the EAC that difference is that earlier Overburden: 2,35,880 TPA was not included in the

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proposal and now the same has been included. The EAC was of the view that there is a change in the scope of the proposal and hence the instant proposal shall be treated as fresh proposal. The EAC asked that the Project Proponent to submit the proposal to the SEIAA, Rajasthan as per the provisions of EIA Notification, 2006 and its subsequent amendments.

Then, the Project Proponent vide email dated 22.09.2023 informed that as per Ministry's Notification no S.O No. 3977(E) dated 14th August 2018, the proposal was already submitted to SEIAA, Rajasthan vide online proposal no: SIA/RJ/MIN/29973/2018 dated 24th Nov 2018 and the proposal was considered in the SEAC meeting held during 1-4 July, 2019 wherein the SEAC has noted that the Project Proponent has not submitted original record of the MoEF& CC pertaining to the project. The SEAC considered the matter in its 4.15thmeeting held on 04.07.2019 and resolved to ask the PP again, to bring original report of the MoEF&CC. In this regard, the Project Proponent vide email dated 22.09.2023 requested the Ministry to transfer the old project file to SEIAA, Rajasthan. Based on the request of the Project Proponent, the EAC opined that the Ministry may transfer the old project file to SEIAA, Rajasthan as per the provisions of EIA Notification, 2006 and its subsequent amendments. Therefore, the EAC **returned the proposal in present form.**

1.3 Amendment in EC dated 31.08.2020 w.r.t specific condition no: (i) of M/s Jaykaycem Central Limited in Kakra- Panna Limestone Mine for production capacity of 4.08 MTPA of Limestone in the mine leasearea of 1594.34 ha, located at Villages Kakra, Kamtana, Judi, Devra, DevriPurohit and Saptai, in Amanganj Tehsil, District Panna, Madhya Pradesh - [F.No: J-11015/190/2016-IA.II(M), Proposal No: IA/MP/MIN/435272/2023, EIA Consultant: M/s J.M. EnviroNet Pvt. Ltd] - Amendment in EC

The instant proposal is for amendment in EC dated 31.08.2020 w.r.t specific condition no: (i) of M/s Jaykaycem Central Limited in Kakra- Panna Limestone Mine for production capacity of 4.08 MTPA of Limestone in the mine lease area of 1594.34 ha, located at Villages Kakra, Kamtana, Judi, Devra, DevriPurohit and Saptai, in Amanganj Tehsil, District Panna, Madhya Pradesh.

2. The details of the project as ascertained from the documents submitted by the Project Proponent and as revealed from the discussions held during the meeting are given as under:

i. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" of the schedule of the EIA Notification, 2006 as the mining lease area is greater than 250 ha and appraised at the Central level.

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ii. Initially, the Project Proponent has obtained Environmental Clearance (EC) on 31.08.2020 for mining of Limestone in Kakra- Panna Limestone Mine for production capacity of 4.08 MTPA of Limestone in the mine lease area of 1594.34 ha, located at Villages Kakra, Kamtana, Judi, Devra, DevriPurohit and Saptai, in Amanganj Tehsil, District Panna, Madhya Pradesh. One of the specific condition (I) stipulated by EAC is that *"Mining shall be restricted to the land already acquired near Judi Village (235 ha). Meanwhile the PP may acquire the land, modify the mining sequence to avoid the void in west side of Dewra Village and approach the Ministry for re-validation or amendment in environmental clearance for permission for the entire area proposed for mining within the ML area".*

iii. Now, the Project Proponent requested to waive off the specific condition no: (I) and requested to allow the mining in the entire mine lease area of 1594.34 ha as per the approved Modified Mining Plan.

iv. The proposal was earlier considered in the 18th EAC (Non-Coal Mining) meeting held during 31st July & 1st August, 2023 wherein the EAC deferred the proposal for want of additional information. Then, the Project Proponent submitted the information on 25.08.2023 in Parivesh portal and accordingly the proposal was again reconsidered in the 20th EAC (Non Coal Mining) meeting held during 21-22 September, 2023.

Based on observation of EAC in its EAC meeting held during 31st July & 1st August, 2023 and compliance of observation of EAC made by PP are detailed below:

S. No	Observation of EAC in its meeting held during 31st July & 1st August, 2023	Reply by Project Proponent
1	The Project Proponent needs to give proper justification for amendment in EC with clear picture of sequence of mining, plan for backfilling and details of the land acquired and to be acquired in the villages for mining and location to access.	The Project Proponent has submitted that the EC was granted on 31.08.2020 with a specific condition stating that the *"Mining shall be restricted to the land already acquired near Judi Village (235 ha). Meanwhile the PP may acquire the land, modify the mining sequence to avoid the void in west side of Dewra Village and approach the Ministry for re-validation or amendment in environmental clearance for permission for the entire area proposed for mining within the ML area".* Accordingly, Mining Plan has been modified and approved on 19th June, 2023 with change of mining sequence to avoid the void in West side of Dewra Village. As

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		on date, an area of 360.66 ha of land has been purchased, Surface right has been granted for mining on Govt. land over an area of 75.754 ha, hence, total land under possession is 436.414 ha. The balance of 1157.926 ha is under purchase as per the mining activities progress. Now, the mining has to be done as per the approved Modified Mining Plan and in the Modified Mining Plan, the mining has to be done near Dewra Village so that void is avoided on West side of Dewra Village which was the requirement of EC. As per the earlier Mining Plan, the backfilling was proposed near Village Judi from the 2nd five year. Now, as per the Modified Mining Plan, the backfilling is proposed from 2nd five year in West Side of Dewra and Judi. The backfilling plan also indicates that at the conceptual stage, both sides of the Village Dewra were surrounded by water reservoir and now in modified backfilling plan, the entire surrounding of the Dewra Village has been reclaimed and covered by Greenbelt/ Plantation. In the view of the fact that the Specific Condition 1 has been complied with and mining is to be done as per the Approved Modified Mining Plan. Therefore, mining may be allowed as per the Modified Mining Plan.
2	The Project proponent needs to submit the comparison of sequence of mining in earlier mining plan and modified mining plan with detailed note and colour coding map.	The Project Proponent has submitted that initially, mining plan was approved in the year 2015 having proposed 1st five year working near village Judi and 7th, 8th, 9th& 10th five year plans on the west of Dewra village with the proposal of creating water reservoirs in the mined out area at conceptual stage. At the time of EC appraisal, 235 ha land was under Company's acquisition and mining was restricted in 235 ha (available land at the time of EC) near Judi village. However, the

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		235 ha land was not in a continuous Block. As the land purchase is done in a progressive manner, as on date, the company is having total 436.414 ha (360.66 ha purchased and Surface right for mining on Govt. land of 75.754 ha) land under possession. Accordingly, the mining sequence has been modified and Modified Mining Plan has been approved by IBM, Jabalpur vide letter no. E 6699 MCDR-MPC0LST/15/2023-JBP-IBM_ RO_ JBP on dated 19th June, 2023. Now, the mining is to be done as per Modified Plan. In the conceptual plan of the Modified mining plan, mining is proposed in the 1st, 2nd& 11th five-year plan in the area falling on west side of Dewra village with backfilling starting from the 2nd five-year plan period to get it reclaimed and restored at the earliest to avoid the voids. The Project Proponent also submitted the map showing the status of the land such as purchased land, restricted land and Govt. land to be applied. Further, the Project Proponent also submitted the Progressive Mine Closure Plan and Conceptual Plan submitted at the time of EC appraisal and as per the Modified Mining Plan. The Project Proponent also submitted that to substantiate the requirement of backfilling material i.e. OB Soil and Waste rock, mining is proposed at 3 locations i.e. Block-A near Judi Village, Block-B on the west of Dewra Village and mine development at Block-C on the south of Dewra village having about 27 m thickness of OB Soil and waste rock above the limestone band of 26 m thickness. With the change in mining sequence, total volume excavated in Block-B is 2.45 million cu.m for removal of OB soil (2 m) &

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		Limestone (18 m) and the quantity of backfilling material available from Block - C from 2nd Five-year plan is 3.32 million cu.m which is required to be mined out to expose limestone band in Block C for ensuring scientific & systematic mining with focus on mineral conservation. With the change in mining sequence, EC specific condition 1 shall be complied at the earliest period as well as waste rock shall be effectively utilized for backfilling which will also reduce requirement of large no. of OB/waste dumps. The distance of mining area from the earlier proposed location for 1st five-year plan period is about 5.0 km from crusher located inside ML area near plant boundary. The limestone transportation may have impact on habitation at three locations of village Dewra. To ensure least impact from the start of mining activities the modified mining plan was submitted and approved by IBM, Jabalpur on 19th June, 2023 and now the majority of mining is proposed in Block-B on west of Dewra village (about 75% quantity) having lead distance of 1.5 km. This will also support cement manufacturing process with optimum blend of limestone quality and mineral conservation. Mining Plan has been modified and approved on 19th June, 2023 with change of mining sequence to avoid the void in West side of Dewra Village. Now, the mining has to be done as per the Approved Modified Mining Plan and in the Modified Mining Plan, the mining has to be done near Dewra Village so that void is avoided on West side of Dewra Village which was the concern of the EAC. In the view of the fact that the Specific Condition 1 has been complied with and mining is to be done as per the Modified Mining Plan. Therefore, mining may be allowed as per

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		the Modified Mining Plan. Further, the Project Proponent also submitted the year wise development plan submitted at the time of EC appraisal and as per the Modified Mining Plan.
3	The Project Proponent needs to ensure whether the tiger corridors/dispersal routes are passing through the study area or not as per the Integrated Landscape Management Plan for Greater Panna Landscape form the Chief Wildlife Warden, MP.	The Project Proponent has submitted that the distance of mine site from buffer zone of Panna Tiger Reserve is 12.94 km. Letter regarding the same has been received from CCF, Bhopal (Madhya Pradesh) on 15.06.2020. The Project Proponent also submitted that a letter has been obtained from DFO (South Panna), Madhya Pradesh on 11.08.2023 stating that *"Currently, Integrated Landscape Management Plan Greater Panna is not notified".*
4	The Project Proponent needs to submit the compliance of the Wildlife Conservation Plan and their implementation status along with the proof of payments made to the State Forest Dept w.r.t approval of Wildlife Conservation Plan dated 13.12.2019.	The Project Proponent has submitted that the Wildlife Conservation Plan has been modified as per the recommendations to incorporate the revised financial outlay and the same has been submitted to the Forest Department. Further, the Company has deposited 100% amount; Rs. 289 Lakhs/- proposed for 10-year budget on 19th August, 2023. PP also submitted the copy of acknowledgement receipt for amount paid along with the copy of approved Wildlife Conservation Plan.
5	The EAC wanted to know the documentary proof for the required acquisition of additional land. Hence, the Project Proponent needs to submit the land possession certificate for an area of 436.414 ha.	The Project Proponent has submitted that the break-up of 436.414 ha of land, i.e., out of 436.414 ha; an area of 360.66 ha is a Private land and remaining area of 75.754 ha is a Government land. Out of 360.66 ha of Private land, an area of 288.1 ha land has been transferred in the name of M/s Jaykaycem (Central) Limited and transfer of remaining area of 72.56 ha is under in Company's name is under process.

v. The Project Proponent has submitted that the Mining Plan has been modified and approved by Indian Bureau of Mines vide Letter No: E 6699 MCDRMPC0LST/15/2023-JBP-IBM_RO_JBP dated 19.06.2023 with change of mining sequence to avoid the void in West side of Dewra Village. As on date, an

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area of 360.66 ha of land has been purchased and surface right has been granted over an area of 75.754 ha of Govt. land for mining and thus total land under possession is 436.414 ha. The balance area of 1157.926 ha is under purchase as per the mining activities progress. Hence, in compliance of Specific Condition no I, the Project Proponent requested to allow the mining as per the approved Modified Mining Plan.

vi. The Project Proponent has submitted that there was no production done till 31st March, 2023. PP also submitted that there is no change in production capacity, land area, mining equipment and mining technology. All the declarations, undertakings, EIA/EMP report, Public hearing action plan submitted during detailed deliberations for earlier granted EC dated 31st August, 2020 are same as per the earlier proposal.

3. Observation and Recommendation of the EAC: -

The EAC deliberated on the additional details submitted by the Project Proponent and the EIA Consultant. The Project Proponent has informed the EAC that initially EC was granted on 31.08.2020 wherein the specific condition (i) of EC dated 31.08.2020 states that the *"Mining shall be restricted to the land already acquired near Judi Village (235 ha). Meanwhile the PP may acquire the land, modify the mining sequence to avoid the void in west side of Dewra Village and approach the Ministry for revalidation or amendment in environmental clearance for permission for the entire area proposed for mining within the ML area"*. Accordingly, Mining Plan has been modified and approved on 19.06.2023 with change of Mining sequence to avoid the void in West side of Dewra Village. As on date, an area of 360.66 ha of land has been purchased and surface right has been granted for mining on Govt. land of 75.754 ha and the total land under possession is 436.414 ha. The balance area of 1157.926 ha is under purchase as per the mining activities progress. Now, the mining activity has to be carried out as per the approved Modified Mining Plan. Accordingly mining has been proposed initially near Dewra Village so that backfilling can be started immediately in the mined-out pit to avoid any open void on the West side of Dewra Village, which was the suggestion of EAC and requirement of EC.

The Project Proponent also shown the comparison of progressive mine closure and conceptual plan as per earlier Mining Plan and Modified Mining Plan. The Project Proponent has informed the EAC that at the conceptual stage, water bodies on both the sides of the Dewra Village as per the earlier mining plan is now modified to be backfilled area/reclaimed area on both the sides of the Dewra Village in Modified Mining Plan. The additional acquired land falls in the 2nd five year working. The crusher area is located close to the Cement Plant. The Project Proponent informed the EAC that the distance of mine site from buffer zone of Panna Tiger Reserve is 12.94 km. Letter regarding the same has been received from CCF, Bhopal (Madhya Pradesh) on 15.06.2020. The

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Project Proponent also informed the EAC that a letter has been obtained from DFO (South Panna), Madhya Pradesh on 11.08.2023 stating that *"Currently, Integrated Landscape Management Plan Greater Panna is not notified".* The Project Proponent has informed the EAC that the Wildlife Conservation Plan has been modified as per the recommendations to incorporate the revised financial outlay and submitted to the Forest Department. An amount of Rs 289.0 Lakhs has been deposited on 19.08.2023 and the Project Proponent has shown the Copy of acknowledgement receipt for amount paid along with approved Wildlife Conservation Plan.

The EAC noted that the Project Proponent has modified the mining sequence to avoid the void in west side of Dewra Village and accepted to waive off the specific condition no. (i). After detailed deliberations made by the Project Proponent and the Consultant, the EAC in its meeting held during 21-22 September, 2023 under the provisions of EIA Notification 2006 and its subsequent amendments, **recommended** the proposal for grant of amendment in Environmental Clearance dated 31.08.2020 to w.r.t waive off the specific condition no: (i) of M/s Jaykaycem Central Limited in Kakra-Panna Limestone Mine for production capacity of 4.08 MTPA of Limestone in the mine lease area of 1594.34 ha, located at Villages Kakra, Kamtana, Judi, Devra, DevriPurohit and Saptai, in Amanganj Tehsil, District Panna, Madhya Pradesh along with the following additional specific conditions:-

i. The Project Proponent needs to make provision for permanent water sprinklers so as to reduce the water consumption. Further, 10 nos. of fog canon/mist sprayer of atleast 40 m throw shall be installed at various locations in the mine area. Effective dust suppression system shall also be adopted at other parts of the mining lease to arrest the fugitive dust emission. Online air monitoring system should be installed near crusher and haul roads to control dust generation during mining.

ii. The Project Proponent shall explore the possibility of using atleast 20% of Electric vehicles/CNG/Solar instead of diesel operation within three years.

iii. The Project Proponent shall not transport the mineral though tiger dispersal route and it should be routed through other side without causing traffic, pollution and road kill in the tiger reserve area.

iv. Although the site is not located in any classified corridor, tigers move in the landscape randomly through the agriculture and open areas. Therefore, the Project Proponent should have site-specific assessment of tiger movement and shall ensure that there is no disturbance on the western area towards Ken River. Further, based on site assessment, local level mitigation plan shall be in place.

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v. The Project Proponent needs to use modern equipment's such as Camera Traps for ensuring presence and movement of Tigers in the study area in consultation with Wildlife Wing of Forest Department. Appropriate interventions shall be taken to minimize stress conditions for Tigers and to avoid Man-Animal conflict.

vi. Biodiversity management plan, including restoration and carbon offset scheme shall be included in the mine plan and operation.

vii. The project proponent needs to submit the quarterly compliance report to the State Forest Department/NTCA/RO w.r.t monitoring of the movement of tiger in the study area and their effectiveness of implementation of mitigation plan.

viii. The Project Proponent needs to provide the apprenticeship to the local people. The data and the outcome should be maintained for the same imparted to the local people.

ix. The Project Proponent shall create awareness among the local people working within the project area as well as its surrounding area on the ban of Single Use Plastic (SUP) in order to ensure the compliance of Notification published by MoEF&CC on 12/08/2021. A report, along with photographs, on the measures taken shall also be included in the six monthly compliance report.

x. All other terms and conditions mentioned in the EC letter dated 31.08.2020 shall remain unchanged.

1.4 Majhgawan Diamond Mine, Panna of M/s NMDC Ltd. with total excavation of 13.90 LTPA [ROM Kimberlite Ore @ 8 LTPA and Overburden removal @5.90 LTPA] for production of 1.00 lakh carats of Diamonds per annum in the mine lease area of 113.332 Ha, located at village Majhgawan, Tehsil & District Panna, Madhya Pradesh -[F.No: J-11015/120/2018-IA-II(M), Proposal No:IA/MP/MIN/442288/2023, Consultant: M/s Ecomen Laboratories Ltd] - Revalidation of EC under Ministry's Notification vide S.O. (E) 1530, dated 06.04.2018 – Environmental clearance (EC)

The instant proposal is for mining of Diamond in Majhgawan Diamond Mine with total excavation of 13.90 LTPA [ROM Kimberlite ore @ 8 LTPA and Overburden removal @ 5.90 LTPA for production of 1.00 lakh carats of Diamonds per annum] in the mine lease area of 113.332 Ha (Main Lease), located at village Majhgawan, Tehsil & District Panna, Madhya Pradesh.

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2. Observation and Recommendation of the EAC: -

The Project Proponent has informed the EAC that they have changed the EIA Consultant of M/s Vimta Labs Ltd to M/s Ecomen Laboratories Ltd. The Project Proponent also informed the EAC that M/s Vimta Labs Ltd has given no objection certificate dated 15.09.2023 to M/s NMDC to appoint any other Accredited EIA Consultant for the above said project. The new EIA Consultant, M/s Ecomen Laboratories Pvt Ltd has also given an undertaking vide letter dated 16.09.2023 stating that they have gone through the content and data of Final EIA/EMP Report. The EAC noted that the new EIA Consultant has given an undertaking at an interval of one day only. The EAC was of the view that the new EIA Consultant, M/s Ecomen Laboratories Ltd has to revalidate the baseline data for one month to ascertain the facts and figures presented in the EIA report and also to ascertain the ground reality.

The EAC also noted that the mine lease area is located within the Gangau Wildlife Sanctuary of Panna Tiger Reserve. The Project Proponent has informed the EAC that the Hon'ble Supreme Court order in I.A No: 1485 and 1507 dated 13/8/2008 and I.A No: 47252 of 2021 dated 30/11/2022 in W.P (Civil) no: 202 of 1995 permitted mining operations in Diamond Mining Project, Panna in Gangau wildlife sanctuary of Panna Tiger Reserve.

The PCCF (Wildlife) / Chief Wildlife Warden, Bhopal, Madhya Pradesh vide letter no: 1608 dated 24/2/2023 has accorded approval for renewal / extension of Wildlife clearance under Wildlife (Protection) Act, 1972 over 275.963 Ha (main and supplementary mining lease area) lease falling in Gangau sanctuary under Panna Tiger reserve and for mining in an area of about 10 Ha (of which 1.5 Ha is forest area) for a period of 20 years which is valid upto 30/6/2040.

The EAC noted the recent orders of the Hon'ble Supreme Court dated 26.04.2023 and 28.04.2023 wherein it has been directed that *"any activity, which is prohibited by both the guidelines as well as the ESZ notification shall strictly be prohibited. Since the mining activity in ESZ area is a prohibited activity, there is no question of such an activity being permitted in an ESZ area even if it falls beyond the distance of one kilometer from the boundary of the protected area"*.

In view of the above, the EAC opined that the Project Proponent may seek a legal opinion regarding the applicability of the aforesaid orders in this instant proposal. The EAC also opined that the Ministry may seek comments from the ESZ Division since the project is located within the Gangau wildlife sanctuary of Panna Tiger Reserve and whether the aforesaid orders dated 26.04.2023 and 28.04.2023 are applicable in the instant proposal or not. Based on the discussions held, the EAC **deferred** the proposal for want of following additional information: -

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i. The Project Proponent needs to revalidate the baseline data by collecting one-month fresh baseline data by new EIA consultant to ascertain the facts and figures presented in the EIA report and also to ascertain the ground reality. The Project Proponent also needs to the submit the comparison of both baseline data.

ii. The EAC opined that the Project Proponent may seek a legal opinion regarding the applicability of the orders dated 26.04.2023 and 28.04.2023 in this instant proposal.

iii. The EAC also opined that the Ministry may seek comments from the ESZ Division since the project is located within the Gangau wildlife sanctuary of Panna Tiger Reserve and whether the aforesaid orders dated 26.04.2023 and 28.04.2023 are applicable in the instant proposal or not.

1.5 Majhgawan Diamond Mine, Panna of M/s NMDC Ltd. for 0.72 LTPA of over burden removal and Processing of Kimberley ore (8 LTPA) for production of 1.00 lakh carats of Diamond per annum with the mine lease area of 162.631 Ha (Supplementary Mine lease), located at village Majhgawan, Tehsil & District Panna, Madhya Pradesh – [F.No: IA-J-11015/121/2018-IA-II(M), Proposal no:IA/MP/MIN/442291/2023; EIA Consultant: M/s. Ecomen Laboratories Private Limited] - Revalidation of EC under Ministry's Notification vide S.O. (E) 1530 dated 06.04.2018

The instant proposal of M/s NMDC Ltd. is for mining of Diamond in Majhgawan Diamond Mine for 0.72 LTPA over burden removal and processing of Kimberlite ore of 8.0 LTPA for production of 1.00 lakh carats of Diamond per annum in the mine lease area of 162.631 Ha (Supplementary mine lease), located at Village Majhgawan, District Panna, Madhya Pradesh.

2. Observation and Recommendation of the EAC: -

The Project Proponent has informed the EAC that they have changed the EIA Consultant of M/s Vimta Labs Ltd to M/s Ecomen Laboratories Ltd. The Project Proponent also informed the EAC that M/s Vimta Labs Ltd has given no objection certificate dated 15.09.2023 to M/s NMDC to appoint any other Accredited EIA Consultant for the above said project. The new EIA Consultant, M/s Ecomen Laboratories Pvt Ltd has also given an undertaking vide letter dated 16.09.2023 stating that they have gone through the content and data of Final EIA/EMP Report. The EAC noted that the new EIA Consultant has given an undertaking at an interval of one day only. The EAC was of the view that the new EIA Consultant, M/s Ecomen Laboratories Ltd has to revalidate the baseline data for one month to ascertain the facts and figures presented in the EIA report and also to ascertain the ground reality.

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The EAC also noted that the mine lease area is located within the Gangau Wildlife Sanctuary of Panna Tiger Reserve. The Project Proponent has informed the EAC that the Hon'ble Supreme Court order in I.A No: 1485 and 1507 dated 13/8/2008 and I.A No: 47252 of 2021 dated 30/11/2022 in W.P (Civil) no: 202 of 1995 permitted mining operations in Diamond Mining Project, Panna in Gangau wildlife sanctuary of Panna Tiger Reserve.

The PCCF (Wildlife) / Chief Wildlife Warden, Bhopal, Madhya Pradesh vide letter no: 1608 dated 24/2/2023 has accorded approval for renewal / extension of Wildlife clearance under Wildlife (Protection) Act, 1972 over 275.963 Ha (main and supplementary mining lease area) lease falling in Gangau sanctuary under Panna Tiger reserve and for mining in an area of about 10 Ha (of which 1.5 Ha is forest area) for a period of 20 years which is valid upto 30/6/2040.

The EAC noted the recent orders of the Hon'ble Supreme Court dated 26.04.2023 and 28.04.2023 wherein it has been directed that *"any activity, which is prohibited by both the guidelines as well as the ESZ notification shall strictly be prohibited. Since the mining activity in ESZ area is a prohibited activity, there is no question of such an activity being permitted in an ESZ area even if it falls beyond the distance of one kilometer from the boundary of the protected area"*.

In view of the above, the EAC opined that the Project Proponent may seek a legal opinion regarding the applicability of the aforesaid orders in this instant proposal. The EAC also opined that the Ministry may seek comments from the ESZ Division since the project is located within the Gangau wildlife sanctuary of Panna Tiger Reserve and whether the aforesaid orders dated 26.04.2023 and 28.04.2023 are applicable in the instant proposal or not. Based on the discussions held, the EAC **deferred** the proposal for want of following additional information: -

i. The Project Proponent needs to revalidate the baseline data by collecting one-month fresh baseline data by new EIA consultant to ascertain the facts and figures presented in the EIA report and also to ascertain the ground reality. The Project Proponent also needs to the submit the comparison of both baseline data.

ii. The EAC opined that the Project Proponent may seek a legal opinion regarding the applicability of the orders dated 26.04.2023 and 28.04.2023 in this instant proposal.

iii. The EAC also opined that the Ministry may seek comments from the ESZ Division since the project is located within the Gangau wildlife sanctuary of Panna Tiger Reserve and whether the aforesaid orders dated 26.04.2023 and 28.04.2023 are applicable in the instant proposal or not.

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Day 2: 22nd September, 2023 (Friday)

2.1 Obulapuram Iron Ore Mine of M/s Sai Balaji Minerals with production capacity of Iron Ore: 99,789 Tons/Annum in the mine lease area of 4.003 ha, located at Sy.No: 370, Sy.No: 58/P Of Obulapuram Village, D-Hirehal Mandal, Anantapuram District, Andhra Pradesh – [Proposal No: IA/AP/MIN/423323/2023, File.No: IA-J-11015/5/2023-IA-II(NCM); EIA Consultant: M/s Ecomen Laboratories Pvt. Ltd] – Terms of Reference (SOP Violation dated 07.07.2021)

The instant proposal is for mining of Iron Ore in Obulapuram Iron Ore Mine of M/s Sai Balaji Minerals with production capacity of Iron Ore: 99,789 Tons/Annum in the mine lease area of 4.003 ha, located at Sy.No: 370, Sy.No: 58/P Of Obulapuram Village, D-Hirehal Mandal, Anantapuram District, Andhra Pradesh.

2. The details of the project as ascertained from the document submitted by the Project Proponent and as revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude: 15°02'56.85605"N - 15°03' 09.41610"N and Longitude: 76°51'31.93150"E - 76°51'42.96087"E and falls under the Survey of India Toposheet No: 57 A/16 and falls in Seismic Zone-II.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the instant proposal attracts the general conditions as the Interstate boundary of Andhra Pradesh and Karnataka is located at a distance of 0.6 km from the mine lease area and appraised at the Central level.

iii. Details of Mine lease:

S.no	Prospecting License/ Letter of Intent (LoI)/ Grant of Mine lease and Lr No	Date of the grant	Name of the Mineral & (Major/ Minor)	Period of Grant	Granted by	Mine lease area in Ha
1	Grant of Mine Lease vide G.O Ms.No 158	20.06.2007	Iron Ore (Major Mineral)	20 years	Government of Andhra Pradesh	4.046 Ha – as per Lease 4.003 Ha – as per DGPS (10.0 Acres)

iv. Details of execution of mine lease:

S. No	Details of grant of	Period of Grant	Name of	Mine

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	Mine Lease deed execution	From	To	the Mineral	lease area in Ha
1	Proc: 3272/ML/07, Dated: 22.09.2007	22.09.2007	21.09.2027 (deemed extension upto 2057)	Iron Ore	4.046 Ha – as per Lease 4.003 Ha – as per DGPS

v. Land Use/Land Cover of the Mine Lease Area:

Private land	Nil
Government land	4.003
Forest land	Nil
Total Mining lease area (MLA), ha	4.003
Private land for crusher, workshop & other infrastructure outside the MLA	Nil

vi. Mining plan details:

Review of Mining Plan including Progressive Mine Closure Plan approved by Indian Bureau of Mines	Letter No.	AP/ANP/MP/Iron ore-12/Hyd
	Date	23.08.2022
	Mineral & (Major/Minor)	Iron Ore – Major Mineral
	Mine Lease Area, Ha	4.046 Ha – as per Lease 4.003 Ha – as per DGPS Survey
	Validity	2026-27
Mining Parameters	Quantitative Description	
Method of Mining	Opencast Mining – Mechanized	
Drilling/Blasting	Yes	
Geological Reserves	1797225 tonnes	
Mineable Reserves	1195671 tonnes	
Life of mine	6 years	
Mine Bench Height & Bench Width	6 x 6	
No. of Mine Benches	Nil	
Existing Depth, m bgl	Nil	
Ultimate Depth of Mining, m bgl	4	
Ground Water Table, m bgl	60	
Details of ground water intersection	Nil	
Individual bench slope	45^0	
Overall pit slope	60^0	
Details of existing/ proposed Crusher	Nil	
Mineral Beneficiation	Nil	

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RoM output size	Boulders
Transportation details including capacity of dumper/tipper, mode of transport and distance	1. 2 Back Hoe/Excavator (0.9M^3) 2. 3 Dumpers (10tons capacity) 3. 1 Dozer (1.2 M^3)
Generation of Topsoil/OB & its Management during plan period & conceptual period	Plan Period: Overburden: 272740 tons 1255 m^{3}of topsoil will be generated
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	241145 m^3 of waste generated. 0.70 ha will used for Dumping as Approved mining plan.

vii. Water requirement:

Total water requirement	10.0 KLD	Freshwater	10KLD
		Treated water	
Source	Initially, Groundwater till 5 years and later from rain water harvested from the excavated pits.		

viii. Nearest village/town/ highway/interstate boundary/railway station/water bodies/monument/ forest

Particulars	Particular's Name	Distance & Directions
Village	Obulapuram	2.1 km towards SSW
Town	D.Hirehal	5km towards SSW
Highway	NH-150A (Rampura-Bellary)	500m towards East
Interstate Boundary	AP-Karnataka	700m towards NE as per Toposheet
Railway Station/Railway line	Railway line (Bellary Rayadurga) SW Railway Line	470m towards East
Water Bodies	Tungabhadra High level canal Allipura Reservoir	1.2 km, E 11 km towards North
Forest	Bellary R.F	1.2 km, NW

ix. Presence of Environmentally Sensitive areas in the study area

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	No	Not Applicable
National Park	No	Not Applicable
Wildlife Sanctuary	No	Not Applicable
Elephant/Tiger Reserve	No	Not Applicable
Eco-Sensitive Zone(ESZ) /Eco-	No	Not Applicable

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Sensitive Area (ESA)		
Coastal Regulation Zone (CRZ)	No	Not Applicable
Schedule-I species (No.s and name of schedule-I species with authenticated letter)	No	Not Applicable
Wildlife Conservation Plan	No	Not Applicable

x. Green belt/plantation details:

Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	0.840

xi. The Project Proponent has submitted the letter from the Office of the Department of Mines and Geology vide Lr.No: 3272/ML/2007 dated 08.12.2022 with regard to permitted quantity from the 2007-08 to 2022-23 as mentioned below: -

S. No	Year	Permitted quantity in MTs
1	2007-08	510
2	2008-09	5865
3	2009-10	29410
4	2010-11	96270
5	2011-12	76500
6	2012-13	19210
7	2013-14	12988
8	2014-15	2499
9	2015-16	27515
10	2016-17	69878
11	2017-18	0
12	2018-19	0
13	2019-20	6
14	2020-21	6524
15	2021-22	19750
16	2022-23 (08.12.2022)	0
	Total	366925

xii. If violation under SOP, dated 7thJuly, 2021. Point-Wise Compliance to SoP:

<table>
<tr><th>S. No.</th><th colspan="3">SOP dated 07.07.2021</th><th>Compliance</th></tr>
<tr><td>1</td><td colspan="3"><table>
<tr><th>S. No</th><th>Status of EC</th><th>Actions</th></tr>
<tr><td>1</td><td>If no prior EC has been taken</td><td>Order to close its operation</td></tr>
<tr><td>2</td><td>If prior EC is available for existing/old unit</td><td>Order to revert the activity/ production to permissible limits</td></tr>
<tr><td>3</td><td>If prior EC was not</td><td>Restrict the</td></tr>
</table></td><td>Order to close its operation</td></tr>
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	required for earlier production level but is now required	activity/production to the extent to which prior EC was not required	
2	Action under Environment (Protection), Act 1986		The Ministry to initiate action under section 15 read with section 19 of the Environment (Protection) Act, 1986 against the Project Proponent
3	Appraisal under EIA Notification, 2006		As per Ministry's SOP dated 07.07.2021
4	Penalty Provisions for Violation Cases and applications a. For new projects: i. Where operation has not commenced: 1% of the total project cost incurred up to the date of filing of application along with EIA/EMP report; [Ex: Rs. 1 lakh for project cost of Rs 1 Cr] ii. Where operations have commenced without EC: 1% of the total project cost incurred up to the date of filing of application along with EIA/EMP report PLUS 0.25% of the total annual turnover during the period of violation. [Ex: For Rs. 100 Cr project cost and Rs.100 Cr total turnover, the penalty shall be Rs. 1 Cr + Rs 0.25 Cr = Rs 1.25 Cr]. b. For expansion projects: i. Where operation/ production with expanded capacity has not commenced: 1% of the total project cost attributable to the expansion, incurred up to the date of filing of application along with EIA/EMP report. ii. Where operation/ production with expanded capacity have commenced: 1% of the total project cost (attributable to the expansion activity), incurred up to the date of filing of application along with EIA/EMP report PLUS 0.25% of the total annual turnover (attributable to the expanded activity/capacity) involved during the period of violation.		The penalty shall be decided during the time of appraisal for EC.

xiii. The Project Proponent has submitted an Affidavit in a non-judicial stamp paper of Rs 100 dated 02.01.2023 stating that as on date, the instant mine does not have

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a valid EC. The Project Proponent also undertaken to comply with all the statutory requirements and judgment of Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition (Civil) No.114 of 2014 in the matter of Common Cause versus Union of India and Ors., before grant of Terms of Reference (ToR)/ Environmental Clearance (EC).

xiv. Rehabilitation & Resettlement (R&R): No R&R is involved.

xv. Court case details: No Court cases are pending.

xvi. Details of project cost and employment:

Particulars	(Rs. In Crore)
Project Cost	50 Lakhs
Employment (No.s)	30

3. Observation and Recommendation of the EAC: -

The Project Proponent/Consultant presented the KML file to indicate the site features in the study area of 10 km radius. The instant proposal attracts the general conditions as the Interstate boundary of Andhra Pradesh and Karnataka is located at a distance of 0.6 km from the mine lease area. The Project Proponent has informed the EAC that railway line is located at a distance of around 500m on the eastern side from the mine lease area. Nearest Village is Obulapuram and it is located at a distance of about 2.0 km from the mine lease area. The Project Proponent also showed the old working pits within the mine lease area in the KML file. The balance life of the mine is 6 years. No National Park, Wildlife Sanctuary, ESZ/ESA within 10 km of the mine lease area. The mined out material will be transported by road through NH at a distance of 40km to Jindal and nearby mini steel plants and sponge iron plants. No village is passing through the transportation route.

The Project Proponent has informed the EAC that the mine lease deed was executed on 22.09.2007 and is valid upto 21.09.2027. A proposal was submitted to SEIAA, Andhra Pradesh during the year 2017. The EAC asked the Project Proponent that what is the reason for applying for ToR in the year 2023 after a gap of 6 years. The Project Proponent has informed the EAC no permits were issued by the Mining Dept., and Indian Bureau of Mines (IBM) has directed to obtain EC. The Project Proponent also informed the EAC that the State Pollution Control Board has directed to submit the copy of EC while submitting the application for renewal for consent for operation.

The mine commenced its operation in the year 2007 as no Environmental Clearance was required for mining of major minerals less than 5 Ha as per EIA Notification, 2006. The mine was in operation from the year 2007-08 to 2021-22. The Project Proponent also informed the EAC that as on date mine is not in operation. By Suo moto, the Project Proponent accepted that instant proposal is a violation case. The Project Proponent has shown the certified production details from the year 2007-08 to

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2021-22. The EAC observed that the Project Proponent has exceeded the production of the base year 1993-94 i.e., 510 MT from the year 2008-09 to 2016-17 and 2020-21 to 2021-22 and also the Project Proponent has been mining without EC. Thus the EAC opined that the instant proposal attracts the judgment of Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors and violation of the EIA Notification, 2006. The EAC reiterated the Ministry's SOP dated 07.07.2021 for identification and handling of Violation cases under EIA 2006stating that *"the percentage rates shall be halved if the project proponent suo-moto reports such violations without such violations coming to the knowledge of the Government either on inquiry or complaint"*. The EAC noted that as per Ministry's OM dated 07.07.2021, Clause 11: SOP for dealing with the violation cases if no prior EC has been taken then order to close its operation. In view of the above, the EAC asked the Ministry to close its operation and to take action against the Project Proponent under the provisions of the Environment (Protection) Act, 1986. The Project Proponent requested for exemption of public hearing as per Ministry's OM dated 12.11.2020. The EAC opined that the said OM does not applicable to this instant proposal.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC in its meeting held during 21-22 September 2023 under the provisions of EIA Notification, 2006 and subsequent amendments therein and as per Ministry's SOP dated 07.07.2021 for identification and handling of Violation cases under EIA 2006, **recommended** the proposal for grant of Terms of Reference (ToR) to M/s Sai Balaji Minerals for mining of Iron Ore in Obulapuram Iron Ore Mine with production capacity of Iron Ore: 99,789 Tons/Annum in the mine lease area of 4.003 ha, located at Sy.No: 370, Sy.No: 58/P Of Obulapuram Village, D-Hirehal Mandal, Anantapuram District, Andhra Pradesh for undertaking detailed EIA/EMP study subject to the following specific conditions in addition to the standard ToR conditions and applicable for non-coal mining projects:-

i. The EAC asked the Ministry to close its operation and to take action against the Project Proponent under the provisions of the Environment (Protection) Act, 1986. Further, no consent to operate to be issued till the project is granted EC. The action initiated by the State Govt./State PCB, status of the same may be submitted to the Ministry.

ii. The Project Proponent shall be required to submit a bank guarantee equivalent to the amount of remediation plan and natural and community resource augmentation plan with the SPCB prior to the grant of EC. The quantum shall be recommended by the EAC and finalized by the regulatory authority. The bank guarantee shall be released after successful implementation of the EMP,

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followed by recommendations of the EAC and approval of the regulatory authority.

iii. Assessment of ecological damage with respect to air, water, land and other environmental attributes. The collection and analysis of data shall be done by an environmental laboratory duly notified under the Environment (Protection) Act, 1986, or an environmental laboratory accredited by NABL, or a laboratory of a Council of Scientific and Industrial Research (CSIR) institution working in the field of environment.

iv. Preparation of EMP comprising remediation plan and natural and community resource augmentation plan corresponding to the ecological damage assessed and economic benefits derived due to violation.

v. The remediation plan and the natural and community resource augmentation plan to be prepared as an independent chapter in the EIA report by the accredited consultants.

vi. Details of benefit accrued during the violation period along with capital cost of the project needs to be submitted.

vii. The Project Proponent needs to submit the penalty provisions as per Ministry's SOP dated 07.07.2021 at the time of appraisal of EC.

viii. The Project proponent needs to submit the map demarcating the railway line and railway boundary from the nearest working pit and the mine lease area.

ix. The Project Proponent needs to submit the letter from the State Forest Dept of Andhra Pradesh and Karnataka regarding the distance of the location of the National Park, Wildlife Sanctuary, Tiger Reserves/ Tiger Corridor etc., along with the authenticated map and also the authenticated list of flora and fauna since the study area of the 10km radius of the buffer zone falling in the State of Andhra Pradesh and Karnataka (0.6 km).

x. The Project Proponent needs to monitor the ambient air quality and noise level at the mine lease boundary, nearest village, predominant downwind direction and at other sensitive receptors. The Project Proponent should prepare the EMP considering the scenario of pollution to be generated for normative and peak total excavation for assessing air and noise pollution.

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xi. The Project Proponent needs to carry out the Public Hearing as per provisions of EIA Notification, 2006. PP should also submit the time bound action plan on concerns of the public through a separate budget with capital expenditure with a timeline of 3 years. The Project proponent shall ensure that the activities proposed under the public hearing shall be different from the CSR activities.

xii. The Project Proponent shall carry out the assessment of impact due to the proposed project as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP. The project proponent shall conduct hydrological study for projects involving intersection of ground water table as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.

xiii. The Project Proponent shall explore the possibility of reduction of specific water requirement by optimization / technology up gradation, etc. The efforts shall be delineated in the EIA/EMP.

xiv. The Project Proponent shall prepare the scheme for mandatory recycle/re-use of water as specified by the Central Ground Water Authority for different category areas seeking NoC for ground water withdrawal and the shall submit as part of EIA/EMP report.

xv. The Action Plan on the compliance of the recommendations of the CAG as per Ministry's Circular No. J-11013/71/2016-IA.I(M), dated 25.10.2017 needs to be submitted at the time of appraisal of the project and included in the EIA/EMP Report.

2.2 Bicholim Mineral Block- Block 1 (Auction Block) of M/s Vedanta Limited for mining of Iron Ore with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA(Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located in Bicholim, Bordem, Lamgao, Mulgoa, Mayem & Sirigao Villages of Bicholim Taluka of North Goa District, Goa - [F.No: IA-J-11015/3/2023-IA-II(NCM), Proposal No: IA/GA/MIN/442593/2023, Consultant: M/s Mineral Engineering Services] – Environmental Clearance (EC)

The instant proposal is for mining of Iron Ore in Bicholim Mineral Block – Block 1 (Auction Block) of M/s Vedanta Limited with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA (Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located in

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Bicholim, Bordem, Lamgao, Mulgoa, Mayem & Sirigao Villages of Bicholim Taluka of North Goa District, Goa.

2. The details of the project as ascertained from the document submitted by the Project Proponent and as revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude: 15°34'20.518"N to 15° 36'54.018"Nand Longitude: 73°54'4.754"E to 73°57'09.51"E. The mine lease area falls under the Survey of India Toposheet No: D43B14and falls in Seismic Zone-II.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mining lease area is greater than 250ha and appraised at the Central level.

iii. Details of Terms of Reference (ToR):

Date of application	File. No/ Proposal No	Consideration	Details	Date of accord
16.03.2023	F.No: IA-J-11015/3/2023-IA-II(NCM) IA/GA/MIN/422323/2023	3-4 May, 2023	Terms of Reference (ToR) to M/s Vedanta Limited for mining of Iron Ore in Bicholim Mineral Block – Block 1 (Auction Block) with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA (Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located in Bicholim, Bordem, Lamgao, Mulgoa, Mayem & Sirigao Villages of Bicholim Taluka of North Goa District, Goa	16.06.2023

iv. Details of Mine Lease:

a) The Project Proponent has submitted the Letter of Intent (LoI) granted by the Government of Goa vide Lr No: DMG/25/Auction Cell/LOI-function/2023/2801 dated 13.01.2023 for grant of mining leasefor Block I - Bicholim Mineral Block for Iron Ore in Bicholim, Bordem, Lamgao, Mulgao Mayem & Sirigao villages, Bicholim Taluka, North Goa District over an area of 478.5206 Hectare for a

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period of 50 (fifty) years in pursuant to Rule 10(2) of the Auction Rules. This letter of intent is valid for a period of 3 (three) years from the date of its issuance.

v. Land Use/Land Cover of the Mine Lease Area:

Private land	421.1153 Ha
Government land	57.4053 Ha
Total Mining lease area (MLA)	478.5206 Ha
Private land for crusher, workshop & other infrastructure outside the MLA	Not Applicable

vi. Details of Mining Plan:

Review and Mining Plan approved by Indian Bureau of Mines, Goa	Letter No.	No. MCDR-MPC|1|2023-GOA-IBM_ RO_ GOA
	Date	26.05.2023
	Mine Lease Area	478.5206 Ha
	Mineral	Iron Ore (Major Mineral)
Mining Parameters	Quantitative Description	
Method of Mining	Opencast mechanized mining without Drilling & Blasting	
Drilling/Blasting	Not Applicable	
Total Reserves and Resources	84.73 Million Tonnes	
Proved Mineral Reserve	36.071 Million Tonnes	
Life of mine	30 years	
Bench Height	7 m	
Bench Width	10 m	
Individual bench slope	70^0	
Overall pit slope	$<26^0$	
RoM output size	Less than 500 mm	
Crushing/Screening	Mobile Dry Crushing and Screening plant shall be available within the proposed mine to handle 4 MTPA of crude ore. The primary crusher will consist of 1 no. of Jaw crusher of capacity 120 TPH with an input feed of -500mm and shall produce output of -70 mm. It shall be followed by secondary crushers, 2 no.s of capacity 300 TPH and 200 TPH respectively. The input feed size shall be -70mm and output feed size obtained shall be -40mm. The Screening Plants of capacity -600TPH shall be installed where input the feed size shall be -70mm to obtain product of -40mm lumps & -10mm fines.	
Transportation details	ROM/Iron ore or Screened/crushed material will be transported by 10.5 Tonne trippers from Mine to Sarmanas jetty through a dedicated road. The total	

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	distance from the mine to Jetty is 5.48 km of which 0.94 km stretch is public road and remaining 4.54 km is company owned dedicated road.
Dumpers capacity	40 tonne (within mines)
Waste handling and Disposal	During the mining period, the waste generated by mining will be temporarily stacked within the mining lease area as surface dump and backfilled in the exhausted portion of the pits. The total waste to be generated during the plan period is about 69.85 million tonnes. An area of 6.7146 Ha shall be utilized for Dumps and Material stocking at the conceptual stage of mining.

vii. Water requirement:

Total water requirement	664 KLD	Pit Water	628 KLD
		Ground water	36 KLD
Source	Water from Mine Pit will be used for dust suppression, Vehicle washing and Green belt. Water for domestic requirement will be met from bore well.		
Permission	The Bore wells are registered with Goa State Water Resource department. Application for using mine pit water will be submitted.		

viii. Nearest village / town/ highway/railway station / water bodies/monument:

Particulars	Particular's Name	Distance & Directions
Village	Lamgoa	Within the lease area
Town	Bicholim Town	0.5 km, East
Road	State Highway SH-1	0.65 km, East
Railway Station	Tivim Railwaystation	10.5 km, North
Water Bodies	Asnora River Mayem Lake Mandovi River	Touching lease boundary at one of the points 0.46 km 2.3 km, SW
School	Mulgao Govt. Primary School	Within the lease area
Worship places	Namuzgah/Idgah Shri Lairae Temple	Within the lease area 0.86 km
Caves/Fort	300m buffer from Lamgao caves Khorjuvem Fort: 2 km	

ix. Presence of Environmentally Sensitive areas in the study area:

Forest Land/Protected Area/Environmental Sensitivity Zone	Yes/ No	Details of Certificate/letter/Remarks
Forest Land	Yes	Mayem Forest Common Boundary with the mine lease area

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		The following Reserve Forests are located within 10 km radius of the mine lease area such as Kharapal RF -6.7 km Kasarpal RF - 5.1 km Ambadgaon RF - 7.6 km
National Park/Wildlife Sanctuary, ESZ/ESA etc.,	No	The Project Proponent has submitted the letter from the Office of the Dy. Conservator of Forests vide Lr No: DCF(WP)/Tech/Digi/Vol-I/75/2022-23/ 968 dated 23.01.2023 stating that the proposed Bicholim Mineral Block-I is not situated within 10 km radius from the boundary of any the protected area in the State of Goa. PP also submitted the authenticated map dated 24.01.2023 showing the distance of the following Wildlife Sanctuary from the mine lease area. i. Madei Wild life Sanctury-14.105 km, E ii. Salim Ali Bird Sanctuary -10.553 km, SW iii. Bondla Wildlife Sanctuary -20.476 km, SE The Project Proponent also submitted the letter dated 22.02.2023 obtained from the Director (Environment) & Member Secretary, Goa-SEIAA stating that the Authority on perusal of Draft Zonal Master Plan for Eco-Sensitive Zones of Goa 2022 noticed that Eco Sensitive Zones declared by the Ministry of Environment & Forest in the State of Goa covers six Talukas such as Sattari, Dharbandora, Ponda, Sanguem, Canacona and Quepem, Bicholim taluka is not inlcuded in Draft Zonal Plan and it is not part of Eco Sensitive Zones. It is also clarified that Block-I Bicholim Mineral Block of Vedanta Ltd is also not a part of any Eco Sensitive Area.
Schedule-I species	Yes	The Project Proponent has submitted the letter from the Office of the Dy. Conservator of Forests vide Lr No: 5/FCA/GEN/F&F/DCFN/TECH/2022-23 dated 04.04.2023 with regard to list of Flora and Fauna species present in core and buffer zone. The following Schedule-I species are found in the study area such as 1 Common leopard (*Felidae*) 2 White-bellied Sea-Eagle(*Accipitridae*) 3 Indian Peafowl (*Phasianidae*) 4 Crimson rose- Butterfly (*Papilionidae*)

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Status of Wildlife Conservation Plan	Yes	Wild Life Conservation Plan is prepared and submitted for approval of Chief Wildlife Warden (CWLW) on 19.06.2023. PP has submitted the copy of the acknowledgement from Chief Wildlife Warden.

x. Green belt/plantation details:

Proposed area for green belt/plantation	105.8894 ha
Budget for green plant& plantation till the end of life of mine.	Rs159.0Lakhs
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	25 ha
50 m safety zone of nallah, roads, electric lines	
Additional information (if any)	80.8894 ha (on backfilled area)

xi. Details of Baseline data:

Baseline Data (Air / Water / Noise / Soil / Ground water table/ others)			
Period of baseline data collection	March, 2023 to May, 2023		
Season (Summer / Pre-monsoon / Post-monsoon / Winter)	Summer Season		
Ambient Air Quality (no. of locations) and results	No. of Locations	Parameters	Results
	9	PM10	27.0 to 56.0 µg/m^3
		PM2.5	14.0 to 36.0 µg/m^3
		SO2	4.0 to 13.0 µg/m^3
		NO2	<4.0 to 18.0 µg/m^3
Noise level (no. of locations) and results	No. of Locations	Parameters	Results
	09	During Day Time [Leq dB(A)]	43.1 to 61.7
		During Night Time [Leq dB(A)]	35.9 to 49.3
Water Quality (no. of locations) and results	Surface water quality		
	No. of Locations	Parameters	Results
	07	pH	6.35 - 7.39
		TDS (mg/l)	72 - 11240
		Fluoride (mg/l)	<0.1
		Chloride (mg/l)	18 - 5620
		Fe (mg/l)	<0.05
		Dissolved Oxygen (as O_2), mg/l	6.2 – 6.9
		Biochemical Oxygen Demand	<3.0

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		(as O_2), mg/l	
		Chemical Oxygen Demand (COD) mg/l	22.0 – 26.0

Groundwater Quality

No. of Locations	Parameters	Results
10	pH	5.63 – 7.07
	TDS (mg/l)	20 – 150
	Fluoride (mg/l)	0.1
	Chloride (mg/l)	5.0 - 19.0

Soil Quality (no. of locations) and results

No. of Locations	Parameters	Results
07	pH	5.38 to 5.78
	Electrical Conductivity (mohs/cm)	0.28 to 0.318
	Nitrogen (kg/ha)	200 to 275
	Phosphorus (kg/ha)	14.3 to 17.8
	Potassium (kg/ha)	230 to 263

xii. Public Hearing (PH) Details:

Advertisement for PH with date	07.07.2023 Regional: Bhangar Bhui, Heraldo, Lokmat & Free press journal (Mumbai Edition) News papers
Date of PH	11/08/2023
Venue	Narayan Zantye Multipurpose Sports Complex, Sarvan, Bicholim, Goa
Chaired by	District Collector, North Goa
Main issues raised during PH	Pollution, impact on ponds, Support for Education, Health, Agriculture Development & Skill Development, Employment.
Budget proposed for addressing issues raised during PH	Rs 309.3 Lakhs

xiii. Rehabilitation & Resettlement:

R & R details	There is presence of habitation within ML Area at Mulgao and Iamgao villages. Safety Buffer of 50m will be maintained from the habitations. No Rehabilitation & Resettlement Plan is proposed during life of mine.

xiv. Court case details:

Court Case	Yes
Additional information (if any)	First Case (Suresh Zantye & ors. v. State of Goa & Ors.):

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	1. WP(Civil) 2478 of 2022 (Filing number) before the High Court of Bombay at Goa 2. The said writ petition has been filed against the State Government and seeks to challenge the identification of properties bearing survey no. 90/1(part) and 96/0 as part of the recently auctioned Bicholim mine. The petition alleges violation of Rule 5 &6 of Mineral Evidence Rules and Section 10B of MMDR, Act by the State of Goa and DMG. The petitioner has prayed for quashing of auction notice to the extend it includes the property of the petitioner and grant a writ of mandamus against the Respondents. 3. Case status is pending. 4. No adverse orders have been passed. 5. As per the last order the matter has been disposed of by the HC on 17th July 2023 with a direction to the Petitioner to make a representation before the Government and the Government is to dispose of the same within four months. Second Case (MSPL v. State of Goa & Ors.): 1. WP 592 of 2022 2. The said writ petition seeks to challenge the constitutionality of the tender documents of Phase I auction of Goa mines. The petition alleges violation of Rule 5 & 6 of Mineral Evidence Rules by the State of Goa and DMG. The petition alleges non-disclosure of essential facts such as bore hole data, approved mining plan, production data of the previous five years and exploration data. The petitioner has prayed for quashing of auction notice to the extend it fails to include the essential facts and in the alternative to stay the auction. 3. Case status is pending 4. No adverse orders have been passed. 5. As per the last order the matter was listed on 01.09.2023. Third Case (Suresh Govind Gaonkar & Ors v. Directorate of Mines and Geology & Ors): 1. PIL WP 2029/2023 (F)

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	2. PIL has been filed challenging state's decision to go ahead with the auction of the mining block. The said PIL also challenges the order dated 13.01.2023 which issues LOI to the successful bidder. The primary grievances of the petitioners are that village settlement are included within the mining blocks auctioned. Hence this PIL was preferred under Article 226 and 21 of the Constitution. Vedanta Limited is Respondent No. 3 in the aforementioned PIL. The matter is listed for first hearing on 25.09.23.

xv. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent has submitted the Affidavit in a non-judicial stamp paper of Rs 100 bearing no: A807037 dated 24.04.2023 stating that they will comply to the directions issued by MoEF&CC vide Office Memorandum F.No.3-50/2017.IA.III (Pt) dated 30th May, 2018 in terms of directions given Hon'ble Supreme Court in judgment dated 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India & Ors.
Undertaking of Project Proponent	The Project Proponent has submitted an undertaking stating that the Environmental Impact Assessment Report of Block-1 Bicholim Mineral Block of M/s Vedanta Ltd was prepared by M/s Mineral Engineering Services, QCI/NABET Accredited EIA Consultant at Sr.No. 55 as per list of list of accredited consultant/organizations. The Project Proponent hereby undertaken that the information and data provided in the EIA report and submitted to the Ministry are factually correct and fully accountable for the same.
Consultant submitted an Undertaking vide letter dated 02.06.2023	This is to declare that the prescribed ToRs have been complied with and that the data submitted are factually correct in respect of EIA & EMP report prepared for Block-1 Bicholim Mineral Block of M/s Vedanta Ltd, Goa.

xvi. Details of the Environmental Management Plan (EMP):

Activities	Capital cost (Crores)	Recurring cost (Lakhs/annum)

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Plantation	-	7.5
Environment monitoring	44	44
Air pollution control measures	20	300
Water Treatment	-	11
Erosion control /monsoon measures	-	221
Personal protective equipment	-	15
Maintenance of fire protection systems	-	1.5
Environment awareness & training	-	5
Health	8	16
Total	72	621

xvii. Details of project cost and employment:

Particulars	(Rs. In lakhs)
Project Cost	25000 Lakhs
Employment	716 no.s

3. Observation and Recommendation of the EAC:-

The Project Proponent and the Consultant presented the KML file to indicate the site features in the study area of 10 km radius. The Project Proponent has shown the boundary of the mine lease area and informed the EAC that there are two habitations such as Mulgao and Lumgao and schools are located within the mine lease area. Two schools are located in the Mulgao Village. One school is located at a distance of 138m from the Ultimate Pit Limit (UPL) and the other school is located at a distance of 190m from the Ultimate Pit Limit (UPL). No drilling and blasting is involved. Green barriers are maintained to prevent it from the environment hazards. Tributary of Asnora River is touching the mine lease area on the western side. It has been observed that area between river & bottom pit 5 is approximately 6m AMSL which obstructs the flow of water between them, even the high flood condition and at the place where river is touching the block boundary, it is 10.93m AMSL. Hence, even during high flood level, river will not interact with the pit water. The EAC noted that there are few temples, caves and fort are present in the vicinity of the mine lease area. There will be no surface dumping and will be backfilled concurrently and there are voids available for backfilling. Later on the Project Proponent has informed that the pits will be used as a settling ponds. The EAC noted that the Project Proponent is giving two contradictory statements. The EAC asked the Project Proponent to provide the design of the settling ponds in different pits.

The Project Proponent has informed the EAC that Block-I Bicholim block is an old mine and it was auctioned to Vedanta Ltd in the year 2022 and Letter of Intent (LoI) was granted on 13.01.2023. The EAC asked the Project Proponent that after the year 2018 whether any Environmental Clearance has been granted in the State of Goa. The

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Project Proponent has informed the EAC after the year 2018 there was no mining in Goa and this instant case is the first case for grant of Environmental Clearance. No forest land is involved in the mine lease area. The EAC noted that the Project Proponent has submitted that Mayem Forest common boundary is sharing with the mine lease area. The EAC was of the view that involvement of forest land within the mine lease area is not clear as there are two contradictory information given by the Project Proponent. The EAC also noted that in this regard, the Project Proponent has not submitted the letter from the Forest Dept. No National Park/Wildlife Sanctuary, ESZ/ESA etc., is located within 10km radius of the study area. An application for Groundwater withdrawal was submitted to Water Resource Department submitted on 19.06.2023. No Rehabilitation and resettlement is involved in this proposal.

The Project Proponent has informed the EAC that ROM/Iron ore or Screened/crushed material will be transported by 10.5 Tonne trippers from mine to Sarmanas jetty through a dedicated road. The total distance from the mine to Jetty is 5.48 km of which 0.94 km stretch is public road and remaining 4.54 km is company owned dedicated road. Width of the road is 7.0m. Twenty four hours continuous volume count was manually undertaken during May-2023. The EAC noted that the width of the road is not adequate. About 1205 no. of trips per day will be carried out. No. of working days will be 365. The EAC was of the view that when the rainfall is 3500 mm/year it will be difficult to carry out mining for 365 days. The Project Proponent has informed the EAC that 275 working days are considered for calculation of traffic load. The EAC asked the Project Proponent to bypass the public road and also to explore the possibility of increasing the capacity of the truck so as to reduce the no. of trips. The EAC opined that the Project Proponent needs to revisit the traffic load by considering the cycle time and waiting time. The EAC also asked the Project Proponent to strengthen the road and convert the road into concrete road.

The Project Proponent also informed the EAC that the predominant wind direction was from West to East. Wildlife Conservation Plan has been prepared and submitted to Chief Wildlife Warden (CWLW) on 19.06.2023 for approval with a budget of Rs. 50 Lakhs. At the end of conceptual stage, an area of 105 ha will be under green belt/ plantation. Eco restoration will be carried out in similar to the reclaimed activity carried out in Sanquelim mine. Public hearing was carried out on 11.08.2023 and a budget of Rs 309.3 Lakhs have been earmarked to address the concerns raised during public hearing. The EAC also noted that about 4708 written objections was submitted against the project during the public hearing. The Project Proponent has informed the EAC that the issues are same but the no. of objection letters were more in number and about 5183 no.s of letters were also received in support of the project. The EAC also noted that many complaints were received against the public hearing dated 11.08.2023. The EAC asked the Project Proponent to submit the video recording of the public

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hearing. There are three court cases at present regarding the auction process and one of the court case was disposed on 17.07.2023 and will abide the directions of the Hon'ble High Court. Other two cases in the matter of MSPL v. State of Goa & Ors. in WP 592 of 2022 and in the matter of Suresh Govind Gaonkar & Ors v. Directorate of Mines and Geology & Ors. in PIL WP 2029/2023 (F) are pending before the Hon'ble High Court and no adverse orders has been passed.

The Department of Mines and Geology, Goa was invited as a special invitee to discuss the present status of mining in Goa. The Deputy Director has informed that the State Govt. is looking positive to restart the mining operations in Goa. Besides 10% DMF, there is also a scheme called Goa Iron Ore permanent fund wherein 10% of the sale value of the mineral will be spent towards community based activities as per the direction of the Hon'ble Supreme Court. The State Govt. has put up a scheme for approval before the Hon'ble Supreme Court in line with Pradhan Mantri Khanij Kshetra Kalyan Yojana (PMKKKY) Scheme. This fund has to be kept for prosperity. The report with regard to illegal mining will be obtained from the SIT and will be provided to the Ministry.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC noted that the handling of waste of 25.162 MTPA will be more than the Iron Ore production capacity of 3.0 MTPA. The EAC was of the view that the pollution potential will be more in handling of waste. The EAC not convinced with plan for backfilling and with the design of settling ponds as the annual rainfall is projected as 3500 mm/year. The EAC observed that the instant mine is located in dense vegetation area. The EAC also noted that the mine lease area is located close to the proximity of the habitations, school, forest (Mayem common boundary), river, temples, caves and fort. The EAC also observed that the Project Proponent has not properly worked out the traffic load. Many litigations were received against the public hearing/project. Further, the EAC also noted that mines were not in operation in Goa from the year 2018 and this instant proposal is a first case for grant of Environmental Clearance (EC) under auction after 5 years. Thus there is a need to ascertain the present scenario and ground reality with regards to handling of waste, settling ponds, location of waste dump w.r.t habitation, school and river, other surface features as forest (Mayem common boundary), temples, caves and fort, mineral transportation route and traffic congestion. The EAC was of the view that a site visit needs to be conducted by a sub-committee comprising of EAC Members and officers from MoEF&CC. The EAC opined that the Ministry may constitute a sub-committee and submit its report to enable the committee to take a decision on the proposal. Therefore, the EAC **deferred** the proposal for want of following additional information: -

i. The site visit report of the subcommittee.

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ii. The Project Proponent needs to revisit the plan for backfilling with clearly indicating the voids area and the capacity available/required for backfilling.

iii. The Project Proponent needs to submit the design of settling ponds by considering the annual rainfall, catchment area and its discharge.

iv. The Project Proponent needs to bypass the public road and also to explore the possibility of increasing the capacity of the truck so as to reduce the no. of trips. The EAC opined that the Project Proponent needs to revisit the traffic load by considering the cycle time and waiting time. The Project Proponent needs to submit the action plan for strengthening the road and for converting the unpaved road into concrete road.

v. Since the mine lease area is sharing the Mayem Forest common boundary, the Project Proponent needs to submit the letter from the State Forest Department regarding the involvement of forest land in the mine lease area.

vi. The Project Proponent needs to submit a letter from the Department of Geology and Mining, Government of Goa clarifying whether any illegal mining within the mine lease area has been carried out or not and whether the same has been carried out by M/s. Vedanta Limited or not?

vii. The Project Proponent needs to submit the video recording of the public hearing.

2.3 Chettichavadi Jaghir Magnesite and Dunite Mine of M/s. Dalmia Bharat Sugar and Industries Limited for Total Excavation of 1.4 million Tonne per annum (MTPA)/ [including 0.06 million tons of Magnesite, 0.12 million tons of Dunite, Waste, O.B, Inter Burden, Top Soil etc.] in the mine lease area of 449.364 ha, located at Chettichavadi Village, Salem Taluk, Salem District, Tamil Nadu - [File No: 23-227/2018-IA.III(V), Proposal No: IA/TN/MIN/241375/2018, Consultant: Aadhi Boomi Mining & Enviro Tech (P) Ltd] - Environmental Clearance (Violation)

The instant proposal is for mining of Magnesite and Dunite in Chettichavadi Jaghir Magnesite and Dunite Mine for Total Excavation of 1.4 million Tonne per annum (MTPA)/ [including 0.06 million tons of Magnesite, 0.12 million tons of Dunite, Waste, O.B, Inter Burden, Top Soil etc.] in the mine lease area of 449.364 ha, located at Chettichavadi Village, Salem Taluk, Salem District, Tamil Nadu.

2. The details of the project as ascertained from the document submitted by the Project Proponent and as revealed from the discussions held during the meeting are given as under:

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i. The mine lease area is located between Latitude: 11°43'09.71"N to 11°44'36.233"N and Longitude: 78°07'23.268"E to 78°09'13.068" E. The mine lease area falls under the Survey of India Toposheet No: 58 I/2 and falls in Seismic Zone-III.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mine lease area is greater than 250 ha and appraised at the Central level.

iii. The Project Proponent obtained Terms of Reference (ToR) vide ToR Lr.No: 23-227/2018-IA.III(V) dated 05.02.2021 for mining of Magnesite and Dunite in Chettichavadi Jaghir Magnesite and Dunite Mine for Total Excavation of 1.4 million Tonne per annum (MTPA)/[including 0.06 million tons of Magnesite, 0.12 million tons of Dunite, Waste, O.B, Inter Burden, Top Soil etc.] in the mine lease area of 449.364 ha under Ministry's Notification dated S.O 804(E) dated 14.03.2017.

vii. The proposal was earlier considered in the 43rd EAC (Non-Coal Mining) meeting held during 14 -16 December, 2021 wherein the EAC deferred the proposal. The Project Proponent submitted the information on 11.03.2022 in Parivesh. But the Project Proponent did not comply to the observation of EAC and in view of the above additional details sought by the Ministry on 27.04.2022, 22.08.2022, 12.09.2022, 04.10.2022 and 22.11.2022 to provide the valid mine lease document and thereafter the Project Proponent submitted the information on 21.12.2022 in Parivesh. Accordingly, the proposal was reconsidered in the 9th EAC (Non-Coal Mining) meeting held during 17-18 January, 2023 wherein the EAC deferred the proposal for want of requisite information.Then, the Project Proponent submitted the information on 01.09.2023 in Parivesh portal and accordingly the proposal was again reconsidered in the 20th EAC (Non Coal Mining) meeting held during 21-22 September, 2023.

Based on observation of EAC in its EAC meeting held during 17-18 January, 2023 and compliance of observation of EAC made by PP are detailed below:

S. No	Observation of EAC in its meeting held during 17-18 January, 2023	Reply by Project Proponent
1	The project to be consider after deposit of demand raised by State authorities w.r.t Hon'ble Supreme Court common cause Judgment dated 2.08.2017. PP shall submit the proof of payment.	The Project Proponent has submitted that the State Mining Dept., Dept of Geology and Mining, Guindy while confirming the validity of the mine lease vide letter dated 09.12.2022 has directed to remit the EC violation amount of Rs 18.69 Crand Surface Right Compensation amount of Rs 79 Cr after the disposal of thefollowing cases which are pending before the Hon'ble High Court of Madras (1)W.P.No. 2517/2018-Surface Right

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<table>
<tr><td></td><td></td><td>Compensation and (2) W.A.No 834&835/2020 -EC Violation.

The Project Proponent has submitted that the said demands are being contested on the grounds amongst others that it has been imposed without opportunity of hearing. However, in case of similar demands to remit EC violation amount, Madurai Bench of Madras High Court by orders dated 18th Aug 2020 In W.P. (MD) No. 24463/2018 etc. batch has taken opposite view and held that such demands cannot be enforced without opportunity of hearing. Therefore, the matter has now been referred to larger bench to decide the said issue.

The Writ Appeal before Madras High Court regarding demand of EC violation amount INR 11.44 Crore along with entire batch appeals from other ML holder on the same issue is posted for hearing on 12th Sep 2023.

Further, a Writ Petition W.P 22888/2023 has been filed before Madras High Court on 27.07.2023 praying amongst others that MOEF&CC should not insist for pre-payment of INR 11.24 Crore and 7.44 Crore for grant of EC (compensation demanded by State Mining Dept. for mining without EC in light of Supreme Court Order In Common Cause, dated 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014). The matter is pending and posted for hearing on 20th September 2023. The Project Proponentreiterate herein that they will pay the demands upon final disposal of the matter.</td></tr>
<tr><td>2</td><td>The Project Proponent needs to submit the details of all the court cases/show cause notices/ litigations in a chronological manner and its present status with the supporting court orders/ documents.</td><td>The Project Proponent has submitted the details of all pending court cases/show cause notices/litigations as on date and their present status with its supporting order/documents as given below in Table.
<table>
<tr><th>S.No</th><th>Case Reference</th><th>Facts</th><th>Current Status</th></tr>
<tr><td colspan="4">MMRD</td></tr>
<tr><td>1</td><td>W.P.25518/2006 Madras HC</td><td>Since Mines and Geology Dept. was not disposing of the application for renewal of mining lease, Writ Petition No. 25518 of</td><td>The said order dated 17th August, 2006 still continues to be in force and the said W.P. No. 25518 of 2006</td></tr>
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				2006, filed by Project Proponent Hon'ble Court granted an interim injunction in favor of the Project Proponent to operate the said mining lease under deemed extension in terms of Rule 24 A (6) of MCR 1960. Accordingly, in light of the interim relief granted by this Hon'ble Court, the Appellant continued its mining operations without any expansion and or modification.	is also pending as on date. Now State Mining Dept. issued letter dated 9th Dec 2022 hence this writ petition is now redundant.
		2	In terms of the Supreme Court Order dated the 22nd August 2017 in Writ Petition (Civil) No. 114 of 2014, Dist. Collector Salem raised a demand vide order 18th June 2019 directing Dalmia Bharat Sugar & Industries Ltd. (DBSIL), project proponent here to pay sum of INR 11.44 crore on the quantity of Dunite mined without EC for the period 1st April 2000 to 31st March 2018.	The said demand was challenged by the DBSIL before Hon'ble Madras High Court by WP No. 889 of 2020 wherein DBSIL. The said writ petitions were dismissed by Hon'ble High Court vide orders dated 12th June 2020. The orders dated 12th June 2020 passed by Hon'ble High Court has been challenged by DBSIL vide Writ Appeal No 834 of 2020 which are yet to be	Writ Petition No.29275 of 2016 Disposed by passing judgment dated 11th January 2022 by the Hon'ble Madras High Court with direction to PP to obtain EC.

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				taken up for hearing. In the meanwhile, Hon'ble Madurai Bench of Madras High Court in a different batch of writ petitions challenging demands by other District Collectors in terms of the said Supreme Court Order dissented with the orders dated 12th June 2020 on the ground that raising of demand Without opportunity of hearing may not be proper. The Madurai Bench of Madras High Court recorded its reasons for dissent in its order dated 19th August 2020 in W.P(MD) No.24463 of 2018 and etc. batch and requested Hon'ble Chief Justice of Madras High Court to place the matter before an appropriate bench. District Collector has also issued notice date 8th July 2020 for recovery of the amount. We have	

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				requested to keep the recovery proceedings in abeyance in view of the matter being sub judice	
		3	District Collector, Salem has also raised another demand vide order dated 08.07.2020 directing project proponent to pay sum of Rs.7.24 crore on the quantity of Magnesite mined without EC for the period 01.04.2000 to 31.03.2018.	Project Proponent has sought basis of demand from District Collector. The demand is pending for disposal in view of above-mentioned development in the similar matter.	Pending.
		4	W.P.No.2517 of 2018 before Madras H.C. (District Collector's demand ofsurface compensation ofRs.79,88,39,062 from 20.08.1966till 31.10.2017)	Project Proponent has filed W.P.No.2517 of 2018. before Madras H.C. Later on, vide orders dated 28th Feb 2022, the writ had been tagged with Writ Appeal, No. 757 of 2020. The Writ Appeal also pertains to said demand U/r 72 while stay of demand has been ordered to be continued, until vacated by Court. The demand is stayed till date.	Pending, stay order is in force
		5	W.P 22888/2023 – Dalmia BharatSugar & Industries Ltd. Vs Secretary, MOEF&CC	Writ Petition filed before Madras High Court praying amongst others that MOEF&CC	Posted for hearing on 20th Sept. 2023

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				should not insist for prepayment of INR 11.24 Crore and 7.44 Crore for grant of EC (compensation demanded by State Mining Dept. for mining without EC in light of Supreme Court Order in Common Cause, dated 22nd August 2017 in Writ Petition (Civil) No. 114 of 2014.	
			Environment Protection Act		
		6	Show cause vide Proceeding Letter No. SLM0006/DEE/ TNPCB/SLM/RL/2014, dated 03.06.2014 by Tamil Nadu State Pollution Control Board u/s 19 of Environment Protection Act	Notices have been issued U/s 19 of Environment Protection Act to all the directors of the Project Proponents on the alleged ground of mining without EC during the period of deemed extension while the application for second renewal of mining lease was pending. Replies have been filed stating amongst others that mining was carried out under the provisions of deemed extension read with above mentioned order dated	Pending

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				17th August 2006 of Madras HC	
		7	Show Cause vide Proceeding Letter No. FEF/TNPBC/SLM/ F/006 /20 by Tamil Nadu State Pollution Control Board U/s 19 of Environment Protection Act dated 4th May 2020	Notices have been issued U/s 19 of Environment Protection Act to the Project Proponent. On the alleged ground of mining without EC during the period of deemed extension while the application for second renewal of mining lease was pending. Replies have been filed stating amongst others that mining was carried out under the provisions of deemed extension read with above mentioned order dated 17th August 2006 of Madras HC.	Criminal Case vide CC.No.388 of 2023 has been filed in Salem Judicial Magistrate Court No-4 by TNPCB against the DBSIL represented by Shri. P.G. Kalidass, Agent and Superintendent of Mines.
		Air Act & Water Act:			
		8	Show Cause Notice dated 5th Feb 2013 under Water Act Show Cause Notice dated 5th Feb 2013 under Air Act	Mining Activity without EC on renewal of mining lease. Reply to the notices have been filed.	Pending
		9	Mr. S. Sakthivel of Environmental Protection Anti-Pollution Group, Salem filed Original Application No: 213/2021 before NGT Chennai	It was alleged in the application that that mining is being carried out without renewal of ML and without EC. In the said application PP along with MOEF and	The said Original Application is finally disposed of vide orders dated 18th May 2023 with direction to PP to obtain EC before starting ML operations. The said order

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				State Mining Dept. was arrayed as Respondents.	following observation: "the Environmental Clearance was required to be obtained from the year 1994" *(vis -â-vis mining project of the Applicant herein).* We have moved a Review Application No. 14/2023 for correction of the said observation because under 1994 Notification EC was required for new projects. The mining projects which were existing in 1994, required EC at the time of expansion or renewal of ML. In the said Review Application, we have not sought any change in the directions to PP to first seek EC from MOEF. The matter is to listed on 12th Sep 2023.
3	The Project Proponent needs to submit the status of the credible action to be initiated by the State Govt. against the Project Proponent under the section 19 of E(P)A, 1986 in reference to the Ministry's letter dated 25.11.2020.	The Project Proponent has submitted that the credible action has been initiated by the State Govt./TNPCB under the section 19 of Environmental (Protection) Act, 1986 vide case no. CC No: 388/23 at Chief Judicial Magistrate Court no. IV, Salem dated 13.04.2023.			

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4	The Project Proponent needs to submit the revised letter from the Competent Authority, Forest Department clearly mentioning the type of Schedule Species in the study area of 10 km radius and accordingly the Project Proponent needs to submit the proof of submission of Wildlife Conservation Plan made to the Forest Dept with the timeline for implementation and the budget proposed.	The Project Proponent has submitted the revised letter from the Tamilnadu Forest Department vide letter no C.No. 228/2021 dated 13.02.2023 mentioning the details of flora, fauna, type of forest and list of schedule - I species in the study area. It has been also mentioned that there are 10 mammals, 6 birds and 2 reptiles are found under Schedule-I category. The Project Proponent also submitted that based on the revised letter issued by the Tamilnadu Forest Department vide letter dated 13.02.2023, Wildlife Conservation Plan has been submitted to the Tamilnadu Forest Department vide letter dated 09.03.2023 and proof of the same also submitted. The Project Proponent earmarked a budget of Rs 13.0 Lakhs towards conservation of Schedule I fauna.
5	The Project Proponent needs to submit the District Survey Report for Dunite to be approved by the SEIAA, Tamil Nadu.	The Project Proponent has submitted the letter issued by the SEIAA-Tamil Nadu vide Lr.No: SEIAA-TN/C.No.6013/2023 dated 06.06.2023 stating that SEIAA-TN is hereby endorsing the District Survey Report prepared for the mineral - Dunite by the Dept of Geology & Mining and approved by the District Administration, which establish that the mineral resource of Dunite is existing along with the magnesite in the mine lease hold area of an extent of 449.364 Ha in Chettichavadi Village. Salem District. Tamil Nadu owned by Dalmia Bharat Sugar and Industries Ltd.
6	The Project Proponent needs to submit the complete copy of the Approved Mining Plan dated 30.03.2021 in Parivesh.	The Project Proponent has submitted the copy of Review of Mining Plan including Progressive Mine Closure Plan for the period 2021-22 to 2025-26 in Parivesh portal.
7	The Project Proponent needs to submit the valid NABET Accreditation Certificate of the Consultant in Parivesh.	The Project Proponent has submitted the valid Certificate of Accreditation of the EIA Consultant Valid up to October 22, 2024.
8	The Project Proponent needs to submit the undertaking as per Ministry's OM dated 05.10.2011 and also the	The Project Proponent has submitted an undertaking vide letter dated 21.04.2023 to the effect that the conditions laid down in the Terms of Reference under violation case vide ToR letter dated 05.02.2021 for existing Magnesite and

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	Consultant needs to submit the undertaking as per Ministry's OM dated 04.08.2009.	Dunite mines in S.F.No. 6, over an extent of 449,364 ha of Chettichavadi Village, Salem Taluk and District, Tamil Nadu have been complied with in the final EIA & EMP report and the data submitted and information presented there in are true and correct to the best of my knowledge. The Consultant has submitted an undertaking vide letter dated 21.04.2023 stating that the Final EIA and EMP report has been prepared in compliance with the conditions laid down in the Terms of Reference under violation case vide letter dated 05.02.2021 including Ecological damage assessment, remediation plan, natural resource augmentation plan and community resource augmentation plan for obtaining EC from MoEF&CC, New Delhi for existing Magnesite and Dunite mines in S.F.No. 6, over an extent of 449.364 ha of Chettichavadi Village, Salem Taluk and District, Tamil Nadu. The head of the accredited consultant organization also confirmed that they shall be fully accountable for mis leading information mentioned in this statement.
9	The Project Proponent needs to reupload the EIA/EMP report along with the contents of the EIA/EMP report in Parivesh.	The Project Proponent has submitted that the Final EIA/EMP report along with the contents has been re-uploaded in Parivesh along with ADS reply.

3. Observation and Recommendation of the EAC: -

The EAC deliberated on the additional details submitted by the Project Proponent and the Consultant. The Project Proponent has informed the EAC that the Dept. of Geology and Mining, Guindy while confirming the validity of the mine lease vide letter dated 09.12.2022 has directed to remit the EC violation amount of Rs 18.69 Cr and Surface Right Compensation amount of Rs 79 Cr after the disposal of the following cases which are pending before the Hon'ble High Court of Madras (1) W.P.No. 2517/2018-Surface Right Compensation and (2) W.A.No 834&835/2020 -EC Violation. The Project Proponent has informed the EAC the demand will be paid subject to the outcome of disposal of the court cases. An affidavit dated 22.04.2023 has been submitted as per Ministry's OM dated 30.05.2018. The Project Proponent also informed the EAC that a Writ Petition W.P 22888/2023 has been filed before Madras High Court on 27.07.2023 praying amongst others that MOEF&CC should not insist for pre-payment of INR 11.24 Crore and 7.44 Crore for grant of EC (compensation demanded

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by State Mining Dept. for mining without EC in light of Hon'ble Supreme Court Order dated 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014) in the matter of Common Cause versus UoI and others. Further, the Project Proponent also informed the EAC that no stay order has been imposed by the Hon'ble High Court.

The Project Proponent has informed the EAC that they are ready to submit the bank guarantee. The EAC reiterated the Ministry's OM dated 30.05.2018 stating that *"the Environmental Clearance will not be operational till such time the Project Proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated the 2ndAugust 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors"*. The EAC opined that even if the Project Proponent submits the bank guarantee the purpose of granting EC will not meet the requirement as per Ministry's OM dated 30.05.2018. The matter is pending and posted for hearing on 15th October 2023.The Project Proponent has also informed the EAC that the credible action has been initiated by the State Govt./TNPCB under the section 19 of Environmental (Protection) Act, 1986 vide case no. CC No: 388/23 dated 13.04.2023at Chief Judicial Magistrate Court no. IV, Salem. The matter is listed on 11.10.2023.

The Project Proponent has informed the EAC that based on the revised letter issued by the Tamilnadu Forest Department vide letter dated 13.02.2023, Wildlife Conservation Planhas been submitted to the Tamilnadu Forest Department vide letter dated 09.03.2023 and the Project Proponent has showed the proof of the same. A budget of Rs 13.0 Lakhs has been earmarked towards conservation of Schedule I fauna.The Project Proponent has also showed the letter issued by the SEIAA-Tamil Nadu vide letter dated 06.06.2023 stating that SEIAA-TN is hereby endorsing the District Survey Report prepared for the mineral - Dunite by the Dept of Geology & Mining and approved by the District Administration, which establish that the mineral resource of Dunite is existing along with the magnesite in the mine lease hold area of an extent of 449.364 Ha in Chettichavadi Village. Salem District. Tamil Nadu owned by Dalmia Bharat Sugar and Industries Ltd.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC was of the view that even if the Project Proponent submits the bank guarantee, the Project Proponent will not able to comply to the statutory requirements and judgment of Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors" and will not able to start the mine operation. Therefore, the EAC **deferred** the proposal and asked the Project Proponent to submit the proof of payment of Rs. 18.69 crore as per Dept. of Geology and Mining, Guindy letter dated 09.12.2022 for further consideration of the instant proposal before the EAC.

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2.4 Bathiya Limestone Mine of M/s AAA Resources Private Limited for mining of Limestone with production capacity of 4.0 MTPA, Topsoil: 0.41 MTPA, Waste/reject: 4.43 MTPA (Total excavation: 8.84 MTPA) along with the crusher of 1400 TPH in the mine lease area of 266.302 ha, located at Bathiya, Barahiya, Karaundi, Chapna and TamoriaVillages, Tehsil: Maihar, District: Satna, Madhya Pradesh – [F.No: J-11015/44/2020-IA-II(M), Proposal No: IA/MP/MIN/405276/2022, EIA Consultant: M/s Pragathi Labs & Consultants Pvt Limited] - Environmental Clearance (EC)

The instant proposal is for grant of Environmental Clearance of M/s AAA Resources Private Limited for mining of Limestone in Bathiya Limestone Mine with production capacity of 4.0 MTPA, Topsoil: 0.41 MTPA, Waste/reject: 4.43 MTPA (Total excavation: 8.84 MTPA) along with the crusher of 1400 TPH in the mine lease area of 266.302 ha, located at Bathiya, Barahiya, Karaundi, Chapna and Tamoria Villages, Tehsil: Maihar, District: Satna, Madhya Pradesh.

2. The details of the project as ascertained from the documents submitted by the Project Proponent and as revealed from the discussions held during the meeting are given as under: -

i. The mine lease area located between Latitude 24°16'19.675" N - 24°18'46.795" N and Longitude 80°52'42.166" E - 80°55'18.769" E. The mine lease area falls under the Survey of India Toposheet No: 63D/15 and falls in Seismic zone-III.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category 'A' as the mine lease area is greater than 250 ha and appraised at the Central level.

iii. The proposal was earlier considered in the 11th EAC (Non-Coal Mining) meeting held during 1-2 March, 2023 wherein the EAC after detailed deliberations deferred the proposal for want of requisite information. Then, the Project Proponent submitted the information on 20.04.2023 in Parivesh portal. Accordingly, the proposal was considered in the 15thEAC (Non-Coal Mining) meeting held during 30-31 May, 2023 wherein the EAC again deferred the proposal for want of additional information. Then, the Project Proponent submitted the information on 05.09.2023 in Parivesh portal and accordingly the proposal was again considered in the 20th EAC (Non Coal Mining) meeting held during 21-22 September, 2023.

Based on observation of EAC, compliance of observation of EAC in its meeting held during 30-31 May, 2023 made by Project Proponent are detailed below:

S. No	Observation of EAC in its meeting held during 30-31 May, 2023	Reply by Project Proponent

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1	The Project Proponent needs to submit the certificate from the Chief Wildlife Warden regarding movement of tigers in the study area.	The Project Proponent has submitted the letter from the Office of the Principal Chief Conservator of Forest (Wildlife), Madhya Pradesh vide Letter no. Sl.Va.Pra/Machi/GEN-506/77545 Bhopal, dated 23.08.2023 stating that the proposed mining area (2.63 km) is far from Compartment No.P-471 of Banshipur beat or Forest Range Maihar. Near proposed site of the forest range, no tiger movement has been observed for the last 10 years. On the basis of reports submitted by Divisional Forest Officer, Forest Division, Satna and Chief Conservator of Forest, Rewa Division, this office is agreed and forwarding the letter for necessary action.
2	The Project Proponent needs to verify whether the instant mine lease area falls in the Greater Panna Landscape delineated by the Wildlife Institute of India (WII).	The Project Proponent has submitted the map showing the mine lease area in the Greater Panna Landscape delineated by the Wildlife Institute of India (WII).
3	The Project Proponent needs to submit the approved action plan to monitor the movement of tigers in the vicinity of the mine lease area from the Chief Wildlife Warden.	The Project Proponent has submitted the letter from the Office of the Principal Chief Conservator of Forest (Wildlife), Madhya Pradesh vide Letter no Sl.M.Pra/Machi/Mines-157/7493 Bhopal dated 17.8.2023 stating that an action Plan has been prepared by Shri Ravikant Mishra, IFS (Retired) for conservation of Flora and Fauna in the 10 kms of limestone mining lease area (266.302 ha.) of M/s AAA Resource Pvt Ltd covering Village Bathiya, Barahiya, Karaundi, Capana and Tamoriya, Tehsil Maihar, District-Satna. The Action Plan has been prepared on the basis of condition mentioned in Sl.No.1 of the decision taken in 15th meeting of Expert Appraisal Committee of Specialists. The Action Plan has been submitted along with recommendation letter of Divisional Forest Officer, Common Forest Division, Satna. As per recommendation letter of the Divisional Forest Officer, Common Forest Division, Satna a proposal for action plan for wildlife conservation for monitoring the tigers' movement within vicinity of 10 km of mining area an amount of Rs.16.50 lacs has been estimated, bifurcation are as under:- S. No | Item of Work | Amount

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		(Rs. In Lacs)
1	Procurement of Camera Trap (20 Nos.)	4.0
2	Procurement of Batteries Memory Cards etc for Camera Trap	0.50
3	Procurement of hand held GPS, binoculars	2.0
4	Procurement of Mobile Phone	1.0
5	Creation of pug-mark impression pads in forest road, near water holes and other places as per requirement	2.0
6	Awareness generation, workshop of mine staff, workers, JFMC members & students by forest department	5.0
7	Honorarium and wages for camera installation in field and its data collection	2.0
	Total	16.50

In this regard, after final approval from India Government/State Government and before commencement of the mining and within time limit and according to amended action plan for wildlife management allocated fund Rs.16.50 lacs in one time is to be deposited in Saving Bank Account No.10571048460 (IFSC: SBIN0001308), Main Branch of State Bank of India, TT Nagar, of Madhya Pradesh Tiger Foundation Society.

The Project Proponent also submitted the copy of the action plan to monitor the movement of Tigers in the vicinity of the Bathia mining lease area.

4	The Project Proponent needs to revisit the action plan for the purpose of local employment in a more specific manner by mentioning the skills to be imparted, physical and financial targets and timelines.	The Project Proponent has submitted the revised action plan for Skill development as given below in table: -

S.No	Skill Development program	Through	Number of Candidates	Total Course Fee for a Course
1	Stitching & Designing course/	NSDC / ITI	37	2,25,680

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			Fashion Design and Technology			
		2	Data Feeder Consignment tracking Warehouse - Logistic	NSDC / ITI	30	1,85,360
		3	COPA (Computer Operator & Programming Assistant) / CHNM (Computer Hardware and Network Maintenance)	ITI	30	1,85,360
		4	MRAC (Mechanical, Refrigerator & Air Condition)/ Electrician/ Fitter etc.	ITI	25	2,94,000
		5	Carpenter / Mason / Diesel Mechanic etc.	ITI	45	2,78,040
		6	Heavy Vehicle Driving	Ashok Leyland Institute of Driving Training and Research, Devardha, MP	90	9,93,000
					257	21,61,440
			Contingency Amount @15%			3,24,216
			Total Budget			24,85,656
			Say (Rs. Lakh)			25.00
5	The Project Proponent needs to submit the map demarcating the land to be purchased and already purchased land. PP also needs to submit the phase wise plan for land acquisition.	The Project Proponent has submitted the map demarcating the purchased land and non-purchased land within the mine lease area. The land will be purchased for mining as per approved mining plan. It is planned to obtain surface rights of the land required for first five-year mining operations within three years in a phased manner. The balance land will be purchased subsequently.				
6	The Project Proponent needs to submit the copy of	The Project Proponent has submitted the copy of order dated 06.07.2023 pronounced by the Hon'ble				

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	withdrawal petition filed on 09.05.2023 before the Hon'ble High Court of Madhya Pradesh at Jabalpur Bench.	High Court of Madhya Pradesh at Jabalpur Bench stating that for the reasons assigned in the application, I.A No. 6358 of 2023 seeking withdrawal of the writ petition is allowed. The writ petition is accordingly dismissed as withdrawn with liberty to file a fresh petition.
7	The Project Proponent needs to submit the undertaking as committed before the EAC towards promotion of solar energy.	The Project Proponent has submitted an undertaking vide letter dated 29.08.2023 stating that the daily average load of electrical installation including crusher at mines will be 477 kW. Further, the proposed capacity is in line with Gazette Notification no. RG-39(I) dated 22.07.2022 of Madhya Pradesh Electricity Regulatory Commission (MPERC), 2022 which permits eligible consumer to install renewable energy generating systems under the net metering arrangements upto 500 kW capacity. The Project Proponent undertakes to install solar energy with capacity of 500 kW within two financial years.

iv. Details of Terms of Reference (ToR):

Date of application	Proposal No/ File No	Consideration by EAC	Details of ToR	Date of accord
30.09.2020	IA/MP/MIN/176767/2020 J-11015/44/2020-IA-II(M)	November 23-25, 2020&9-11 and 14-15 June, 2021	Terms of Reference to M/s AAA Resources Private Limited for Bathiya Limestone mine with Total excavation: 8.84 MTPA, Limestone: 4.0 MTPA, Waste/reject: 4.43 MTPA Topsoil: 0.41 MTPA in the mine lease area of 266.302 Ha at Bathiya, Barahiya, Karaundi, Chapna and Tamoria villages, Tehsil: Maihar, District: Satna, State: Madhya Pradesh.	02.07.2021

v. Details of Mine Lease:

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S.no	Grant of PI/mine lease/ Order	Date of the grant	Name of the Mineral	Period of Grant	Granted by	Mine lease area in Ha
1	Letter of Intent No F3-8/2011/ 12/1	03.01.2018	Limestone	50 years	Govt. of Madhya Pradesh	266.302
2	Grant of mining lease Lr No AF 3-8/ 2014/ 12/1	13.01.2021	Limestone	50 years	Govt. of Madhya Pradesh	266.302

Details of Mine Lease Deed:

S. No	Details of grant of Mine Lease deed execution	Period of Grant		Name of the Mineral	Mine lease area in Ha
		From	To		
1	Mining Lease deed executed on 28/01/2021	28/01/2021	27/01/2071	Limestone	266.302

vi. Land Use/Land Cover of the Mine Lease Area:

Private land	258.230 ha
Government land	8.072 ha
Forest land	Nil
Total Mining lease area (MLA)	266.302 ha
Private land for crusher, workshop & other infrastructure outside the MLA	Nil

vii. Details of Mining Plan:

Mining Plan including Progressive Mine Closure Plan approved by Indian Bureau of Mines	Letter No.	MP/Satna/Limestone/MPLN/G-04/2020-21
	Date	16.09.2020
	Mineral & (Major/Minor)	Limestone (Major)
	Mine Lease Area, Ha	266.302
	Production capacity	4.0 MTPA
Mining Parameters	Quantitative Description	
Method of Mining	Opencast fully mechanized	
Drilling/Blasting	Spacing: 5.0 m Burden: 3.25 m Depth of hole: 8 m (Sub grade drilling 10% =0.8m) Charge per hole: 50 – 60 kg Powder Factor (t/kg): 5 – 6	

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	Dia. of hole: 115 mm
Geological Reserves	86.46 million tonnes
Mineable Reserves	33.96 million tonnes
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Total excavation: 8.84 Million Tonnes Per Annum (MTPA) includes Topsoil: 0.41 MTPA; Waste/Reject: 4.43 MTPA; Limestone: 4.0 MTPA
Life of mine	12 years
Mine Bench Height & Bench Width	8 m and 15-30 m
No. of Mine Benches	7
Existing Depth, m bgl	Not applicable
Ultimate Depth of Mining, m bgl	55 m bgl in block-1, 30 m bgl in block 10
Ground Water Table, m bgl	Pre-monsoon 11.63 m bgl; post-monsoon 7.06 m bgl
Details of ground water intersection	Mine workings will intersect water table around 7.06 m during post-monsoon and 11.63 m during pre-monsoon.
Individual bench slope	80°
Overall pit slope	45°
Details of existing/ proposed Crusher	One crusher of 1400 TPH is proposed. The Project Proponent has submitted that the installation of crusher plant of 1400 TPH will start immediately after obtaining CTE and the installation work will be completed within 1 year.
Mineral Beneficiation	Not applicable
RoM output size	Max. 600 mm
Transportation details including capacity of dumper/tipper, mode of transport and distance	The limestone after crushing will be dispatched by tipper trucks through road to cement plant located at Bharauli for captive use. Approximate distance is 27 km. Capacity of dumper is 40 tonnes. The ROM limestone will be crushed before being dispatched to the cement plant. Further, till the installation of crusher, sized limestone will be transported to cement plant for captive use.
Generation of Topsoil/OB & its Management during plan period & conceptual period	Top soil generation during plan period - 8,90,455 m^3 and during life of mine - 5.02 million m^3. The same will be stored temporarily for future use in plantation / reclamation.
Generation of Mineral Rejects/ Waste & its Management during	During the first five years period, 27,53,100 m^3 of waste will be generated. The part quantity will be

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plan period & conceptual period	used for preparing protective bund, crusher ramp etc. and remaining will be stored in temporary waste dump. Upto conceptual period 36.70 million m^3 OB will be generated. Entire quantity will be used for backfilling of mine pits.

viii. Water requirement:

Total water requirement	412 KLD	Fresh water	412 KLD
		Treated water	Nil
Source	Ground water during initial years of operation.		
Permission for withdrawal/ intersection along with details of grant and its validity	Application has been submitted to CGWA for obtaining NOC vide application no. 21-4/1658/MP/MIN/2022 on 15/11/2022 and is in under progress. Water abstraction charges are paid and application is in advance stage of processing at CGWA, HQ. Presentation before CGWA committee made on 02ndMay 2023. PP also submitted the status of application submitted to CGWA.		

ix. Nearest village / town/ highway/railway station / water bodies:

Particulars	Particular's Name	Distance & Direction
Village	Tamoriya near block 1 and Barahiya near block 10	Adjacent
Town	Amarpatan (Block-1, Block-8 and Block-10	5.8 km- E, 8.6 km-ENE and 9.0 km-W
Highway	Maihar - Amarpatan/Rewa road	0.1 km, N
Interstate Boundary	Uttar Pradesh	Approx. 67 km, N
Railway station / railway line	Maihar	11.6 km, W
Water bodies	Serainjinala Tamas/Tons river Bihar river Bakaulinala Pathananala	1.9 km, S 6.9 km, W 7.6 km, SE 8.0 km, N 9.2 km, WNW
	The Project Proponent has submitted that two small portions of the canal passing through the lease area will not be diverted. A safety barrier of 50 meters on either side of the canal will be left and plantation will be done on the safety barrier.	
Forest	Sirgo RF; Papra RF	8.2 km-NE; 9.2 km-SE

x. Presence of Environmentally Sensitive areas in the study area:

Forest Land/Protected	Yes/No	Details of Certificate/letter issued by

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Area/Environmental Sensitivity Zone		the concerned Department mentioning the Lr. no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	No	PP submitted that there is no forest land within ML area. PP also submitted the letter from the Forest Dept. Satna, MP vide letter no. 2409 dated 04-03-2021 in this regard.
National Park	No	PP submitted the letter from PCCF (Wildlife and Chief Wildlife Warden, MP) vide Lrno. No./B.Pra/Ma.Chi/Mine-85/ 3211 dated 08-04-2021 stating that there is no Protected Area / Tiger Reserve / Sanctuary / Biosphere / Wildlife Corridor / Ramsar Site / Elephant Reserve / Eco Sensitive Zone within 10km radius and also submitted the authenticated map of 10km radius from the Forest Dept. in this regard.
Wildlife Sanctuary	No	
Elephant/Tiger Reserve	No	
Eco-Sensitive Zone(ESZ) /Eco-Sensitive Area (ESA)	No	
Coastal Regulation Zone (CRZ)	No	--
Schedule-I species (No. and name of schedule-I species with authenticated letter)	No	PP submitted the List of Flora and Fauna authenticated by Forest Dept., Satna.
Wildlife Conservation Plan	No	Not Applicable
Additional information (if any)	The Project Proponent has submitted the action plan prepared by Sh. Ravikant Mishra IFS, CCF(Rtd), Bhopal to monitor the movement of tigers with participation of mine staff, workers, JFMC members, students and Forest Department.	

xi. Details of Green belt/plantation:

Proposed area for green belt/plantation and no. of saplings proposed	Greenbelt:46.64 ha and 69,960 numbers Backfilled area: 134.85 ha and 2,02,275 numbers
Budget for green plant & plantation till the end of life of mine.	₹2.722 Cr.
Budget for nursery	Included in the above figure
Details of existing plantation and its survival rate	Not applicable
No. of tree cuts in the mine lease area and compensatory afforestation	Nil and compensatory afforestation is not applicable.
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	46.64
50 m safety zone of nallah, roads, electric lines	
500 m safety zones of nearest habitation	

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villages	

xii. Baseline data:

Baseline Data (Air / Water / Noise / Soil / Hydro geological study/ Traffic Study/ others)	
Period of baseline data collection	December 2020 to February 2021
Season (Summer / Pre-monsoon / Post-monsoon / Winter)	Winter
Predominant Wind direction (From)	North-West
Ambient Air Quality (no. of locations) and results	10 locations Result summary: PM_{10}: 30.7 µg/m^3- 61.7 µg/m^3 $PM_{2.5}$: 18.2 µg/m^3- 36.9 µg/m^3 SO_2: 10.8 µg/m^3 - 18.1 µg/m^3 NO_2: 14.1 µg/m^3- 24.8 µg/m^3
Noise level (no. of locations) and results	10 locations Result summary: Day Time (Lday) noise level: 41.8 dB (A) - 55.6 dB (A) Night Time (Lnight) noise level: 38.4 dB (A) - 52.8 dB (A).
Water Quality (no. of locations) and results: 11 Locations (9 ground water and 2 surface water)	See nested table below

Parameters	Surface water (5 locations)	Ground water (5 locations)
pH at 25°C	6.86 - 6.94	7.01 - 7.62
Total Dissolved Solids, mg/l	-	371.5 - 960.1
Chloride as Cl-, mg/l	48.6 - 61.2	86.5 - 282.6
Total Hardness, mg/l	154.22 - 168.54	186.21 - 440.35
DO, mg/l	5.6 - 6.1	-
BOD, mg/l	less than 3 mg/l	-
Fluoride as F, mg/l	0.4-0.5	0.6 - 1.2
Sulphates as SO_4,mg/l	31.8 - 32.6	34.6 - 112.5

Soil Quality (no. of locations) and results: 10 locations	Parameters	Observed Values
	pH	4.92 - 7.02
	Texture	Sandy clay to clay
	Electrical Conductivity (µS/cm)	82.4 - 302.1
	Organic Carbon (%)	0.19 - 0.46

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	Available Nitrogen as N (Kg/Ha)	38.5 - 56.4
	Available Phosphorus (Kg/Ha)	38.6 - 66.9
	Potassium (Kg/Ha)	126.9 – 210.5
Hydro geological study and results	Hydrogeological investigations were carried out in the study area during 27-30 November 2020 and 22-24 April 2021. Mine workings will intersect water table around 7.06 m during post-monsoon and 11.63 m during pre-monsoon. The block is falling under safe category as per GWRA, 2020. The total rain water available from the rain water harvesting from roof top areas and open area works out to 0.017 MCM (0.007 MCM + 0.010 MCM), which can meet 14.05% of nondomestic requirements (0.122 MCM) of the project. Recharge due to settling-cum-recharge ponds works out to 0.003 MCM. An amount of 7,93,347.40 m^3 (0.793 MCM) of rainfall collected from the reservoir area will be available for recharge resulting in post mining water table recovery in the area.	
Traffic study (no. of locations) and results: 8 locations	PP submitted that about 334 trucks per day would be required for transportation of limestone from mine to the captive cement plant. The traffic contribution from mine to the road network will thus is the 'to and fro' movement of 668 vehicles per day, which is equivalent to 2004 PCU per day (taking a PCU factor of 3 per vehicle). With present level of traffic route in three locations and the predicted increase in existing traffic due to the project, adequacy of road/highway during operational phase of the mine has been estimated by comparison with the recommendations stipulated by Indian Road Congress (IRC). The total traffic load after implementation of the mining project will be well within the IRC stipulated maximum load of 35,000 PCU/day for a four lane highway with median separator (NH-7). The estimated peak traffic in terms of PCUs is compared with the stipulated standards by IRC for traffic capacity of the roads and it can be observed that the existing road network is adequate.	
Revalidation of baseline data	The Project Proponent has submitted that one-month fresh baseline data has been collected	

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during 09th March 2023 to 09th April, 2023 for the purpose of revalidation. PP also submitted that the ambient air quality has carried out in 10 locations, soil sampling in 10 locations, Surface water in 02 locations, Ground water in 09 locations and Noise survey in 10 stations within the study area.

Ambient Air Quality				
S.No	Parameters	Winter 2021	Summer 2023	Standards ($\mu g/m^3$)
1	PM_{10}	55.1-61.7 $\mu g/m^3$	64.7-72.6 $\mu g/m^3$	100
2	$PM_{2.5}$	25.9-36.9 $\mu g/m^3$	34.7-46.3 $\mu g/m^3$	60
3	SO_2	12.1-18.1$\mu g/m^3$	15.9-21.3 $\mu g/m^3$	80
4	NO_2	17.8-24.8$\mu g/m^3$	21.6-28.3 $\mu g/m^3$	80

Location code	Winter 2021		Summer 2023	
	L_{day}	L_{Night}	L_{day}	L_{Night}
N1	47.6	43.8	52	40
N2	46.9	42.9	52	39
N3	50.3	47.1	56	42
N4	47.7	44.8	53	40
N5	45.3	41.9	50	38
N6	42.8	39.7	48	36
N7	55.6	52.8	61	49
N8	41.8	38.4	47	34
N9	47.2	44.1	53	39
N10	44.9	41.8	49	37
Standards Day Time dB (A):	Industrial: 75, Commercial: 65 Residential: 55, Silence: 50			
Standards Night Time dB (A):	Industrial: 70, Commercial: 55 Residential: 45, Silence: 40			

Surface Water quality			
S.No	Parameters	Winter 2021	Summer 2023
1	pH	6.86-6.94	7.10
2	EC	586.8-659.7	1310
3	DO, mg/l	5.6-6.1	4.9
4	Total Hardness, mg/l	154.2-168.5	380
5	Fluoride (mg/l)	0.4-0.5	0.9
6	Sulphate (mg/l)	31.8-32.6	74

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Ground Water quality				
S. No	Parameters	Winter 2021	Summer 2023	Standards
1	pH	7.01-7.62	7.0-7.6	6.5 to 8.5
2	Fluoride (mg/l)	0.6-1.1	1.0-1.1	1-1.5
3	Sulphate (mg/l)	34.6-112.5	45-107	200-400
4	EC	590-1560	656-1480	-
5	Total Hardness, mg/l	186.21-440.35	176-420	200 – 600
6	Chlorides, mg/l	86.5-282.6	105-225	250-1000
7	Nitrates, mg/l	3.9-22.5	11-28	45
8	Iron, mg/l	0.06-0.13	0.5-1.3	0.3

Soil quality			
S.No	Parameters	Winter 2021	Summer 2023
1	pH	6.76-7.96	6.7-7.8
2	Electrical Conductivity (µmhos/cm)	82.4-302.4	119-318
3	Organic Carbon	0.19-0.46	0.14-1.0
4	Nitrogen (kg/ha)	38.5-56.4	36.85-62.74
5	Phosphorus (kg/ha)	38.6-66.9	45.5-72.9
6	Potassium (kg/ha)	126.9-246.6	132.16-252.0

PP also submitted the test report for analysis of ambient air quality, noise level, water quality and soil analysis done by Pragathi Labs & Consultants Pvt. Ltd (Lab recognized by Ministry of Environment, Forests, Govt. of India).

xiii. Public Hearing (PH) Details:

Advertisement for PH with date (pl. mention name of major national daily and one regional vernacular daily newspaper)	DainikBhaskar, PatrikaSamachar, Nav Swadesh dated 28.05.2022 and 29.06.2022
Date of PH	20.07.2022
Venue	Near Gokul Gaushala, Village Bathiya, Tehsil Maihar, Dist. Satna, Madhya Pradesh.
Chaired by	Additional District Magistrate
Main issues raised during PH	Pollution control, Environment management, Blasting, Land compensation, Employment, Road transportation, beautification of ponds, drinking water, school,

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Budget proposed for addressing issues raised during PH	Rs. 122.50 Lakhs for 3 years

xiv. Rehabilitation & Resettlement (R&R):

R & R details	The Project Proponent submitted that the total mine lease area is 266.302 ha, out of which 258.230 Ha is private land covering 5 villages Bathiya, Barahiya, Karaundi, Chapna and Tamoria. PP reported that there are 639 PAFs (only land losers). The land purchase for the proposed limestone project and the rehabilitation and resettlement of project affected families will be implemented under the provisions of the Central and State Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Acts, Rules & Policies. PP also submitted that willing seller and willing buyer will be adopted, where no land owner is compelled to sell their lands and whoever is ready, they will be paid adequate compensation based on mutually agreed, which would be more than the provisions suggested in the "Madhya Pradesh Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Rules, 2015". Estimated total compensation will be around Rs.66.72 Crores. PAFs will be given preference in employment as per their qualification and skill set. The Project Proponent also submitted the activities for youths, women, farmers etc. for upgrading their skill set to make them employable, self-employed and / or increase their income level. The Project Proponent has submitted that the land will be purchased for mining in phased manner. It is planned to obtain surface rights of the land required for first five year mining operations within two years of start of operation. The balance land will be purchased in phases.

xv. Court case details:

Court Case no. and its present status	The Project Proponent has submitted the copy of order dated 06.07.2023 pronounced by the Hon'ble High Court of Madhya Pradesh at Jabalpur Bench stating that for the reasons assigned in the application, I.A No. 6358 of 2023 seeking withdrawal of the writ petition is allowed. The writ petition is accordingly dismissed as withdrawn with liberty to file a fresh petition.

xvi. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	PP submitted the Affidavit in a non-judicial stamp paper of Rs 100 bearing XN 118806 that M/s AAA Resources Private Limited would comply with all the statutory requirement & judgment of Hon'ble Supreme

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	Court dated 2nd August 2017 in writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India &Ors.
Undertaking by Project Proponent in EIA/EMP report	The Project Proponent submitted an undertaking stating that the information and data provided in the EIA report and submitted to the Ministry are factually correct & Project Proponent is fully accountable for the same.
Undertaking by Consultant in EIA/EMP report	The Consultant submitted an undertaking vide letter dated 08.02.2023 stating that "M/s Pragathi Labs & Consultants Pvt Ltd have gone through the EIA&EMP report of AAA Resources Private Limited prepared by M/s Vimta Labs Ltd and observed that it has complied with all the prescribed Terms of Reference vide ToR letter dated 02.07.2021 and thus we hereby give our undertaking owning the contents and data provided in the report. Due to some uneventful situation M/s Vimta Labs Limited is unable to present the case, we are undertaking the responsibility of presenting the Final EC meeting before Expert Appraisal Committee, MoEF&CC".

xvii. Details of the Environmental Management Plan (EMP):

Activities	Capital cost (Rs in Crores)	Recurring cost (Rs in Crores/ annum)
Air pollution control and management	2.280	0.904
Water and wastewater control and management	0.614	0.328
Noise and vibration control and management	0.110	0.010
Soil conservation and solid waste management	0.210	0.027
Plantation & Green Belt	2.722	1.960
Total	5.936	3.229

xviii. Details of project cost and employment:

Particulars	(Rs. in Crore)
Total cost of EMP (Capital Cost of EMP + capital cost of Public hearing)	7.161
Project Cost	255.72
Employment	132 persons

3. Observation and Recommendation of the EAC: -

The EAC deliberated on the additional details submitted by the Project Proponent and the Consultant. The Project Proponent has informed the EAC that the letter has been obtained from the Office of the Principal Chief Conservator of Forest (Wildlife),

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Madhya Pradesh vide letter dated 23.08.2023 stating that near the proposed site of the forest range, no tiger movement has been observed for the last 10 years. On the basis of reports submitted by Divisional Forest Officer, Forest Division, Satna and Chief Conservator of Forest, Rewa Division, this office is agreed and forwarding the letter for necessary action. The Project Proponent has showed the map of the mine lease area in the Greater Panna Landscape delineated by the Wildlife Institute of India (WII) and also the levels of different corridor level. The Project Proponent also informed the EAC that mineral transportation route is not passing through the tiger dispersal route. The EAC asked the Project Proponent whether any mines are operating in the study area. The Project Proponent informed the EAC that many mines are operating in the study area.

The Project Proponent has informed the EAC that an action Plan has been prepared by Shri Ravikant Mishra, IFS (Retired) for conservation of Flora and Fauna in the 10 km of limestone mining lease area. A budget of Rs.16.50 lacs has been earmarked to monitor the movement of tigers and the same has been approved by the Chief Wildlife Conservator & Principal Chief Forest Warden (Wild Life), M.P vide letter dated 17.08.2023. Action plan for skill development plan has been revised and a budget of Rs 25.0 Lakhs has been earmarked for the same. The land required for operation of mining for the first five years will be acquired within 2 years. The Project Proponent has informed the EAC that Hon'ble High Court of Madhya Pradesh at Jabalpur Bench vide order dated 06.07.2023 pronounced that for the reasons assigned in the application, I.A No. 6358 of 2023 seeking withdrawal of the writ petition is allowed. The writ petition was accordingly dismissed as withdrawn with liberty to file a fresh petition. The Project Proponent also informed the EAC that as on date there is no court case pending against the project. The Project Proponent also undertakes to install solar energy with capacity of 500 kW within two financial years and also informed that the same may be completed in advance depending on the acquisition of the land.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC in its meeting held during 21-22 September, 2023 under the provisions of EIA Notification 2006 and its subsequent amendments, **recommended** the proposal for grant of Environmental Clearance to Bathiya Limestone Mine of M/s AAA Resources Private Limited for mining of Limestone with production capacity of 4.0 MTPA, Topsoil: 0.41 MTPA, Waste/reject: 4.43 MTPA (Total excavation: 8.84 MTPA) along with the crusher of 1400 TPH in the mine lease area of 266.302 ha, located at Bathiya, Barahiya, Karaundi, Chapna and Tamoria Villages, Tehsil: Maihar, District: Satna, Madhya Pradesh subject to the following specific conditions in addition to the standard EC conditions applicable for non-coal mining projects: -

i. This Environmental Clearance will be valid upto the life of the mine i.e., 12 years.

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ii. The Project Proponent needs to implement the approved action plan to monitor the movement of Tigers in the study area with an earmarked budget of Rs 16.50 Lakhs.

iii. No Nallah should be disturbed or diverted at any stage of the mining operation.

iv. As committed by the Project Proponent, installation of crusher plant of 1400 TPH shall start immediately after obtaining CTE and the installation work shall be completed within 1 year.

v. The Project Proponent needs to carry out ground vibration study through reputed institute to determine maximum charge per hole and charge to be blasted per delay so that ground vibrations are minimized and kept within permissible safe limits fixed by DGMS. Necessary permission shall be obtained from DGMS for conducting blasting.

vi. The Project Proponent shall monitor the ground induced blasting regularly for every blast performed and the values of "peak particle velocity" and "Air Over Pressure" shall be maintained below the permissible values prescribed by the DGMS, from time to time. The data needs to be maintained and submitted along with the six monthly compliance report.

vii. In the mining area, adequate number of check dams, retaining walls/structures, garland drains and settling ponds should be provided to arrest the wash-off with rain water in catchment area.

viii. The Project Proponent should install the continuous ambient air quality monitoring stations (CAAQMS) as per the scientific study and in consultation with CPCB/SPCB. The real time data so generated should be displayed digitally at entry and exit gate of mine lease area for public display and shall be linked to server of CPCB/SPCB.

ix. The Project Proponent shall monitor the air quality, noise level, water quality, water level and ground vibration during drilling and blasting at the edge of the mine, near the village, crusher and at other sensitive receptors and such collected data shall be submitted quarterly to the Ministry's Regional Office.

x. The Project Proponent shall strictly adhere to the skill development plan and implement the same with an earmarked budget of Rs 25.0 Lakhs.

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xi. As committed before the EAC, the Project Proponent needs to install solar energy with capacity of 500 kW within and the same may be completed in advance depending on the acquisition of the land.

xii. The Project Proponent needs to make provision for permanent water sprinklers so as to reduce the water consumption. Further, 10 nos. of fog canon/mist sprayer of atleast 40 m throw shall be installed at various locations in the mine area. Effective dust suppression system shall also be adopted at other parts of the mining lease to arrest the fugitive dust emission.

xiii. The air pollution control equipment's like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, and other areas prone to air pollution. PP shall take necessary measures to avoid generation of fugitive dust emissions. The dense plantation shall be carried out in the vicinity of the crusher. The Stack emission monitoring of the Crusher shall be carried out at periodic intervals.

xiv. The Project Proponent needs to complete the entire 7.5 m peripheral plantation and safety barrier plantation within three years from the start of mining operations. The Project Proponent should plant quality sapling of appropriate height of native and fruit bearing species. In case of tall transplants (seedlings) the seedlings should have proper trained root stock with root biomass commensurate with seedling height to ensure good growth after out planting. Plantation shall be undertaken in consultation with the State Forest Department. The Project Proponent shall make the actual count on the saplings planted and its survival rate and in case of failure of achievement of 95% survival rate, action plan for achieving the target survival rate shall be submitted to the Ministry's Integrated Regional Office.

xv. The budget of Rs 122.50 Lakhs to address the concerns raised by the public in the public hearing to be completed within 3 years from the date of start of mining operations. PP shall comply with all action plans made for public hearing concerns and make regular maintenance and record the progressive activity outcomes. The Project proponent shall ensure that the activities proposed under the public hearing is different from the CSR activities.

xvi. The Project Proponent shall create awareness among the local people working within the project area as well as its surrounding area on the ban of Single Use Plastic (SUP) in order to ensure the compliance of Notification published by

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MoEF&CC on 12/08/2021. A report, along with photographs, on the measures taken shall also be included in the six monthly compliance report.

xvii. The Project Proponent should adopt the proper mitigation measures as proposed under EMP with budgetary provision of Rs 5.936 Cr. The adoption of mitigation measures and monitoring of the same as proposed in the EMP shall be done under the supervision of the qualified environmental personnel. The implementation status of the same shall be submitted to the Ministry's Integrated Regional Office.

xviii. The Project Proponent should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground). A dedicated team to oversee environment management shall be setup at site which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis instead of engaging environment monitoring laboratories/consultants. Any non-compliance or infringement should be reported to the concerned authority.

xix. The Project Proponent shall explore the possibility of using atleast 20% of Electric vehicles/CNG/Solar instead of diesel operation within three years.

xx. NoC from the Central Ground Water Authority (CGWA)/ Concerned Local authority, as the case may be, shall be obtained before drawing the ground water for the project activities. State Pollution Control Board / Pollution Control Committees shall not issue the Consent to Operate (CTO) under Air (Prevention and Control of Pollution) Act and Water (Prevention and Control of Pollution) Act till the project proponent shall obtain such permission.

xxi. The Project Proponent shall also organize employment-based apprenticeship/ internship training program every year with appropriate stipend for the youth and other programs to enhance the skill of the local people. The data should be maintained for the training imparted to the persons and the outcome of the training, for the assessment of the training program should be analyzed periodically and improved accordingly. The preference shall be given to the local people for the purpose of employment and PP shall strictly adhere to the skill development plan for the work force.

xxii. The Project Proponent should periodically monitor and maintain the health records of the mine workers digitally prior to mining operations, at the time of

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operation of mine and post mining operations. Regular surveillance on occupational health shall be carried out every year for mine workers. PP shall also organize medical camp for the benefit of the local people and also the monitor the health impacts due to mining activity.

xxiii. The mining lease holders shall, after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. The implementation report of the above said condition shall be submitted to the Ministry's Regional Office.

Additional Agenda:

2.5 Bauxite mining project of M/s Panditrao Mines and Minerals Private Limited with production capacity of 0.80 MTPA in the mine lease area of 90.0 ha, located at Village Minche Budruk, Taluka-Budhargarh, District-Kolhapur, Maharashtra - Environmental Clearance (EC)

The instant proposal is regarding review of the minutes of EAC (Non-Coal Mining) held during 3-4 May, 2023 and requistion for revocation of the abeyance order.

2. Observation and Recommendation of the EAC:

The EAC noted that earlier the Project Proponent sought deferment on consecutive two EAC meetings held during 11-12 July, 2023 and 31st July & 1st August, 2023. The EAC also noted that again the Project Proponent sought deferment vide email dated 20.09.2023 for the third time and informed that the Mr. Pandit Rao who has been authorized as Nominated owner is not feeling well and requested to defer the proposal. Based on the request of the Project Proponent vide email dated 20.09.2023 the EAC **deferred** the proposal.

2.6 Report of the field visit undertaken by EAC sub-committee during 17-19 August, 2023 at Mukam Bauxite mine of M/s Chhattisgarh Mineral Development Corporation Ltd for mining of Bauxite with Total Excavation of 802977.5 TPA [384615.4 TPA (ROM) & OB 418362.1 TPA] in the mine lease area of 110.563 Ha, located at Village: Mukam, Tehsil- Bodla, District- Kabirdham, Chhattisgarh – [File. No: IA-J-11015/37/2022-IA-II(NCM), Proposal No: IA/CG/MIN/417404/2023] – Environmental Clearance (EC)

The instant proposal is for grant of Environmental Clearance (EC) for mining of Bauxite in Mukam Bauxite mine of M/s Chhattisgarh Mineral Development Corporation Ltd with Total Excavation of 802977.5 TPA [384615.4 TPA (ROM) & OB 418362.1 TPA]

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in the mine lease area of 110.563 Ha, located at Village: Mukam, Tehsil- Bodla, District-Kabirdham, Chhattisgarh.

2. The project was considered in the 12th EAC (Non-Coal Mining) meeting held during 21-22 March, 2023. During the meeting, the EAC observed that the Project Proponent/Consultant was unable to bring out the technical details before the EAC. The EAC felt that the issues related to Wildlife and measures for protection of tiger have not been properly addressed and due to sensitivity of the Phen Wildlife Sanctuary, BufferZone of Kanha National Park and Kanha-Achanakmar Tiger Corridor, it is necessary to ascertain the ground reality. The EAC was of the view that a site visit needs to be conducted by a sub- committee comprising of EAC Members, officers from MoEF&CC and representative of the National Tiger Conservation Authority (NTCA). The EAC opined that the Ministry may constitute a sub-committee and submit its report to enable the committee to take a decision on the proposal. Further M/s Chhattisgarh Mineral Development Corporation Ltd vide letter dated 20.07.2023 informed to the Ministry that validity of mine lease has been extended till 26.03.2024.

3. Accordingly, Ministry vide letter dated 31.07.2023 constituted a sub-committee comprising of the following members to ascertain the ground realities of the project.

1. Shri N K Vasu, EAC Member
2. Shri Bandi Ramchandra Reddy, EAC Member
3. Shri Pankaj Verma, Scientist E and MS, EAC (NCM), MoEF&CC
4. Dr Saurabh Upadhyay, Scientist C, MoEF&CC
5. Dr Purshottam R Sakhre, Scientist E, Representative of Regional Office at Nagpur.
6. Dr Anil Dashahre, Biologist, Representative of NTCA

The Committee members conducted a day-long field visit on 18.08.2023, visiting the mine site and proposed mining pits within the mine lease area. During the field visit, it was slightly raining. The project proponent gave a brief overview about the existing structure of the mine and the proposed course of action planned by them. The following officers from M/s Chhattisgarh Mineral Development Corporation Ltd along with consultant were present i.e Shri Upendra Kumar, DGM/ Agent Mines, Shri Deepak Gupta, Regional Officer, Bhanupratapur and Shri Sushil Kumar Chandraker, AGM Mines.

4. The sub-committee during the site visit observed the following:

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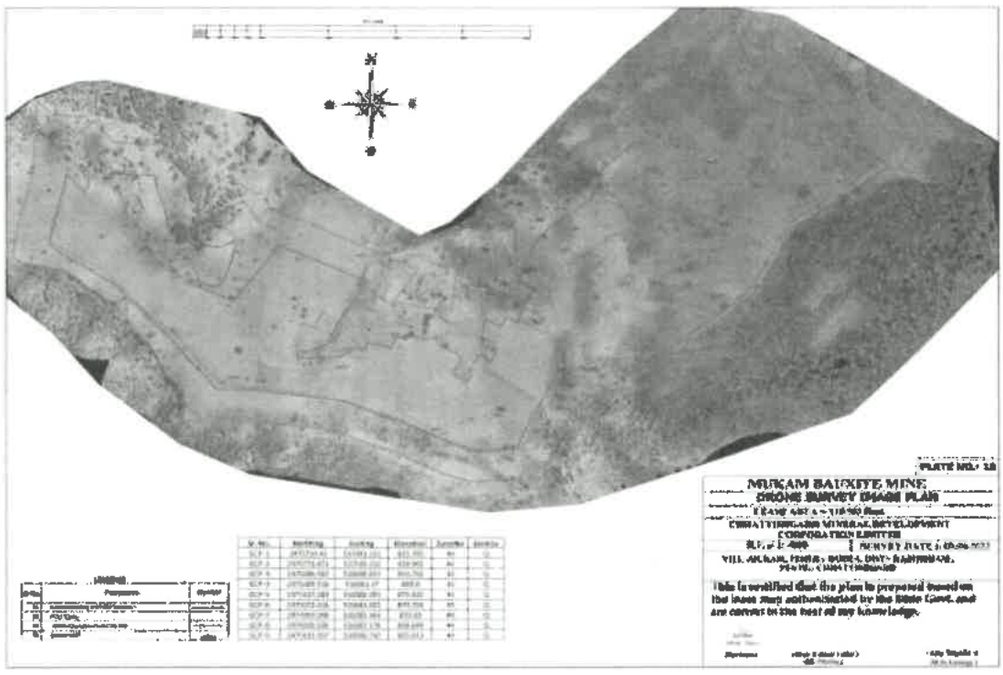
The proposed mine is located in village Mukam, Tehsil Bodla, District Kabirdham, Chhattisgarh. The village Mukam is adjacent to the site. The sub-committee found a school is situated near the mine site.

Proposed mining area with an extent of 110.0563 ha, is located at the Kawardha forest division adjoining Kanha Tiger Reserve (Phen Wildlife Sanctuary) and Bhoramdeo Wildlife Sanctuary.

The GPS coordinates were written on permanent point boundary pillars which is fixed on the ground. Team compared and verified the GPS coordinates recorded vis-à-vis coordinates mentioned on permanent points as well as GIS KML file of proposed mining area provided by user agency.



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Pilar no. 59 of project site

VIllage Mukam adjacent to mine site

Mine site near the the pillar number 68

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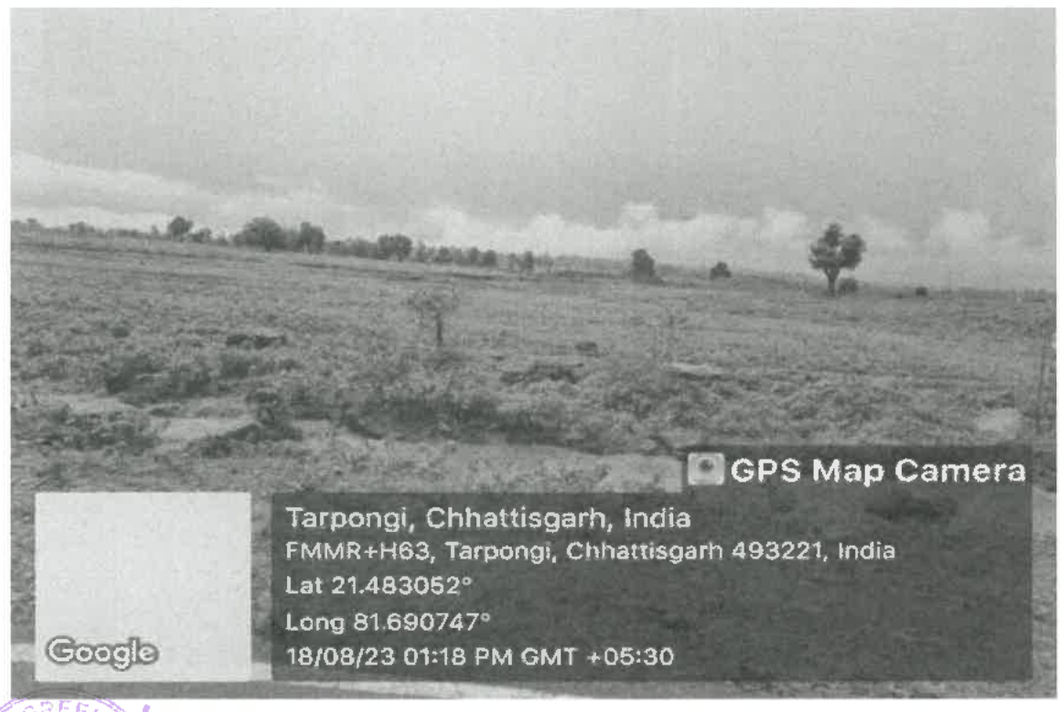

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Issues of Phen Wildlife Sanctuary, BufferZone of Kanha National Park and Kanha-Achanakmar Tiger Corridor

The Project Proponent has informed that Phen Wildlife Sanctuary, Buffer Zone of Kanha National Park and Kanha-Achanakmar Tiger Corridor lies in the proximity of 10 km radius periphery of mines lying within the State of Madhya Pradesh which is about 5kms from the site of mines. The proposed mining area is situated at an aerial distance of approx. 2.18 Km from Eco sensitive zone boundary of Kanha Tiger Reserve and approx. 22.14 Km away from the Bhoramdeo WLS proposed site is outside of Eco sensitive zone of Kanha Tiger Reserve Madhya Pradesh.

As per all India Tiger Monitoring exercise 2022 report, there is no presence of tiger, but presence of Leopard and other endangered Carnivores and herbivores is recorded in the proposed mining area.

After the GIS appraisal it has been verified that the proposed area falls with the Kanha- Achanakmar corridor (Figure-1) as per corridor/adjoining area plan of TCP of Achanakmar Tiger Reserve Chhattisgarh.

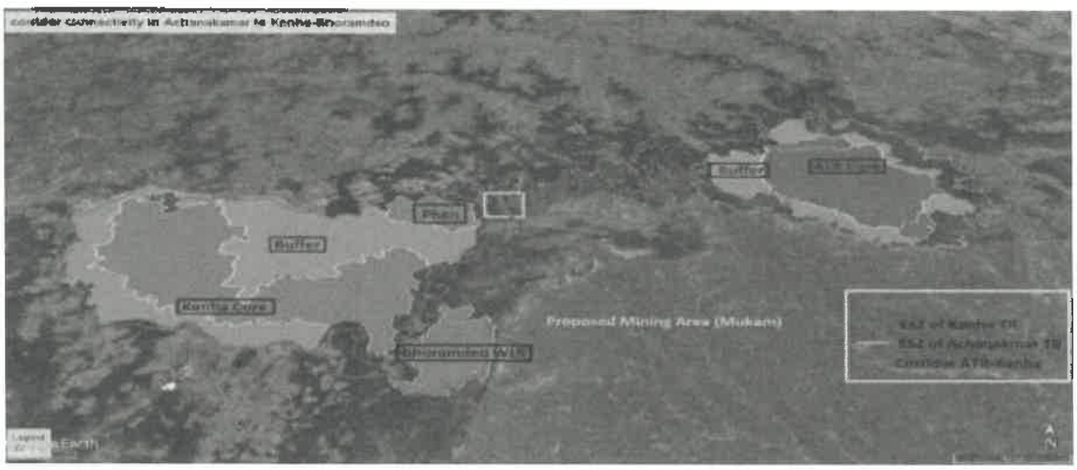

Figure-1: Map showing mining location in Achanakmar-Kanha-Bhoramdeo corridor

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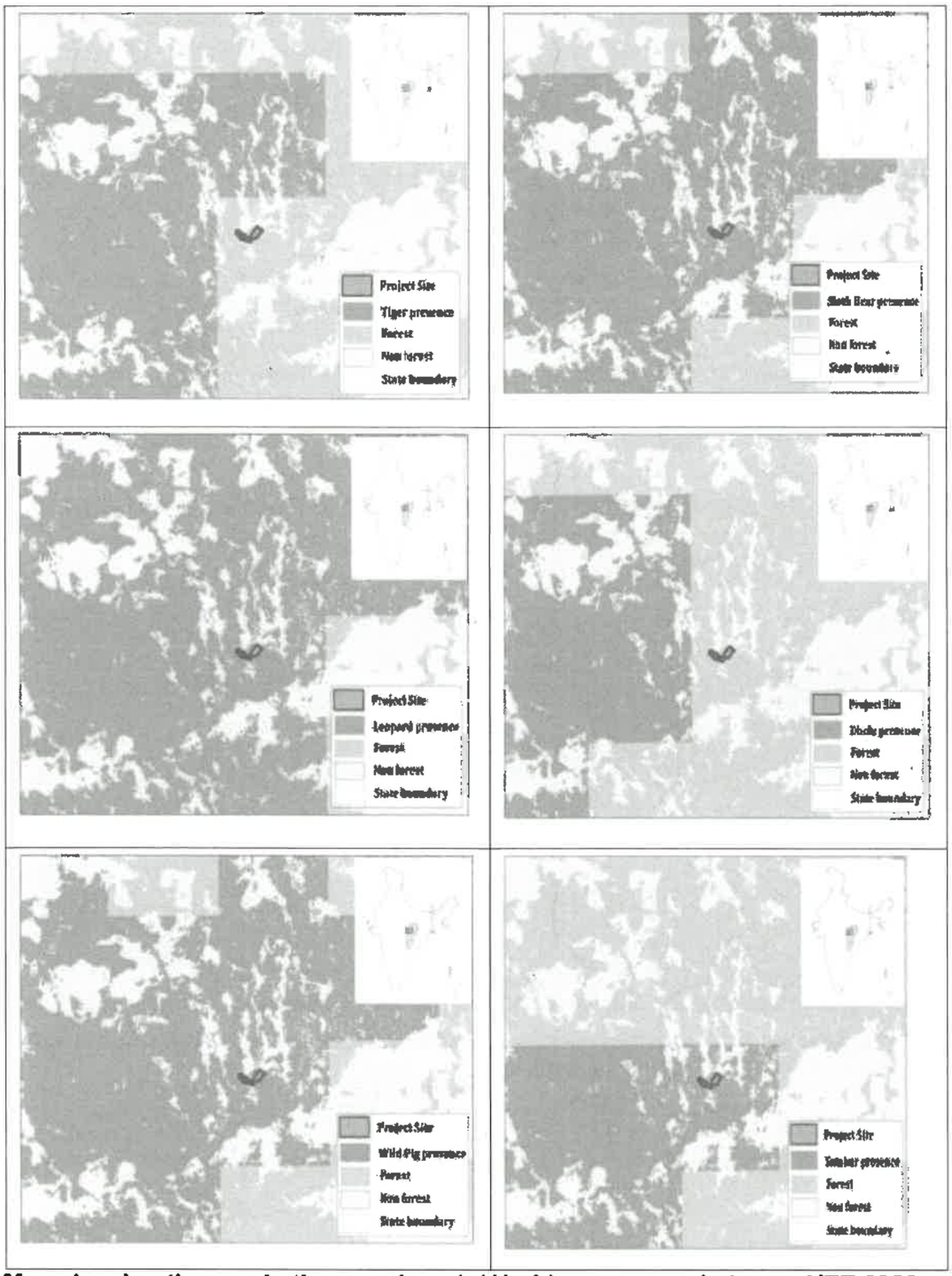

Map showing tiger and other carnivore's/ Herbivores occupied area AITE 2022

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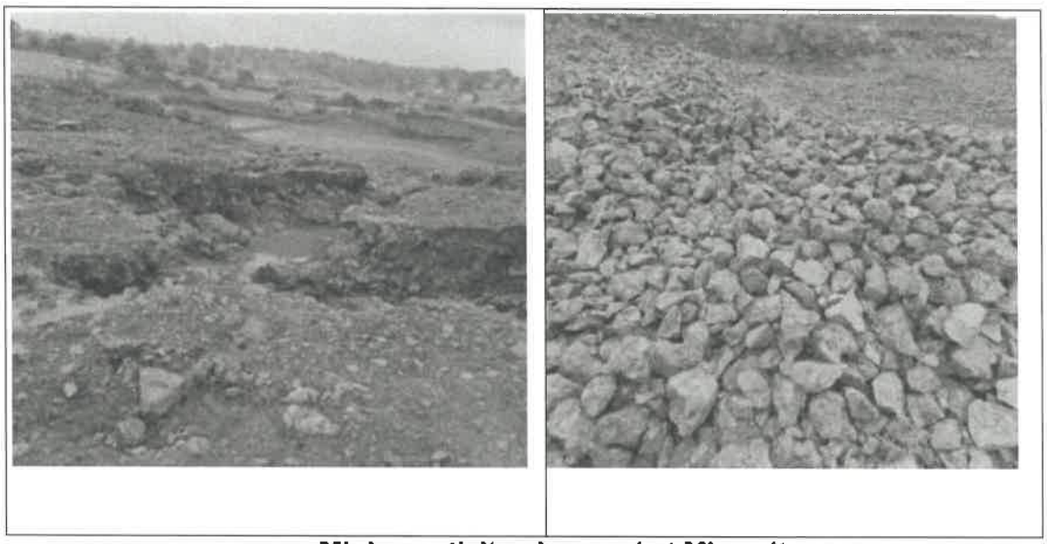
Mining activity observed at Mine site

The sub-committee observed that the mining activity has been carried out at the mine site area. The project proponent has informed that the same has not been done by the M/s CMDC. The sub-committee suggested for seeking comments from State DMG, if any illegal mining done by project proponent.



Mining actlvity observed at Mine site

5. Based on its observation, the committee recommended the following: -

1. The Project Proponent shall undertake a survey to count the number of trees present in the lease area.
2. The project proponent should take permission before felling of trees and shall submit the action plan for compensatory afforestation.
3. During site visit, habitation and school are seen near the mine lease area. Project proponent should submit the precaution measures with an action plan.
4. To maintain the dust free environment, the committee was of the opinion that project proponent should include provision for permanent sprinklers for the entire mineral transportation route.
5. The Committee was of the opinion that the project proponent may explore the expand the road width and accordingly a plan needs to be submitted along with timeline and cost.
6. The Project Proponent needs to submit the sequence of mining as the mine lease area involves an area of 67.401 ha of agriculture land and shall submit the action plan for restoration of ecology.

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7. The Project Proponent needs to submit the letter from the State Forest Dept, Madhya Pradesh regarding the distance of the Tiger Corridor and ESZ along with the authenticated map and authenticated list of flora and fauna since the study area of the 10km radius of the buffer zone falling in the State of Madhya Pradesh. PP also needs to submit the letter from the State Forest Dept, Chhattisgarh regarding the list of flora and fauna by indicating the type of Schedule species found in the study area.
8. The project proponent needs to seek comments from the State DMG, if any illegal mining done by Project Proponent or not.
9. The project proponent needs to provide the exact distance of school and mukam village near the mine lease area.

6. Observation and Recommendation of the EAC: -

The EAC deliberated on the observation and recommendations of the subcommittee. After detailed deliberations, the EAC agreed to the recommendations of the subcommittee.

***

List of members of Expert Appraisal Committee participated through VC

S.No	Member Name	Member Address	Designation	21st Sept., 2023	22nd Sept., 2023
1	Dr. Dinesh Misra, IFS (Retd.)	Plot No 65, Sector 8, Gandhinagar, Gujarat, 382 008	Chairman	Yes	Yes
2	Sh. Niranjan Kumar Vasu, IFS (Retd.)	816, Shanti Nagar, Opposite Durgapur Railway Station, Jaipur-Rajasthan, 302018	Member	Yes	Yes
3	Dr. Asha Rajvanshi, Scientist 'G' (Retd.), WII	B/104/106 Rock Valley Apartments, GMSRoad, Sewla Kalan, P.O. Majra, Dehradun, Uttarakhand-248171	Member	Yes	Yes
4	Shri. Avijit Ghosh (CMD- Heavy Engineering CorporationLimited) (Retd.)	Singhee Marg, A- 604 Shahadeo Tower, P.P.Compound, Ranchi 834001, Jharkhand	Member	Yes	Yes

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5	Shri. BandiRamchandra Reddy (Former CMD-South Eastern Coalfields Limited)-(Retd.)	Flat No-503 A, Jyoti Cosmos, White Fields, Hi-Tech City, Kondapur,Hyderabad-500081	Member	Yes	Yes
6	Prof. Pramod Kumar, Professor,ShriAurobindoCollege,University of Delhi	Shri Aurobindo College, University of Delhi 1372, B-1, Vasant Kunj, New Delhi-110070	Member	No	No
7	Prof.DeveshWalia, Department of Environmental Studies	Department of Environmental Studies, NEHU,Shillong-793022 Meghalaya	Member	Yes	No
8	Dr. Suresh Tiwari Scientist-F	Indian Institute of Tropical Meteorology, Pune,New Delhi Branch, Prof. Ram NathVijMargRajinder Nagar, New Delhi - 110060	Member	No	No
9	Dr. K.G Asha Manjari, Professor, University of Mysore	10/B, "SPARSHA", 2nd Main, 2nd Cross,BhogadiIInd Stage, Mysore-570026, Karnataka	Member	Yes	Yes
10	Prof. Dev Dutt Sharma, Vice-Chancellor	Sardar Patel University,Mandi H.P. 175001	Member	No	No
11	Shri V. K. Soni, Representative of India Meteorological Department	Government of India, Ministry of Earth Sciences, India Meteorological Department, Mausam Bhawan, Lodi Road, New Delhi – 110003	Member	Yes	No
12	Shri Yogesh Kale, Representative of Indian Bureau of Mines	Controller of Mines, IBM Block D, Second Floor, Indira Bhavan, Civil Lines, Nagpur - 440001	Member	Yes	Yes
13	Shri Upendra Rapolu/Shri Niazi Mohammed	Representative of Directorate General of Mines Safety	Member	Yes	Yes
14	Shri Abhir Hede, Deputy Director	Department of Mines and Geology, Govt. of Goa	Special Invitee	-	Yes
15	Shri Pankaj Verma	3rd Floor, Vayu Block, Indira ParyawaranBhawan, MoEF&CC, Jorbagh, New Delhi- 110003.	Member Secretary	Yes	Yes

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16	Dr. Saurabh Upadhyay	2nd Floor, Vayu Block, Indira ParyawaranBhawan, MoEF&CC, Jorbagh, New Delhi- 110003.	Scientist C	Yes	Yes

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GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
(IMPACT ASSESSMENT DIVISION)
NON-COAL MINING SECTOR

ANNEXURE-6

***

SUMMARY RECORD OF 22ND MEETING OF THE COMMITTEE OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE FOR ENVIRONMENTAL APPRAISAL OF NON-COAL MINING PROJECTS CONSTITUTED UNDER THE EIA NOTIFICATION, 2006.

The 22ndmeeting of the Re-Constituted Expert Appraisal Committee (EAC) for Environmental Appraisal of Mining Projects (Non-Coal) of the Ministry of Environment, Forest and Climate Change was held during 14-15November, 2023 through video conference. The list of participants is annexed herewith. After login of the Committee Members through video conference link provided by NIC discussion on each of the Agenda Items was taken up ad-seriatim.

(1.0) Deliberation & Circulation on the Minutes of 21stEAC (Non-Coal Mining) meeting held during 18-20 October, 2023:

The minutes of the 21st EAC meeting held during 18-20 October, 2023 were placed before the members of the EAC.

Day 1: 14th November, 2023 (Tuesday)

1.1 Amendment in EC dated 17thJuly, 2018 w.r.t Condition No 22 for Guda Clay mine of M/s Harish Clays with enhancement of production capacity from 60,000 TPA to 2,50,000 TPA (ROM) of Clay in the mine lease area of 284.20 ha, located at Village-Guda, Tehsil Kolayat, District Bikaner, Rajasthan - [File No: J11015/163/2014-IA.II(M), Proposal No: IA/RJ/MIN/125957/2014, Consultant: M/s. Enviro Green Consultants (I) Pvt. Ltd] - Amendment in EC

The instant proposal is for amendment in EC dated 17th July, 2018 w.r.t Condition No 22 for Guda Clay mine of M/s Harish Clays with enhancement of production capacity from 60,000 TPA to 2,50,000 TPA (ROM) of Clay in the mine lease area of 284.20 ha, located at Village-Guda, Tehsil Kolayat, District Bikaner, Rajasthan.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. Initially, the Project Proponent has obtained Environmental Clearance (EC) vide EC letter dated 18.02.1998 for the production capacity of 60,000 TPA of clay.

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ii. Then, the Project Proponent obtained Environmental Clearance (EC) vide EC letter dated 17.07.2018for Guda Clay mine of M/s Harish Clays with enhancement of production capacity from 60,000 TPA to 2,50,000 TPA (ROM) of Clay in the mine lease area of 284.20 ha.

iii. Now, the Project Proponent requested for amendment in EC w.r.t Condition No 22 which as mentioned below:

S. No	As per EC letter dated 17.07.2018	Request for amendment in EC by the Project Proponent
1	*22) The top soil, if any, shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation. The over burden (OB) generated during the mining operations shall be stacked at earmarked dump site(s) only and it should not be kept active for a long period of time.* ***The maximum height of the dumps shall not exceed 8m*** *and width 20 m and overall slope of the dumps shall be maintained to 45^0. The OB dumps should be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles shall be undertaken for stabilization of the dump.* ***The entire excavated area shall be backfilled and afforested.*** *Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office on six monthly basis."*	*i.* The Project Proponent submitted that the existing dump height is 38 meters which will reach approximately 60 meters. It would not be economical or feasible to maintain a height of 8 m as it will require a significant part of the lease area which will also cover the major part of mineralized zone and will degrade the surrounding environment to a greater extent. Hence the ***dump height should be permitted to 60 meter instead of 8 meter.*** ii. In line with point no. 7 of EC, Change is sought in point 22 from "the entire excavated area shall be backfilled and afforested", to ***"at the conceptual stage, out of 271 Ha of excavated pit, 100 ha will be converted in to rain water collection pond and remaining 171 ha will be back filled and ecologically restored by plantation which is similar to the conceptual planning given in the EMP report and approved Mining Plan".***

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iv. The proposal was earlier considered in the 18thEAC (Non-coal Mining) held during 22-24 June, 2020 and after detailed deliberations, the Committee was of the view the study for slope study has already been conducted by CMPDI but to execute the same the PP is required to submit the modified mining plan. The Committee appreciate the effort of PP made towards backfilling and was of the view that while preparing the modified mining plan it should be kept in the mind the to the extent possible the backfilling is to be done and only in case where it is not feasible the dumping of the same in dump yard to be done. Therefore, PP shall submit a draft mining plan in the similar lines, so that, height of the dump, area of dump, area to be backfilled, time line for backfilling etc. may be appraised before consideration of amendment in EC. Therefore, EAC deferred the proposal. Then, the Project Proponent submitted the information on 12.01.2023 in Parivesh Portal and accordingly the proposal was considered in the EAC meeting held on 8thFebruary, 2023. After detailed deliberations, the EAC deferred the proposal for want of requisite information. Then, the Project Proponent submitted the information on 21.10.2023 and accordingly the proposal was again reconsidered in the EAC (Non-Coal Mining) meeting held during 14-15 November, 2023.

Based on observation of EAC in its EAC meeting held during 8th February, 2023 and compliance of observation of EAC made by Project Proponent are detailed below:

<table>
<tr><th>S. No</th><th>Observation of EAC in its meeting held on 8th February, 2023</th><th>Reply by Project Proponent</th></tr>
<tr><td>1</td><td>The Project Proponent needs to address the environmental impacts due to increase in dump height from 8m to 60m.</td><td>The Project Proponent has submitted the anticipated environmental impacts due to the increase in dump height and their protective measures as mentioned below:
<table>
<tr><th>Anticipated Impact</th><th>Mitigation measures</th></tr>
<tr><td>Sliding of waste dumps may cause loss of life as well as undue land degradation.</td><td>A study has been carried out by CMPDI, Ranchi for the stability of dump. As per the recommendations made in the study, the geometry of the dump is proposed to maintain the height of 10 m and width of 10 m with a slope angle of 45° for each individual bench and up to 60 m height, making 6 benches with an overall slope angle of 29°, and pp assure to maintain the</td></tr>
</table></td></tr>
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			same. Any depressed land nearby the toe of the dump or top, if seen, will be filled up with OB material and dozed or levelled so that no accumulation of water takes place. If any deformation in the slope geometry of the dump is observed, it will be monitored with the help of the survey department for further movement. The spill of the overburden will be checked by making a retaining wall at the toe of the overburden dump to check for undue land degradation as well as loss of life.
		The impact of runoff from the over burden and other stockpiles on water bodies (siltation, contamination etc.).	Garland drain (1m x 1.5m) will be constructed around the OB dump to channelize the rain water to a settling pond of (5.0m x 5.0m x 0.1 m). Proper drainage measures are being taken. No water stagnation on the top of the overburden is allowed. The top of the overburden dump will be graded in such a manner that no water will accumulate there, and cleaning of the drain and settling pond will be done every year in the premonsoon season to maintain the efficiency of the sediment control.

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		Degradation of land and loss of aesthetic value of the land	Both the backfilled and dumping sites will be reclaimed by growing local grasses, trees, and bushes. This will improve the aesthetic value of the area
2	The Project Proponent needs to carry out detailed study on stability of pit slope.	The Project Proponent has submitted that the Scientific Study on Stability of Pit Slopes at Guda Clay mine has been carried out by CSIR-Central Institute of Mining & Fuel Research. CSIR-CIMFR Team has done a detailed field investigation in and around the current Pit No.1 & 2 (Central Quarry) to examine the current stability scenario of its benches which involved the collection of geological and geotechnical data related to the rock masses. The conclusion and suggestions of the scientific study are as follows:- To minimize the risk associated with slope failure, the stability of the inter-ramp and overall pit slope is considered to be the most important factor for an open-cast mining operation. The analyzed stability condition of the inter-ramp of Pit No. 1 & 2 (Central Quarry) as well as the overall slopes of Guda clay mines through numerical methods suggest quite a stable condition for pit benches as well as overall mine slopes. The field investigation suggests differential weathering of variable grades of different lithological units which varied within the inter-ramp of Pit No. 1 & 2 (Central Quarry) locations. Field-based rock mass characterization of slope materials recommends poor rock mass conditions due to intense weathering, tectonically sheared and low-strength materials. The overall stability of the mine slope is quantified by the FOS which varied from 3.59 to 1.17 for five considered cross-sections along the mine from west to east. The lowest FOS of 1.17 is observed for the uppermost pit benches of the E1-E2 section which are composed of yeathered sandstone	

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		and clay overlain by alluvium. The stability analysis was performed in static and dry conditions. So, the inclusion of rainfall conditions may reduce the FOS by some magnitude due to the susceptibility of clay to swell in water. Therefore, is suggested to take care of proper surface drainage on the inter-ramp as well as the slope crest area to minimize the water infiltration into the slope mass. It reduces the build-up of the pore water pressure within the clay and weathered rock mass and thereby lessens the chance of failure.
3	The Project Proponent needs to submit the approved modified scheme of mining w.r.t amendment sought.	The Project Proponent has submitted the Mining Scheme with Progressive Mine Closure Plan was approved by the Office of Superintending Mining Engineer, Mines & Geology Department vide Lr.No. SME/Bikaner-CIR/Mine-Scheme/Bikaner/ F-489/23/6224 dated 23.08.2023. In mining scheme, it has been mentioned that as per recommendation of CMPDI, the geometry of dump is proposed to maintain the height of benches 10m and width 10m with slope angle 45°of individual bench and up to 60 m height making 6 benches overall slope 29°. The Project Proponent has informed that they are in the process to modify the existing dump in a modified way to have dump geometry with 42° to 45° individuals. It is also mentioned that it has been conceptualized that 271.00 ha will be converted in to mining pit at end of the life of the mine and out of this, about 100.00 ha area would be left for rain water storage so that nearby villagers may use for various purposes as well as to serve as artificial recharge to increase the water table and 171.00 ha area would be backfilled and rehabilitate by growing trees and bushes.
4	The Project Proponent needs to submit the Certified Compliance Report to be issued by the Ministry's	The Project Proponent has submitted the certified compliance report issued by the Regional Office (RO), Gandhinagar vide Lr.No: IV/Env/Raj/MINE-578/992/2019 dated

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	Integrated Regional Office.	11.07.2023. The site visit was conducted by RO on 13.04.2023.

v. Details of Mine Lease:

a) The total mine lease area is 284.20 ha, out of which Private land is 90.0 Ha and Govt. land is 194.20 ha.

b) The Project Proponent has submitted that the State Govt. vide Lr no. ME/Bika/ML/7/ 93/5181 dated 16.02.2015 have extended the validity of the mine lease period for a period of 50 years i.e., upto 04.08.2048. The rider agreement for the extension of the lease period and change in major to minor mineral of clay has been made on 16.02.2016.

vi. The Project Proponent has submitted that the Consent to Operate (CTO) issued by the Rajasthan State Pollution Control Board vide Order No: 2021-2022/Mines/10390 dated 18.01.2022 for production of Clay of 2,50,000 tonnes / annum for the period from 01/02/2022 to 31/01/2027.

vii. The Project Proponent has submitted the certified production details from the Department of Mines & Geology vide letter dated 16.01.2020 for the period 05.08.1998 - 04.08.1999 to 01.04.2018 - 31.03.2019, vide letter dated 13.01.2021 for the period 2019-20 to 2020-21 (April 2020 – December 2020) and vide letter dated 01.02.2023 for the period 2020-21 to 2022-23 (April 2022 - December 2022). The Project Proponent has submitted an undertaking in a non-judicial stamp paper of Rs 100 bearing no: AL 668434 dated 13.06.2020 stating that no violation made in the project under the provisions of the EIA Notification dated 14.09.2006 and as per Ministry's OM dated 14.03.2017 and there is no penalty imposed by the Dept. of Mines and Geology, Govt of Rajasthan.

viii. The Project Proponent has submitted an undertaking vide letter dated 30.01.2023 stating that there is no any litigation/court case pending against the project.

3. Observation and Recommendation of the EAC: -

The EAC noted that the instant proposal is considered in the EAC as per Ministry's OM dated 27.09.2022 which states that *"the proposals which have been considered/ appraised once by EAC either for TOR or EC, but final decision has not been taken, shall continue to be appraised at the Central level only, till final disposal for ToR/EC, even after the amendments in the EIA Notification are issued from to time regarding delegation of projects to SEIAAs"*.The Project Proponent/Consultant presented the KML file to indicate the site features in the study area. The Project Proponent has shown the mine lease boundary of 284.20 ha, existing waste dump and boundary plantation. Then, the EAC deliberated on the additional details submitted by the Project Proponent and the Consultant.

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The EAC asked about the nature of the topsoil. The Project Proponent has informed the EAC that the nature of the topsoil is alluvium and thickness of the topsoil varies from 20cm to 1m. The EAC also asked about the backfilling. The Project Proponent has informed the EAC that the considering the safety, part of the material is backfilled and partly dumped. The lateral expansion of dump has also been done to a height of 8m. Garland drain (1m x 1.5m) will be constructed around the OB dump to channelize the rain water to a settling pond of (5.0m x 5.0m x 0.1 m).The Project Proponent has also informed the EAC that the Scientific Study on Stability of Pit Slopes at Guda Clay mine has been carried out by CSIR-Central Institute of Mining & Fuel Research. The CSIR-CIMFR Team has done a detailed field investigation in and around the current Pit No.1 & 2 (Central Quarry) to examine the current stability scenario of its benches.As per the recommendations made in the study, the geometry of the dump is proposed to maintain the height of 10 m and width of 10 m with a slope angle of 45° for each individual bench and up to 60 m height, making 6 benches with an overall slope angle of 29°. The EAC opined that the Project Proponent needs to ensure that the overall slope angle of 29°.

Further, the Project Proponent has informed the EAC that the Mining Scheme with Progressive Mine Closure Plan was approved by the Office of Superintending Mining Engineer, Mines & Geology Department vide letter dated 23.08.2023. The Project Proponent also informed the EAC that the certified compliance report was issued by the Regional Office (RO), Gandhinagar vide dated 11.07.2023. The Project Proponent has also shown the photographs of the existing waste dump, backfilled area and safety barrier. The EAC noted that the existing waste dump of 38m is inactive and asked the Project Proponent to stabilize the waste dump to prevent soil erosion.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC agreed only for increase in dump height of lateral expansion of dump from 8m to 30m. The EAC opined that further increase in dump height i.e., beyond 30m shall be reviewed by the concerned authority w.r.t stabilization of waste dump. The EAC was not convinced with the proposal for partly backfilling and converting the pit into water reservoir. The EAC also opined that the Project Proponent needs to have proper backfilling from the view point of mineral conservation. Based on the discussions held, the EAC in its meeting held during 14-15 November, 2023 under the provisions of EIA Notification, 2006 and subsequent amendments therein, **recommended** the proposal for amendment in EC dated 17thJuly, 2018 for Guda Clay mine [2,50,000 TPA(ROM)] of M/s Harish Clays only for an increase in dump height of lateral expansion of dump from 8m to 30m in the mine lease area of 284.20 ha, located at Village-Guda, Tehsil Kolayat, District Bikaner, Rajasthanalong with following additional special conditions:-

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i. The Project Proponent needs to properly stabilize through plantation the existing dump height of 38m. Plantation program over inactive dump needs to be scientifically planned.

ii. For further increase in dump height beyond 30m, the Project Proponent shall approach the concerned authority only after proper stabilization of later expansion of dump and existing dump and also with the action plan for backfilling.

iii. The Project Proponent needs to implement the recommendations of the Scientific Study on Stability of Pit Slopes carried out by CSIR-Central Institute of Mining & Fuel Research.

iv. The Project Proponent needs to ensure that the overall slope angle shall be 29°.

v. The Project Proponent needs to make provision for permanent water sprinklers instead of water tankers.

vi. The catch drains and siltation ponds needs to be regularly maintained to arrest silt and sediments flow from dumps.

vii. Digital processing of the entire lease area using remote sensing technique shall be carried out regularly once in three years for monitoring land use pattern and report submitted to Regional Office of MoEF&CC.

viii. The Project Proponent shall create awareness among the local people working within the project area as well as its surrounding area on the ban of Single Use Plastic (SUP) in order to ensure the compliance of Notification published by MoEF&CC on 12/08/2021. A report, along with photographs, on the measures taken shall also be included in the six monthly compliance report.

ix. All other terms and conditions mentioned in the EC letter dated 17thJuly, 2018 remains unchanged.

1.2 Proposal for Regularization of Environmental Clearance under the provision of MoEF&CC Notification S.O. 1530 (E) dated 6thApril 2018 for Terms of Reference of Roha-Kotada-Nandra-Jarjok Bauxite Mining of M/s Gujarat Mineral Development Corporation Limited with Production Capacity 1,00,000 TPA in the mine lease area of 360.3601 ha, located at Village Roha, Kotada, Nana Nandra, MotaNandra&Jarjok, TehsilAbdasa&Naktarna, District Kutch, Gujarat– [File No. J-

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11015/149/2018- IA-II(M); Proposal No. IA/GJ/MIN/258092/2022] - Terms of Reference

The instant proposal is for Terms of Reference under the provision of MoEF&CC Notification S.O. 1530 (E) dated 6thApril 2018 for mining of Limestone in Roha-Kotada-Nandra-Jarjok Bauxite Mining project of M/s Gujarat Mineral Development Corporation Limited with Production Capacity of 1,00,000 TPA in the mine lease area of 360.3601 ha, located at Village Roha, Kotada, Nana Nandra, MotaNandra & Jarjok, Tehsil Abdasa & Naktarna, District Kutch, Gujarat.

2. Observation and Recommendation of the EAC: -

The EAC noted that the Project Proponent vide email dated 30.10.2023 informed that the Terms of Reference (ToR) have been already granted on 18.04. 2022. Hence, the EAC **returned** the proposal.

1.3 Proposal for Regularization of Environmental Clearance under the provision of MoEF&CC Notification S.O. 1530 (E) dated 6thApril 2018 for Terms of Reference of MothalaBalachod Bauxite Mining Project of M/s Gujarat Mineral Development Corporation Limited with Production Capacity of 42,000 TPA in the mine lease area of 280.7686 ha, locatedatVillage: Balachod, Mothala&Khandai, Tehsil Abdasa, District Kutch, Gujarat– [File No.J-11015/150/2018- IA-II(M); Proposal No. IA/GJ/MIN/258052/2022] - Terms of Reference

The instant proposal is for Terms of Reference under the provision of MoEF&CC Notification S.O. 1530 (E) dated 6thApril 2018 for mining of Limestone in Mothala Balachod Bauxite Mining Project of M/s Gujarat Mineral Development Corporation Limited with Production Capacity of 42,000 TPA in the mine lease area of 280.7686 ha, located at Village: Balachod, Mothala & Khandai, Tehsil Abdasa, District Kutch, Gujarat.

2. Observation and Recommendation of the EAC: -

The EAC noted that the Project Proponent vide email dated 30.10.2023 informed that the Terms of Reference (ToR) have been already granted on 18.04.2022. Hence, the EAC **returned** the proposal.

1.4 Proposed Limestone Mine "Mudhvay Sub Block A" of M/s. JK Lakshmi Cement Ltd.with Limestone production capacity of 2.50 Million TPA, Top Soil: 0.22 Million TPA, Over Burden: 2.08 Million TPA (Total Excavation: 4.8 Million TPA) in the mine lease area of 198.90.98 ha, located at Village: Mundhvay, Taluka: Lakhpat, District: Kachchh, Gujarat – [F.No: :IA-J-11015/32/2023-IA.II(NCM); Proposal No: IA/GJ/MIN/445723/2023; EIA Consultant: M/s J.M. EnviroNet Pvt. Ltd] – Terms of Reference (ToR)

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The instant proposal is for grant of Terms of Reference (ToR) for mining of Limestone in "Mudhvay Sub Block A" of M/s. JK Lakshmi Cement Ltd. with Limestone production capacity of 2.50 Million TPA, Top Soil: 0.22 Million TPA, Over Burden: 2.08 Million TPA (Total Excavation: 4.8 Million TPA) in the mine lease area of 198.90.98 ha, located at Village: Mundhvay, Taluka: Lakhpat, District: Kachchh, Gujarat.

2. The details of the project as ascertained from the documents submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals. General condition is applicable for the project due to presence of Eco Sensitive zone of Narayan Sarovar Wildlife Sanctuary located at a distance of 3.6 km and from the boundary of Narayan Sarovar Wildlife Sanctuary at an aerial distance of 4.0 km from lease boundary and hence the proposal falls under Category "A" and appraised at the Central level.

ii. The mine lease area is located between Latitude: 23°42'57.58" to 23°44'09.26" N and Longitude: 68°40'31.47" to 68°41'12.38" E. The mine lease area falls under the Survey of India Toposheet No: 41A/10and falls in Seismic Zone-V.

iii. Details of Mine Lease:

S. No	Letter of Intent (LoI) and Lr No	Date of the grant	Name of the Mineral & (Major/ Minor)	Period of Grant	Granted by	Mine lease area in Ha
1.	Letter of Intent (LoI) for grant of mining lease vide Lr.No:. MMR- 102020-MM-496-CHH	06.08.2021	Limestone (Major mineral)	3 years	Govt. of Gujarat	198.90.98

iv. Land Use/Land Cover of the Mine Lease Area:

Private land	58.63 ha
Government waste land Pond land	138.51 ha 1.76 ha
Forest Land	-
Total Mining lease area (MLA), Ha	198.90.98 ha
Private land for crusher, workshop & other infrastructure outside the MLA	No infrastructure is proposed outside the ML area.

v. Mining plan details:

Mining Plan along with Progressive Mine Closure Plan	Letter No.	MCDR- MPCP 0 CaF1/50/2022- GNR-IBM_RO_GNR

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was approved by Indian Bureau of Mines (IBM)	Date	16.01.2023
	Mineral & (Major/Minor)	Limestone (Major mineral)
	Mine Lease Area, Ha	198.90.98 ha
	Validity	5 years from the date of Mining Lease registration
Mining Parameters	Quantitative Description	
Method of Mining	Fully Mechanized Opencast Mining Method.	
Drilling/Blasting	Excavation will be done by mechanized opencast method using Surface Miner with combination of excavator-tippers combination. Surface Miner is eco-friendly machine as it suppresses dust emission. No drilling and blasting carried out during excavation of limestone	
Geological Reserves	263.75 Million TPA (As on 01/10/2022)	
Mineable Reserves	227.14 Million TPA (As on 01/10/2022)	
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Total Excavation: 4.8 Million TPA Breakup of Total Excavation: 1. Limestone: 2.5 Million TPA 2. Top Soil: 0.22 Million TPA 3. Over Burden: 2.08 Million TPA	
Life of mine	95 years (Expected by 01.10.2022)	
Mine Bench Height & Bench Width	Bench height: 6.0 m (Minimum) Bench Width: 20 m (Maximum)	
No. of Mine Benches	16 benches at conceptual stage	
Existing Depth, m bgl	It's a greenfield project and so not applicable.	
Ultimate Depth of Mining, m bgl	-89 m RL (112 m bgl)	
Ground Water Table, m bgl	6 m bgl	
Details of ground water intersection	Water table will be intersected during the plan period and necessary permission will be taken before intersecting ground water table.	
Individual bench slope	70°	
Overall pit slope	45°	
Details of existing/ proposed Crusher	Nil	
Mineral Beneficiation	Nil	
RoM output size	Nil	
Transportation details including capacity of dumper/tipper, mode of transport and distance	Limestone will be transported from mine face to head by dumpers via haul road and it will be transported to end users via Road.	
Generation of Topsoil/OB & its Management during plan period & conceptual period.	Top Soil: ➢ Total 0.22 million tonnes of top soil will be generated during plan period which will be used in green belt generation. At the conceptual stage top soil generated will be used for Greenbelt and	

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	plantation. Over Burden: ➢ During this Plan period, 6.46 Million Tonnes Over burden will be generated which will be dumped over an area of 24.51 ha. ➢ Approx 103.73 million tonnes of overburden will be generated during conceptual stage. Management: At the conceptual stage, OB generated will be used for backfilling of 70.87 ha excavated area.
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	-

vi. Water requirement:

Total water requirement	305 KLD	Fresh Water	305 KLD
		Treated water	-
Source	Ground water and rain water collected in mine sump as and when developed Permission will be taken from State Govt. for using Ground water.		
Permission for withdrawal/ intersection along with details of grant and its validity	Working depth during the plan period will be -19 m RL (42 m bgl) and at conceptual stage, ultimate working depth will be -89 m RL (112 m bgl). Depth of water table in the area is 6 m bgl. Water table will be intersected during the plan period and necessary permission will be taken before intersecting ground water table.		

vii. Nearest village/town/ highway/interstate boundary/railway station/water bodies/monument/ forest

Particulars	Particular's Name	Directions
Nearest Village	Nathura Dada	~250 m in West direction
Nearest Town	Bhuj	~111 km in SE direction
Nearest State/National Highway	SH-6	~1.5 km in WNW direction
Interstate Boundary	None	None
Railway Station/Railway line	Bhuj Railway Station	~113 km in SE direction
Water Bodies	Nathuwara Talav	Within the ML area
	Kapurarsi Nadi	~ 3.5 km in West direction
	Sangdiawala Talav	~ 4.5 km in south direction
	Korai Creek	~ 4.5 km in West direction
Forest	Mudhvay Reserved Forest	~ 0.75 km in SE direction
	Naredi Reserve Forest	~ 3.5 km in South direction

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	Kaiyari Reserved Forest	~ 3.0 km in SW & ~ 5.5 km in SW direction
	Godhatad Reserved Forest	~6.5 km in SW direction

viii. Presence of Environmentally Sensitive areas in the study area:

Forest Land / Protected Area / Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	No	No Forest land involved in mining lease area.
National Park	No	The Project Proponent has submitted the letter obtained from the Forest and Environment Department, Government of Gujarat, Gandhinagarletter dated 23.06.2023 stating that proposed area is located North Side 4 km away from Narayan Sarovar Wildlife sanctuary and 3.6 km away from Eco Sensitive zone of Narayan Sarovar Wildlife Sanctuary.
Wildlife Sanctuary	Yes	
Elephant/Tiger Reserve	No	
Eco-Sensitive Zone (ESZ) /Eco-Sensitive Area (ESA)	Yes	
Coastal Regulation Zone (CRZ)	No	--
Schedule-I species (No.s and name of schedule-I species with authenticated letter)	-	This proposal is for ToR, study will be carried out, if schedule - I found in the study area Wildlife Conservation Plan will be prepared during the preparation of EIA/EMP Report.
Wildlife Conservation Plan	-	

ix. Green belt/Plantation details:

Proposed area for greenbelt/plantation and no. of saplings proposed	Total area under greenbelt and plantation will be 80.28 ha (4.60 ha area on 7.5 m lease periphery, 4.81 ha. on safety zone of Road and water pond & 70.87 ha. backfilled area).
Budget for green plant & plantation till the end of life of mine.	Rs 3.61 Crore
Budget for nursery	N/A
Details of existing plantation and its survival rate	It's a greenfield project.
No. of tree cuts in the mine lease area and compensatory afforestation	55
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	4.60 ha
50 m safety zone of nallah, roads, electric lines	4.81 ha

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500 m safety zones of nearest habitation villages	Nil

x. Rehabilitation & Resettlement:

R & R details	i.	Total mining lease area is 198.90.98 ha, out of which 58.63 ha is private land.
	ii.	Land will be purchased with negotiation and R&R provisions will be followed as per Central and State Government Rules & Notifications.

xi. Court case details:

Court Case, No and its present status	No Court Case or Litigation is pending
Undertaking by Project Proponent w.r.t court case	The Project Proponent has submitted a undertaking vide letter dated 25.09.2023 stating that there is no litigation pending against the project and/or any direction/ order passed by any court of law against the project and that for any such litigation whatsoever, the sole responsibilities will be borne by the company.

xii. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent has submitted the Affidavit in a non-judicial stamp paper ofRs 100 bearing no: BP 852442 dated 31.10.2023 stating that the company undertakes by affidavit that they will comply with all the statutory requirement & judgment of Hon'ble Supreme Court order dated 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India &Ors before grant of ToR/EC.

xiii. Details of project cost and employment:

Particulars	Budget (Rs. in Crores)
Project Cost	Rs. 200Crores
Employment	92 persons

3. Observation and Recommendation of the EAC: -

The Project Proponent/Consultant presented the KML file to indicate the site features in the study area. The Project Proponent has shown the mine lease boundary over an area of 198.90.98 ha. The instant project attracts the general condition due to presence of Eco Sensitive zone of Narayan Sarovar Wildlife Sanctuary located at a distance of 3.6 km and from the boundary of Narayan Sarovar Wildlife Sanctuary at an aerial distance of 4.0 km from lease boundary. The Project Proponent has also shown the boundary of ESZ and NarayanSarovarWildlife Sanctuary from the mine lease area

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on the southern side. Further, the Project Proponent presented the letter obtained from the Forest and Environment Department, Government of Gujarat, Gandhinagar dated 23.06.2023 regarding the distance of ESZ and NarayanSarovar Wildlife Sanctuary from the mine lease area. The India-Pakistan International boundary is located at a distance of 27 km on northern side from the mine lease area. The Arabian Sea is located at a distance of about 30km on western side from the mine lease area. The Korai Creek is located at a distance of about 5.0 km, NW from the mine lease area. The instant proposal does not come under CRZ. The total mine lease area is 198.90.98 ha, out of which 138.51 ha is a Govt. land, 58.63 ha is a Pvt. land (Rain fed Agriculture land) and 1.76 ha is a Pond land. A cart track is passing through the mine lease area and will not be disturbed during entire life of the mine. A 50m safety zone on either side will be maintained along the cart track. There are also 2 ponds located within the mine lease area and the same will be maintained as non-mining zone during entire life of the mine. Dense plantation and bund formation will be undertaken to protect the pond. The EAC opined that the adequate safety measures have to be taken to protect the pond. Private Agricultural land will be purchased. There will be about 10-15 Project Affected Families. Detailed R&R survey is under process.

The EAC asked about the mineral transportation route. The Project Proponent has informed the EAC that the mined out mineral will be transported by road through NH on western side to the other cement plants and industries. The EAC asked about the proposed depth of mining and no. of mine benches. The Project Proponent has informed the EAC that the proposed depth of mining will be 112m bgl and 16 no. of mine benches will be created. The EAC opined that the pit slope stability study has to be carried out. The Project Proponent has informed the EAC pit slope stability study will be undertaken within 1st year plan period. The EAC also asked about the presence of Schedule - I species in the study area. The Project Proponent has informed the EAC that generally Chinkara, Monitor lizard, Great Indian Bustard, Leopard are found in the study area. A detailed survey will be undertaken and will be submitted in EIA/EMP report. The EAC asked about the Overburden dumping. The Project Proponent has informed the EAC that the OB will be dumped in the center part of the mine lease area. No backfilling has been proposed in the 1st five year plan period. The thickness of the Overburden is 5-6m. Height of the dump will be 30m. Topsoil will be maintained as a separate dump. Excavation will be done by mechanized opencast method using Surface Miner with combination of excavator-tippers combination. Water requirement will be 305.0 KLD. The EAC asked the Project Proponent to explore the possibility to reduce the water consumption. At conceptual stage, total area under mining will be 177.60 ha, out of which 70.87 ha will be backfilled and an area of 106.73 ha will be converted into water reservoir. The EAC asked the Project Proponent to revisit the proposed species for plantation. The EAC also suggested the Project Proponent to

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address the additional traffic load due to transportation and also to carry out cumulative impact assessment.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC in its meeting held during 14-15 November, 2023 under the provisions of EIA Notification, 2006 and subsequent amendments therein, **recommended** the proposal for grant of Terms of Reference (ToR) to M/s. JK Lakshmi Cement Ltd. for "Mudhvay Sub Block A" with Limestone production capacity of 2.50 Million TPA, Top Soil: 0.22 Million TPA, Over Burden: 2.08 Million TPA (Total Excavation: 4.8 Million TPA) in the mine lease area of 198.90.98 ha, located at Village: Mundhvay, Taluka: Lakhpat, District: Kachchh, Gujaratfor undertaking detailed EIA/EMP study subject to the following specific conditions in addition to the standard ToR conditions and applicable for non-coal mining projects:-

i. The Project Proponent needs to submit the ecology restoration plan for mined out pits for using as Water reservoir/ Pisciculture as well as the plan for the backfilled area.

ii. Since the project is located in Seismic Zone –V, the Project Proponent needs to submit the risk and disaster management plan. The Project Proponent also needs to submit the past history of disasters occurred in the region.

iii. The Project Proponent needs to undertake the scientific study on pit slope stability by the reputed Institute.

iv. The Project Proponent needs to submit the safety measures proposed to protect the ponds within the mine lease area.

v. The Project Proponent needs to submit the existing soil salinity data of the Mine lease area and in the Korai Creek.

vi. The Project Proponent needs to submit the Cost Benefit analysis comparing the current agricultural production and annual turnover including the cost and the benefits drawn by the local villages vis-a-vis the mineral cost and beneficiaries at the time of submission of EC proposal.

vii. The Project Proponent needs to submit the year wise sequence of mining operation and plan for backfilling.

viii. The Project Proponent shall monitor the water quality in the impact zone such as water reservoir, river water with specific reference to the parameter Langelier

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Saturation Index which will denote the impact of calcium carbonateson water bodies and these parameters and determine the tendency of water to form calcium carbonate scaling.

ix. The Project Proponent needs to submit the map showing the transport route of the mineral from the mine lease area to the destination, impact of details of habitation at a distance of 100m from the center on both sides of road, details of no. of trips/day to and fro, capacity of the dumper/tipper to be deployed and the dimensions of the road and the carrying capacity of the road. Project Proponent needs to submit SOP for transportation.

x. The Project Proponent needs to monitor the ambient air quality and noise level at the mine lease boundary, nearest village, crusher, predominant downwind direction and at other sensitive receptors. Accordingly, Project Proponent shall propose to install Continuous Ambient Air Quality Monitoring Station within certain timeline.

xi. The Project Proponent should prepare the EMP considering the scenario of pollution to be generated for normative and peak total excavation for assessing air pollution, noise level and ground vibration.

xii. The Project Proponent needs to carry out the cumulative impact assessment by considering all the mining activity of the proposed mine, existing mines, cement plant and other operating mines including the transport scenario in the study area and also should indicate the capacity of each mine considered for predication of air quality modeling. The control case and worst-case scenario needs to be demonstrated with controlling factor and GLCs values for all the pollutants needs to be clearly mentioned. The input parameters and data used for each activity of the modeling also needs to be submitted at the time of appraisal of EC.

xiii. The Project Proponent needs to carry out the Public Hearing as per provisions of EIA Notification, 2006. PP should also submit the time bound action plan on concerns of the public through a separate budget with capital expenditure with a timeline of 3 years. The Project proponent shall ensure that the activities proposed under the public hearing shall be different from the CSR activities.

xiv. The Project Proponent needs to undertake the enumeration of the species within the mine lease area before cutting. The Project Proponent also needs to submit the compensatory afforestation plan for the no. of trees to be cut in the mine lease area.

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xv. The Project Proponent needs to submit the action plan for undertaking the plantation along the 7.5m barrier, safety zone of nallah, village road, electric line etc., PP should also submit the details no of saplings to be planted, type of saplings proposed and the area to be covered under greenbelt/plantation along with the timeline and budget. The greenbelt/plantation plan shall be prepared in such a way that the ecology of the area shall be restored.The Project Proponent to revisit the proposed species for plantation.

xvi. The Project Proponent shall carry out the assessment of impact due to the proposed project as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP. The project proponent shall conduct hydrological study for projects involving intersection of ground water table as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.

xvii. The Project Proponent shall explore the possibility of reduction of specific water requirement by optimization / technology up gradation, etc. The efforts shall be delineated in the EIA/EMP.

xviii. The Project Proponent shall prepare the scheme for mandatory recycle/re-use of water as specified by the Central Ground Water Authority for different category areas seeking NoC for ground water withdrawal and the shall submit as part of EIA/EMP report.

xix. The Project Proponent needs to submit the detailed R&R plan covering all the components viz. number of Project Affected Families (PAF) and details of the land owned by them, break up of total compensation to be paid including method of calculation including the sources/references adopted and mode of payment etc. The Project Proponent needs to submit the plan for Socio economic development of the neighbourhood habitats based on the need based survey along with the time bound action plan. Further, PP needs to submit the possession certificate and timeline for acquiring the land at the time of submission of EC proposal.

xx. The Project Proponent shall conduct drone survey of the mine lease area and buffer area and submit during the appraisal for EC.

1.5 Daba Saitthad Limestone Deposit of M/s Star Cement Ltd with production capacity of 2.51 MTPA of Limestone in the mine lease area of 25 Ha, located at

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Daba Saitthad (wahlareng), Village Lumshnong, District East Jaintia Hills, Meghalaya – [F.No: IA-J-11015/39/2023-IA.II(NCM), Proposal No: IA/ML/MIN/449327/2023; EIA Consultant: M/s Perfact Enviro Solutions Pvt Ltd] – Terms of Reference (ToR)

The instant proposal is for Terms of Reference for mining of Limestone in Daba Saitthad Limestone Deposit of M/s Star Cement Ltd with production capacity of 2.51 MTPA of Limestone in the mine lease area of 25 Ha, located at Daba Saitthad (Wahlareng), Village Lumshnong, District East Jaintia Hills, Meghalaya.

2. The details of the project as ascertained from the documents submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals. The instant proposal attracts the General conditions as the Narpuh Wildlife Sanctuary is located at a distance of 3.9 km, SE direction and its ESZ boundary is located at a distance of 2.7 km SE to the project site and hence the proposal falls under Category "A" and appraised at the Central level.

ii. The mine lease area is located between Latitude: 25°09'24.78"N to 25°09'39.43"N and Longitude: 92°21'29.53"E to 92°21'56.03"E. The mine lease area falls under the Survey of India Toposheet No: 83C/8 (Restricted)and falls in Seismic Zone-V.

iii. Details of Mine Lease:

S. No	Prospecting License/ Letter of Intent (LoI)/ Grant of Mine lease and Lr No	Date of the grant	Name of the Mineral & (Major/ Minor)	Period of Grant	Granted by	Mine lease area in Ha
1	Prospecting License-MG.6/2023/33	01.03.2023	Limestone (Major)	3 years	Mining & Geology Department, Government of Meghalaya	25 ha.
2	Letter of Intent-MG.6/2023/277	28.08.2023	Limestone (Major)	3 years	Mining & Geology Department, Government of Meghalaya	25 ha.

iv. Land Use/Land Cover of the Mine Lease Area:

Private land	25 ha.
Government land	-

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Forest land	Nil
Total Mining lease area (MLA), ha	25 ha.
Private land for crusher, workshop & other infrastructure outside the MLA	NA

v. Mining plan details:

Mining Plan was approved by Indian Bureau of Mines (IBM)	The Project Proponent has submitted that the Mining Plan was submitted to Indian Bureau of Mines (IBM) for approval vide application ID PB113 dated 06.10.2023.
Mining Parameters	Quantitative Description
Method of Mining	Opencast mechanized mining
Drilling/Blasting	Deep hole drilling & blasting.
Geological Reserves	52.44 million tons
Mineable Reserves	40.89 million tons
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/Waste, MTPA)	2.832 MTPA (including 2.51 MTPA of limestone, 0.322 MTPA of Waste/OB including topsoil).
Life of mine	50 Years [Max production of Lst (ROM) shall be restricted to 2.51 MTPA. Production from this mine at a later stage of ML may get reduced. Additional exploration shall also be taken up which will increase the reserves.]
Mine Bench Height &Bench Width	The height of the bench will be 9 m and a minimum working width of the benches in mineral will be 18 m for safe operation of mining machinery.
No. of Mine Benches	13
Existing Depth, m bgl	NA, as it is a green field project
Ultimate Depth of Mining, m bgl	137
Ground Water Table, m bgl	156
Details of ground water intersection	Water table will not be intersected as it is at 156 m bgl and mining will be done up to 137 m bgl.
Individual bench slope	85° from horizontal
Overall pit slope	<45°
Details of existing/ proposed Crusher	Limestone will be transported to cement plant crusher of 1200 TPH capacity.
Mineral Beneficiation	NA
RoM output size	-1000 mm
Transportation details includingcapacity of dumper/tipper, mode oftransport and distance	The material after blasting will be loaded by hydraulic excavators of about 2.6 m^3 bucket capacity into tippers of 25 tons carrying capacity for its transportation to crusher at a distance of 4.6 km and temporary waste dump inside mining lease.

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Generation of Topsoil/OB & its Management during plan period & conceptual period	Max. 322,524.25 TPA of Waste/OB including topsoil will be generated.Waste/OB will be dumped temporarily at earmarked places. Later it will be used as blending material after taking permission from the Government. The topsoil generated will be used extensively for plantation.
Generation of Mineral Rejects/Waste & its Management during plan period & conceptual period	There will be no reject from the mine.

vi. Water requirement:

Total water requirement	40.0 KLD	Fresh water	05 KLD
		Treated water	35 KLD
Source	Water tankers from the company's cement plant.		
Permission	Vide Letter No. AGRO/IRRI-110/96/2004-05/80 dated Shillong, 15thSep 2004		
Additional information(if any)	Total water requirement for the proposed mine will be around 40 KLD, out of which 35 KLD will be from STP treated water and 5 KLD of fresh water for domestic purposes.		

vii. Nearest village / town/ highway/railway station / water bodies

Particulars	Particular's Name	Distance & Directions
Village	Lumshnong	1.95 Km NE
Town	Khliehriat	21.70 Km N
Highway	NH-6	0.57 km SE
Interstate Boundary	India-Bangladesh International Boundary Meghalaya-Assam State Boundary	9.08 km SSW 12.88 Km SE
Railway station	Hilara railway station	65 km (by road)
Water bodies	Um Badoh Stream Lubha River Seshympa River	0.85 Km WNW 3.71 km SE 4.87 Km WSW
Forest	Narpuh Reserve Forest	4.13 km SSW

viii. Presence of Environmentally Sensitive areas in the study area:

Forest Land/Protected Area/Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks

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Forest land within the minelease area and (if yes) status ofForest Clearance	No	The Project Proponent has submitted the letter from the Office of the Principal Chief Conservator of Forests (HoFF), Meghalaya vide Lr.No: MFG.39/NLFC/Mining/ MMMCR/ 2016/JH/15,529 Shillong dated 1st Feb, 2023 stating that plot of land of 25 ha is non-forest land as per definition of forest in Section 3 (10) of Meghalaya Forest Regulation, 1973 as amended vide Meghalaya Forest Regulation (Amendment) Act, 2012.
National Park	No	Not Applicable
Wildlife Sanctuary	Yes	The Project Proponent has submitted the letter from the Office of the Principal Chief Conservator of Forests (Biodiversity & Wildlife) & Chief Wildlife Warden vide Lr No. FWC/Clearance/12/4006, Shillong dated1st Feb, 2023 stating that the aerial distance of the proposed mining of Presbyterian Church located at Lumshnong Village, East Jaintia Hills District from the boundaries of Eco-Sensitive Zone is 2.7 km and Narpuh Wildlife Sanctuary is 3.9 km. This letter does not convey any NOC whatsoever.
Eco-Sensitive Zone(ESZ)/Eco-Sensitive Area(ESA)	Yes	
Coastal Regulation Zone (CRZ)	No	Not Applicable
Schedule-I species (No.s andname of schedule-I species with authenticated letter)	Yes	There are ten Schedule I Species found in the buffer zone are given below: *Hoolock hoolock* (Western hoolock gibbon), *Nycticebus bengalensis* (Slow loris), *Prionailurus bengalensis* (Leopard Cat), *Python molurus* (Indian Rock Python), *Neofelis nebulosa* (Clouded Leopard), *Buceros bicornis* (Great Pied Hornbill), *Canis lupus pallipes* (Indian Wolf), *Manis pentadactyla* (Pangolin), and *Melursus ursinus* (Sloth bear), *Capricornis sumatraensis thar* (Himalayan serow).

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Wildlife Conservation Plan	Yes	The Chief Wildlife warden had a meeting with Industries and Government Departments for preparation of Regional Conservation plan for the East Jaintia Hills district under the supervision and guidance of CWLW, Meghalaya and the cost for preparation and implementation of the Regional Conservation Plan may be shared by various project proponents on a proportionate basis keeping in view the likely impacts of each project on the wildlife and their habitat. We also confirmed that we shall be part of the regional conservation plan and will pay the fee as determined for our project.

ix. Green belt/plantation details:

Proposed area for green belt/plantation	At the end of life of mine, out of the total 25 ha area, 20.12 ha will be used for Bench Plantation/ Grassification and 1.46 ha. along the 7.5 m wide peripheral boundary will be developed under green belt.
Budget for green plant & plantation till the end of life of mine.	Rs 1.03 Cr
Budget for nursery	NA
Details of existing plantation and its survival rate	NA as it is greenfield project
No. of tree cuts in the mine lease area and compensatory afforestation	215 trees will be cut in the mine lease. Total about 37854 trees will be planted upto conceptual period.
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	1.46 Ha

x. Rehabilitation & Resettlement (R&R):

R & R details	The Project Proponent has submitted that the R&R is not involved in this project.

xi. Court case details:

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Court case no and its present status	The Project Proponent has submitted that there is no litigation pending against the project and/or land in which the project is proposed to be set up
Undertaking by Project Proponent w.r.t court case	

xii. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent has submitted the Affidavit dated 17.10.2023 stating that they commit to comply with order of the Hon'ble Supreme Court order dated 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India &Ors.

xiii. Details of project cost and employment:

Particulars	Budget (Rs. in Crores)
Project Cost	Rs. 37.30 Crores
Employment	99 persons

3. Observation and Recommendation of the EAC: -

The Project Proponent/Consultant presented the KML file to indicate the site features in the study area. The entire mine lease area of 25 Ha is a Pvt. land. The instant proposal attracts the General conditions as the Narpuh Wildlife Sanctuary is located at a distance of 3.9 km, SE direction and its ESZ boundary is located at a distance of 2.7 km SE to the project site. The EAC asked about the status of the Mining Plan. The Project Proponent has informed the EAC that the Mining Plan was submitted to Indian Bureau of Mines (IBM) for approval on 06.10.2023. The scrutiny comments have been received from the IBM and Mining Plan is yet to be approved. NH-6 is located at a distance of about 1.0 km on Southern side and Lumshnong Village is located at a distance of about 3km on NE side. General drainage direction is towards west. Lubha River is located on the South Eastern side. The EAC asked about the distance of the International Boundary from the mine lease area. The Project proponent has informed the EAC that India – Bangladesh International Boundary is located at a distance of about 9.0 km from the mine lease area on SSW side.

The EAC asked about the mineral transportation route. The Project Proponent has informed the EAC that the mineral will be transported by road through NH6 to reach crusher. About 0.8km of company's own road and 0.6 km of public road will be used to reach NH6. Total distance to reach Crusher will be about 4.5 km.The EAC asked about the distance of the width of the public road. The Project Proponent has informed the EAC that the width of the public road is about 7-8m. The EAC asked the Project Proponent to physically verify the width of the public road.Further, the Project Proponent has informed the EAC that the crusher is located at the Cement Plant. The EAC also asked the Project Proponent whether there is any possibility of putting up crusher inside

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the mine lease area to avoid transportation by road from the view point of environment and safety. The Project Proponent has informed the EAC that the entire mine lease area is mineralized zone and crusher at cement plant is also utilized by other mines which leads to put up a another crusher at cement plant. The EAC suggested the Project Proponent to explore the possibility of utilizing mobile crusher at within the mine lease area. The EAC asked about the possibility of transporting the ore through Over Land Belt Conveyor (OLBC). The Project Proponent has informed the EAC that there are elevation issues to lay OLBC and will be explored in future. The EAC noted that a number of mines are going to come up in the study area, the EAC asked the Project Proponent to submit the future year wise production plan to assess the production requirement. The EAC also opined that the Project Proponent needs to explore the possibility of utilizing surface Ripper-Dozer combination along with the hardness of Limestone tested by reputed Institute.

The Project Proponent also informed the EAC that a letter has been obtained from the Office of the Principal Chief Conservator of Forests (HoFF), Meghalaya vide letter dated 1st Feb, 2023 stating that plot of land of 25 ha is non-forest land as per definition of forest in Section 3 (10) of Meghalaya Forest Regulation, 1973 as amended vide Meghalaya Forest Regulation (Amendment) Act, 2012. The Project Proponent has informed the EAC that exploration level is G1. The EAC asked the Project Proponent to relook the life of the mine. The Project Proponent has informed the EAC that maximum elevation is 406 mRL and minimum is 336 mRL. The ultimate level of excavation will be 269 mRL. The depth of the mining will be 137 m bgl from the surface. The EAC opined that the Project Proponent needs to undertake a slope stability study and shall submit the same in the EIA/EMP report. Maximum production capacity of 2.51 MTPA of Limestone will be achieved in the 5th year of 1st five year plan period. At the conceptual stage, 23.54 ha will be under mining area and out of which 3.02 ha will be converted into water reservoir, 20.12 ha will be under bench plantation and 0.40 ha area under roads. The EAC opined that even though Project Proponent is a part of the Regional Conservation Plan, the Project Proponent needs to submit the Wildlife Conservation Plan for conservation of wildlife.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC noted that the India – Bangladesh International Boundary is located at a distance of about 9.0 km from the mine lease area on SSW side. The EAC reiterated the Ministry of Defence letter dated 08.05.2023 regarding security considerations for construction activities/other activities in Border areas/other areas wherein it has been mentioned that *"all activities connected with mining within 20kms from all the borders including seaboard frontier should be planned in consultation with Ministry of Defence".*The EAC was of the view that border area is falling within 20 km radius and hence the EAC opined that the NOC from the Ministry of Defence is prerequisite for

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grant of Terms of Reference (ToR). Based on the discussions held, the EAC **deferred** the proposal for want of following additional information: -

i. The Project Proponent needs to submit the NOC from the Ministry of Defence.

ii. The Project Proponent needs to submit the width of the public road.

iii. The Project Proponent needs to submit the hardness of Limestone tested by reputed Institute.

iv. The Project Proponent needs to explore possibility of installing fixed/ mobile crusher within the lease area.

1.6 Rohisa Limestone Mine of M/s HeidelbergCement India Limited with Limestone Production Capacity 3.0 Million TPA, Top Soil 0.147 Million TPA (Total Excavation: 3.147 Million TPA) in the mine lease area of 891.7185 ha, located at Villages: Rohisa, Balana and Vadhera, Taluka: Jafrabad, District: Amreli, Gujarat – [F.No: IA-J-11015/19/2023-IA-II(NCM), Proposal No:IA/GJ/MIN/434388/2023, EIA Consultant: M/s J.M. EnviroNet Pvt. Ltd] – Terms of Reference

The instant proposal is for mining of Limestone in Rohisa Limestone Mine of M/s HeidelbergCement India Limited with Limestone Production Capacity 3.0 Million TPA, Top Soil 0.147 Million TPA (Total Excavation: 3.147 Million TPA) in the mine lease area of 891.7185 ha, located at Villages: Rohisa, Balana and Vadhera, Taluka: Jafrabad, District: Amreli, Gujarat.

2. The details of the project as ascertained from the documents submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" of the schedule of the EIA Notification, 2006 as the mine lease area is greater than 250 ha and appraised at the Central level.

ii. The mine lease area is located between Latitude: 20°49'00" N to 20°51'00" N and Longitude: 71°13'00" E to 71°18'45" E. The mine lease area falls under the Survey of India Toposheet No: 41 P/5 (Restricted) and falls in Seismic Zone-III.

iii. The instant proposal was earlier considered in the 34thEAC meeting held during 27 – 30July 2021 wherein the Committee was of the view that clarification is required regarding the distance from CRZ through Coastal Zone Management Plan (CZMP)authenticated by the Competent Authority in the State and therefore the Committee returned the proposal in present form as part of mine leas falls under CRZ. Then, the Project Proponent has submitted a fresh proposal for

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Terms of Reference along with the information sought by the EAC and accordingly the proposal was considered in the 18thEAC (Non-Coal Mining) meeting held during 31stJuly & 1stAugust, 2023. After detailed deliberations, the EAC deferred the proposal. The CRZ Division gave their comments on 03.09.2023 and the Project Proponent submitted the information on 19.10.2023 in Parivesh portal and accordingly the proposal was again reconsidered in the EAC meeting held during 14-15 November, 2023.

Based on observation of EAC in its EAC meeting held during 31stJuly & 1stAugust, 2023and compliance of observation of EAC made by Project Proponent are detailed below:

S. No	Observation of EAC in its meeting held on 31stJuly & 1stAugust, 2023	Reply by Project Proponent
1	The Ministry may seek comments from the CRZ Division in the Ministry in reference to the letter from the Forests & Environment Department, Govt. of Gujarat dated 21.10.2022 regarding opinion for CRZ-NOC for Rohisa Limestone Mine of M/s HeidelbergCement India Limited.	The CRZ Division gave their comments on 01.09.2023 as given below: i. As per para 3(x) of CRZ Notification 2011 Mining of sand, rocks and other sub-strata materials except, mining of Atomic Minerals notified under Part-B of the First Schedule of the Mining and Minerals (Development) Act, 1957 (67 of 1957) occurring as such or in association with one or other minerals and exploration and exploitation of Oil and Natural Gas, is prohibited in CRZ area. ii. As the record available in the file and EAC (NCM) noted Project Proponent has carried out the CRZ study conducted by the Institute of Remote Sensing, Anna University, Chennai and project activity falls in CRZ area and as per CRZ Notification it is prohibited activity. iii. The EAC opined that the Ministry may seek comments from the CRZ Division of the Ministry in reference to the letter from the Forests & Environment Department, Govt. of Gujarat dated 21/10/2022regarding the opinion for CRZ-NOC for Rohisa Limestone Mine of M/s Heidelberg Cement India Limited. iv. It is submitted that as already mentioned above the activity is prohibited as per CRZ Notification, however, it is requested the

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		Division concern may be provided a statutory document as per CRZ Notification para 4.2 i.e. 1:4000 scale map, SCZMA recommendation etc. for a complete examination of the project.
2	The Project Proponent needs to ensure that the depth of mining may be planned in such a way that the floor RL at any place should not be lower than the mean sea level in the modified mining plan submitted for approval.	The Project Proponent has submitted that as per Modified Mining Plan, there is no proposal for mining in CRZ area including its appropriate buffer. Also, aiming the prevention of sea water ingression, the ultimate pit depth in the non-CRZ area has been kept up to 0m AMSL only. The mineable reserves have also been estimated up to 0m AMSL only. It shall be ensured during course of mining that the excavation shall not be below 0m AMSL. The Project Proponent also submitted the relevant page of modified mining plan showing the above statement and conceptual cross sections.
3	The Project Proponent needs to submit the modified mining plan approved by Indian Bureau of Mines (IBM).	The Project Proponent has submitted that the Modified Mining Plan along with Progressive Mine Closure Plan was approved by Indian Bureau of Mines (IBM), Gandhinagar vide Letter No. MCDR-MPCPOCaFl/10/2023-GNR-IBM_RO_GNR MP-472 Mine Code: 38GUJ439001 dated 21.09.2023. It is also mentioned that no mining activity shall be carried out in CRZ zone and related zones as notified time to time, even in case of proposal made therein.
4	The Project Proponent needs to submit the copies of the letter wherein State DMG has mentioned that the CRZ area shall be kept as a non mining zone instead of surrendering it.	The Project Proponent has submitted that CRZ study has been conducted by the Institute of Remote Sensing, Anna University, Chennai. As per approved CZMP Map of Gujarat and Local Level Coastal Regulation Zone Map prepared by Institute of Remote Sensing, (IRS), Chennai GCZMA has confirmed that out of the total mine lease area i.e. 891.7185 ha, an area of 183.6332 ha falls under CRZ.

S. No	CRZ Classification	Area (in Ha)
A	CRZ - 1B	139.9037
B	CRZ – III (NDZ)	30.9217
C	CRZ – III (200 m to 500 m from HTL)	12.8078
I	Total Area falling in	183.6332

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		CRZ	
	II	Outside CRZ	708.0853
		Total	891.7185
		Source: CRZ Study Report prepared by IRS, Anna University, Chennai	

The Project Proponent also submitted that a request letter for dividing mining lease was submitted to the Commissioner-Geology & Mining, Govt. of Gujarat, vide letter no. HCIL/GM-AM/GML/2022/38, dated 11.07.2022. A letter dated 10.04.2023 was issued by the Commissioner of Geology &Mining, Gandhinagar stating that the Company shall not carry out any activities otherwise permissible as per CRZ Notification within area falling in CRZ without prior permission from the Competent Authority.

Again, a letter was submitted on 14.08.2023 to Commissioner of Geology & Mining, Gandhinagar for amending the above said letter dated 10.04.2023 as desired by the EAC in its meeting held on 31.07.2023.

Commissioner of Geology & Mining, Gandhinagar vide Letter no. CGM/Lease/ML/Heidelberg/2022-23/3774, dated 05.10.2023 had issued a letter stating that the Company shall not carry out any mining activities in the area falling in CRZ without prior permission of competent authority and such area shall be kept as a non-mining zone instead of surrendering it.

5	The Project Proponent needs to submit the existing soil salinity data of the Mine lease area i.e adjacent to CRZ, within CRZ and farthest from CRZ boundary.	The Project Proponent has submitted that Central Soil Salinity Research Institute (CSSRI) isin process to carry out the study regarding the soil salinity of the Mine lease area (i.e. adjacent to CRZ, within CRZ and farthest from CRZ boundary). The Project Proponent also submitted the correspondence made by CSSRI vide email dated 18.10.2023 regarding the methodology and work schedule of the study.

iv. Details of Mine Lease:

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a) Initially, the prospecting license was granted by the State Govt. on 31.05.2000over an area of 891.7185 Ha in Villages Rohisa, Balana and Vadhera of Taluka - Jafrabad of Dist. Amreli (Gujarat) in favour of M/s Indorama Cement Ltd.

b) Then, the Govt. of Gujarat vide its letter No. MCR-112005-987–CH-1 dated 08.02.2006 granted the Letter of Intent for grant of Mining lease for minerals Limestone and Marl over an area of 891.7185 Ha in favour of M/s Indorama Cement Ltd.

c) Pursuant to a Scheme of Amalgamation sanctioned by the Hon'ble High Courts of Bombay and Karnataka, Indorama Cement Limited was amalgamated with Mysore Cements Limited and the new entity was renamed as HeidelbergCement India Limited w.e.f. 16.04.2009. The same was intimated to the office of Deputy Secretary, Industry and Mines Department, Govt. of Gujarat requesting to take note and confirm the aforesaid change of name of the company so that permits and licenses required to set up an integrated Cement Plant can be obtained and also for incorporation of change of name of company in relevant records and documents. The process took its own time and ultimately the Govt. of Gujarat issued the order no. MCR-112005-ML 987-CHH-1 dated 10.01.2017 for grant of mining lease over an area of 891.7185 Ha in favor of M/s HeidelbergCement India Limited.

d) The mine lease deed was executed on 09.09.2020 and registered on15.09.2020 for the mineral Limestone and Marloveran area of 891.7185 Ha for a period of 50 years i.e.,upto 14.09.2070 in favor of M/s HeidelbergCement India Limited.

v. Land Use/Land Cover of the Mine Lease Area:

Private Agriculture land	526.1699 ha
Government land	292.6380 ha
Gauchar land	72.9106 ha
Forest land	-
Total Mining lease area (MLA), ha	891.7185 ha
Private land for crusher, workshop & other infrastructure outside the MLA	Crusher to be Installed in premises of Proposed Interlinked Cement Plant
Additional information (if any)	Total ML Area is 891.7185 out of which 183.6332 ha falls in CRZ &72.9106 ha is Gauchar land.

vi. Details of Mining Plan: -

Modified Mining Plan including Progressive Mine Closure Plan was approved by Indian Bureau of Mines	Letter No.	684 (4) (1)/MP-358/2021-22 GNR
	Date	01.09.2021
	Mineral & (Major/Minor)	Limestone (Major)

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	Mine Lease Area, Ha	891.7185
	Validity	2021-22 to 2024-25
Additional information (if any)	Mining Plan with Progressive Mine Closure Plan was approved by IBM vide COM (NZ) letter no.682(23)(452)/2006-Udai, dated 23.01.2006 in the name of Indorama Cement Ltd. Modified mining plan in the name of HeidelbergCementIndia Limited (HCIL) has been approved by IBM vide letter dated 684(4)(1)/MP-358/2021-22GNR dated 01.09.2021. Now, HCIL hassubmittedthe modification in the mining plan for further approval to IBM.	
Mining Parameters	Quantitative Description	
Method of Mining	Opencast Mechanized method	
Drilling/Blasting	No drilling & blasting is involved. The mineral will be mined by deploying surface miners, dumpers, bulldozer, and excavators/loaders.	
Geological Reserves	230.438 Million Tonnes	
Mineable Reserves	100.679 Million Tonnes	
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Limestone: 3.0 Million TPA Top Soil: 0.147 Million TPA Total Excavation: 3.147 Million TPA	
Life of mine	~34 years (Based on the future exploration life of mine may change)	
Mine Bench Height & Bench Width	Bench Height: 6 m Bench Width: 12 m	
No. of Mine Benches	5	
Existing Depth, m bgl	This is proposed mine	
Ultimate Depth of Mining, m bgl	26 m BGL	
Ground Water Table, m bgl	26 m BGL	
Details of ground water intersection	This proposal is for Terms of Reference (ToR). Details will be incorporated in EIA/EMP Report	
Individual bench slope	75°	
Overall pit slope	45°	
Details of existing/ proposed Crusher	Crusher to be installed in premises of proposed Interlinked Cement Plant	
Mineral Beneficiation	Mineral Beneficiation is not involved.	
RoM output size	-80 mm	
Transportation details including capacity of dumper/tipper, mode of transport and distance	The mined materials will be dozed and fed to a hopper located at mines using dumpers from where the material will be conveyed to the Cement Plant via covered conveyor belt.	
Generation of Topsoil/OB & its Management during plan period &	During Plan Period About 0.147 Million Tonnes of top soil will be	

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conceptual period	generated which will be simultaneously used for the greenbelt/plantation purpose. At Conceptual Stage About 5.5 Million Tonnes oftop soil to be generated which will be used in Greenbelt/plantation.
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	None

vii. Water requirement:

Total water requirement	150 KLD	Fresh water	142 KLD
		Treated water	8 KLD
Source	Desalination Plant (will be installed with Cement Plant) & from mine sump		
Permission for withdrawal/ intersection along with details of grant and its validity	This proposal is for Terms of Reference (ToR). Details will be incorporated in EIA/EMP Report.		

viii. Nearest village/town/ highway/interstate boundary/railway station/water bodies/monument/ forest

Particulars	Particular's Name	Distance & Directions
Village	Balana	Adjacent in ENE direction
	Vadhera	~200 m in ENE direction
	Rohisa	Surrounded by ML
	Dharabander	~0.7 km in WNW direction
	Khatrivada	~1.0 km in ENE direction
Town	Jafrabad	~5.0 km in ENE direction
Highway	SH 34	~0.3 km in ENE direction
	SH 90	~0.3 km in ENE direction
	NH 51	~5.0 km in NW direction
	SH 104	~3.5 km in SW direction
Interstate Boundary	None	-
Railway Station/Railway line	Una Railway Station	~20 km in West direction
Water Bodies	Arabian Sea	In South direction
	Bhatia Nadi	Adjacent in WNW direction
	RawalNadi	~1.0 km in WSW direction
	RupanNadi	~1.5 km in WNW direction
	Malan Nadi	~3.0 km in WNW direction
	Jafrabad Creek	~6.0 km in ENE direction
	RaidiNadi	~7.5 km in ENE direction
Forest	RF	Adjacent in SW direction
	RF	~8.5 km in SW direction
	RF	~8.5 km in ENE direction

ix. Presence of Environmentally Sensitive areas in the study area:

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<table>
<tr><td>Forest Land/Protected Area/Environmental Sensitivity Zone</td><td>Yes/No</td><td>Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks</td></tr>
<tr><td>Forest Land within the mine lease area and (if yes) status of Forest Clearance</td><td>No</td><td>The Project Proponent has obtained the letter from the Office of the Principal Chief Conservator of Forests, Gandhinagar vide dated 04.04.2022 stating that no forest land is involved in the project.</td></tr>
<tr><td>National Park</td><td>No</td><td rowspan="4">Project Proponent reported that no National Park, Wild Life Sanctuaries, Biosphere Reserves, Tiger Reserves, Wildlife Corridors, etc. falls within 10 km radius study area.

The Project Proponent has obtained the letter from the Office of the Principal Chief Conservator of Forests, Gandhinagar vide dated 04.04.2022 certifying that the distance between mining lease for mineral limestone of M/s Heidelberg Cement India Limited situated in Village: Rohisha, Balana and Vadhera, Area: 891.7185 ha. Dist: Amreli is 21.85 km away from the Gir Sanctuary. PP also submitted the map showing the distance of the forest area and Gir Wildlife Sanctuary from the mine lease area and which was authenticated by the Chief Wildlife Warden, Gandhinagar.</td></tr>
<tr><td>Wildlife Sanctuary</td><td>No</td></tr>
<tr><td>Elephant/Tiger Reserve</td><td>No</td></tr>
<tr><td>Eco-Sensitive Zone (ESZ)/Eco-Sensitive Area (ESA)</td><td>No</td></tr>
<tr><td>Coastal Regulation Zone (CRZ)</td><td>Yes</td><td>The Project Proponent has submitted that the CRZ study has been conducted by the Institute of Remote Sensing, Anna University, Chennai. As per approved CZMP Map of Gujarat and Local Level Coastal Regulation Zone Map prepared by Institute of Remote Sensing, (IRS), Chennai GCZMA has confirmed that out of the total mine lease area i.e. 891.7185 ha, an area of 183.6332 ha falls under CRZ.
<table>
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<tr><td></td><td>Source: CRZ Study Report prepared by IRS, Anna University, Chennai</td><td></td></tr>
</table>
The Project Proponent also submitted that the</td></tr>
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		Commissioner of Geology & Mining, Gandhinagar vide letter no. CGM/Lease/ML/Heidelberg/2022–23/848 dated 10.04.2023 has mentioned that an area of 183.6332 ha falls within the mine lease area under various categories of Coastal Regulation Zone. So, as mentioned in letter dated 21.10.2022, Director (Environment) & MS, GCZMA, GOI, the company shall not carry out any activities otherwise permissible as per CRZ notification within area falls in CRZ without prior permission of Competent Authority.

x. Green belt/Plantation details:

Proposed area for green belt/plantation and no. of saplings proposed	Total Greenbelt/Plantation: 136.31 ha Greenbelt (7.5 m): 22.10 ha Plantation: 114.21 ha (3.56 ha on Bench Plantation & remaining 110.65 ha on unworked area, Road side, safety zone). No. of Saplings Proposed: 3,40,775
Budget for green plant & plantation till the end of life of mine.	Rs. 6.81 Crore
Budget for nursery	Rs. 10 Lakh
Details of existing plantation and its survival rate	Survival Rate will be maintained 95%
No. of tree cuts in the mine lease area and compensatory afforestation	250 trees will be cleared
Particulars for Green belt/plantation	Area covered (In Ha)
7.5 m barrier & non-mineralized zone	22.10ha
50 m safety zone of nallah, roads, electric lines	2.74 ha area to be covered along the roads out of 110.65 ha total plantation

xi. Rehabilitation & Resettlement (R&R):

R & R details	The Project Proponent has submitted that the land will be purchased directly from the land owners on willing buyer willing seller basis. Adequate compensation based on mutual negotiations will be paid for the land, standing crop and any other infrastructure affected by the procurement of land. No. of Villages: 3 No. of Project Affected Families: 350 No. of Project Displaced Families: 104 Detailed R & R study is yet to be carried out.

xii. Court case details:

Court Case, No and its present status	The Project Proponent has reported that there is no court case pending against the project.

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Undertaking by Project Proponent w.r.t court case	The Project Proponent has submitted an undertaking vide letter dated 23.06.2023 stating that there is no litigation pending against the project and/or any direction/order passed by any Court of Law against the project and/or land in which the project is proposed and that for any such litigation whatsoever, the sole responsibility will be borne by the Company.

xiii. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent has submitted an affidavit in a non-judicial stamp paper of Rs 100 bearing no: BK 485498 dated 24.06.2023 stating that the company hereby undertakes by affidavit to comply with all the statutory requirement & judgment of Hon'ble Supreme court dated 2ndAugust 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India &Orsbefore grant of ToR/EC.

xiv. Details of project cost and employment:

Particulars	(Rs. In Crore)
Project Cost	Rs. 70 Crores
Employment (Nos)	91 Persons

3. Observation and Recommendation of the EAC: -

The Project Proponent/Consultant presented the KML to show the site features in the study area. The EAC deliberated on the additional details submitted by the Project Proponent and the Consultant. The EAC noted the comments given by the CRZ Division on 01.09.2023. The Project Proponent has shown the area of 183.6332 ha falls under CRZ and informed the EAC that no mining will be undertaken in CRZ area. The EAC asked the Project Proponent about the distance of the International Boundary and seaboard frontier. The Project Proponent has informed the EAC that the India-Pakistan International Boundary is located at a distance of about 370 km, N and the mine lease area is 12 nautical miles away from the seaboard frontier. The EAC reiterated the Ministry of Defence letter dated 08.05.2023 regarding security considerations for construction activities/other activities in Border areas/other areas wherein it has been mentioned that *"all activities connected with mining within 20kms from all the borders including seaboard frontier should be planned in consultation with Ministry of Defence".*

The Project Proponent also informed the EAC that there is no proposal for mining in CRZ area including its buffer. The mineable reserves have also been estimated up to 0m AMSL only and it will be ensured that during course of mining that the excavation

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will not be below 0m AMSL. The above statement is also included in the modified mining plan. Further, the Project Proponent has informed the EAC that the Modified Mining Plan along with Progressive Mine Closure Plan was approved by Indian Bureau of Mines (IBM), Gandhinagar vide letter dated 21.09.2023. The Project Proponent also informed the EAC that Commissioner of Geology & Mining, Gandhinagar videletter dated 05.10.2023 had issued a letter stating that the Company shall not carry out any mining activities in the area falling in CRZ without prior permission of competent authority and such area shall be kept as a non-mining zone instead of surrendering it. The Central Soil Salinity Research Institute (CSSRI) is in process to carry out the study regarding the soil salinity of the Mine lease area (i.e. adjacent to CRZ, within CRZ and farthest from CRZ boundary) and the same will be submitted in the EIA/EMP report. The EAC asked the Project Proponent about the land acquisition plan. The Project Proponent has informed the EAC that the land will be purchased directly from the land owners on willing buyer willing seller basis. Initially, mining will be carried out in the Govt. land and then the Private land will be purchased. The EAC asked about the location of the crusher. The Project Proponent has informed the EAC that crusher is proposed to be installed in the Cement Plant.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC in its meeting held during 14-15 November, 2023 under the provisions of EIA Notification, 2006 and subsequent amendments therein, **recommended** the proposal for grant of Terms of Reference (ToR) subject to submission of No Objection Certificate(NOC) from Ministry of Defence for Rohisa Limestone Mine of M/s HeidelbergCement India Limited with Limestone Production Capacity 3.0 Million TPA, Top Soil 0.147 Million TPA (Total Excavation: 3.147 Million TPA) in the mine lease area of 891.7185 ha, located at Villages: Rohisa, Balana and Vadhera, Taluka: Jafrabad, District: Amreli, Gujaratfor undertaking detailed EIA/EMP study subject to the following specific conditions in addition to the standard ToR conditions and applicable for non-coal mining projects:-

i. The Project Proponent needs to submit the Cost Benefit analysis comparing the current agricultural production and annual turnover including the cost and the benefits drawn by the local villages vis-a-vis the mineral cost and beneficiaries at the time of submission of EC proposal.

ii. The Project Proponent needs to submit the existing soil salinity data of the Mine lease area i.e adjacent to CRZ, within CRZ and farthest from CRZ boundary.

iii. The Project Proponent needs to submit the map and the details regarding alternate land for grazing land and also its protection measures.

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iv. The project proponent needs to submit 1:4000 scale map of the mine lease location and its 10 km radius.

v. The Project Proponent needs to submit the distance of the Ultimate Pit Limit from the School and Habitations along with their mitigation measures to protect it from the mining activity. The Project Proponent also needs to submit the details of strength of school.

vi. The Project Proponent should prepare the EMP considering the scenario of pollution to be generated for normative and peak total excavation for assessing air pollution, noise level and ground vibration due to movement of HEMM.

vii. The Project Proponent shall monitor the water quality in the impact zone such as water reservoir, river water with specific reference to the parameter Langelier Saturation Index which will denote the impact of calcium carbonateson water bodies and these parameters and determine the tendency of water to form calcium carbonate scaling.

viii. The Project Proponent needs to monitor the ambient air quality and noise level at the mine lease boundary, nearest village, predominant downwind direction and at other sensitive receptors. Accordingly, Project Proponent shall propose to install Continuous Ambient Air Quality Monitoring Station within certain timeline.

ix. The Project Proponent needs to undertake the enumeration of the species within the mine lease area before cutting. The Project Proponent also needs to submit the compensatory afforestation plan for the no. of trees to be cut in the mine lease area.

x. The Project Proponent needs to carry out the Public Hearing as per provisions of EIA Notification, 2006. PP should also submit the time bound action plan on concerns of the public through a separate budget with capital expenditure with a timeline of 3 years. The Project proponent shall ensure that the activities proposed under the public hearing shall be different from the CSR activities.

xi. The Project Proponent needs to increase the no. of saplings proposed. The Project Proponent also needs to submit the action plan for undertaking the plantation along the 7.5m barrier, safety zone of nallah, village road, electric line etc., PP should also submit the details no of saplings to be planted, type of saplings proposed and the area to be covered under greenbelt/plantation along

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with the timeline and budget. The greenbelt/plantation plan shall be prepared in such a way that the ecology of the area shall be restored.

xii. The Project Proponent shall carry out the assessment of impact due to the proposed project as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP. The project proponent shall conduct hydrological study for projects involving intersection of ground water table as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.

xiii. The Project Proponent shall explore the possibility of reduction of specific water requirement by optimization / technology up gradation, etc. The efforts shall be delineated in the EIA/EMP.

xiv. The Project Proponent shall prepare the scheme for mandatory recycle/re-use of water as specified by the Central Ground Water Authority for different category areas seeking NoC for ground water withdrawal and the shall submit as part of EIA/EMP report.

xv. The Project Proponent shall conduct drone survey of the mine lease area and buffer area and submit during the appraisal for EC.

Day 2: 15th November, 2023 (Wednesday)

2.1 Gothra Parasrampura West Limestone Mine Block' of M/s ACC Ltd for mining of Limestone with production capacity of 1.0 MTPA of Limestone & 1.57 MTPA of Overburden including Topsoil (Total excavation: 2.57 MTPA) in the mine lease area of 287.7539 ha, located at Gothra Village, Navalgarh Taluk, Jhunjunu District, Rajasthan – [F.No: IA-J-11015/ 36/2023-IA.II(NCM), Proposal No: IA/RJ/MIN/449491/2023; EIA Consultant: M/s Ecomen Laboratories Pvt. Ltd] – Terms of Reference

The instant proposal is for mining of Limestone in Gothra Parasrampura West Limestone Mine Block' of M/s ACC Ltd with production capacity of 1.0 MTPA of Limestone & 1.57 MTPA of Overburden including Topsoil (Total excavation: 2.57 MTPA) in the mine lease area of 287.7539 ha, located at Gothra Village, Navalgarh Taluk, Jhunjunu District, Rajasthan.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

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i. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mining lease area is greater than 250ha and accordingly, appraised at the Central level.

ii. The mine lease area is located between Latitude: 27°46'10.8821"N to 27°47'17.9410"N and Longitude: 75°19'44.8420"E to 75°21'10.1965"E. The mine lease area falls under the Survey of India Toposheet No: 45M/5.

iii. Details of Mine Lease:

S. No.	Prospecting License/Letter of Intent (LoI)/ Grant of Mine lease and Lr No	Date of the grant	Name of the Mineral & (Major/Minor)	Period of Grant	Granted by	Mine lease area in Ha
1.	Letter of Intent for grant of mining lease vide Lr.No: P.2(28)Khan/Group-2/2022,	18.11.2022	Limestone	2 years	Govt. of Rajasthan	287.7539 Ha.

iv. Land Use/Land Cover of the Mine Lease Area:

Private land	267.036Ha
Government land	20.7179Ha
Forest land	Nil
Total Mining lease area (MLA)	287.7539 Ha.
Private land for crusher, workshop & other infrastructure outside the MLA	-

v. Mining Plan details:-

a) The Project Proponent has submitted that the Mining Plan along with the Progressive Mine Closure Plan was approved by Indian Bureau of Mines vide Lr.No. MCDR-MPCOLST/7/2023-AJM-IBM-RO-AJM dated 30/05/2023 over an area of 287.7539 ha for 05 years period from the date of execution of the mining lease.

b) The method of mining will be opencast mechanized mining with deep hole drilling and blasting.

c) Total Mineral Reserves is estimated as 6,92,98,009.95 Tonnes and Minerals Resources estimated as 16,31,62,054.12 Tonnes. Life of the mine is estimated as 69 years based on current exploration.

d) The mine benches will be formed with a bench height of 8m and bench width of 8m.

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e) During the first five years of the Mining Plan period, a total of 50,67,369.00 Tons of waste will be generated which will be stacked at the predefined place as per the approved Mining Plan. The top soil generated will be stacked and preserved at the earmarked places and will be utilized for the afforestation.

f) Hydraulic excavators will be deployed to load the blasted limestone into the dump trucks. The loaded limestone will be fed to the crusher. Crusher location is still undecided and it may be decided at later stage.

vi. The total requirement of water will be around 75 KLD which will be sourced from existing pit rain harvested water and well water.

vii. The Project Proponent has submitted that the part of Village Basawa falls in the western part of block area upto almost 200m inside the area and village Nehron ki Dhani also observed in the southern part of the area up to 100 m within the area. PWD road from village Baswa to Chaurhani passes through Block area. State Highway SH-25B passes through Block Area in NW part of block area. There are 3 nos of existing old abandoned quarries with a broken up area of 2.89 Ha in the subject area of auctioned mining block as per the field observation.

viii. The Project Proponent has submitted that there is no forest land involved in the mine lease area. There is no national park/wildlife sanctuary/biosphere reserve/tiger reserve/elephant reserve/coastal zone/archaeological site/historical places in the core (Block) and buffer zone (10 km radius of the block).

ix. The Project Proponent has submitted that the instant proposal does not envisage Rehabilitation and Resettlement (R&R).

x. The Project Proponent has submitted that there is no litigation pending against the project and/or land in which the project is proposed to be set up.

xi. The Project Proponent has submitted that the total cost of the project is Rs 134.17 Cr. About 185 persons (Direct: 85 persons + Indirect: 100 persons) will get employment.

3. Observation and Recommendation of the EAC:

The Project Proponent/Consultant presented the KML file to indicate the site features in the mine lease area and in the study area of 10 km radius. The Project Proponent has shown the boundary of the mine lease area. The Project Proponent has informed the EAC that the State Highway (SH) 25Band public road from Village Baswa to Chaurhani passes through the mine lease area. There will be no diversion of public road.There are two villages on western direction and the other on southern direction are partly located within the mine lease area. The total mine lease area is 287.7539 Ha, out of which Private land is 267.036Ha and Govt. land is 20.7179Ha. The Project Proponent has also shown the patches of the Private land and Govt. land within the mine lease area. A school is located in the western side of the mine lease area. No National Park, Wildlife Sanctuary, ESZ/ESA located within 10 km radius of the study area.

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The Project Proponent has informed the EAC that the mining activity will start from south eastern part of the mine lease area and will progress towards south western side of the mine lease area. As on date, G2 level exploration has been completed. G2 level exploration will be converted into G1 level exploration within 1st five years of plan period. The EAC asked the Project Proponent about the mineral transportation route. The Project Proponent has informed the EAC that the transportation route is not yet decided and will be decided in due course time depending upon the location of the cement plant. Till then, the material will be utilized in the sister plants in and around Rajasthan by and will be transported by road to a distance of about 250 – 300 km. Further, the Project Proponent has informed the EAC that there are three old pits over an area of 2.89 ha existing in the mine lease area and these pits were in existence before the mine lease area was put up for auction. These are shallow pits created by the local people for construction of road. Agricultural activities are being taken place in the mine lease area. The Project Proponent also informed that there is an another mine lease located adjacent to the instant mine lease sharing the common boundary of the mine lease area. In future, mining will be done in common boundary after obtaining statutory permission and agreement with the adjacent lease holder (M/s Dalmia Cement (Bharat) Ltd).

The Project Proponent has informed the EAC that the northern part of the mine lease area is non-mineralized zone. Dumps will be located in the non-mineralized zone. The EAC noted that to reach the waste dump, the Project Proponent has to cross the public road. The Project Proponent has informed the EAC that the road will be shifted in appropriate time or an underpass will be constructed for safe movement of material. The EAC observed that the Project Proponent has given two statements regarding the shifting of the public road. The EAC asked about the presence of Schedule-I species in the study area. The Project Proponent has informed the EAC that as of now reconnaissance survey has been carried out and no Schedule-I species reported. A detailed study will be covered in the EIA/EMP report. The EAC opined that the Project Proponent needs to carry out the enumeration of flora within the mine lease area before getting approval for tree cutting. The EAC asked the Project Proponent about the status of the R&R plan, since the land is not in possession with the Project Proponent, how the Project Proponent will ensure that the mining activity will take place. The Project Proponent has informed the EAC that the discussion with the local people for negotiation has been started and it is under process. The EAC was of the view that what will be scenario, if the land owners do not agree to give their lands.

The EAC noted that as per Common Application Form and as per approved mining plan, crusher is not a part of the proposal and whereas in Prefeasibility report, it has been mentioned that the crusher will be constructed at the time of execution of mine lease and the location of the crusher may be decided at a later stage. Further, cost of

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the crushing plant is also included in the Project Cost of Rs 134.17 Cr. The EAC was of the view it is not clear whether the Project Proponent is proposing to install a crusher within the mine lease area or not. The Project Proponent has informed the EAC that an area of 101 ha will remain unutilized at the conceptual stage. In this regard, the EAC noted that in Prefeasibility report submitted by the Project Proponent, it has been mentioned that an area of 96.7539 ha will remain unutilized. The statements made by PP were contradictory. The EAC was of the view that the Project Proponent needs to submit the exact pre and post land use plan as per approved mining plan. The Project Proponent has informed the EAC that the maximum production of 1.0 MTPA will be achieved in the 5th year. Mined out area will be partly rehabilitated and partly converted into water reservoir.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC observed that the Project Proponent has not yet decided the mineral transportation route. The EAC was of the view that atleast the Project Proponent should have come with the multiple options for transportation route and also the options for land acquisition with merits and demerits. The EAC noted that the Project Proponent/Consultant is not able to convince or justify the EAC about the mineral transportation route, need of a crusher, public road passing within the mine lease area and plan for land acquisition for determining the terms of reference. Based on the discussions held, the EAC **deferred** the proposal for want of following additional information: -

i. The Project Proponent needs to submit the map showing the mineral transportation route to destination along with the design of the road.

ii. The Project Proponent needs to clarify whether public road within the mine lease area will be diverted or an underpass will be proposed.

iii. The Project Proponent needs to submit the exact pre and post land use plan as per approved mining plan.

iv. The Project Proponent needs to clarify whether there is a requirement of crusher or not. Location of the crusher needs to be specified and transportation of crushed limestone to the required destination needs to be firmed up.

v. The Project Proponent needs to submit the distance of the school from the Ultimate Pit Limit, strength of the school and the sequence of year wise mining operation near the school.

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vi. The Project Proponent needs to submit the plan for acquisition of land with merits and demerits.

2.2 Proposed GothraParasrampura East Block (Auctioned Block) of M/s Dalmia Cement (Bharat) Ltd. with Limestone Production Capacity 3.0 Million TPA, OB 10.3191 Million TPA, Soil 1.271537 Million TPA (Total Excavation 14.590637 Million TPA) along with Installation of Crusher 1000 TPH with Screen/Wobbler in the mine lease area of 460.4006 ha, located at Villages: Devgaon, Shivnagar, Naya Parasrampura, Gothra, Chaudhani, Khojas & Bhojnagar, Tehsil: Nawalgarh, District: Jhunjhunu, Rajasthan – [F.No: :IA-J-11015/37/2023-IA.II(NCM), Proposal No: IA/RJ/MIN/446436/2023; EIA Consultant: M/s JM EnviroNet Pvt. Ltd] – Terms of Reference (ToR)

The instant proposal is for mining of Limestone in Gothra Parasrampura East Block (Auctioned Block) of M/s Dalmia Cement (Bharat) Ltd. with proposed Limestone Production Capacity of 3.0 Million TPA, OB 10.3191 Million TPA, Soil 1.271537 Million TPA (Total Excavation 14.590637 Million TPA) along with installation of Crusher 1000 TPH with Screen/Wobbler in the mine lease area of 460.4006 ha, located at Villages: Devgaon, Shivnagar, Naya Parasrampura, Gothra, Chaudhani, Khojas & Bhojnagar, Tehsil: Nawalgarh, District: Jhunjhunu, Rajasthan.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mining lease area is greater than 250ha and accordingly, appraised at the Central level.

ii. The mine lease area is located between Latitude: 27°47'59.3189"N to 27°46'32.9662"N and Longitude: 75°20'50.0430"E to 75°23' 05.7004"E. The mine lease area falls under the Survey of India Toposheet No: G43D5 and falls in Seismic Zone-II.

iii. Details of Mine Lease:

S. No.	Prospecting License/Letter of Intent (LoI)/ Grant of Mine lease and Lr No	Date of the grant	Name of the Mineral & (Major/Minor)	Period of Grant	Granted by	Mine lease area in Ha
1.	Letter of Intent was issued vide	08.03.2023	Limestone	2 Years Valid upto 07.03.2025	Directorate of Mines & Geology,	460.4006

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	letter No. P.2(27) Khan/Group-2/2022				Mines and Petroleum Department, Govt. of Rajasthan	

iv. Land Use/Land Cover of the Mine lease area:

Private land	438.9386 ha
Government land	13.0505 ha
Grazing Land	8.4115 ha
Forest land	-
Total Mining lease area (MLA)	460.4006 ha
Private land for crusher, workshop & other infrastructure outside the MLA	-
Additional information (if any)	1000 TPH Capacity of Crusher to be installed within the ML

Pre-mining Land Use	Area in Ha as per revenue record	Remarks
Private Khatedari Land	438.9386	Scattered Houses/structure & trees/shrubs exist on Pvt. Agricultural land
Grazing Land	8.4115	Falls in Village Shivnagar (8.1333Ha) containing majority of consolidated habitation of BhilonkiDhani and Village NayaParasrampura (0.2782Ha). DCBL has proposed to surrender upon lease execution.
Government Waste Land	13.0505	Government Wasteland includes area under: • Linear public utilities /structure like Roads, electric lines, telephone lines etc. -3.04 ha • Area under temple, crematorium, Power Substation etc.- 3.4 ha • Settlements, temple, Degraded Pits & Excavations etc.
Settlements	--	Settlements/habitation is spread in patches over an area of ~7.5312 Ha. Habitations are mostly on Govt. Land and Charagah Land.
Degraded	--	7.57 Ha. Mostly in Govt. land

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	Pits & Excavation		including one ML of 1.942 ha held under ML no. 82/2000
	Total	460.4006	

v. Mining plan details:

Mining Plan including Progressive Mine Closure Plan was approved by Indian Bureau of Mines (IBM)	Letter No.	MCDR-MPC0LST/9/2023-AJM-IBM_RO_AJM
	Date	27.07.2023
	Mineral & (Major/Minor)	Limestone, (Major mineral)
	Mine Lease Area, Ha	460.40
	Validity	5 Years from the date of the Mine Lease Execution. Mining lease is yet to be granted and executed.
Mining Parameters	Quantitative Description	
Method of Mining	The proposed method of mining will be mechanized opencast method of mining with the use of HEMM with deep-hole drilling & blasting. It is proposed to mine with benches of 05 m height and 20m width for Overburden, 10m height and 30m width for Ore. The directions of movement of benches in south direction. Blast holes of 110-115 mm dia. are proposed to be drilled by using drill machine and blasting with ANFO with Booster charge bucket capacity excavation dumpers of 50 tonnes capacity and transported to wobbler & crusher combination for sizing.	
Drilling/Blasting	S. No.	Parameter / Description
	1	Bench Height: 10m
	2	DepthofBlasthole: 11m
	3	Burden: 4m
	4	Spacing: 6m
	5	Holediameter: 110-115mm
	6	Powder Factor: 8.5 Tonnes/Kg
Total Geological Resource	157.81 Million Tonnes	
Mineable Reserves	47.85 Million Tonnes	
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Limestone Production Capacity: 3.0 Million TPA OB - 10.3191 Million TPA Soil- 1.271537 Million TPA Total Excavation: 14.590637 Million TPA	
Life of mine	~22 years (Based on the proposed exploration life of mine may change)	
Mine Bench Height&Bench Width	Bench Height: 5 to 10 m Bench Width: 20 to 30m	

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No. of Mine Benches	16
Existing Depth, m bgl	This is proposed mine
Ultimate Depth of Mining, m bgl	114m BGL
Ground Water Table, m bgl	120 m BGL
Details of ground water intersection	Mining is proposed upto 114mbgl. The general ground water table will encounter at about 120 mbgl. Therefore, ground water regime will not be intercepted.
Individual bench slope	85°
Overall pit slope	45°
Details of existing/ proposed Crusher	Crusher of 1000 TPH capacity is proposed to be installed within the ML
Mineral Beneficiation	Screen/wobbler will be installed
RoM output size	75 mm
Transportation details including capacity of dumper/tipper, mode of transport and distance	Excavated limestone will be transported to crusher by dedicated road through 60 tonner dumpers. The crusher is proposed within the area. This block has been auctioned for non-captive use. Hence, initially it is proposed to sell Limestone to cement plants and end use industries as and when required by road and subsequently DCBL has proposal to set up its own cement plant nearby for which crushed limestone for captive consumption will be transported via covered conveyor belt. Limestone sale to end-users will be by road.
Generation of Topsoil/OB & its Management during plan period & conceptual period	During Plan Period: 0.43 Million tonnes of soil will be generated which will be used in Greenbelt/Plantation and 8.4 Million Tonnes of waste will be generated which will be utilized for formation of the bund along the various safety zones liked road, village etc. and also for road maintenance. Area earmarked for Top Soil stacking is 7.4 Ha and Overburden/Waste Dumping 30 Ha. At Conceptual Stage: 3.46 Million Tonnes ofsoil to be generated which will be used in Greenbelt/Plantation and 212.64 Million Tonnes of waste to be generated which will be used in same will be used for backfilling in 123.14 ha exploited pit area.
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	-
Additional information(if any)	Top soil generated will be used in

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	Greenbelt/Plantation. Waste/OB will be utilized for formation of the bund along the various safety zones liked road, village etc. and also for road maintenance and remaining is proposed to be used for backfilling of excavated area.

vi. Water requirement:

Total water requirement	75.0 KLD	Fresh water	60.0 KLD
		Treated water	15.0 KLD
Source	Ground water and Mine Sump water as when developed.		
Permission for withdrawal/intersection along with details of grant and its validity	This proposal is for ToR. Details will be incorporated in EIA/EMP Report.		

vii. Nearest village/town/ highway/interstate boundary/railway station/water bodies/ monument/forest:

Particulars	Particular's Name	Distance &Directions
Village	Minon Ki Dhani	Within the ML
	Shivnagar (Bhilon Ki Dhani)	Scattered Habitation Within the ML
	Devgaon	Scattered Habitation Within the ML
Town	Town: Nawalgarh	~ 9.0 km in NW Direction
	City: Sikar	~ 22.0 km in SW Direction
Highway	SH-25B	~ 1.8 km in West Direction
	SH-37	~ 8.5 km in East Direction
	SH-378	~ 9.0 km in SE Direction
	SH-8	~ 9.5 km in WNW Direction
Interstate Boundary	None	-
Railway Station/Railway line	Nawalgarh Railway Station	~12.0 km in NW Direction
Water Bodies	Udaipur Lohagarh Ki Nadi	~0.2 km in NE Direction
Forest	Shakambari Conservation Reserve/Raghunathgarh PF	~9.3 km in SE Direction

viii. Presence of Environmentally Sensitive areas in the study area:

Forest Land/Protected Area/Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	No	No forest land fall within the ML
National Park	No	There is no National Park, Wildlife Sanctuary, Elephant/Tiger
Wildlife Sanctuary	No	

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Elephant/Tiger Reserve	No	Reserves etc. within 10 km radius study area.
Eco-Sensitive Zone(ESZ)/Eco-Sensitive Area(ESA)	Yes	Shakambari Conservation Reserve Boundary starts at 9.3 km SE, Notified by Govt. of Rajasthan vide Notification P.3(16)Van/2009 dated 09.02.2012 in the Raghunathgarh PF area.
Coastal Regulation Zone (CRZ)	No	-
Schedule-I species (No.s and name of schedule-I species with authenticated letter)	-	-
Wildlife Conservation Plan	-	-

ix. Green belt/Plantation details:

Proposed area for green belt/plantation and no. of saplings proposed	Total Greenbelt/Plantation: 178.70 ha Greenbelt (7.5 m): 8.28 ha Plantation: 170.42 ha (123.14 ha on Backfilled area, 35.46 ha on Bench Plantation & 11.82 ha on Reclaimed area) No. of Saplings Proposed: 1,70,420 (considering 1000 trees/ha)
Budget for green plant & plantation till the end of life of mine.	Rs. 3.4 Crores
Budget for nursery	Rs. 10 Lakhs
Details of existing plantation and its survival rate	Survival rate will be maintained 70- 80%
No. of tree cuts in the mine lease area and compensatory afforestation	~500 trees will be cleared Compensatory Afforestation: Total 1,70,420trees will be Planted
Particulars for Green belt/plantation	Area covered (In Ha)
7.5 m barrier & non-mineralized zone	8.28 ha
50 m safety zone of nallah, roads, electric lines	~23.0 ha. of safety zone (50 m) along road is proposed
500 m safety zones of nearest habitation villages	-

x. Rehabilitation & Resettlement (R&R):

R & R details	Total mine lease area is 460.4006 ha comprises 438.9386 ha of Private land, 13.0505 ha of Government wasteland and 8.4115 ha of Grazing (Charagah) land. DCBL has following options for acquisition of land for its proposed mining project: ➢ Option 1: Acquire land falling in the mining lease area through provisions of LARR Act, 2013 and rules made thereunder. ➢ Option 2: Direct Purchase Mode: It is proposed to purchase the private agriculture Directly through mutual

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	agreement with the land holders at negotiated rates and terms and conditions. Basis of Land Compensation will be in line of the RFCTARR Act 2013 (Right to Fair Compensation, Transparency in land Acquisition and Rehabilitation & Resettlement) or similar acts of Govt. of Rajasthan/Rules made by Govt. of Rajasthan under LARR. Options may also be evaluated to obtained land on lease/rental directly from the land owners at mutually agreed terms & conditions. ➢ Option 3: Securing land by payment of the annual surface compensation under the provision of Sec. 24 of the MMDR Act, 1957 and Rule 51 of The MCR Rules, 2016. ➢ DCBL proposes to procure land under Option 3. As per Land Schedule the mine site falls under 7 Revenue Villages. Total Project Affected Families are 335 out of which about 60 families (from core zone) is likely to be displaced falling in the mineralized zone/minable area. Displacement will be done in a phased manner with the advancement of mining operation and adequately compensated at a mutually agreed price. These details may be changed after the detailed study of R&R survey. Charagah land is proposed to be surrendered at the time of execution and consolidated habitation of village Bhilonkidhani on Charagah land will not be disturbed.

xi. Court case details:

Court Case, No and its present status	No Court Case or Litigation is pending
Undertaking by Project Proponent w.r.t court case	The Project Proponent has submitted a undertaking vide letter dated 03.10.2023 stating that there is no litigation pending against the project and/or any direction/ order passed by any court of law against the project and that for any such litigation whatsoever, the sole responsibilities will be borne by the company.

xii. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent has submitted the Affidavit dated 03.10.2023 stating that the company will comply with all the statutory requirement & judgment of Hon'ble Supreme Court order dated 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India &Ors before grant of ToR/EC.

xiii. Details of project cost and employment:

Particulars	Budget (Rs. in Crores)
Project Cost	Rs. 250 Crores
Employment	85 persons

3. Observation and Recommendation of the EAC:

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The Project Proponent/Consultant presented the KML file to indicate the site features in the mine lease area and in the study area of 10 km radius. The Project Proponent has shown the common lease boundary of the instant mine lease area sharing with M/s Shree Cement Ltd on the northern side which is under operation and also with M/s ACC Ltd on the western side. The Project Proponent also shown the Cement Plant belonging to M/s Shree Cement Ltd. Further, the Project Proponent has informed the EAC that after execution of the mine lease deed, the matter regarding mining in common boundary will be taken up with the adjoining lease holders as per 106(2)(b) of the Metalliferous Mines Regulations, 1961. Accordingly, amendment in EC will be obtained in future. Udaipur Lohagarh Ki Nadi is flowing adjacent to the mine lease area i.e., 200m on the eastern side. The nadi is mostly dry and water is observed during only in monsoon season. Raghunathgarh PF is located at a distance of about 9.5 km, SE from mine lease area. No water bodies present within the mine lease area. There were 6 old pits over an area of 1.942 ha existed within the mine lease area. The Project Proponent also informed the EAC that the State Govt. during the auction has informed that the old excavated areas shall be excluded during the grant of mining lease and accordingly mining plan was prepared by excluding the area of 1.942 ha and the same was approved by Indian Bureau of Mines vide letter dated 27.07.2023.

Further, the Project Proponent has shown the 7.5m barrier all around the mine lease boundary. The Project Proponent has also shown the two patches of the Charagah land, Govt. land and crematorium ground within the mine lease area and informed the EAC that the Charagah land of 8.4115 ha will be surrendered upon execution of the mine lease deed. The Project Proponent also informed the EAC that there are village roads passing through the mine lease area. Existing roads are proposed to be diverted in future and discussions are happening with the local people. After that, the matter will be pursued with the State Govt. to provide an alternate road at the cost of the Project Proponent. High Tension Line passing from NE-SW direction of the area of the Block will not be disturbed during the mining operation as it is falling outside the proposed Ultimate Pit Limit (UPL). LT lines may be re-aligned outside the UPL, if required at the time during advancement of mining operations. Habitations are also existing within the mine lease area. Scattered Habitation of village Devgaon & Minon Ki Dhani falling within the UPL will be shifted.

The Project Proponent has informed the EAC that the G2 level exploration has been completed and within 1st three years of mining plan period, exploration program will be completed. Backfilling has been proposed to start in the 10th years as per current exploration program and may change subject to detailed exploration. The Project Proponent has shown the conceptual plan. The EAC noted that the Project Proponent has proposed to achieve maximum production of 3.0 MTPA in the 10th year. The production has been kept low considering the land acquisition process. However, the

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mining plan will be modified in future depending upon the progress of the land acquisition. At the conceptual stage, an area of 223.19 ha will be excavated, out of which 64.59 ha will be converted into water reservoir, 123.14 ha will be backfilled and an area of 35.46 ha will be developed under bench plantation. An area of 178.70 ha will be developed under Greenbelt & Plantation at Conceptual Stage. Topsoil will be utilized for greenbelt/plantation and OB/Waste generated during plan period will be utilized for formation of the bund along the various safety zones liked road, village etc. and also for road maintenance and during conceptual stage will be used for backfilling in 123.14 ha of exploited pit area.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC in its meeting held during 14-15November, 2023 under the provisions of EIA Notification, 2006 and subsequent amendments therein, **recommended** the proposal for grant of Terms of Reference (ToR) to M/s Dalmia Cement (Bharat) Ltd. for proposed Gothra Parasrampura East Block (Auctioned Block) with Limestone Production Capacity 3.0 Million TPA, OB 10.3191 Million TPA, Soil 1.271537 Million TPA (Total Excavation 14.590637 Million TPA) along with installation of Crusher 1000 TPH with Screen/Wobbler in the mine lease area of 460.4006 ha, located at Villages: Devgaon, Shivnagar, Naya Parasrampura, Gothra, Chaudhani, Khojas & Bhojnagar, Tehsil: Nawalgarh, District: Jhunjhunu, Rajasthan for undertaking detailed EIA/EMP study subject to the following specific conditions in addition to the standard ToR conditions and applicable for non-coal mining projects:-

i. The Project Proponent needs to submit the Biodiversity Conservation Plan to ensure no net loss to biodiversity (Shakambari Conservation Reserve: 9.3 km SE).

ii. The Project Proponent needs to submit the ecology restoration plan for mined out pits for using as Water reservoir/ Pisciculture as well as the plan for the backfilled area.

iii. The Project Proponent needs to submit the year wise sequence of mining operation and plan for backfilling.

iv. The Project Proponent shall monitor the water quality in the impact zone such as water reservoir, river water with specific reference to the parameter Langelier Saturation Index which will denote the impact of calcium carbonates on water bodies and these parameters and determine the tendency of water to form calcium carbonate scaling.

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v. The Project Proponent needs to submit the site specific measures to protect the surface features in the mine lease area and in the vicinity of the mine lease area and also to submit the map demarcating the surface features and their safety distances left as per mines acts and rules.

vi. The Project Proponent needs to submit the map showing the transport route of the mineral from the mine lease area to the destination, impact of details of habitation at a distance of 100m from the center on both sides of road, details of no. of trips/day to and fro, capacity of the dumper/tipper to be deployed and the dimensions of the road and the carrying capacity of the road.

vii. The Project Proponent needs to monitor the ambient air quality and noise level at the mine lease boundary, nearest village, crusher, predominant downwind direction and at other sensitive receptors. Accordingly, Project Proponent shall propose to install Continuous Ambient Air Quality Monitoring Station within certain timeline.

viii. The Project Proponent should prepare the EMP considering the scenario of pollution to be generated for normative and peak total excavation for assessing air pollution, noise level and ground vibration.

ix. The Project Proponent needs to carry out the cumulative impact assessment by considering all the mining activity of the proposed mine, existing mines, cement plant and other operating mines including the transport scenario in the study area and also should indicate the capacity of each mine considered for predication of air quality modeling. The control case and worst-case scenario needs to be demonstrated with controlling factor and GLCs values for all the pollutants needs to be clearly mentioned. The input parameters and data used for each activity of the modeling also needs to be submitted at the time of appraisal of EC.

x. The Project Proponent needs to carry out the Public Hearing as per provisions of EIA Notification, 2006. PP should also submit the time bound action plan on concerns of the public through a separate budget with capital expenditure with a timeline of 3 years. The Project proponent shall ensure that the activities proposed under the public hearing shall be different from the CSR activities.

xi. The Project Proponent needs to undertake the enumeration of the species within the mine lease area before cutting. The Project Proponent also needs to submit the compensatory afforestation plan for the no. of trees to be cut in the mine lease area.

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xii. The Project Proponent needs to submit the action plan for undertaking the plantation along the 7.5m barrier, safety zone of nallah, village road, electric line etc., PP should also submit the details no of saplings to be planted, type of saplings proposed and the area to be covered under greenbelt/plantation along with the timeline and budget. The greenbelt/plantation plan shall be prepared in such a way that the ecology of the area shall be restored.

xiii. The Project Proponent shall carry out the assessment of impact due to the proposed project as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP. The project proponent shall conduct hydrological study for projects involving intersection of ground water table as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.

xiv. The Project Proponent shall explore the possibility of reduction of specific water requirement by optimization / technology up gradation, etc. The efforts shall be delineated in the EIA/EMP.

xv. The Project Proponent shall prepare the scheme for mandatory recycle/re-use of water as specified by the Central Ground Water Authority for different category areas seeking NoC for ground water withdrawal and the shall submit as part of EIA/EMP report.

xvi. The Project Proponent needs to submit the detailed R&R plan covering all the components viz. number of Project Affected Families (PAF) and details of the land owned by them, break up of total compensation to be paid including method of calculation including the sources/references adopted and mode of payment etc. The Project Proponent needs to submit the plan for Socio economic development of the neighbourhood habitats based on the need based survey along with the time bound action plan. Further, PP needs to submit the possession certificate and timeline for acquiring the land at the time of submission of EC proposal.

xvii. The Project Proponent shall conduct drone survey of the mine lease area and buffer area and submit during the appraisal for EC.

2.3 Nahardih-Maghaipur Limestone Block of M/s. Nalwa Steel & Power Limited with Limestone production capacity of 1.5 Million TPA, Topsoil: 0.075 Million TPA, Over Burden: 0.88 Million TPA (Total Excavation: 2.45 Million TPA)along with

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mobile crusher of 400 TPH in the mine leasearea of 365.252 ha, located at Villages Pachari, Chhodia, Alesur, Maghaipur and Motimpur-Khurd, Tehsil: Kharora, District: Raipur, Chhattisgarh- [F.No: :IA-J-11015/38/2023-IA.II(NCM), Proposal No: IA/CG/MIN/449681/2023; EIA Consultant: M/s J.M. EnviroNet Pvt. Ltd.] – Terms of Reference (ToR)

The instant proposal is for mining of Limestone in Nahardih-Maghaipur Limestone Block of M/s. Nalwa Steel & Power Limited with Limestone production capacity of 1.5 Million TPA, Topsoil: 0.075 Million TPA, Over Burden: 0.88 Million TPA (Total Excavation: 2.45 Million TPA) along with mobile crusher of 400 TPHin the mine lease area of 365.252 ha, located at Villages Pachari, Chhodia, Alesur, Maghaipur and Motimpur-Khurd, Tehsil: Kharora, District: Raipur, Chhattisgarh.

2. The details of the project as ascertained from the document submitted by the Project Proponentand revealed from the discussions held during the meeting are given as under:

i. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mining lease area is greater than 250ha and accordingly, appraised at the Central level.

ii. The mine lease area is located between Latitude: 21°25'39.33"N to 21°25'58.70"N and Longitude: 81°57'39.33"E to 81°58'37.92"E. The mine lease area falls under the Survey of India Toposheet No: 64G/15 and falls in Seismic Zone-II.

iii. Details of Mine Lease:

S.no	Prospecting License/ Letter of Intent (LoI)/ Grant of Mine lease and Lr No	Date of the grant	Name of the Mineral & (Major/ Minor)	Period of Grant	Granted by	Mine lease area in Ha
1.	Letter of Intent (LoI) was issued through e-auction process conducted by the Govt. of Chhattisgarh.	04.08.2022	Limestone	3 years	Govt. of Chhattisgarh	365.252

iv. Land Use/Land Cover of the Mine Lease Area:

Private land	352.574 ha
Government land	12.678 ha (Grazing land: 3.211 ha)
Forest Land	-

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Total Mining lease area (MLA), Ha	365.252 ha
Private land for crusher, workshop & other infrastructure outside the MLA	No infrastructure is proposed outside the ML area.

v. Mining plan details:

Mining Plan including Progressive Mine Closure Plan was approved by Indian Bureau of Mines	Letter No.	RPR/Raipur/LST/1378/MP/2022-23
	Date	12.09.2023
	Mineral & (Major/Minor)	Limestone, (Major mineral)
	Mine Lease Area, Ha	365.252 ha
	Validity	5 years from the date of Mining Lease registration
Mining Parameters	Quantitative Description	
Method of Mining	Fully Mechanized Opencast Mining Method.	
Drilling/Blasting	Excavation will be done by mechanized opencast method using drilling and blasting. DTH drills and wet drilling will be used to develop ecofriendly mining. Diameter of the blast hole drill will be 150 mm. The blasting will be done by ANFO/SME/Slurry as column charge and slurry /cast booster explosive as booster charge. Controlled blasting will be practiced by using Nonel to reduce sound, ground vibration, back break, fly rock within the safe limit. Hydraulic rock breaker will be used for breaking oversized boulders in place of secondary blasting. All precautions for blasting and safety measures will be taken at the time of blasting and will be carried out by qualified/certified blaster.	
Geological Reserves	122.22 Million Ton (As on 01/04/2022)	
Mineable Reserves	85.11 Million Ton (As on 01/04/2022)	
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Total Excavation: 2.45 Million TPA Breakup of Total Excavation: 1. Limestone: 1.5 Million TPA 2. Top Soil: 0.075 Million TPA 3. Over Burden: 0.88 Million TPA	
Life of mine	60 years (As on 01/04/2022)	
Mine Bench Height & Bench Width	Bench height: 6.0 m (Maximum) Bench Width: 12 m (Minimum)	
No. of Mine Benches	6 benches at conceptual stage	
Existing Depth, m bgl	It's a greenfield project so not applicable.	
Ultimate Depth of Mining, m bgl	245 m AMSL (42 m bgl)	
Ground Water Table, m bgl	3- 5 m bgl	
Details of ground water intersection	Water table will be intersected during the working and necessary permission will be taken before intersecting ground water table.	

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Individual bench slope	80°
Overall pit slope	45°
Details of existing/ proposed Crusher	Mobile crusher of 400 TPH will be installed
Mineral Beneficiation	Nil
RoM output size	Nil
Transportation details including capacity of dumper/tipper, mode of transport and distance	Limestone will be transported from mine face to head by tippers via haul road and it will be transported to end users via Road and Rail.
Generation of Topsoil/OB & its Management during plan period & conceptual period.	Top Soil: ➢ Total 0.07 million cu m of top soil will be generated during plan period which will be used in green belt generation. At the conceptual stage top soil generated will be used for Greenbelt and plantation. Over Burden: ➢ During this Plan period, 0.46 million cu m Over burden will be Stacked at earmarked place and fully utilized for backfilling. ➢ Approx 12.56 million cu m of overburden will be generated during conceptual stage and at the conceptual stage, OB generated will be used for backfilling excavated area.
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	-

vi. Water requirement:

Total water requirement	110.0 KLD	Fresh Water	110.0 KLD
		Treated water	-
Source	Ground water and rain water collected in mine sump as and when developed		
Permission for withdrawal/ intersection along with details of grant and its validity	Permission will be taken from State Govt. for using Ground water.		

vii. Nearest village/town/ highway/interstate boundary/railway station/water bodies/monument/ forest

Particulars	Particular's Name	Directions
Nearest Village	Pachari Village	~0.2 km in NW direction
Nearest Town	Kharora	~6.0 km in SW Direction
Nearest State/National Highway	NH -130 B	~4.0 km in SSE direction

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Interstate Boundary	None	-
Railway Station/Railway line	Tilda Railway Station	~20 km in NW direction
Water Bodies	Tangna Nala	~3.0 km in North direction
	Kumhari Tank	~4.5 km in WNW direction
	Banjari Nala	~9.0 km in NW direction
	Chitawar Nala	~5.5 km in NNE direction
	Khorsi Nala	~5.0 km in ENE direction
	Mahanadi Canal (Lowan Branch)	~4.5 km in SE direction
	ahanadi Canal (Baloda Branch)	~100 m in SSW direction
	Kosrangi Tank	~6.5 km in SSE direction
	Pindron Tank	~8.0 km in SSW direction
	Pikridih Tank	~8.5 km in WSW direction
School	Govt. New Middle School Chhadiya	~350 m in SW direction
Forest	Khulidabri Protected Forest	~3.0 km West direction
	Moheranga PF	~8.5 km in WNW direction

viii. Presence of Environmentally Sensitive areas in the study area:

Forest Land / Protected Area / Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	No	Certificate/letter from the concerned Department will be obtained during EIA study.
National Park	No	Certificate/letter from the concerned Department will be obtained during EIA study.
Wildlife Sanctuary	No	
Elephant/Tiger Reserve	No	
Eco-Sensitive Zone (ESZ) /Eco-Sensitive Area (ESA)	No	
Coastal Regulation Zone (CRZ)	No	-
Schedule-I species (No.s and name of schedule-I species with authenticated letter)	-	This proposal is for ToR, study will be carried out, if schedule - I Will found in the study area Wildlife Conservation Plan will be prepared during the preparation of EIA/EMP Report.
Wildlife Conservation Plan	-	

ix. Green belt/Plantation details:

Proposed area for greenbelt/plantation and no. of saplings proposed	Total estimated greenbelt area on lease boundary will be 11.250 ha. and total area under plantation will be 86.424 ha (42.370 ha on backfilled area and 44.054 ha on undisturbed

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	area).
Budget for green plant & plantation till the end of life of mine.	Rs 9.5 Crore
Budget for nursery	N/A
Details of existing plantation and its survival rate	It's a greenfield project.
No. of tree cuts in the mine lease area and compensatory afforestation	106
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	11.250 ha

x. Rehabilitation & Resettlement (R&R):

R & R details	➢ Total mine lease area is 365.252 ha, out of which 352.574 ha is private land. ➢ Land will be purchased with negotiation and R&R provisions will be followed as per Central and State Government Rules & Notifications.

xi. Court case details:

Court Case, No and its present status	No Court Case or Litigation is pending
Undertaking by Project Proponent w.r.t court case	The Project Proponent has submitted a undertaking vide letter dated 16.10.2023 stating that there is no litigation pending against the project and/or any direction/ order passed by any court of law against the project and that for any such litigation whatsoever, the sole responsibilities will be borne by the company.

xii. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent has submitted the Affidavit bearing no: R835030 dated 19.10.2023 stating that the company will comply with all the statutory requirement & judgment of Hon'ble Supreme Court order dated 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India &Ors before grant of ToR/EC.

xiii. Details of project cost and employment:

Particulars	Budget (Rs. in Crores)
Project Cost	Rs. 300 Crores
Employment	96 persons

3. Observation and Recommendation of the EAC:

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The Project Proponent has informed the EAC that the instant mine was granted under auction and letter for grant of mining lease was granted by the State Govt. vide order dated 04.08.2022. Mining Plan was approved by Indian Bureau of Mines vide letter dated 12.09.2023. The total mine lease area is 365.252 ha, out of which Pvt land is 352.574 ha and Govt. land is 12.678 ha (including Grazing land of 3.211 ha). The Project Proponent/Consultant presented the KML file to indicate the site features in the mine lease area and in the study area of 10 km radius. The Project Proponent has shown the 11 KVA transmission lines within the lease area and informed that during the plan period, safety barriers will be left in both sides of transmission line and all the transmission line will be diverted progressively up to the conceptual stage. The Project Proponent also shown the roads passing through the mine lease area on northern side and on southern side and informed that during course of mining, roads will be diverted. A nalah passes within the central part of the mine lease area will be diverted. Mining activity will reach the nalah after 30th year. Mining is proposed to a depth of 42 m bgl. The depth of the nalah is less than 1m. The EAC opined that no nalah should not be disturbed/diverted. No habitations are within the mine lease area.

The Project Proponent has shown the year wise working plan in the KML file. Mining activity will start from the northern side of the mine lease area. Backfilling will be started in the 15th year. Waste Dump is proposed in the eastern side of the mine lease area and mobile crusher is proposed to be on the western side of the mine lease area during the mining activity on northern side and then will be shifted to on the eastern side as the mining activity progresses from north to south. The maximum land is a private land within the mine lease area and land will be purchased with negotiation.Grazing land of 3.211 ha exists within the mine lease area and an alternate land will be provided. An area of 25 ha has been already purchased outside the mine lease area. An alternate land for grazing will be provided within the area of 25 ha. Under 25 ha, a provision has also kept to provide land for land compensation. Purchasing of land is in process and already negotiation has been done with the local people for purchasing about 145 acres of land. The EAC opined that while purchasing the land, the Project Proponent needs to consider the area from which the mining activity will progress, location of crusher, waste dump etc.,

The Project Proponent has informed the EAC that schools are located adjacent to the mine lease area. The strength of the nearest school is 121. During initial 10 years of mining operation, the mining activity will be 500m away from the school. The Project Proponent also informed the EAC that it is a non-captive mine and the mineral will be transported byroad. A length of 2.5 km connecting to the Highway from the mine lease area will be developed as a separate road away from the village. The EAC opined that the Project Proponent needs to explore the possibility of utilizing the power from the solar energy. At the conceptual stage, an area of 309.948 ha will be excavated, out of

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which 267.578 ha will be converted into water reservoir and an area of42.370 ha will be backfilled. Topsoil generated during plan period will be used in green belt development and during conceptual stage will be spread over the backfilled area and also will be used in plantation. Over burden will be stacked at earmarked place and fully utilized for backfilling.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC in its meeting held during 14-15November, 2023 under the provisions of EIA Notification, 2006 and subsequent amendments therein, **recommended** the proposal for grant of Terms of Reference (ToR) to M/s. Nalwa Steel & Power Limitedfor Nahardih-Maghaipur Limestone Block with Limestone production capacity of 1.5 Million TPA, Topsoil: 0.075 Million TPA, Over Burden: 0.88 Million TPA (Total Excavation: 2.45 Million TPA) along with mobile crusher of 400 TPH in the mine lease area of 365.252 ha, located at Villages Pachari, Chhodia, Alesur, Maghaipur and Motimpur-Khurd, Tehsil: Kharora, District: Raipur, Chhattisgarh for undertaking detailed EIA/EMP study subject to the following specific conditions in addition to the standard ToR conditions and applicable for non-coal mining projects: -

i. The Project Proponent needs to submit the ecology restoration plan for mined out pits for using as Water reservoir/ Pisciculture as well as the plan for the backfilled area.

ii. The Project Proponent needs to submit the year wise sequence of mining operation and plan for backfilling.

iii. The Project Proponent shall monitor the water quality in the impact zone such as water reservoir, river water with specific reference to the parameter Langelier Saturation Index which will denote the impact of calcium carbonateson water bodies and these parameters and determine the tendency of water to form calcium carbonate scaling.

iv. The Project Proponent needs to monitor the ambient air quality and noise level at the mine lease boundary, nearest village, crusher, predominant downwind direction and at other sensitive receptors. Accordingly, Project Proponent shall propose to install Continuous Ambient Air Quality Monitoring Station within certain timeline.

v. The Project Proponent needs to submit the map and the details regarding alternate land for grazing land and also its protection measures.

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vi. The Project Proponent needs to submit the map showing the transport route of the mineral from the mine lease area to the destination, impact of details of habitation at a distance of 100m from the center on both sides of road, details of no. of trips/day to and fro, capacity of the dumper/tipper to be deployed and the dimensions of the road and the carrying capacity of the road.

vii. The Project Proponent should prepare the EMP considering the scenario of pollution to be generated for normative and peak total excavation for assessing air pollution, noise level and ground vibration.

viii. The Project Proponent needs to submit the site specific measures to protect the surface features in the mine lease area and in the vicinity of the mine lease area and also to submit the map demarcating the surface features and their safety distances left as per mines acts and rules.

ix. The Project Proponent needs to carry out the Public Hearing as per provisions of EIA Notification, 2006. PP should also submit the time bound action plan on concerns of the public through a separate budget with capital expenditure with a timeline of 3 years. The Project proponent shall ensure that the activities proposed under the public hearing shall be different from the CSR activities.

x. The Project Proponent needs to explore the possibility of utilizing the power from the solar energy.

xi. The Project Proponent needs to submit the action plan for undertaking the plantation along the 7.5m barrier, safety zone of nallah, village road, electric line etc., PP should also submit the details no of saplings to be planted, type of saplings proposed and the area to be covered under greenbelt/plantation along with the timeline and budget. The greenbelt/plantation plan shall be prepared in such a way that the ecology of the area shall be restored.

xii. The Project Proponent shall carry out the assessment of impact due to the proposed project as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP. The project proponent shall conduct hydrological study for projects involving intersection of ground water table as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.

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xiii. The Project Proponent shall explore the possibility of reduction of specific water requirement by optimization / technology up gradation, etc. The efforts shall be delineated in the EIA/EMP.

xiv. The Project Proponent shall prepare the scheme for mandatory recycle/re-use of water as specified by the Central Ground Water Authority for different category areas seeking NoC for ground water withdrawal and the shall submit as part of EIA/EMP report.

xv. The Project Proponent needs to submit the detailed R&R plan covering all the components viz. number of Project Affected Families (PAF) and details of the land owned by them, break up of total compensation to be paid including method of calculation including the sources/references adopted and mode of payment etc. The Project Proponent needs to submit the plan for Socio economic development of the neighbourhood habitats based on the need based survey along with the time bound action plan. Further, PP needs to submit the possession certificate and timeline for acquiring the land at the time of submission of EC proposal.

xvi. The project proponent needs to look into the diameter of the drill holes and spacing burden in respect with the bench height.

xvii. The Project Proponent needs to submit the layout of crusher plant and measures to be adopted to reduce dust and noise.

xviii. The Project Proponent shall conduct drone survey of the mine lease area and buffer area and submit during the appraisal for EC.

2.4 Limestone mining project of M/s Mangalam Cement Ltd for proposed production capacity of 32,08,690.3 TPA (ROM) Saleable Limestone: 29,69,287.5 TPA, Top Soil: 2,39,402.8 TPA in the mine lease area of 323.332 ha, located near Village- Kathiya - Pachri, Tehsil- Tilda, District- Raipur, Chhattisgarh – [F.No: IA-J-11015/35/2023-IA.II(NCM), Proposal no: IA/CG/MIN/444676/2023; EIA Consultant: M/s Cognizance Research India Private Ltd.] – Terms of Reference (ToR)

The instant proposal is for Limestone mining project of M/s Mangalam Cement Ltd for proposed production capacity of 32,08,690.3 TPA (ROM) Saleable Limestone: 29,69,287.5 TPA, Top Soil: 2,39,402.8 TPA in the mine lease area of 323.332 ha, located near Village- Kathiya - Pachri, Tehsil- Tilda, District- Raipur, Chhattisgarh.

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2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mining lease area is greater than 250ha and accordingly, appraised at the Central level.

ii. The mine lease area is located between Latitude: 21°27'27.50766"N to 21°28' 21.22912"N and Longitude: 81°54'57.38042"E to 81°56'52.53573"E. The mine lease area falls under the Survey of India Toposheet No: 64G/15 and falls in Seismic Zone-II.

iii. Details of Mine Lease:

Sr. No	Prospecting License/ Letter of Intent (LoI)/ Grant of Mine lease and Lr No	Date of the grant	Name of the Mineral&(Major /Minor)	Period of Grant	Granted by	Mine lease area in Ha.
1	LoI No- F 3-04/2021/12, Nava Raipur, Atal Nagar,	04/08/2022	Limestone (Major Mineral)	3 Years	Joint Secretary Chhattisgarh Government Mineral Resources Department New Raipur	323.332

iv. Land Use/Land Cover of the Mine Lease Area:

Private land	250.647 Ha.
Government land	72.685 Ha.
Forest land	Nil
Total Mining lease area (MLA), ha	323.332 Ha.
Private land for crusher, workshop & other infrastructure outside the MLA	Nil (Not Proposed)

v. Mining plan details:

Mining Plan including Progressive Mine Closure Plan was approved by Indian Bureau of Mines (IBM)	Letter No.	RPR/RAIPUR/LIMESTONE/1381/ MP/2023-24
	Date	14/07/2023
	Mineral & (Major/Minor)	Limestone (Major Mineral)
	Mine Lease	323.332

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	Area, Ha.	
	Validity	5 Year from date of agreement
Mining Parameters	Quantitative Description	
Method of Mining	Opencast Mechanized Mining	
Drilling/Blasting	Deep Hole wet Drilling & Blasting Diameter of hole – 110 mm, Depth of hole= 6.0m Explosive required per month = 75,000 kg	
Geological Reserves	21,17,79,706.0Tonnes	
Mineable Reserves	16,54,51,198 Tonnes	
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Total Excavation 32,08,690.3 TPA (Limestone: 29,69,287.5 TPA, Top Soil: 2,39,402.8 TPA)	
Life of mine	50 Years from the date of registration.	
Mine Bench Height& Bench Width	Mine Bench Height 6m & Bench Width 15m	
No. of Mine Benches	3 benches (during plan period)	
Existing Depth, m bgl	Highest - 297mRL Lowest- 288mRL	
Ultimate Depth of Mining, m bgl	63 mbgl	
Ground Water Table, m bgl	Water Table 261mRL (27 mbgl Post monsoon) 258mRL(30 mbgl Pre monsoon)	
Details of ground water intersection	Proposed Mining depth is only 18mbgl, so there will no water intersection in next five years.	
Individual bench slope	60°	
Overall pit slope	37°	
Details of existing/ proposed Crusher	Not proposed	
Mineral Beneficiation	Not proposed	
RoM output size	0.5m^3 (max.)	
Transportation details including capacity of dumper/tipper, mode of transport and distance	Mode of transportation = Dumpers Number of Dumpers = 5 Capacity of Dumper =25 Tonner Lead Distance = 2 km	
Generation of Topsoil/OB & its Management during plan period & conceptual period	Top soil generated during plan period = 4,91,892.8tonnes (3,51,352 m^3) Top soil generated during conceptual period = 74,16,598tonnes (5,297,570 m^3) Top soil shall be Utilized for plantation.	
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	No mineral waste and reject shall be generated during plan period.	

vi. Water requirement:

Total water requirement	71.0 KLD	Fresh water	4.0 KLD
		Treated water	67.0 KLD
Source	Water for Drinking & Domestic shall be taken by Govt.		

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	Supply and nearby villages Kathiya. Surface water accumulated in the existing pit shall be used for dust suppression and plantation.
Permission for withdrawal/ intersection along with details of grant and its validity	Permission of water intersection shall be taken before intersection of ground water table.

vii. Nearest village/town/ highway/interstate boundary/railway station/water bodies/monument/ forest:

Particulars	Particular's Name	Distance &Directions
Village	Kathiya - Pachri	Kathiya 0.40 km in North direction. Pachri 0.70 km in SE direction
Town	Tilda	14.85km in NW direction
Highway	NH-130B TildaSimga Road	7.30 km in South direction 3.827 km in SW direction
Interstate Boundary	Nil	Nil
Railway Station/Railway line	Tilda Railway station	About 15.85 km in NW direction
Water Bodies	Pond, Pachri Pond, Kumhari Tank Keotara Pond, BharuwadihKalan NaiyaTalab, Mohra Pond, Pindraon Tank Pond, Jara Pond, Kesla JamuniyaNala TangnaNala KhorsiNala Pond, Parsada BanjariNala	(About 207.52 meter in SE direction) (About 314 meter km in NW direction) (About 0.51 km in West direction) (About 4.35 km in NE direction) (About 6.013 km in SW direction) (About 6.55 km in NE direction) (About 6.60 km in SE direction) (About 7.00 km in West direction) (About 7.60 km in NE direction) (About 7.75 km in SE direction) (About 8.30 km ion SE direction) (About 8.45 km in North direction)
Forest	Khaulidabri Protected Forest Mohrenga Protected Forest	About 643.40 m in SW direction About 3.827 km in SW direction

viii. Presence of Environmentally Sensitive areas in the study area:

Forest Land/Protected Area/Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	-No-	-

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National Park	-No-	-
Wildlife Sanctuary	-No-	-
Elephant/Tiger Reserve	-No-	-
Eco-Sensitive Zone(ESZ) /Eco-Sensitive Area(ESA)	-No-	-
Coastal Regulation Zone (CRZ)	-No-	-
Schedule-I species (No.s and name of schedule-I species with authenticated letter)	Will be submitted with EIA/EMP if Applicable	-
Wildlife Conservation Plan	Will be submitted with EIA/EMP if Applicable	-

ix. Green belt/plantation details:

Proposed area for green belt/plantation and no. of saplings proposed	Proposed area of green belt - 2.67 ha per year. No. of Sapling proposed per year = 2668
Budget for green plant & plantation till the end of life of mine.	INR 26,68,000 per year, INR = 10,67,20,000 at the end of life of mine.
Budget for nursery	Nil
Details of existing plantation and its survival rate	Number of existing trees -950 survival rate 90%
No. of tree cuts in the mine lease area and compensatory afforestation	950 tree cuts at the end of life of mine
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	6.95 hectare statutory barrier & 20.60 hect. Non mineralized area.
50 m safety zone of nallah, roads, electric lines	Both side of road -79.17 hect.

x. Rehabilitation & Resettlement (R&R): -

R & R details	Rehabilitation and Resettlement (R&R) is not involved in this project.

xi. Court case details: -

Court Case, No and its present status	The Project Proponent has submitted an affidavit dated 02.11.2023 stating that there is no litigation pending against the project and/or land in which the project is proposed to be set up and that for any such litigation whatsoever, the sole responsibilities will be borne by the Project Proponent.
Undertaking by Project Proponent w.r.t court case	

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xii. The Project Proponent has submitted the Affidavit dated 02.11.2023 stating that there is no violation of provisions of EIA Notification dated 14.09.2006 and amendments made thereafter, circulars and OM issued their under.

xiii. Details of project cost and employment:

Particulars	Budget (Rs. in Crores)
Project Cost	Rs. 162.46Crores
Employment	120persons

3. Observation and Recommendation of the EAC:

The Project Proponent/Consultant presented the KML file to indicate the site features in the mine lease area and in the study area of 10 km radius. The Project Proponent has shown the boundary of the mine lease area and informed the EAC that the total mine lease area is 323.332 ha. A State Highway is passing adjacent to the mine lease area on north eastern side. A Protected Forest is located on the south western side of the mine lease area. A water body is located at a distance of 0.3km on north western side of the mine lease area. A kuttcha road is passing within the mine lease area. A poultry farm is located within the mine lease area. No habitations are found within the mine lease area. The EAC noted that there are old pits existing in the mine lease area. The Project Proponent has informed the EAC that the lease area mostly comprises of Private land of 250.647 ha and Govt. land of 72.685 ha.

The EAC asked about the evacuation route of the mineral. The mined out mineral will be transported to the Cement plant around 10 km radius by State Highway. Width of the road is found to be 30 ft. A cement plant is also planned to propose on the north western side of the mine lease area. Ground water will be intersected during the working and necessary permission will be taken before intersecting ground water table.The Project Proponent has informed the EAC that the instant mine was granted under auction and letter for grant of mining lease was granted by the State Govt vide order dated 04.08.2022. Mining Plan was approved by Indian Bureau of Mines vide letter dated 14.07.2023. No National Park, Wildlife Sanctuary, ESA/ESZ is found within 10km radius of the study area. The EAC asked the Project Proponent to increase the no. of saplings proposed. The EAC noted that in common application form, the Project Proponent has inadvertently mentioned that the crusher is proposed to be installed within the mine lease area and also noted that the crusher is not a part of the proposal as per approved mining plan. The EAC asked about the location of the crusher. The Project Proponent has informed the EAC that crusher is proposed to be located in the Cement Plant.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC in its meeting held during 14-15 November, 2023 under the provisions of EIA

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Notification, 2006 and subsequent amendments therein, **recommended** the proposal for grant of Terms of Reference (ToR) toM/s Mangalam Cement Ltd for proposed production capacity of 32,08,690.3 TPA (ROM); Saleable Limestone: 29,69,287.5 TPA, Top Soil: 2,39,402.8 TPA in the mine lease area of 323.332 ha, located near Village-Kathiya - Pachri, Tehsil- Tilda, District- Raipur, Chhattisgarhfor undertaking detailed EIA/EMP study subject to the following specific conditions in addition to the standard ToR conditions and applicable for non-coal mining projects:-

i. The Project Proponent needs to submit the Cost Benefit analysis comparing the current agricultural production and annual turnover including the cost and the benefits drawn by the local villages vis-a-vis the mineral cost and beneficiaries at the time of submission of EC proposal.

ii. The Project Proponent needs to provide the exact breakup of total excavation including Production/ROM, Mineral Rejects, Topsoil, OB, Waste per year in first five year plan period.

iii. The Project Proponent needs to submit the map and the details regarding alternate land for grazing land and also its protection measures.

iv. The Project Proponent needs to submit the distance of the Ultimate Pit Limit from the Poultry farm. A detailed note on how the Project Proponent shall ensure that the mining activity will not have impact on the poultry farm inside the mine lease area shall be submitted. The Project Proponent also needs to explore the possibility of shifting the poultry farm along with the timeline and cost.

v. The Project Proponent needs to submit the map showing the transport route of the mineral from the mine lease area to the destination, impact of details of habitation at a distance of 100m from the center on both sides of road, details of no. of trips/day to and fro, capacity of the dumper/tipper to be deployed and the dimensions of the road and the carrying capacity of the road.

vi. The Project Proponent needs to address the impacts and mitigation measures arising out of the mining activity to nearby water bodies in the vicinity of the mine lease area.

vii. The Project Proponent shall monitor the water quality in the impact zone such as water reservoir, river water with specific reference to the parameter Langelier Saturation Index which will denote the impact of calcium carbonateson water bodies and these parameters and determine the tendency of water to form calcium carbonate scaling.

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viii. The Project Proponent needs to monitor the ambient air quality and noise level at the mine lease boundary, nearest village, crusher, predominant downwind direction and at other sensitive receptors. Accordingly, Project Proponent shall propose to install Continuous Ambient Air Quality Monitoring Station within certain timeline.

ix. The Project Proponent should prepare the EMP considering the scenario of pollution to be generated for normative and peak total excavation for assessing air pollution, noise level and ground vibration.

x. The Project Proponent needs to carry out the Public Hearing as per provisions of EIA Notification, 2006. PP should also submit the time bound action plan on concerns of the public through a separate budget with capital expenditure with a timeline of 3 years. The Project proponent shall ensure that the activities proposed under the public hearing shall be different from the CSR activities.

xi. The Project Proponent needs to undertake the enumeration of the species within the mine lease area before cutting. The Project Proponent also needs to submit the compensatory afforestation plan for the no. of trees to be cut in the mine lease area.

xii. The Project Proponent needs to increase the no. of saplings proposed.The Project Proponent also needs to submit the action plan for undertaking the plantation along the 7.5m barrier, safety zone of nallah, village road, electric line etc., PP should also submit the details no of saplings to be planted, type of saplings proposed and the area to be covered under greenbelt/plantation along with the timeline and budget. The greenbelt/plantation plan shall be prepared in such a way that the ecology of the area shall be restored.

xiii. The Project Proponent shall carry out the assessment of impact due to the proposed project as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP. The project proponent shall conduct hydrological study for projects involving intersection of ground water table as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.

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xiv. The Project Proponent shall explore the possibility of reduction of specific water requirement by optimization / technology up gradation, etc. The efforts shall be delineated in the EIA/EMP.

xv. The Project Proponent shall prepare the scheme for mandatory recycle/re-use of water as specified by the Central Ground Water Authority for different category areas seeking NoC for ground water withdrawal and the shall submit as part of EIA/EMP report.

xvi. The Project Proponent needs to submit a letter from the Department of Geology and Mining, Government of Chhattisgarh during the appraisal for EC, clarifying whether any illegal mining within the mine lease area has been carried out or not and whether the same has been carried out by M/s Mangalam Cement Ltd or not?

xvii. The Project Proponent shall conduct drone survey of the mine lease area and buffer area and submit during the appraisal for EC.

2.5 Amendment in EC dated 24.01.2012 for Dhobil Iron Ore Mining Project (Capacity 0.75 MTPA ROM & ML Area-513.036 ha) of M/s SAIL - Bokaro Steel Plant for continuation of iron ore transportation through road for 2 years w.e.f. 23.01.2024, located in Village Dhobil, Tehsil Manoharpur, Dist: West Singhbhum, Jharkhand – [F.No: J-11015/251/2009-IA-II(M), Online Proposal No: IA/JH/MIN/ 445601/2023; EIA Consultant: M/s MECON Limited] – Amendment in EC

The instant proposal is for amendment in EC dated 24.01.2012 for Dhobil Iron Ore Mining Project (Capacity 0.75 MTPA ROM & ML Area-513.036 ha) of M/s SAIL - Bokaro Steel Plant for continuation of iron ore transportation through road for 2 years w.e.f. 23.01.2024, located at Village Dhobil, Tehsil Manoharpur, Dist: West Singhbhum, Jharkhand.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mining lease area is greater than 250ha and accordingly, appraised at the Central level.

ii. Details of previous Environmental Clearance (EC):

a) Initially, the Project Proponent has obtained Environmental Clearance on 24.01.2012 for Dhobil Iron Ore Mining Project for production capacity 0.75 MTPA of Iron Ore over an area of 513.036 ha.

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b) Then, the Project Proponent obtained amendment in EC on 01.05.2012 w.r.t specific condition no (v) stating that *"Necessary wildlife clearance, as applicable, shall also be obtained"*.

c) Further, the Project Proponent has obtained amendment in EC on 19.04.2017 to the effect that transportation of Iron ore is allowed for further 5 years w.e.f 23.01.2017 onward through road with the condition that the project proponent will put in place the conveyor system for transportation of Iron ore within 5 years.

d) Again, the Project Proponent obtained amendment in EC on 04.04.2022 for continuation of iron ore transportation through road for another 2 years w.e.f 23.01.2022 located in Village Dhobil, Tehsil Manoharpur, District West Singhbhum, State Jharkhand. If Project proponent does not stand upto the commitment provided vide letter dated 19.03.2022, the production may get curtailed to minimise the air pollution due to transportation of ore through trucks.

iii. Now, the Project Proponent has requested for amendment in EC dated 24.01.2012 for continuation of iron ore transportation through road for 5 years w.e.f. 23.01.2024.

iv. Justification for amendment in EC:

a) The Project Proponent has submitted that the Manoharpur Ore Mines (MOM), Chiria consist of six mining leases i.e. Ajitaburu, McLellan, Ankua, Tatiburu, Sukri-Lutur & Dhobil. Dhobil Iron Ore Mining Leasehold area under Monoharpur Ore Mines, Chiria covering an area of 513.036 ha is located in West Singhbhum District of Jharkhand and falls entirely within Ankua Reserve Forest (R.F.) of Saranda Forest Division. At present only Dhobil is in operation.

b) Iron Ore from Dhobil mines is transported by road (~31 km) to the railway siding situated at Manoharpur and loaded into railway wagons for dispatch. The 31 km long route through which the ore is trucked to Manoharpur Railway Siding comprises of forest road, State Highway No. 4 (SH4) and the connecting road from SH4 to the railway siding.

c) For development of Manoharpur Ore Mines, Stage-I FC over an area of 595.075 ha for Manoharpur Group of Mining Leases (2376.122 ha) was granted by MoEFCC on 07.03.2011. Post approval of Management Plan for Sustainable Mining (MPSM), MoEFCC sought some information on 10.08.2018, which was submitted by Govt. of Jharkhand on 07.06.2019. However, grant of Stage-II FC for an area of 595.075 ha is pending with MoEFCC, due to No-Mining Zone issue of Management Plan for Sustainable Mining (MPSM) of Saranda Forest Division.

d) Accordingly, for evacuation of iron ore from Manoharpur Group of Mining Leases, the proposal for diversion of 14.88 ha of forest land for installation of LDBC was submitted online on 31.01.2017. The proposal was considered by REC, MoEFCC, Ranchi on 11.03.2019. However, grant of FC over 14.88 ha is pending due to No-Mining Zone issue of MPSM.

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e) Though the mining leases under Manoharpur Ore Mines are falling within the No mining Zone of MPSM, however MoEFCC, New Delhi has permitted mining only within already broken area of Dhobil lease as an exception. Forest Clearance was obtained vide Lr No. 8-20/98-FC dated 21.10.1998 under section-2 of Forest (Conservation) Act, 1980 for diversion of 29.411 ha of forest land (already broken up area). At present all mining and allied activities are confined within broken area only.

f) The grant of above forest clearances are yet to be resolved which is beyond the control of SAIL.In order to ensure uninterrupted supply of iron ore to SAIL Steel Plants and also to enable SAIL-BSL to contribute to the socio-economic development of region, continuation of ore transportation through road for 5 years w.e.f. 23.01.2024 from Dhobil Lease to Manoharpur Railway Siding is very much essential.

v. Details of Mine Lease:

a) The Project Proponent has submitted that the Govt. of Jharkhand vide letter dated 07.03.2018 have renewed the 2nd renewal period of Dhobil lease from 08.03.1998 to 07.03.2018 (20 years) and further extended the period of mine lease from 08.03.2018 to 07.03.2038 (20 years) as per Mineral (Mining by Government Company) Rules, 2015. Subsequently, lease deeds for both the periods were executed on 21.04.2018.

vi. Mining Plan:

a) The Project Proponent has submitted that the Review of Mining Plan along with Progressive Mine Closure Plan was approved by Indian Bureau of Mines (IBM) vide Letter No. RAN/WSB/Fe/MP-10/2021-22 dated 15.11.2021 in respect of Dhobil lease area of 513.036 Ha. The approval is given for the received proposals as applicable from this date for the mining activities to be carried out within the extended area of 29.411 ha.

vii. Forest Clearance:

a) The Project Proponent has submitted that the entire mine lease area of 513.036 Ha is a forest land. Forest Clearance was obtained vide Lr No. 8-20/98-FC dated 21.10.1998 under section-2 of Forest (Conservation) Act, 1980 for diversion of 29.411 ha of forest land (already broken up area).

viii. Environmental Status:

a) The Project Proponent has submitted that the present Environmental status was analyzed on the basis of baseline environmental data generated for one month during April - May, 2023 by Environmental Engineering Laboratory of MECON Ltd. (a Govt. of India U/T under the Ministry of Steel). The data includes micro-meteorological conditions, ambient air quality (11 locations), noise levels (11 locations), water quality (Groundwater: 2 locations and Surface water: 8 locations) and traffic density (4 locations). The collected data has been analysed

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in detail for identifying, predicting and evaluating the environmental impacts due to continuation of existing road transportation of Dhobil Iron Ore Mine.

b) The Project Proponent also submitted that the baseline data levels show that the contributions due to the continuation of ore transportation through road will have insignificant impact on the existing ambient air quality. The environmental monitoring carried out by SAIL within the nearby areas revealed that the air, noise and water quality in and around the mines are well within the respective standards. The traffic studies revealed that the entire ore transport road is capable of handling the ore transport from Dhobil Iron ore mine with adequate buffer capacity. Once the covered conveyor is commissioned, ore transport from Dhobil Mines to Manoharpur siding shall be carried out exclusively through covered conveyor.

ix. Certified Compliance Report (CCR):

a) The project was monitored for ascertaining compliance to the conditions stipulated in the environmental clearance by the Regional Office of this Ministry at Ranchi on 03.08.2021, which has submitted their reports to Ministry vide letter No. 103- 356/12/EPE/4911 dated 27.09.2021. The report has been examined by the Ministry.

b) A letter seeking ATR/clarification on the observed non-compliance was issued to M/s. Steel Authority of India Limited (SAIL) by Ministry vide letter no. IA-J-11014/53/2021-IA-I dated 01.12.2021 for which M/s. Steel Authority of India Limited (SAIl) submitted a response vide letter dated SAIL/MOM/EC/2021-22/449 dated 17.01.2022.

c) IRO, Ranchi provided their observations on the Action Taken Report (ATR) submitted by M/s. Steel Authority of India Limited (SAIL) vide letter No. 103-356/12/EPE/061 dated 21.01.2022. The report has been examined by the Ministry and it was observed that there is still substantive non-compliance of environmental conditions contained in said EC letter No. J-11015/251/2009-IA II (M) dated 24.01.2012 and the same are as enlisted below:

(i) STP has not been installed in the Colony. (Specific Conditions: xxvii)

(ii) Mining technology and scope of working has not been followed without prior approval of the Ministry of Environment & Forests. (General Conditions: i)

d) The existing operations at Dhobil ML have been inspected by the IRO, MoEF&CC, Ranchi on 17.01.2022 and reported as follows:

Observation by Integrated Regional office, Ranchi MoEF&CC, report date 27.09.2021.	Integrated Regional Office Ranchi MoEF&CC on the basis of site inspection dated 17.01.2022 and action taken reports and other documents submitted by Project proponent.

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i. In the EC it was mentioned that "No crushing plant is proposed as part of this project". However, two mobile crushing units were observed in the mine project during inspection. PP should explain the reasons for above deviation from the EC.	Two crushing units were observed in the mine project during inspection on 17.01.2022 PP has explained the reason for deviation from EC condition as can be seen in adjacent column. PP explains that "it was envisaged to development common crushing plant of 7.0 MTPA capacity in Ajitaburu leasehold for crushing of ROM from Dhobil, Ajitaburu MClelan and Sukri Luturburu leases of Manoharpur Ore Mines. Due to delay in Forest Clearance for Ajitaburu lease common crushing plant could not be installed as envisaged. To fulfill the crushing requirement mobile crushing units were installed in the Dhobil mine", Final decision on the compliance of this condition may be taken by MOEF&CC. New Delhi.

e) As explained above, till date no mining operations and the envisaged Common C&S Plant for sizing of the ore from all the four MLs as per the EC grant order at Ajitbura ML could not be installed till date for want of Stage-II FC from MoEF&CC Accordingly, the existing mining operations at Dhobil ML is being continued without changing any mining technology and scope of the work since grant of EC dated 24.01.2012. Therefore, the Project Proponent requested to consider their submission and to withdraw the Show Cause Notice dated 17th May, 2023 issued under Section 5 of Environment (Protection) Act 1986 w.r.t Dhobil Iron Ore Mining Project of SAIL.

f) The Compliance & Monitoring Division of this Ministry vide letter dated 17.05.2023 issued Show Cause Notice under section 5 of Environment (Protection) Act, 1986 to Dhobil Iron Ore Mining project of M/s SAIL.

g) The Project Proponent has submitted their response to the Show Cause Notice dated 17.05.2023 to the Ministry vide letter dated 12.06.2023.

h) The Project Proponent has submitted the Certified Compliance Report (CCR) issued by the Regional Office (RO) vide letter dated 12.09.2023 for the EC's dated 24.01.2012, 01.05.2012, 19.04.2017 and 04.04.2022. Site Inspection was conducted by RO on 28.07.2023. Non-Compliances were observed by RO w.r.t non-installation of STP/ETP, density of the plantation, solar powered electric fencing and change in mining technology.

i) Then, the Project Proponent has submitted the action taken report to the Regional Office on 21.09.2023 for the non-compliances identified by RO.

x. Past Production details:

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a) The Project Proponent has submitted the certified past production details issued by the District Mining Officer vide letters dated 08.11.2014, 29.10.2021 and 06.05.2023 for the period 1993-94 to 2022-23.

Financial Year	Certified ROM Production (Metric Tonnes)
1993-94	66,616.73
1994-95	92,974.45
1995-96	68,261.58
1996-97	1,55,183.40
1997-98	97,722.10
1998-99	1,02,940.60
1999-00	1,42,564.90
2000-01	3,36,994.50
2001-02	2,82,810.00
2002-03	2,73,463.30
2003-04	3,00,328.70
2004-05	3,11,058.70
2005-06	4,38,590.00
2006-07	7,90,127.20
2007-08	9,64,527.00
2008-09	5,58,748.98
2009-10	6,83,968.00
2010-11	3,05,035.00
2011-12	3,48,855.00
2012-13	4,43,187.01
2013-14	4,08,964.48
2014-15	3,27,029.83
2015-16	4,50,784.89
2016-17	5,55,166.07
2017-18	4,43,592.69
2018-19	7,29,308.48
2019-20	7,33,794.93
2020-21	5,53,841.03
2021-22	75,251.75
2022-23	3,41,182.29

xi. Details of Violation/Court Cases:

a) The Project Proponent has submitted that with regard to the allegations of excess production prior to the grant of the EC, MoEFCC has communicated the violation of Environment (Protection) Act 1986 occurred at the Dhobil Iron Ore Mine vide letter No.- J-11015/251/2009-IA(II).M dated 20.04.2011 that the production from the mine was enhanced without obtaining the requisite Environmental Clearance as required under EIA Notification, 2006. Based on this, criminal proceedings were initiated by the JSPCB as well as the resolution

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was passed based on the specific direction of MoEFCC on 20.04.2011. Recently, the case has been disposed-off on 24.04.2023.

b) Subsequent to the final judgment dated 02.08.2017 of Hon'ble Supreme Court of India in the matter of Common Cause (i.e., Unlawful mining in Odisha), the Government of Jharkhand has issued the Demand Notice to SAIL – Dhobil Iron Ore Mines vide demand Letter No. 1352/M dated 07.09.2017 amounting to Rs. 228,13,04,898/- towards recover price of mineral produced without or beyond the EC capacity for payment on or before 31.12.2017.

c) In order to mitigate the risk of closure of Dhobil Mining Lease beyond 31.12.2017, M/s SAIL filed a Writ Petition bearing No. 7016 of 2017 – Steel Authority of India Ltd Vs. State of Jharkhand &Ors. before the Hon'ble High Court of Jharkhand at Ranchi on 04.12.2017.

d) An amount of Rs. 199.84 Cr. was paid by SAIL to Government of Jharkhand under protest prior to 31.12.2017 to avoid the stoppage of mining operations.

e) On subsequent hearings, the Hon'ble High Court vide order dated 21.02.2018 referred the matter to the Division bench of the Jharkhand High Court since it involves substantial questions of Law. The Hon'ble High Court also directed that during the pendency of writ petition transit challans for the petitioner companies shall not be stopped until the interim orders passed by this Court are varied, modified or recalled. The matter is sub-judice before the Division Bench of the Hon'ble High Court of Jharkhand.

f) Further, the Project Proponent has also submitted the Affidavit in a non-judicial stamp paper of Rs. 20 bearing dated 24.06.2023 stating that Manoharpur Ore Mines (Dhobil Mining Lease -513.036 Ha.) of SAIL -Bokaro Steel Plant shall comply with all the statutory requirements and judgment of Hon'ble Supreme Court dated 2ndAugust 2017 in Writ Petition (Civil) No.114 of 2014 in the matter of Common Cause versus Union of India and Ors, subject to the resultof the pending Writ Petitions before Hon'ble High Court of Ranchi further appeals thereto if need arises.

3. Observation and Recommendation of the EAC:-

The Project Proponent has informed the EAC that the instant proposal is for amendment in EC dated 24.01.2012 for Dhobil Iron Ore Mining Project for continuation of iron ore transportation through road upto Manoharpur Railway siding for a period 5 years w.e.f. 23.01.2024. The Project Proponent also informed the EAC that there is no change in existing scenario. Presently, the mineral is being transported from Dhobil Iron Ore Mining to Manoharpur Railway siding at a distance of 31 km by road. Due to non-availability of forest clearance, development of Manoharpur Ore Mines (595.075 ha) and installation of Long Distance Belt Conveyor (14.88 ha) has been held up. Mining activity is restricted to 29.411 ha of forest land (already broken up area) and FC is valid upto

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07.03.2038. Further, the Project Proponent has informed the EAC that in order to ensure uninterrupted supply of iron ore to SAIL Steel Plants and also to enable SAIL-BSL to contribute to the socio-economic development of region, continuation of ore transportation through road for 5 years w.e.f. 23.01.2024 from Dhobil Lease to Manoharpur Railway Siding is very much essential.

The EIA Consultant has informed the EAC that to assess the environmental status baseline data was collected for one month during April - May, 2023 by Environmental Engineering Laboratory of MECON Ltd. (a Govt. of India U/T under the Ministry of Steel). The traffic density was carried out at 4 locations. The present traffic volumes on all the roads are well within the respective capacities as per IRC:64. Predominant wind directions are from West followed by North direction. The air pollutant parameters are well within the NAAQS norms. The mean noise levels at all the ambient locations are well within the respective norms of the type of area. The Project Proponent has also shown the photographs of the air pollution control measures being implemented, plantation undertaken on waste dump, transport route, near office and surface water management structures.

The Project Proponent informed the EAC that the site Inspection was conducted by Regional Office (RO), MoEF&CC on 28.07.2023 and Certified Compliance Report (CCR) was issued by the RO vide letter dated 12.09.2023 for the EC's dated 24.01.2012, 01.05.2012, 19.04.2017 and 04.04.2022. The PP submitted the action taken report to the RO on 21.09.2023 w.r.t non-installation of STP/ETP, density of the plantation, solar powered electric fencing and change in mining technology. Further, the Project Proponent informed the EAC, that, during inspection, RO was informed that No crushing plant was proposed as part of the instant project (Dhobil). However, crushing units were observed by the RO representative in the mine lease area during inspection and the same was report in Certified Compliance Report by RO Ranchi. The Project Proponent informed the EAC that a common Crushing & Screening units was proposed to be installed at Ajitaburu ML for size reduction of ore from all four ML including Dhobil ML. Accordingly, it was mentioned in EC grant Order of Ajitaburu ML dtd 31.03.2011 that "*It is proposed that an additional common crushing & screening plant of 7 million TPA will be established as part of this mine lease*". Further, it was also mentioned in the preamble (Para - 4) of the EC grant Order of Dhobil ML dtd 24.01.2012 that *"No Crushing Plant is proposed as part of the project. It was committed by the proponent that ore transportation by road will be undertaken only for five years and thereafter it will be by conveyor only"*. With regard to above, PP further informed that in the EIA report, it was already mentioned that the details of the mining operations of Dhobil mining lease which states that blasted ROM will be fed to the mobile crushing and screening plant. The EAC noted the submission of the project proponent and observed that the use of mobile crusher till installation of common crushing unit as mentioned in the EIA report.

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The PP further mentioned that the Hon'ble High Court in WP (C) 7016 of 2017 vide order dated 21.02.2018 referred the matter (regarding demand notices issued in light of the Hon'ble Supreme Court judgement dated 02.08.2017) to the Division bench of the Jharkhand High Court since it involved substantial questions of Law. The Hon'ble High Court also directed that during the pendency of writ petition transit challans for the petitioner companies shall not be stopped until the interim orders passed by this Court are varied, modified or recalled. As on date the matter is sub-judice before the Division Bench of the Hon'ble High Court of Jharkhand. The Project Proponent has also informed the EAC that there is no change in configuration w.r.t mine lease area and production capacity. The existing road transport infrastructure is capable of handling the ore-transportation load from Dhobil Mines through the permitted transport road.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC opined that the road transportation may be permitted for 2 years considering the pollution load. The EAC also opined that the PP may continue using the mobile crusher and screening for sizing the ore before transportation of the same by road to the railway siding as mentioned by it in the earlier EIA report submitted during the grant of EC in the year 2012. The Committee also recommended that a field visit may be undertaken along with the pending visit of Kiriburu-Meghahatuburu Iron Ore Mines of Steel Authority of India Limited (SAIL) for real time appraisal on ground realities for facilitating the decision making in case of the instant project in near future. Based on the discussions held, the EAC in its meeting held during 14-15 November, 2023 under the provisions of EIA Notification, 2006 and its subsequent amendments therein; **recommended** the proposal for amendment in EC dated 24.01.2012 for Dhobil Iron Ore Mining Project (Capacity 0.75 MTPA ROM & ML Area-513.036 ha) of M/s SAIL - Bokaro Steel Plant for continuation of iron ore transportation through road for a period of 2 years w.e.f. 23.01.2024, located at Village Dhobil, Tehsil Manoharpur, Dist: West Singhbhum, Jharkhand along with the following additional specific conditions mentioned below: -

i. This amendment in EC will be valid for a period of a 2 (two) years only w.e.f 23.01.2024.

ii. Mining activity is restricted to an area of 29.411 ha for which the Stage-II Forest Clearance is available.

iii. The Project Proponent shall convert the unpaved road into concrete road to reduce the fugitive dust.

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iv. Fugitive dust monitoring during transportation shall be monitored regularly at all the sensitive receptors and report shall be submitted quarterly to the Regional Office of MoEF&CC.

v. Over loading of transport equipment's should be avoided to prevent spillage. Vehicles involved in transporting the material should be covered with tarpaulin to prevent fugitive dust emission.

vi. The Project Proponent shall maintain the entire mineral transportation route by road at their own cost. The Project Proponent shall also periodically maintain the roads to reduce the fugitive emissions from roads and also the vehicular emissions.

vii. Regular sprinkling shall be done on roads to suppress the dust at the source.

viii. The Project Proponent shall adhere to the pollution control measures suggested by the Central Pollution Control Board (CPCB) in the environmental guidelines for crushing/screening activity.

ix. The Project Proponent shall undertake the dense plantation all along the haul roads and approach roads to attenuate the fugitive dust.

x. As committed by the Project Proponent, modular type STPs shall be installed in place of Septic Tanks by March, 2024 with a provision to use the treated sewage for plantation.

xi. To increase the density of trees, the Project Proponent needs to undertake the plantation in low density areas within the mine lease area.

xii. The Project Proponent should follow-up the matter regarding solar powered electric fencing with DFO, Saranda to reach at a decision thereof.

xiii. The Project Proponent shall create awareness among the local people working within the project area as well as its surrounding area on the ban of Single Use Plastic (SUP) in order to ensure the compliance of Notification published by MoEF&CC on 12/08/2021. A report, along with photographs, on the measures taken shall also be included in the six monthly compliance report.

xiv. The mining lease holders shall, after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed

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due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. The implementation report of the above said condition shall be submitted to the Ministry's Regional Office.

xv. All other terms and conditions mentioned in the EC letter dated 24.01.2012, 01.05.2012, 19.04.2017 and 04.04.2022 shall remain unchanged.

2.6 Amendment in Environmental Clearance dated 04.06.2009 for Changes in Operation of Rowghat Iron Ore Project of M/s SAIL's Bhilai Steel Plant (Despatch of Maximum 2.0 MTPA of Iron Ore by Road up to Antagarh Rly. Siding and / or Bhanupratappur Rly. Siding and then by Rail to Bhilai), located in Matla Reserve Forests, Narainpur and Kanker District, Chhattisgarh – [F.No: J-11015/331/2006-IA.II(M), Proposal No: IA/CG/MIN/439531/2023; EIA Consultant: M/s MECON Limited] – Amendment in EC

The instant proposal is for amendment in EC dated 04.06.2009 for Changes in Operation of Rowghat Iron Ore Project of M/s SAIL's Bhilai Steel Plant (Despatch of Maximum 2.0 MTPA of Iron Ore by Road up to Antagarh Rly. Siding and / or Bhanupratappur Rly. Siding and then by Rail to Bhilai), located in Matla Reserve Forests, Narainpur and Kanker District, Chhattisgarh.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mining lease area is greater than 250ha and accordingly, appraised at the Central level.

ii. Details of previous Environmental Clearance (EC):

Date of application	Proposal No	Consideration	Details	Date of accord
28.07.2007	IA/CG/MIN/ 8566/2009	-	Production of 14.0 MTPA of iron ore mining over a lease area of 883.22ha	04.06.2009
23.06.2009	-	-	Partial modification in EC letter dated 04.06.2009 and additional specific conditions were imposed	15.03.2010

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09.02.2017	IA/CG/MIN/ 8566/2009	February 20-21, 2017	Transportation of 0.3 million TPA of ore from Rowghat M.L to Keonti by road and further onwards to Dalli Raihara/Bhilai through rail till 2021	08.06.2017
01.11.2021	IA/CG/MIN/ 236647/2021	30th Nov - 3rd Dec, 2021	Extension of validity of amendment in Environmental Clearance granted on 08.06.2017 for Rowghat Iron Ore mine Deposit F [ML area 2028.797ha and production capacity 14 million TPA] for transportation of 0.3 MTPA of iron ore from Rowghat ML to Keonti rail head by road and further onwards to Dalli Rajhara/Bhilai by rail located in Matla Reserve Forests, in Narainpur and Kanker District, Chhattisgarh for a period of another two (2) years i.e., till 31.12.2023	25.01.2022

iii. Now, the Project Proponent has requested for amendment in EC dated 04.06.2009 for Changes in Operation of Rowghat Iron Ore Project of M/s SAIL's Bhilai Steel Plant (Despatch of Maximum 2.0 MTPA of Iron Ore by Road up to Antagarh Rly. Siding and / or Bhanupratappur Rly. Siding and then by Rail to Bhilai) as mentioned below:

S. No	Reference	Description	Existing	Amendment sought	Reason for amendment
1	Para 2 of Original EC 04.06.2009	Change in Process	14 MTPA Crushed Ore Disptached to downhill through 12 KM Conveyor length	2 MTPA Crushed and Screened Ore transport through Road from Hill Top from existing 0.3 MTPA	Downhill conveyor not installed due to non handing over of land by forest department
2	Para 2 of Original EC	Change in Process	14 MTPA Screening Ore transport through Rail from Rowghat Siding located	Total 2 MTPA Screened Material transport through Road Length 235 KM maximum upto Antagarh or Bhanuprtappur Siding till Dec'26 from existing 0.3	Railway siding not commissioned due to hindrances caused due to

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			at Foot Hill to Bhilai Steel Plant	MTPA upto Dec'23)	Left wing extremism Consequently delay in handing over of land by GoCG
3	Para 14 of Amended EC dated 25.01.2022	Amendment in Quantity and extension of time	0.3 MTPA transport through Road upto Keonti Siding validity upto Dec'23	Request for allowing dispatch through road @ 2.0 MTPA till Dec.,'26 which includes: 1. @ 0.8 MTPA of iron ore up to Antagarh Railway Siding via Tadoki (direct route) 2. 1.2 MTPA up to Bhanupratappur/ Antagarh Railway Siding via Narainpur & Kanker (long route) and subsequently by rail to Bhilai. 3. In case of law and order problem along the Rowghat Mine to Antagarh Siding (direct route) as is often the case, the entire ore will be trucked to Bhanupratappur/Antagarh Siding via Narainpur & Kanker.	Railway Siding Commissioned only upto Antagarh Siding. Expected to reach Rowghat by Dec'25 and development of associated infrastructure by Dec'26

iv. The Project Proponent has submitted the mine lease deed was executed on 21.10.2009 and is valid for a period of 20 years. The entire lease area of 2028.797 ha is a Forest Land. Stage-II Forest Clearance was obtained vide letter no. F.No.8-44/2005-FC (Pt), dated 3rdAug., 2009for diversion of 883.22 ha of forest land.

v. The Project Proponent has submitted that the Rowghat Mine commenced mining operations only in late Feb., 2022. Prevailing micro-meteorological conditions, ambient air quality (14 locations), noise levels (14 locations) and water quality (Groundwater: 5 locations and Surface water: 5 locations), soil quality (6 locations) were assessed by carrying baseline environmental data generation for one month during May, 2023 (Summer Season). Traffic density on the proposed ore evacuation route was also studied.

vi. The Project Proponent has submitted the certified compliance report issued by the Sub Office, MoEF&CC vide letter dated 10.10.2023 for the EC's dated 04.06.2009, 15.03.2010, 08.06.2017 and 25.01.2022. The site visit was

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conducted on 18.09.2023. Then, the Project Proponent has submitted the action taken report on 16.10.2023 to the Regional Office, MoEF&CC. The Ministry vide letter dated 02.11.2023 requested the Regional Office, Nagpur to submit the review report of the ATR submitted by Project Proponent. Then, the Project Proponent vide email dated 13.11.2023 submitted the revised and updated action taken report.

3. Observation and Recommendation of the EAC:

The Project Proponent has informed the EAC that the instant proposal is for amendment in EC dated 04.06.2009 for changes in operation of Rowghat Iron Ore Project of M/s SAIL's Bhilai Steel Plant for dispatch of Maximum 2.0 MTPA of Iron Ore by Road up to Antagarh Rly. Siding and / or Bhanupratappur Rly. Siding and then by Rail to Bhilai. Initially, Environmental Clearance (EC) was obtained on 04.06.2009 for production of 14.0 MTPA of Iron ore. The ore is dispatched by rail to SAIL's Bhilai Steel Plant located at a distance of 185 km from the mine lease area. There has been delay in commissioning of rail link to Rowghat due to Left wing extremism activities and obtaining forest clearance. In this regard, amendment in EC dated 04.06.2009 has been sought to allow dispatch through road @ 2.0 MTPA till Dec.,2026 from the existing capacity of 0.3 MTPA by road. About 81% of the rail works has been completed upto Tadoki (77km) and the remaining work up to Rowghat will be completed by June, 2025and it is expected to commission the Rowghat Station by Dec 2025 and associated linking infrastructure by 'Dec, 2026. The Bhilai Steel Plant is the sole producer and supplier for strategically important products to Indian Railways. The Bhilai Steel Plant is completely dependent on Rowghat Iron Ore mine and this project is an importance of national interest. The EAC noted the public complaints were received against the project and also in support of the project to increase their production capacity.

Then, the Project Proponent has presented the KML file and shown the boundary of the Rowghat mine lease area and informed the EAC that the entire mine lease area of 2028.797 ha is a Forest Land. Presently mining activity is being carried out in Anjarel block. The present proposal is to transport the ore of 0.8 MTPA from Rowghat to Antagarh Railway siding (~58km by road) via Tadoki (direct route) and 1.2 MTPA ore to Antagarh / BhanupratappurRailway Siding (232 km/200km by road) via Narainpur & Kanker (long route). Due to law and order issue, the State Govt. has suggested to take the longer routevia Narainpur & Kanker to reach Antagarh / BhanupratappurRailway Siding. If the law and order issue exists via Tadoki route, the entire material will be transported through longer route as suggested by the State Govt. The Project Proponent also informed the EAC that the own RCC road of 7.5m width has been developed by the Project Proponent with an estimated budget of Rs 35 Cr from the foot

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hill of Rowghat to SH-5. Further, the Project Proponent has shown the photographs of the road developed by M/s SAIL, SH 5 between Tadoki & Antagarh, Road linking SH-5 with Antagarh Siding, Kondagaon bypass road, Kanker bypass road and SH 6 between Kanker &Bhanupratappur. Project Proponent also shown the photographs of Antagarh and Bhanupratappur Railway sidings and also the progress of the rail link.

The Project Proponent informed the EAC that the project is well equipped to produce 2.0 MTPA. Transportation will be outsourced and local people will be involved in transportation. The EIA Consultant has informed the EAC that the baseline data was generated during May, 2023. The ambient air quality stations (14 locations) were monitored in the mine lease and all along the transportation route. Noise levels at 14 locations were within the norms prescribed by CPCB. Surface water quality has been monitored at 5 locations and found to be suitable for drinking after conventional treatment and disinfection. Traffic density was studied on the transport route at 9 locations at hourly intervals. Additional load on the road will not have impact and the resultant concentration of PM_{10}due to transportation will be ~91.14 $\mu g/m^3$, $PM_{2.5}$: ~47.1 $\mu g/m^3$, SO_2:15.8 $\mu g/m^3$ and NO_x: 25.26 $\mu g/m^3$. The Project Proponent also detailed about the CSR activities being taken up. The Project Proponent has shown the certified past production details dated 06.07.2023 from the year 2020-21 to 2022-23. The Project Proponent has submitted the certified compliance report issued by the Sub Office, MoEF&CC vide letter dated 10.10.2023 for the EC's dated 04.06.2009, 15.03.2010, 08.06.2017 and 25.01.2022. The site visit was conducted on 18.09.2023. Then, the Project Proponent has submitted the action taken report on 16.10.2023 to the Regional Office, MoEF&CC.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC opined that the dispatch of 2.0 MTPA (Maximum) of Iron Ore by Road up to Antagarh Rly. Siding and / or Bhanupratappur Rly. Siding and then by Rail to Bhilai will be allowed in two phases for a period of two years i.e., 1.5 MTPA for a period of 6 months w.e.f 01.01.2024 to 30.06.2024 and 2.0 MTPA (1.5 MTPA + 0.5 MTPA) for a period of 18 months w.e.f 01.07.2024 to 31.12.2025 considering the pollution load due to transportation by road. The EAC also opined that meanwhile, the Project Proponent shall speed up the progress of the rail link. Based on the discussions held, the EAC in its meeting held during 14-15November, 2023 under the provisions of EIA Notification, 2006 and its subsequent amendments therein; **recommended** the proposal for amendment in EC dated04.06.2009 for dispatch of Maximum 2.0 MTPA of Iron Ore by Road up to Antagarh Rly. Siding and / or Bhanupratappur Rly. Siding and then by Rail to M/s SAIL's Bhilai Steel Plant from Rowghat Iron Ore Project [MLA:2028.797 ha] of M/s SAIL, located in Matla Reserve Forests, Narainpur and Kanker District, Chhattisgarh along with the following additional specific conditions mentioned below: -

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i. This amendment in EC will be valid for a period of a 2 (two) years only w.e.f 01.01.2024.

ii. The dispatch of 2.0 MTPA (Maximum) of Iron Ore by Road up to Antagarh Rly. Siding and / or Bhanupratappur Rly. Siding and then by Rail to Bhilai is allowed in two phases for a period of two years i.e., 1.5 MTPA for a period of 6 months w.e.f 01.01.2024 to 30.06.2024 and 2.0 MTPA (1.5 MTPA + 0.5 MTPA) for a period of 18 months w.e.f 01.07.2024 to 31.12.2025. Accordingly, State Pollution Control Board shall grant the Consent to Operate (CTO).

iii. Mining activity is restricted to an area of 883.22 ha for which the Stage-II Forest Clearance is available.

iv. The Project Proponent shall speed up the progress of the rail link and monthly progress/status along with the photographs shall be submitted to the Regional Office of MoEF&CC.

v. Fugitive dust monitoring shall be monitored regularly at all the sensitive receptors and report shall be submitted quarterly to the Regional Office of MoEF&CC.

vi. The Project Proponent shall maintain the entire mineral transportation route by road at their own cost. The Project Proponent shall also periodically maintain the roads to reduce the fugitive emissions from roads and also the vehicular emissions.

vii. Regular sprinkling shall be done on roads to suppress the dust at the source.

viii. The wheel washing facility for the ore transport vehicles shall be provided at the exit point of the mine. The wheel washing facility shall be integrated with complete recirculation system.

ix. Over loading of transport equipment's should be avoided to prevent spillage. Vehicles involved in transporting the material should be covered to prevent fugitive dust emission.

x. The Project Proponent shall undertake the dense plantation all along the haul roads and approach roads to attenuate the fugitive dust.

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xi. The Project Proponent shall ensure that the additional traffic on the road in no way shall be hindrance to the public. Traffic marshal shall be deployed to ensure the safe movement of transportation.

xii. The real time data generated by continuous ambient air quality monitoring stations (CAAQMS) should be displayed digitally at entry and exit gate of mine lease area for public display and shall be linked to server of CPCB/SPCB.

xiii. The Project Proponent shall explore the possibility of using atleast 20% of Electric vehicles/CNG/Solar instead of diesel operation within three years.

xiv. Periodical maintenance of surface water management structures has to be carried out to prevent and control the water pollution and soil erosion. The Project Proponent shall take adequate measures to prevent the washout of fines during monsoon season.

xv. The Project Proponent shall undertake the gap plantation and shall plant quality sapling of appropriate height of native and fruit bearing species. In case of tall transplants (seedlings) the seedlings should have proper trained root stock with root biomass commensurate with seedling height to ensure good growth after out planting.

xvi. The Project Proponent shall create awareness among the local people working within the project area as well as its surrounding area on the ban of Single Use Plastic (SUP) in order to ensure the compliance of Notification published by MoEF&CC on 12/08/2021. A report, along with photographs, on the measures taken shall also be included in the six monthly compliance report.

xvii. The mining lease holders shall, after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. The implementation report of the above said condition shall be submitted to the Ministry's Regional Office.

xviii. All other terms and conditions mentioned in the EC letter dated 04.06.2009, 15.03.2010, 08.06.2017 and 25.01.2022 shall remain unchanged.

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Additional Agenda:

2.7 Proposal for validity extension of Environmental Clearance granted for Rajashree Limestone Mine No.2 (Mine Lease Area – 400.70 Ha.) with expansion of limestone production capacity from 0.45 MTPA to 1.0 MTPA and installation of 400 TPH crusher by M/s UltraTech Cement Limited (Unit: Birla White) located at Villages: Basni, Tehsil: Merta, District: Nagaur, Rajasthan - [Proposal no: IA/RJ/MIN/213651/2021; File No. J-11015 /15/2015 IA.II (M); Consultant: Wolkem India Limited] - Site visit report

The Ministry vide letter dated 4.10.2021 accorded the extension of validity of EC for three years for Rajashree Limestone Mine No.2 (Mine Lease Area 400.70 Ha.) with expansion of limestone production capacity from 0.45 MTPA to 1.0 MTPA and installation of 400 TPH crusher by M/s UltraTech Cement Limited (Unit: Birla White) located at Villages: Basni, Tehsil: Merta, District: Nagaur, Rajasthan with following specific condition:

"After issue of extension of validity of Environmental Clearance for three years, it will be reviewed through the field/site visit by sub-committee of EAC at the end of two years".

2. The term of two years ended on 3.10.2023. Accordingly, as per the request of the Project Proponent, Ministry constituted a sub-committee comprising of the following members:

1. Shri Niranjan Kumar Vasu, EAC Member
2. Shri Bandi Ramchandra Reddy, EAC Member
3. Shri Pankaj Verma Scientist E & Member Secretary, EAC (NCM), MoEF&CC
4. Shri Vidyasagar Jha, Research Officer, MoEF&CC
5. Shri Mahesh Purohit, Scientist-C, Sub Office Jaipur, MoEF&CC

3. The subcommittee was tasked to examine the recommendations made by EAC in its 31st EAC held during 9th to 15th June 2021. The members of the sub – committee that undertook site visit during 15-17 October 2023. The recommendation of the 31st EAC in verbatim is given as under: -

"Recommendation of the Committee:

After detailed deliberations made by the Project Proponent and the Consultant, the Committee Recommended the proposal for validity extension of Environmental Clearance for three years granted for Rajashree Limestone Mine No.2 (Mine Lease Area – 400.70 Ha.) with expansion of limestone production capacity from 0.45 MTPA to 1.0 MTPA and installation of 400 TPH crusher by M/s UltraTech Cement Limited (Unit: Birla White) located at Villages: Basni, Tehsil: Merta, District: Nagaur, Rajasthan with subject to submission in correction of form 6

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on PARIVESH portal and submission of an undertaking to clear all the backlog activities within three years and will demonstrate the efforts being made in the field of environmental restoration."

4. Based on the aforesaid recommendation the project proponent submitted an undertaking dated 16.06.2021 stating the following:

1. We have taken sincere efforts for increasing plantation & improving the plant survival rate in 7.5 metre safety zone along the lease boundary.
2. As suggested by local DFO vide letter dated 09.12.2020, we have adopted RDF-I) Rehabilitation of Degraded Forest Scheme) plantation model (500 Trees per hectare) looking into the semi-arid climatic conditions and carried out green belt in 7.5 meter safety zone along the lease boundary in 8.5 hectare area except rocky outcrop area.
3. As advised by the Hon'ble committee during the 31st Meeting of the Expert Appraisal Committee (Non Coal Mining) held on 15th June 2021, we will try our level best to develop plantation in 7.5 meter safety zone along the lease boundary in rocky outcrop area in consultation with local DFO and some experts by adopting various technologies for plantation of species which can grow in rocky area and will also adopt other measures as suggested.
4. The progress and compliance status of the plantation will be submitted within 03 years time.
5. We humbly request committee to consider extending the EC validity for 05 years.

5. Beside above, the M/s UltraTech Cement Limited (Unit: Birla White) also submitted Compliance Report on Plantation along the boundary of mining lease area with the undertaking wherein following data was provided with regard to plantation till September 2020: -

S.No	Number of Trees planted	Number of Trees survived	Area (Ha)
1	8250	8097	8.50
2	36311	29149	29.50
Total	44561	37246	38

6. In the same document the project proponent submitted the Proposed Plantation Programme till the FY 2036 and the same is tabulated as under: -

S. No	FY	Area Covered (Ha)	No of Saplings to be planted	Dump (Ha)	Non Mineralized (Ha)	Backfilled area & Greenbelt (Ha)	Budgetary allocation (INR)
1	2019-21	11.00	11000	3.00	8.00	-	2800000

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2	2021-26	21.50	21500	6.50	15.00	-	7200000
3	2026-31	46.00	25000	9.00	25.00	12.00	7900000
4	2031-36	56.00	34000	6.00	25.00	25.00	9100000
Total		134.50	91500	24.50	73.00	37.00	27000000

7. Further while requesting for this instant site visit vide letter dated 26.09.2023, the Project Proponent has submitted the following: -

1. An approximate plantation of 11,000 trees in two years with survival rate of 90% and it has been done focussing the mine lease boundary & 7.5 m safety zone
2. A dedicated team of four members has been deputed for greenbelt development for better survival rate of plantation and take care of plants after plantation.
3. Also, private land holders of mine lease area are encouraged to adopt plantation by UTCL management, they are provided free fruit bearing and other plant species as suggested by DFO office with one year financial assistance towards plantation
4. Time to time guidance from the District Forest Department, Nagaur has been sought for tree species selection and method of plantation adoption, as advised RDF-I method of plantation keeping the local conditions in the mind with plantation density of 500 plants per hectare.
5. As per EC condition no. 2 plantation on safety zone of 7.5 meter has been done.
6. For increasing plantation and for improving the growth and survival rate of plants we engaged the NEERI to provide technology and support to achieve the targets.

8. In accordance with the order dated 03.10.2023; the sub-committee undertook the site visit during 15-17 October 2023. During the visit sub-committee observed the following: -

1. Sub-committee observed that M/s UltraTech Cement Limited (Unit: Birla White) is having surface rights in patched across the mine lease area. PP informed that out of total mine lease area of 400.7 ha, they have only obtained surface rights for 153.35 ha.
2. Sub-committee observed that boundary pillars/ boundary wall have been erected by the M/s UltraTech Cement Limited (Unit: Birla White) over the acquired lease.

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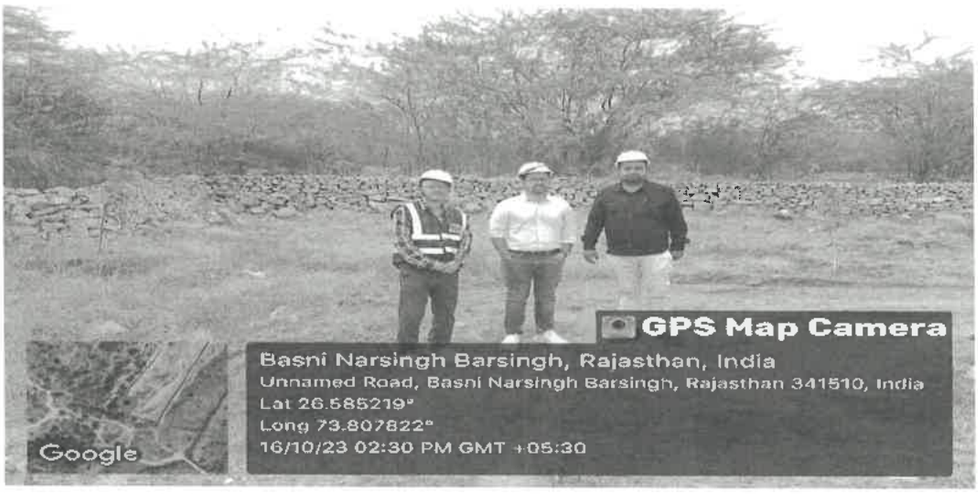

3. It was noted that efforts have been made by the M/s UltraTech Cement Limited (Unit: Birla White) to plant trees in the acquired lease area alongside the 7.5 m boundary and also in patches based on feasibility of plantation.
4. PP informed that since they do not have the surface rights alongside the mine lease they have done compensatory plantation in the aforesaid patches of land.
5. Sub-committee was observed that in some patches and stretches M/s UltraTech Cement Limited (Unit: Birla White) has successfully planted neem and other trees and their growth over the period of time has been adequate.

6. NEERI's interventions in the plantation programme of M/S UltraTech Cement Limited has not achieved the desired results in the absence of quality planting stock in terms of seedling quality as well as selection of species. They need to grow seedlings of appropriate height commensurate with healthy root stock for successful out-planting.

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7. It was also observed that M/s UltraTech Cement Limited (Unit: Birla White) was using tall and poor quality saplings having poor root growth as a result of which in most of the patches they have not grown well or died. M/s UltraTech Cement Limited (Unit: Birla White) informed that they have procured them locally from some agencies.

8. Sub-committee noted that the watering of plants needs to be more effective in terms of quantity of water, time of watering and maintenance of soil moisture in the root zone for a longer period. Models of in situ water harvesting around plants and water conservation may be adopted for better growth.

9. Sub-committee also noted that most of the mine lease acquired area was having a rocky terrain with a little or less availability of soil, arid climate and as reported by PP having annual rainfall less than 300 mm.

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9. Based on the aforesaid observation, the sub-committee recommended the following: -

1. M/s UltraTech Cement Limited (Unit: Birla White) should engage/take assistance from local institute of repute for planning and executing their plantation programme. The present scenario of plantation as observed by committee is inadequate and doesn't suffice the purpose and conditions mentioned in the Environmental Clearance.
2. M/s UltraTech Cement Limited (Unit: Birla White) may either develop their own nursery with the help of technical experts who are well experienced in growing plantation within the climatic conditions prevalent in the mine lease area or procure seedlings from reputed research nursery capable of raising seedlings for stress sites.
3. M/s UltraTech Cement Limited (Unit: Birla White) should plant only those saplings whose root system is properly developed commensurate with seedling height, it should plant more native species such as Acacia nilotica, Acacia Senegal, Azadirachta indica and other species tried and growing well on the stress sites in the region in consultation with the research institute and shall use proper planting techniques.
4. M/s UltraTech Cement Limited (Unit: Birla White) has made a lot of effort in plantation however due to lack of technical expertise they have made less progress. Hence PP should make a team of technical experts to monitor and implement the progress of plantation.
5. If required PP may transport and supplement soil suitable for seedling growth wherever required.
6. M/s UltraTech Cement Limited (Unit: Birla White) should widen and re-built the haul roads and should sprinkle water for dust mitigation
7. M/s UltraTech Cement Limited (Unit: Birla White) should follow scientific dumping of overburden and must construct garland drains and retaining walls
8. Since the progress has been slow, the sub-committee is of the opinion that PP should follow the recommendations made herein to expedite its plantation activity after next planting season in the area and the same should be confirmed by Regional Office through CCR in next 6 months.
9. In addition to existing plantation works being executed, Project Proponent shall also carry out survey all along the lease boundary and enumerate the standing vegetation in the safety belt. They shall pursue the land owners where surface rights are not there with the lease holder to allow raising of plantation in the safety belt wherever no standing vegetation is observed.

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10. Observation and Recommendation of the EAC: -

The EAC noted that the site visit was conducted by the subcommittee during 15-17 October 2023. The EAC deliberated on the observation and recommendations of the subcommittee. After detailed deliberations, the EAC agreed to the recommendations of the subcommittee.

2.8 Report of the field visit undertaken by EAC sub-committee during 29-31 October, 2023 at Bicholim Mineral Block- Block 1 (Auction Block) of M/s Vedanta Limited for mining of Iron Ore with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA (Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located in Bicholim, Bordem, Lamgao, Mulgoa, Mayem&Sirigao Villages of Bicholim Taluka of North Goa District, Goa - [F.No: IA-J-11015/ 3/2023-IA-II(NCM), Proposal No: IA/GA/MIN/442593/2023] - Environmental Clearance (EC)

The instant proposal is for mining of Iron Ore in Bicholim Mineral Block – Block 1 (Auction Block) of M/s Vedanta Limited with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA (Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located in Bicholim, Bordem, Lamgao, Mulgoa, Mayem&Sirigao Villages of Bicholim Taluka of North Goa District, Goa.

2. The total mine lease area is 478.5206 Ha, out of which Private land is 421.1153 Ha and Government land is 57.4053 Ha. The mine lease area is located between Latitude: 15°34'20.518"N to 15°36'54.018"Nand Longitude: 73°54'4.754"E to 73°57'09.51"E. The mine lease area falls under the Survey of India Toposheet No: D43B14and falls in Seismic Zone-II.

3. The Directorate of Mines & Geology, Govt. of Goa vide letter dated 13.01.2023 granted the Letter of Intent (LoI) for grant of mining lease for Block I - Bicholim Mineral Block for Iron Ore over an area of 478.5206 Hectare for aperiod of 50 (fifty) yearsin pursuant to Rule 10(2) of the Auction Rules. This letter of intent is valid for a period of 3 (three) years from the date of its issuance.

4. Review and Mining Plan was approved by Indian Bureau of Mines, Goa vide letter dated 26.05.2023. Method of Mining will be Opencast mechanized mining without Drilling & Blasting. ROM/Iron ore or Screened/crushed material will be transported by 10.5 Tonne trippers from Mine to Sarmanas jetty through a dedicated road. The total distance from the mine to Jetty is 5.48 km of which 0.94 km stretch is public road and remaining 4.54 km is company owned dedicated road.

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5. The Project Proponent obtained Terms of Reference (ToR) vide ToR letter dated 16.06.2023. Baseline data was carried out during March-May, 2023 (Summer Season). Public hearing was conducted on 07.07.2023. About 4708 written objections were submitted against the project and about 5183 no.s of letters were also received in support of the project. Budget of Rs 309.3 Lakhs has been earmarked to address the concerns raised during public hearing.

6. There are two habitations such as Mulgao and Lumgao and schools are located within the mine lease area.Asnora River is touching the mine lease boundary at one of the points and Mayem Lake is found at a distance of 0.46km from the mine lease area. Namuzgah/Idgah is found within the mine lease area. A safety distance of 300m buffer has been left from Lamgao caves.

7. Mayem Forest Common Boundary with the mine lease area. Block-I Bicholim Mineral Block of Vedanta Ltd is not a part of any Eco Sensitive Area. The Schedule-I species such as Common leopard (*Felidae*) White-bellied Sea-Eagle(*Accipitridae*) Indian Peafowl (*Phasianidae*) and Crimson rose- Butterfly (*Papilionidae*)are found in the study area. Wild Life Conservation Plan is prepared and submitted for approval of Chief Wildlife Warden (CWLW) on 19.06.2023.

8. No Rehabilitation & Resettlement Plan is proposed during life of mine. There are three court cases pending against the project w.r.t auction. Total cost of the project is Rs 250 Cr. The Capital cost of EMP is Rs 72.0 Lakhs and about 716 no.s will get employment.

9. The instant proposal was earlier considered in the EAC (Non-Coal Mining) meeting held during 21-22 September, 2023 and the EAC after detailed deliberations opined that there is a need to ascertain the present scenario and ground reality with regards to handling of waste, settling ponds, location of waste dump w.r.t habitation, school and river, other surface features as forest (Mayem common boundary), temples, caves and fort, mineral transportation route and traffic congestion. The EAC was of the view that a site visit needs to be conducted by a sub-committee comprising of EAC Members and officers from MoEF&CC.

10. Accordingly, the Ministry vide letter dated 09.10.2023 constituted a sub-committee comprising of the following members to ascertain the ground realities of the project.

1. Shri Niranjan kumar Vasu, EAC (Non-Coal Mining), Member,
2. Shri. Avijit Ghosh, EAC (Non-Coal Mining), Member,
3. Shri. Pankaj Verma, Scientist E & Member Secretary EAC (NCM), MoEF&CC,
4. Shri. Saurabh Upadhyay, Scientist C, MoEF&CC,
5. Shri Suresh kumar Adapa, Scientist E, MoEF&CC, Bengaluru;

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6. Shri. A. Mohankumar, Consultant, MoEF&CC

11. The aforesaid committee undertook the day-long field visit on 30th October 2023. The following officers from M/s Vedanta Ltd such as Head of the Mines, Head of the Environment, Mines Manager, Geologist and EIA Coordinator were present during the site visit. The Project Proponent gave a brief about the layout of the mine lease area. The subcommittee during the site visit observed the following: -

1. The subcommittee visited the mine lease area which extends from mines office to the bottom pit by road covering a distance of 7.0 km in the lease area. The subcommittee also observed the boundary pillars erected by the Project Proponent alongside the mine lease boundary.
2. The subcommittee observed the dense vegetation throughout the mine lease area.

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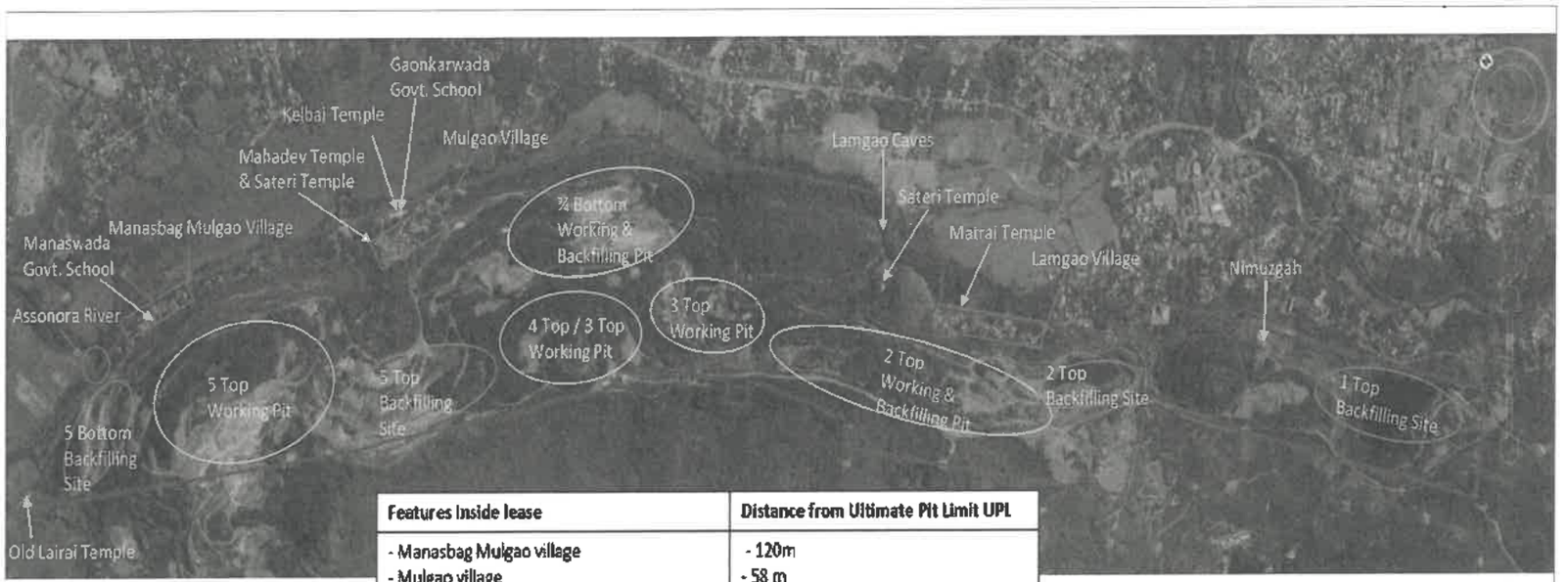

Features inside lease	Distance from Ultimate Pit Limit UPL
- Manasbag Mulgao village - Mulgao village - Lamgao village	- 120m - 58 m - 56 m
- Manaswada Govt school within habitation - Gaonkarwada Govt school within habitation	- 138 m (12 students) - 190 m (not functional)
- Old Lairae temple - Mahadev & Sateri temple - Kelbai temple - Sateri temple - Matrai temple - Nimuzgah	- 126m (From 5 Bottom Backfilling site) - 280m -205m - 130m - 150m - 210m
Lamgao caves	- 300 m

	Working Pit
	Backfilling Site
	Habitation
	River

Figure 1: Google Image of Bicholim Mineral Block showing working & backfilling pits and surface features in the mine lease area

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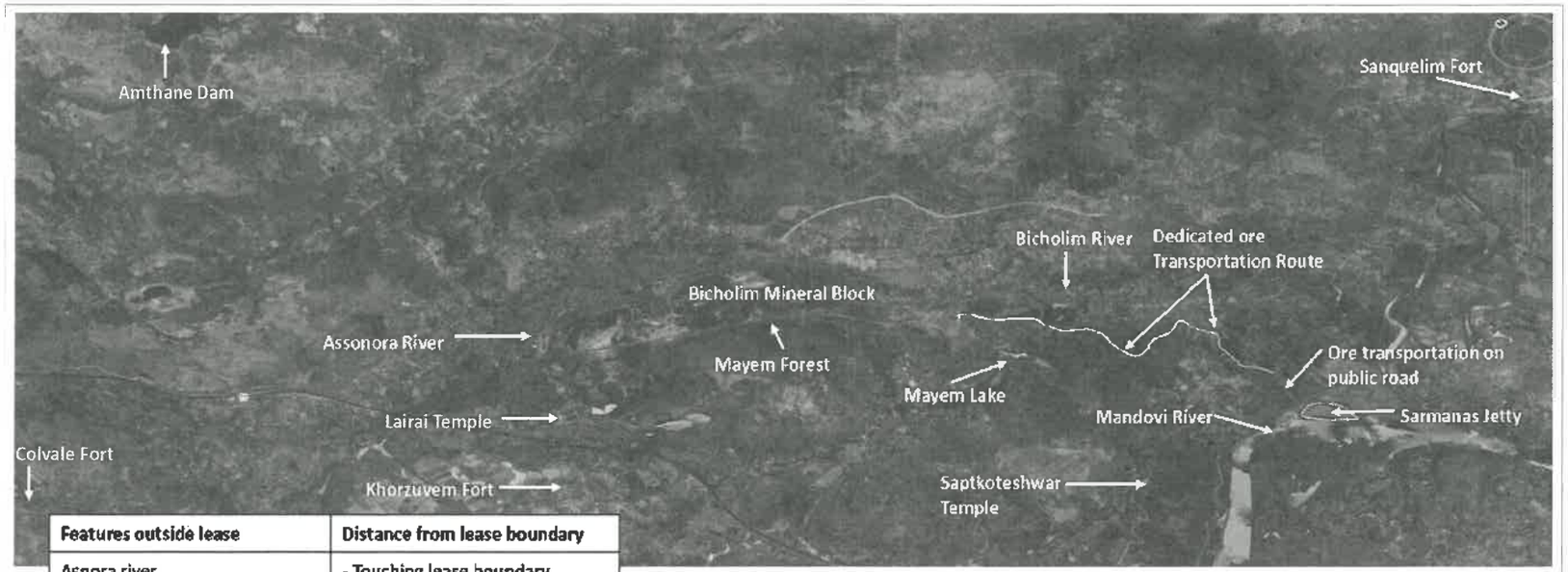

Features outside lease	Distance from lease boundary
Asnora river Mayem forest (Caju Plantation)	- Touching lease boundary - Touching lease boundary
Mayem lake Bicholim river Mandovi river Amthane dam	- 0.46 km - 0.23 km - 2.3 km -7.0 km
- Lairae temple - Saptakoteshwar temple	- 0.86 km - 2.50km
- Khorjuvem fort - Colvale fort - Sanquelim fort	-2.0 km - 5.96 km -5.97 km

Figure 2: Google Image of Bicholim Mineral Block showing surface features in the buffer zone

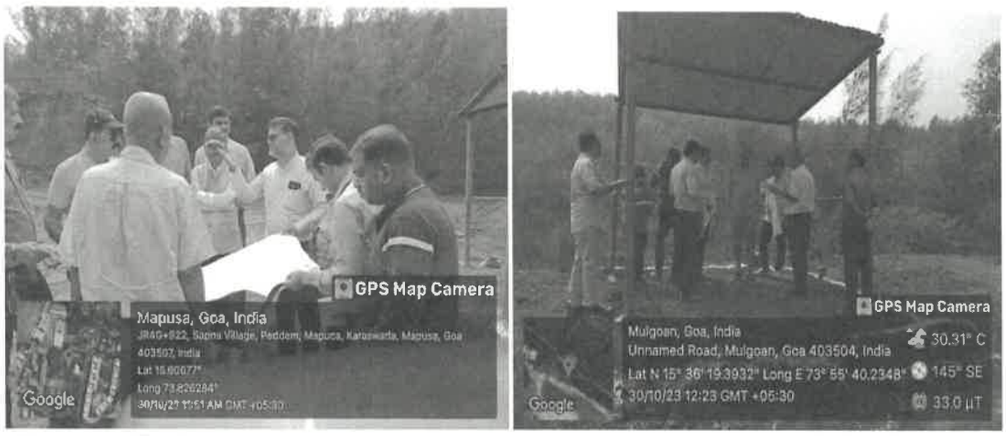

Figure 3: Project Proponent explaining about mine layout and site features

3. The subcommittee visited the mine pit with stagnant rain water, top and bottom working pits. The Project Proponent has informed that the rain water in the mine pit is being used for dust suppression and agricultural purposes by the local farmers. The rainwater stagnant in the working pits will be pumped out and will be channelized through network of pipes and will be discharged into settling ponds. The Project Proponent also informed that the waste generated during mining will be temporarily stacked within the mining lease and will be backfilled in the exhausted portion in the working pits. The material from one pit will be used to backfill the other exhausted working pit.

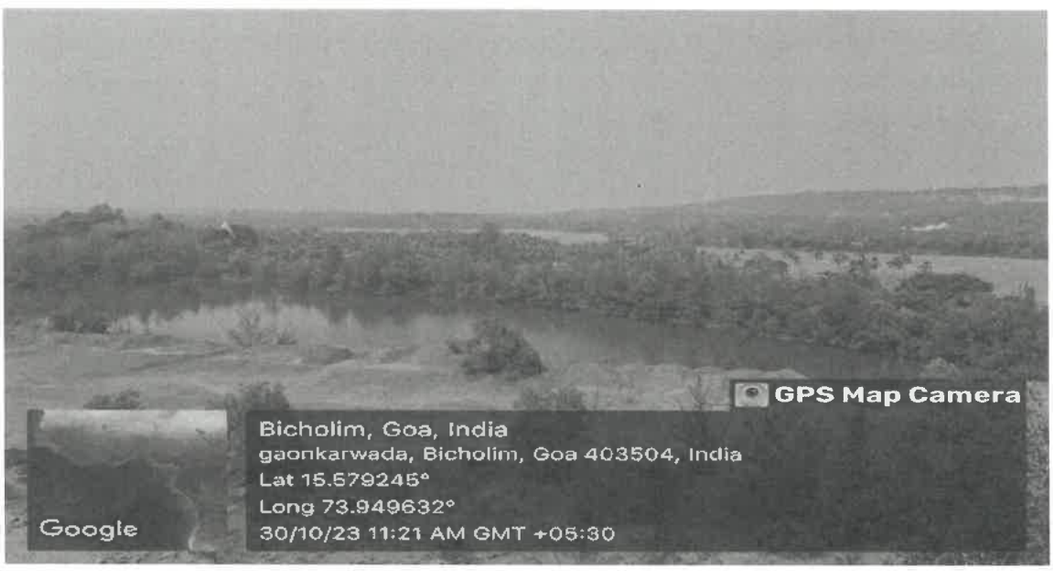

Figure 4: Rainwater stagnant in the mined out pit

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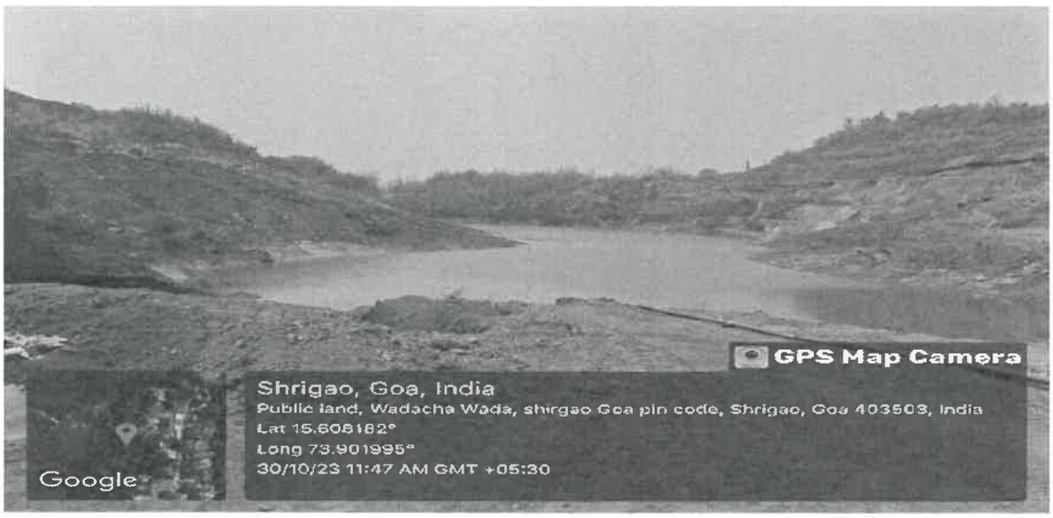

Figure 5: Rainwater stagnant in the working pit

4. The subcommittee has observed that the permanent water sprinklers are not in place.
5. The subcommittee has observed the temple within the mine lease area and Assonora River touching the mine lease boundary. The Project Proponent has informed that the safety distance of 50m is left on either side of the river. A dense plantation has been carried out in the safety zone.
6. The subcommittee also visited the settling pond in the mine lease area. The subcommittee noted that the settling pond is poorly maintained. The Subcommittee suggested to construct silt check dam based on the rate of inflow. Subcommittee also suggested the Project Proponent not to discharge any water outside lease area without passing it through treatment plant.

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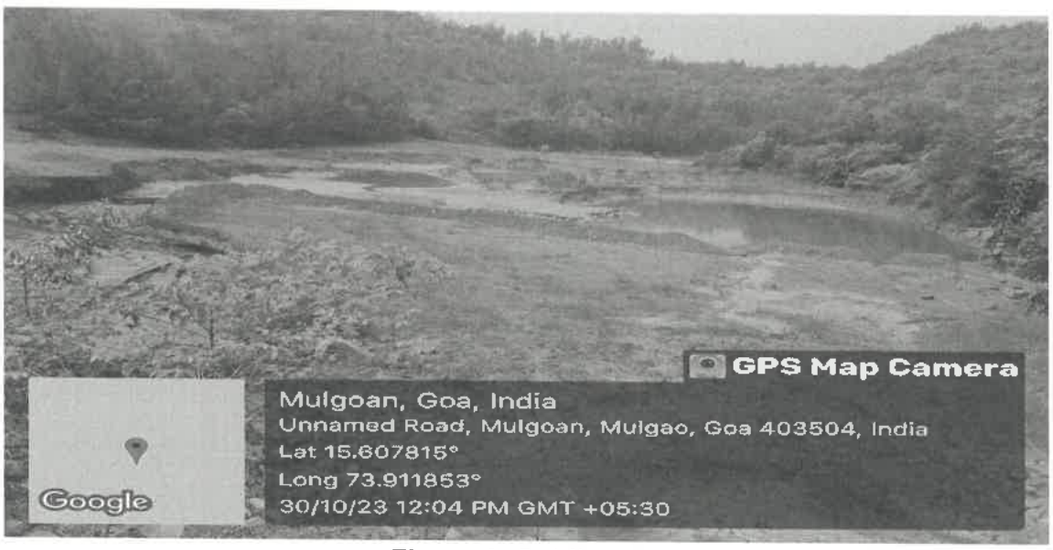

Figure 6: Settling Pond

7. The subcommittee visited the Mayem Forest boundary which is demarcated by poles with white flags from the mine lease area. The Project Proponent informed that the forest boundary is about 70-80m away from the mine lease area. The Differential Global Positioning System (DGPS) survey has been carried out by the Forest Dept but pillars are not demarcated by the Forest Dept. The Project Proponent also informed that a letter has been obtained from the Dept. of Forest stating that the forest land is not involved in the mine lease area. The subcommittee suggested that the Project Proponent should consult with the Forest Dept and should erect the pillars to differentiate the mine lease area from the forest boundary.
8. The subcommittee has visited the waste dump to see the dump height, dump slope and plantation made on waste dumps. The subcommittee noted that the plantation has been carried out using coir mats. The subcommittee suggested that the proper terracing has to be done and suitable measures to be undertaken for preventing soil erosion.

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Figure 7: Near Waste Dump

9. The subcommittee observed that the villages and schools are located in the mine lease area. The Project Proponent has informed that the villages such as Manasbag Mulgao village (~120m from Ultimate Pit Limit-UPL), Mulgao Village (~58m from UPL) and Lamgao Village (~56m from UPL) are located within the mine lease area. The Project Proponent also informed that the Manaswada Govt. School is located at a distance of ~138m from UPL with 12 no. of students and Gaonkarwada Govt. School is located at a distance of ~190m from UPL which is non-operational.
10. The subcommittee has observed that the crematorium ground is located within the mine lease area. The subcommittee also visited the Idgah located within the mine lease area. The Project Proponent has informed that the mining activity will be carried out by using ripper dozer combination. There will be no activity of drilling and blasting. A buffer zone of 200m will be maintained from Idgah. The subcommittee was of the view that the mining activity shall be strictly carried out by using only ripper dozer combination.
11. The subcommittee has visited the crushing and screening units in the mine lease area. The subcommittee noted that the crushing and screening units are not maintained well. The subcommittee opined that the fabrication works has to be carried out before starting mining operations and also suggested that the crushers and screening plant should have adequate arrangement to suppress dust and also measures should be taken to control noise.

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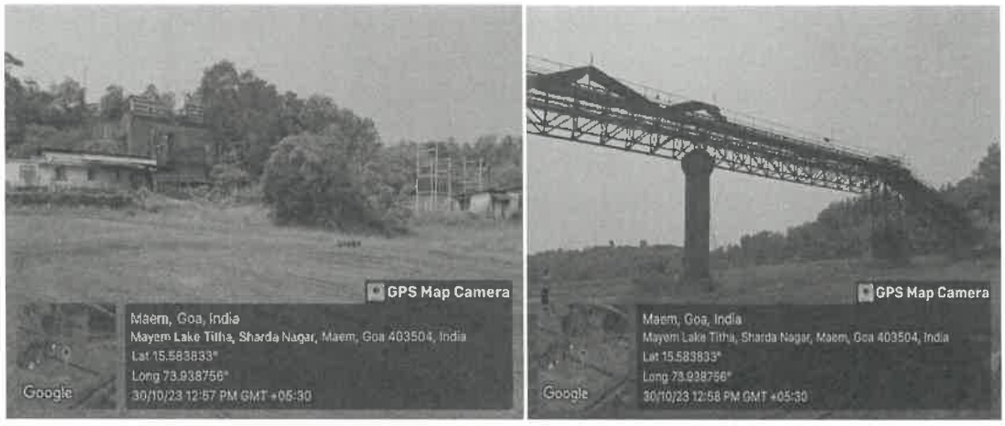

Figure 8: Crushing and Screening Units

12. The subcommittee has observed that there are four Schedule-I species reported in the study area. The subcommittee asked the Project Proponent to ensure that whether any other Schedule-I species has been added as per latest Wildlife (Protection) Amendment Act 2022.
13. The subcommittee has visited the entire mineral transportation route of 5.48 km [4.54 km company owned dedicated road + 0.94 km public road] from the mine lease area to Sarmanas Jetty. The subcommittee has observed that there at two places public road is getting intersected. The width of the road is not adequate. The Project Proponent has informed that the under passes are proposed at the intersecting points and hence the public road will not be disturbed. Traffic marshals will be deployed at the intersecting point to monitor the movement of traffic. During rainy season, no transportation will be carried out and only developmental works will be carried out. The subcommittee also visited the Sarmanas Jetty. The subcommittee opined that the maintenance works has to be carried out at Sarmanas Jetty before commencing mining operations. The subcommittee was of the view that the Over Land Belt Conveyor (OLBC) from the mine lease area to Sarmanas Jetty may be solution for eco friendly transportation and economics.

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Figure 9: Sarmanas Jetty

14. The subcommittee opined that the Project Proponent needs to develop an own nursery.
15. The subcommittee also visited the nearby Sanquelim mine of Sesa Goa Ltd to see the reclamation activities carried out in the mined out area.

12. Recommendations of the Sub-committee:

1. The Project Proponent needs to submit the techno economic feasibility report for laying Over Land Belt Conveyor (OLBC) from the mine lease area to Sarmanas Jetty.

2. The subcommittee asked the Project Proponent to submit the ecology restoration plan for mined out pits for using as Water reservoir/Pisciculture.

3. The subcommittee noted that the transfer of material from one pit to other working pit will lead to transportation issues. The subcommittee asked the Project Proponent to identify the shortest lead distance and also to explore the possibility of concurrent backfilling. The Project Proponent also needs to submit the sequential stage wise mining in top and bottom working pits and their backfilling plan.

4. The Project Proponent needs to submit the action plan for strengthen the settling pond with proper stone pitching in line with the design of settling pond considering the annual rainfall, flow rate, catchment area and its discharge. The action plan for monitoring the water level and water quality before discharge needs to be submitted.

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5. The design of garland drain around the waste dumps to divert the water to settling ponds and the measures to be taken to arrest the suspended solids needs to be submitted. The measures to be taken for preventing the soil erosion on slope of waste dumps needs to be submitted.

6. The Project Proponent needs to submit the action plan for installing permanent water sprinklers.

7. The Project Proponent needs to submit the action plan and timeline to modify the crushing and screening units. The Project Proponent also needs to submit the material flow sheet and material balance.

8. The Project Proponent needs to submit the action plan for developing their own nursery by mentioning the details of the area to be covered, species to be planted and budget proposed. Most of the standing vegetation in the lease area constitutes of *Acacia auriculiformis and Casuarina equisetifolia* and it is further invading the open areas through natural regeneration. The invasion may be checked through planting native species in the region.

9. The Project Proponent needs to ensure that whether any other Schedule-I species has been added as per latest Wildlife (Protection) Amendment Act 2022 or not. Accordingly, the Project Proponent shall submit the revised authenticated Schedule-I species. The Project Proponent also needs to submit the breakup of the conservation activities proposed under Wildlife Conservation Plan.

10. The Project Proponent needs to submit the map demarcating the surface features in the mine lease area and their safety distances left/maintained as per mines acts and rules.

11. The Project Proponent needs to provide proper treatment of channels and nallas flowing in the lease area for soil and water conservation. Scientifically designed and placed check dams and other engineering structures at different places can help control the erosion and loss of productive soil. Necessary study from competent institution/individuals may be done for this purpose.

13. Observation and Recommendation of the EAC: -

The EAC noted that the site visit was conducted by the subcommittee during 29-31 October 2023. The EAC deliberated on the observation and recommendations of the

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subcommittee. After detailed deliberations, the EAC agreed to the recommendations of the subcommittee.

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List of members of Expert Appraisal Committee participated through VC

S.No	Member Name	Member Address	Designation	14th Nov., 2023	15th Nov., 2023
1	Dr. Dinesh Misra, IFS (Retd.)	Plot No 65, Sector 8, Gandhinagar, Gujarat, 382 008	Chairman	Yes	Yes
2	Sh. Niranjan Kumar Vasu,IFS (Retd.)	816, Shanti Nagar, Opposite Durgapur Railway Station, Jaipur-Rajasthan, 302018	Member	Yes	Yes
3	Dr. Asha Rajvanshi, Scientist 'G' (Retd.), WII	B/104/106 Rock Valley Apartments, GMSRoad, Sewla Kalan, P.O. Majra, Dehradun, Uttarakhand-248171.	Member	No	No
4	Shri. Avijit Ghosh (CMD- Heavy Engineering CorporationLimited) (Retd.)	Singhee Marg, A- 604 Shahadeo Tower, P.P.Compound, Ranchi 834001, Jharkhand	Member	Yes	Yes
5	Shri. BandiRamchandra Reddy (Former CMD-South Eastern Coalfields Limited)-(Retd.)	Flat No-503 A, Jyoti Cosmos, White Fields, Hi-Tech City, Kondapur,Hyderabad-500081	Member	Yes	No
6	Prof. Pramod Kumar, Professor,ShriAurobindoCollege,University of Delhi	Shri Aurobindo College, University of Delhi 1372, B-1, Vasant Kunj, New Delhi-110070	Member	Yes	No
7	Prof.DeveshWalia, Department of Environmental Studies	Department of Environmental Studies, NEHU,Shillong-793022 Meghalaya	Member	Yes	Yes
8	Dr. Suresh Tiwari Scientist-F	Indian Institute of Tropical Meteorology, Pune,New Delhi Branch, Prof. Ram NathVijMargRajinder Nagar, New Delhi – 110060	Member	No	No

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9	Dr. K.G Asha Manjari, Professor, University of Mysore	10/B, "SPARSHA", 2nd Main, 2ndCross,BhogadiIInd Stage, Mysore-570026, Karnataka	Member	Yes	Yes
10	Prof. Dev Dutt Sharma, Vice-Chancellor	Sardar Patel University,Mandi H.P. 175001	Member	No	No
11	Shri V. K. Soni, Representative of India Meteorological Department	Government of India, Ministry of Earth Sciences, India Meteorological Department, MausamBhawan, Lodi Road, New Delhi – 110003	Member	Yes	No
12	Shri Yogesh Kale/ Abhay Agarwal, Representative of Indian Bureau of Mines	Controller of Mines, IBM Block D, Second Floor, Indira Bhavan, Civil Lines, Nagpur - 440001	Member	Yes	Yes
13	Representative of Directorate General of Mines Safety	Directorate General of Mines Safety	Member	No	No
14	Shri Pankaj Verma	3rdFloor, Vayu Block, Indira Paryawaran Bhawan, MoEF&CC, Jorbagh, New Delhi- 110003.	Member Secretary	Yes	Yes
15	Dr. Saurabh Upadhyay	2ndFloor, Vayu Block, Indira ParyawaranBhawan, MoEF&CC, Jorbagh, New Delhi- 110003.	Scientist C	No	Yes

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GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
(IMPACT ASSESSMENT DIVISION)
NON-COAL MINING SECTOR
***

SUMMARY RECORD OF 24TH MEETING OF THE COMMITTEE OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE FOR ENVIRONMENTAL APPRAISAL OF NON-COAL MINING PROJECTS CONSTITUTED UNDER THE EIA NOTIFICATION, 2006.

The 24th meeting of the Re-Constituted Expert Appraisal Committee (EAC) for Environmental Appraisal of Mining Projects (Non-Coal) of the Ministry of Environment, Forest and Climate Change was held during 26-28 December, 2023 through video conference. The list of participants is annexed herewith. After login of the Committee Members through video conference link provided by NIC discussion on each of the Agenda Items was taken up ad-seriatim.

(1.0) Deliberation & Circulation on the Minutes of 23rd EAC (Non-Coal Mining) meeting held during 5-7 December, 2023:

The minutes of the 23rd EAC meeting held during 5-7 December, 2023 were placed before the members of the EAC.

Day 1: 26th December, 2023 (Tuesday)

1.1 Majhgawan Diamond Mine, Panna of M/s NMDC Ltd. with total excavation of 13.90 LTPA [ROM Kimberlite Ore @ 8 LTPA and Overburden removal @5.90 LTPA] for production of 1.00 lakh carats of Diamonds per annum in the mine lease area of 113.332 Ha, located at village Majhgawan, Tehsil & District Panna, Madhya Pradesh -[F.No: J-11015/120/2018-IA-II(M), Proposal No: IA/MP/MIN/442288/2023, EIA Consultant: M/s Ecomen Laboratories Ltd] - Revalidation of EC under Ministry's Notification vide S.O. (E) 1530, dated 06.04.2018

The instant proposal is for mining of Diamond in Majhgawan Diamond Mine with total excavation of 13.90 LTPA [ROM Kimberlite ore @ 8 LTPA and Overburden removal @ 5.90 LTPA for production of 1.00 lakh carats of Diamonds per annum] in the mine lease area of 113.332 Ha (Main Lease), located at village Majhgawan, Tehsil & District Panna, Madhya Pradesh.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under: -

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i. The proposal was earlier considered in the 20th EAC (Non Coal Mining) meeting held during 21-22 September, 2023 wherein the EAC deferred the proposal for want of requisite information. Then, the Project Proponent submitted the information on 02.12.2023 in Parivesh portal and accordingly the proposal was considered in the 24th EAC (Non-Coal Mining) meeting held during 26-28 December, 2023.

Based on observation of EAC in its meeting held during 21-22 September, 2023 and observation of EAC and compliance made by Project Proponent are detailed below:

<table>
<tr><th>S. No</th><th>Observation of EAC in its meeting held during 21-22 September, 2023</th><th>Reply by Project Proponent</th></tr>
<tr><td>1</td><td>The Project Proponent needs to revalidate the baseline data by collecting one-month fresh baseline data by new EIA consultant to ascertain the facts and figures presented in the EIA report and also to ascertain the ground reality. The Project Proponent also needs to submit the comparison of both baseline data.</td><td>The Project Proponent submitted that the baseline data was revalidated by collecting one-month fresh baseline data by new EIA Consultant M/s Ecomen Laboratories (P) Limited during the period of 1st October, 2023 – 30th October, 2023. The revalidation of baseline data was compared with initial baseline data generated during 01.12.2020 to 28.02.2021 and it was found that the revalidation of baseline data similar with previous baseline data and no major variations was observed during the recent study. The comparison of both the baseline data are as follows: -
<table>
<tr><th colspan="5">Ambient Air Quality (9 locations)</th></tr>
<tr><th>S. No</th><th>Parameters</th><th>Winter 2020-21</th><th>Post Monsoon, 2023</th><th>Standards, µg/m3</th></tr>
<tr><td>1</td><td>PM10</td><td>18.6-64.0</td><td>33.0 – 57.0</td><td>100</td></tr>
<tr><td>2</td><td>PM2.5</td><td>12.1-41.4</td><td>8.8 to 26.0</td><td>60</td></tr>
<tr><td>3</td><td>SO2</td><td>6.4 – 13.7</td><td>7.5 – 14.4</td><td>80</td></tr>
<tr><td>4</td><td>NO2</td><td>16.4 – 42.3</td><td>12.8 – 21.3</td><td>80</td></tr>
</table>
<table>
<tr><th colspan="5">Ambient Noise levels</th></tr>
<tr><th rowspan="2">Location</th><th colspan="2">Winter 2020-21</th><th colspan="2">Post Monsoon, 2023</th></tr>
<tr><th>Lday</th><th>LNight</th><th>Lday</th><th>LNight</th></tr>
<tr><td>Mine View Point</td><td>54.8</td><td>51.6</td><td>43.3</td><td>36.1</td></tr>
<tr><td>Hopper/Jaw Crusher Plant</td><td>61.0</td><td>57.4</td><td>45.4</td><td>36.1</td></tr>
<tr><td>Near Explosive magazine</td><td>51.7</td><td>48.7</td><td>43.2</td><td>35.8</td></tr>
<tr><td>Time Office gate</td><td>43.8</td><td>40.7</td><td>49.9</td><td>37.0</td></tr>
</table></td></tr>
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Processing plant near cone crusher	53.8	50.7	47.6	36.7
Processing Plant near HMS	50.8	47.7	47.5	36.5
X – Ray Sorter Room.	39.8	36.7	46.8	36.4
Workshop	45.8	42.7	51.8	37.3
Majhgawan township	43.2	39.3	52.8	38.6
Panna National park boundary	40.7	37.6	43.1	35.5
Bharat Mata Temple	43.8	40.6	52.5	38.3
Middle School, Hinauta Village	49.7	46.8	52.0	38.2
Inside Panna National Park near Hinouta elephant camp	37.8	34.7	51.3	37.7
Primary School, Kaimasan	36.7	33.8	51.5	37.6
Standards Day Time dB(A)		Industrial: 75, Commercial: 65 Residential: 55, Silent Zone: 50		
Standards Night Time dB(A)		Industrial: 70, Commercial: 55 Residential: 45, Silent Zone: 40		

Surface water quality (3 locations)			
S. No	Parameters	Winter 2020-21	Post Monsoon, 2023
1	pH at 25°C	6.84 – 7.11	7.08 -7.34
2	Total Dissolved solids, mg/l	258.3 – 301.8	322 – 373
3	Chloride as cl-, mg/l	43.5 – 47.2	26.0 – 34.0
4	Total Hardness, mg/l	92.6-115.6	116-144
5	COD, mg/l	<3.0	8 -16
6	BOD, mg/l	<5.0	2 – 2.5
7	Fluoride as F, mg/l	0.4-0.5	0.49-0.56
8	Sulphates as SO4, mg/l	14.9-18.3	16.7-23.2

Ground water quality (7 locations)			
S. No	Parameters	Winter 2020-21	Post Monsoon, 2023
1	pH at 25°C	7.39 - 7.84	7.01 - 7.69
2	Total Dissolved solids, mg/l	335.1 - 539.4	446 – 612

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		3 | Chloride as cl-, mg/l | 29.4 - 70.5 | 40 – 75 4 | Total Hardness, mg/l | 184.3-294.8 | 204 – 280 5 | Fluoride as F, mg/l | 0.5 - 0.9 | 0.48 - 0.77 6 | Sulphates as SO4, mg/l | 19.8 - 46.8 | 22 – 41 Soil quality (5 locations) S. No | Parameters | Winter 2020-21 | Post Monsoon, 2023 1 | pH | 7.16 – 7.89 | 7.24 – 7.77 2 | Electrical Conductivity (µS/cm) | 154 - 234 | 221 – 274 3 | Organic Carbon (%) | 0.25 – 0.32 | 0.36 – 0.57 4 | Available Nitrogen as N (kg/Ha) | 35.3 – 57.4 | 31.2 – 48.0 5 | Available Phosphorus as P (kg/Ha) | 14.6 – 28.4 | 12.7 – 20.2 6 | Potassium (kg/Ha) | 468 – 581.8 | 134 – 203
2	The EAC opined that the Project Proponent may seek a legal opinion regarding the applicability of the orders dated 26.04.2023 and 28.04.2023 in this instant proposal.	The Project Proponent submitted the legal opinion obtained from the Attorney-General for India on 23.11.2023. The Attorney-General for India has opined that the orders passed by the Supreme Court on 26.04.2023 and 28.04.2023 overrules all earlier orders is misconceived. As subsequent order cannot be said to have overruled an earlier order unless the earlier order is directly put to rest, considered and dealt with. There is no room for overruling by implication also unless the subjects of the two proceedings are common. The order passed by the Supreme Court on 30.11.2022 was with full knowledge and understanding about the national park aspect. It was on the strength of that order, that all statutory authorities applied their mind, more particularly on the need and relevance of the closure of the mining activities and its importance. As a result, the order dated 30.11.2022 may have to treated as a standalone order. It cannot be compared to any other mining activity which

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		has not obtained requisite clearances. Additionally, having regard to the nature of the mining activity and the mischief that may arise from the abandonment of the mining activity, leaving the mined area with all its exposures, would also be a distinguishing factor. While on the prima facie reading on the two orders dated 26.04.2023 and 28.04.2023, do seem to suggest against undertaking mining activities within the prohibited areas, as already stated above in view of the clearance given by the Supreme Court, it appears to me that the Querist has a legitimate claim for further undertaking of the mining activity strictly in terms of the approval granted.
3	The EAC also opined that the Ministry may seek comments from the ESZ Division since the project is located within the Gangau wildlife sanctuary of Panna Tiger Reserve and whether the aforesaid orders dated 26.04.2023 and 28.04.2023 are applicable in the instant proposal or not.	The ESZ Division gave their comments on 12.10.2023 stating that *"Mining within ESZ is a prohibited activity. This has been reiterated by the Supreme Court Order dated 28.04.2023, irrespective of whether the mining is beyond 1.0 km from the boundary of the protected area, in case ESZ extends beyond 1.0 km."* The comments of the Wildlife Division obtained on 19.11.2023 are as follows:- The proposal for wildlife clearance under the Wildlife (Protection) Act, 1972 of Majhgawan Diamond Mine of M/s NMDC Ltd was recommended by the Standing Committee of National Board for Wildlife in its 61st meeting held on 18th February, 2021 subject to the conditions imposed by the Chief Wild Life Warden and the National Tiger Conservation Authority. The recommendations of NTCA were subject to approval of Hon'ble Supreme Court. The Hon'ble Supreme Court order in I.A No: 1485 and 1507 dated 13/8/2008 and I.A No: 47252 of 2021 dated 30/11/2022 in W.P (Civil) no: 202 of 1995 permitted mining operations in Diamond Mining Project, Panna in Gangau wildlife sanctuary of Panna Tiger Reserve."

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		Subsequently, Hon'ble Supreme Court vide its order dated 26.04.2023 in IA 131377 of 2022 filed by the Ministry in W.P. (C) no. 202 of 1995 has directed that*"mining within the National Park and Wildlife Sanctuary and within an area of one kilometre from the boundary of such National Park and Wildlife Sanctuary shall not be permissible."* If any clarification is required on the matter, the IA Division may seek the same from Hon'ble Supreme Court."

3. Observation and Recommendation of the EAC:

The Member Secretary informed the EAC that officials from National Tiger Conservation Authority (NTCA) and Wildlife Division in the Ministry were invited as a Special Invitee to discuss the matter. The EAC asked the Project Proponent to brief about the legal aspects of Main and Supplementary mine lease. The Project Proponent briefed about the chronology of the legal aspects since from the grant of mining lease in the year 1965 to till the order of the Hon'ble Supreme court orders dated 26.04.2023 and 28.04.2023. The Project Proponent informed the EAC that at the time of sanction of grant of mining lease, the instant leases were outside the Panna (Gangau) Wildlife Sanctuary. The Panna Wildlife Sanctuary was notified in the year 1975 and later in the year 1994, the Govt. of India declared it as a Project Tiger Reserve. Then in the year 2005, the Director, Panna National Park informed that both the mine leases fall within Gangau Wildlife Sanctuary. Thereafter, the mining operations were suspended in the year 2005 and plant operations in the year 2006.

Further, the Project Proponent informed the EAC that EC was obtained in the year 2006 under EIA,1994 subject to acceptance by the Standing Committee of the National Board of Wildlife as well as permission from Hon'ble Supreme Court of India. The mining operations resumed in the year 2009 after obtaining all approvals and the permission was valid upto 31.12.2020. Again mining operations were stopped w.e.f 01.01.2021. In order to expedite the balance reserves, the application for renewal of Wildlife Clearance was submitted. The DIG, NTCA on 15.02.2021 conveyed the recommendations subject to fulfillment of conditions laid down by Chief Wildlife Warden (CWLW), Madhya Pradesh. The CWLW while forwarding the proposal to the Ministry specifically mentioned that the NMDC again should obtain the permission from the Hon'ble Supreme Court. Then, an IA was filed in the Hon'ble Supreme Court and the Hon'ble Supreme Court vide order dated 30.11.2022 stated that the present application deserves to be allowed and renewal of Wildlife Clearance was granted by CWLW on 24.02.2023. The Hon'ble Supreme Court vide its order dated 26.04.2023 and

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28.04.2023 directed that *"any activity, which is prohibited by both the guidelines as well as the ESZ notification shall strictly be prohibited. Since the mining activity in ESZ area is a prohibited activity, there is no question of such an activity being permitted in an ESZ area even if it falls beyond the distance of one kilometer from the boundary of the protected area".*

The Project Proponent also briefed about the legal opinion obtained from the Attorney-General for India on 23.11.2023. The Attorney-General for India has opined that the orders passed by the Hon'ble Supreme Court on 26.04.2023 and 28.04.2023 over rules all earlier orders are misconceived. The order passed by the Supreme Court on 30.11.2022 was with full knowledge and understanding about the national park aspect. A subsequent order cannot be said to have overruled an earlier order unless the earlier order is directly put to rest, considered and dealt with. Also, there is no room for overruling by implication also unless the subjects of the two proceedings are common. Therefore, the order dated 30.11.2022 may have to treated as a standalone order. It cannot be compared to any other mining activity which has not obtained requisite clearances. In view of the clearance given by the Supreme Court, it appears to that the Querist has a legitimate claim for further undertaking of the mining activity strictly in terms of the approval granted. The EAC noted that the Wildlife Division has informed that if any clarification is required on the matter, the IA Division may seek the same from Hon'ble Supreme Court. The officials of NTCA and Wildlife Division opined that the instant file may be sent to the NTCA to offer further comments in the instant matter.

The Project Proponent presented the KML file to indicate the site features in the vicinity of the mine lease area and in the study area of 10 km radius. The Project Proponent explained about the site features in the main mine lease area. The Project Proponent showed the existing working pit of 120m deep. The mining operations mainly will be carried out in the main mine lease and plant operations will be carried out in the supplementary mine lease for recovery of diamonds. Tailing pond is partly located within main mine lease and partly in supplementary mine lease. Water is re-circulated into the plant. The Project Proponent showed the processing plant, existing coarse tailing dumps, existing and proposed waste dumps and ore stack yard. The main mine lease does not involve forest land and the supplementary mine lease involves forest land of 74.018 ha and the Forest Clearance is co-terminus with extended lease period up to 30/6/2040. Water will be utilized from water reservoir built by NMDC. Renewal application was made to CGWA for obtaining approval for dewatering of 321.0 KLD and the same is awaited.

The Project Proponent informed the EAC that baseline data was conducted during December, 2020 – February, 2021 (Winter Season) and then revalidated by collecting one-month fresh baseline data by new EIA Consultant M/s Ecomen Laboratories (P) Limited from 1st October, 2023 – 30th October, 2023. The revalidation

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of baseline data was compared with initial baseline data generated during 01.12.2020 to 28.02.2021 and it was found that the revalidation of baseline data similar with previous baseline data and no major variations was observed during the recent study. Till date about 1.95 Lakhs saplings have been planted including both the leases as well as in surrendered areas. The monitoring committee suggested to remove the exotic species. No R&R issues are involved.The action plan for removal of exotic species is yet to be approved by PTR. Total height of dump will be around 25-30 m. The EAC asked the Project Proponent to ensure that no washouts should reach the village. The total excavated area will be 23.576 ha, out of which 3.07 ha will remain as water body at lower benches and the remaining area of 20.506 ha will be covered under plantation. OB & Tailing dump, mineral storage and infrastructure will also be covered under plantation. After removal of tailings, the tailing pond will be developed as a rain water reservoir. No backfilling is envisaged. Advertisement for public consultation was advertised on 20.07.2023 and the Madhya Pradesh Pollution Control Board vide letter dated 22.08.2023 forwarded the objections/suggestions received. The main concerns of the locals were related to drinking water, skill development, improvement of facilities etc., The budget proposed to address the concerns works out be Rs. 252 lakhs for both main mine lease and supplementary mine lease. A capital cost of Rs 342 Lakhs and a recurring cost of Rs 54.5 Lakhs have been earmarked towards Environment Management Plan.The Project Proponent explained about the processing of plant operations. The EAC asked the Project Proponent whether any chemical is added during mineral processing. The Project Proponent informed the EAC that ferro silicon is added to maintain the density.

After detailed deliberations made by the Project Proponent and the EIA Consultant, the EAC opined that the Project Proponent needs to seek clarification from the Hon'ble Supreme Court regarding the applicability of the orders dated 26.04.2023 and 28.04.2023 in this instant proposals. Based on the discussions held, the EAC **deferred** the proposal for want of following additional information: -

i. The Project Proponent needs to seek clarification from the Hon'ble Supreme Court regarding the applicability of the orders dated 26.04.2023 and 28.04.2023 in this instant proposals.

ii. The Ministry to seek comments from National Tiger Conservation Authority (NTCA) and Wildlife Division in the instant matter.

1.2 Majhgawan Diamond Mine, Panna of M/s NMDC Ltd. for 0.72 LTPA of over burden removal and Processing of Kimberley ore (8 LTPA) for production of 1.00 lakh carats of Diamond per annum with the mine lease area of 162.631 Ha (Supplementary Mine lease), located at village Majhgawan, Tehsil & District Panna, Madhya Pradesh – [F.No: IA-J-11015/121/2018-IA-II(M), Proposal

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no:IA/MP/MIN/442291/2023; EIA Consultant: M/s. Ecomen Laboratories Private Limited] - Revalidation of EC under Ministry's Notification vide S.O. (E) 1530 dated 06.04.2018

The instant proposal of M/s NMDC Ltd. is for mining of Diamond in Majhgawan Diamond Mine for 0.72 LTPA over burden removal and processing of Kimberlite ore of 8.0 LTPA for production of 1.00 lakh carats of Diamond per annum in the mine lease area of 162.631 Ha (Supplementary mine lease), located at Village Majhgawan, District Panna, Madhya Pradesh.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under: -

i. The proposal was earlier considered in the 20th EAC (Non Coal Mining) meeting held during 21-22 September, 2023 wherein the EAC deferred the proposal for want of requisite information. Then the Project Proponent submitted the information on 02.12.2023 in Parivesh portal and accordingly the proposal was considered in the 24th EAC (Non-Coal Mining) meeting held during 26-28 December, 2023.

Based on observation of EAC in its meeting held during 21-22 September, 2023 and observation of EAC and compliance made by Project Proponent are detailed below:

<table>
<tr><th>S. No</th><th>Observation of EAC in its meeting held during 21-22 September, 2023</th><th>Reply by Project Proponent</th></tr>
<tr><td>1</td><td>The Project Proponent needs to revalidate the baseline data by collecting one-month fresh baseline data by new EIA consultant to ascertain the facts and figures presented in the EIA report and also to ascertain the ground reality. The Project Proponent also needs to submit the comparison of both baseline data.</td><td>The Project Proponent submitted that the baseline data was revalidated by collecting one-month fresh baseline data by new EIA Consultant M/s Ecomen Laboratories (P) Limited during the period of 1st October, 2023 – 30th October, 2023. The revalidation of baseline data was compared with initial baseline data generated during 01.12.2020 to 28.02.2021 and it was found that the revalidation of baseline data similar with previous baseline data and no major variations was observed during the recent study. The comparison of both the baseline data are as follows: -
<table>
<tr><th colspan="5">Ambient Air Quality (9 locations)</th></tr>
<tr><th>S. No</th><th>Parameters</th><th>Winter 2020-21</th><th>Post Monsoon, 2023</th><th>Standards, µg/m3</th></tr>
<tr><td>1</td><td>PM10</td><td>18.6-</td><td>33.0 –</td><td>100</td></tr>
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		64.0	57.0	
2	PM2.5	12.1-41.4	8.8 to 26.0	60
3	SO2	6.4 – 13.7	7.5 – 14.4	80
4	NO2	16.4 – 42.3	12.8 – 21.3	80

Ambient Noise levels				
Location	Winter 2020-21		Post Monsoon, 2023	
	L_{day}	L_{Night}	L_{day}	L_{Night}
Mine View Point	54.8	51.6	43.3	36.1
Hopper/Jaw Crusher Plant	61.0	57.4	45.4	36.1
Near Explosive magazine	51.7	48.7	43.2	35.8
Time Office gate	43.8	40.7	49.9	37.0
Processing plant near cone crusher	53.8	50.7	47.6	36.7
Processing Plant near HMS	50.8	47.7	47.5	36.5
X – Ray Sorter Room	39.8	36.7	46.8	36.4
Workshop	45.8	42.7	51.8	37.3
Majhgawan township	43.2	39.3	52.8	38.6
Panna National park boundary	40.7	37.6	43.1	35.5
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Primary School, Kaimasan	36.7	33.8	51.5	37.6
Standards Day Time dB(A)	Industrial: 75, Commercial: 65 Residential: 55, Silent Zone: 50			
Standards Night Time dB(A)	Industrial: 70, Commercial: 55 Residential: 45, Silent Zone: 40			

Surface water quality (3 locations)			
S. No	Parameters	Winter 2020-21	Post Monsoon, 2023
1	pH at 25°C	6.84 – 7.11	7.08 -7.34
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<tr><td>4</td><td>Total Hardness, mg/l</td><td>92.6-115.6</td><td>116-144</td></tr>
<tr><td>5</td><td>COD, mg/l</td><td><3.0</td><td>8 -16</td></tr>
<tr><td>6</td><td>BOD, mg/l</td><td><5.0</td><td>2 – 2.5</td></tr>
<tr><td>7</td><td>Fluoride as F, mg/l</td><td>0.4-0.5</td><td>0.49-0.56</td></tr>
<tr><td>8</td><td>Sulphates as SO4, mg/l</td><td>14.9-18.3</td><td>16.7-23.2</td></tr>
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<tr><td colspan="4">Ground water quality (7 locations)</td></tr>
<tr><td>S. No</td><td>Parameters</td><td>Winter 2020-21</td><td>Post Monsoon, 2023</td></tr>
<tr><td>1</td><td>pH at 25°C</td><td>7.39 - 7.84</td><td>7.01 - 7.69</td></tr>
<tr><td>2</td><td>Total Dissolved solids, mg/l</td><td>335.1 - 539.4</td><td>446 – 612</td></tr>
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<tr><td>5</td><td>Fluoride as F, mg/l</td><td>0.5 - 0.9</td><td>0.48 - 0.77</td></tr>
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<table>
<tr><td colspan="4">Soil quality (5 locations)</td></tr>
<tr><td>S. No</td><td>Parameters</td><td>Winter 2020-21</td><td>Post Monsoon, 2023</td></tr>
<tr><td>1</td><td>pH</td><td>7.16 – 7.89</td><td>7.24 – 7.77</td></tr>
<tr><td>2</td><td>Electrical Conductivity (µS/cm)</td><td>154 - 234</td><td>221 – 274</td></tr>
<tr><td>3</td><td>Organic Carbon (%)</td><td>0.25 – 0.32</td><td>0.36 – 0.57</td></tr>
<tr><td>4</td><td>Available Nitrogen as N (kg/Ha)</td><td>35.3 – 57.4</td><td>31.2 – 48.0</td></tr>
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<td>The EAC opined that the Project Proponent may seek a legal opinion regarding the applicability of the orders dated 26.04.2023 and 28.04.2023 in this instant proposal.</td>
<td>The Project Proponent submitted the legal opinion obtained from the Attorney-General for India on 23.11.2023. The Attorney-General for India has opined that the orders passed by the Supreme Court on 26.04.2023 and 28.04.2023 overrules all earlier orders is misconceived. As subsequent order cannot be said to have overruled an earlier order</td>
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		unless the earlier order is directly put to rest, considered and dealt with. There is no room for overruling by implication also unless the subjects of the two proceedings are common. The order passed by the Supreme Court on 30.11.2022 was with full knowledge and understanding about the national park aspect. It was on the strength of that order, that all statutory authorities applied their mind, more particularly on the need and relevance of the closure of the mining activities and its importance. As a result, the order dated 30.11.2022 may have to treated as a standalone order. It cannot be compared to any other mining activity which has not obtained requisite clearances. Additionally, having regard to the nature of the mining activity and the mischief that may arise from the abandonment of the mining activity, leaving the mined area with all its exposures, would also be a distinguishing factor. While on the prima facie reading on the two orders dated 26.04.2023 and 28.04.2023, do seem to suggest against undertaking mining activities within the prohibited areas, as already stated above in view of the clearance given by the Supreme Court, it appears to me that the Querist has a legitimate claim for further undertaking of the mining activity strictly in terms of the approval granted.
3	The EAC also opined that the Ministry may seek comments from the ESZ Division since the project is located within the Gangau wildlife sanctuary of Panna Tiger Reserve and whether the aforesaid orders dated 26.04.2023 and 28.04.2023 are applicable in the instant proposal or not.	The ESZ Division gave their comments on 12.10.2023 stating that *"Mining within ESZ is a prohibited activity. This has been reiterated by the Supreme Court Order dated 28.04.2023, irrespective of whether the mining is beyond 1.0 km from the boundary of the protected area, in case ESZ extends beyond 1.0 km."* The comments of the Wildlife Division obtained on 19.11.2023 are as follows:- The proposal for wildlife clearance under the Wildlife (Protection) Act, 1972 of Majhgawan

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		Diamond Mine of M/s NMDC Ltd was recommended by the Standing Committee of National Board for Wildlife in its 61st meeting held on 18th February, 2021 subject to the conditions imposed by the Chief Wild Life Warden and the National Tiger Conservation Authority. The recommendations of NTCA were subject to approval of Hon'ble Supreme Court. The Hon'ble Supreme Court order in I.A No: 1485 and 1507 dated 13/8/2008 and I.A No: 47252 of 2021 dated 30/11/2022 in W.P (Civil) no: 202 of 1995 permitted mining operations in Diamond Mining Project, Panna in Gangau wildlife sanctuary of Panna Tiger Reserve." Subsequently, Hon'ble Supreme Court vide its order dated 26.04.2023 in IA 131377 of 2022 filed by the Ministry in W.P. (C) no. 202 of 1995 has directed that*"mining within the National Park and Wildlife Sanctuary and within an area of one kilometre from the boundary of such National Park and Wildlife Sanctuary shall not be permissible."* If any clarification is required on the matter, the IA Division may seek the same from Hon'ble Supreme Court."

2. Observation and Recommendation of the EAC:

The instant proposal of supplementary mine lease was appraised together with main mine lease as both the mine leases are contiguous. After detailed deliberations made by the Project Proponent and the EIA Consultant, the EAC opined that the Project Proponent needs to seek clarification from the Hon'ble Supreme Court regarding the applicability of the orders dated 26.04.2023 and 28.04.2023 for the instant proposals. Based on the discussions held, the EAC **deferred** the proposal for want of following additional information:-

i. The Project Proponent needs to seek clarification from the Hon'ble Supreme Court regarding the applicability of the orders dated 26.04.2023 and 28.04.2023 in this instant proposals.

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ii. The Ministry to seek comments from National Tiger Conservation Authority (NTCA) and Wildlife Division in the instant matter.

1.3 Bicholim Mineral Block- Block 1 (Auction Block) of M/s Vedanta Limited for mining of Iron Ore with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA(Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located atBicholim, Bordem, Lamgao, Mulgoa, Mayem&Sirigao Villages of Bicholim Taluka of North Goa District, Goa - [F.No: IA-J-11015/3/2023-IA-II(NCM), Proposal No: IA/GA/MIN/ 442593/2023, EIA Consultant: M/s Mineral Engineering Services] – Environmental Clearance (EC)

The instant proposal is for mining of Iron Ore in Bicholim Mineral Block – Block 1 (Auction Block) of M/s Vedanta Limited with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA (Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located at Bicholim, Bordem, Lamgao, Mulgoa, Mayem&Sirigao Villages of Bicholim Taluka of North Goa District, Goa.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under: -

i. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mining lease area is greater than 250ha and appraised at the Central level.

ii. The mine lease area is located between Latitude: 15°34'20.518"N to 15° 36'54.018"Nand Longitude: 73°54'4.754"E to 73°57'09.51"E. The mine lease area falls under the Survey of India Toposheet No: D43B14 and falls in Seismic Zone-II.

iii. The proposal was earlier considered in the 20thEAC (Non Coal Mining) meeting held during 21-22 September, 2023 wherein the EAC deferred the proposal for want of requisite information and site visit report of the subcommittee. Accordingly, site visit was carried out during 29-31 October, 2023 and then the Project Proponent submitted the information along with compliance of site visit report on 04.12.2023 in Parivesh portal and hence the proposal was considered in the 24th EAC (Non-Coal Mining) meeting held during 26-28 December, 2023.

Based on observation of EAC in its meeting held during 21-22 September, 2023 and observations of sub-committee during site visit (29-31 October, 2023), the project proponent provided the following compliances:-

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S. No	Observation of subcommittee during site visit held during 29-31 October, 2023	Reply by Project Proponent
1	The Project Proponent needs to submit the techno economic feasibility report for laying Over Land Belt Conveyor (OLBC) from the mine lease area to Sarmanas Jetty.	The Project Proponent submitted that transportation route from mine site to jetty currently covers a total distance of 5.48 kms (4.54 dedicated road and 0.94 km MDR-20 Public Road). Based on the present capacity of the tippers, 1205 trips are required per day and the present road network is adequate for the purpose with widening and strengthening of some patches. The preliminary Techno-Economic feasibility study has been undertaken and prima facie it does not look feasible to switchover to OLBC system considering the terrain of the likely route having mounds and low-lying areas, vegetation/forest patches and its likely degradation, accessibility, environmental impacts and safety issues, technologies available, cost of the system, implementation period via-a-vis remaining reserves in the mining lease. The Project Proponent also submitted the preliminary Techno-Economic feasibility issues for laying Over Land Belt Conveyor (OLBC) from the mine lease area to the Sarmanas Jetty along with cost and timeline comparison for conveyor system and dedicated road.
2	The subcommittee asked the Project Proponent to submit the ecology restoration plan for mined out pits for using as Water reservoir/Pisciculture.	The Project Proponent submitted that the Ecology Restoration or Mine Reclamation activities at Block I Bicholim Mineral block will be carried out concurrently with mining operations. The company has in-house experienced team having experience of mine land reclamation. The company also proposes to collaborate and take support of various reputed institutes and consultancy firms in ecology restoration of the area more importantly the local stake holders will be consulted in the process of ecology restoration. The Project Proponent also submitted that at conceptual stage, 20 ha area will be converted into water reservoir & 293.5 ha will be converted into backfilled area. Backfilled area will be reclaimed & rehabilitated by the plantation. At conceptual stage around 105 ha (21.94% of the total project area) of land will be brought under plantation.The plantation will comprise of saplings of native species which are generally grown in the state of Goa.The plantation would be a mix of various forest and fruit tree species and

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		technical advice would be taken from state forest and agriculture departments. The saplings will be procured from various nurseries like forest department nursery, nurseries developed by locals and also from companies in-house root trainer nursery. Further, the Project Proponent submitted that the Block-I Bicholim Mineral Block is already having a 7.5m wide green belt all along the mine block boundary except the areas where the mine block shares a common boundary with adjoining mine block. A 50m green belt exists towards the habitation within the lease and the same would be further strengthened and maintained. A dedicated 200m green belt would be developed and maintained towards the Idgah area. A density of 2500 saplings per ha will be maintained. Extensive plantation would also be done along the sides of connecting roads. The waste dump slopes will be covered with laterite material and then with biodegradable geotextile mats which will prevent soil erosion of the dump slopes and thus will facilitate the growth of native species. Grass seeds will be sprinkled on the dump slopes so that the same germinate during rains. The top of dump areas / levelled areas will be properly planned and developed in to theme based gardens which can be a attraction for school students, tourist etc. Some of the mined-out pits will partially backfilled and retained as water bodies.For instance, 1 Top pit and 5 Bottom pits will be finalized by end of first mine plan period and will be taken up for ecology restoration initiatives. The company will collaborate with state fisheries department to develop Pisciculture in the water body developed in the mine pits. Local youth will be provided training through the fisheries department so that they manage and maintain the Pisciculture project.
3	The subcommittee noted that the transfer of material from one pit to other working pit will lead to transportation issues. The subcommittee asked the Project Proponent to identify	The Project Proponent submitted that as suggested by the Hon'ble Committee detailed study of mineral transportation from one pit to another pit including sequential mining has been carried out. The company has explored the possibility of concurrent backfilling and it will be possible only from 5th to 10th year. The Project Proponent submitted the google image showing the existing available pits for backfilling and

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	the shortest lead distance and also to explore the possibility of concurrent backfilling. The Project Proponent also needs to submit the sequential stage wise mining in top and bottom working pits and their backfilling plan.	proposed pits for backfilling. The Project Proponent also submitted the details of existing pits, area, depth and volume for backfilling and also the proposed working pits, area, depth and volume available for backfilling. Further, the Project Proponent submitted the year wise sequential mining & backfilling plan.
4	The Project Proponent needs to submit the action plan for strengthen the settling pond with proper stone pitching in line with the design of settling pond considering the annual rainfall, flow rate, catchment area and its discharge. The action plan for monitoring the water level and water quality before discharge needs to be submitted.	The Project Proponent submitted that at conceptual stage, total 12 no.s of settling ponds will be developed and these will be strengthened by the stone pitching. About 6 numbers of earlier mined out abandoned pits and 12 nos of interlinked siltation ponds have been identified for collecting surface run off from respective catchment sub basins. The Project Proponent also submitted the map showing the settling ponds and drainage network and design of settling ponds. The Project Proponent submitted that a total of 5.49 Million CuM of void volume is available for surface run-offf holding in six pits having a cumulative area of 58.11 Ha which have a total catchment area of 160 Ha. During entire mine life water holding capacity of 5.49 or more than 5.49 Million CuM will be available at any time. Further, a total 12 nos of settling ponds have been earmarked within and outside the ML Area for collecting surface run off. A total of 0.38 Million M3 of void volume is available for surface run-offf holding in 12 nos settling ponds having a cumulative area of 8.84 Ha. Considering five fillings in a year, the gross volumes of settling ponds will be 1.90 Million M3. Further, the Project Proponent submitted that entire monsoon runoff is channelized into mine pits and supernatant water flows into series of settling ponds through drains. The clear water is allowed to naturally overflow by Header arrangements or through check dams.In case required, Lime or combination of Lime and flocculent is used in the mine pit or settling pond so that the particles settle, and clear water is discharged. The discharge water is monitored regularly so that water quality meets the prescribed limits. The inhouse Environment management cell will undertake the regular

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		monitoring and analysis of discharge water through Environment laboratory recognized by MoEF&CC. The monitoring reports will be submitted to Goa State Pollution Control Board on monthly basis and MoEF&CC Regional office on six monthly basis. Surface water samples shall be collected at 8 locations which include all the mine discharge points and upstream and downstream of Bicholim and Asnora river. Samples shall be collected once a month. The parameters listed in IS: 2296 shall be monitored. During monsoon season, in addition to the monthly monitoring, all the discharge points will be regularly monitored (on all the rainy days) and the TSS levels will be checked.
5	The design of garland drain around the waste dumps to divert the water to settling ponds and the measures to be taken to arrest the suspended solids needs to be submitted. The measures to be taken for preventing the soil erosion on slope of waste dumps needs to be submitted.	The Project Proponent submitted that the dimensions of the drains will be maintained with width of 2m and 1.5 m in depth everywhere in the mine. A proper height will be maintained on the sides of the garland drain so that water does not get overflooded from the drains. The available garland drains are 11313 m in length which covers all the dumps within the mine lease area. The same will be strengthened and maintained before the onset of monsoon. The daily average surface run-off is estimated as 14003 m^3. The garland drains have the capacity to accommodate instant volume of 33939 m^3 as per above dimensions. Therefore, garland drains capacity is more than sufficient to take care of average daily surface run off during raining period. Additional drains are proposed to take care of peak run off during the plan period. Therefore, water management structures comprising of drains, settling ponds and mined out pits are available as well as planned to address the catchment area run-off for conceptual period. The Project Proponent also submitted the measures to be taken to arrest the suspended solids and for preventing the soil erosion on slopes of waste dumps for preventing the soil erosion on slope of waste dumps which are as follows: i. Inward slope will be provided to all the dump benches so that the water doesn't flow over the slope and erodes the dump slope surface ii. Covering the finalised dump slope with lateritic material and then covering with coir geotextiles iii. Use of ERW pipes between benches to channelise the surface runoff water and diverting to settling

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<table>
<tr><td></td><td></td><td>ponds.
iv. Boulder walls 1.5m ht and 2m wide will be provided at the toe of the dump to arrest the flow of silt.
v. Garland drains around the dump is constructed 1m bottom width, 2m top width and 1m deep with a length of 6100 m to divert water to settling pond for arresting the suspended solids.
vi. Use of Styllo grass seeds and Glyricidia cuttings at the onset of monsoon to create green cover on the dump slopes.
vii. Annual Plantation of native species on waste dump.
viii. Safety green belt /barrier of 50 mts shall be maintained near the Assonora river from the mine pit.
ix. Annual de-siltation of the settling ponds, drains.
x. Use of lime and flocculants in case required so as to settle the suspended solids in settling pond.</td></tr>
<tr><td>6</td><td>The Project Proponent needs to submit the action plan for installing permanent water sprinklers.</td><td>The Project Proponent submitted that permanent water sprinklers with 3.40 km length along the haul road within the ML area and 2.80 km length outside the ML area on either side of the road will be installed. Sprinklers will be spaced at 12m distance covering 6m radius at 180 degree. Estimated budget for the installation of the same is Rs. 191.60 Lakhs.
<table>
<tr><th>S. No</th><th>Description</th><th>Cost (Rs. In Lakh)</th></tr>
<tr><td>1</td><td>Civil Works</td><td>20.0</td></tr>
<tr><td>2</td><td>Pump & Sprinkler System</td><td>88.0</td></tr>
<tr><td>3</td><td>Pipeline</td><td>75.60</td></tr>
<tr><td>4</td><td>Electrical Works</td><td>8.0</td></tr>
<tr><td></td><td>Total</td><td>191.60</td></tr>
</table>
The Project Proponent also submitted the map showing the layout of proposed water sprinklers within mine lease area and along dedicated road.</td></tr>
<tr><td>7</td><td>The Project Proponent needs to submit the action plan and timeline to modify the crushing and screening units. The Project Proponent also needs to submit the material flow sheet and material balance.</td><td>The Project Proponent submitted that Crushing &screening units will be modified within 4 months after obtaining the Clearances. Budget proposed for the same is Rs. 6.97 Crore.The Project Proponent alsosubmitted the flow Sheet of Crushing & Screening Unit.</td></tr>
<tr><td>8</td><td>The Project Proponent needs to</td><td>The Project Proponent submitted that it is proposed to develop nursery adjacent to the mineral block (Survey no</td></tr>
</table>

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	submit the action plan for developing their own nursery by mentioning the details of the area to be covered, species to be planted and budget proposed. Most of the standing vegetation in the lease area constitutes of Acacia auriculiformis and Casuarina equisetifolia and it is further invading the open areas through natural regeneration. The invasion may be checked through planting native species in the region.	72/4 in Bicholim Village). Around 1100 sq.m of area will be utilized for the nursery. A budget of Rs. 5 lakh is kept for the same.The nursery will comprise of following: i. A poly house/ nursery shed will be developed where in a root trainer nursery will be established. ii. Production area wherein various jobs like filling of root trainers/polybags will be undertaken store room wherein the nursery equipment's will be stored iii. Only native / local species of various horticultural and forest species will be grown in inhouse nursery or sourced from forest department nursery for planting in the finalised areas within the Mineral block. iv. Necessary technical support will be taken from state forest department. Company also carries out collaborative mine reclamation projects in association with research institutes like NEERI, Goa university etc. v. Horticultural species like Mango, Cashew, Ber, Aonla, Jambul, Tamarind, Jackfruit, citrus species, etc will be grown vi. Forest species like various Terminalia tomentosa, Terminalia bellerica, Bauhinia species, Teak, Cassia fistula, Arjun, Assan, lagerstromia species, Shiwan, Ficus species, Pongamiapinnata, Reetha, Rain tree, Pangara, Peltoforum, Palas, Saton, Mahagony, bamboo species etc. The Project Proponent also submitted that during plan period an area of 9.7288 ha (24,322 no. of plants) will be developed under 7.5m safety zone, Buffer towards habitation, archaeological site, & river and an area of 9.4435 ha (23,609 no. of plants) will be developed on backfilled area. A budget of Rs 28.83 Lakhs has been earmarked towards the same.
9	The Project Proponent needs to ensure that whether any other Schedule-I species has been added as per latest Wildlife (Protection) Amendment Act 2022 or not. Accordingly, the Project Proponent shall submit the	The Project Proponent submitted that the authenticated list of Schedule I Species as per Indian Wildlife Protection Act 1972 as amended Gazette Notification of Wildlife (Protection) Amendment Act, 2022 has been obtained from the Dy. Conservator of Forests Wildlife & Eco-Tourism (North), Panji-Goa vide letter no. 1-576-WL&ET(N)/2023-2024/3312, dated 27.11.2023. According to this authenticated list, 29 Schedule I Species have been recorded within 10 km study area. As suggested by the Hon'ble EAC the company revised

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<table>
<tr>
<td></td>
<td>revised authenticated Schedule-I species.The Project Proponent also needs to submit the breakup of the conservation activities proposed under Wildlife Conservation Plan.</td>
<td>the break-up of conservation activities proposed under Wildlife Conservation Plan and same will be finalized after discussion with the Forest Dept. The break-up of the conservation activities proposed under Wildlife Conservation Plan are as follows:-
<table>
<tr><th>S.No</th><th>Particulars</th><th>1st year</th><th>2nd year</th><th>3rd year</th><th>4th year</th><th>5th year</th></tr>
<tr><td>1</td><td>Enrichment of forest areas with suitable indigenous species for wild life habitat improvement</td><td rowspan="5">12</td><td rowspan="5">12</td><td rowspan="5">12</td><td rowspan="5">12</td><td rowspan="5">12</td></tr>
<tr><td>2</td><td>Creation/ maintenance of habitat for herbivores/ avian fauna</td></tr>
<tr><td>3</td><td>Management interventions for facilitating water availability to the wild life in forest areas/ Improvement of soil and water regime of forest areas</td></tr>
<tr><td>4</td><td>Financial support to the department for conducting awareness campaigns for various stakeholders</td></tr>
<tr><td>5</td><td>Financial support to the department for celebrating events like Wildlife week and sponsoring the prizes for the competitions</td></tr>
<tr><td></td><td>Total</td><td colspan="5">Rs 60.0 Lakhs</td></tr>
</table>
</td>
</tr>
<tr>
<td>10</td>
<td>The Project Proponent needs to submit the map demarcating the surface features in the mine lease area and their safety distances left/maintained as per mines acts and rules.</td>
<td>The Project Proponent submitted the map demarcating the surface features in the mine lease area. The Project Proponent also submitted the safety distances left/maintained as per mines acts and rules as given below in table:
<table>
<tr><th>S.No</th><th>Features inside lease</th><th>Distance from Ultimate Pit Limit (UPL)</th><th>Statutory Distances as per MMR</th></tr>
<tr><td>1</td><td>ManasbagMulgao village</td><td>120 m</td><td rowspan="3">45 m</td></tr>
<tr><td>2</td><td>Mulgao village</td><td>58 m</td></tr>
<tr><td>3</td><td>Lamgao village</td><td>56 m</td></tr>
<tr><td>4</td><td>Manaswada Govt. School within habitation</td><td>138 m
(12 Students)</td><td rowspan="2">45 m</td></tr>
<tr><td>5</td><td>Gaonkarwada Govt. School</td><td>190 m
(not functional)</td></tr>
</table>
</td>
</tr>
</table>

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			within habitation			
		6	Old Lairai Temple	126m (From 5 Bottom Backfilling site)		
		7	Mahadev&Sateri Temple	280 m		
		8	Kelbai Temple	205 m	45 m	
		9	Sateri Temple	130 m		
		10	Matrai Temple	150 m		
		11	Nimuzgah	210 m		
		12	Lamgao Caves	300 m	45 m	
11	The Project Proponent needs to provide proper treatment of channels and nallas flowing in the lease area for soil and water conservation. Scientifically designed and placed check dams and other engineering structures at different places can help control the erosion and loss of productive soil. Necessary study from competent institution/individuals may be done for this purpose.	The Project Proponent submitted that Silt load study was carried out through Center for Advance studies department of geology, University of Delhi and it was concluded that, all the structures made for the settling of sediments are found to be more than sufficient to accommodate sediments even during peak rainfall. The Project Proponent submitted that the a) Total length of the Garland drain = 11313 m b) Peak rainfall = 154 mm/day c) Peak runoff in a day = 110590 m3 d) Capacity of garland drain = 33939 m3. The garland drains are made such that from upstream to the downstream where the drains are meeting the settling ponds will show decrease in elevation, to maintain a free-flowing gradient of rainfall runoff. The dimension of the drains is maintained to be 2m in width and 1.5m in depth at everywhere in the mine site. A proper height has been maintained on the sides of the garland drain so that water don't' get over-flooded from the drain.				
S. No	Observation of EAC in its meeting held during 21-22 September, 2023	Reply by Project Proponent				
1	The site visit report of the subcommittee.	The Project Proponent submitted the observations to the subcommittee recommendations during the site visit 29-31Oct., 2023 are complied and submitted in Parivesh portal.				
2	The Project Proponent needs to revisit the plan for backfilling with clearly indicating the voids area and the capacity available/required for backfilling.	The Project Proponent submitted that 5 numbers of earlier mined out pits have been identified for backfilling purpose to accommodate waste to be generated in future besides additional pits to be made available progressively with mining till conceptual period. The physical details of available pits to be converted into backfilled areas are as follows: Mine pit | Total | Area | Depth | Top | Bot | Vol (m^3)				

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location/ ID	area of pit (ha)	Available for Backfilling (Ha)	(m)	RL (m)	RL (m)	
1 Top	22.4367	20.9942	99	62	-37	19356183
2 Top	13.0803	9.9465	60	60	0	2968920
3 Top	16.0596	13.1650	70	110	40	2240000
¾ Bottom	-	-	109	102	-7	-
5 Top	37.0242	35.7242	78	98	50	14213124
5 Top CB	-	-	77	124	47	-
5 Bottom	15.4196	12.0840	92	87	-5	7035240
Total	104.0204	91.9139				45813467

Further, the details of pits to be made available progressively with mining till conceptual period and converted into backfilled areas are as follows:

Mine pit location/ ID	Total area of pit (ha)	Area Available for Backfilling (Ha)	Depth (m)	Top RL (m)	Bot RL (m)	Vol (m^3)	Void availability for backfilling
2 Top	43.1944	39.2331	116	91	-25	10518996	5th year
¾ Bottom	39.4606	34.6140	169	102	-67	15412643	End of 3rd year
2 Top	68.52	65.6420	113	103	-10	47912000	6th to 10th year
3 Top/2 Top combined	38.2545	36.6500	118	108	-10	38161200	11th to 13th year
4 Top/3 Top Combined	-	-	84	73	-11	-	11th to 13th year
5 Top CB Pit	-	-	168	94	-74	-	11th to 13th year
Total	189.425	176.1391				112004839	

As shown in the above tables, five numbers of earlier worked out pits will have void volume of 45.81 million m3 and during the Plan & Conceptual period progressive excavation, 112 million m3 of void volume will be available for backfilling. Therefore, a total of 157.98 million M3 of void volume will be available for backfilling in mined out pits having a cumulative area of 268.05 Ha. Additionally, area of 62 Ha will be available as voids including 22 ha of water reservoir for storing rain water.

The Project Proponent also submitted that the Conceptual waste generation shall be 124.9 million Cum which will have a swelled volume of 149.90 million CuM (say 150 million CuM). The 0.2 million CuM of swelled waste will be dumped over top of backfilled pits as surface dumps. Sufficient space is available to accommodate waste generated during life of mine considering swell factor of

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<table>
<tr><td></td><td></td><td>1.2.Annual waste generation is in range of 4.35 to 12.58 million cum per year with an average of 9.61 million cum per year considering life of the mine as 13 years based on the presently available mineable reserves. Life of the mine may reach upto 30 years if entire resources are converted to reserves by removing all encumbrances.</td></tr>
<tr><td>3</td><td>The Project Proponent needs to submit the design of settling ponds by considering the annual rainfall, catchment area and its discharge.</td><td>The Project Proponent submitted that at conceptual stage, total 12 no.s of settling ponds will be developed and these will be strengthened by the stone pitching. About 6 numbers of earlier mined out abandoned pits and 12 nos of interlinked siltation ponds have been identified for collecting surface run off from respective catchment sub basins. The Project Proponent also submitted the map showing the settling ponds and drainage network and design of settling ponds.

The Project Proponent submitted that a total of 5.49 Million CuM of void volume is available for surface run-offf holding in six pits having a cumulative area of 58.11 Ha which have a total catchment area of 160 Ha. During entire mine life water holding capacity of 5.49 or more than 5.49 Million CuM will be available at any time. Further, a total 12 nos of settling ponds have been earmarked within and outside the ML Area for collecting surface run off. A total of 0.38 Million M3 of void volume is available for surface run-offf holding in 12 nos settling ponds having a cumulative area of 8.84 Ha. Considering five fillings in a year, the gross volumes of settling ponds will be 1.90 Million M3.
<table>
<tr><td>Particulars</td><td>Details</td></tr>
<tr><td>Catchment area of pits</td><td>160 ha</td></tr>
<tr><td>Rainfall received</td><td>160 ha x 3500 mm = 5.6 Million CuM</td></tr>
<tr><td>Effective surface runoff to be accumulated in voids</td><td>5.6 x 0.7 = 3.92 Million CuM</td></tr>
<tr><td>Pits water holding capacity</td><td>5.49 Million CuM</td></tr>
<tr><td>Gross settling ponds capacity</td><td>1.90 Million CuM</td></tr>
<tr><td>Total water holding capacity of mined pits and settling ponds</td><td>7.39 Million CuM</td></tr>
</table>

Further, the Project Proponent submitted that since total water holding capacity in pits and settling ponds (7.39 Million CuM) is more than rainfall and surface runoff volume from catchment (3.92 Million CuM), there is sufficient space for effective surface runoff management in during extreme precipitation times. The dimensions of the drains to be maintained will be 2m in width and 1.5 m in</td></tr>
</table>

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<table>
<tr><td></td><td></td><td>depth everywhere in the mine. A proper height will be maintained on the sides of the garland drain so that water does not get over-flooded from the drains. The available garland drains are 11313 m in length and daily average surface run-off is estimated as 14003 m3. The garland drains have capacity to accommodate instant volume of 33939 m3 as per above dimensions. Therefore, garland drains capacity is more than sufficient to take care of average daily surface run off during raining period. Additional drains are proposed to take care of peak run off during the plan period. Therefore, water management structures comprising of drains, settling ponds and mined out pits are available as well as planned to address the catchment area run-off for conceptual period. The overflow discharge water will be regularly monitored so that quality of water is maintained as per the prescribed standards and always clear water from ponds / pits meet the natural system. In case required, water treatment would be done in the pits by using lime and flocculants or other organic chemicals.</td></tr>
<tr><td>4</td><td>The Project Proponent needs to bypass the public road and also to explore the possibility of increasing the capacity of the truck so as to reduce the no. of trips. The EAC opined that the Project Proponent needs to revisit the traffic load by considering the cycle time and waiting time. The Project Proponent needs to submit the action plan for strengthening the road and for converting the unpaved road into concrete road.</td><td>The Project Proponent submitted the map showing the transportation route comprising of dedicated road corridor and public road. The total travel distance upto Jetty is 5.48 kms (4.54 km dedicated road and 0.94 km MDR-20 Public Road).Traffic load and effective distance between two trucks are as follows:-
<table>
<tr><th>S.No</th><th>Transportation working days</th><th>Quantity (In TPA)</th><th>Tonnes/ Day</th><th>Trips per day</th><th>Mode of transport</th></tr>
<tr><td>1</td><td>237</td><td>30,00,000</td><td>12658</td><td>1205</td><td>Road</td></tr>
<tr><td></td><td colspan="3">Total Trips per day</td><td>1205</td><td></td></tr>
</table>
The Road width details for various segments are as follows:
<table>
<tr><th colspan="2">Dedicated Road corridor</th><th>Public Road</th></tr>
<tr><td>3.31 km</td><td>1.23 km</td><td>0.94 km</td></tr>
<tr><td>12-15 mts wide Road</td><td>7 mts wide Road</td><td>7 mts wide Road</td></tr>
</table>
Further, the Project Proponent submitted the following details:-
i. Capacity of truck is 10.5 tons as per directives of Deptt. of Mines & Geology, Goa
ii. Total Handling per day is 12658 tons /day
iii. Transportation timings are 6.00 am to 7.00 am, 8:00 am to 12.45 pm and 2:00 pm to 5.45 pm. Therefore, the effective transportation time is 9.30 hrs.</td></tr>
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		iv. Per Hour Handling is: 1332 tons/hour v. No. of Vehicles per Hour (One way): 127 vehicles vi. No. of Vehicles per Hour (to and fro): 254 vehicles vii. The Speed of vehicle is 25 KMPH and the lead distance is 5.48 kms viii. The time taken for 5.48 km is 13.15 mins for each truck and loading time is 1min, weighment time at both source location is 2 min, Tarpaulin tying and untying time is 2 min, unloading time 1 min and waiting time 10 min. ix. Each truck length is 15'. 5" (4.58 m) x. Distance from truck to truck is 5 m both side = 10 m xi. Each vehicle occupies a min. distance of 14.58 m = ~ 15 m xii. The length of road is 5.48 Km = 5480 m xiii. No. of vehicle which can travel on this road for one side= 5480 /15 = 365, However we would be plying only 127 trucks hence effective distance between two vehicles is 43 m. The Project Proponent submitted the following mitigation measures for transportation:- i. Public road is hot mixed and same will be maintained. ii. Dedicated road is proposed to be hot mixed in phased manner. iii. Entire Dedicated transportation route is surrounded by thick Green Belt iv. Transportation vehicles shall be properly maintained to minimize the exhaust emission. v. Regular tests shall be carried out to check exhaust emission and PUC certification of transportation vehicles at prescribed interval. vi. Transportation trucks will be loaded with prescribed capacity and covered with tarpaulin before leaving mines premises. vii. Overloading of the material will be avoided. viii. Regular monitoring of the emission levels. ix. Over speeding of Vehicle will not be allowed. x. Traffic Marshals shall be provided for regulating movement of vehicles as well as for safety of persons. xi. Training will be given to all drivers about safe driving. xii. Regular water sprinkling by means five hired water tanker of 10KL capacity on haul road and Loading

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		points will be carried out xiii. Used of fixed dust suppression system on haul roads xiv. Installation of two wheel washed system (one each at the exit of the dedicated road and jetty exit respectively xv. Manual and mechanised machines for road sweeping xvi. Washing of mine exit points/Junctions (Mayem, Pilgao and Jetty exit area) after transportation hours/at night with water tanker having pipe arrangements xvii. Underpass proposed at Mayem junction to prevent interface with public. The Project Proponent submitted that the regular mining in the state of Goa stopped since 2012 (it started for brief period in 2018 and again stopped). The truck owners who have already invested in the 10.5 T trucks are severely affected due to the stoppage of mining activity and are against procurement of new / high-capacity trucks, till their losses are covered. The company has already conducted series of meetings with the truck owner's associations for the higher capacity trucks and the truck owners are not agreeing to any changes in short term of 5 years. However, the engagement with the truck owners for higher capacity truck will continue. Company will also engage with all stake holders to explore the feasibility for installing conveyor belt system for transportation in near future, if permitted. The public road which is used for transportation is only 0.94 km long and the same is a hot mix road and in well maintained condition. The dedicated road of 4.54 km has very thick green belt on both the sides. There is no habitation along the dedicated road. Nearest habitation will be more then 250m from the road. The dedicated road before joining the public road is concreted and provided with the wheel wash system. Dedicated road sweeping machine will also be deployed to maintain the public road clean. The company also undertakes to hotmix the stretch of 4.54 km of dedicated road in a phased manner in three years' time frame. The estimated cost towards hot mixing is worked out as INR 18 crores.
5	Since the mine lease area is sharing the Mayem Forest	The Project Proponent submitted the letter from the Office of theDy. Conservator of Forests, North Goa Division Sensitivity: Public (C4) vide letter no. 5/MINES-

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	common boundary, the Project Proponent needs to submit the letter from the State Forest Department regarding the involvement of forest land in the mine lease area.	GEN/DCFN/TECH/2023-24/56, dated 12.04.2023 stating that the detail of village wise Survey No.s within Block-1 of Bicholim Mineral block was verified and found that the area under the above mentioned Survey Nos is not a Govt. Forest and also does not identified as Private Forest by State Level Expert Committee headed by Sawan/Dr. Karapurkar/V.T. Thomas.
6	The Project Proponent needs to submit a letter from the Department of Geology and Mining, Government of Goa clarifying whether any illegal mining within the mine lease area has been carried out or not and whether the same has been carried out by M/s. Vedanta Limited or not?	The Project Proponent submitted the letter from the Directorate of Mines & Geology vide Lr. No. 03/24/2023/ Major/Mines/Part/489 dated 25.07.2023 stating that a) M/s. Vedanta has been declared as Preferred Bidder for Bicholim Mineral Block- Block I through an auction process conducted by the Government of Goa as per the Mineral Auction Rules, 2015. b) M/s. Vedanta Ltd., was not the erstwhile lessee of the said Block prior to auction. c) The matter of illegal mining in the State of Goa is under investigation by the Special Investigation Team (SIT). The Project Proponent also submitted that the Block-I Bicholim Mineral Block was earlier operated by Sesa Mining Corporation Ltd. (SMCL) formerly known as Dempo Mining Corporation Ltd. Pursuant to Supreme Court Judgment in Goa Foundation order dated 07.02.2018, all the mining leases granted by the State Govt. were cancelled. Thereafter, State Govt. in terms of the said order and as per the provisions of MMDR Act put this block for auction as a fresh lease grant. The e-auction process was conducted in accordance with the Tender Document for said Mineral Block. Vedanta Limited emerged as the highest qualified bidder having submitted the highest final price offer and was declared as the preferred bidder under Rule 9(9) (iii) of auction Rules. Further, upon submission of the first Installment, being 20% of the upfront payment, Government of Goa issued a Letter of Intent (LOI) vide letter no. DMG/25/Auction Cell/LOI-function/2023/2801 dated 13.01.2023 for the grant of a mining lease for Block-I Bicholim Mineral Block in Bicholim, Bordem, Lamgao, Mulgao, Mayem&Sirigao Villages, of Bicholim Taluka, North Goa District, Goa State over an area of 478.5206 Ha over a period of 50 years.
7	The Project Proponent needs to	The Project Proponent submitted that Goa State Pollution Control Board vide their letter No. 11/15/2023-PCB/

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	submit the video recording of the public hearing.	Leg/13555 dated 22/09/2023 submitted all the documents related to public hearing including public hearing video to the Member Secretary, EAC (Non Coal Mining).

iv. Details of Terms of Reference (ToR):

Date of application	File. No/ Proposal No	Consideration	Details	Date of accord
16.03.2023	F.No: IA-J-11015/3/2023-IA-II(NCM) IA/GA/MIN/ 422323/2023	3-4 May, 2023	Terms of Reference (ToR) to M/s Vedanta Limited for mining of Iron Ore in Bicholim Mineral Block – Block 1 (Auction Block) with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA (Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located in Bicholim, Bordem, Lamgao, Mulgoa, Mayem & Sirigao Villages of Bicholim Taluka of North Goa District, Goa	16.06.2023

v. Details of Mine Lease:

a) The Project Proponent has submitted the Letter of Intent (LoI) granted by the Government of Goa vide Lr No: DMG/25/Auction Cell/LOI-function/2023/2801 dated 13.01.2023 for grant of mining leasefor Block I - Bicholim Mineral Block for Iron Ore in Bicholim, Bordem, Lamgao, Mulgao Mayem & Sirigao villages, Bicholim Taluka, North Goa District over an area of 478.5206 Hectare for a period of 50 (fifty) years in pursuant to Rule 10(2) of the Auction Rules. This letter of intent is valid for a period of 3 (three) years from the date of its issuance.

vi. Land Use/Land Cover of the Mine Lease Area:

Private land	421.1153 Ha
Government land	57.4053 Ha
Total Mining lease area (MLA)	478.5206 Ha
Private land for crusher, workshop & other infrastructure outside the MLA	Not Applicable

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vii. Details of Mining Plan:

Review and Mining Plan approved by Indian Bureau of Mines, Goa	Letter No.	No. MCDR-MPC|1|2023-GOA-IBM_RO_ GOA
	Date	26.05.2023
	Mine Lease Area	478.5206 Ha
	Mineral	Iron Ore (Major Mineral)
Mining Parameters	Quantitative Description	
Method of Mining	Opencast mechanized mining without Drilling & Blasting	
Drilling/Blasting	Not Applicable	
Total Reserves and Resources	84.73 Million Tonnes	
Proved Mineral Reserve	36.071 Million Tonnes	
Life of mine	30 years	
Bench Height	7 m	
Bench Width	10 m	
Individual bench slope	70^0	
Overall pit slope	$<26^0$	
RoM output size	Less than 500 mm	
Crushing/Screening	Mobile Dry Crushing and Screening plant shall be available within the proposed mine to handle 4 MTPA of crude ore. The primary crusher will consist of 1 no. of Jaw crusher of capacity 120 TPH with an input feed of -500mm and shall produce output of -70 mm. It shall be followed by secondary crushers, 2 no.s of capacity 300 TPH and 200 TPH respectively. The input feed size shall be -70mm and output feed size obtained shall be -40mm. The Screening Plants of capacity -600TPH shall be installed where input the feed size shall be -70mm to obtain product of -40mm lumps & -10mm fines.	
Transportation details	ROM/Iron ore or Screened/crushed material will be transported by 10.5 Tonne trippers from Mine to Sarmanas jetty through a dedicated road. The total distance from the mine to Jetty is 5.58 km of which 0.94 km stretch is public road and remaining 4.64 km is company owned dedicated road.	
Dumpers capacity	40 tonne (within mines)	
Waste handling and Disposal	During the mining period, the waste generated by mining will be temporarily stacked within the mining lease area as surface dump and backfilled in the exhausted portion of the pits. The total waste to be generated during the plan period is about 69.85 million tonnes. An area of 6.7146 Ha shall be utilized for Dumps and Material stocking at the	

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	conceptual stage of mining.

viii. Water requirement:

Total water requirement	664 KLD	Pit Water	628 KLD
		Ground water	36 KLD
Source	Water from Mine Pit will be used for dust suppression, Vehicle washing and Green belt. Water for domestic requirement will be met from bore well.		
Permission	The Bore wells are registered with Goa State Water Resource department. Application for using mine pit water will be submitted.		

ix. Nearest village / town/ highway/railway station / water bodies/monument:

Particulars	Particular's Name	Distance & Directions
Village	Lamgoa	Within the lease area
Town	Bicholim Town	0.5 km, East
Road	State Highway SH-1	0.65 km, East
Railway Station	Tivim Railwaystation	10.5 km, North
Water Bodies	Asnora River Mayem Lake Mandovi River	Touching lease boundary at one of the points 0.46 km 2.3 km, SW
School	Mulgao Govt. Primary School	Within the lease area
Worship places	Namuzgah/Idgah Shri Lairae Temple	Within the lease area 0.86 km
Caves/Fort	300m buffer from Lamgao caves Khorjuvem Fort: 2 km	

x. Presence of Environmentally Sensitive areas in the study area:

Forest Land/Protected Area/Environmental Sensitivity Zone	Yes/ No	Details of Certificate/letter/Remarks
Forest Land	Yes	Mayem Forest Common Boundary with the mine lease area The following Reserve Forests are located within 10 km radius of the mine lease area such as Kharapal RF -6.7 km Kasarpal RF - 5.1 km Ambadgaon RF - 7.6 km
National park	No	The Project Proponent has submitted the letter from the Office of the Dy. Conservator of Forests vide Lr No: DCF(WP)/Tech/Digi/Vol-I/75/2022-23/ 968 dated 23.01.2023 stating that the proposed Bicholim Mineral Block-I is not situated within 10

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		km radius from the boundary of any the protected area in the State of Goa. PP also submitted the authenticated map dated 24.01.2023 showing the distance of the following Wildlife Sanctuary from the mine lease area. i. Madei Wild life Sanctury-14.105 km, E ii. Salim Ali Bird Sanctuary -10.553 km, SW iii. Bondla Wild life Sanctuary -20.476 km, SE
Schedule-I species	Yes	The Project Proponent has submitted the letter from the Office of the Dy. Conservator of Forests vide Lr No: 5/FCA/GEN/F&F/DCFN/TECH/2022-23 dated 04.04.2023 with regard to list of Flora and Fauna species present in core and buffer zone. The following Schedule-I species are found in the study area such as 1 Common leopard (*Felidae*) 2 White-bellied Sea-Eagle(*Accipitridae*) 3 Indian Peafowl (*Phasianidae*) 4 Crimson rose- Butterfly (*Papilionidae*)
Status of Wildlife Conservation Plan	Yes	Wild Life Conservation Plan is prepared and submitted for approval of Chief Wildlife Warden (CWLW) on 19.06.2023. PP has submitted the copy of the acknowledgement from Chief Wildlife Warden.

xi. Green belt/plantation details:

Proposed area for green belt/plantation	105.8894 ha
Budget for green plant& plantation till the end of life of mine.	Rs159.0Lakhs
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	25 ha
50 m safety zone of nallah, roads, electric lines	
Additional information (if any)	80.8894 ha (on backfilled area)

xii. Details of Baseline data:

Baseline Data (Air / Water / Noise / Soil / Ground water table/ others)			
Period of baseline data collection	March, 2023 to May, 2023		
Season (Summer / Pre-monsoon / Post-monsoon / Winter)	Summer Season		
Ambient Air Quality (no. of locations) and results	No. of Locations	Parameters	Results
	9	PM10	27.0 to 56.0 µg/m^3
		PM2.5	14.0 to 36.0 µg/m^3
		SO2	4.0 to 13.0 µg/m^3

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<tr><td></td><td>NO2</td><td><4.0 to 18.0 µg/m³</td></tr>
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<tr><td>During Night Time [Leq dB(A)]</td><td>35.9 to 49.3</td></tr>
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Surface water quality
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<tr><td>TDS (mg/l)</td><td>72 - 11240</td></tr>
<tr><td>Fluoride (mg/l)</td><td><0.1</td></tr>
<tr><td>Chloride (mg/l)</td><td>18 - 5620</td></tr>
<tr><td>Fe (mg/l)</td><td><0.05</td></tr>
<tr><td>Dissolved Oxygen (as O_2), mg/l</td><td>6.2 – 6.9</td></tr>
<tr><td>Biochemical Oxygen Demand (as O_2), mg/l</td><td><3.0</td></tr>
<tr><td>Chemical Oxygen Demand (COD) mg/l</td><td>22.0 – 26.0</td></tr>
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Groundwater Quality
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<tr><td>TDS (mg/l)</td><td>20 – 150</td></tr>
<tr><td>Fluoride (mg/l)</td><td>0.1</td></tr>
<tr><td>Chloride (mg/l)</td><td>5.0 - 19.0</td></tr>
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<tr><td>Electrical Conductivity (mohs/cm)</td><td>0.28 to 0.318</td></tr>
<tr><td>Nitrogen (kg/ha)</td><td>200 to 275</td></tr>
<tr><td>Phosphorus (kg/ha)</td><td>14.3 to 17.8</td></tr>
<tr><td>Potassium (kg/ha)</td><td>230 to 263</td></tr>
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xiii. Public Hearing (PH) Details:

Advertisement for PH with date	07.07.2023 Regional: Bhangar Bhui, Heraldo, Lokmat & Free press journal (Mumbai Edition) News papers

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Date of PH	11/08/2023
Venue	Narayan Zantye Multipurpose Sports Complex, Sarvan, Bicholim, Goa
Chaired by	District Collector, North Goa
Main issues raised during PH	Pollution, impact on ponds, Support for Education, Health, Agriculture Development & Skill Development, Employment.
Budget proposed for addressing issues raised during PH	Rs 309.3 Lakhs

xiv. Rehabilitation & Resettlement:

R & R details	There is presence of habitation within ML Area at Mulgao and Iamgao villages. Safety Buffer of 50m will be maintained from the habitations. No Rehabilitation & Resettlement Plan is proposed during life of mine.

xv. Court case details:

Court Case	Yes
Additional information (if any)	First Case: 1. WP(Civil) 2478 of 2022 (Filing number) before the High Court of Bombay at Goa 2. The said writ petition has been filed against the State Government and seeks to challenge the identification of properties bearing survey no. 90/1(part) and 96/0 as part of the recently auctioned Bicholim mine. The petition alleges violation of Rule 5 &6 of Mineral Evidence Rules and Section 10B of MMDR, Act by the State of Goa and DMG. The petitioner has prayed for quashing of auction notice to the extend it includes the property of the petitioner and grant a writ of mandamus against the Respondents. 3. Case status is pending. 4. No adverse orders have been passed. 5. As per the last order the matter has been disposed of by the HC on 17th July 2023 with a direction to the Petitioner to make a representation before the Government and the Government is to dispose of the same within four months. Second Case: 1. WP 592 of 2022 The said writ petition seeks to challenge the constitutionality of the tender

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	documents of Phase I auction of Goa mines. The petition alleges violation of Rule 5 & 6 of Mineral Evidence Rules by the State of Goa and DMG. The petition alleges non-disclosure of essential facts such as bore hole data, approved mining plan, production data of the previous five years and exploration data. The petitioner has prayed for quashing of auction notice to the extend it fails to include the essential facts and in the alternative to stay the auction. 2. Case status is pending 3. No adverse orders have been passed. 4. As per the last order the matter is listed on 01.09.2023.

xvi. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent has submitted the Affidavit in a non-judicial stamp paper of Rs 100 bearing no: A807037 dated 24.04.2023 stating that they will comply to the directions issued by MoEF&CC vide Office Memorandum F.No.3-50/2017.IA.III (Pt) dated 30th May, 2018 in terms of directions given Hon'ble Supreme Court in judgment dated 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India & Ors.
Undertaking of Project Proponent	The Project Proponent has submitted an undertaking stating that the Environmental Impact Assessment Report of Block-1 Bicholim Mineral Block of M/s Vedanta Ltd was prepared by M/s Mineral Engineering Services, QCI/NABET Accredited EIA Consultant at Sr.No. 55 as per list of list of accredited consultant/organizations. The Project Proponent has submitted an undertaking that the information and data provided in the EIA report and submitted to the Ministry are factually correct and they are fully accountable for the same.
Consultant submitted an Undertaking vide letter dated 02.06.2023	This is to declare that the prescribed ToRs have been complied with and that the data submitted are factually correct in respect of EIA & EMP report prepared for Block-1 Bicholim Mineral Block of M/s Vedanta Ltd, Goa.

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xvii. Details of the Environmental Management Plan (EMP):

Activities	Capital cost (Crores)	Recurring cost (Lakhs/annum)
Plantation	-	7.5
Environment monitoring	44	44
Air pollution control measures	20	300
Water Treatment .	-	11
Erosion control /monsoon measures	-	221
Personal protective equipment	-	15
Maintenance of fire protection systems	-	1.5
Environment awareness & training	-	5
Health	8	16
Total	72	621

xviii. Details of project cost and employment:

Particulars	(Rs. In lakhs)
Project Cost	25000 Lakhs
Employment	716 no.s

3. Observation and Recommendation of the EAC:

The Project Proponent presented the KML file to indicate the site features in the vicinity of the mine lease area. Then, the EAC deliberated on the additional details submitted by the Project Proponent and the EIA Consultant. The Project Proponent/EIA Consultant informed the EAC that plan for backfilling has been revised. About 5 numbers of earlier mined out pits have been identified for backfilling purpose to accommodate waste to be generated in future besides additional pits to be made available progressively with mining till conceptual period. The existing and conceptual availability of voids for backfilling is 157.98 (say 158) million CuM. Conceptual waste generation shall be 124.9 million Cum which will have a swelled volume of 147.43 million CuM. The void area and the capacity available are more than sufficient to meet the backfilling requirement. The Project Proponent also presented the year wise production from the working pits and waste disposal locations. Further, the Project Proponent presented the Progressive Mine Closure Plan showing working pit, backfilling, drainages and settling ponds at the end of plan period.

The Project Proponent informed the EAC that a total of 0.38 million cu.m of void volume is available for holding surface run-off in 12 nos of settling ponds having a cumulative area of 8.84 ha. The EAC asked about the highest rainfall in the past. The Project Proponent informed the EAC that the highest rainfall was 3900mm in the last 10 years. The Project Proponent also informed the EAC that total water holding capacity in pits and settling ponds (7.39 Million Cu.M) is more than rainfall and surface runoff

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volume from catchment (3.92 Million Cu.M) and hence there is sufficient space for effective surface runoff management in during extreme precipitation times. It is also proposed to strengthen the existing settling ponds embankments by stone pitching, cement pointing, addition of filter beds etc., The total travel distance upto Jetty is 5.48 km comprising of 4.54 km dedicated road and 0.94 km MDR-20 Public Road. Transportation working days will be 237 days. Trips per day will be 1205 and the capacity of the truck is 10.5 Tonne (T). It is proposed to have a dedicated road in place of 0.94 km stretch of public road within 2.5 years. It is also proposed to replace existing trucks of 10.5 t with higher capacity trucks of 25 t in phased manner to reduce traffic load and emissions per tonne/km. The EAC suggested the Project Proponent to speed up the process of construction of underpass. The Project Proponent presented a letter obtained from the Office of the Deputy Conservator of Forests letter dated 12.04.2023 stating that village wise Survey nos within Block-1 of Bicholim Mineral Block is not a Govt. Forest land and also does not identified as Private Forest land by State Level Expert Committee headed by Sawan/Dr. Karapurkar/V.T. Thomas. The Project Proponent also informed the EAC that Goa State Pollution Control Board vide their letter dated 22/09/2023 submitted all the documents related to public hearing including public hearing video to the Member Secretary, EAC (Non Coal Mining).

Then, the Project Proponent presented the point wise compliance of the recommendations of the subcommittee. The Project Proponent informed the EAC that preliminary techno-economic feasibility study has been undertaken for capacity of 3.0 MTPA from dry mineral processing plant to Sarmanas jetty covering a length of 5.72 km. Width of OLBC corridor is 17 m including service road. The proposed alignment for Over Land Belt Conveyor (OLBC) will be along the current transportation route. At prima facie it does not look feasible to switchover to OLBC system considering the terrain of the likely route having mounds and low-lying areas, vegetation/forest patches and its likely degradation, accessibility, environmental impacts and safety issues, technologies available, cost of the system, implementation period via-a-vis remaining reserves in the mining lease. Further, the Project Proponent also submitted that they will engage with all stake holders to explore the feasibility for installing conveyor belt system for transportation in near future. At conceptual stage, area of 20 ha will be converted into water reservoir &an area of 293.5 ha will be converted into backfilled area and will be reclaimed & rehabilitated by the plantation. The mined out pits will be converted into water reservoirs, pond with other ecotourism facilities like water sports, boating, fishing etc. Pisciculture in mine pits will be developed and also to involve the community for cage fishing to make it a commercially viable venture. It is proposed to develop theme-based gardens like medicinal gardens, horticulture gardens, spice gardens etc. A garden will be developed near the Idgah within the mining block area and proper road will be provided for access of visitors and pilgrims. The Project Proponent also presented the eco restoration model developed in other mines.

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The Project Proponent informed the EAC that garland drain capacity is more than sufficient to take care of average daily surface run off during raining period. Additional drains are proposed to take care of peak run off during the plan period. A proper height will be maintained on the sides of the garland drain so that water does not get over-flooded from the drains. Permanent water sprinklers with 3.40 km length along the haul road within the mine lease area and 2.80 km length outside the mine lease area on either side of the road will be installed. Crushing & screening units will be modified within 4 months after obtaining the Clearances. It is proposed to develop nursery adjacent to the mineral block (Survey no 72/4 in Bicholim Village). Around 1100 sq.m of area will be utilized for the nursery.The Project Proponent informed the EAC that the authenticated list of Schedule I Species as per Indian Wildlife Protection Act 1972 as amended Gazette Notification of Wildlife (Protection) Amendment Act, 2022 has been obtained from the Dy. Conservator of Forests Wildlife & Eco-Tourism (North), Panji-Goa vide letter dated 27.11.2023 and according to this authenticated list, 29 Schedule I Species have been recorded within 10 km study area. The conservation activities proposed under Wildlife Conservation Plan has been revised with a budget of Rs 60.0 Lakhs and same will be finalized after discussion with the Forest Dept. A silt load study was carried out through Center for Advance studies,Department of Geology, University of Delhi and it was concluded that, all the structures made for the settling of sediments are found to be more than sufficient to accommodate sediments even during peak rainfall.

The Project Proponent informed the EAC that a letter was obtained from the Directorate of Mines & Geology vide letter dated 25.07.2023 stating that matter of illegal mining in the State of Goa is under investigation by the Special Investigation Team (SIT). The EAC asked the Project Proponent to submit the undertaking regarding illegal mining. The Project Proponent submitted an undertaking vide email dated 26.12.2023 stating that M/s Vedanta limited is the preferred bidder for the Bicholim Mineral Block-Block 1 declared by the Govt. of Goa and it is also to undertake that there is no illegal mining done by M/s Vedanta ltd. The EAC opined that the instant Environmental Clearance (EC) is subject to the outcome of the WP 592 of 2022(MSPL v. State of Goa & Ors.) regarding challenging the constitutionality of the tender documents of Phase I auction of Goa mines and PIL WP 2029/2023 (F) (Suresh Govind Gaonkar & Ors v. Directorate of Mines and Geology & Ors) regarding challenging the state's decision to go ahead with the auction of the mining block.

After detailed deliberations made by the Project Proponent and the EIA Consultant, the EAC in its meeting held during 26-28 December, 2023 under the provisions of EIA Notification 2006 and its subsequent amendments, **recommended** the proposal for grant of Environmental Clearance (EC) to Bicholim Mineral Block- Block 1 (Auction Block) of M/s Vedanta Limited for mining of Iron Ore with proposed

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production capacity of 3.0 MTPA, Waste: 25.162 MTPA(Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located at Bicholim, Bordem, Lamgao, Mulgoa, Mayem & Sirigao Villages of Bicholim Taluka of North Goa District, Goasubject to the following specific conditions in addition to the standard EC conditions applicable for non-coal mining projects: -

i. The instant Environmental Clearance (EC) is subject to the outcome of the WP 592 of 2022 (MSPL v. State of Goa & Ors.) regarding challenging the constitutionality of the tender documents of Phase I auction of Goa mines and PIL WP 2029/2023 (F) (Suresh Govind Gaonkar & Ors v. Directorate of Mines and Geology & Ors) regarding challenging the state's decision to go ahead with the auction of the mining block.

ii. The Hon'ble Supreme Court has imposed a capping on mining of iron ore to 20 MTPA for the entire State of Goa. Accordingly, the Project Proponent shall first obtain the necessary permission from the competent authority with regard to the amount of mineral they can mine per year, before starting its mining operation.

iii. As committed before the EAC, the Project Proponent needs to explore the feasibility for installing conveyor belt system for transportation.

iv. The Project Proponent needs to obtain prior permission from the MoEF&CC for mining in common boundary as and when required.

v. The ecology restoration or mine reclamation activities shall be carried out concurrently with mining operations. The Project Proponent shall ensure that the restoration models demonstrated before the EAC shall be developed in association with research institutes like NEERI, Goa University etc.

vi. The mined out pits will be converted into water reservoirs, pond with other ecotourism facilities like water sports, boating, fishing etc., Pisciculture in mine pits will be developed and also the local community will be involved for cage fishing to make it a commercially viable venture.

vii. The waste dump slopes shall be covered with laterite material and then with biodegradable geotextile mats to prevent the soil erosion of the dump slopes so as to facilitate the growth of native species.

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viii. Regular monitoring and analysis of discharge water and at upstream and downstream of Bicholim and Asnora river needs to be carried out quarterly through NABL/MoEF&CC accredited laboratory.

ix. Extensive native fruit bearing plantation shall be carried out in all safety zones with density of 2500 trees/ha.

x. The Project Proponent needs to install the permanent water sprinklers along 3.40 km haul road within the ML area and 2.80 km length outside the ML area on either side of the road.

xi. As committed by the Project Proponent, existing trucks of 10.5 Tonnes shall be replaced with higher capacity trucks of 25 Tonnes in phased manner to reduce traffic load and emissions per tonne/km.

xii. Fugitive dust monitoring during transportation shall be monitored regularly at all the sensitive receptors and report shall be submitted quarterly to the Regional Office of MoEF&CC. Regular sprinkling shall be done on roads to suppress the dust at the source.

xiii. The Project Proponent shall adhere to the pollution control measures suggested by the Central Pollution Control Board (CPCB) in the environmental guidelines for crushing/screening activity.

xiv. The wheel washing facility for the ore transport vehicles shall be provided at the exit point of the mine.

xv. The Project Proponent needs to speed up the process of construction of underpass.

xvi. The Project Proponent needs to strengthen the settling pond with proper stone pitching in line with the design of settling pond considering the annual rainfall, flow rate, catchment area and its discharge.

xvii. The catch drains and siltation ponds needs to be regularly maintained to arrest silt and sediments flow from dumps.

xviii. The Project Proponent needs to modify the crushing & screening units within 4 months from the date of issue of this EC.

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xix. The Project Proponent needs to develop a nursery adjacent to the mineral block (Survey no 72/4 in Bicholim Village) for an area of about 1100 sq.m in consultation with State Forest Department. PP shall develop theme-based gardens like medicinal gardens, horticulture gardens, spice gardens etc.,

xx. The Project Proponent needs to explore the possibility of using advanced/ latest mining technologies available so as to minimize the ecological impacts.

xxi. The Project Proponent needs to use modern equipment's such as Camera Traps for ensuring presence and movement of wild animals in the vicinity of the mine lease area as well as in study area in consultation with Wildlife Wing of Forest Department. Appropriate interventions shall be taken to minimise stress conditions for wild animals and to avoid Man-Animal conflict.

xxii. The Project Proponent should follow-up the status of implementation on Wildlife Conservation Plan from the Forest Officials and the same shall be submitted to the Ministry's Regional Office in the six monthly compliance report.

xxiii. The Continuous Ambient Air Quality Monitoring Stations (CAAQMS) shall be installed and commissioned in consultation with CPCB. The real time data so generated should be displayed digitally at entry and exit gate of mine lease area for public display and shall be linked to server of CPCB/SPCB.

xxiv. The Project Proponent shall monitor the air quality, noise level, water quality, water level and ground vibration during drilling and blasting at the edge of the mine, near the village, crusher and at other sensitive receptors and such collected data shall be submitted quarterly to the Ministry's Regional Office.

xxv. The budget of Rs 309.3 Lakhs to address the concerns raised by the public in the public consultation to be completed within 3 years from the date of start of mining operations. PP shall comply with all action plans made for public hearing concerns and make regular maintenance and record the progressive activity outcomes. The Project proponent shall ensure that the activities proposed under the public hearing is different from the CSR activities.

xxvi. The Project Proponent shall create awareness among the local people working within the project area as well as its surrounding area on the ban of Single Use Plastic (SUP) in order to ensure the compliance of Notification published by MoEF&CC on 12/08/2021. A report, along with photographs, on the measures taken shall also be included in the six monthly compliance report.

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xxvii. The Project Proponent needs to complete the entire peripheral plantation under green belt, safety barrier plantation and gap plantation within three years from the start of mining operations. The Project Proponent should plant quality sapling of appropriate height of native and fruit bearing species. In case of tall transplants (seedlings) the seedlings should have proper trained root stock with root biomass commensurate with seedling height to ensure good growth after out planting. Plantation shall be undertaken in consultation with the State Forest Department. The Project Proponent shall make the actual count on the saplings planted and its survival rate and in case of failure of achievement of 95% survival rate, action plan for achieving the target survival rate shall be submitted to the Ministry's Regional Office.

xxviii. The Project Proponent should adopt the proper mitigation measures as proposed under EMP with budgetary provision of Rs 72 Cr. The adoption of mitigation measures and monitoring of the same as proposed in the EMP shall be done under the supervision of the qualified environmental personnel. The implementation status of the same shall be submitted to the Ministry's Regional Office.

xxix. The Project Proponent should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground). A dedicated team to oversee environment management shall be setup at site which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis instead of engaging environment monitoring laboratories/consultants. Any non-compliance or infringement should be reported to the concerned authority.

xxx. The Project Proponent shall explore the possibility of using atleast 20% of Electric vehicles/CNG/Solar instead of diesel operation within three years.

xxxi. NoC from the Central Ground Water Authority (CGWA)/ Concerned Local authority, as the case may be, shall be obtained before drawing the ground water for the project activities, State Pollution Control Board / Pollution Control Committees shall not issue the Consent to Operate (CTO) under Air (Prevention and Control of Pollution) Act and Water (Prevention and Control of Pollution) Act till the project proponent shall obtain such permission.

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xxxii. The Project Proponent shall also organize employment-based apprenticeship/ internship training program every year with appropriate stipend for the youth and other programs to enhance the skill of the local people. The data should be maintained for the training imparted to the persons and the outcome of the training, for the assessment of the training program should be analyzed periodically and improved accordingly. The preference shall be given to the local people for the purpose of employment as committed before the EAC.

xxxiii. The Project Proponent should periodically monitor and maintain the health records of the mine workers digitally prior to mining operations, at the time of operation of mine and post mining operations. Regular surveillance on occupational health shall be carried out every year for mine workers. PP shall also organize medical camp for the benefit of the local people and also the monitor the health impacts due to mining activity.

xxxiv. The mining lease holders shall, after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. The implementation report of the above said condition shall be submitted to the Ministry's Regional Office.

1.4 Guruvanipalli Limestone Mine of M/s. UltraTech Cement Limited for expansion in Limestone Production from 0.30 Million TPA to 4.00 Million TPA, Soil: 0.31 Million TPA (Total Excavation: 4.31 Million TPA) in the mine leasearea of 395.15 Ha, located at Village Guruvanipalli (Revenue Village: Petnikota), Taluka-Kolimigundla, DistrictKurnool, Andhra Pradesh – [F.No: :IA-J-11015/56/2021-IA-II(NCM), Proposal No: IA/AP/MIN/453165/2023;EIA Consultant: M/s J.M. EnviroNet Pvt. Ltd] – Environmental Clearance (Expansion)

The instant proposal is for mining of Limestone in Guruvanipalli Limestone Mine of M/s. UltraTech Cement Limited for expansion in Limestone Production from 0.30 Million TPA to 4.00 Million TPA, Soil: 0.31 Million TPA (Total Excavation: 4.31 Million TPA) in the mine lease area of 395.15 Ha, located at Village Guruvanipalli (Revenue Village: Petnikota), Taluka- Kolimigundla, District Kurnool, Andhra Pradesh.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under: -

i. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals under Category "A" of the schedule of the EIA Notification, 2006 as the mining lease area is greater than 250 ha and appraised at Central level.

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ii. The mine lease area is located between Latitude: 15°03'19.99661" N to 15°05'36.79473" N and Longitude: 78°00'16.63709" E to 78°01'55.11414" E. The mine lease area falls under the Survey of India Toposheet No: D43F16, D43L13, D44A4 and 57 J/1 and falls in Seismic Zone – II.

iii. Details of previous Environmental Clearance (EC):

a) The Project Proponent submitted that initially Environmental Clearance was obtained vide Lr No J-11015/212/2008-IA.II(M) dated 01.07.2009 for a production of 0.30 MTPA in the mine lease area of 395.15ha in favour of M/s. UltraTech Cement Limited.

iv. Details of Terms of Reference:

a) The Project Proponent obtained Terms of Reference (ToR) vide ToRLr. No IA-J-11015/56/2021-IA.II(NCM) dated 23.12.2022 for Guruvanipalli Limestone Mine for expansion in Limestone Production capacity from 0.30 Million TPA to 4.0 Million TPA, Soil: 0.31 Million TPA (Total Excavation: 4.31 Million TPA) in the mine lease area of 395.15 Ha.

v. Details of Mine lease:

S.no	LoI/Lease Grant order	Date of the grant	Name of the Mineral	Period of Grant	Granted by	Mine lease area in Ha
1	Initial Grant of Mining lease in favour of M/s DakshinCement Limited vide G.O. Ms. No.149, Inds. & Com (M.III) Dept.,	30.09.1995	Limestone	02.01.1997 – 01.01.2017 (20 years)	Govt., of Andhra Pradesh	395.15
2	Transfer of Mining lease held by M/s DakshinCement Limited to M/s. UltraTech Cement Limited vide G.O. Ms.No.80, Inds. & Com (M-I) Dept.,	16.04.2012	Limestone	for the unexpired portion of the mining lease period i.e., upto 01.01.2017	Govt., of Andhra Pradesh	395.15
3	Extension of validity of mine lease vide G.O. Ms. No. 38	12.02.2019	Limestone	For the period upto 01.01.2047	Govt., of Andhra Pradesh	395.15

vi. Details of executed Mine leases:

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S.no	Date of grant of Lease execution	Period of Grant		Details
		From	To	
1	Date of entering into original lease deed.	02.01.1997	01.01.2017	Proceedings No. 5634/M4/95 dated 02.01.1997 in favour of M/s DakshinCement Limited
2	Transfer of mining lease deed	11.07.2012	01.01.2017	Affidavit bearing AK 772376 in favour of M/s. UltraTech Cement Limited
3	Supplementary lease deed	15.03.2019	01.01.2047	Affidavit bearing CH 337737

vii. Land Use/Land Cover of the Mine Lease Area:

Private land	230.02 ha
Government land	165.13 ha
Total Mining lease area (MLA)	395.15 ha
Private land for crusher, workshop & other infrastructure outside the mine lease area	No infrastructure is proposed outside the mine lease area

viii. Mining plan details:

Modified Mining Plan including Progressive Mine Closure Plan was approved by Indian Bureau of Mines	Letter No.	AP/KNL/MP/LST-22/HYD
	Date	04.02.2021
	Mineral & (Major/Minor)	Limestone, (Major)
	Mine Lease Area, Ha	395.15
	Validity	2021-22 to 2025-26
Mining Parameters	Quantitative Description	
Method of Mining	Fully Mechanized Opencast Mining Method.	
Drilling/Blasting	Drilling: Drilling will be carried out using 150 mm dia drills. Blasting: The burden & spacing is 4 x 6 m, 5 x 8 m or more depending on the strata and the holes will be drilled upto 9 m depth with sub grade drilling of 1 m. Delay detonators/ shock tube detonators with ANFO, slurry, SME explosives, will be used to achieve better fragmentation and less throw of material.	
Geological Reserves	170.79 million Tonnes	
Mineable Reserves	108.81 million Tonnes	
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral	Total Excavation: 4.31 million TPA Breakup of Total Excavation:	

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Rejects/ Waste, MTPA)	1. Limestone: 4.0 Million TPA 2. Soil: 0.31 Million TPA
Life of mine	~31 years
Mine Bench Height & Bench Width	Bench height: 9 m Working Bench Width: 20-25 m (Working)
No. of Mine Benches	4 in current plan period & 6 at conceptual stage
plan period m bgl	312 m AMSL (37 m bgl)
Ultimate Depth of Mining, m bgl	294 m AMSL (55 m bgl)
Ground Water Table, m bgl	Pre-monsoon - 14.7 to 21.2 m bgl Post-monsoon - 12.5 to 19 m bgl
Details of ground water intersection	Water table will be intersected during the working and necessary permission will be taken before intersecting ground water table.
Individual bench slope	85°
Overall pit slope	45°
Details of existing/ proposed Crusher	An existing crusher is located in the adjacent mine lease, at about 2.0 KM distance from the current working pit and this crusher is being utilized for crushing of limestone. After exhausting the mineral reserves at the southern side of the mining lease area (near to the crusher), a crusher will be established at this mining lease for crushing the remaining limestone reserves
Mineral Beneficiation	Nil
RoM output size	50 mm
Transportation details including capacity of dumper/tipper, mode of transport and distance	The transport of blasted material is being/will be done by dumpers (55 & 100 T) from mine faces to crusher located at a distance of 1.80 km in adjoining Tummalapenta Limestone mine and after crushing, the crushed limestone is being dispatched to the cement plant located about 3.1 km away from crusher, through the covered conveyor belt. Subsequently after exhaust of mineral reserves on southern side of the mining lease (near to the existing crusher), a crusher will be established at this mining lease for crushing the remaining limestone reserves and transported to cement plant through covered belt conveyor.
Generation of Topsoil/OB & its Management during plan period & conceptual period.	Top Soil: ➢ During Plan period, 0.34 million tonnes of Top soil will be generated which will be used for greenbelt and plantation ➢ During conceptual period 1.34 million Tonnes of top soil willbe generated which will be used for greenbelt and plantation. Over Burden:

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	➢ No OB generation is there in this mining project
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	-
Additional information (if any)	There are some old slab quarries existing within the mining lease area. A Letter has been obtained from Department of Mines and Geology, Andhra Pradesh, vide letter no. 744/M4/1998 dated 09.07.2018 regarding the existence of old slab quarries in part of the mine lease area. The limestone is not uniform in quality across the deposit. Some areas are high in lime content and some are low. For mineral conservation and optimum utilization of the reserves, it is proposed to operate multiple pits simultaneously and also to meet the necessary ROM quality of the cement plant.

ix. Water requirement:

Total water requirement	300 KLD	Domestic	10 KLD
		Dust Suppression/Greenbelt	290 KLD
Source	Sourced from Cement plant and sump of existing Tummalapenta mine & later from this instant mine sump as and when developed.		
Permission for withdrawal/ intersection along with details of grant and its validity	Govt. of Andhra Pradesh, O/o The Commissioner, Panchayat Raj & Rural Development & Administrator, Apwalta accorded permission vide Lr.No. CORD-11028/6/2018- SLNA-GIS-CORD, dated 11/12/2021 to draw 2900 KLD of Rain water collected in the Mine pit and 500 KLD of groundwater from the existing bore wells of Thummalapenta village, Kolimigundla Mandal, Kurnool district and also 600 KLD of groundwater from the existing bore wells of Bhogasamudram Village, Tadipatri Mandal, Ananthapuramu District.		

x. Nearest village/town/ highway/interstate boundary/railway station/water bodies/monument/ forest

Particulars	Particular's Name	Directions
Nearest Village	Guruvanipalli	Adjacent to the ML Area in East direction
Nearest Town	Tadipatri	16.0 km in SSW direction
Nearest State/National Highway	SH - 30	5.5 km in South direction
	SH - 57	4.0 km in SE direction
Interstate Boundary	-	
Railway Station/Railway line	Tadipatri	16.5 km in SSW direction

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Water Bodies	Seasonal nallah passing through the lease area	-
	PeddaVanka (intermittent stream)	2.5 km in NE direction
	PeddaVanka (intermittent stream)	6.5 km in WSW direction
	SaddalaVengannaCheruvu (lake)	7.0 km in East Direction
Forest	Nil	-

xi. Presence of Environmentally Sensitive areas in the study area:

Forest Land / Protected Area / Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	No	The Project Proponent submitted the letter from the Govt. of Andhra Pradesh, Forest Department vide Lr. Rc.No. 21052/1/2023/WL-2, dated 01.11.2023 stating that i. No Reserve Forest and Protected Forest etc., within 10 km radius of the study area. ii. No National Park, Wildlife Sanctuaries, Biosphere Reserves, Wildlife Corridor, Tiger/Elephant Reserves etc., within 10 km radius of study area. iii. The nearest protected area is Rajiv Gandhi National Park at a distance of 66.59 km and GundlaBrahmeswra WLS is about 70.11 km from the proposed mine area.
National Park	No	
Wildlife Sanctuary	No	
Elephant/Tiger Reserve	No	
Eco-Sensitive Zone (ESZ) /Eco-Sensitive Area (ESA)	No	
Coastal Regulation Zone (CRZ)	No	-
Schedule-I species (No. s and name of schedule-I species with authenticated letter)	Yes	The Project Proponent submitted the letter from the Govt. of Andhra Pradesh, Forest Department vide Lr. Rc.No. 21052/1/2023/ WL-2, dated 01.11.2023 stating that following Schedule-I animals are found in the impact zone of 10 km radius from the proposed boundary such as Bengal fox, Jackal, Jungle Cat, Small Indian Mangoose, Indian crested porcupine, Bonnet macaque, Indian Chameleon, Indian Cobra and Rat Snake. Further, the Project Proponent submitted that
Wildlife Conservation Plan	Yes	

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		the Wildlife Conservation Plan for Schedule-I fauna with financial outlay of Rs 85.0 Lakhs was approved by the Principal Chief Conservator of Forests (WL) & Chief Wildlife Warden vide letter dated 01.11.2023.

xii. Green belt/Plantation details:

Proposed area for green belt/plantation and no. of saplings proposed	74.98 ha
Budget for green plant & plantation till the end of life of mine.	62 lakhs (yearly 2 lakhs)
Budget for nursery	No Provision for Nursery
Details of existing plantation and its survival rate	*Pongamiapinnata* (Kanuga), *Azadirachtaindica* (Neem), *Samaneasaman* (Rain tree), *Cassia fistula* (SemaThangedi), *Delonixregia* (Gulmohar Tree). Survival Rate is 92%
No. of tree cuts in the mine lease area and compensatory afforestation	None
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & Non mineralized areas	14.30 Ha
50 m safety zone of nallah, roads, electric lines	35.50 Ha
500 m safety zones of nearest habitation villages (Exhausted Pit Boundaries & Non Mineralized areas)	25.18 Ha

xiii. Baseline Data:

Baseline Data (Air / Water / Noise / Soil / Hydro geological study/ Traffic Study/ others)	
Period of baseline data collection	March to May, 2021
Season (Summer / Pre-monsoon / Post-monsoon / Winter)	Summer Season
Predominant Wind direction (From)	West
Ambient Air Quality (no. of locations) and results	9 Locations Result summary: PM_{10}: 51.8µg/m^3- 88.9µg/m^3 $PM_{2.5}$: 26.9µg/m^3- 51.3µg/m^3 SO2: 6.4µg/m^3- 12.3µg/m^3 NO2: 13.2µg/m^3–28.7µg/m^3
Noise level (no. of locations) and results	9 Locations Day Time (Lday) noise level: 50.6 dB (A) – 59.8 dB (A) Night Time (Lnight) noise level: 41.8 dB (A) – 50.9 dB (A).

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<table>
<tr><td>Water Quality (no. of locations) and results</td><td>
<table>
<tr><th>Parameters</th><th>Surface water (2 locations)</th><th>Ground water (8 locations)</th></tr>
<tr><td>pH</td><td>6.92 – 7.26</td><td>7.04 –7.55</td></tr>
<tr><td>Total Dissolved Solids, mg/l</td><td>381 - 549</td><td>494 - 651</td></tr>
<tr><td>Chloride as Cl-, mg/l</td><td>109.9 – 144.9</td><td>74.9 – 139.9</td></tr>
<tr><td>Total Hardness, mg/l</td><td>209.6 – 292.3</td><td>267.3 – 405.9</td></tr>
<tr><td>DO, mg/l</td><td>6.5 – 6.9</td><td>-</td></tr>
<tr><td>BOD, mg/l</td><td>4.9 – 7.1</td><td>-</td></tr>
<tr><td>COD, mg/l</td><td>20 - 26</td><td>-</td></tr>
</table>
</td></tr>
<tr><td>Soil Quality (no. of locations) and results: 8 Locations</td><td>
<table>
<tr><th>Parameters</th><th>Observed Values</th></tr>
<tr><td>pH</td><td>7.47 – 7.92</td></tr>
<tr><td>Electrical Conductivity (mS/cm)</td><td>0.25 – 0.58</td></tr>
<tr><td>SAR Value</td><td>0.38 – 0.63</td></tr>
<tr><td>Available Nitrogen, kg/ha</td><td>171.09 - 190.72</td></tr>
<tr><td>Available Potassium, kg/ha</td><td>168.45 - 559.27</td></tr>
<tr><td>Available Phosphorus, kg/ha</td><td>26.47 – 37.89</td></tr>
</table>
</td></tr>
<tr><td>Hydro geological study and results</td><td>The Project Proponent submitted the hydrogeological report and rainwater harvesting plan for Guruvanipalli Limestone mine. The Project Proponent submitted also that the total groundwater recharge within the mine site will be the sum of recharge through pit and recharge through rainwater harvesting structure is 1,58,000 cu.m/annum. At present the groundwater intersection has not occurred, but during plan period water table will be intersected due to mining activities. Prior permission will be taken before intersection of ground water table.</td></tr>
<tr><td>Traffic study (no. of locations) and results</td><td>The Project Proponent submitted that the blasted material is being/will transported by dumpers from mine faces to crusher (located in adjacent mine) via haul road and after crushing finally the limestone is being/will be dispatched to the clinkerization unit located about 3.1 km away from this mine through conveyor belt. No public road will be used for transportation of limestone. Hence, traffic study is not required.</td></tr>
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xiv. Public Hearing (PH) Details:

Advertisement for PH with date (name of major national daily and one regional vernacular daily newspaper)	Indian Express on 02.06.2023 and Sakshi on 02.06.2023
Date of PH	04.07.2023 at 11:00 AM
Venue	Mining Lease Area of Guruvanipalle Limestone Mine 395.15 Ha
Chaired by	▪ Shri B. Pullaiah (District Revenue officer, Nandyal District, Nominated by District Collector) ▪ Shri B Y Muni Prasad (Environment Engineer, Andhra Pradesh Pollution Control Board, Regional Office, Kurnool)
Main issues raised during PH	Drinking water facilities, Medical camp, Community hall, Employment, Environment and Development, Cattle grazing, R&R, Greenbelt development works, Pollution etc.,
Budget proposed for addressing issues raised during PH over 3 years	Capital Cost: 307.5 Lakhs Recurring Cost: 35.70 Lakhs

xv. Details of CTE/CTO, Certified Compliance Report, Certified Production Details from the inception of the mine:

Particulars	Details of Letter along with date of grant and validity
Consent to Establish	Consent Order for Establishment was granted by the Andhra Pradesh Pollution Control Board vide Order No. 193/PCB/CFE/RO-KNL/HO/2011 dated 22.06.2012 for production capacity of 0.3 MTPA in an area of 33.50 ha in the mine lease area of 395.15 ha.
Consent to Operate	Renewal of CFO was granted by the Andhra Pradesh Pollution Control Boardvide order dated 23.11.2022 for 0.3 million TPA (Valid: 31.01.2024)under Water Act (1974) and Air Act (1981).
Certified Compliance Report and Inspection date	Certified Compliance Report was issued by Sub-Office at Vijaywada, MoEF&CC vide File No. IRO/VIJ/EPA/EC-A/101/06-38/2022 dated 13.07.2023.Site visit was carried out by Sub-Office on 27.04.2023.
Certified Production Details from the inception of the mine (in tabular form against the EC capacity)	Department of Mines and Geology, Govt. of Andhra Pradesh vide Lr. No: 744/M4/1998 dated 04.08.2023 issued the production and dispatch details since inception to 30th June, 2023.

S. No	Year	Production and

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			Dispatch (in MT)
	1	1997-98 to 2013 to 2014	0
	2	2014-15	1000
	3	2015-16	0
	4	2016-17	1000
	5	2017-18	30000
	6	2018-19	39882
	7	2019-20	41000
	8	2020-21	44882
	9	2021-22	111882
	10	2022-23	296882
	11	2023-24 (up to 30th June, 2023)	64386

xvi. Rehabilitation & Resettlement:

R & R details	The Project Proponent submitted that total mining lease area is 395.15 ha out of which 230.02 ha is a private agricultural land and 165.13 ha is government land. Out of total private land of 230.02 ha, 104.77 ha land has been purchased by UTCL and remaining125.25 ha of lands need to be purchased. There are 83 houses present within mine lease area, hence there will be need of displacement due to the mining activities.There are 279 families out of which 139 PAFs whose land 125.25 ha. is yet to be purchased and 140 PAFs whose land 104.77 ha. have already been acquired. A budget of Rs 28.683 Cr have been earmarked towards R&R.

xvii. Court case details:

Court Case, No and its present status	The Project Proponent submitted an undertaking vide letter dated 12.12.2023 stating that there is no litigation pending against the project and order passed by any Court of Law against the project under the Environment (Protection) Act, 1986 or relevant Sections of Air and Water Acts and that for any such litigation whatsoever, the sole responsibilities will be borne by the company.
Undertaking by Project Proponent w.r.t court case	

xviii. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent submitted the Affidavit in a non-judicial stamp paper ofRs 100 bearing no: CM 524112 dated 19.04.2021 stating that they will comply with all the statutory requirement & judgment of Hon'ble Supreme Court order dated 2nd August 2017 in w.r.t. Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India &Ors.

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Undertaking by Project Proponent in EIA/EMP report	The Project Proponent submitted an undertaking vide letter dated 22.11.2023 stating that they have reviewed the EIA report and take full responsibility and ownership of the contents presented in the EIA report by J.M. EnviroNet Pvt. Ltd and instructions as per MoEF&CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4thAugust, 2009 has been followed in the preparation of this EIA Report.
Undertaking by Consultant in EIA/EMP report	The Consultant submitted an undertaking vide letter dated 24.04.2023 to the effect that the conditions laid down in Terms of Reference issued by MoEF&CC, New Delhi vide letter no. J11015/56/2021-IA.II(NCM) dated 23.12.2022 have been complied as per data/details provided by Project Proponent & as per Mining Plan along with Progressive Mine Closure Plan approved by IBM and the data submitted are factually correct.
Plagiarism Certificate	The Head of the Accredited Consultant Organization/ Authorized person certified that this EIA Report has been evaluated by using online software viz. Plagiarism Checker X on 20.11.2023. The report produced has been analyzed by the system and based on it and certify that the EIA Report produce in accordance with good scientific practice.

xix. Details of the Environment Management Plan (EMP):

Sl. No.	Activities	Proposed Cost (In Lakhs)	
		Capital	Recurring
A.	Mitigative Measures		
1	water tanker for water sprinkling in other roads and mining areas/activities.	24.43	5.14
2	Fixed Water Sprinkler on Haul Road	50	10
3	Green belt and plantation on 62.90 ha (10.42 ha on 7.5 m lease periphery + 25.18 ha on bench plantation + 27.30 ha on safety zone of nala, road and habitation)	394	2.62
4	Drip irrigation facility for plantation	5.0	0.5
5	Protection for Plantation (Fencing around area)	20	0.30
6	Garland Drain around Low line of mining pit	0.20	0.56
7	10 nos. of fog canon/mist sprayer of at least 40 m throw shall be installed at various locations in the mine lease area.	30.0	2.0
	Sub Total	523.63	21.12
B.	Monitoring		

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1	Installation of continuous Ambient Air Quality Monitoring Station (3 nos)	150	15
2	Display Board at main gate for display of Ambient, Air, Noise and Hazardous waste monitoring data.	5.00	0.50
3	Six Ambient Air Quality Monitoring Station at Village Guruvanipalle, Ankireddipalle, Petnikota	5.00	0.50
4	Providing Ear muffs/plus to workers working in high noise area	2.37	0.00
5	Air monitoring Equipment for PM10 & PM2.5	1.70	1.50
6	Work Place Noise Level Monitoring (4 no. of locations & quarterly frequency)	-	0.10
7	Installation of 03 piezo-meter along the periphery in the premises	5.00	0.50
8	Occupational Health Check-up of Mines Employees	10.00	0.00
	Sub total	169.07	18.1
C.	Wildlife conservation plan	85.00	0.00
	Total	777.70	39.22

xx. Details of project cost and employment:

Particulars	Budget (Rs. in Crores)
Total Cost for EMP (Capital Cost of EMP + Capital cost of public hearing)	Capital Cost: Rs. 7.78 Crores/- Recurring Cost: Rs. 40 Lakh/ annum
Project Cost	Rs. 48 Crores
Employment	71 persons

3. Observation and Recommendation of the EAC:

The Project Proponent/EIA Consultant presented the KML file to indicate the site features in the vicinity of the mine lease area. The Project Proponent showed the boundary of the mine lease area and the cement plant. The Project Proponent also indicated the location of the existing crusher located in the adjacent Tummalapenta Limestone mine. After exhaust of mineral reserves on southern side of the mine lease (near to the existing crusher), a crusher will be established at this instant mine lease for crushing the remaining limestone reserves and will be transported to cement plant through covered belt conveyor. In the 2nd phase, crusher will be installed in the northern part of the mine lease area and the same will be transported through covered belt conveyor and there will be no issue of crossing the public road and the roads will not be disturbed. The Project Proponent informed the EAC that during initial period of 5 years of mining operation existing haul roads will be used and no public road will be used for mineral transportation purpose. A nallah passes through the southern part of the mine lease area and will not be disturbed. The EAC asked about the old workings visible in the eastern and western side of the mine lease area. The Project Proponent informed the EAC that there are some old slab quarries. The EAC asked the Project Proponent to

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take adequate control measures to arrest the fugitive dust arising from the crusher at the source itself.

The EAC asked the Project Proponent that when will the peak production will be achieved. The Project Proponent informed the EAC that peak production of 4.0 MTPA will be achieved in the 5th year i.e., 2025-26. No National Park, Wildlife Sanctuary, Reserve and Protected forest located within 10km radius of the study area. The nearest protected area is Rajiv Gandhi National Park at a distance of 66.59 km and Gundla Brahmeswra WLS is about 70.11 km from the proposed mine area.The mine lease area falls underKurnool District only.There will be no waste generation from this mine. Baseline data was carried out during March-May 2022 (Summer Season). Predominant wind direction is from west. Environment Impact Assessment was carried out for normative production capacity of 13333 TPD and peak production capacity of 15333 TPD to assess the pollution. The resultant concentration of PM_{10} will be 67.27 $\mu g/m^3$and $PM_{2.5}$will be 36.55$\mu g/m^3$. The no. of working days will be 305 @ 3 Shifts of 8 working hours. At the end of life of mine, an area of 155.32 ha will be excavated, 163.23 ha will remain undisturbed and an area of 74.98 will be brought under greenbelt/plantation. The excavated area will be converted into water reservoir.

The Project Proponent showed the photographs of the greenbelt and plantation developed within the mine lease area. The Project Proponent informed the EAC that the public hearing was conducted on 04.07.2023. A budget of Rs 307.5 Lakhs has been earmarked as a Capital cost and Rs 35.70 Lakhs as a recurring cost towards to address the concerns of the public hearing with a timeline of three years. The proposed cost for Environment Management Plan (EMP) is Rs 7.78 Crores. The EAC asked the Project Proponent to show the existing and proposed list of machineries. The Project Proponent presented the existing and proposed list of machineries required for expansion. The EAC observed that the production is suddenly increasing from 1.0 MTPA in 4th year to 4.0 MTPA in the 5th year. The Project Proponent informed the EAC that at present mine is operating in a single shift and later the mine will be operated in three shifts to achieve the proposed production capacity. The EAC asked the Project Proponent to ensure that the machinery requirement/capacity to match with the proposed expansion production capacity. The Project Proponent presented the certified past production details and certified compliance report dated 13.07.2023. Site visit was carried out by Sub-Office on 27.04.2023. Sub-Office of MoEF&CC has certified that no non-compliances were detected.

After detailed deliberations made by the Project Proponent and the EIA Consultant, the EAC in its meeting held during 26-28 December, 2023 under the provisions of EIA Notification 2006 and its subsequent amendments, **recommended** the proposal for grant of Environmental Clearance (EC) to M/s. UltraTech Cement Limited for mining of Limestone in Guruvanipalli Limestone Mine for expansion in

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Limestone Production from 0.30 Million TPA to 4.00 Million TPA, Soil: 0.31 Million TPA (Total Excavation: 4.31 Million TPA) in the mine leasearea of 395.15 Ha, located at Village Guruvanipalli (Revenue Village: Petnikota), Taluka- Kolimigundla, DistrictKurnool, Andhra Pradesh subject to the following specific conditions in addition to the standard EC conditions applicable for non-coal mining projects: -

i. The Project Proponent needs to ensure that the machinery requirement/capacity shall match with the proposed expansion production capacity so as to avoid the sudden increase in pollution load.

ii. No Nallah should be disturbed or diverted at any stage of the mining operation.

iii. No public road shall be used for mineral transportation purpose.

iv. The Project Proponent needs to carry out ground vibration study through reputed institute to determine maximum charge per hole and charge to be blasted per delay so that ground vibrations are minimized and kept within permissible safe limits fixed by DGMS.

v. The mined out pits shall be used as Water reservoir/Pisciculture. Fencing should be made to prevent any inadvertent entry of men and cattle.

vi. The Continuous Ambient Air Quality Monitoring Stations (CAAQMS) shall be installed and commissioned in consultation with CPCB. The real time data so generated should be displayed digitally at entry and exit gate of mine lease area for public display and shall be linked to server of CPCB/SPCB.

vii. The Project Proponent shall monitor the air quality, noise level, water quality, water level and ground vibration during drilling and blasting at the edge of the mine, near the village, crusher and at other sensitive receptors and such collected data shall be submitted quarterly to the Ministry's Regional Office.

viii. The Project Proponent needs to explore the possibility of using advanced/ latest mining technologies available so as to minimize the ecological impacts.

ix. The Project Proponent needs to use modern equipment's such as Camera Traps for ensuring presence and movement of wild animals in the vicinity of the mine lease area as well as in study area in consultation with Wildlife Wing of Forest Department. Appropriate interventions shall be taken to minimise stress conditions for wild animals and to avoid Man-Animal conflict.

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x. The Project Proponent should follow-up the status of implementation on Wildlife Conservation Plan from the Forest Officials and the same shall be submitted to the Ministry's Regional Office in the six monthly compliance report.

xi. The Project Proponent needs to take adequate control measures to arrest the fugitive dust arising from the crusher at the source itself.The dense plantation shall be carried out in the vicinity of the crusher. The air pollution control equipment's like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, and other areas prone to air pollution.The Stack emission monitoring of the Crusher shall be carried out at periodic intervals.

xii. The Project Proponent needs to make provision for permanent water sprinklers instead of water tankers. About, 10 nos. of fog canon/mist sprayer of atleast 40 m throw shall be installed at various locations in the mine area. Effective dust suppression system shall also be adopted at other parts of the mining lease to arrest the fugitive dust emission. The Project Proponent needs to put effort to reduce water consumption by 30%.

xiii. The Project Proponent needs to complete the entire peripheral plantation under green belt, safety barrier plantation and gap plantation within three years from the start of mining operations. The Project Proponent should plant quality sapling of appropriate height of native and fruit bearing species. In case of tall transplants (seedlings) the seedlings should have proper trained root stock with root biomass commensurate with seedling height to ensure good growth after out planting. Plantation shall be undertaken in consultation with the State Forest Department. The Project Proponent shall make the actual count on the saplings planted and its survival rate and in case of failure of achievement of 95% survival rate, action plan for achieving the target survival rate shall be submitted to the Ministry's Regional Office.

xiv. The budget of Rs 307.5 Lakhs to address the concerns raised by the public in the public consultation to be completed within 3 years from the date of start of mining operations. PP shall comply with all action plans made for public hearing concerns and make regular maintenance and record the progressive activity outcomes. The Project proponent shall ensure that the activities proposed under the public hearing is different from the CSR activities.

xv. The Project Proponent shall create awareness among the local people working within the project area as well as its surrounding area on the ban of Single Use Plastic (SUP) in order to ensure the compliance of Notification published by

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MoEF&CC on 12/08/2021. A report, along with photographs, on the measures taken shall also be included in the six monthly compliance report.

xvi. The Project Proponent should adopt the proper mitigation measures as proposed under EMP with budgetary provision of Rs 7.78 Cr. The adoption of mitigation measures and monitoring of the same as proposed in the EMP shall be done under the supervision of the qualified environmental personnel. The implementation status of the same shall be submitted to the Ministry's Regional Office.

xvii. The Project Proponent should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground). A dedicated team to oversee environment management shall be setup at site which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis instead of engaging environment monitoring laboratories/consultants. Any non-compliance or infringement should be reported to the concerned authority.

xviii. The Project Proponent shall explore the possibility of using atleast 20% of Electric vehicles/CNG/Solar instead of diesel operation within three years.

xix. NoC from the Central Ground Water Authority (CGWA)/ Concerned Local authority, as the case may be, shall be obtained before drawing the ground water for the project activities, State Pollution Control Board / Pollution Control Committees shall not issue the Consent to Operate (CTO) under Air (Prevention and Control of Pollution) Act and Water (Prevention and Control of Pollution) Act till the project proponent shall obtain such permission.

xx. The Project Proponent shall also organize employment-based apprenticeship/ internship training program every year with appropriate stipend for the youth and other programs to enhance the skill of the local people. The data should be maintained for the training imparted to the persons and the outcome of the training, for the assessment of the training program should be analyzed periodically and improved accordingly. The preference shall be given to the local people for the purpose of employment as committed before the EAC.

xxi. The Project Proponent should periodically monitor and maintain the health records of the mine workers digitally prior to mining operations, at the time of operation of mine and post mining operations. Regular surveillance on

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occupational health shall be carried out every year for mine workers. PP shall also organize medical camp for the benefit of the local people and also the monitor the health impacts due to mining activity.

xxii. The mining lease holders shall, after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. The implementation report of the above said condition shall be submitted to the Ministry's Regional Office.

xxiii. The Project Proponent shall seek permission from Ministry before installing any crusher in the mine lease area.

xxiv. The Project Proponent shall periodically maintain the garland drains, retaining wall and other water management structures in the mine lease area.

1.5 Hutti Gold Mines (ML No: 2671) of M/s The Hutti Gold Mines Company Limited for expansion in production capacity from 0.6 MTPA to 0.9 MTPA (2000 TPD to 3000 TPD) and enhancement of processing plant capacity of 0.9 MTPA – 1.2 MTPA (3000 TPD to 4000 TPD) in the mine lease area of 528.35 ha, located at Hutti Village, Lingsugur Taluk, Raichur District, Karnataka - [File No: J11015/13/2003-IA.II(M), Proposal No: IA/KA/MIN/436624/2023; EIA Consultant: M/s Ecomen Laboratories Pvt Ltd] - Terms of Reference (Expansion)

The instant proposal is for Terms of Reference of M/s The Hutti Gold Mines Company Limited for expansion in production capacity from 0.6 MTPA to 0.9 MTPA (2000 TPD to 3000 TPD) and enhancement of processing plant capacity of 0.9 MTPA – 1.2 MTPA (3000 TPD to 4000 TPD) in the mine lease area of 528.35 ha, located at Hutti Village, Lingsugur Taluk, Raichur District, Karnataka.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under: -

i. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and 2(b) Mineral Beneficiation and falls under Category "A" as the mine lease area is greater than 250ha and appraised at the Central level.

ii. The mine lease area is located between Latitude: 16°12'29.55813"N to 16°11'57.54790"N and Longitude: 76°39'38.73430" E to 76°39'42.06560"E. The mine lease area falls under the Survey of India Toposheet No: 56 D/12.

iii. The proposal was earlier considered in the 19th EAC (Non-Coal Mining) meeting held during 24-25 August, 2023 wherein the EAC deferred the proposal for want of requisite information. Then, the Project Proponent submitted the information

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on 29.11.2023 in Parivesh portal and accordingly the proposal was considered in the 24th EAC (Non-Coal Mining) meeting held during 26-28 December, 2023.

Based on observation of EAC in its EAC meeting held during 24-25 August, 2023and compliance of observation of EAC made by Project Proponent are detailed below:

<table>
<tr><th>S. No</th><th>Observation of EAC in its meeting heldduring24-25 August, 2023</th><th>Reply by Project Proponent</th></tr>
<tr><td>1</td><td>The Project Proponent needs to submit the details of the chronology of the two mine leases and their amalgamation into single lease with supportingdocuments clearly mentioning the mine lease area also to clarify whether any amendment in EC has been obtained after renewal as a single mine lease during the year 2008.</td><td>The Project Proponent submitted that initially mining lease was granted under the mining lease no. 1564 for mining of gold and associated minerals over an area of 528.35 Ha (1305.6 Acres) for a period of 30 years from 20.12.1978 to 19.12.2008.

Then, the second mining lease was granted under the mining lease no. 1734 for mining of Scheelite Mineral over an area of 528.35 Ha (1305.6 Acres) for the period coterminous with the original lease i.e., up to19.12.2008.

Further, the Project Proponent submitted that the ML no. 1564 and ML no. 1734 for mining of Gold and associated minerals and Scheelite Mineral respectively, renewed under the Mining Lease no. 2671 for mining of Gold, Scheelite and associated minerals. There was no amalgamation of mining lease of M L no. 1564 and M L no.1734.

The Project Proponent also submitted the letter issued by the Govt. of Karnataka vide Lr No. CI 113 CMC 2016 Bengaluru, dated 14.02.2019 stating that as per the provision of Section 8A (8) of MMDR Act, 1957 read with Rule 3(1) of the Mineral (Mining by Government Company) Rules, 2015, the period of mining lease bearing no: 2671 held by M/s Hutti Gold Mines Company Limited shall extended up to 19.12.2028.</td></tr>
<tr><td>2</td><td>The Project Proponent needs to submit the certified past production details from the inception of the mining operation to 2011-12.</td><td>The Project Proponent submitted the letter from the Office of the Director, Dept. of Mines and Geology, vide Lr.No DMG/DCBML-2671/2023-24/6799 Bengaluru-1, dated 25.09.2023 from the period 1948-49 to 2022-23.
<table>
<tr><th rowspan="2">Year</th><th colspan="3">Ore production</th><th rowspan="2">Ore processing Tonnage (Million Tonnes)</th></tr>
<tr><th>Tonnage (Million Tonnes)</th><th>Recovery grade (g/t)</th><th>Gold produced (Tons</th></tr>
<tr><td>1948-49</td><td>0.0039</td><td>19.01</td><td>0.074</td><td>0.0039</td></tr>
<tr><td>1949-50</td><td>0.0265</td><td>7.60</td><td>0.202</td><td>0.0265</td></tr>
</table></td></tr>
</table>

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		1950-51	0.0289	8.81	0.255	0.0289
		1951-52	0.0350	8.02	0.281	0.0350
		1952-53	0.0424	7.58	0.321	0.0424
		1953-54	0.0620	8.49	0.527	0.0620
		1954-55	0.0751	7.24	0.544	0.0751
		1955-56	0.0756	7.45	0.563	0.0756
		1956-57	0.0760	6.47	0.491	0.0760
		1957-58	0.0776	5.68	0.440	0.0776
		1958-59	0.0802	5.78	0.464	0.0802
		1959-60	0.0954	5.22	0.498	0.0954
		1960-61	0.1045	6.28	0.656	0.1045
		1961-62	0.1105	7.07	0.781	0.1105
		1962-63	0.1095	8.22	0.900	0.1095
		1963-64	0.0531	8.04	0.427	0.0531
		1964-65	0.0959	8.02	0.768	0.0959
		1965-66	0.0804	9.76	0.785	0.0804
		1966-67	0.1068	8.62	0.921	0.1068
		1967-68	0.1086	8.48	0.921	0.1086
		1968-69	0.1065	9.13	0.972	0.1065
		1969-70	0.1258	7.25	0.912	0.1258
		1970-71	0.1758	7.59	1.334	0.1758
		1971-72	0.2041	6.29	1.283	0.2041
		1972-73	0.2134	6.23	1.328	0.2134
		1973-74	0.2157	6.60	1.423	0.2157
		1974-75	0.1866	6.84	1.276	0.1866
		1975-76	0.1789	6.54	1.170	0.1789
		1976-77	0.1401	6.28	0.880	0.1401
		1977-78	0.1090	7.84	0.855	0.1090
		1978-79	0.1191	6.65	0.792	0.1191
		1979-80	0.1100	7.65	0.842	0.1100
		1980-81	0.1479	5.24	0.774	0.1479
		1981-82	0.1451	6.57	0.954	0.1451
		1982-83	0.1422	5.26	0.749	0.1422
		1983-84	0.1462	5.58	0.816	0.1462
		1984-85	0.1364	6.32	0.862	0.1364
		1985-86	0.1510	5.54	0.837	0.1510
		1986-87	0.1558	5.88	0.916	0.1558
		1987-88	0.1631	5.37	0.876	0.1631
		1988-89	0.1828	5.29	0.968	0.1828
		1989-90	0.1599	5.38	0.861	0.1599
		1990-91	0.1965	5.25	1.032	0.1965
		1991-92	0.2012	5.34	1.075	0.2012
		1992-93	0.1809	4.86	0.880	0.1809
		1993-94	0.1775	5.42	0.962	0.1775
		1994-95	0.2338	5.21	1.218	0.2338
		1995-96	0.1873	5.07	0.949	0.1873
		1996-97	0.1864	6.59	1.228	0.1864
		1997-98	0.1667	7.28	1.213	0.1667
		1998-99	0.1583	7.25	1.147	0.1583
		1999-2000	0.1298	7.94	1.030	0.1298
		2000-01	0.1331	10.82	1.440	0.1331
		2001-02	0.3220	6.77	2.181	0.3220

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		2002-03 | 0.3993 | 5.99 | 2.390 | 0.3993 2003-04 | 0.4823 | 6.01 | 2.900 | 0.4823 2004-05 | 0.4808 | 6.71 | 3.227 | 0.4808 2005-06 | 0.4542 | 5.89 | 2.673 | 0.4542 2006-07 | 0.4855 | 4.60 | 2.232 | 0.4855 2007-08 | 0.5015 | 4.57 | 2.307 | 0.5015 2008-09 | 0.5047 | 3.96 | 1.975 | 0.5047 2009-10 | 0.4989 | 4.09 | 2.030 | 0.4989 2010-11 | 0.4964 | 4.46 | 2.006 | 0.4964 2011-12 | 0.4498 | 2.87 | 1.396 | 0.4498 2012-13 | 0.4865 | 2.95 | 1.435 | 0.4865 2013-14 | 0.4867 | 2.75 | 1.293 | 0.4867 2014-15 | 0.4695 | 2.37 | 1.245 | 0.4695 2015-16 | 0.5246 | 2.74 | 1.473 | 0.5246 2017-18 | 0.5089 | 2.98 | 1.514 | 0.5089 2018-19 | 0.5374 | 2.91 | 1.563 | 0.5374 2019-20 | 0.5403 | 2.77 | 1.499 | 0.5403 2020-21 | 0.3803 | 2.47 | 0.940 | 0.3803 2021-22 | 0.4197 | 2.88 | 1.209 | 0.4197 2022-23 | 0.5395 | 2.35 | 1.270 | 0.5395
3	The Project Proponent needs to submit the copies of the Consent to Operate (CTO) from its inception.	The Project Proponent submitted the copies of Consent to Operate as given below in table: S.No | Documents | File no. | Validity 1 | Consent to Establish (CTO) | 624/KSPCB/R0900004/APC/2000-01/1246 | 01/07/2000 to 30/06/2001 2 | Consent to Establish (CTO) | 311/KSPCB/TC/WPC/DEO-3/2001/651 | 21/09/2001 to 30/06/2002 3 | Consent to Establish (CTO) | KSPCB/SEO-2/SC&M/DEOAEO3/2002-03/77 | 09/07/2002 to 30/06/2003 4 | Consent to Establish (CTO) | KSPCB/APC/IND2/CKM/DEO-TC/AEO-2/2002-03/780 | 28/10/2002 to 30/06/2003 5 | Consent to Operate (CTO) | KSPCB/APC/RCR/DEO-TC/2003-04/335 | 01/07/2003 to 30/06/2004 6 | Consent to Operate (CTO) | KSPCB/WPC/RCR/2003-04/343 | 01/07/2003 to 30/06/2004 7 | Consent to Operate (CTO) | KSPCB/WPC/SEO-2/SC&M/DEO/AEO/2004-05/342 | 20/12/2004 to 30/06/2005 8 | Consent to Operate (CTO) | KSPCB/WPC/SEO-3/DEO-TC/AEO-3/2005-06/65 | 29/06/2005 to 30/06/2006 9 | Consent to Operate (CTO) | KSPCB/SEO-4/EO/DEO-3/06-07/149 | 01/07/2006 to 30/06/2007 10 | Consent to Operate | KSPCB/APC/SEO-4/EO/DEO/AEO/07-08/211 | 01/07/2007to

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			(CTO)		30/06/2008
		11	Consent to Operate (CTO)	KSPCB/SEO/DEO/AEO/08-09/539	01/03/2008 to 30/06/2009
		12	Consent to Operate (CTO)	KSPCB/SEO/Mining/AEO/09-10/725	01/07/2009 to 30/06/2010
		13	Consent to Operate (CTO)	25/KSPCB/SEO/DEO/AEO/2011-12/95	01/07/2010 to 30/06/2011
		14	Consent to Operate (CTO)	271/PCB/MIN/CFO/2012-13/1383	21/12/2012 to 30/06/2013
		15	Consent to Operate (CTO)	313/PCB/MIN/CFO/2013-14/1410	18/11/2013 to 30/06/2014
		16	Consent to Operate (CTO)	321/PCB/MIN/CFO/2004-15/1651	01/07/2014 to 30/06/2015
		17	Consent to Operate (CTO)	416/PCB/ MIN/CFO/2015-16/1506	01/07/2015 to 30/06/2016
		18	Consent to Operate (CTO)	AWH-30621 PCB ID 28496	11/05/2016 to 30/06/2020
		19	Consent to Operate (CTO)	AW-333881 PCB ID 28496	03/09/2020 to 31/03/2023
		20	Addendum to Consent Order	PCB/MIN/ADDENDUM/2023-24/1276	01/04/2023 to 31/03/2025

iv. Details of previous Environmental Clearance (EC):

a) Initially, the Project Proponent obtained Environmental Clearance (EC) vide EC Lr.No: J-11015/13/2003.IA.II(M) dated 17.11.2004 for Hutti Underground Gold mine of M/s Hutti Gold Mines Company Ltd., for expansion in production of Gold ore from 0.351 MTPA to 0.6 MTPA over an area of 308.35 ha under the EIA Notification, 1994.

v. Details of Mine Lease:

a) The Project Proponent has submitted that initially mining lease deed was executed on 20.12.1978.

b). The original grant notification was issued vide Notification No. CI 128 MMN 2011, dated 26.03.2012.

c) The Project Proponent submitted the copy of the mine lease deed made on 22.03.2014 for a period of 20 years w.e.f. 19.12.2008.

d) The Project Proponent submitted the letter issued by the Govt. of Karnataka vide Lr No. CI 113 CMC 2016 Bengaluru, dated 14.02.2019 stating that as per the provision of Section 8A (8) of MMDR Act, 1957 read with Rule 3(1) of the Mineral

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(Mining by Government Company) Rules, 2015, the period of mining lease bearing no: 2671 held by M/s Hutti Gold Mines Company Limited shall extended up to 19.12.2028.

vi. The Project Proponent has submitted that the entire mine lease area of 528.35 ha is a Govt. land.

vii. Details of Mining Plan:

a) The Project Proponent has submitted that the Modification of Mining Plan along with Progressive Mine Closure Plan was approved by Indian Bureau of Mines vide Lr.No: 279/356/92/BNG/803 dated 09.04.2018 for mining of Gold over an area of 528.35 ha for the period 2018-19 to 2022-23.

b) The method of mining will be mechanized underground mining method.

c) The mined out ore will be transported to the processing plant by trucks and conveyor belt. The gold ore will be treated in processing plant by various stages to recover the final product gold.

d) The oxide ore will be mined first and will be extracted by adopting Grinding, Gravity Concentration, Thickening & Leaching-Carbon-In-Pulp-Elution & Electro Winning-Cyanide Detoxification-Refining.

e) The mill tailings will be disposed of separately in a designated tailing dump within the mine lease area. The tailings will be disposed by pumping in slurry form.

f) The generation of waste rock estimated as around 4,37,414 Tonnes during the period 2020-21 to 2022-23, out of which 49% will be used as road metal, building construction jobs and remaining 51% as filling materials in completely depleted stopes. There is no sub grade ore or mineral produced.

g) Disposal methods being practiced includes coarse material in stope filling in underground and fine material is stored in upstream embankment method in tailings dam. About 1400-1500 tonnes per day, tailings estimated to dispose to the dump and 300-400 tons per day coarse sand estimated to be used for stope filling.

viii. The Project Proponent has submitted that the source of supply of water is from Krishna river (20 km from mine), Dump recycling water and mined out water. About 25.88% of water is recycling. About 4600 KLD of water from Krishna river is being used every day. For the expansion proposals, the required quantity of water for additional manpower, ore processing works out to be 1320 KLD and will be met from Krishna river and recycled water.

ix. The Project Proponent has submitted that there is no forest land within the mine lease area and Reserve Forests are located more than 5km from the mine lease area. The Project Proponent also submitted that there is no National Park, Wildlife Sanctuary, Eco Sensitive Area, Western Ghats within 10 km radius of the

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mine lease area. Further, the Project Proponent has submitted that Hutti Nadi (Seasonal Odai), Odai (Seasonal nala) are found within the mine lease area and Canal near medinapur and Hire halla are located at a distance of 0.77 km, W and 1.81 km, WNW respectively from the mine lease area. Hutti village is located within the mine lease area.

x. The Project Proponent has submitted that an area of 66.08 ha has been developed under greenbelt. The proposed area for the development of greenbelt will be 108.27 ha and no. of saplings proposed to plant is 1,51,578 no.s with a budget of Rs 1500 Lakhs.

xi. The Project Proponent vide letter dated 24.04.2023 submitted an undertaking stating that the proposed expansion proposal is not a violation as per provision S.O 804 (E) dated 14.03.2017 and SOP dated 07.07.2021.

xii. The Project Proponent has submitted that since it is an underground mine, the question of reclamation and rehabilitation does not arise and no R&R is involved in this project.

xiii. The Project Proponent has submitted that there is no litigation pending against the project and/or land in which the project is proposed to be set up.

xiv. The Project Proponent has submitted that the total cost of the proposed expansion project is Rs 10,000 Lakhs. The existing manpower is 3892 persons and the proposed manpower for the expansion will be 1000 persons.

3. Observation and Recommendation of the EAC:

The EAC deliberated on the additional details submitted by the Project Proponent and the EIA Consultant. The Project Proponent informed the EAC that initially mining lease was granted under the mining lease no. 1564 for mining of gold and associated minerals over an area of 528.35 Ha (1305.6 Acres) for a period of 30 years from 20.12.1978 to 19.12.2008. Then, the second mining lease was granted under the mining lease no. 1734 for mining of Scheelite Mineral over an area of 528.35 Ha (1305.6 Acres) and the lease deed was executed on 17.03.1981 for the period coterminous with the original lease i.e., up to 19.12.2008. Further, the Project Proponent submitted that the ML no. 1564 and ML no. 1734 for mining of Gold and associated minerals and Scheelite Mineral respectively, renewed under the Mining Lease no. 2671 for mining of Gold, Scheelite and associated minerals on 26.03.2012 and it was effective from 19.12.2008. There was no amalgamation of mining lease of M L no. 1564 and M L no.1734.Further, the Project Proponent presented the certified past production details from the period 1948-49 to 2022-23. The Project Proponent also presented the details of the Consent to Operate (CTO) from its inception and the last CTO was obtained on 01.04.2023 which is valid upto 31.03.2025.

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The EAC observed that the Project Proponent obtained Environmental Clearance on 17.11.2004 under EIA, 1994 and after that the Project Proponent did not obtain amendment in EC for inclusion of Gold, Scheelite and associated minerals. The EAC noted that as per Ministry's Notification dated 04.04.2011, *prior environmental clearance is as well required at the stage of renewal of mine lease for which application should be made up to one year prior to date of renewal.* The EAC also reiterated the judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause Versus Union of India and Ors *"the renewal of a mining lease after 27th January, 1994 will require an EC even if there is no expansion or modernization activity or any increase in the pollution load"*.The EAC noted that the Project Proponent obtained the renewal of mining lease on 26.03.2012 and at this stage Project Proponent required to obtain EC as per Ministry's Notification dated 04.04.2011. However, project proponent has not obtained the EC at the time of renewal of mine lease.Further, the EAC noted the Project Proponent did not submit the proposal under Ministry's Notification dated 06.04.2018 and 14.03.2017. Thus, the EAC opined that the instant proposal attracts the judgment of Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors and violation of the EIA Notification, 2006.The EAC also observed that the Project Proponent submitted the proposal for expansion in production capacity from 0.6 MTPA to 0.9 MTPA (2000 TPD to 3000 TPD) and enhancement of processing plant capacity of 0.9 MTPA – 1.2 MTPA (3000 TPD to 4000 TPD) in the mine lease area of 528.35 ha. The EAC reiterated the Ministry's SOP notification dated 7th July, 2021, SOP for dealing with the violation cases:

Step 1: Closure or Revision:

S. No	Status of EC	Actions
1	If no prior EC has been taken	Order to close its operation
2	**If prior EC is available for existing/old unit**	**Order to revert the activity/ production to permissible limits**
3	If prior EC was not required for earlier production level but is now required	Restrict the activity/production to the extent to which prior EC was not required

Step 2: Action under Environment (Projection) Act, 1986:

Action under section 15 read with section 19 of the Environment (Protection) Act, 1986 shall be initiated against the violators.

The EAC was of the view that the Project Proponent needs to revert the activity/ production to permissible limits. The EAC asked the Ministry to take action against the Project Proponent under the provisions of the Environment (Protection) Act, 1986.Based on the discussions held, the EAC in its meeting held during 26-28

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December, 2023, under the provisions of EIA Notification, 2006 and its subsequent amendments therein, **recommended** the proposal for grant of Terms of Reference (ToR) under Ministry's SOP dated 07.07.2021 for identification and handling of Violation cases under EIA 2006 to M/s The Hutti Gold Mines Company Limited for production capacity of 0.6 MTPA and processing plant capacity of 0.9 MTPA in the mine lease area of 528.35 ha, located at Hutti Village, Lingsugur Taluk, Raichur District, Karnataka for undertaking detailed EIA/EMP study subject to the following specific conditions in addition to the standard ToR conditions applicable for non-coal mining projects:-

i. The Ministry has to initiate action under section 15 read with section 19 of the Environment (Protection) Act, 1986 against the project proponent. Further, no consent to operate to be issued till the project is granted EC. The action initiated by the State Govt./State PCB, status of the same may be submitted to the Ministry.

ii. The Project Proponent shall be required to submit a bank guarantee equivalent to the amount of remediation plan and natural and community resource augmentation plan with the SPCB prior to the grant of EC. The quantum shall be recommended by the EAC and finalized by the regulatory authority. The bank guarantee shall be released after successful implementation of the EMP, followed by recommendations of the EAC and approval of the regulatory authority.

iii. Assessment of ecological damage with respect to air, water, land and other environmental attributes. The collection and analysis of data shall be done by an environmental laboratory duly notified under the Environment (Protection) Act, 1986, or an environmental laboratory accredited by NABL, or a laboratory of a Council of Scientific and Industrial Research (CSIR) institution working in the field of environment.

iv. Preparation of EMP comprising remediation plan and natural and community resource augmentation plan corresponding to the ecological damage assessed and economic benefits derived due to violation.

v. The remediation plan and the natural and community resource augmentation plan to be prepared as an independent chapter in the EIA report by the accredited consultants. vi. Details of benefit accrued during the violation period along with capital cost of the project needs to be submitted.

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vi. The Project Proponent needs to submit the penalty provisions as per Ministry's SOP dated 07.07.2021 at the time of appraisal of EC.

vii. The Project proponent needs to comply with all the statutory requirements of the order of Hon'ble Supreme Court dated 2nd August 2017 in w.r.t. Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India & Ors.

viii. The Project Proponent needs to submit the ecology restoration plan.

ix. The Project Proponent needs to submit the efficacy and operational data of the EMP measures undertaken in the past.

x. The Project Proponent needs to carry out the rapid study on need-based assessment for undertaking community development activities in nearby villages and conducting to achieve specific SDGs with the help of the local community. Based on the study/report, the Project Proponent shall prepare long-term sustainable development programs for their holistic development.

xi. The Project Proponent needs to submit the comparison of data on the standards of the living of the local people after obtaining EC under EIA, 1994 and as on date. PP also needs to highlight the influence on the developmental activities that changed the standard of living of the local people.

xii. The Project Proponent needs to submit the management plan for handling and management of tailings.

xiii. The Project Proponent needs to submit the treatment methods for mine water discharge and waste water containing heavy metals.

xiv. The Project Proponent needs to monitor the ambient air quality and noise level at the mine lease boundary, nearest village, crusher, predominant downwind direction and at other sensitive receptors. Accordingly, Project Proponent shall propose to install Continuous Ambient Air Quality Monitoring Station within certain timeline.

xv. The Project Proponent should prepare the EMP considering the scenario of pollution to be generated for normative and peak total excavation for assessing air and noise pollution.

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xvi. The Project Proponent needs to submit the action plan for carrying out plantation along the 7.5m barrier, safety zone and gap plantation. PP should also submit the details of no of saplings planted and to be planted, type of saplings existing and proposed, existing survival rate and the area covered and to be covered under greenbelt/plantation along with the timeline and budget. The Project proponent also needs to submit the successful rate in compliance to the earlier EC.

xvii. The Project Proponent needs to carry out the Public Hearing as per provisions of EIA Notification, 2006. PP should also submit the time bound action plan on concerns of the public through a separate budget with capital expenditure with a timeline of 3 years. The Project proponent shall ensure that the activities proposed under the public hearing shall be different from the CSR activities. The Project Proponent also needs to submit the implementation status of the earlier public hearing concerns.

xviii. The Project Proponent shall carry out the assessment of impact due to the proposed project as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP. The project proponent shall conduct hydrological study for projects involving intersection of ground water table as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.

xix. The Project Proponent shall explore the possibility of reduction of specific water requirement by optimization / technology up gradation, etc. The efforts shall be delineated in the EIA/EMP.

xx. The Project Proponent shall prepare the scheme for mandatory recycle/reuse of water as specified by the Central Ground Water Authority for different category areas seeking NoC for ground water withdrawal and the shall submit as part of EIA/EMP report.

xxi. The Action Plan on the compliance of the recommendations of the CAG as per Ministry's Circular No. J-11013/71/2016-IA.I(M), dated 25.10.2017 needs to be submitted at the time of appraisal of the project and included in the EIA/EMP Report.

xxii. The Project Proponent needs to submit the latest Certified Compliance Report (CCR) by the Ministry's Regional Office at the time of appraisal of EC.

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xxiii. The Project Proponent shall conduct drone survey of the mine lease area and buffer area and submit during the appraisal for EC.

Day 2: 27th December, 2023 (Wednesday)

2.1 Proposed Dongargaon Limestone Mine of M/s RCCPL Private Limited with total excavation of 1.52MillionTPA (ROM- Limestone – 0.9 Million TPA, OB – 0.56 Million TPA & Soil – 0.06 Million TPA) over an area of 252.36 ha, located at Village (s) - Dongargaon, Dahigaon and Wegaon, Tehsil – Wani&Maregaon, DistrictYavatmal, Maharashtra – [F.No: J-11015/33/2022-IA-II(NCM), Proposal No: IA/MH/MIN/451465/2023; EIA Consultant: M/s Enkay Enviro Services Private Limited] – Environmental Clearance (EC)

The instant proposal is for mining of Dongargaon Limestone Mine of M/s RCCPL Private Limited with total excavation of 1.52 Million TPA (Limestone: 0.9 Million TPA (ROM), OB – 0.56 Million TPA & Soil – 0.06 Million TPA) over an area of 252.36 ha, located at Village (s) – Dongargaon, Dahigaon and Wegaon, Tehsil – Wani&Maregaon, District Yavatmal, Maharashtra.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under: -

i. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mining lease area is greater than 250ha and appraised at the Central level.

ii. The mine lease area is located between Latitude: 20°2'24.76"N to 20°3'43.16"Nand Longitude: 78°50'22.24"E to 78°51'44.12"E. The mine lease area falls under the Survey of India Toposheet No: 55L/16 and falls in Seismic Zone – II.

iii. Details of Terms of Reference:

a) The Project Proponent obtained Terms of Reference vide ToRLr. No: IA-J-11015/33/2022-IA-II(NCM) dated 03.10.2022 for mining of Limestone in Dongargaon Limestone Mine of M/s RCCPL Private Limited with Total Excavation of 1.52 Million TPA [Limestone (ROM) – 0.9 Million TPA, OB – 0.56 Million TPA & Soil – 0.06 Million TPA] in the mine lease area of 252.36 Ha for undertaking detailed EIA/EMP study.

iv. Details of Mine Lease:

S. No	Lease Particulars	Date of Grant	Mineral	Mine Lease Area, Ha	Period	Granted by

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1	Letter of Intent for grant of mining lease in pursuant to Rule 10 (2) of the Mineral (Auction) Rules, 2015 and this Letter of Intent is valid for a period of 3 years from the date of its issuance	20.05.2022	Limestone	252.36	50 years	Govt. of Maharashtra

v. Land Use/Land Cover of the Mine lease area:

Private Agriculture land	252.36 Ha
Government land	Nil
Total Mine lease area (MLA)	252.36 Ha

vi. Details of Mining Plan:

Mining Plan including Progressive Mine Closure Plan was approved by Indian Bureau of Mines	Letter No.	YTL/LST/MPLN-02/2022-NGP
	Date	12.08.2022
	Mineral & (Major/Minor)	Limestone (Major)
	Mine Lease Area, Ha	252.36
Mining Parameters	Quantitative Description	
Method of Mining	Open cast Mechanized	
Drilling/Blasting	115 mm dia and 5 m (+10% subgrade drilling) will be drilled with compressed-air-operated DTH drills. The blasting will be done by ANFO/SME/Slurry as column charge and slurry /cast booster explosive as booster charge. Controlled blasting will be practiced by using Nonel detonators.	
Geological Reserves	12.95 Million Tonnes	
Mineable Reserves	5.36 Million Tonnes	
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Total Excavation-1.52 Million TPA Mineral (Limestone)-0.9 Million TPA OB-0.56 Million TPA Soil-0.06 Million TPA	
Life of mine	8 Years	
Mine Bench Height & Bench Width	Bench Height- 5.0 m & Width-15.0 m	

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No. of Mine Benches	Max. 12
Existing Depth, m bgl	Nil
Ultimate Depth of Mining, m bgl	49 m bgl
Ground Water Table, m bgl	Post Monsoon-25 m bgl& Pre-Monsoon-29 m bgl
Details of ground water intersection	Ground water table will be intersected during Post Monsoon period of 4th year.
Individual bench slope	80^0
Overall pit slope	35^0
Details of existing/ proposed Crusher	Not Any
Mineral Beneficiation	Not Any
RoM output size	400 mm
Transportation details including capacity of dumper/tipper, mode of transport and distance	Production TPD: Average - 3000 Tonne (Limestone) Dumper Capacity: 25/30 Tonne Mode of Transport: By Road Distance: 55 km No. of Dumper Required per Day: 34 No. of dumper
Generation of Topsoil/OB & its Management during plan period & conceptual period	Soil: 0.16 Million Tonne (Plan Period); 0.19 Million Tonne (Conceptual) Management: Will be Stored at Soil dump and use for plantation Over burden: 1.89 Million Tonne (Plan Period); 2.26 Million Tonne (Conceptual) Management: Will be Stored at waste dump (Plan Period); Shall be utilized for backfilling (Conceptual)
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	Not Any

vii. Water requirement:

Total water requirement	115.0 KLD		Domestic	4.0 KLD
	Fresh	105.6 KLD	Dust Suppression	80.0 KLD
	Treated	9.4 KLD	Plantation	23.0 KLD
			Workshop	8.0 KLD
Source	Ground Water & Mine Pit Water			
Permission	No Objection Certificate (NOC) for Groundwater abstraction was obtained vide letter no. CGWA/NOC/MIN/ORIG/2023/18998, dated 11.08.2023 for abstraction of fresh water of 115 m^3/day for the period up to 10.08.2025.			

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viii. Nearest village / town/ highway/railway station / water bodies/monument:

Particulars	Particular's Name	Distance &Directions
Nearest Village	Dongargaon	0.40 km, N (From lease boundary) 0.59 km, N (From mine working pit)
Nearest Town	Wani	8.60 km, E
Nearest Highway	NH-930	4.0 km, N
Nearest Railway station	Wani	10.4 km, ENE

Water bodies

S. No	Particulars	Distance (Km)	Direction
1.	NirgudaNala adjoining lease boundary	0.86 (from Nearest working pit in N)	N
2.	NirgudaNala passing through lease boundary	0.170 (from Nearest working pit in S)	S
3.	GhanmodNala	3.53	NE

Forest

S. No.	Particulars	Distance (Km) (From Lease Boundary)	Direction
	Reserve Forest (RF)		
1.	Borgaon	3.49	SE
2.	Ghonsa	4.83	SSW
3.	MaregaonRamna	4.86	N
4.	Maregaon	5.41	N
5.	Margaon	6.37	N
6.	Suknegaon	6.66	SSE
7.	Manki	7.04	SE
8.	Pendhari	8.61	WSW
9.	Petur	8.67	SE
10.	Bhivkund	8.77	SW
11.	Phiski	9.90	N
	Protected Forest (PF)		
12.	PF N/V Dongargaon	0.72	NE
13.	PF N/V Borda	2.94	S
14.	PF N/V Kegaon	3.33	WSW
15.	PF N/V Gothani	5.06	SW
16.	PF N/V Surla	8.85	SW
17.	Lakhapur PF	9.71	NNE

ix. Presence of Environmentally Sensitive areas in the study area:

Forest Land/Protected Area/ Eco-Sensitive Zone(ESZ) /Eco-Sensitive Area(ESA)	Yes/ No	Details of Certificate/letter/Remarks
Forest Land	No	The Project Proponent submitted the letter from the Office of the Conservator of Forest (Territorial), Yavatmal, Forest Circle dated 23.12.2022 stating that

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		no forest land involved in the mining lease area of 252.36 ha.
National Park	No	The Project Proponent submitted the letter from the Office of the Principal Chief Conservator of Forest (HoFF) vide letter dated 19.06.2023 stating that there is no Sanctuary, National Park or Tiger Corridor observed within 10 km area from the mining area. The Tipeshwar Sanctuary is 38 Km away from this mining area. Hence, there is no need to take wildlife clearance for this proposal. The Project Proponent also submitted the map certified by Principal Chief Conservator of Forest (Wildlife).
Wildlife Sanctuary	No	
Elephant/Tiger Reserve		
Eco-Sensitive Zone(ESZ) /Eco-Sensitive Area(ESA)	No	
Schedule-I species (No.s and name of schedule-I species with authenticated letter)	Yes	The Project Proponent submitted the authenticated list of flora and fauna vide LrNo. DESK - 23 (2) / WL / SURVEY / PRAKRA30 / 785 / 2023-24, dated 19.06.2023. Core Zone - Large Bengal Monitor Lizard Buffer Zone - Tiger, Sloth Bear, Indian Pangolin, Indian Peafowl.
Wildlife Conservation Plan	Yes	The Project Proponent submitted that the Wildlife Conservation plan for Five Schedule-I species was prepared and submitted to DCF, Pandhakawda, as well as PCCF (WL) Maharashtra on the basis of present study Field Observations, Working Plan and as per the recommendation of the Forest department – Yavatmal (Maharashtra). WLCP has been forwarded by CCF Amravati, on 08.11.2023 to APCCF (WL) East, Nagpur, Maharashtra.

x. Green belt/plantation details:

Proposed area for green belt/plantation	38.94 ha
Budget for green plant& plantation till the end of life of mine.	Rs. 1.01 Cr.
Budget for nursery	Nil
Particulars for Green belt/plantation	Area covered (in Ha)
Along Road, Near Soil & OB Stack	14.16 ha
Dumps Area	6.84 ha
Backfilled area	12.80 ha
Two uppermost benches	5.14 ha
Total no. of saplings proposed to plant	39,210 No.s

xi. Baseline data:

Baseline Data (Air / Water / Noise / Soil / Hydro geological study/ Traffic Study/ others)	
Period of baseline data collection	October, November & December - 2022
Season (Summer / Pre-monsoon / Post-	Post Monsoon Season

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monsoon / Winter)	
Predominant Wind direction (From)	North
Ambient Air Quality (no. of locations) and results	8 No. of Locations of Ambient Air Quality Monitoring

Particular	Results	Standard
PM10	38.5 to 56.7 µg/m^3	100 µg/m^3
PM 2.5	16.3 to 37.6 µg/m^3	60 µg/m^3
SO2	7.9 to 24.6 µg/m^3	80 µg/m^3
NO2	12.2 to 30.8 µg/m^3	80 µg/m^3

Noise level (no. of locations) and results	8 No. of Locations of Noise Monitoring

Day Time	44.6 to 49.8 Leq dB (A)
Night Time	40.1 to 42.4 Leq dB (A)

Water Quality (no. of locations) and results	8 No. of Locations of Ground Water Quality Monitoring

pH	7.4 to 7.9
Total Hardness	162 to 199 mg/l
Alkalinity	148 to 176 mg/l
TDS	228 to 384 mg/l

3 No. of Locations of Surface Water Quality monitoring:-

pH	7.4-7.9
BOD	2.2-2.4 mg/l
COD	11.8-13.6 mg/l
DO	3.2-3.8 mg/l

Soil Quality (no. of locations) and results	8 No. of Locations of Soil Quality Monitoring

pH	6.74 to 7.85
Type of Soil	Silty Clay
Nitrogen	87.2 to 279.3 mg/kg
Phosphorus	16.8 to 60.7 mg/kg
Potassium	124.4 to 302.8 mg/kg

Hydro geological study and results	The Project Proponent submitted that detailed hydrological study was conducted as per the guidelines issued by Central Ground Water Authority. As per the study the water table in area is about 29 m bgl (Pre-Monsoon) & 25 m bgl (Post-Monsoon). As per approved mining plan at the end of 4th year working the pit bottom will be 190 MSL (27 m bgl). Thus, the mine will intersect the ground water table during Post-Monsoon period of 4th year. Permission for Ground water abstraction

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	was obtained vide letter no. CGWA/NOC/ MIN/ORIG/2023/18998, dated 11.08.2023. Permission for de-watering will be taken when required.There will be no considerable impact on ground water quality due to mining activity. However norms of CGWA regulations will be complied.
Traffic study (no. of locations) and results	• The Project Proponent submitted thattraffic survey was conducted at three station TS-1 (T bend of WegaonToKumbharkhani Mine Road To Dongargaon), TS-2(SH 233 T Bend To Wegaon Road (Near WCL Kumbhkarni Mine)) & TS-3 (SH 233 T Bend Wani - Mukutban Road). • As per traffic survey, the existing Volume in PUV/Hr at TS stations is 32, 95 & 235 respectively and existing Capacity of Road in PUC/Hr is 625 and LOS Value for existing traffic Scenario come under A (excellent at TS-1 & TS-2) and B (Very Good at TS-3). • After the operation of proposed mining only 30 PUC per/hr will increase. Hence, the carrying capacity of the road is accommodable for the proposed project.

xii. Public Hearing (PH) Details:

Advertisement for PH with date (name of major national daily and one regional vernacular daily newspaper)	1. Hitavada" – 15.06.2023 2. "Lokmat" – 15.06.2023
Date of PH	17.07.2023
Venue	At Project site of Dongargaon Limestone Mining Project, Village-Dongargaon, Tehsil-Wani, District-Yavatmal.
Chaired by	Mr. AmolYedge, IAS, District Magistrate Yavatmal, Chairman of Environment Public Hearing committee; SouHema Deshpande, Regional officer, Maharashtra Pollution Control Board Chandrapur as Member and Mr. UmashankarBhadule, Sub Regional Officer, Maharashtra Pollution Control Board Chandrapur as convener.
Main issues raised during PH	Environment, Employment, Education and skill

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	development training for youth, Plantation Programme, Land Compensation, CSR, Transportation, Water Level/Borewell Status / Surface Water.
Budget proposed for addressing issues raised during PH over 3 years	Rs.60 Lakhs (For Three years)

xiii. Rehabilitation & Resettlement (R&R):

R & R details	The Project Proponent submitted that R&R Plan/compensation details for the Project Affected Family's / Project Affected People has been prepared and as per the Detailed Report prepared the total land required for the lease period (08 years) is 82.21 Hectares. The land purchase cost based on the best (maximum) of LARR Act, 2013 and Maharashtra State Policy & Annual Statement of Rates which is Rs. 13,42,94,000. However, land shall be purchased based on mutual agreement and consent of land owners. The land rates shall be in conformity to or higher than State Policy. Land purchase shall start after obtaining environmental clearance and mining lease grant order.

xiv. Court case details:

Court Case	Project Proponent submitted that there is no litigation pending against the project and/or land in which the project is proposed to be set up

xv. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	Project Proponent submitted an Affidavit in a non-judicial stamp paper of Rs 100 bearing 17AA 928904 dated 09.08.2022 stating that this mine will comply with all the statutory requirement & judgment of Hon'ble Supreme Court dated 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India &Ors.
Plagiarism certificate	The head of the EIA Consultant certified that this EIA report has been evaluated using licensed software iThenticate plagiarism software and plagiarism was checked on 04.12.2023. The report produced has been analyzed by the system and based analyzed by the system and based on it, I certify the EIA Report produces in accordance with good information technology practice.

xvi. Details of the Environmental Management Plan (EMP):

Sr. No.	ENVIRONMENT	Cost of EMP (Rs. in crores)	
		Capital Cost	Recurring Cost per Annum

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A	ENVIRONMENTAL AIR MANAGEMENT		
1	Tanker mounted water sprinklers	0.400	0.150
2	Dust Mist canons	0.150	0.020
SUB TOTAL - A		0.55	0.17
B	ENVIRONMENTAL WATER MANAGEMENT		
1	Garland drains around mine pit	0.040	0.008
2	Silt Settling ponds	0.010	0.002
3	ETP (Capacity- 10 KLD, Oil and grease trap for workshop waste water)	0.100	0.025
4	STP (Capacity – 3 KLD, Sewage treatment for domestic waste water)	0.100	0.025
5	Rain Water Harvesting Structure	0.100	0.025
SUB TOTAL - B		0.350	0.085
C	ENVIRONMENTAL NOISE & GROUND VIBRATION MANAGEMENT		
1	Periodic maintenance of Equipment's, signage installation, weather cock, Noise barrier like green corridor and bund around sensitive receptor	0.010	-
2	Controlled blasting technique	0.100	0.010
SUB TOTAL - C		0.110	0.010
D.	ENVIRONMENTAL SOIL & WASTE DUMP MANAGEMENT		
1	Garland drain around dump (2m x 1.5m)	0.120	0.024
2	Toe wall (Height-2.0) around dump	0.120	-
SUB TOTAL - D		0.240	0.024
E	PLANTATION PROGRAMME		
1	Plantation near soil stripping stock and waste dump, along haul road, Safety Zone, backfilled area, acting noise barrier and upper benches in water filled area (38.94 ha with 39,210 no. of Plants@1500 per ha)	1.10	0.11
SUB TOTAL – E		1.10	0.11
F	TRANSPORT ROAD MAINTENANCE		
1	Strengthening of existing road and its maintenance to be used for transportation of mineral in association with local governance including Safety and speed signage on the road side	3.0	0.30
SUB TOTAL – F		3.0	0.30
G	WILD LIFE CONSERVATION PLAN FOR SCHEDULE-1 SPECIES		
1	Financial outlay for activities proposed in wildlife Conservation Plan of Schedule-I Species (Under Approval)	1.01	-
SUB TOTAL – G		1.01	-
H	BUDGET FOR PUBLIC HEARING ACTION PLAN	0.60	-
SUB TOTAL – H		0.60	-

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GRAND TOTAL	6.96	0.699

xvii. Details of project cost and employment:

Particulars	(Rs. In Crore)		
Total cost of EMP (Capital Cost of EMP + capital cost of Public hearing)	EMP Cost	Capital Cost in Cr,	Recurring Cost in Cr,
	Proposed	6.96	0.699
Project Cost	45.35 Cr		
Employment (No.s)	92		

3. Observation and Recommendation of the EAC:

After detailed deliberations made by the Project Proponent and the EIA Consultant, the EAC noted that instant mine is located adjacent to continuous forest patch having breeding tiger occupancy of Pandharkawada Forest Division and Tipeshwar Wildlife Sanctuary and thus the EAC was of the view that the Ministry may seek comments from National Tiger Conservation Authority (NTCA) in this regard. The EAC also noted that a school and temple is located in the vicinity of the mine lease area. The EAC opined that the Project Proponent needs to submit the sequence of mining near the school & temple and to demonstrate that how the mining activity will not have impact on the school& temple. The EAC observed that the Project Proponent needs to increase the density of plantation as per the guidelines of Central Pollution Control Board (CPCB) and needs to submit the revised plan for greenbelt/plantation all along the mine lease boundary, safety zone plantation, dump area, backfilled area, two uppermost benches etc. The EAC observed that the mined out mineral will be transported to the crusher located in Mukutban mine by road at a distance of about 55 kms) and from there to Cement plant by OLBC (1.9 km). The EAC was of the view that the Project Proponent needs to explore the possibility of installing portable crusher within the instant mine lease area along with the timeline. The EAC also observed that the Project Proponent prepared the Wildlife Conservation Plan in discussion with the local villagers. The EAC noted that as per the authenticated list of flora and fauna letter dated 19.06.2023, Large Bengal Monitor Lizard is found in the core zone. The EAC opined that the Project Proponent needs to prepare the Wildlife Conservation Plan in a scientific way in consultation with the Forest Department. The EAC noted that the land purchase will start after obtaining Environmental Clearance and grant of order of mining lease.The EAC also asked the Project Proponent to submit the merits and demerits of land acquisition. Based on the discussions held, the EAC **deferred** the proposal for want of following additional information: -

i. The EAC noted that instant mine is located adjacent to continuous forest patch having breeding tiger occupancy of Pandharkawada Forest Division and Tipeshwar Wildlife Sanctuary and thus the EAC was of the view that the Ministry

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may seek comments from National Tiger Conservation Authority (NTCA) in this regard.

ii. The Project Proponent needs to explore the possibility of installing portable crusher within the instant mine lease area along with the timeline.

iii. The Project Proponent needs to submit the sequence of mining near the school & temple and also to demonstrate that how the mining activity will not have impact on the school & temple.

iv. The Project Proponent needs to prepare the Wildlife Conservation Plan in a scientific way in consultation with the Forest Department. PP also needs to specify the activities proposed along with budget under Wildlife Conservation Plan.

v. The Project Proponent needs to increase the density of plantation as per the guidelines of Central Pollution Control Board (CPCB) and also needs to submit the revised plan for greenbelt/plantation all along the mine lease boundary, safety zone plantation, dump area, backfilled area, two uppermost benches etc.

vi. The Project Proponent needs to submit the merits and demerits of land acquisition. PP also needs to submit the phase wise land acquisition plan.

2.2 Proposed 3C2 Limestone Block (Auctioned Block) of M/s. JSW Cement Ltd with Limestone Production Capacity: 2.50 Million TPA, OB/IB/Waste: 2.80 Million TPA, Top Soil: 0.38 Million TPA (Total Excavation: 5.68 Million TPA) along with Installation of Crusher 1600 TPH with Wobbler in the mine lease area of 386.0215 Ha, located at Villages: Harima &Deh, Tehsil: Nagaur&Deh, District: Nagaur, Rajasthan – [F.No: :IA-J-11015/49/2023-IA-II(NCM), Proposal No: IA/RJ/MIN/451760/2023; EIA Consultant: J.M. EnviroNet Pvt. Ltd] – Terms of Reference

The instant proposal is for mining of Limestone in 3C2 Limestone Block (Auctioned Block) of M/s. JSW Cement Ltd with proposed Limestone Production Capacity: 2.50 Million TPA, OB/IB/Waste: 2.80 Million TPA, Top Soil: 0.38 Million TPA (Total Excavation: 5.68 Million TPA) along with Installation of Crusher 1600 TPH with Wobbler in the mine lease area of 386.0215 Ha, located at Villages: Harima &Deh, Tehsil: Nagaur&Deh, District: Nagaur, Rajasthan.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under: -

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i. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" of the schedule of the EIA Notification, 2006 as the mine lease area is greater than 250 ha and appraised at the Central level.

ii. The mine lease area is located between Latitude: 27°16'25.15"N to 27°17'21.393"N and Longitude: 73°52'31.652"E to 73°53'54.28"E. The mine lease area falls under the Survey of India Toposheet No: G43B15 (45E/15) and falls in Seismic Zone-II.

iii. Details of Mine Lease:

S.no	Prospecting License/ Letter of Intent (LoI)/ Grant of Mine lease and Lr No	Date of the grant	Name of the Mineral & (Major/ Minor)	Period of Grant	Granted by	Mine lease area in Ha
1.	Letter of Intent (LoI) for grant of mining lease issued vide letter no. P.2(21) Khan/Group-2/2022 through e-auction process	15.11.2022	Limestone	3 years	Govt. of Rajasthan	386.0215

iv. Land Use/Land Cover of the Mine Lease area:-

Private land	292.3618 ha
Government waste land	90.2725 ha
Forest Land	-
Total Mining lease area (MLA), Ha	386.0215 ha *Note:Thevariation in the total block area(386.0215 Hectare) and calculated by superimposition of block on revenue record (382.6343 hectare) is due to measurement in partial khasras and differences of areas in digitized settlement sheets and revenue record.*
Private land for crusher, workshop & other infrastructure outside the MLA	No infrastructure is proposed outside the ML area.
Additional information (if any)	It is proposed to install a Crusher of 1600 TPH within the ML area.

v. Details of Mining Plan:

Mining Plan including Progressive Mine Closure Plan was approved by Indian Bureau of Mines	Letter No.	MCDR-MPC0LST/6/2023-AJM-IBM_RO_AJM
	Date	11.05.2023
	Mineral & (Major/Minor)	Limestone (Major)

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	Mine Lease Area, Ha	386.0215 ha
	Validity	5 years from the date of Mining Lease deed Execution
Mining Parameters	Quantitative Description	
Method of Mining	Fully Mechanized Opencast Mining Method.	
Drilling/Blasting	Drilling will be done with sharp drill bits. Drill machine equipped with wet drilling arrangement. Controlled blasting with proper spacing, burden, stemming and optimum charge/delay to be adopted. NONEL will be used to control ground vibrations, noise & fly rocks.	
Geological Reserves	156.76 Million Tonnes	
Mineable Reserves	129.64 Million Tonnes	
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Total Excavation: 5.68 Million TPA 3. Limestone: 2.50 Million TPA 4. OB/IB/Waste: 2.80 Million TPA 5. Top Soil: 0.38 Million TPA	
Life of mine	~55 years	
Mine Bench Height & Bench Width	Bench height: 8 m (Maximum) Bench Width: 15 m (Minimum)	
No. of Mine Benches	6 benches at conceptual stage	
Existing Depth, m bgl	It is a proposed mining project so this is not applicable.	
Ultimate Depth of Mining, m bgl	257.5 m AMSL (50 m bgl (maximum depth)	
Ground Water Table, m bgl	192.5 m to 182.5 m AMSL (115 m to 125 m bgl)	
Details of ground water intersection	Water table will not be intersected by mine workings at any stage of mining operation.	
Individual bench slope	75°	
Overall pit slope	45°	
Details of existing/ proposed Crusher	Crusher of capacity 1600 TPH & wobbler	
Mineral Beneficiation	Nil	
RoM output size	<110 mm	
Transportation details including capacity of dumper/tipper, mode of transport and distance	Limestone will be transported from mine face to crusher by 40 T dumpers via haul road. Crushed limestone will be transported to proposed Cement Plant of M/s. JSW Cement Ltd. via Over Land Belt Conveyor (OLBC) and via road for sale to the prospective buyers.	
Generation of Topsoil/OB & its Management during plan period & conceptual period.	Top Soil: ➢ During the first plan period, 0.21 Million Cu.m of Topsoil will be generated which will be used for Greenbelt development/Plantation. ➢ At conceptual stage, 10.01 Million Cu.m of Top Soil will be generated and it will be used for greenbelt	

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	development/ plantation and for carpeting of the backfilled area for plantation. OB/IB/Waste: ➢ During the plan period, no overburden/Inter-burden/waste will be generated. ➢ At conceptual stage, about 43.44 Million Cu. m of waste will be generated which will entirely be utilized for back filling of mined-out area.
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	-

vi. Water requirement:

Total water requirement	200 KLD	Domestic	7.0 KLD
		Dust suppression	168.0 KLD
		Greenbelt/Plantation	20.0 KLD
		Workshop	5.0 KLD
Source	Water will be sourced from Ground water (Borewells) and mine sump water (as & when developed).		
Permission for withdrawal/ intersection along with details of grant and its validity	Working depth during the plan period will be 299.5 m AMSL (8.0 m bgl) and at conceptual stage, ultimate working depth will be 257.5 m AMSL (50 m bgl). Depth of water table in the area is at 192.5 m to 182.5 m AMSL (115 m to 125 m bgl). Hence, there is no possibility of groundwater table intersection by mine workings at any stage of mining operation.		

vii. Nearest village/town/ highway/interstate boundary/railway station/water bodies/monument/ forest

Particulars	Particular's Name	Distance &Directions
Nearest Village	Harima	~2.0 km in SW direction
Nearest School	Govt. Primary School, Banjaron Ki Dhani, Deh is present within the lease area in NW corner	
Nearest Town	Deh	~1.0 km in NE direction
Nearest State/National Highway	NH-58	Passing through the lease area from North boundary to West direction.
Interstate Boundary	None	None
Railway Station/Railway line	Nagaur Railway Station	~17.3 km in SW direction
Water Bodies	ChaparNaadi	(~ 4.2 km in SE direction)
	JanjolaiNaadi	(~4.8 km in North direction)
	JakhaliNaadi	(~5.0 km in NW direction)
	Bamanda Nada	(~7.5 km in SE direction)
	PinsariyaNaadi	(~ 8.0 km in SE direction)

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Forest	None	None

viii. Presence of Environmentally Sensitive areas in the study area:

Forest Land / Protected Area / Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	No	No Forest land involved in mining lease area.
National Park	No	No National Park, Wild Life Sanctuaries, Eco Sensitive Zone (ESZ)/ Eco-Sensitive Area (ESA) etc. within 10 km radius study area.
Wildlife Sanctuary	No	
Elephant/Tiger Reserve	No	
Eco-Sensitive Zone (ESZ) /Eco-Sensitive Area (ESA)	No	
Coastal Regulation Zone (CRZ)	No	--
Schedule-I species (No.s and name of schedule-I species with authenticated letter)	-	This proposal is for ToR, study is under process, if any schedule -I found in the study area, Wildlife Conservation Plan will be prepared during the preparation of EIA/EMP report.
Wildlife Conservation Plan	-	

ix. Green belt/Plantation details:

Proposed area for green belt/plantation and no. of saplings proposed	Greenbelt and plantation will be carried out over an area of 196.52 ha (5.93 ha area on 7.5 m lease periphery, on waste dump covering an area of 10.52 ha, 155.44 ha on backfilled area & 24.63 ha on safety zone of school, electric line & Road).
Budget for green plant & plantation till the end of life of mine.	Rs. 5.9 Cr. (196.52 ha, 2,94,255 Saplings)
Budget for nursery	N/A
Details of existing plantation and its survival rate	It is a proposed mining project.
No. of tree cuts in the mine lease area and compensatory afforestation	No. of trees to be cut: 1611 (tentative figure considering entire life of mine) No. of trees proposed to be planted: 150 *Note: 1611 trees to be cleared and 150 trees to be transplanted is a tentative figure. Young trees are proposed to be transplanted and the figure may change after detailed study.*
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	5.93 ha
50 m safety zone of nallah, roads, electric lines	24.63 ha

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500 m safety zones of nearest habitation villages	Nil

x. Rehabilitation & Resettlement (R&R):

R & R details	The Project Proponent submitted that the total mine lease area is 386.0215 ha, out of which 292.3618 ha is private landand90.2725 ha is Govt. Land which spreads in 2 villages: Harima &Deh.Land will be purchased with negotiation and R&R provisions will be followed as per Central and State Government Rules & Notifications.

xi. Court case details:

Court Case, No and its present status	The Project Proponent submitted a undertaking vide letter dated 24.11.2023 stating that there is no litigation pending against the project and/or any direction/ order passed by any court of law against the project and/or land in which the project is proposed and that for any such litigation whatsoever, the sole responsibilities will be borne by the company.
Undertaking by Project Proponent w.r.t court case	

xii. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent submitted the Affidavit in a nonjudicial stamp paper ofRs 100 bearing no: 77AA 401394dated 24.11.2023 stating that the company undertakes by affidavit to comply with all the statutory requirement & judgment of Hon'ble Supreme Court order dated 2ndAugust 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India &Ors before grant of ToR/EC

xiii. Details of project cost and employment:

Particulars	Budget (Rs. in Crores)
Project Cost	Rs. 203.50 Crores
Employment	79 persons

3. Observation and Recommendation of the EAC: -

The Project Proponent presented the KML of mine leases of 3C2 Limestone Block, 3C1 Limestone Block and 3D1 Limestone Block. The EAC noted that all three mine leases sharing common boundary and contiguous to each other. The Project Proponent informed the EAC that all these three blocks are non-captive mine. The Limestone produced will be used for cement manufacturing in company's proposed Cement Plant and the Limestone will also be sold to prospective buyers.The Project Proponent informed the EAC that in 3C2 Limestone Block, a Govt. Primary School, Banjaron Ki Dhani, Deh is located within the lease area in NW corner. NH-58 is passing through all these three mine lease areas.A crusher of 1600 TPH &Wobbler will be

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installed in all these three mine lease areas respectively. Limestone will be transported from mine face to crusher by 40 T dumpers via haul road. Crushed Limestone will be transported to the proposed Cement Plant of M/s. JSW Cement Ltd. via Over Land Belt Conveyor (OLBC) and via road for sale to the prospective buyers. The EAC opined that the Project Proponent needs to submit the year wise sequence of mining operation considering the nearby surface features and their impacts and mitigation measures. The EAC was of the view that the working in the common boundary needs to be reflected in the mining plan.

Further, the Project Proponent informed the EAC that there are no Wildlife Sanctuaries, National Parks, Biosphere Reserves), Reserve/ Protected Forest within 10km radius study area. The EAC opined that the Project Proponent needs to submit the detailed scientific study on flora and fauna and also to highlight on the endangered species. The EAC asked the Project Proponent to verify the list as per the latest Wildlife Protection Amendment Act, 2022. The EAC also asked the Project Proponent to submit the letter from the State Forest Department regarding whether the instant mine leases fall under Aravalli or not. The EAC noted that the tree cutting is involved in all these three mine leases. The EAC asked the Project Proponent to submit the compensatory afforestation plan and also to submit the action plan for tree transplantation. The EAC noted that Rehabilitation & Resettlement (R&R) is involved in all these three mine leases. The EAC asked the Project Proponent to submit the detailed R&R plan in consultation with the local people and also needs to cover all the components viz. number of Project Affected Families (PAF) and details of the land owned by them, break up of total compensation to be paid including method of calculation including the sources/references adopted and mode of payment etc. The Project Proponent informed that compensation provided to PAF is mostly 3-4 times of the land cost. The EAC opined that the Project Proponent needs to submit the livelihood education and skill development plan.

Based on the discussions held, the EAC in its meeting held during 26-28 December, 2023, under the provisions of EIA Notification, 2006 and its subsequent amendments therein, **recommended** the proposal for grant of Terms of Reference to M/s. JSW Cement Ltd for mining of Limestone in 3C2 Limestone Block (Auctioned Block) with proposed Limestone Production Capacity: 2.50 Million TPA, OB/IB/Waste: 2.80 Million TPA, Top Soil: 0.38 Million TPA (Total Excavation: 5.68 Million TPA) along with installation of Crusher 1600 TPH with Wobbler in the mine lease area of 386.0215 Ha, located at Villages: Harima & Deh, Tehsil: Nagaur & Deh, District: Nagaur, Rajasthan for undertaking detailed EIA/EMP study subject to the following specific conditions in addition to the standard ToR conditions applicable for non-coal mining projects:-

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i. The Project Proponent needs to submit the action plan for shifting the school within the mine lease area.

ii. The EAC was of the view that the working in the common boundary needs to be reflected in the mining plan.

iii. The Project Proponent needs to submit the ecology restoration plan for mined out pits for using as Water reservoir/ Pisciculture as well as the plan for the backfilled area.

iv. The Project Proponent needs to submit the year wise sequence of mining operation and plan for backfilling considering the site features and their impacts and mitigation.

v. The Project Proponent needs to submit the detailed scientific study on flora and fauna and also to highlight on the endangered species. The Project Proponent needs to verify the list as per the latest Wildlife Protection Amendment Act, 2022.

vi. The Project Proponent needs to submit the letter from the State Forest Department regarding whether the instant mine leases fall under Aravalli or not.

vii. The Project Proponent needs to monitor the ambient air quality and noise level at the mine lease boundary, nearest village, crusher, predominant downwind direction and at other sensitive receptors. Accordingly, Project Proponent shall propose to install Continuous Ambient Air Quality Monitoring Station within certain timeline.

viii. The Project Proponent should prepare the EMP considering the scenario of pollution to be generated for normative and peak total excavation for assessing air pollution, noise level and ground vibration.

ix. The Project Proponent shall monitor the water quality in the impact zone such as water reservoir, river water with specific reference to the parameter Langelier Saturation Index which will denote the impact of calcium carbonateson water bodies and these parameters and determine the tendency of water to form calcium carbonate scaling.

x. The Project Proponent needs to carry out the Public Hearing as per provisions of EIA Notification, 2006. PP should also submit the time bound action plan on

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concerns of the public through a separate budget with capital expenditure with a timeline of 3 years. The Project proponent shall ensure that the activities proposed under the public hearing shall be different from the CSR activities.

xi. The Project Proponent needs to undertake the enumeration of the species within the mine lease area before cutting. The Project Proponent also needs to submit the compensatory afforestation plan for the no. of trees to be cut in the mine lease area and also to explore the possibility of tree transplantation.

xii. The Project Proponent needs to submit the action plan for undertaking the plantation along the 7.5m barrier, safety zone of tar road/cart tracks, electric line etc., PP should also submit the details no of saplings to be planted, type of saplings proposed and the area to be covered under greenbelt/plantation along with the timeline and budget. The greenbelt/plantation plan shall be prepared in such a way that the ecology of the area shall be restored.

xiii. The Project Proponent shall carry out the assessment of impact due to the proposed project as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP. The project proponent shall conduct hydrological study for projects involving intersection of ground water table as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.

xiv. The Project Proponent shall explore the possibility of reduction of specific water requirement by optimization / technology up gradation, etc. The efforts shall be delineated in the EIA/EMP.

xv. The Project Proponent shall prepare the scheme for mandatory recycle/re-use of water as specified by the Central Ground Water Authority for different category areas seeking NoC for ground water withdrawal and the shall submit as part of EIA/EMP report.

xvi. The Project Proponent needs to submit the detailed R&R plan covering all the components viz. number of Project Affected Families (PAF) and details of the land owned by them, break up of total compensation to be paid including method of calculation including the sources/references adopted and mode of payment etc.

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xvii. The Project Proponent needs to submit the plan for Socio economic development of the neighbourhood habitats based on the need based survey along with the time bound action plan in consultation with the local people. Further, PP needs to submit the possession certificate and timeline for acquiring the land at the time of submission of EC proposal.

xviii. The Project Proponent needs to submit a letter from the Department of Geology and Mining, Government of Rajasthan clarifying whether any illegal mining within the mine lease area has been carried out or not and whether the same has been carried out by M/s. JSW Cement Ltd or not?

xix. The Project Proponent shall conduct drone survey of the mine lease area and buffer area and submit during the appraisal for EC.

xx. The Project Proponent needs to initiate action to obtain permission to shift the HT line.

2.3 Proposed 3C1 Limestone Block (Auctioned Block) of M/s. JSW Cement Limited with Limestone Production Capacity: 1.45 Million TPA, OB/IB/Waste: 0.52 Million TPA, Top Soil: 0.07 Million TPA (Total Excavation: 2.04 Million TPA) along with installation of Crusher of 1600 TPH with Wobbler in the mine lease area of 300.7284 ha, located at Villages: Harima, Bhadana&Deh, Tehsil: Nagaur&Deh, District: Nagaur, Rajasthan - [F.No: :IA-J-11015/50/2023-IA-II(NCM), Proposal No: IA/RJ/MIN/452414/2023; EIA Consultant: J.M. EnviroNet Pvt. Ltd] – Terms of Reference

The instant proposal is for mining of Limestone in 3C1 Limestone Block (Auctioned Block) of M/s. JSW Cement Limited with proposed Limestone Production Capacity: 1.45 Million TPA, OB/IB/Waste: 0.52 Million TPA, Top Soil: 0.07 Million TPA (Total Excavation: 2.04 Million TPA) along with installation of Crusher of 1600 TPH with Wobbler in the mine lease area of 300.7284 ha, located at Villages: Harima, Bhadana&Deh, Tehsil: Nagaur&Deh, District: Nagaur, Rajasthan.

2. The details of the project as ascertained from the document submitted by the Project Proponent are given below:

i. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" of the schedule of the EIA Notification, 2006 as the mine lease area is greater than 250 ha and appraised at the Central level.

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ii. The mine lease area is located between Latitude: 27°16'24.639"N to 27°17'20.742"N and Longitude: 73°51'27.709" E to 73°52'32.21 " E. The mine lease area falls under the Survey of India Toposheet No: G43B15 (45E/15) and falls in Seismic Zone-II.

iii. Details of Mine Lease:

S.no	Prospecting License/ Letter of Intent (LoI)/ Grant of Mine lease and Lr No	Date of the grant	Name of the Mineral & (Major/ Minor)	Period of Grant	Granted by	Mine lease area in Ha
1.	Letter of Intent(LoI) for grant of mining lease issued vide letter no. P.2(22) Khan/Group-2/2022through e-auction process	15.11.2022	Limestone	3 years	Govt. of Rajasthan	300.7284

iv. Land Use/Land Cover of the Mine Lease area:

Private land	264.0431 ha
Government waste land	36.6953 ha
Forest Land	-
Total Mining lease area (MLA), Ha	300.7284 ha
Private land for crusher, workshop & other infrastructure outside the MLA	No infrastructure is proposed outside the ML area.
Additional information (if any)	It is proposed to install a Crusher of 1600 TPH within the ML area.

v. Details of Mining Plan:

Mining Plan including Progressive Mine Closure Plan was approved by Indian Bureau of Mines	Letter No.	MCDR-MPC0LST/5/2023-AJM-IBM_RO_AJM
	Date	12.05.2023
	Mineral & (Major/Minor)	Limestone (Major)
	Mine Lease Area, Ha	300.7284 ha
	Validity	5 years from the date of Mining Lease deed Execution
Mining Parameters	Quantitative Description	
Method of Mining	Fully Mechanized Opencast Mining Method.	
Drilling/Blasting	Drilling will be done with sharp drill bits. Drill machine equipped with wet drilling arrangement. Controlled blasting with proper spacing, burden, stemming and optimum charge/delay to be adopted. NONEL will be	

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	used to control ground vibrations, noise & fly rocks.
Geological Reserves	188.45 Million Tonnes
Mineable Reserves	168.46 Million Tonnes
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Total Excavation: 2.04 Million TPA 6. Limestone: 1.45 Million TPA 7. OB/IB/Waste: 0.52 Million TPA 8. Top Soil: 0.07 Million TPA
Life of mine	~119 years
Mine Bench Height & Bench Width	Bench height: 8 m (Maximum) Bench Width: 15 m (Minimum)
No. of Mine Benches	5 benches at conceptual stage
Existing Depth, m bgl	It is a proposed mining project and hence not applicable.
Ultimate Depth of Mining, m bgl	274.5 m AMSL (39 m bgl (maximum depth)
Ground Water Table, m bgl	198.5 m to 188.5 m AMSL (115 m to 125 m bgl)
Details of ground water intersection	Water table will not be intersected by mine workings at any stage of mining operation.
Individual bench slope	75°
Overall pit slope	45°
Details of existing/ proposed Crusher	Crusher of capacity 1600 TPH & wobbler
Mineral Beneficiation	Nil
RoM output size	<110 mm
Transportation details including capacity of dumper/tipper, mode of transport and distance	Limestone will be transported from mine face to crusher by 40 T dumpers via haul road. Crushed limestone will be transported to proposed Cement Plant of M/s. JSW Cement Ltd. via Overland belt conveyor and via road for sale to the prospective buyers.
Generation of Topsoil/OB & its Management during plan period & conceptual period.	Top Soil: ➢ During the first plan period, 0.14 Million Cu.m of Topsoil will be generated which will be used for Greenbelt development/Plantation. ➢ At conceptual stage, 4.31 Million Cu.m of Top Soil will be generated which willbe entirely be used for greenbelt development/ plantation and for carpeting of the backfilled area for plantation. OB/IB/Waste: ➢ During the plan period, no overburden/Inter-burden/waste will be generated. ➢ At conceptual stage, about 19.86 Million Cu.m of waste will beutilized for back filling of mined-out area.
Generation of Mineral Rejects/ Waste & its Management during plan period &	-

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conceptual period	

vi. Water requirement:

Total water requirement	200 KLD	Domestic	7.0 KLD
		Dust suppression	168.0 KLD
		Greenbelt/Plantation	20.0 KLD
		Workshop	5.0 KLD
Source	Water will be sourced from Ground water (Borewells) and mine sump water (as & when developed).		
Permission for withdrawal/ intersection along with details of grant and its validity	Working depth during the plan period will be 295 m AMSL (18.5 m bgl) and at conceptual stage, ultimate working depth will be 274.5 m AMSL (39 m bgl). Depth of water table in the area is 198.5 m to 188.5 m AMSL (115 m to 125 m bgl). Hence, there is no possibility of groundwater table intersection by mine workings at any stage of mining operation.		

vii. Nearest village/town/ highway/interstate boundary/railway station/water bodies/monument/ forest:

Particulars	Particular's Name	Distance &Directions
Nearest Village	Harima	~1.0 km in SW direction
Nearest Town	Deh	~3.0 km in NE direction
Nearest School	Govt. Primary School, Banjaron Ki Dhani, Deh	~0.06 Km in NE direction
Nearest State/National Highway	NH-58	Passing through the lease area from East boundary to the South direction.
Interstate Boundary	None	None
Railway Station/Railway line	Nagaur Railway Station	~15.7 km in SW direction
Water Bodies	JakhaliNaadi	~4.0 km in NW Direction
	JanjolaiNaadi	~5.4 km in North Direction
	ChaparNaadi	~ 5.9 km in SE Direction
	Bamanda Nada	~9.0 km in SE Direction
	PinsariyaNaadi	~ 9.3 km in SE Direction
Forest	None	None

viii. Presence of Environmentally Sensitive areas in the study area:

Forest Land / Protected Area / Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	No	No Forest land involved in mining lease area.

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National Park	No	No National Park, Wild Life Sanctuaries, Eco Sensitive Zone (ESZ)/ Eco-Sensitive Area (ESA) etc. within 10 km radius study area.
Wildlife Sanctuary	No	
Elephant/Tiger Reserve	No	
Eco-Sensitive Zone (ESZ) /Eco-Sensitive Area (ESA)	No	
Coastal Regulation Zone (CRZ)	No	--
Schedule-I species (No.s and name of schedule-I species with authenticated letter)	-	This proposal is for ToR, study is under process, if any schedule - I found in the study area, Wildlife Conservation Plan will be prepared during the preparation of EIA/EMP Report.
Wildlife Conservation Plan	-	

ix. Green belt/Plantation details:

Proposed area for green belt/plantation and no. of saplings proposed	Greenbelt and plantation will be carried out over an area of 116.61 ha (5.18 ha area on 7.5 m lease periphery, 95 ha backfilled area, 4.13 ha area will be covered under top bench plantation & 12.3 ha under safety zone of road, school & other virgin area).
Budget for green plant & plantation till the end of life of mine.	Rs. 3.50 Cr. (116.61 ha, 174,915 Saplings)
Budget for nursery	N/A
Details of existing plantation and its survival rate	It is a proposed mining project.
No. of tree cuts in the mine lease area and compensatory afforestation	No. of trees to be cut: 1378 (tentative figure considering entire life of mine) No. of trees proposed to be planted: 150 *Note: 1378 trees to be cleared and 150 trees to be transplanted is a tentative figure. Young trees are proposed to be transplanted and the figure may change after detailed study.*
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	5.18 ha
50 m safety zone of nallah, roads, electric lines	12.3 ha
500 m safety zones of nearest habitation villages	Nil

x. Rehabilitation & Resettlement (R&R):

R & R details	The Project Proponent submitted that the total mine lease area is 300.7284 ha, out of which 264.0431 ha is a private land and 36.6953 ha is a Govt. Land which spreads in 3 villages: Harima, Bhadana&Deh.Land will be purchased with negotiation and R&R provisions will be followed as per Central and State

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	Government Rules & Notifications.

xi. Court case details:

Court Case, No and its present status	The Project Proponent submitted a undertaking vide letter dated 24.11.2023 stating that there is no litigation pending against the project and/or any direction/ order passed by any court of law against the project and/or land in which the project is proposed and that for any such litigation whatsoever, the sole responsibilities will be borne by the company.
Undertaking by Project Proponent w.r.t court case	

xii. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent submitted the Affidavit in a nonjudicial stamp paper ofRs 100 bearing no: 77AA 401395dated 24.11.2023 stating that the company undertakes by affidavit to comply with all the statutory requirement & judgment of Hon'ble Supreme Court order dated 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India &Ors before grant of ToR/EC.

xiii. Details of project cost and employment:

Particulars	Budget (Rs. in Crores)
Project Cost	Rs. 198.45 Crores
Employment	91 persons

3. Observation and Recommendation of the EAC: -

The EAC deliberated the instant proposal (3C1 Limestone Block) along with 3C2 Limestone Block and 3D1 Limestone Block as all these mine leases sharing common boundary and contiguous to each other. Based on the discussions held,the EAC in its meeting held during 26-28 December, 2023, under the provisions of EIA Notification, 2006 and subsequent amendments therein, **recommended** the proposal for grant of Terms of Reference to M/s. JSW Cement Ltd for mining of Limestone in 3C1 Limestone Block (Auctioned Block) with proposed Limestone Production Capacity: 1.45 Million TPA, OB/IB/Waste: 0.52 Million TPA, Top Soil: 0.07 Million TPA (Total Excavation: 2.04 Million TPA) along with installation of Crusher of 1600 TPH with Wobbler in the mine lease area of 300.7284 ha, located at Villages: Harima, Bhadana & Deh, Tehsil: Nagaur & Deh, District: Nagaur, Rajasthan for undertaking detailed EIA/EMP study subject to the following specific conditions in addition to the standard ToR conditions applicable for non-coal mining projects:-

i. The EAC was of the view that the working in the common boundary needs to be reflected in the mining plan.

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ii. The Project Proponent needs to submit the ecology restoration plan for mined out pits for using as Water reservoir/ Pisciculture as well as the plan for the backfilled area.

iii. The Project Proponent needs to submit the year wise sequence of mining operation and plan for backfilling considering the site features and their impacts and mitigation.

iv. The Project Proponent needs to submit the detailed scientific study on flora and fauna and also to highlight on the endangered species. The Project Proponent needs to verify the list as per the latest Wildlife Protection Amendment Act, 2022.

v. The Project Proponent needs to submit the letter from the State Forest Department regarding whether the instant mine leases fall under Aravalli or not.

vi. The Project Proponent needs to monitor the ambient air quality and noise level at the mine lease boundary, nearest village, crusher, predominant downwind direction and at other sensitive receptors. Accordingly, Project Proponent shall propose to install Continuous Ambient Air Quality Monitoring Station within certain timeline.

vii. The Project Proponent should prepare the EMP considering the scenario of pollution to be generated for normative and peak total excavation for assessing air pollution, noise level and ground vibration.

viii. The Project Proponent shall monitor the water quality in the impact zone such as water reservoir, river water with specific reference to the parameter LangelierSaturation Index which will denote the impact of calcium carbonateson water bodies and these parameters and determine the tendency of water to form calcium carbonate scaling.

ix. The Project Proponent needs to carry out the Public Hearing as per provisions of EIA Notification, 2006. PP should also submit the time bound action plan on concerns of the public through a separate budget with capital expenditure with a timeline of 3 years. The Project proponent shall ensure that the activities proposed under the public hearing shall be different from the CSR activities.

x. The Project Proponent needs to undertake the enumeration of the species within the mine lease area before cutting. The Project Proponent also needs to submit

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the compensatory afforestation plan for the no. of trees to be cut in the mine lease area and also to explore the possibility of tree transplantation.

xi. The Project Proponent needs to submit the action plan for undertaking the plantation along the 7.5m barrier, safety zone of tar road/cart tracks, electric line etc., PP should also submit the details no of saplings to be planted, type of saplings proposed and the area to be covered under greenbelt/plantation along with the timeline and budget. The greenbelt/plantation plan shall be prepared in such a way that the ecology of the area shall be restored.

xii. The Project Proponent shall carry out the assessment of impact due to the proposed project as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP. The project proponent shall conduct hydrological study for projects involving intersection of ground water table as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.

xiii. The Project Proponent shall explore the possibility of reduction of specific water requirement by optimization / technology up gradation, etc. The efforts shall be delineated in the EIA/EMP.

xiv. The Project Proponent shall prepare the scheme for mandatory recycle/re-use of water as specified by the Central Ground Water Authority for different category areas seeking NoC for ground water withdrawal and the shall submit as part of EIA/EMP report.

xv. The Project Proponent needs to submit the detailed R&R plan covering all the components viz. number of Project Affected Families (PAF) and details of the land owned by them, break up of total compensation to be paid including method of calculation including the sources/references adopted and mode of payment etc.

xvi. The Project Proponent needs to submit the plan for Socio economic development of the neighbourhood habitats based on the need based survey along with the time bound action plan in consultation with the local people. Further, PP needs to submit the possession certificate and timeline for acquiring the land at the time of submission of EC proposal.

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xvii. The Project Proponent needs to submit a letter from the Department of Geology and Mining, Government of Rajasthan clarifying whether any illegal mining within the mine lease area has been carried out or not and whether the same has been carried out by M/s. JSW Cement Ltd or not?

xviii. The Project Proponent shall conduct drone survey of the mine lease area and buffer area and submit during the appraisal for EC.

2.4 Proposed 3D1 Limestone Block (Auctioned Block) of M/s. JSW Cement Limited with Limestone Production Capacity: 1.0 Million TPA, Waste: 0.34 Million TPA, Top Soil: 0.06 Million TPA (Total Excavation: 1.40 Million TPA) along with Installation of Crusher 1600 TPH with Wobbler in the mine lease area of 357.0937 ha, located at Villages: Harima, Sarasani&Deh, Tehsil: Nagaur&Deh, District: Nagaur, Rajasthan - [F.No: :IA-J-11015/46/2023-IA-II(NCM), Proposal No: IA/RJ/MIN/452877/2023; EIA Consultant: J.M. EnviroNet Pvt. Ltd] – Terms of Reference

The instant proposal is for mining of Limestone in 3D1 Limestone Block (Auctioned Block) of M/s. JSW Cement Limited with proposed Limestone Production Capacity: 1.0 Million TPA, Waste: 0.34 Million TPA, Top Soil: 0.06 Million TPA (Total Excavation: 1.40 Million TPA) along with installation of Crusher 1600 TPH with Wobbler in the mine lease area of 357.0937 ha, located at Villages: Harima, Sarasani&Deh, Tehsil: Nagaur&Deh, District: Nagaur, Rajasthan.

2. The details of the project as ascertained from the document submitted by the Project Proponent are given below:

i. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" of the schedule of the EIA Notification, 2006 as the mine lease area is greater than 250 ha and appraised at the Central level.

ii. The mine lease area is located between Latitude: 27°15'55.751"N to 27°16' 25.809"N and Longitude: 73°51'30.391"E to 73°53'54.280" E. The mine lease area falls under the Survey of India Toposheet No: G43B15 (45E/15) and falls in Seismic Zone-II.

iii. Details of Mine Lease:

S.no	Prospecting License/ Letter of Intent (LoI)/ Grant of Mine lease and Lr No	Date of the grant	Name of the Mineral & (Major/ Minor)	Period of Grant	Granted by	Mine lease area in Ha
1.	Letter of Intent (LoI) for grant of	30.06.2023	Limestone	3 years	Govt. of Rajasthan	357.0937

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	mining lease vide Lr No. P.3(10) Khan/Group-2/2017 issued through e-auction process					

iv. Land Use/Land Cover of the Mine Lease Area:-

Private land	301.8498 ha
Government waste land	55.2439 ha
Forest Land	-
Total Mining lease area (MLA), Ha	357.0937 ha
Private land for crusher, workshop & other infrastructure outside the MLA	No infrastructure is proposed outside the ML area.
Additional information (if any)	It is proposed to install a Crusher of 1600 TPH within the mine lease area.

v. Details of Mining Plan:-

Mining Plan including Progressive Mine Closure Plan was approved by Indian Bureau of Mines(IBM)	Letter No.	E-8702-MCDR-MPC0LST/21/2023-AJM -IBM_RO_AJM
	Date	06.12.2023
	Mineral & (Major/Minor)	Limestone (Major)
	Mine Lease Area, Ha	357.0937
	Validity	5 years from the date of Mining Lease deed Execution
Mining Parameters	Quantitative Description	
Method of Mining	Fully Mechanized Opencast Mining Method.	
Drilling/Blasting	Drilling will be done with sharp drill bits. Drill machine equipped with wet drilling arrangement. Controlled blasting with proper spacing, burden, stemming and optimum charge/delay to be adopted. NONEL will be used to control ground vibrations, noise & fly rocks.	
Geological Reserves	199.15 Million Tonnes	
Mineable Reserves	158.03 Million Tonnes	
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Total Excavation: 1.40 Million TPA 9. Limestone: 1.0 Million TPA 10. Waste: 0.34 Million TPA 11. Top Soil: 0.06 Million TPA	
Life of mine	~161 years	
Mine Bench Height & Bench Width	Bench height: 8 m (Maximum) Bench Width: 15 m (Minimum)	
No. of Mine Benches	4 benches at conceptual stage	
Existing Depth, m bgl	It is a proposed mining project and hence not	

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	applicable.
Ultimate Depth of Mining, m bgl	274.5 m AMSL (30 m bgl (maximum depth)
Ground Water Table, m bgl	124 m AMSL to 184 m AMSL (115 m to 125 m bgl)
Details of ground water intersection	Water table will not be intersected by mine workings at any stage of mining operation.
Individual bench slope	75°
Overall pit slope	45°
Details of existing/ proposed Crusher	Crusher of capacity 1600 TPH & wobbler
Mineral Beneficiation	Nil
RoM output size	<110 mm
Transportation details including capacity of dumper/tipper, mode of transport and distance	Limestone will be transported from mine face to crusher by 40 T dumpers via haul road. Crushed limestone will be transported to proposed Cement Plant of M/s. JSW Cement Ltd. via Overland belt conveyor and via road for sale to the prospective buyers.
Generation of Topsoil/OB & its Management during plan period & conceptual period.	Top Soil: ➢ During the first plan period, 21255Cu.m of Topsoil will be generated which will be used for Greenbelt development/Plantation. ➢ At conceptual stage, total 1015336.76 Cu.m of Top Soil will be generated which willbe entirely be used for greenbelt development/ plantation. Waste: ➢ During the plan period, no overburden in the form of Soil/ alluvium will be generated. ➢ At conceptual stage, about 27.51 Million Cu.m of waste generated will beutilized for back filling of mined-out area.
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	-

vi. Water requirement:

Total water requirement	200 KLD	Drinking & Domestic	5.0 KLD
		Dust suppression	170.0 KLD
		Greenbelt/Plantation	20.0 KLD
		Workshop	5.0 KLD
Source	Water will be sourced from Ground water (Borewells) and mine sump water (as & when developed).		
Permission for withdrawal/ intersection along with details of	Working depth during the plan period will be 301 m AMSL (8.0 m bgl) and at conceptual stage, ultimate working depth will be 279 m AMSL (30 m bgl). Depth of water table in the		

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grant and its validity	area is at 124 m AMSL to 184 m AMSL (115 m to 125 m bgl). Hence, there is no possibility of groundwater table intersection by mine workings at any stage of mining operation.

vii. Nearest village/town/ highway/interstate boundary/railway station/water bodies/monument/ forest:

Particulars	Particular's Name	Distance &Directions
Nearest Village	Harima	~150 m in SW direction
Nearest School	Govt. Upper Primary School, Harima	~300 m in SW direction
Nearest Town	Deh	~3.0 km in NE direction
Nearest State/National Highway	NH-58	Passing through the lease area from North-west corner.
Interstate Boundary	None	None
Railway Station/Railway line	Nagaur Railway Station	~15.1 km inSW direction
Water Bodies	ChhaparNaadi	(~ 3.8 km in SE)
	JakhaliNaadi	(~ 5.4 km in NW)
	BamandaNaadi	(~ 6.6 km in SE)
	JanjolaiNaadi	(~ 7.0 km in North)
	PinsariyaNaadi	(~ 7.6 km in SE)
Forest	None	None

viii. Presence of Environmentally Sensitive areas in the study area:

Forest Land / Protected Area / Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	No	No Forest land involved in mining lease area.
National Park	No	No National Park, Wild Life Sanctuaries, Eco Sensitive Zone (ESZ)/ Eco-Sensitive Area (ESA) etc. within 10 km radius study area.
Wildlife Sanctuary	No	
Elephant/Tiger Reserve	No	
Eco-Sensitive Zone (ESZ) /Eco-Sensitive Area (ESA)	No	
Coastal Regulation Zone (CRZ)	No	--
Schedule-I species (No.s and name of schedule-I species with authenticated letter)	-	This proposal is for ToR, study is under process, if any schedule - I found in the study area, Wildlife Conservation Plan will be prepared during the preparation of EIA/EMP Report.
Wildlife Conservation Plan	-	

ix. Green belt/Plantation details:

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Proposed area for green belt/plantation and no. of saplings proposed	Total area under greenbelt and plantation will be ha 140.22 ha on backfilled area and 10.79 ha area including Greenbelt along 7.5 m Mine Periphery & Plantation in Safety Zone etc.).
Budget for green plant & plantation till the end of life of mine.	Rs. 4.5 Cr.
Budget for nursery	N/A
Details of existing plantation and its survival rate	It is a proposed mining project.
No. of tree cuts in the mine lease area and compensatory afforestation	No. of trees to be cut: 1570 (tentative figure considering entire life of mine) No. of trees proposed to be planted: 150 *Note: 1570 trees to be cleared and 150 trees to be transplanted is a tentative figure. Young trees are proposed to be transplanted and the figure may change after detailed study.*
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	43.1137 ha area including greenbelt Road, HT Line, Power line safety zone plantation etc.
50 m safety zone of nallah, roads, electric lines	

x. Rehabilitation & Resettlement (R&R):

R & R details	The Project Proponent has submitted that the total mine lease area is 357.0937 ha, out of which 55.2439 ha is Govt. Land and 301.8498 ha is a Pvt land which spreads in 3 villages: Harima, Sarasani&Deh.Land will be purchased with negotiation and R&R provisions will be followed as per Central and State Government Rules & Notifications..

xi. Court case details:

Court Case, No and its present status	The Project Proponent submitted a undertaking vide letter dated 24.11.2023 stating that there is no litigation pending against the project and/or any direction/ order passed by any court of law against the project and/or land in which the project is proposed and that for any such litigation whatsoever, the sole responsibilities will be borne by the company.
Undertaking by Project Proponent w.r.t court case	

xii. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent submitted the Affidavit in a nonjudicial stamp paper ofRs 100 bearing no: 77AA 401393 dated 24.11.2023 stating that the company undertakes by affidavit to comply with all the statutory requirement & judgment of Hon'ble Supreme Court order dated 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India &Ors before grant of ToR/EC

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xiii. Details of project cost and employment:

Particulars	Budget (Rs. in Crores)
Project Cost	Rs. 197.60 Crores
Employment	82 persons

3. Observation and Recommendation of the EAC: -

The EAC deliberated the instant proposal (3D1 Limestone Block) along with 3C2 Limestone Block and 3C1 Limestone Block as all these mine leases sharing common boundary and contiguous to each other. Based on the discussions held,the EAC in its meeting held during 26-28 December, 2023, under the provisions of EIA Notification, 2006 and subsequent amendments therein, **recommended** the proposal for grant of Terms of Reference to M/s. JSW Cement Ltd for mining of Limestone in 3D1 Limestone Block (Auctioned Block) with proposed Limestone Production Capacity: 1.0 Million TPA, Waste: 0.34 Million TPA, Top Soil: 0.06 Million TPA (Total Excavation: 1.40 Million TPA) along with installation of Crusher 1600 TPH with Wobbler in the mine lease area of 357.0937 ha, located at Villages: Harima, Sarasani & Deh, Tehsil: Nagaur & Deh, District: Nagaur, Rajasthan for undertaking detailed EIA/EMP study subject to the following specific conditions in addition to the standard ToR conditions applicable for non-coal mining projects:-

i. The EAC was of the view that the working in the common boundary needs to be reflected in the mining plan.

ii. The Project Proponent needs to submit the ecology restoration plan for mined out pits for using as Water reservoir/ Pisciculture as well as the plan for the backfilled area.

iii. The Project Proponent needs to submit the year wise sequence of mining operation and plan for backfilling considering the site features and their impacts and mitigation.

iv. The Project Proponent needs to submit the detailed scientific study on flora and fauna and also to highlight on the endangered species. The Project Proponent needs to verify the list as per the latest Wildlife Protection Amendment Act, 2022.

v. The Project Proponent needs to submit the letter from the State Forest Department regarding whether the instant mine leases fall under Aravalli or not.

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vi. The Project Proponent needs to monitor the ambient air quality and noise level at the mine lease boundary, nearest village, crusher, predominant downwind direction and at other sensitive receptors. Accordingly, Project Proponent shall propose to install Continuous Ambient Air Quality Monitoring Station within certain timeline.

vii. The Project Proponent should prepare the EMP considering the scenario of pollution to be generated for normative and peak total excavation for assessing air pollution, noise level and ground vibration.

viii. The Project Proponent shall monitor the water quality in the impact zone such as water reservoir, river water with specific reference to the parameter LangelierSaturation Index which will denote the impact of calcium carbonateson water bodies and these parameters and determine the tendency of water to form calcium carbonate scaling.

ix. The Project Proponent needs to carry out the Public Hearing as per provisions of EIA Notification, 2006. PP should also submit the time bound action plan on concerns of the public through a separate budget with capital expenditure with a timeline of 3 years. The Project proponent shall ensure that the activities proposed under the public hearing shall be different from the CSR activities.

x. The Project Proponent needs to undertake the enumeration of the species within the mine lease area before cutting. The Project Proponent also needs to submit the compensatory afforestation plan for the no. of trees to be cut in the mine lease area and also to explore the possibility of tree transplantation.

xi. The Project Proponent needs to submit the action plan for undertaking the plantation along the 7.5m barrier, safety zone of tar road/cart tracks, electric line etc., PP should also submit the details no of saplings to be planted, type of saplings proposed and the area to be covered under greenbelt/plantation along with the timeline and budget. The greenbelt/plantation plan shall be prepared in such a way that the ecology of the area shall be restored.

xii. The Project Proponent shall carry out the assessment of impact due to the proposed project as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP. The project proponent shall conduct hydrological study for projects involving intersection of ground water table as per the guidelines issued by the Central

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Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.

xiii. The Project Proponent shall explore the possibility of reduction of specific water requirement by optimization / technology up gradation, etc. The efforts shall be delineated in the EIA/EMP.

xiv. The Project Proponent shall prepare the scheme for mandatory recycle/re-use of water as specified by the Central Ground Water Authority for different category areas seeking NoC for ground water withdrawal and the shall submit as part of EIA/EMP report.

xv. The Project Proponent needs to submit the detailed R&R plan covering all the components viz. number of Project Affected Families (PAF) and details of the land owned by them, break up of total compensation to be paid including method of calculation including the sources/references adopted and mode of payment etc..

xvi. The Project Proponent needs to submit the plan for Socio economic development of the neighbourhood habitats based on the need based survey along with the time bound action plan in consultation with the local people. Further, PP needs to submit the possession certificate and timeline for acquiring the land at the time of submission of EC proposal.

xvii. The Project Proponent needs to submit a letter from the Department of Geology and Mining, Government of Rajasthan clarifying whether any illegal mining within the mine lease area has been carried out or not and whether the same has been carried out by M/s. JSW Cement Ltd or not?

xviii. The Project Proponent shall conduct drone survey of the mine lease area and buffer area and submit during the appraisal for EC.

Day 3: 28th December, 2023 (Thursday)

3.1 Proposed Rata - Mandha Limestone Mine (Auctioned Block) of M/s. Deccan Cements Limited with Limestone Production Capacity: 1.5 Million TPA along with installation of Crusher 750 TPH in the mine lease area of 420.0 ha, located at Village: Rata Mandha, Tehsil: Mohangarh, District: Jaisalmer, Rajasthan – [IA-J-11015/48/2023-IA-II(NCM), Proposal No: IA/RJ/MIN/453669/2023; EIA Consultant: J.M. EnviroNet Pvt. Ltd] – Terms of Reference (ToR)

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The instant proposal is for mining of Limestone in Rata - Mandha Limestone Mine (Auctioned Block) of M/s Deccan Cements Limited with proposed Limestone Production Capacity: 1.5 Million TPA along with installation of Crusher 750 TPH in the mine lease area of 420.0 ha, located at Village: Rata Mandha, Tehsil: Mohangarh, District: Jaisalmer, Rajasthan.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under: -

i. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" of the schedule of the EIA Notification, 2006 as the mine lease area is greater than 250 ha and appraised at the Central level.

ii. The mine lease area is located between Latitude: 27°18'31.2441" N to 27°19'37.24040" N and Longitude: 70°52'13.80922" E to 70°53' 31.2778" E. The mine lease area falls under the Survey of India Toposheet No: G42E15 and falls in Seismic Zone-V.

iii. Details of Mine Lease:

S. No	Prospecting License/ Letter of Intent (LoI)/ Grant of Mine lease and Lr No	Date of the grant	Name of the Mineral & (Major/ Minor)	Period of Grant	Granted by	Mine lease area in Ha
1.	Letter of Intent (LoI) for grant of mining lease granted vide LrNo. P.3(1) Khan/Group-2/2022through e-auction process conducted by the Govt. of Rajasthan.	08.03.2023	Limestone (Major)	2 years	Govt. of Rajasthan	420.00 ha

iv. Land Use/Land Cover of the Mine Lease Area:

Private land	57.21 ha
Government waste land	362.79 ha
Forest Land	-
Total Mining lease area (MLA), Ha	420.0 ha
Private land for crusher, workshop & other infrastructure outside the MLA	No infrastructure is proposed outside the ML area.

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v. Details of Mining Plan:-

Mining Plan including Progressive Mine Closure Plan was approved by Indian Bureau of Mines	Letter No.	MCDR-MPC0LST/11/2023-AJM-IBM_RO_AJM
	Date	08.09.2023
	Mineral & (Major/Minor)	Limestone (Major)
	Mine Lease Area, Ha	420.00 ha
	Validity	5 years from the date of Mining Lease registration
Mining Parameters	Quantitative Description	
Method of Mining	Fully Mechanized Opencast Mining Method.	
Drilling/Blasting	Mining will be done by mechanized opencast method using Hydraulic excavator/loader. Drilling will be carried out with the help of hydraulic drill machines equipped with arrangement for wet drilling, dust collectors and sample collection. Controlled blasting will be carried out. No secondary blasting is proposed. Rock breaker will be deployed for breaking the oversized boulders. To control the ground vibration as well as fly rock only 100% Non-Electric (NONEL) detonators will be used.	
Geological Reserves	209.71 Million TPA (As on 10.08.2023)	
Mineable Reserves	168.83 Million TPA (As on 10.08.2023)	
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Total Excavation: 1.56Million TPA Breakup of Total Excavation: 1. Limestone: 1.50 Million TPA 2. Over Burden: 0.06 Million TPA	
Life of mine	116 years (As on 10.08.2023)	
Mine Bench Height & Bench Width	Bench height: 9 m (During plan period), 8 m (During conceptual stage). Bench Width: 25 m (During plan period), 9 m (During conceptual stage).	
No. of Mine Benches	2 (In Pit 1) [during plan period], 5 (In Pit 3) and 4 (In Pit no 1 & 2) [During conceptual stage]	
Existing Depth, m bgl	It's a greenfield project and hence not applicable.	
Ultimate Depth of Mining, m bgl	140 m RL (32 m) (In Pit no 1 & 2) 132 m RL (40 m) (In Pit 3)	
Ground Water Table, m bgl	70 m bgl	
Details of ground water intersection	The water table in the area is about 70 m deep and the ultimate working depth will be 40 m bgl. Thus, water table will not be intersected during mining at any stage.	
Individual bench slope	80°	
Overall pit slope	45°	

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Details of existing/ proposed Crusher	Capacity of 750 TPH crusher is proposed.
Mineral Beneficiation	Nil
RoM output size	Nil
Transportation details including capacity of dumper/tipper, mode of transport and distance	Limestone will be transported from mine face to head by dumpers via haul road and it will be transported to end users via road or belt conveyor.
Generation of Topsoil/OB & its Management during plan period & conceptual period.	Over Burden: ➢ During the plan period 0.064 Million Tonnes of waste will be generated which will be stacked temporarily and will be utilized further for backfilling. ➢ During conceptual stage, 18.83 Million Tonnes of waste will be generated, out of which 18.45 million tonnes of waste will be backfilled over an area of 23.07 ha and remaining 0.38 million tonnes of waste will be stacked in dump over an area of 5.04 ha which will be rehabilitated by plantation.
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	-

vi. Water requirement:

Total water requirement	70 KLD	Domestic	10.0 KLD
		Dust suppression	35.0 KLD
		Plantation	20.0 KLD
		Workshop	5.0 KLD
Source	IGNP canal (SagarmalGopa Branch) and mine sump as and when developed. Permission will be taken from competent authority for using of canal water.		
Permission for withdrawal/ intersection along with details of grant and its validity	The water table in the area is about 70 m deep and the ultimate working depth will be 40 m bgl. Thus, water table will not be intersected during mining at any stage and hence permission is not required.		

vii. Nearest village/town/ highway/interstate boundary/railway station/water bodies/monument/ forest

Particulars	Particular's Name	Directions
Nearest Village	Kinya	~1.2 km in NW direction
Nearest Town	Jaisalmer	~111 km in SE direction
Nearest State/National Highway	MDR-103	~4.3 km in NNE direction
	MDR-19	~5.4 km in NW direction

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Interstate Boundary	None	None
Railway Station/Railway line	Jaisalmer Railway Station	~44 km in SSE Direction
Water Bodies	Indira Gandhi Canal (SagarmalGopa Branch)	~4.5 km in NNE direction
Forest	None	None

viii. Presence of Environmentally Sensitive areas in the study area

Forest Land / Protected Area / Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	No	No Forest land involved in mining lease area. Letter from competent authority will be taken.
National Park	No	No National Park, Wildlife Sanctuary, Elephant/Tiger Reserve involved in study area. Letter from competent authority will be taken.
Wildlife Sanctuary	No	
Elephant/Tiger Reserve	No	
Eco-Sensitive Zone (ESZ) /Eco-Sensitive Area (ESA)	No	
Coastal Regulation Zone (CRZ)	No	--
Schedule-I species (No.s and name of schedule-I species with authenticated letter)	-	This proposal is for ToR, study will be carried out, if any schedule - I species found in the study area Wildlife Conservation Plan will be prepared during the preparation of EIA/EMP Report.
Wildlife Conservation Plan	-	

ix. Green belt/Plantation details:

Proposed area for green belt/plantation and no. of saplings proposed	Total area under greenbelt and plantation will be under 76.052 ha (6.127 ha area on 7.5 m lease periphery +5.04 ha on waste dump + 23.07 ha on backfilled area + 20.94 ha on 2 no of top most benches + 20.875 ha on 45 m safety one of tar road).
Budget for green plant & plantation till the end of life of mine.	Rs. 2.30 Crore
Budget for nursery	N/A
Details of existing plantation and its survival rate	It's a greenfield project.
No. of tree cuts in the mine lease area and compensatory afforestation	50no.s
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	6.127 ha
50 m safety zone of nallah, roads,	20.875 ha

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electric lines	
500 m safety zones of nearest habitation villages	Nil

x. Rehabilitation & Resettlement (R&R):

R & R details	The Project Proponent has submitted that the total mine lease area is 420 ha, out of which 57.21 ha is private land. Land will be purchased with negotiation and R&R provisions will be followed as per Central and State Government Rules & Notifications.

xi. Court case details:

Court Case, No and its present status	❖ The e-auction organized for a Rata Mandha Limestone block. The initial attempt didn't receive any bids at the 10% reserve price. ❖ In the second attempt of auction, DCL and SCL participated in which the highest bid of 10.40 percent was proposed by SCL which was declared as Preferred Bidder. Considering that the bid submitted by SCL was relatively less received by the State Government and considering the revenue interest involved in the matter and wider public interest and government revenue, the bid submitted by M/s Shree Cement Limited was rejected. ❖ Following the rejection, Shree Cement Limited filed a case (Civil Writ Petition No. 16345/2018) before the Honourable High Court in Jodhpur against the government's order dated July 23, 2019. As of now, no stay order has been issued by the Honourable Court, and the case remains pending. ❖ In the third attempt of auction, M/s Deccan Cements Limited declared as the Preferred Bidder with a winning bid of 15.25% in the e-auction conducted on 16.12.2021 and LOI has been issued by Government of Rajasthan vide letter No. P.3(1) Khan/Group-2/2022 dated 08.03.2023 for grant of Mining Lease for the said Block for a period of 2 years.
Undertaking by Project Proponent w.r.t court case	N/A

xii. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent submitted the Affidavit in a non judicial stamp paper of Rs 100 bearing no: AN 756550 dated 01.12.2023 stating that the company undertakes by affidavit that it will comply with all the statutory requirement & judgment of Hon'ble Supreme Court order dated 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India &Ors before grant of ToR/EC

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xiii. Details of project cost and employment:

Particulars	Budget (Rs. in Crores)
Project Cost	Rs. 45 Crores
Employment	68 persons

3. Observation and Recommendation of the EAC: -

The Project Proponent/EIA Consultant presented the KML file to indicate the site features in the study area of 10 km radius. The Project Proponent showed the boundary of the mine lease area. The Project Proponent informed the EAC that One HT line passes through mine lease area. Safety barriers are left in both sides of HT line and the same will not be disturbed at any stage of mining activity.Tar road of length of 2.20 km exists within the mine lease area. Nearest village is Khinya Village located at a distance of ~1.2 km in NW direction. A School is also located in Khinya Village. Nearest water body is Indira Gandhi Canal (~4.5 km, NNE). Dumpers of 20 Tonnes capacity bucket capacity will be used for transportation of mineral from mine face to the crusher. During the initial period of 2 years, Limestone produced from this mine will be directly sold in open market and then in fourth/fifth year Limestone will be used in upcoming cement plant which will be installed in the year 2030. During the first two years, Limestone will be transported by road at a distance of 50 km to the Sanu railway siding. The EAC was of the view that the Project Proponent needs to double the width of road. The Project Proponent informed the EAC that at the end of conceptual stage, an area of 329.45 ha will be excavated out of which 285.44 ha will be converted into water reservoir, 23.07 ha will be backfilled and an area of 20.94 ha will be reclaimed on top most 2 benches. During conceptual stage, about 18.83 Million Tonnes of waste will be generated, out of which 18.45 million tonnes of waste will be backfilled over an area of 23.07 ha and remaining 0.38 million tonnes of waste will be stacked in dump over an area of 5.04 ha which will be rehabilitated by plantation. Till 30 years, mining will be carried out in Govt. land.

The EAC asked about the status of court case. The Project proponent informed the EAC that initially e-auction organized for the Rata Mandha Limestone block. The initial attempt didn't receive any bids at the 10% reserve price. In the second attempt of auction, Deccan Cements Limited (DCL) and Shree Cement Limited (SCL) participated in which the highest bid of 10.40 percent was proposed by SCL and declared as a Preferred Bidder. Considering that the bid submitted by SCL was relatively less and considering the revenue interest involved in the matter and wider public interest and government revenue, the bid submitted by Shree Cement Limited was rejected. Then, the Shree Cement Limited filed a case (Civil Writ Petition No. 16345/2018) before the Hon'ble High Court in Jodhpur against the Govt. order dated July 23, 2019. As of now,

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no stay order has been issued by the Hon'ble Court, and the case remains pending. Next date of hearing is 23.04.2024. In the third attempt of auction, M/s Deccan Cements Limited declared as the Preferred Bidder with a winning bid of 15.25% in the e-auction conducted on 16.12.2021 and accordingly Letter of Intent (LoI)for grant of mining lease was granted by the Govt. of Rajasthan vide letter dated 08.03.2023 for the said block for a period of 2 years. The EAC opined that the instant Terms of Reference would be subject to the outcome of the court case filed before the Hon'ble High Court in Jodhpur in Civil Writ Petition No. 16345/2018.

Based on the discussions held, the EAC in its meeting held during 26-28 December, 2023, under the provisions of EIA Notification, 2006 and subsequent amendments therein, **recommended** the proposal for grant of Terms of Reference to M/s Deccan Cements Limited for mining of Limestone in Rata - Mandha Limestone Mine (Auctioned Block) with proposed Limestone Production Capacity: 1.5 Million TPA along with installation of Crusher 750 TPH in the mine lease area of 420.0 ha, located at Village: Rata Mandha, Tehsil: Mohangarh, District: Jaisalmer, Rajasthan for undertaking detailed EIA/EMP study subject to the following specific conditions in addition to the standard ToR conditions applicable for non-coal mining projects:-

i. The instant Terms of Reference would be subject to the outcome of the court case filed before the Hon'ble High Court in Jodhpur in Civil Writ Petition No. 16345/2018.

ii. The Project Proponent needs to submit the timeline and action plan for transporting the Limestone through OLBC.

iii. The Project Proponent needs to submit the ecology restoration plan for mined out pits for using as Water reservoir/ Pisciculture as well as the plan for the backfilled area.

iv. The Project Proponent needs to submit the year wise sequence of mining operation and plan for backfilling considering the site features and their impacts and mitigation.

v. The Project Proponent needs to monitor the ambient air quality and noise level at the mine lease boundary, nearest village, crusher, predominant downwind direction and at other sensitive receptors. Accordingly, Project Proponent shall propose to install Continuous Ambient Air Quality Monitoring Station within certain timeline.

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vi. The Project Proponent should prepare the EMP considering the scenario of pollution to be generated for normative and peak total excavation for assessing air pollution, noise level and ground vibration.

vii. The Project Proponent shall monitor the water quality in the impact zone such as water reservoir, river water with specific reference to the parameter Langelier Saturation Index which will denote the impact of calcium carbonates on water bodies and these parameters and determine the tendency of water to form calcium carbonate scaling.

viii. The Project Proponent needs to submit the map showing the transport route of the mineral from the mine lease area to the destination, impact of details of habitation at a distance of 100m from the center on both sides of road, details of no. of trips/day to and fro, capacity of the dumper/tipper to be deployed and the dimensions of the road, existing and additional traffic load to the NH/SH/MDR and the carrying capacity of the road. Project Proponent needs to submit SOP for transportation.

ix. The Project Proponent needs to carry out the Public Hearing as per provisions of EIA Notification, 2006. PP should also submit the time bound action plan on concerns of the public through a separate budget with capital expenditure with a timeline of 3 years. The Project proponent shall ensure that the activities proposed under the public hearing shall be different from the CSR activities.

x. The Project Proponent needs to undertake the enumeration of the species within the mine lease area before cutting. The Project Proponent also needs to submit the compensatory afforestation plan for the no. of trees to be cut in the mine lease area and also to explore the possibility of tree transplantation.

xi. The Project Proponent needs to submit the action plan for undertaking the plantation along the 7.5m barrier, safety zone of tar road/cart tracks, electric line etc., PP should also submit the details no of saplings to be planted, type of saplings proposed and the area to be covered under greenbelt/plantation along with the timeline and budget. The greenbelt/plantation plan shall be prepared in such a way that the ecology of the area shall be restored.

xii. The Project Proponent needs to submit employment based skill development plan for the local people and thrust should be to provide employment to local people after imparting training.

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xiii. The Project Proponent shall carry out the assessment of impact due to the proposed project as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP. The project proponent shall conduct hydrological study for projects involving intersection of ground water table as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.

xiv. The Project Proponent shall explore the possibility of reduction of specific water requirement by optimization / technology up gradation, etc. The efforts shall be delineated in the EIA/EMP.

xv. The Project Proponent shall prepare the scheme for mandatory recycle/re-use of water as specified by the Central Ground Water Authority for different category areas seeking NoC for ground water withdrawal and the shall submit as part of EIA/EMP report.

xvi. The Project Proponent needs to submit the detailed R&R plan covering all the components viz. number of Project Affected Families (PAF) and details of the land owned by them, break up of total compensation to be paid including method of calculation including the sources/references adopted and mode of payment etc. The Project Proponent needs to submit the plan for Socio economic development of the neighbourhood habitats based on the need based survey along with the time bound action plan. An action plan for land acquisition in consent with the local people also needs to be submitted. Further, PP needs to submit the possession certificate and timeline for acquiring the land at the time of submission of EC proposal.

xvii. The Project Proponent needs to submit a letter from the Department of Geology and Mining, Government of Rajasthan clarifying whether any illegal mining within the mine lease area has been carried out or not and whether the same has been carried out by M/s. Deccan Cement Ltd or not?

xviii. The Project Proponent shall submit the action plan along with timeline for doubling the width of the village road which is to be used for transportation.

xix. The Project Proponent shall conduct drone survey of the mine lease area and buffer area and submit during the appraisal for EC.

3.2 Mahulsukha Iron and Manganese Ore Block of M/s Patnaik Minerals Private Ltd for mining of Iron and Manganese Ore in the mine lease area of 390.317 ha (as per DGPS)/399.838 ha (as per ROR), with proposed production capacity of Iron

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Ore: Total Excavation: 1.662977 MTPA; ROM: 1.0MTPA and Manganese Ore: Total Excavation: 1.407519 MTPA; ROM: 0.15MTPA, located at Villages Randa, Rantha and Bhutuda under Bonai Sub-Division and Lahunipada Tehsil, Sundargarh District, Odisha - [F. No: J-11015/75/2020-IAII(M), Proposal No: IA/OR/MIN/180360/2020] – Environmental Clearance (EC)

The instant proposal is for mining of Mahulsukha Iron and Manganese Ore Block of M/s Patnaik Minerals Private Ltd for mining of Iron and Manganese Ore in the mine lease area of 390.317 ha (as per DGPS)/399.838 ha (as per ROR), with proposed production capacity of Iron Ore: Total Excavation: 1.662977 MTPA; ROM: 1.0MTPA and Manganese Ore: Total Excavation: 1.407519 MTPA; ROM: 0.15MTPA, located at Villages Randa, Rantha and Bhutuda under Bonai Sub-Division and Lahunipada Tehsil, Sundargarh District, Odisha.

2. Observation and Recommendation of the EAC: -

The EAC noted that the Project Proponent vide letter dated 12.12.2023 informed that due to unavoidable circumstances they are not in position to present the technical presentation and hence requested to defer the proposal. Based on the request of the Project Proponent letter dated 12.12.2023, the EAC **deferred** the proposal.

3.3 Gojoli-Somanpalli Dongargaon Limestone Block (Auctioned Block) of M/s Dalmia Cement (Bharat) Ltd. for mining of Limestone with Limestone Production Capacity 1.0 Million TPA, Soil: 0.10 Million TPA, OB: 0.15 Million TPA & Waste: 0.25 Million TPA (TotalExcavation-1.50 Million TPA) along with installation of Impact Crusher-500 TPH Capacity with Screen/Wobbler in the mine lease area of 646.55 ha, located at Villages: Somanpalli, Dhaba, ChakDubarpeth, ChakNavegaon, GojoliMakta and ChakGojoli, Tehsil: Gondpipri, District: Chandrapur, Maharashtra – [Proposal No: IA/MH/MIN/285399/2022, F.No: IA-J-11015/31/2022-IAII(NCM), EIA Consultant: M/s Aditya Environmental Services Pvt.Ltd] – Terms of Reference (ToR)

The instant proposal is for grant of Terms of Reference for mining of Limestone in Gojoli-SomanpalliDongargaon Limestone Block (Auctioned Block) of M/s Dalmia Cement (Bharat) Ltd. with Limestone Production Capacity 1.0 Million TPA, Soil: 0.10 Million TPA, OB: 0.15 Million TPA & Waste: 0.25 Million TPA (Total Excavation-1.50 Million TPA) along with installation of Impact Crusher-500 TPH Capacity with Screen/Wobbler in the mine lease area of 646.55 ha, located at Villages: Somanpalli, Dhaba, ChakDubarpeth, ChakNavegaon, GojoliMakta and ChakGojoli, Tehsil: Gondpipri, District: Chandrapur, Maharashtra.

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2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under: -

i. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and 2(b) Mineral Beneficiation and falls under Category "A" as the mining lease area is greater than 250ha and appraised at the Central level.

ii. The mine lease area is located between Latitude: 19°35'50.61"N to 19"40'40.89"N and Longitude: 79°38'40.56"E to 79°40'00.39"E. The mine lease area falls under the Survey of India Toposheet No: 56 M/10 and falls in Seismic Zone – II.

iii. The proposal was earlier considered in the 2nd EAC (Non-Coal Mining) meeting held during 16 - 18 August, 2022 wherein the EAC noted that the instant proposal located at an environmental sensitivity area due to presence of 185.83 ha of forest land involved in the mine lease area, Tiger corridor (Kanha-Navegaon-Nagzira-Tadoba-Indravati), Kanhargaon Wildlife Sanctuary (~450 m, W), area of 11.12 ha under seasonal nalla/pond, 17.95 ha under road and 1.09 Ha under settlement inside the mine lease area. Kanhargaon Wildlife Sanctuary situated at 450 meters from lease boundary is a part of identified tiger corridor connecting tiger meta populations in the existing tiger reserves of the landscape. Some forest and Govt. lands near the lease area may also be playing similar role for meta population management. In view of the above, the EAC opined that the comment from the National Tiger Conservation Authority (NTCA) is a prerequisite for further consideration of the instant proposal for Terms of Reference (ToR). Therefore, the EAC deferred the proposal and asked the Project Proponent to submit the comments from the National Tiger Conservation Authority (NTCA) w.r.t Tiger corridor and State authority for wildlife corridor. Then, the Project Proponent submitted the information on 09.08.2023 and 04.12.2023 in Parivesh portal and accordingly the proposal was considered in the 24th EAC (Non-Coal Mining) meeting held during 26-28 December, 2023.

Based on observation of EAC in its EAC meeting held during 16-18 August, 2022 and compliance of observation of EAC made by Project Proponent are detailed below:

S. No	Observation of EAC in its meeting heldduring 16-18 August, 2022	Reply by Project Proponent
1	Comments from the National Tiger Conservation Authority (NTCA) w.r.t Tiger corridor	The NTCA Division gave their comments on 21.09.2023 which are as follows: 1. The ML area is located at approximate distances of 40 km from TadobaAndhari Tiger Reserve (TATR), 51 km from Kawal Tiger

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		Reserve and 86 km from Indravati Tiger Reserve. Nearest Protected Areas to the ML area are Kanhargaon WLS (approximately 450 m) and Chaprala WLS (approximately 14 km). Moreover, the ML area is at an approximate distances of 7.5 km from IndravatiTadoba tiger (least cost pathway) corridor and 46 km from IndravatiNavegaonNagzira tiger (least cost pathway) corridor delineated by NTCA and Wildlife Institute of India. A map is enclosed in this regard. 2. The ML area is part of tiger corridors delineated for Eastern Vidharbha Landscape (EVL) by Wildlife Institute of India and is adjacent to the tiger corridor delineated by Maharashtra Forest Department in the Tiger Conservation Plan for TadobaAndhari Tiger Reserve. A map is enclosed in this regard. 3. The ML area has presence of tigers in its vicinity as per all India tiger estimations carried out in 2022 and 2018. Maps showing tiger distribution are enclosed in this regard. 4. As per 2022 cycle of all India tiger estimation, the ML area had presence of large mammals and major tiger prey species such as leopard, sloth bear, dhole, gaur, chital and sambar in its vicinity. Many of these species are endangered and under Schedule I of the Wildlife (Protection) Act, 1972. 5. Currently, both Kawal and Indravati Tiger Reserves support low density tiger populations below their potential. Recovery of tigers in these Tiger Reserves are possible only when the habitat connectivity with major source populations in the landscape such as Tadoba and

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		Nagzira are maintained. Kanhargaon WLS, Junonah RF and Chichpalli Range of Chandrapur Forest Division are important stepping stone habitat connectivity in between Kawal and Tadoba which got further strengthened by declaration of Kanhargaon as a Protected Area. Permeability of these corridors are currently already under fragmentation threats from urban sprawls and many linear infrastructures such as railway tracks, highways and mining. Impact of any further developmental project in this landscape will be cumulative and detrimental for the persistence of corridor functionality. 6. EAC observed that about 11.12 ha of ML area is under seasonal nalla/pond. The area is drained by few first/second order seasonal nallas. Some originates within the lease area and some traverse the lease area. All drains into DabhaNalla which further merges into Wardha River. Abstraction of water for mining should be subject to thorough understanding on its impact on minimum ecological flow for these nallahs and Wardha river. 7. EAC may like to take cognizance of these ecological concerns before granting any statutory clearance to the proposed limestone mining project.
2	Comments from State authority for wildlife corridor.	The Project Proponent submitted the letter from the Office of the Additional Principal Chief Conservator of Forests (Wildlife) East, Nagpur vide No: Desk-1(B)/Survey/2022-23/1340 Dated: 24.03.2023stating that the office of the Principal Chief Conservator of Forests (Wildlife), M.S. Nagpur has attested the maps. The distance of the Wildlife Sanctuary, Tiger Corridor and Reserve Forest from the mine lease area as per theauthenticated location map are given

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below in table:

S. No	Particulars	Distance & Direction from mining lease
1	Kanhargaon WLS	0.45km, W
2	Tiger Corridor (WII)	7.4 km, W
3	Dongargaon RF	0.6 km, NE
4	Watrana RF	0.04 km, NE
5	Dabha RF	1.6 km, W
6	Khararpet RF	2.4 km, NE
7	Karinji RF	0.05 km, NW
8	Panchgaon RF	2.5 km, NW
9	Ghanpur RF	8.9 km, NW
10	Muthampet RF	9 km, SE
11	Kadamba RF	9.5 km, SW
12	Dongargaon PF	1.1 km, NE
13	Palsori PF	8 km, NW
14	Wamapalli RF	5.79 km, W

2. Observation and Recommendation of the EAC: -

The Project Proponent briefed the EAC about the distance of the Wildlife Sanctuary, Tiger Corridor and Reserve Forest from the mine lease area within 10 km radius of the study area. The EAC also noted the comments given by the National Tiger Conservation Authority (NTCA) on 21.09.2023. The Project Proponent also informed the EAC that mining plan was approved by Indian Bureau of Mines(IBM), Nagpur vide letter dated 19.03.2021, prior to declaration of Kanhargaon Wildlife Sanctuary. About 54.5 ha of LoI area falling within the 1 km buffer from the Kanhargaon Wildlife Sanctuary, has been demarcated as Non-Mining Zone as per Hon'ble Supreme Court Judgement dated 03/06/2022. Life of the mine will be reduced to 33 years from 37 years due to blocking of 3.61 Million Tonnes of Reserves. Accordingly, Modified Mining Plan is under preparation and approved Modified Mining Plan will be submitted during EC. Further, the Project Proponent informed the EAC that application for Wild Life Clearance has been re-submitted vide Proposal No.WL/MH/MIN/QRY/448509/2023 dated 19/10/2023 on PARIVESH 2.0. The EAC also noted the comments of NTCA which are as follows: -

i. The ML area is part of tiger corridors delineated for Eastern Vidharbha Landscape (EVL) by Wildlife Institute of India and is adjacent to the tiger corridor delineated by Maharashtra Forest Department in the Tiger Conservation Plan for TadobaAndhari Tiger Reserve.
ii. The ML area has presence of tigers in its vicinity as per all India tiger estimations carried out in 2022 and 2018.

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iii. As per 2022 cycle of all India tiger estimation, the ML area had presence of large mammals and major tiger prey species such as leopard, sloth bear, dhole, gaur, chital and sambar in its vicinity. Many of these species are endangered and under Schedule I of the Wildlife (Protection) Act, 1972.

iv. Currently, both Kawal and Indravati Tiger Reserves support low density tiger populations below their potential. Recovery of tigers in these Tiger Reserves are possible only when the habitat connectivity with major source populations in the landscape such as Tadoba and Nagzira are maintained. Kanhargaon WLS, Junonah RF and Chichpalli Range of Chandrapur Forest Division are important stepping stone habitat connectivity in between Kawal and Tadoba which got further strengthened by declaration of Kanhargaon as a Protected Area. Permeability of these corridors are currently already under fragmentation threats from urban sprawls and many linear infrastructures such as railway tracks, highways and mining. Impact of any further developmental project in this landscape will be cumulative and detrimental for the persistence of corridor functionality.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC opined that the Project Proponent needs to submit the proposal for obtaining approval of the National Board for Wildlife for Tiger reserves under Section 38 (O) (1) (g) of the Wildlife (Protection) Act, 1972. The EAC also opined that the Ministry may seek comments from the Wildlife Institute of India (WII) since the mine lease area is part of tiger corridors delineated for Eastern Vidharbha Landscape (EVL) by Wildlife Institute of India (WII). The EAC also asked the Project Proponent to refer the report prepared by Wildlife Institute of India/Maharashtra Forest Department/All India tiger estimationswith respect to Tiger distribution and also to submit the point wise reply to the comments of NTCA. Owing to the environmental sensitivity of the mine lease area, the EAC **deferred** the proposal for want of following additional information: -

i. The Ministry may seek comments from the Wildlife Institute of India (WII) since the mine lease area is part of tiger corridors delineated for Eastern Vidharbha Landscape (EVL) by Wildlife Institute of India (WII).

ii. The Project Proponent needs to submit the copy of proposal for obtaining approval of the National Board for Wildlife for Tiger reserves under Section 38 (O) (1) (g) of the Wildlife (Protection) Act, 1972.

iii. The Project Proponent needs to refer the report prepared by Wildlife Institute of India/Maharashtra Forest Department/All India tiger estimationswith respect to Tiger distribution and also to submit the point wise reply to the comments of NTCA.

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iv. The Project Proponent needs to submit the approved Modified Mining Plan.

3.4 Mining of Bajri (Minor Mineral) with proposed production capacity 5.60 MTPA (ROM) in the mine lease area of 3843.098 Ha (19011.89 Bigha), located at Villages Annapurna, Arjiyana, Indrana, Kundal, etc. of Tehsil Siwana, District Barmer, Rajasthan by M/s Ridhi Siddhi Associates [File No. J-11015/427/2013-IA.II(M); Proposal No. IA/RJ/MIN/20595/2013] – Reconsideration of Environmental clearance

The instant proposal is for mining of Bajri (Minor Mineral) with proposed production capacity 5.60 MTPA (ROM) in the mine lease area of 3843.098 Ha (19011.89 Bigha)., located at Villages Annapurna, Arjiyana, Indrana, Kundal, etc. of Tehsil Siwana, District Barmer, Rajasthan by M/s Ridhi Siddhi Associates.

2. Observation and Recommendation of the EAC: -

The EAC noted that the Project Proponent vide letter dated 23.11.2023 regarding the change in scope of the proposal. Accordingly, the EAC recommended to **return the proposal** in present form.

Additional Agenda: -

3.5 Amendment in existing Environmental Clearance dated 2nd November,2007 w.r.t Amalgamation of Korumanipalli&Thollamadugu Limestone Mine(ML Area 205.212 ha) and Korumanipalli Limestone Mine (49.64 ha) of M/s.Penna Cement Industries Ltd with combined production capacity of 2.30 MTPAover an amalgamated mine lease area of 254.856 ha,located at villagesKorumanipalli&Thollamadugu, Mandal- Kolimigundla, District-Kurnool,Andhra Pradesh - [F.No:J-11015/654/2007-IA.II(M), IA/AP/MIN/276997/2022] - Amendment in EC

The instant proposal for amendment in EC was earlier considered in the 5th EAC (Non-Coal Mining) meeting held during 18-20, October, 2022 wherein the EAC noted that the instant proposal for amendment in EC dated 02.11.2007 is w.r.t amalgamation of Korumanipalli&Thollamadugu Limestone Mine (ML Area 205.212 ha) and Korumanipalli Limestone Mine (49.64 ha) of M/s. Penna Cement Industries Ltd with combined production capacity of 2.30 MTPA over an amalgamated mine lease area of 254.856 ha. The EAC also noted that the Project Proponent having two separate valid EC's dated 02.11.2007 (ML Area 205.212 ha) and 07.01.2020 (49.64 ha) for the above said mine leases. Further, the EAC noted that the Project Proponent amalgamated the mine lease on 16.03.2021 over an area of 254.856 ha and continued to operate the mines after 16.03.2021 without obtaining amendment in EC.

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2. The EAC observed that as per Ministry's SOP dated 07.07.2021, "Violation" means cases where projects have either started the construction work or installation or excavation, whichever is earlier, on site or have expanded the production capacity and /or project area beyond the limit specified in the Environmental Clearance (PriorEC) without obtaining Prior-EC or change of scope without prior approval from the Ministry. The EAC also observed that in the instant case, the Project Proponent has increased the mine lease area from 205.212 ha to 254.856 ha beyond the limit specified in the Environmental Clearance (Prior-EC) dated 02.11.2007 and continued to operate the mines after 16.03.2021 without obtaining amendment in EC.The EAC was of the view that the instant case attracts the violation of the EIA Notification, 2006.

3. During the EAC meeting, the Project Proponent informed the EAC that there was no excess of production has been done and the production capacity is well within the limits of the EC capacity dated 02.11.2007 (ML Area 205.212 ha) and 07.01.2020 (49.64 ha) and there is no violation. PP also informed the EAC that the certificate from the Department of Mines & Geology has been obtained vide letter dated 22.08.2022 stating that the "No Mining has been done in ML-2 after Amalgamation of Mine lease".The EAC asked the Project Proponent that why the PP has approached the Ministry for amendment in EC after one year of amalgamation of mining lease. The Project Proponent/consultant accepted,that it was the fault of the Project Proponent and apologized for not applying for amendment in EC well in time after the amalgamation of mining lease on 16.03.2021.Thus, the EAC opined that the instant case attracts the violation of the EIA Notification, 2006 and the EAC advised the Project Proponent to apply for fresh Terms of Reference (ToR) under Ministry's SOP dated 07.07.2021. The EAC also asked the Ministry to take action against the Project Proponent under section 19 of the Environment (Protection) Act, 1986. In view of the above, the EAC returned the proposal in the present form.

4. As per the recommendation of EAC, the Ministry vide letter dated 19.12.2022 requested the Secretary, Environment, Forests, Science & Technology Department, Govt. of Andhra Pradesh to initiate action under the provisions of section 19 of the Environment (Protection) Act, 1986 against the Project Proponent and also to intimate the details of the action taken against the Project Proponentto the Ministry for further necessary action.

5. Then, the Project Proponent vide letter dated 01.12.2023 and 22.02.2023 urged the Ministry that the violation should not be considered in light of the following facts:

i. No construction work or installation or excavation was done in both the mine without getting EC.
ii. The Company has not expanded the production capacity mentioned in both the ECs separately (2.1 + 0.2 = 2.30 million TPA). Certificate from DMG has been

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taken on 22.08.2022 stating that "No Mining has been done in ML-2 after Amalgamation of Mine lease"

iii. Company has not expanded the ML area from 205.212 ha to 254.856 ha beyond the limit specified in the EC dated 02.11.2007. Both the leases (49.64 ha and 205.012 ha) are contiguous and share common boundary and EC for both the mine has been obtained separately from MoEFCC on 02.11.2007 (205.212 ha) and 07.01.2020 (49.64).

iv. Also, Company didn't change their scope of work w.r.t technology and others.

6. The Project Proponent also submitted that same matter was heard in the court and the Hon'ble High Court of Andhra Pradesh vide order dated 02.11.2023 in Writ Petition No 22715 of 2023 has directed that *"According to the learned counsel, the said representation has not been disposed of so far. Taking into consideration the nature of controversy and keeping in view the pendency of the representation dated 22.02.2023, said to have been submitted by the petitioner, this court deems it appropriate to dispose of the writ petition, without expressing any opinion on the merits of the matter, with a direction to Respondent No 5 to verify the representation dated 22.02.2023, said to have been submitted by the petitioner, this court deems it appropriate to dispose of the writ petition, without expressing any opinion on the merits of the matter, with a direction to Respondent No 5 to verify the representation dated 22.02.2023 said to have been submitted by the Writ petitioner and take appropriate action/pass appropriate orders, as expeditiously as possible, after affording opportunity of hearing to the writ petitioner, preferably within a period of four (04) weeks from the date of receipt of a copy of this order".*

7. In view of the above order of Hon'ble High Court of Andhra Pradesh vide order dated 02.11.2023, an opportunity for hearing has been given to the Project Proponent to discuss the matter before the EAC (Non-Coal Mining) in its meeting scheduled to be held on 28.12.2023. The Ministry also issued meeting notice to the Project Proponent vide letter dated 20.12.2023.

8. Observation and Recommendation of the EAC: -

The Project Proponent briefed about their representation letter dated 22.02.2023. The Project Proponent informed the EAC that no construction work or installation or excavation was done in both the mine without getting EC.The production capacity in both the ECs (2.1 + 0.2 = 2.30 million TPA) was not increased and Certificate from Dept. of Mining and Geology was obtained on 22.08.2022 stating that *"No Mining has been done in ML-2 after Amalgamation of Mine lease".*The Project Proponent also informed the EAC that the mine lease area from 205.212 ha to 254.856 ha was not increased beyond the limit specified in the EC dated 02.11.2007. Both the leases (49.64 ha and 205.012 ha) are contiguous and share common boundary and Environment

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Clearance's for both the mine was obtained separately from MoEF&CC on 02.11.2007 (205.212 ha) and 07.01.2020 (49.64). There is no change in the scope of work w.r.t technology and others. Further, the Project Proponent requested the EAC to allow the amendment in EC w.r.t amalgamation in existing EC for Korumanipalli & Thollamadugu Limestone mine over an area of 254.856 Ha without considering violation.

The Project Proponent also informed the EAC that the same matter was heard in the Hon'ble High Court of Andhra Pradesh and the Hon'ble High Court vide order dated 02.11.0223 in Writ Petition No 22715 of 2023 directed that *"According to the learned counsel, the said representation has not been disposed of so far. Taking into consideration the nature of controversy and keeping in view the pendency of the representation dated 22.02.2023, said to have been submitted by the petitioner, this court deems It appropriate to dispose of the writ petition, without expressing any opinion on the merits of the matter, with a direction to Respondent No 5 to verify the representation dated 22.02.2023, said to have been submitted by the petitioner, this court deems it appropriate to dispose of the writ petition, without expressing any opinion on the merits of the matter, with a direction to Respondent No 5 to verify the representation dated 22.02.2023 said to have been submitted by the Writ petitioner and take appropriate action/pass appropriate orders, as expeditiously as possible, after affording opportunity of hearing to the writ petitioner, preferably within a period of four (04) weeks from the date of receipt of a copy of this order".*The EAC noted that in view of the above order of Hon'ble High Court of Andhra Pradesh order dated 02.11.2023, an opportunity for hearing has been given to the Project Proponent by the Ministry letter dated 20.12.2023 to discuss the matter before the EAC (Non-Coal Mining).

The EAC reiterated the earlier minutes of 5thEAC (Non-Coal Mining) meeting held during 18-20, October, 2022. The relevant extract of the minutes are as follows *"The EAC noted that the instant proposal is for amendment in EC dated 02.11.2007 w.r.t Amalgamation of Korumanipalli&Thollamadugu Limestone Mine (ML Area 205.212 ha) and Korumanipalli Limestone Mine (49.64 ha) of M/s. Penna Cement Industries Ltd with combined production capacity of 2.30 MTPA over an amalgamated mine lease area of 254.856 ha. The EAC also noted that the Project Proponent having two separate valid EC's dated 02.11.2007 (ML Area 205.212 ha) and 07.01.2020 (49.64 ha) for the above said mine leases. Further, the EAC noted that the Project Proponent amalgamated the mine lease on 16.03.2021 over an area of 254.856 ha and continued to operate the mines after 16.03.2021 without obtaining amendment in EC".PP also informed the EAC that the certificate from the Department of Mines & Geology has been obtained vide letter dated 22.08.2022 stating that the "No Mining has been done in ML-2 after Amalgamation of Mine lease".The EAC observed that as per Ministry's SOP dated 07.07.2021, "Violation" means cases where projects have either started the construction work or installation or excavation, whichever is earlier, on site or have expanded the*

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production capacity and /or project area beyond the limit specified in the Environmental Clearance (PriorEC) without obtaining Prior-EC or change of scope without prior approval from the Ministry. The EAC also observed that in the instant case, the Project Proponent has increased the mine lease area from 205.212 ha to 254.856 ha beyond the limitspecified in the Environmental Clearance (Prior-EC) dated 02.11.2007 and continued to operate the mines after 16.03.2021 without obtaining amendment in EC.The EAC was of the view that the instant case attracts the violation of the EIA Notification, 2006.The Project Proponent informed the EAC that there is no any excess of production has been done and the production capacity is well within the limits of the EC capacity dated 02.11.2007 (ML Area 205.212 ha) and 07.01.2020 (49.64 ha) and there is no any violation. The EAC asked the Project Proponent that why the PP has approached the Ministry for amendment in EC after one year of amalgamation of mining lease. The Project Proponent/consultant accepted that it was the fault of the Project Proponent and apologized for not applying for amendment in EC well in time after the amalgamation of mining lease on 16.03.2021. Thus, the EAC opined that the instant case attracts the violation of the EIA Notification, 2006 and the EAC advised the Project Proponent to apply for fresh Terms of Reference (ToR) under Ministry's SOP dated 07.07.2021. The EAC also asked the Ministry to take action against the Project Proponent under section 19 of the Environment (Protection) Act, 1986. In view of the above, the EAC returned the proposal in the present form".

After detailed deliberations made by the Project Proponent and the EIA Consultant, the EAC opined that the decision made in the earlier EAC (Non-Coal Mining) meeting held during 18-20, October, 2022 shall remain unchanged. Thus, the EAC propounded that the instant case attracts the violation of the EIA Notification, 2006 and advised the Project Proponent to apply for fresh Terms of Reference (ToR) under Ministry's SOP dated 07.07.2021.

*****

List of members of Expert Appraisal Committee participated through VC

S.No	Member Name	Member Address	Designation	26th Dec., 2023	27th Dec., 2023	28th Dec., 2023
1	Dr. Dinesh Misra, IFS (Retd.)	Plot No 65, Sector 8, Gandhinagar, Gujarat, 382 008	Chairman	Yes	Yes	Yes
2	Sh. Niranjan Kumar Vasu,IFS (Retd.)	816, Shanti Nagar, Opposite Durgapur Railway Station, Jaipur-	Member	Yes	Yes	Yes

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		Rajasthan, 302018				
3	Dr. Asha Rajvanshi, Scientist 'G' (Retd.), WII	B/104/106 Rock Valley Apartments, GMSRoad, Sewla Kalan, P.O. Majra, Dehradun, Uttarakhand-248171.	Member	Yes	Yes	Yes
4	Shri. Avijit Ghosh (CMD- Heavy Engineering Corporation Limited) (Retd.)	Singhee Marg, A- 604 Shahadeo Tower, P.P.Compound, Ranchi 834001, Jharkhand	Member	Yes	Yes	Yes
5	Shri. BandiRamchandra Reddy (Former CMD-South Eastern Coalfields Limited)-(Retd.)	Flat No-503 A, Jyoti Cosmos, White Fields, Hi-Tech City, Kondapur,Hyderabad-500081	Member	Yes	Yes	Yes
6	Prof. Pramod Kumar, Professor,ShriAurobindo College, University of Delhi	Shri Aurobindo College, University of Delhi 1372, B-1, Vasant Kunj, New Delhi-110070	Member	No	No	No
7	Prof.Devesh Walia, Department of Environmental Studies	Department of Environmental Studies, NEHU,Shillong-793022 Meghalaya	Member	Yes	No	No
8	Dr. Suresh Tiwari Scientist-F	Indian Institute of Tropical Meteorology, Pune, New Delhi Branch, Prof. Ram NathVij Marg Rajinder Nagar, New Delhi – 110060	Member	Yes	Yes	Yes
9	Dr. K.G Asha Manjari, Professor, University of Mysore	10/B, "SPARSHA", 2nd Main, 2nd Cross,BhogadiIInd Stage, Mysore-570026, Karnataka	Member	Yes	Yes	Yes
10	Prof. Dev Dutt Sharma, Vice-Chancellor	Sardar Patel University, Mandi H.P. 175001	Member	No	No	No
11	Shri V. K. Soni, Representative of India Meteorological Department	Government of India, Ministry of Earth Sciences, India Meteorological Department, MausamBhawan, Lodi Road, New Delhi – 110003	Member	No	No	No
12	Shri Yogesh Kale, Representative of Indian Bureau of Mines	Controller of Mines, IBM Block D, Second Floor, Indira Bhavan, Civil Lines, Nagpur - 440001	Member	No	Yes	Yes

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13	Representative of Directorate General of Mines Safety	Directorate General of Mines Safety	Member	Yes	Yes	Yes
14	Shri Rakesh Kumar Jagenia, DIG, MoEF & CC, New Delhi	Wildlife Division, MoEF&CC, Jorbagh, New Delhi-110003.	Special Invitee	-	-	Yes
15	Shri Hemant Singh, AIG (NTCA), MoEF & CC, New Delhi	CGO Complex, New Delhi-110003.	Special Invitee	-	-	Yes
16	Shri Pankaj Verma	3rd Floor, Vayu Block, Indira ParyawaranBhawan, MoEF&CC, Jorbagh, New Delhi- 110003.	Member Secretary	Yes	Yes	Yes

*****

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Ramesh S Gauns
1724, Pajwadda,
Bicholim, Goa

Mobile 9270085105

ANNEXURE-8

17 August 2023

To,

The Member Secretary
Goa State Pollution Control Board,
Saligao, Bardez, Goa

18/8/23
Goa State Pollution Control Board
Opp. Saligao Seminary
Saligao Goa 403 511

Subject: Failure of GSPCB to complete minutes of the Public Hearing of Block - I Bicholim Mineral Block on 11 August 2023 at Sarvan, Bicholim

Madam,

Above referred Public Hearing (PH) that began at 09.00 am on 11 August 2023 came to an abrupt end at 01.30 am on 12 August 2023 without minutes being finalized and shared in hard copies to the participants of the PH. It was total mess thanks to incompetent staff in compiling notes at the PH.

It was observed that the large number of points raised by several speakers were not recorded in the minutes. In some cases entire presentation of the speakers found to be omitted along with their names. In other cases in spite of rectifications suggested by speakers who were present at the PH venue till mid night minutes could not be completed.

Mess created by the on duty staff went out of control of the Presiding Officer who is North Goa Collector and an IAS officer. Presiding officer went on to announce at 1.30 am that the minutes of the PH will be shared online at GSPCB website. This is complete violation of the norms of PH followed where in minutes used to be finalized immediately after the conclusion of the PH and print copies were shared with the participants present at that time at the venue duly signed by the Collector as the Presiding officer.

We are worried that messy situation created thus might be used by vested interest to manipulate/omit/delete part of the contents before the minutes are made available online.

Biggest danger we fear to the integrity of minutes is from the Chairman of the GSPCB Mahesh Patil who is an ex Environment cum Public Relations Officer of Sesa Mines Corporation that is wholly subsidiary of Vedanta who is currently the project proponent. Tempering of minutes in order to favor Project Proponent is real possibility.

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Therefore we strongly object to the procedures adopted by Presiding Officer of PH of putting minutes of the PH online without giving print copies immediately after the conclusion of the PH.

When I asked for the consultant of EIA Presiding Officer responded saying that Consultant is not present at the PH proceedings. Consultant appeared in the night at around 08.00 pm. Time given for asking queries was only 05 minutes. Ridiculous trend is set in PH by granting only 10 minutes to seek clarification on document that consisted more than 600 pages of EIA/EPM.

Several People could not get access to the Hall before 11.00 am because Project Proponent mobilized management and employees from all its buffer zone and out of buffer zone units to enter the Hall and occupied the entire hall to its fullest capacity.

Minutes are put online after five days on 16 August 2023. What is recorded in the minutes is different from what was spoken at the meeting. Both my presentation as well as intervention seeking clarification with Project consultant is wrongly recorded. In fact some of the matter recorded in online minutes at serial no.124 is restricted only to one sentence. Pages 12, 31, 32, 33 encompassing 20 people and their presentations are missing from the records of minutes.

Thanking you,

Yours sincerely,

Ramesh S. Gauns

Copy to:

1. Collector (North Goa), Panaji

2. Union Minister of Environment, Forest and Climate Change, Indira Paryavaran Bhavan, Jorbag Road, New Delhi 110 003 INDIA

3. Chairman and Members of Expert Appraisal Committee, MoEF & CC, Indira Paryavaran Bhavan, Jorbag Road, New Delhi 110 003 INDIA

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ANNEXURE-9

From: Nilesh A. Karbotkar.
Tirthbag Mayem
Bicholim-Goa.

Mobile: 7499225104

16/8/23
Goa State Pollution Control Board
Opp. Saligao Seminary
Saligao Goa 403 511

Date: 16/8/2023

To,

The Member Secretary,
Goa State Pollution Control Board,
Saligao, Bardez, Goa

Subject: Grievances regarding choice of venue for Block- I Bicholim Mineral Block Public Hearing (PH) held on 11 August 2023 at Sarvan organised by Goa State Pollution Control Board (GSPCB)

Madam,

We have observed that the venue for PH at Zantye Sports Complex, Savona, Bicholim chosen by GSPCB was unreasonably far from the villages in the core zone areas and those impacted directly. Venue was 13 kms from Sirigao, 09 kms from Mulgao, 05 kms from Lamgao, 07 kms from Pilgao, 12 kms from Maem and 03 kms from Bicholim. Case law in India requires that the venue for the PH should be within 01 kms from the proposed mining project. PH was held in Sarvan village Panchayat Jurisdiction that is not in the core zone of the mining project. Several people could not make it to the venue as it was far from the the core zone localities.

There were available Halls attached to Temples in Sirigao, Mulgao, Lamgao, Maem, and very big Hirabai Zantye Memorial Hall in Bicholim but they were not taken.

The venue of PH at Bicholim was inconvenient because Public Hearing that began at 09.00 am on 11 August 2023 went on till 01.30 am on 12

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August 2023 for nearly seventeen hours. There was not a single hotel at the venue of the Public Hearing. Number of people stayed in the hall starving. Women who stayed on till 01.00 am at night had major problems.

We were under impression that it was an absolute prerogative of GSPCB to decide on the date and venue of PH.

However after the consultation with some knowledgeable people in this matter we realized that venue had to be within 2 kms from the proposed project. If we had to know this in advance then we would have objected to the venue selected by GSPCB to hold this PH.

In the light of various judicial directions given by National Green Tribunal (NGT) and Gujarat High Court Judgement of 2003 we call upon you to conduct fresh PH close to our localities and villages at core zone of the mining project.

Thanking you,

Yours sincerely ,

(Nilesh M. Kerkolkar

Copy to

1. The Union Minister for Environment, Forest and Climate Change, Indira Paryavaran Bhavan, Jorbag Road, New Delhi 110 003 INDIA

2. Chairman and the Members of the Expert Appraisal Committee, MoEF & CC, Indira Paryavaran Bhavan, Jorbag Road, New Delhi 110 003 INDIA

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GOA STATE POLLUTION CONTROL BOARD

गोंय राज्य प्रदूषण नियंत्रण मंडळ

(An ISO 9001-2015, ISO 14001:2015, ISO 45001:2018 Certified Board)

Phone Nos : 0832- 2407700,
2407701, 2407703

Email Ids:
Chairman, GSPCB: chairman-gspcb.goa@nic.in
Member Secretary, GSPCB: ms-gspcb.goa@nic.in
Office: mail.gspcb@gov.in

No. 8/33/2023-PCB/legal/ 1204 **By Reg. A. D** Date: 29/

ANNEXURE-10

To,
Ramesh S. Gauns,
1724, Paj wada,
Bicholim Goa
Mob: 9270085105

Sub: Information under the Right to Information Act, 2005
Ref: Your Application dated on 18/8/2023

Sir,

With reference to your application above I am to inform you as under:

Sr. No.	Information Sought	Reply
1	Names of the persons and their respective villages who supported mining project Block I Bicholim Mineral Block before during and after the Public Hearing	Copy of the Supporting letter may be collected. The supporting letters runs into 7034 pages may be collected upon payment of Rs. 11,068/- On receipt of payment is received the same will be furnished after 5 days. Since documents are voluminous.
2	Total number of pages EIA and EMP of Block I Bicholim Mineral Block comprised of	Copy of the EIA and EMP may be collected. The same runs into [illegible] Amount to be paid is Rs. 1,748/-
3	Time duration granted to each speaker at the Public Hearing on 11 August 2023 of Block I Bicholim Mineral Block	Time duration of each speakers recorded in the videography. You may collect the copy of videography of the proceeding. The amount of Rs. towards actual cost of 3 pendrive (videography may be deposited. Once the payment is received the copy will be furnished after seven days.
4	Kindly give the time at which consultant of the Project Proponent were available to seek clarifications at the Public Hearing of Block I Bicholim Mineral Blok on 11 August 2023	May refer 3 above
5.	Time allotted to the speakers to ask	No such specific [illegible] is available. M

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	questions to the consultant of the Project Proponent during the Public Hearing of Block I Bicholim Mineral Block.	refer the videography
6.	Distance the villagers from Sirigao, Mulgao, Lamgao, Mayem and Pilgao were supposed to travel to attend the Public Hearing at the venue of the Public Hearing held on 11 August 2023 regarding Block I Bicholim Mineral Block.	No such specific data is available
7.	Date on which the minutes of the Public Hearing of the Block I Bicholim Mineral Block were uploaded Goa State Pollution Control Board website.	Minutes uploaded on website- 1st time- on 14th August 2023 & Corrected minutes on 18th August 2023
8.	Number of pages and serial numbers of speaker enstion in the minutes of the Public Hearing regarding Block I Bicholim Mineral Block uploaded at your website.	May collect the copy of the proceeding and the list of speakers registered.
9.	Names and designations of all the staff members of Goa State Pollution Control Board that carried on duty at the Public Hearing held on 11 August 2023 regarding Block I Bicholim Mineral Block.	Copy of the office order may be collected.
10.	Dates and Names of the national newspapers where the notice of Public Hearing of Block I Bicholim Mineral Block was published.	Copy of the notice published in newspaper may be collected.
11.	Dates and Names of the local newspapers where the notice of Public Hearing of Block I Bicholim Mineral Block was published.	
12.	Details and Types of the Publicity given to the Public Hearing in the core zone villages of Pilgao, Mayem, Lamgao, Mulgao, Bordem, Bicholim and Sirigao regarding Block I Bicholim Mineral Block.	No such data regarding core zone available. However Notices issued on local & national detail, TV bytes, Radio bytes, letters issued to the local loadies to give wide publicity may be collected

The information as available on record of the Board runs into 7688 pages and which may be collected by you from the office of the Goa State Pollution Control Board at Saligao, Goa upon payment of Rs.15,376/- and 3000/- total Rs.18,376/- at the office Board, towards charges for providing the requested certified copies, relevant copies will be Xeroxed thereafter and issued within 7 days. Since the documents are voluminous.

Yours faithfully

Public Information Officer
Goa State Pollution Control Board

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10.5.4 PROTECTIVE MEASURES FOR GROUND VIBRATIONS/AIR BLAST CAUSED BY BLASTING:

No drilling and blasting involved

ANNEXURE-11

10.5.5 SOLID & HAZARDOUS WASTE MANAGEMENT

The solid waste generated are Overburden , intercalated waste and Mineral rejects . Annually 2,51,61,767 T of waste is generated to produce 30,00,000 T of waste. The mineral rejects is stacked seprately and overburden waste is dumped in the designated dump yards with proper terracing and slopes. The lateritic waste is used for the erection of bunds below the dumps , and used as safety barriers and all along the road passing through the block Area

Overburden waste i.e backfilled during the plan period is given below

Year	Waste Quantity (M3)	Pit ID	Area Ha
I	1244889.0	5 Bottom	7.87
I	2238957	5 Top	17.83
I	2238957	1 top	12.78
II	732414	5 Bottom	5.11
II	1810240	5 Top	16.70
II	1810240	1 top	10.98
III	500000	5 Bottom	2.36
III	2000000	5 Top	11.19
III	1502000	1 top	11.75
III	1497434	3 Top	13.17
IV	6768535	3/4 bottom	21.60
IV	4410262	3/4 bottom	18.38
V	8170622	2 Top	10.36

The following environment management measures are undertaken to prevent soil erosion

- Terracing, mulching, planting grasses, legumes and bush variety of species, on the inactive slopes to prevent erosion
- Concurrent back filling using generated waste to reclaim & afforest the mined out portion of the pit

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Gmail

Swapnesh Sherlekar <swapnesh.sherlekar@gmail.com>

Discrepancies in Minutes of Meeting of Public Hearing dated 10/08/2023

1 message

Swapnesh Sherlekar <swapnesh.sherlekar@gmail.com> Fri, Aug 25, 2023 at 12:19 PM
To: ms-gspcb.goa@nic.in, chairman-gspcb.goa@nic.in

Sir,

ANNEXURE-12

This is to bring to your kind notice that there are glaring discrepancies observed in the Minutes of Meeting recorded of the Public Hearing conducted on 10/08/2023 for granting of EC to Mineral Block I of Bicholim taluka to M/s Vedanta.

At the outset the name of this applicant as recorded in the MoM at serial no. 170, page no. 39 and at page no. 43, needs to be corrected as Swapnesh Sherlekar.
This applicant had made following submissions that are not recorded or are wrongly recorded in the minutes;

- The applicant had asked that, the TOR was granted by MOEF&CC on 16/06/2023 and the draft EIA report is prepared & signed off on 20/06/2023, that is within 4 days. Was the 600+ pages of report prepared within 4 days?. The GSPCB had put out the notice for PH on 05/07/2023, did the authorities go through the entire 600+ of report within 15 days from receiving it ?
- That the presentation on the summary of draft EIA report was given to the public present in the auditorium just prior to starting of the PH. A demand was made for granting additional 15 days for submitting submissions since the presentation was given today.
- On the subject of Free, Prior, informed consent, it was submitted that some of the submissions made earlier were not free as they were interested parties and therefore biased.
- That the mammals mentioned in the draft report did not have the mention of Leopard, which was sighted in the village of Mulgao and therefore the report has now become invalid.
- That the mention of forest on the Mayem side of boundary of Mulgao village is not recorded.
- That numerous houses and places of worship in Mulgao village are excluded from the report. A demand was made to shift the lease boundaries and take undertaking of surrendering the part of the lease from PP for excluding the residential areas from the lease limits for preventing future litigations.
- That Buddhist caves in Lamgao is not mentioned in the report. A demand was made to include the same and a buffer zone of minimum 500 meters to be maintained as the same is an archeological monument.
- That it was stated that the project is not a Green Field Project but a Brown Field project and under the guise of mentioning Green field project many vital information is suppressed by the PP.

Furthermore at page no. 43 it is recorded that the PP / EIA Consultant was requested by the chair to provide short summarized response to the queries. In this record too, there are discrepancies noted which are listed as below;

- It is not mentioned in the report that PP or the EIA consultant was not present during the entire day of the public hearing and had arrived only in the evening at the site.

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- At query no. "g", page no. 45, it was asked as to how the consultant being qualified has classified this project as Greenfield project knowing fully that it is Brownfield project.
In response to the above query the Consultant had admitted that it's not a Greenfield project but surprisingly the said statement of the consultant is missing from the minutes.
- At query no. "i", page no. 45, it was asked based on the reserves as stated at Table 2.3 at page 15 of 600 of the EIA report can the project proponent windup operations in 10 years ?
In response to the above query the Consultant had infact stated as "YES" but shockingly it is recorded as "NO" in the minutes.

Thus, considering all of the above it is stated that the minutes of the meeting recorded is full of discrepancies and deficiencies and therefore the same needs to be outright rejected and fresh public hearing to be conducted.

This is for your kind information and necessary action please.

Regards and God Bless,

Swapnesh Sherlekar
Mobile: +919372730066

Let us Sacrifice Our Today so that our Childrens can have a better tomorrow - APJAK

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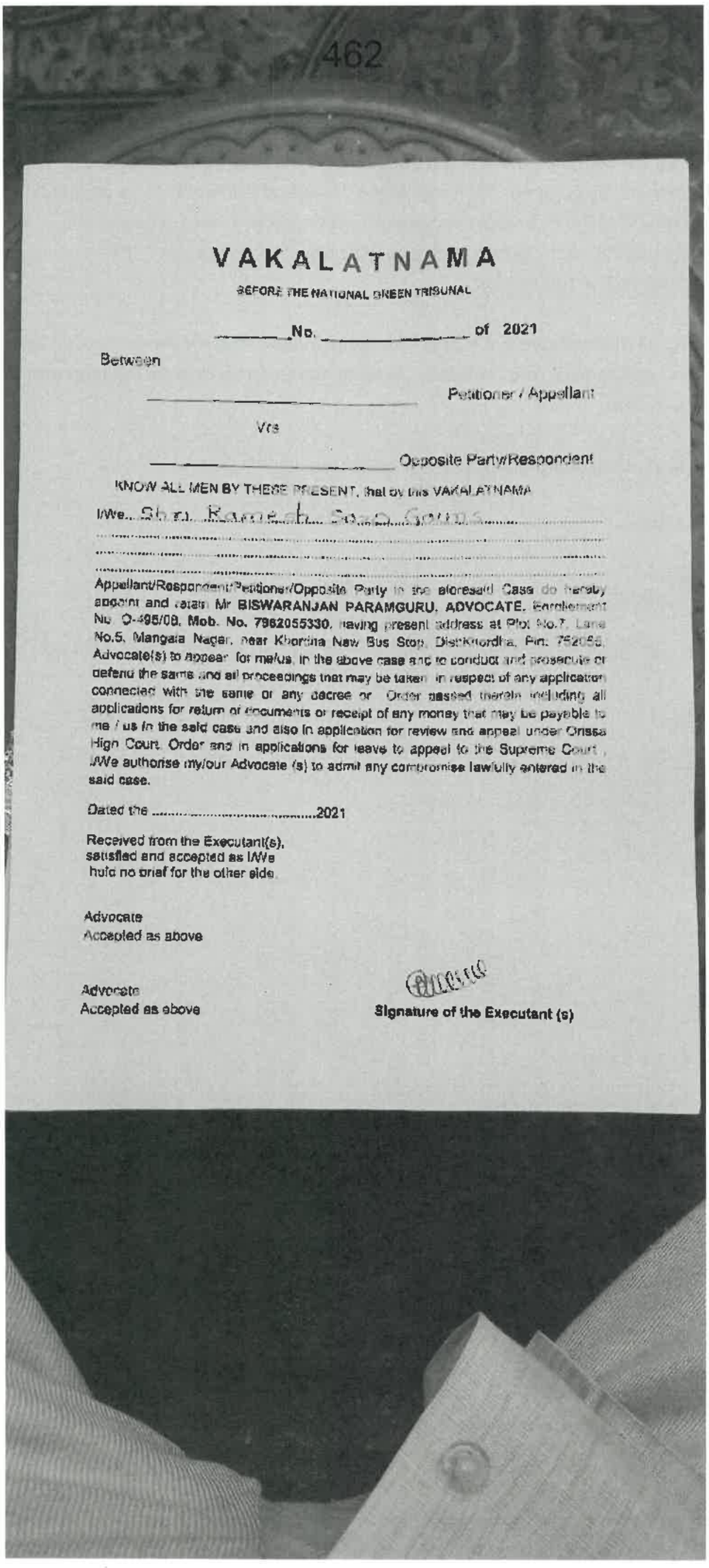

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VAKALATNAMA

BEFORE THE NATIONAL GREEN TRIBUNAL

_____ No. _____ of 2021

Between

_____ Petitioner / Appellant

Vrs

_____ Opposite Party/Respondent

KNOW ALL MEN BY THESE PRESENT, that by this VAKALATNAMA

I/We... Sh. Ramesh Sao Gond .....

.....

.....

.....

Appellant/Respondent/Petitioner/Opposite Party in the aforesaid Case do hereby appoint and retain Mr **BISWARANJAN PARAMGURU, ADVOCATE**, Enrolment No. O-495/09, **Mob. No. 7992055330**, having present address at Plot No.7, Lane No.5, Mangala Nagar, near Khordha New Bus Stop, Dist:Khordha, Pin. 752055, Advocate(s) to appear for me/us in the above case and to conduct and prosecute or defend the same and all proceedings that may be taken in respect of any application connected with the same or any decree or Order passed therein including all applications for return of documents or receipt of any money that may be payable to me / us in the said case and also in application for review and appeal under Orissa High Court. Order and in applications for leave to appeal to the Supreme Court , I/We authorise my/our Advocate (s) to admit any compromise lawfully entered in the said case.

Dated the 2021

Received from the Executant(s), satisfied and accepted as I/We hold no brief for the other side.

Advocate
Accepted as above

Advocate
Accepted as above

Signature of the Executant (s)

NATIONAL GREEN TRIBUNAL PUNE
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Scrutiny Defects Raised

Diary No : **2704137001362024**

Petitioner : **ramesh sazo gauns**

Respondent : **UNION OF INDIA**

Date of defect : 24/02/2024

Serial No.	Description	Defect Free	Comments
1	Is the Application/Appeal in the proper form?	NO	1. Synopsis and date with events are not annexed. 2. Appeal is not in proper form as per FORM I of NGT Practice and Procedure Rules, 2011. 3. It appears that, Appellant has mentioned EC dt. 23.01.2023 instead of 23.01.2024 in prayer clause. Appellant to verify and make appropriate changes to avoid inconvenience to the Hon'ble Tribunal.
2	Whether name, description and address of all the parties have been furnished in the cause title?	NO	1. Email ID and contact details of the Appellant, Respondent No. 3 and 4 are not mentioned in the Appeal. 2. Official Designation of the Respondent No. 4 is not mentioned in the Appeal. 3. The address and contact details of the Respondent NO. 3 is incomplete.
3	Has the application/appeal been duly signed and verified?	NO	Appeal is not duly signed.
4	Whether all the necessary parties are impleaded?	NO	It appears that, Appellant has annexed annexures and documents related with Goa State Wetland Authority and M/s Dempo Mining Corporation but not made parties to them in present Appeal. Appellant to verify and clarify the same.
5	Whether English translation of documents in a language other than English or Hindi been filed?	NO	English translation of Page no. 123 is not filed.
6	Is the application/appeal made in time or maintainable?	NO	Limitation clause is not elaborate properly. Appellant has not mentioned the details of the EC for e.g. Date of EC, Receiving date of the EC etc. Appellant to explain that how present Appeal is maintainable under which section of NGT Act, 2010.
7	Has the Vakalatnama/Memo appearance authorization been filed?	NO	Vakalatnama is not in proper form. Prescribed court fee stamp is not affixed Vakalatnama is not signed by the Advocate. Email ID of the Advocate is not mentioned. Cause title is not mentioned.

NATIONAL GREEN TRIBUNAL PUNE
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8	Have legible copies of the annexures duly attested been filed?	NO	1. Annexures are not marked properly. 2. Annexures are not attested. 3. Some Annexures are not scanned properly and completely as well. For e.g. page no. 82, 83 etc. Appellant to verify all the annexures and scan all non legible and incomplete annexures in high resolution to avoid inconvenience to the Hon'ble Tribunal. 4. Page no. 82, 83, 94, 124, 456 and 457 are not legible. 5. It appears that, Annexures are not matched with the pleadings of the Appeal. Appellant to verify and make appropriate changes to avoid inconvenience to the Hon'ble Tribunal.
9	Is the application/appeal accompanied by Indian postal Order/Demand Draft as per Rule 12	YES	
10	Has original/duly attested copy of the impugned order(s) been filed?	NO	Impugned order is annexed at page no. 37 but not properly marked and attested.
11	Has the index of documents been filed and pagination done properly?	NO	1. Pagination is not mentioned in the Index. 2. Index is incorrect. Index is not matched with the Appeal and Annexures. Appellant to verify and make appropriate changes to avoid inconvenience to the Hon'ble Tribunal.
12	In case an application for condonation of delay is filed, is it supported by an affidavit of the appellant?	NA	
13	Proceed further?	NO	Appellant to refilled the properly scanned complete copy of the petition with date of refilling in one PDF within 7 days.

Dy.No.27041370013620 24 in

"Certified that this is a true and accurate copy of the document of order as in the case No (Application / Appeal No. 30 ...2024....) And that all the matters appearing therein have been legibly and faithfully copied with no modifications"

For Registrar (NGT)

Signature

29/4/24

NATIONAL GREEN TRIBUNAL

(i) Serial No. the copy application 30/2024

(ii) Name of the Applicant Shivshankar Sraminathan Adv.

(iii) Date of presentation of application 25/04/2024

(iv) No. of pages 468

(v) Copying fee charged urgent/ordinary ordinary

(vi) Date of preparation of copy 29/04/2024

(vii) Date of which copy is ready 29/04/2024

(viii) Date given for collection of copy 29/04/2024

(ix) Date of delivery 29/04/2024

For Registrar (NGT)

Signature

29/4/2024

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ANNEXURE-R4-2

Item No.02 Court No.1

BEFORE THE NATIONAL GREEN TRIBUNAL
EASTERN ZONE BENCH, KOLKATA
(THROUGH PHYSICAL HEARING WITH HYBRID MODE)

Appeal No.01/2024/EZ
(I.A. No.06/2024/EZ & I.A. No.07/2024/EZ)

IN THE MATTER OF:

1. Prafulla Samantara,
   S/o Dinadanbhu Samantary,
   R/o A/3, Road No.8, Unit-9,
   Bhubaneswar, Orissa,

2. Pradip Kumar Shatapathi,
   S/o Pitambar Shatapathi,
   R/o Dhinkia, P.O.-Dhinkia,
   Kunjanga, Jagatsighpur, Orissa,
   Pin – 754141,

3. Sudam Koila,
   S/o Shyam Koila,
   R/o Village-Dhinkia, P.O.-Dhinkia,
   Via-Kunjanga, Jagatsinghpur, Orissa,
   Pin – 754141,

…**Appellant(s)**

Versus

1. Union of India,
   Through the Secretary,
   Ministry of Environment, Forest and Climate Change,
   Indira Paryavaran Bhavan, Jorbagh Road,
   New Delhi – 110003,

2. M/s JSW Steel Utkal Steel Limited,
   Through the Director,
   JSW Utkal Steel Limited, Plot No.3,
   Forest Park, Bhubaneswar, Khordha,
   Pin – 751009,

3. Odisha State Pollution Control Board,
   Through Member Secretary,
   Paribesh Bhawan, A/118, Nilakantha Nagar,
   Unit-VIII, Bhubaneswar, Odisha,
   Pin – 751012,

…**Respondent(s)**

Date of hearing: 13.02.2024

CORAM: HON'BLE MR. JUSTICE B. AMIT STHALEKAR, JUDICIAL MEMBER
HON'BLE DR. ARUN KUMAR VERMA, EXPERT MEMBER

For Appellant(s) : Mr. Abhimanue Shrestha, Advocate (in Virtual Mode)

For Respondent(s): Mr. Ratnako Banerji, Sr. Advocate a/w
Ms. Nandini Khaitan, Advocate and
Ms. Shreya Singh, Advocate (in Caveat No.01 of 2024)

ORDER

1. Mr. Abhimanue Shrestha, learned Counsel is present (in Virtual Mode) for the Appellants.

2. The Appellants in the present Appeal are seeking quashing of the letter dated 15.09.2023 (Annexure A-2), issued by the Respondent No.1, Ministry of Environment, Forests and Climate Change, New Delhi, and the Environmental Clearance dated 11.04.2022 granted in favour of the Respondent No.2, M/s JSW Steel Utkal Steel Limited.

3. It is stated that Appellants had earlier filed Appeal No.21/2022/EZ & Appeal No.22/2022/EZ; (*Prafulla Samantara & Ors. Vs. Union of India & Ors.*) and Appeal No.27/2022/EZ (*Sarita Barpada & Ors. Vs. Union of India & Ors.*), challenging the Environmental Clearances dated 11.04.2022 and 12.04.2022 to two inter-connected projects – integrated steel plant (with cement and power plants) and a jetty project near Paradeep Port in Orissa and these Appeals were allowed by this Tribunal vide its judgment and order dated 20.03.2023. Paragraphs 35, 36, 37 and 38 of the order under the heading 'Conclusion' read as under:-

> ***"Conclusion***
>
> *35. On due consideration, we are of the opinion that recommendation of the EAC without express consideration of following issues are vitiated*
>
> *A) Cumulative EIA saw the light of the day for the first time after the public hearing*

B) Permissibility of sourcing water from Mahanadi when drinking water is scarce has not been duly evaluated. The observation with regard to scarcity of water can be seen in the minutes of the meeting dated 18.05.2021. The recommendation accepting the contra stand of the PP is not based on independent evaluation.

C) Jetty is located within 500 meters of the Paradeep Port which is unnecessary as opined in the report submitted by Ms. Meena Gupta earlier.

D) Paradeep is polluted industrial area.

E) The SIA has been conducted later and was not part of public hearing.

F) The project by Posco was abandoned and was adversely commented upon by this Tribunal vide order dated 30.03.2012 in Appeal No. 8/2011 which aspect has not been examined.

G) Conditions stipulated in the EC granted to POSCO will have to be considered, in case ECs are to be granted.

36. We are conscious that the project involves huge investment. At the same time, principle of sustainable development cannot be ignored. Apart from significant issue of public hearing, important issue of location of the project close to polluted area, jetty being unnecessarily close to an established port, huge water being taken from the river which may affect drinking water needs and flow of the river are important issues which need express consideration.

37. Matter will need fresh appraisal by the EAC by reasoned consideration and fresh decision by MoEF&CC.

38. Accordingly, we allow these appeals and remit the matter to the MoEF&CC for fresh appraisal and decision by MoEF&CC in the light of above observations which may take place within three months. Till such decision, ECs will remain suspended."

4. It is stated that the aforesaid order of the Tribunal was put to challenge before the Hon'ble Supreme Court in Civil Appeal Nos.3657-3658 of 2023 (*Prafulla Samantara & Ors. Vs. Union of India & Ors.*) and the said Appeals were also disposed of by the Hon'ble Supreme Court vide its judgment and order dated 15.05.2023.

Relevant extract of the order of the Hon'ble Supreme Court reads as under:-

> *"We have heard Mr. Dhruv Mehta, learned senior counsel appearing for respondent No.2 (Project Proponent).*
>
> *Mr. Sanjay Parikh, learned senior counsel for the appellants, would point out that the appellants are aggrieved by the fact that the appellants would stand denied the benefit of a public hearing. The concerns of the appellants may go unaddressed by following directions issued by the NGT.*
>
> *Mr. Dhruv Mehta, learned senior counsel appearing on behalf of the second respondent (Project Proponent), would point out that the appellants will be free to represent before the EAC which has been directed to pass an order giving reasons by the NGT.*
>
> *We think there is merit in the said stand and the modification of the impugned order on the said lines should redress the grievance of the appellants as well. Accordingly, the appeals are disposed of as follows:*
>
> *We direct that after the appellants ventilate their grievances by raising complaints in the representation before the EAC within a period of three weeks from today, the EAC, when it passes an order which is a reasoned order as directed by the NGT, the same will be taken into consideration.*
>
> *The Appeals are disposed of on the said terms."*

5. It is stated that thereafter the mater was considered by the Ministry of Environment, Forests and Climate Change and the impugned order dated 15.09.2023.

6. **I.A. No.06/2024/EZ** has been filed by the Appellants seeking condonation of delay in filing the present Appeal. Under Section 16(h) of the National Green Tribunal Act, 2010, the limitation for filing the Appeal is 30 (thirty) days. However, the proviso thereto provides confers power on the Tribunal to condone the delay, if it is satisfied that the Appellant was prevented by sufficient cause from filing the

Appeal within the said period and the Tribunal may allow the Appeal to be filed within a further period not exceeding 60 days.

7. The contention of the Appellants in the I.A. is that the impugned letter dated 15.09.2023 has not been communicated to the Appellants as per law, since it was not made available in the public domain and, therefore, the Appellants did not have any occasion or cause of action to file the aforesaid Appeal.

8. It is stated that as soon as on 04.10.2023 the Appellants could get a copy of the letter, they took steps to file the present Appeal and since the Appeal could not be filed within 30 (thirty) days from 04.10.2023, they sought condonation of delay.

9. Mr. Ratnako Banerji, learned Senior Counsel assisted by Ms. Nandini Khaitan and Ms. Shreya Singh, learned Counsel appearing in Caveat No.1 of 2024, has opposed the prayer for condonation of delay and submitted that the Appel is barred by limitation, since every order passed by the Ministry of Environment, Forests and Climate Change is immediately uploaded on the website of the Ministry and is in the public domain immediately and in any case even if the Appellants had acquired knowledge of the passing of the impugned order dated 15.09.2023 on 04.10.2023, they could have filed the Appeal within 30 (thirty) days therefrom whereas the present Appeal was filed only on 14.12.2023 i.e., beyond the period of limitation.

10. We have heard learned Counsel for the parties on I.A. No.06/2024/EZ.

11. In para 13 of the I.A., it is stated that *'that as soon as on 04.10.2023 the Appellants could get a copy of the Letter; they took steps to file the present appeal. They attempted to gather all the documents and approached the lawyer. Since, the documents were voluminous and*

there was some medical exigency in the family of the lawyer, it took him some time to draft the Appeal. Therefore, the appeal could not be filed within thirty days from 04.10.2023'.

12. However, a perusal of the Memo of Appeal would show that the same had been prepared on 18.10.2023 as would be very clear from the verification by the Notary Public, Bhubaneswar, under his seal dated 18.10.2023 which is also evident from page no.114 of the paper book. It is, therefore, it is not correct for the Appellants to say that since the documents were voluminous and there was some medical exigency in the family of the lawyer it took him some time to 'draft' the Appeal. The record shows that the Appeal had already been drafted and verified before the Notary Public, Bhubaneswar, on 18.10.2023, therefore, the averments of the delay condonation application stand falsified by the documents on record. There is no explanation that if the Memo of Appeal was ready and verified on 18.10.2023 why it could not be filed by 04.11.2023 i.e., within 30 days from 04.10.2023 and was it filed only on 14.12.2023 after a further 26 days.

13. This Tribunal cannot ignore the fact that it is a statutory Tribunal created under the National Green Tribunal Act, 2010, and being a creature of statute it has to interpret the language of the statute in strict terms and cannot interpret the proviso to Section 16 of the Act, 2010, in a manner that would cause avoidance to the specific language of Section 16 of the National Green Tribunal Act, 2010, and proviso thereto.

14. For reasons aforesaid, I.A. No.06/2024/EZ is rejected. The Appeal No.01/2024/EZ is dismissed as being barred by limitation.

15. I.As., if any, stand disposed of accordingly.

16. There shall be no order as to costs.

.....
B. Amit Sthalekar, JM

.....
Dr. Arun Kumar Verma, EM

February 13, 2024,
Appeal No.01/2024/EZ
(I.A. No.06/2024/EZ & I.A. No.07/2024/EZ)
AK

Doc No. MES/EIA/SEC-1/23-03

FINAL ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENT MANAGEMENT PLAN

Project	**Block-I Bicholim Mineral Block**
Sector and Category	**1(a) – Cat-'A'**
Area	**478.5206 Ha.**
Location	**Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages of Bicholim Taluka, North Goa District, Goa**
Project Proponent	**Vedanta Limited**
Office Address	**Sesa Ghor, 20 EDC Complex Patto, Panjim, Goa- 403001**
Baseline data Collected	**Summer 2023 (March to May-2023)**
Name of MoEF& CC Accredited laboratory	**Environmental Laboratory (unit Mineral Engineering Services), Bengaluru**
Public Hearing conducted & venue	**11.08.2023 at Narayan Zantye Multipurpose Sports Complex, Sarvan Village, Bicholim taluka North Goa district, Goa**

August-2023

EIA Consultant

MINERAL ENGINEERING SERVICES

(Accredited by QCI-NABET ORG000756)

25/XXV, Club Road, Ballari-583103, Karnataka,

Tel 08392-267421, Mob: 0919448367421,

Email : mes_msraju@yahoo.co.uk & mesbly25@gmail.com

vedanta
transforming elements

sesa goa iron ore

Undertaking by Project Proponent

The Environmental Impact Assessment Report of Block-I Bicholim Mineral Block over an area of 478.5206 Ha, located at Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages of Bicholim Taluka, North Goa District, Goa State is prepared by Mineral Engineering Services, QCI/NABET Accredited EIA Consultant at Sr. No. 55 as per List of Accredited Consultant Organizations/ (Alphabetically) Sep 05th, 2022.

We hereby undertake that the information and data provided in the EIA Report and submitted to the Ministry are factually correct and we are fully accountable for the same.

For Vedanta Limited

Dhiraj Kumar Jagdish
Dy Chief Executive Officer - Iron Ore Goa
Authorized Signatory

VEDANTA LIMITED
Sesa Goa Iron ore, Sesa Ghor, 20 EDC Complex, Patto, Panjim, Goa - 403 001, India
T +91 0832 2460600 | Website: www.sesagoaironore.com

Registered Office: Vedanta Limited, 1st Floor, 'C' wing, Unit 103, Corporate Avenue, Atul Projects, Chakala, Andheri (East), Mumbai 400093, Maharashtra, India.
CIN: L13209MH1965PLC291394

MINERAL ENGINEERING SERVICES

Recognized by NABET Valid upto 07.08.2023

QCI.No. ORG000756

UNDERTAKING

This is to declare that the prescribed ToRs have been complied with and that the data submitted is factually correct in respect of EIA & EMP report prepared for Block-I- Bicholim Mineral Blcok of Vedanta Limited, Goa.

For Mineral Engineering Services

(M.S.Raju)
Consultant

Date: 20.06.2023

Place: Ballari

25/XXV, Club Road, Ballari-583103, Karnataka. Landline no. : 08392-267421.
E-mail: mes_msraju@yahoo.co.uk Website : www.envtest.com
mesbly25@gmail.com

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Mineral Engineering Services, Bellary

25/XXV, Club Road, Bellary, Karnataka- 583103

*The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –*

S.No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals including open cast and underground mining	1	1 (a) (i)	A
2	Mineral beneficiation	7	2 (b)	A

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated July 04, 2023 posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/23/2806 dated July 28, 2023. The accreditation needs to be renewed before the expiry date by Mineral Engineering Services, Bellary following due process of assessment.

Sr. Director, NABET
Dated: July 28, 2023

Certificate No.
NABET/EIA/2326/RA 0296

Valid up to
May 15, 2026

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to the QCI-NABET website.

TOR COMPLIANCE

Compliance of TOR		
Sl. No	**Specific Terms of Reference**	**Compliance**
1.	**Environmental Monitoring**	
	The Project Proponent needs to monitor the ambient air quality and noise level at the mine lease boundary, nearest village, crusher, predominant downwind direction and at other sensitive receptors. Accordingly, Project Proponent shall propose to install Continuous Ambient Air Quality Monitoring Station within certain timeline	PP have monitored the Air & Noise quality near lease boundary, nearest village other sensitive receptors. Ref Chapter 3 & Annexure- 5 PP is proposing to install continuous air quality monitoring station within one year of execution the lease deed Ref Chapter 6.1.3.2
2.	The Project Proponent should prepare the EMP considering the scenario of pollution to be generated for normative and peak total excavation for assessing air and noise pollution	Detailed Environmental Management Plan is prepared. The budget of Rs. 72 lakhs capital cost and Rs. 621 lakhs recurring cost is presented in the report. Refer Chapter -10 for EMP, budget provided in Para- 10.8 in Table 10.14
3.	**Green belt**	
	The Project Proponent needs to submit the greenbelt/afforestation development plan for undertaking plantation in the periphery of the mine lease boundary, safety zone etc., The details of the no. of saplings proposed, type of species, spacing and the area to be covered including the cost and timeline for completion of plantation needs to be provided in the EIA report	The green belt development plan for five year plan period is about 19.1723 Ha area and 47931 saplings proposed . The detailed plan is given vide Chapter-10, Details of Green Belt Development Plan is provided Table 10.13
4.	**Land Environment**	
	The Project Proponent needs to submit the plan for ecology restoration	Ref Chapter -10, Para- 10.5.6
	Miscellaneous	
5.	The Project Proponent needs to submit the action plan for shifting the School within the mine lease area. PP should also provide the details of the nearest school present within the mine lease area and in the vicinity of the mine lease area by mentioning the distance and direction of the school from the mine lease area, strength of the school, working time of school, blasting time and the measures to be taken for control of ground vibration and fly rock.	There are two Govt. primary schools inside the mineral block in Mulgao habitation There is no drilling and blasting proposed in the project The details of the schools and mitigation measure are dealt with in Chapter 7 in para 7.5.1. & also Chapter 10 in table 10.12.
6.	The Project Proponent shall conduct drone	The drone survey was conducted and will be

	survey of the mine lease area and buffer area and submit during the appraisal for EC.	submitted during appraisal for EC
7.	During the meeting, the EAC noted that old excavated pits exist within the mine lease area. Hence, the Project Proponent needs to submit a letter from the Department of Geology and Mining, Government of Goa clarifying whether any illegal mining within the mine lease area has been carried out or not and whether the same has been carried out by *M/s.* Vedanta Limited or not?	The state govt. auctioned Block-I Bicholim Mineral Block as fresh mine and Vedanta was preferred bidder. Clarification letter from Department of Mines and Geology, Government of Goa is attached as Annex-11
8.	The instant ToR is subject to the outcome of the two said court cases i.e., WP(Civil) 2478 of 2022 (Filing Number) before the High Court of Bombay at Goa and WP 592 of 2022 before the High Court of Bombay at Goa.	PP will abide by the court judgement
9.	The Project Proponent needs to submit the detailed site-specific protection measures for the surface features such as habitations, water bodies, school, temple, road in and around the vicinity of the mine lease area	The action plan for the protective measures proposed by PP around the vicinity of the mine lease area is given vide chapter – 10, Table.No.10.12
10.	The Project Proponent shall ensure the validity of the baseline data and public hearing are valid as per Ministry's OM dated 08.06.2022 at the time of submission of proposal for EC	The baseline data was collected during summer season March to May 2023.
	Socio-Economic	
11.	The Project Proponent needs to carry out the Public Hearing as per provisions of EIA Notification, 2006. PP should also submit the time bound action plan on concerns of the public through a separate budget with capital expenditure with a timeline of 3 years. The Project proponent shall ensure that the activities proposed under the public hearing shall be different from the CSR activities	Public Hearing was conducted on 11.08.2023 The time bound action plan is given chapter -7 table no 7.1 The total budget for proposed is 309.3 lakhs for three years
12.	The Project Proponent needs to submit employment-based skill development plan for the local people and thrust should be to provide employment to local people after imparting training	The employment-based skill development plan is proposed. Ref Chapter-8 , Para.8.4.1 Budget for the skilling is provided in table 8.2. Preference will be given to locals for employment purpose
	Transportation	
13.	The Project Proponent needs to submit the map showing the transport route of the mineral from the mine lease area to the destination, impact of details of habitation at a distance of	The transport route map is given in chapter-3, Para-3.10 , Fig 3.12 Impacts are given in chapter 4 para 4.10 The total distance is 5.48km (4.54 dedicated

	100m from the center on both sides of road, details of no. of trips/day to and fro, capacity of the dumper/tipper to be deployed and the dimensions of the road and the carrying capacity of the road. The Project Proponent shall ensure that the transportation route shall not pass through any village road.	road and 0.94 km MDR-20 public road).
	Waste Management	
14.	The Project Proponent needs to submit the action plan for year wise backfilling	The action plan for year wise backfilling for plan period is given vide Chapter-4, Para- 4.2.3.1 in Table No 4.2
	Water Environment	
15.	The Project Proponent needs to explore the likelihood of river water entering into the mine pit below the RL of the HFL and the measures that are required to be taken for prevention of seepage and in the event of seepage to drain out the water through settling tank.	***1.*** The influence of HFL (3.5m)asnora river have no impact on mining area . As the mine lease is about 10m above MSL. Ref Chapter-7, Para. 7.2 ***point no 3. Water Inundation***
16.	The Project Proponent shall carry out the assessment of impact due to the proposed project as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP. The project proponent shall conduct hydrological study for projects involving intersection of ground water table as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.	PP has carried out detailed hydrogeological studies as per the guidelines issued by CGWA the same is being attached as Appendix- I in EIA /EMP Report
17.	The EAC noted that the mine lease area is in close proximity to the Assnora River (flowing adjacent to the mine lease boundary on the north western side). The Project Proponent needs to submit the detailed report on the engineering design for garland drain, settling tank and check dams and its efficacy through recognized institution. The study should also include the per day silt load, settling velocity of the silt, retention time required based on the annual rainfall with a provision to monitor the water quality	The detailed Study on engineering design for the protective measures from the recognized institute is attached as Appendix- III

18.	The Project Proponent shall prepare the scheme for mandatory recycle/reuse of water as specified by the Central Ground Water Authority for different category areas seeking NoC for ground water withdrawal and the shall submit as part of EIA/EMP report.	The water harvested inside the pits (rain water plus ground water) will be used only for dust suppression & green belt purpose. Application for NoC for ground water withdrawal Annexure-7
19.	The Project Proponent shall explore the possibility of reduction of specific water requirement by optimization technology up gradation, etc. The efforts shall be delineated in the EIA/EMP.	Measures for reduction of specific water requirement are provided in chapter **10 in para 10.5.2.1**
20.	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994. The production details need to submit since inception of mine duly authenticated by Department of Mines & Geology, State Government	The year wise production not applicable as it is a fresh grant. The Goa Government has auctioned the Block I-Bicholim Mineral Block as a fresh Lease. And LOI is issued to Vedanta Ltd. MoEF & CC has considered this project as a Green Field Project The mine operations will commence after obtaining necessary Statutory clearances and execution of lease Deed.
21.	A copy of the document in support of rightful lessee of the mine should be submitted. In case of new mines copy of LoI granted by State Government to be submitted. PP should ensure that LoI is valid at the time of grant of ToR. PP should submit the copy of lease deed/supplementary lease deed/extension letter/transfer deed, from its initial grant to subsequent renewals/ transfer/extension of validity.	The state govt. has auctioned the subject Mineral Block as a fresh mining lease and LOI is issued to Vedanta ltd. LOI is attached as Annexure. No.1
22.	PP should submit the District Survey Report (DSR) as per S.O. 3611(E) dated 25.07.2018 in case of minor minerals	NA
23.	Brief of proposal to be submitted which include total excavation of the material required for the production of certain quantity of the minerals, location of the project, mining lease area, latitude longitude, seismic zone etc. In case of expansion project details of expansion viz. expansion in mining lease area or expansion in production of any particular mineral or expansion in total excavation, latest certified Compliance report (CCR) from IRO of conditions granted in existing EC needs to be submitted	The location of the project falls in Topo sheet no 48 E/14 and bounded by latitude of 15° 34' 20.518" to 15° 36′ 54.018″ N & longitude of 73°54′ 4.754" to 73° 57′ 09.51″ E. The detailed Environmental setting is given Chapter – 2 , Para-2.1, Table. No.2.1
24.	The PP should submit the real-time aerial video	PP shall submit the real –time video footage of the

	footage & video of the mining lease area and of the transportation route.	mining lease at the time EAC Meeting
25.	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	The high resolution imagery (plate No-3A) Topo sheet (plate No-3) Geomorphology (plate No -9) Geological map (plate No – 8) are enclosed
26.	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics	The Key Plan is enclosed as Plate.no.3 Ref chapter 3
27.	The PP should collect the Baseline data (BLD) in respect of initial level of the mining lease. For this permanent bench marks (BM) needs to be established at prominent location preferably close to mining leases in question and should have precisely known relationship to the level datum of the area, typically mean sea level	The mining block is linked to permanent bench mark established at the site. Ref Plate No. 20
28	In case of sand mining, the entire mining lease area should be divided suitably into grids of 25 m x 25 m with the help of sections across the width of river and along the direction of flow of the river. The levels (MSL & RL) of the corner point of each grid needs to be recorded. Each Grid should be suitably numbered for identification. PP should identity grids which will be worked out and grids which will come under no mining zone i.e. safety barriers from the river bank. PP should comply with the sustainable sand mining management guidelines 2016 and enforcement and monitoring guidelines, 2020 etc.	NA
29.	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The	The green belt development plan for five year plan period is about 19.1723 Ha area and 47931 saplings proposed . The detailed plan is given vide Chapter-10, Details of Green Belt Development Plan is provided Table 10.13

	details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution	
30.	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	1. Canteen 2. Rest shelters 3. Drinking water facility on the site 4. Latrines and urinals on the site 5. Dispensary/OHC on site Ref Chapter -2, Para 2.3.6a
31.	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report	Ref chapter 10 in para 10.5.6 Enclosed as Plate. Nos. 6a & 6b & Plate No .7
32.	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out	The capital cost of the project is Rs. 25000 lakhs. The proposed EMP cost i.e., Capital cost is about 72 lakhs and recurring cost is 621 lakhs. The detailed distribution is given in EIA report Ref Chapter- 10, Para. 10.8, Table.No.10.14
33.	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Refer Chapter – 8
34.	Compliance of the Ministry's Office Memorandum No. F: 3-50/2017-IA.III (Pt.), dated 30.05.2018 on the judgment of Hon'ble Supreme Court, dated the 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India needs to be submitted and included in the EIA/EMP Report	The Affidavit is enclosed as ***Annexure-2***
	FOREST	
35.	PP shall submit a certificate from Chief Conservator of Forests regarding involvement of Forest Land in the mining lease area if any. In case forest land is involved i) PP should submit the proof of application made for obtaining forest clearance and ii) a map clearly showing the forest & non-forest area	As per the auctioned document given by state govt. there is no forest area involved in Block-I Bicholim Mineral Block. The letter from forest department clarifying that there is no forest land within the mineral block is attached as Annexure-12
36.	Status of forestry clearance for the broken-up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should	NA

	also be furnished.	
	LANDUSE	
37.	PP should submit the details of survey number [viz. survey no, area in hectare, classification of land (government, private, forest, grazing land etc.), villages] duly authenticated by State Government, falling in the mining lease area	Enclosed in lease sketch as **Plate.No.2** The details of land classification as given in the GR report of Mines and Geology Dept. of Govt. of Goa given in the Annexure-13 enclosed
38.	The study area will comprise of 10km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period	Ref Conceptual Plan: Plate No. 6a & 6b
39.	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	The detailed land use and land breakup is given detail in EIA and EMP Report Ref: Chapter-3, Para- 3.7 Plate.No.18
40.	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given	No external dumps
41.	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted	No wildlife sanctuaries are in the study area. The detailed biological study was conducted in the study area of 10 kms radius . The detailed wild life conservation plan is prepared and submitted to CWLW . For impact of the project on the wildlife in the surrounding & mitigative measures Ref chapter 4 para 4.8 in table 4.8 & Chapter 10 para 10.7
42.	A detailed biological study of the study area [core zone and buffer zone] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. PP shall submit list of Schedule-1 species present in core and buffer zone duly authenticated by CWLW. In case of any	The detailed biological study was conducted in the study area of 10 kms radius . There were recorded some Schedule-1 species like Leopard, Indian Peafowl, White-bellied eagle, Crimson rose. The detailed wild life conservation plan is prepared and submitted to CWLW Enclosed as Appendix-IV The Acknowledgement of submission of conservation plan to Chief Wildlife is enclosed as

	Scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest/Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost. Proof of its submission of conservation plan to the CWLW needs to be submitted	Annexure-8
43.	PP shall submit a certificate from Chief Wildlife Warden regarding distance of mining lease from the protected area falling within 10 KM of the mining lease. In case project requires clearance under Wildlife (Protection) Act, 1972 then copy of application made for the same needs to be submitted	No wildlife Sanctuaries within 10 kms from the project site. Certificate from forest dept. with respect to distance to wildlife Sanctuaries as Annexure-9
44.	One season (non-monsoon) [i.e. March - May (Summer Season); October -December (post monsoon season); December - February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the predominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	The baseline data was conducted during summer season (march to May,2023) . The report enclosed as **Annexure- 5** Flora and fauna study has been conducted (Ref Chapter -3 para 3.8)
45.	Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The windrose showing pre-dominant wind direction may also be	The air quality modelling was done using AERMOD software Ref Chapter-4, Para.4.3

	indicated on the map.	
46.	The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this, PP should submit the original test reports and certificates of the labs from which samples were analyzed	Photographs enclosed in EIA & EMP Report Chapter -3
	WATER ENVIRONMENT	
47.	The water requirement for the Project, its availability and source should be furnished. Quantity of surface or ground water to be used for the Project should be indicated. A detailed water balance should also be provided. Submit the year wise target for reduction in consumption of the ground/surface water by developing alternative source of water through rain water harvesting measures. Description of water conservation measures proposed to be adopted in the Project should be given.Details of rainwater harvesting proposed in the Project, if any, should be provided. The capital and recurring expenditure to be incurred needs to be submitted.	Water balance and water requirement provided chapter 2 in para 2.6.5 The detailed water conservation measures are given in Chapter-10 para 10.5.2.2.
48.	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided	The impact on the water quality chapter -4 para 4.7 and Necessary safeguard measures like garland drains, settling ponds are mentioned in chapter- 10, Para-10.5.2.1
	HYDROGEOLOGY	
49.	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be.	The details water bodies are provided in chapter 2 environmental settings chapeter-2 table -2.1 , Chapter-3 in para 3.5.3 there is no diversion of water bodies proposed
50.	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and BGL. A schematic diagram may also be provided for the same	Ref chapter 3 para 3.6.6.2 plate no 18 LULC map The detailed hydrogeological report is enclosed as Appendix-I
51.	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working bench will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia shall include details of the aquifers present and impact of mining activities on these	The detailed hydrogeological report is enclosed as Appendix-I The acknowledgment for having submitted the hydrogeological report and application to WRD is enclosed as Annexure-7

	aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished. In case of surface water is proposed to be utilized then Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	
	TRANSPORTATION	
52.	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.	The traffic density study is carried out as per Indian Road Congress Guidelines . Ref Chapter 3 para 3.10 & Chapter-4, Para-4.10
	LAND ACQUISITION AND R&R	
53.	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority	The state govt. has issued LOI as preferred bidder to Vedanta Limited as fresh mine ref Annexure-1
54.	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need-based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects	No R& R is involved

	should be discussed in the Report	
	SOCIO-ECONOMIC ENVIRONMENT	
55.	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations	Health status of population in the study area Ref. Chapter-3, Para.3.9.1.19 in table 3.38 Health impact on population Chapter -4 Para 4.9.1 (b)
56.	Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation	Impact study on the local population is done . Detailed study is given in Chapter-4, Para.4.10 Chapter -7 para 7.1 Chapter -8 para 8.1.1, social benefits provided in para 8.4
57.	Activity-wise time-bound action plan on the issues raised and commitment made during public hearing to be submitted as part of the final EMP Report in compliance of the Ministry's OM F.No.22-65/2017-IA.III dated 30th September, 2020.	Ref. Chapter -7 para 7.1 Chapter 10 para 10.8 Table. No. 10.14 for EMP budget
	ENVIRONMENTAL MONITORING AND MANAGEMENT	
59.	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the proposed safeguard measures in each case should also be provided.	Policy ref Chapter 10 para 10.2 The hierarchical system or administrative order of the Company to deal with the environmental issues is given in Chapter-10, Para-10.1 &10.3
	CRITICALLY POLLUTED AREAS, ARAVALI & CRZ	
60.	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the	NA

	prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.	
	Risk Assessment & Disaster Management	
61.	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	The detailed impact and preventive measures on occupational health is given vide chapter-7, Para.7.4 Also OH&S plan provided in chapter 10 para 10.10
62.	A Disaster Management Plan shall be prepared and included in the EIA/EMP Report.	Refer Chapter-7, Para, Para.7.3
63	The general points are also to be followed	Shall be followed
64	All documents to be properly referenced with index and continuous page numbering.	Complied
65	Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated	Complied
66	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.	Enclosed as annexure -5
67	Where the documents provided are in a language other than English, an English translation should be provided	Complied
68	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted	Before EAC meeting shall be submitted
69	While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August 2009, which are available on the website of this Ministry, should be followed	Complied
70.	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public	No changes in basic scope and project parameters. EIA prepared as per TORs issued by MoEF&CC Necessary modification in EIA has been done only with points raised in public hearing

	Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation	
71.	As per the circular no. J-11011/618/2010-IA.II (I) dated 30.5.2012,certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.	Goa government has auction this mine block as a fresh mineral block. And LOI is issued to Vedanta Ltd. This point is not applicable
72	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii)geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area	surface plan plate No -5 geological map plate No -4a & 4b geological sections Plate No -4A1 to 4A4

EIA & EMP

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Chapter-1
INTRODUCTION

Sensitivity: Public (C4)

1.0 INTRODUCTION

Vedanta Limited is one of the leading global natural resources conglomerate operating across India, South Africa, Liberia and Namibia.

Vedanta Limited is a uniquely diversified company across the natural resources spectrum with interests in Oil & Gas, Zinc-Lead-Silver, Aluminum, Iron Ore, Steel, Copper, Ferro Alloys, Power, and Nickel. Vedanta Limited is having vast experience in handling Iron Ore projects in India and are known for its Quality & sustainable development.

In pursuant to the notice inviting tender dated 30.09.2022 by the Government of Goa in accordance with Mines and Minerals (Development and Regulation) Act 1957, and the Mineral (Auction) Rules, 2015 and as amended from time to time, Vedanta Limited intends to obtain prior Environmental clearance from MoEF&CC for the production of 3.0 MTPA in Block-I Bicholim Mineral Block located in Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages of Bicholim Taluka, North Goa District, Goa State.

The said Block-I Bicholim Mineral Block was earlier operated by Sesa Mining Corporation Ltd (SMCL) formerly known as Dempo Mining Corporation Ltd. Pursuant to Supreme Court judgement in Goa Foundation 2 dated 07.02.2018, all the mining leases granted by the State Government were cancelled. Thereafter, State Government in terms of the said order and as per the provisions of MMDR Act put this block for auction as a fresh lease grant.

The e-auction process was conducted in accordance with the Tender Document for said Mineral Block. Vedanta Limited emerged as the highest qualified bidder having submitted the highest final price offer, and was declared as the preferred bidder under Rule 9(9) (iii) of auction Rules.

Further, upon submission of the first installment, being 20% of the upfront

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payment, Government of Goa issued a Letter of Intent (LOI) vide letter no. DMG/25/Auction Cell/LOI-function/2023/2801 dated 13.01.2023 for the grant of a mining lease for Block-I - Bicholim Mineral Block in Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, of Bicholim Taluka, North Goa District, Goa State over an area of 478.5206 Ha over a period of 50 years. The Letter of Intent was accepted by Vedanta Limited (Preferred Bidder/Applicant) vide Letter dated 13.01.2023.

Copy of the Letter of Intent is attached as Annexure No. 1

Vedanta Limited has agreed to deposit an unconditional performance security to become "Successful Bidder" to the State Government pursuant to Auction Rules i.e. before signing of Mine Development and Production Agreement (MDPA) with Government of Goa as per Sr. No. 3.2. (a) (iii) of letter of Intent dated 13-01-2023. Once the MDPA is signed, a mining lease deed will be executed and the mining lease will be valid for 50 years from the date of execution.

Mining Plan was prepared and submitted to Indian Bureau of Mines (IBM) in compliance with the terms and conditions no. 3(3.2)(a)(iv) of the Letter of Intent and under the provisions of Rule 16(1) of MCR 2016 for grant of mining lease over an area of 478.5206 Ha and to obtain Environmental Clearance for the production capacity of 3.0 million tonnes of Iron Ore per annum.

Subsequently, Approval for Mining Plan was issued from Indian Bureau of Mines, Goa vide letter No. MCDR-MPC/1/2O23-GOA-IBM_RO_GOA dated 26.05.2023 enclosed as Annexure No.3.

1.1 *PURPOSE OF THE REPORT*

The project proponent intends to obtain prior Environmental Clearance from MoEF&CC for the production of 3.0 MTPA as it is a prerequisite condition to execute the Mining Lease Deed and commence production activities**.** The proposed project is a **Category A** Project under activity 1(a) as per the Environment Impact Assessment

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(EIA) Notification dated 14th September 2006 and subsequent amendments till date as the total extent of the project is >250 Ha.

The project proponent had applied via online mode to Expert Appraisal Committee (EAC), MoEF&CC for the grant of Terms of Reference(TOR) for the production of 3.0 MTPA of Iron Ore and subsequently, the TOR was granted by MoEF&CC vide its letter no. TO23A0000GA5700309N dated 16.06.2023 and is enclosed as ***Annexure No.4.***

This report is prepared in accordance with the EIA Notification, 2006 and addresses all the conditions of the approved TOR.

This report presents the baseline condition of the project area, the possible impacts in the surroundings due to the project, mitigation measures and management plan.

1.2 IDENTIFICATION OF PROJECT PROPONENT & PROJECT

1.2.1 *IDENTIFICATION OF PROJECT PROPONENT*

Vedanta Limited is the project proponent who is one of the leading global natural resources conglomerate operating across India, South Africa, Liberia and Namibia.

Vedanta Limited is a uniquely diversified company across the natural resources spectrum with interests in Oil & Gas, Zinc-Lead-Silver, Aluminum, Iron Ore, Steel, Copper, Ferro Alloys, Power, and Nickel. Vedanta Limited is having vast experience in handling Iron Ore projects in India and are known for its Quality and sustainable development.

1.2.2 PROJECT

Vedanta Limited is proposing the iron ore production in the mines located at Block 1 - Bicholim Mineral Block in Bicholim, Bordem, Lamgao, Mulgao, Mayem, & Sirigao villages of Bicholim Taluka, North Goa District, Goa State.

The proposed iron ore mining project is spread over an area of 478.5206 Ha and capacity of project is 3 MTPA. The mode of mining will be opencast mechanised

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mining by using Heavy earth moving machinery such as excavators and ripper dozer, Dry screening and Crushing Plant of capacity 4MTPA. There will be no drilling and blasting operations for mining of ore and for removal of waste as majority of the ore are is of soft & friable geological formations.

1.2.3 PROJECT PROPONENT & ADDRESS

Registered Address: Vedanta. Limited.,

Sesa Ghor, 20 EDC Complex, Patto, Panjim

Goa- 403001

Phone no. : (0832) 2460600

Email : mk.reddy@vedanta.co.in

1.3. BRIEF DESCRIPTION OF NATURE, SIZE AND LOCATION OF THE PROJECT AND ITS IMPORTANCE TO THE COUNTRY, REGION

1.3.1 Brief Description Of Nature, Size And Location Of The Project

The lease area of 478.5206 Ha falls under Block 1 - Bicholim Mineral Block in Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages of Bicholim Taluka, North Goa District, Goa State. The details of land Classification are given vide Annexure-13

The proposed lease area is having about 84.743 million tonnes of mineral reserves & resources. The mined Iron Ore shall be utilized at the company-owned pig iron plant, other domestic and export markets.

The lease area falls under the Topo sheet No. 48 E/14, Survey of India and bounded by latitude of 15° 34' 20.518" N to 15° 36′ 54.018″ N & longitude of 73°54′ 4.754" E to 73° 57′ 09.51″ E. The general elevation of ML area varies from 169.14 m to -37.24 m above MSL.

The location plan, lease plan and key plan are enclosed vide **Plate No.1, Plate No.2 and Plate No.3** respectively.

State Highway SH-1 is about 0.65 km from ML area, the nearest Railway station is Tivim Railway station which is at a distance of 10.5 km by road, the nearest port is Mopa Airport at a distance of 27.3 km.

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1.3.2 STATUTORY CLEARANCES

Vedanta Limited shall obtain all the necessary Statutory clearances before commencement of work like Environmental Clearance, CTO from GSPCB, NOC from Water resource department of Goa.

All the documents/approvals/permissions including Approved Mining Plan and EIA-EMP shall be compatible with one another in terms of the Mineral Block Area, production levels, waste generation and its management, mining technology etc.

1.3.3 MINING PLAN

The Mining Plan for a block period of 5 years was prepared under rule 16(1) of MCR, 2016 and has been approved by the Indian Bureau of Mines vide their letter No. MCDR-MPC/1/2O23-GOA-IBM_ RO_ GOA dated 26.05.2023 enclosed as **Annexure. No. 3**

1.3.4 OTHER CLEARANCES

There are no National Parks and Sanctuaries, ESZ or ESA within Mining Lease area or in the buffer zone.

The distance of Wildlife sanctuaries is authenticated by Goa State Forest Dept. and attached as Annexure**-9** and distance given below

Madei Wild life Sanctury-14.105 Km

Salim Ali Bird Sanctuary -10.553 Km

Bondla Wild life Sanctuary -20.476 Km

Goa State Environment Dept. has authenticated that Block-1 Bicholim Mineral block of Vedanta Limited is not a part of Eco Sensitive Area. (Annexure-9A)

The drinking water (36KLD) will be drawn from bore wells registered with Water Resource Department, Goa.

The project proponent has already applied for permission for withdrawl of ground water from Water Resource Department, Goa. **Annexure-7**

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1.3.5 IMPORTANCE OF THE PROJECT TO THE COUNTRY AND REGION

The major usage of Iron Ore in India is for manufacturing of steel. The major iron ore producing states are Odisha, Jharkhand, Chhattisgarh, Karnataka and Goa.

India is world's 4th largest Iron Ore producer and 3rd largest exporter after Australia and Brazil.

As per the UNFC system, as on 1.4.2015, India possesses hematite resources of 22487 Million Tonnes, of which 5422 Million Tonnes are under 'Reserves' category and the balance 17065 Million Tonnes are under 'Remaining Resources' category.

Major resources of haematite are located in Odisha (7559 Million Tonnes or 34%), Jharkhand (5286 Million Tonnes or 23%), Chhattisgarh (4858 Million Tonnes or 22%), Karnataka (2,467 Million Tonnes or 11%) and Goa (1189 Million Tonnes or 5%).

The balance 5% is spread in Andhra Pradesh, Assam, Bihar, Madhya Pradesh, Maharashtra, Meghalaya, Rajasthan, Telangana and Uttar Pradesh.

Magnetite is another principal Iron Ore that also occurs in the form of oxide, either in igneous or metamorphosed banded magnetite silica formation, possibly of sedimentary origin. Exports of iron ore decreased considerably from 7.30 Million Tonnes in the 2014-15 to 5.4 Million Tonnes in 2015-16.

In spite of the current turmoil, Indian GDP is expected to grow in multitudes and reach around $ 27 trillion by 2050. Infrastructural development will play an instrumental role in achieving this GDP level. It is an undeniable fact that steel plays a pivotal role particularly in reference to the infrastructural sector. In this context, the production of 500 MT of steel is an imperative by 2050 and for this, 840 MT of iron ore per annum is required. This calls for wise use of our limited resources and to strategically plan for the future to meet the imminent demand, when it finally arrives in India.

The per capita steel consumption of 55 kgs remains very low, compared to the international average of 190 kgs and China's average of 400 kgs. There exists a great prospect for a much higher investment into capacity addition in the country.

Increase in steel capacity, addition will fuel up the demand for Iron Ore in the country.

Rural per capita steel consumption is set to rise in Construction & Infrastructure sector.

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In the case of present project area, the main revenue generating resources are Tourism, Agriculture and Iron Ore Mining.

The state will get revenue in terms of taxes and royalties, DMF and the country will be benefited in terms of income tax and export duty and NMET. This will definitely improve the socioeconomics of the region and the country.

The opening of this Mine shall provide direct employment and indirect employment opportunities in the form of hired truck drivers, hired machine operators, local workshops, contract workers for construction works like parapet wall, silpaulin covering work, plantation work, cleaning works etc. for the local villagers.

1.4 SCOPE OF THE STUDY

The scope of the EIA/EMP Study is as per the approved TORs issued by MoEF&CC vide its letter no TO23A0000GA5700309N dated 16.06.2023 given vide as ***Annexure.no 4 .***

The EIA/EMP Study is also based on baseline environmental data collected in the months of March to May 2023, Mining Plan and related secondary information. The EIA-EMP is prepared as per the generic structure as defined in the EIA notification dated 14th September 2006 and as amended time to time addressing all the TOR conditions given by EAC, MoEF&CC.

1.4.1 BASELINE DATA GENERATION

The study includes a detailed characterization of the baseline environment of core zone covering Mineral Block and Buffer zone over an area covering 10 km radius around the Mineral Block Area. The study includes assessing the environmental parameters like Air, Water, Noise, Land, Biological and Socio-economic aspects covering three months i.e., March to May -2023. Initially the baseline data was collected during post monsoon season i.e., October to December 2020, however as the validity of the said data was three years i.e till September 2023, the baseline data was again collected during summer season i.e., March to May 2023.

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1.4.2 SECONDARY DATA COLLECTION:

Secondary data was collected from the following sources:

India Meteorological Department (IMD)

Geological Survey of India (GSI)

Botanical Survey of India

Zoological Survey of India

CGWB, GOI

NRSC, Survey of India (SOI), ICAR-National Bureau of Soil Survey and Land Use Planning (NBSS&LUP)

Census of India, 2011

Approved Mining Plan

1.4.3 STRUCTURE OF THE EIA & EMP REPORT

This EIA report has been prepared in line with the Generic Structure prescribed by the MoEF&CC vide its EIA Notification 2006 dated 14th Sep, 2006 and its subsequent amendments.

Table 1.1: EIA Report Structure

Chapter Number	EIA Structure
1	Introduction
2	Project Description
3	Description of the Environment
4	Anticipated Environmental Impact & Mitigation Measures
5	Analysis of Alternatives (Technology & Site)
6	Environmental Monitoring Program
7	Additional Studies
8	Project Benefits
9	Environmental Cost Benefits
10	Environment Management Plan (EMP)
11	Summary & Conclusion
12	Disclosure of Consultant Engaged

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Chapter-2
PROJECT DESCRIPTION

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2.0 PROJECT DESCRIPTION

2.1 TYPE of PROJECT

The proposed project falls under screening category of 'A' [EIA notification 2006, Sl. No 1(a) of Schedule: Mining of Minerals] i.e. >250 ha of mining lease area in respect of non-coal mine lease. The project requires prior Environmental Clearance from MoEF&CC to execute the lease.

It is an opencast Iron ore mining project using HEMM. There is no Drilling and Blasting involved in this project.

YEAR - WISE PRODUCTION DETAILS

The Goa Government has auctioned the Block I- Bicholim Mineral Block as a fresh Lease. And LOI is issued to Vedanta Ltd. MoEF & CC has considered this project as a Green Field Project The mine operations will commence after obtaining necessary Statutory clearances and execution of lease Deed.

2.2 NEED FOR THE PROJECT

The present mining project involves production of 3.0 million tonnes of Iron Ore per annum, the life of the mine shall be 30 years and may enhance based on the results of exploration planned during the Mining Plan period. The lease is valid till 50 years.

The finished product, i.e., Dry crushed/screened products (Lumps & Fines)/iron ore /ROM will be used in the company owned pig iron plant and sold to the domestic buyers or domestic consumption & export . This project is expected to yield a positive impact on the socio-economic environment of the region. It helps in sustainable development of this area including further development of physical infrastructural facilities. The opening of this mine will boost the economy of the State and improve socio-economic status of the region.

Besides, the direct and indirect employment opportunities, this project will also generate the revenue to the state in terms of taxes and royalty, DMF and the country will be benefited in terms of income tax and export duty and NMET.

The Lessee shall extend social benefits like supply of water for irrigation purposes, health care measure, and educational benefits to the neighboring villagers.

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2.3 LOCATION OF THE PROJECT

The project located in Bicholim, Bordem, Lamgao, Mulgao, and Mayem & Sirigao villages of Bicholim Taluka, North Goa District, Goa State as shown in the **Plate No.1**. DGPS & key plans are enclosed vide **Plate No.2 & Plate No.3** respectively.

2.3.1. ENVIRONMENTAL SETTING

The geographical aspect of the Mine Location is given below.

Table 2.1: Environmental Setting

Land Details & Survey Nos	478.5206 Ha **Sy.Nos** : Bordem : Parts of Survey No. 19, 21, 23, 31, 32, 33, 34, 40, 41, 42, 43, 44 Bicholim : Survey No. 80, 81 & Parts of Survey No. 72, 77, 78, 79, 82, 83, 84, 86, 88, 89, 90, 95, 96 & 99 Lamgao : Survey No. 20, 24, 25, 26 & Parts of Survey No. 1, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 21, 22, 23, 27, 28, 29, 30 & 46 Mayem : Survey No. 145, 164, 165 & Parts of Survey No. 84, 85, 86, 114, 142, 143, 144, 146, 162, 163, 166 &167 Mulgao: Survey No. 34, 62, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 89, 91, 110, 114, 115, 116 & Parts of Survey No. 33, 35, 48, 61, 63, 79, 80, 81, 86, 88, 90, 92, 93, 94, 95, 96, 101, 102, 103, 104, 109, 111, 112, 113, 117, 118 & 124 Sirigao : Parts of Survey No. 70, 75, 76, 77, 78, 79, 80, 81 & 82	
Geographical Coordinates	Latitude 15° 34' 20.518" to 15° 36′ 54.018″ N & longitude of 73°54′ 04.754" to 73° 57′ 09.51″ E.	
Survey of India (SOI) Topo-sheet No	48 E/14	
Water requirement	664 KLD	
Power requirement	5.8 MW	
Sanctuary / Tiger Reserve/Elephant / any other Reserve Forest	No sanctuary /Tiger reserve within study area	
	Mayem Forest Kharpal RF Kasarpal RF Ambadgaon RF	Common Boundary with the lease area 6.7 Km 5.1 Km 7.6 Km
Biosphere Reserve	None	-
Water Bodies	Asnora river	Touching lease boundary at one point
	Bicholim River	0.23 Km
	Mandovi River	2.3 kms
	Chapora River	7.5 km

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	Mayem Lake	0.46km
Defence Installation	None	--
Nearest airport	Mopa	27.3 Kms
Nearest Railway Station	Tivim	10.5 kms
Nearest Highway	SH-1	0.65 KM from ML area
Seismic Zone	III	--
Nearest Habitat	Within the lease	Min Buffer of 50mts shall be provided and no drilling and blasting shall be carried out.
Environmental Protection Cost	Capital Cost: Rs. 72 lakhs Recurring Cost: Rs. 621 Lakhs	--
Project Cost	25000 lakhs	
Man Power Requirement	716	Both Direct & Indirect employment
Archaeological monuments/ places of worships/public utilities etc.	Namuzgah/Idgah ;	Archaeological monuments Within ML area. (200m buffer will be maintained from Idgah;
	Lamgao caves Sateri Temple Mhatrai temple Kelbai Temple Mahadev Temple Lairaee Temple (Old) Shri Lairae Temple(new) Saptakoteshwar temple and at Narve	300m buffer from Lamgao caves) With in the ML Area 0.86 km from ML Area. 2.5 km There are other monuments within 10km radius namely temples, Churches at Old Goa, Site at Gujir,
	Amthane Dam	7 kms
	Fort at Khorjuvem	2 kms, there are few other forts also within study area like fort at Colvale & Sanquelim
	Public ferry point at sarmanas at Pilgao village at an aerial distance of 2.45 km	
Coastal Regulation Zone (CRZ)	--	--

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<table>
<tr><td>Distance from the HFL of the river in m</td><td>Asnora river is touching one part of the lease boundary</td><td>Asnora river is touching one part of the lease boundary but the elevation difference is min 10mts.</td></tr>
<tr><td>Nearest School</td><td>Mulgao Government Primary School (2 schools)

Lamgao Government Primary School</td><td>Within Lease (Gaonkarwada School is non functional since last few years; A buffer of 120m will be maintained from Manaswada habitation wherein the school is located.)

0.015 kms outside the mine lease</td></tr>
<tr><td>List of Schools</td><td colspan="2"><table>
<tr><th>Sr. No.</th><th>School Name</th><th>Strength</th><th>Distance from block boundary in meters</th><th>Direction from Block</th></tr>
<tr><td>1</td><td>Ideal High school, Pilgao</td><td>292</td><td>1525</td><td>S</td></tr>
<tr><td>2</td><td>Govt. high school Sirigao</td><td>56</td><td>874</td><td>W</td></tr>
<tr><td>3</td><td>Govt. high school, Mulgao</td><td>117</td><td>608</td><td>N</td></tr>
<tr><td>4</td><td>Govt. high school, Shriodwadi, Mulgao</td><td>50</td><td>702</td><td>N</td></tr>
<tr><td>5</td><td>Vijyanand high school, Mayem</td><td>94</td><td>3958</td><td>S</td></tr>
<tr><td>6</td><td>Shree Mahamaya High school, Mayem</td><td>170</td><td>1245</td><td>SW</td></tr>
<tr><td>7</td><td>Our lady of grace high school, Bicholim</td><td>1106</td><td>505</td><td>NE</td></tr>
<tr><td>8</td><td>Shree Shantadurga high school, Bicholim</td><td>1286</td><td>616</td><td>NE</td></tr>
<tr><td>9</td><td>Radhakrishn high school, Bicholim</td><td>343</td><td>307</td><td>NE</td></tr>
</table></td></tr>
<tr><td>Mangrove</td><td>Asnora Creek Mangrove</td><td>210 mts from ML area</td></tr>
</table>

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Industries	Cashew factory within the mineral block at Bicholim (85m buffer will be maintained)	Iron ore Beneficiation plant of SMCL at a distance of 1.2 km from mineral block; Iron ore barge loading jetty of SMCL at aerial distance of 3km There are other industrial areas within the study area namely Bicholim Industrial estate (0.42km), and other estates at Mapusa, Thivim, Colvale and Corlim beyond 8km.

2.3.1.1 Geology

As per Geological Survey of India (GSI) studies, Bicholim Mine area forms a part of Bicholim-Sirigao type deposit. Rock formation in this area indicate a major overturned anticlinal fold extending over the length of about 6.5 km. Iron ore was generally found to occur as soft banded beds in the Precambrian meta sedimentary formation. Hard lumpy ores occur close to surface in laterite 5 to 10 m depth followed by soft laminated and friable powdery ores in deeper portions upto 200 m. The general strike of ore body is NW-SE and the general dip of the ore body is NE – NW. The lithology of geological formation is given below

Table 2.2 The lithology of geological formation

Lithology	
Type	**Depth**
Laterite	10-15m
Lumpy Laterite	05 to 10m
Friable Powdery Ores	20 to 45m
Limonitic Clays	5 to 10m
Phyllite Clays	30 to 100m
Manganiferous Clays	10 to 30m
Intrusive / Dykes	02 to 15m

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2.4 SIZE OR MAGNITUDE OF OPERATION (Including associated activities required by or for the project)

The proposed project extends over an area of 478.5206 Ha consisting of non-forest land. The Iron ore reserves estimated as per the approved mining plan as on 26.05.2023 are 84.743 million tonnes.

Parameters:

Total Mineral Reserves & Resource : 84.743million tonnes

Nature of ore : Iron ore

Max. Proposed Production : 3.0 million tonnes

Ore to waste ratio (average) : 1 : 8.39

The complete chemical analysis of ROM ore/Mineral is given below:

Table 2.3: The complete chemical analysis of ROM ore/Mineral

Sl No.	Radical	(%)
1	Fe	53.0
2	Al_2O_3	5.0
3	SiO_2	6.0
4	P	0.05
5	S	0.04
6	Mn	0.98

Table 2.4 Reserves & ResourcesClassification

	Code	Quantity (in Million Tonnes)			Grade	
		Forest	Non-Forest	Total	Forest	Non-Forest
A. Mineral Reserve						
1. Proved Mineral Reserve (A)	111	-	36.071	36.0715	-	+45
2. Probable Mineral Reserve (A)	121	-	-	-	-	-
3. Probable Mineral Reserve (A)	122	-	-	-	-	-
B. Remaining Resources		-	-	-	-	-
1. Feasibility Mineral Resource (B)	211	-	28.452	28.452	-	+45
2. Prefeasibility Mineral Resource (B)	221	-	17.058	17.058	-	+35
3. Prefeasibility Mineral Resource (B)	222	-	-	-	-	-
4. Measured Mineral Resource (B)	331	-	1.498	1.498	-	+45
5. Indicated Mineral Resource (B)	332	-	-	-	-	-
6. Inferred Mineral Resource (B)	333	-	1.664	1.664	-	+45
7. Reconnaissance Mineral Resource (B)	334	-	-	-	-	-
Total Mineral Resources (A+B)			84.743	84.743	-	+45

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The Geological Plan is given vide ***Plate No. 4A & 4B***

2.5 PROPOSAL SCHEDULES FOR APPROVAL & PROJECT IMPLEMENTATION

Mining operations will be commenced after obtaining all the statutory permissions and approvals. The following is the **tentative** schedule for Environmental Clearance by EAC, MoEF&CC.

Table.No. 2.5: Schedule for Approval & Project Implementation

Sr.No.	Activity	Timeline
1	Baseline collection	March to May,2023
2	Submission of EIA and Following the procedure laid under EIA notification and obtaining EC	June to September,2023

The Project shall be implemented immediately after obtaining all the necessary clearances and after executing the mining lease deed.

2.6 TECHNOLOGY AND PROCESS DESCRIPTION

2.6.1 MINING METHODOLGY

2.6.1.1 Existing Mine workings:

Presently the Block-I Bicholim Mineral Block (Mine) is not in operation. The Mining operation will commence after obtaining all statutory permissions/ clearances.

2.6.1.2 Proposed Mine workings:

The mining operations are proposed to be conducted in a very scientific and systematic manner. There are totally 5 pits within the proposed mining lease area. **Table 2.6** gives the details of active pits along with dimensions.

Table 2.6 Details of Active Pits

Sl.No	Pit ID	Area Covered by Pit(Ha)	Pit Dimensions(L*W*D)
1	1 Top pit	13.30	380x350x52
2	2 Top Pit	9.12	380x240x33
3	3/4 Bottom	8.28	380x215x80
4	5 Top Pit	12.00	400x300x95
5	5 Top CB Pit	6.66	370x80x78

The development and production will be done systematically by maintaining a bench

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height of 7 m and width of 10 mts both in the Mineral and overburden benches . The slope of Overburden and Mineral benches shall be maintained at 70 ^{0} and overall slope of <26 ^{0} respectively.

The slope of the bench shall be maintained properly as per the stability of the strata. Gradient of the haulage road will be maintained as 1:16.

The capping of hard laterite cover and Hematite ore will be removed by deploying Eco-Friendly ripper dozer. The use of ripper dozer will eliminate the conventional drilling and blasting.

Slope stability study is already conducted by NIRM.

The year-wise production and development for the first block period is given below:

Table 2.7Details of Production and Development

SI. No.	Year	Pit ID	Total Over Burden Quantity (t)	Total ROM Quantity (t)
1	Year l	3/4 Bottom	8955829.00	1500000.00
2	Year l	5 Top CB	2489778.00	500000.00
3	Year 2	3/4 Bottom	7240960.00	1400000.00
4	Year 2	5 Top CB	1464828.00	600000.00
5	Year 3	3/4 Bottom	10998867.00	2000000.00
6	Year 4	2 Top	13537070.00	2000000.00
7	Year 5	2 Top	18632958.00	1800000.00
8	Year 5	3 Top	6528809.00	1200000.00

The maximum production and development is proposed to be obtained during the 5th year of the plan period.

Table 2.8 Details of Max Material handling

Total handling (T)	2,81,61,767
ROM Qty (T)	30,00,000
Waste Qty (T)	2,51,61,767

2.6.1.3 Loading, Hauling, and Waste Dumping: ROM/ be loaded by hydraulic excavators and transported from the mine face to dump plot or to the dry screening/crushing plant by 40 tonne dumpers.

2.6.1.4 Crushing/ Screening: Dry Crushing and Screening plant shall be available within the proposed mine to handle 4 MTPA of crude ore. The primary crusher will

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consist of 1 no. of Jaw crusher of capacity 120 TPH with an input feed of -500mm and shall produce output of -70 mm. It shall be followed by secondary crushers, 2 no.s of capacity 300 TPH and 200 TPH respectively. The input feed size shall be -70mm and output feed size obtained shall be -40mm.

The Screening Plants of capacity -600TPH shall be installed where input the feed size shall be -70mm to obtain product of -40mm lumps & -10mm fines.

Material balance flow sheet is enclosed vide Fig 2.1

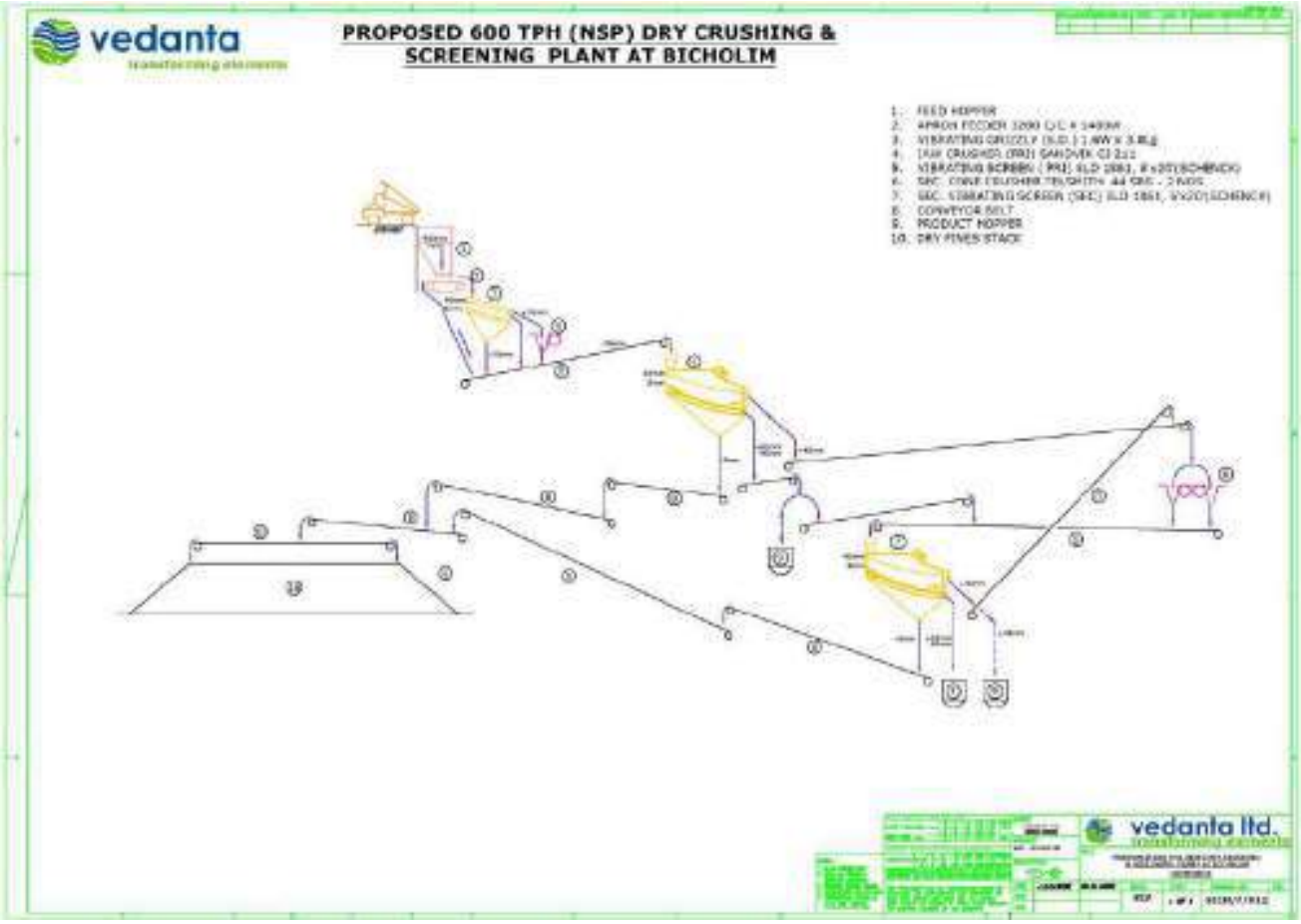

Fig-2.1 Flow chart of crushing and screening plant

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2.6.1.4 Transport: ROM/Iron ore or Screened/crushed material will be transported by 10.5 Tonne trippers from Mine to Sarmanas jetty through a dedicated road. The total distance from the mine to Jetty is 5.58 km of which 0.94 km stretch is public road and remaining 4.64 km is company owned dedicated road. It is to mention that during the transportation of ore there are two junctions which the trucks need to cross namely Mayem junction and Pilgao junction. During the transportation , the company will provide dedicated personnel to manage the traffic at these junctions. Government has already proposed construction of the underpass at Mayem junction at the cost of project proponent. Till that time the existing arrangement of traffic marshals for managing traffic will continue.

The Google image showing the transport route to Sarmanas jetty is shown vide Fig No.2.2

Dedicated road Public Road

Fig. No. 2.2 : Iron Ore Transportation route

2.6.1.5 Mine design parameters: Presently there are 5 no. mining pit within the lease area as worked by previous lessee. The Iron ore deposit is found at a maximum average depth of 100m. The haul road gradient will be maintained at 1:16. Safety bunds will be maintained along the main haulage roads.

2.6.1.6 Briefly giving salient features of the proposed method of working indicating Category of mine.

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- Mining will be carried out by opencast fully mechanized mining method with the use of heavy earth moving machineries.
- The maximum production proposed for this mine is 3.0 million tonnes. It is proposed to operate the mine in three shifts having effective working hours of 19 hrs 30 mins per day. During monsoon minimum excavation will be carried out along with other safety and environment protective measures.
- The heavy earth moving machineries are used for excavation, loading, hauling & transporting of ore and waste rock. There will be no drilling and blasting operations.
- Ripper dozers will be used for ripping hard material for removal of waste and winning of ore. The excavation will be done by hydraulic excavators.
- Wheel loaders will be used for loading and re-handling of ore and waste rock as well as for dozing of material. Ore and waste will be loaded by hydraulic excavators.
- The waste material will be transported from mine face to temporary dumping or backfilling site and ore will be transported to the dry crushing/ screening plant using 40 T dumpers.
- The iron ore will undergo dry crushing & screening within the lease using crushing and screening plant having a capacity to handle of 4MTPA
- Dry crushed & screened ore will be transported by tippers. Wheel Loaders will be used for loading Ore into tippers for transport.
- It is proposed to work the mine by forming systematic benches upto a maximum depth of 100 m.
- Year-wise excavation shall be carried out by leaving the safety barrier of 7.5m from lease boundary wherever possible and statutory barrier of 50m from habitat, public road and Asnora river .
- Mine working will be optimized considering both safety and mineral conservation aspects.

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2.6.2 MACHINERY:

The machinery requirements for this proposed project considering the maximum total handling of 3.0 million tonnes; working in three shifts with 19 hrs 30 mins of effective working per day is given in Table 2.9.

Table 2.9 List of Mining Machineries proposed to be deployed at the mine is as follows:

Sl No.	*TYPE*	*MAKE*	*CAPACITY (m3)*	*NO. OF EQUIPMENT*
1	Hydraulic Excavator	Volvo 700	4.10	09
2	Dumper	Volvo A40E	20.40	72
3	Wheel loader	CAT 962H	3.20	04
		CAT 966H	3.50	03
4	Hydraulic Dozer	CAT D11R	770	01
		CAT D9R	410	03
		KOMATSU D275	449	03

2.6.3 MAN POWER

There number of officers, supervisory staff and other workmen as direct employees is indicated **Table 2.10** below.

Table.No.2.10 Employment details

S.No	Designation	Nos
1	Mines Manager (1st Class)	5
2	Mines Manager (2nd Class)	8
3	Mining Engineer	21
4	Geologist	3
5	Mechanical Engineer	12
6	Electrical Engineer	8
7	Mining Foreman	20
8	Mine-mate	12
9	Skilled workers/operators	220
10	Semi Skilled	70
11	Unskilled	128
12	Other	14
	Total	**521**

The indirect employment shall be 195 Nos

2.6.3.1 Site Services

The normal site services required for mining will be provided within the Mining

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Lease. They include the following:

1. Canteen
2. Rest shelters
3. Drinking water facility on the site
4. Latrines and urinals on the site
5. Dispensary/OHC on site

Safety and firefighting and quality control facilities etc

2.6.4 WASTE HANDLING AND DISPOSAL

During the mining period, the waste generated by mining will be temporarily stacked within the mining lease area as surface dump and backfilled in the exhausted portion of the pits. The total waste to be generated during the plan period is about 69.85 million tonnes. A total of 6.7146 Ha shall be utilized for Dumps and Material stocking at the conceptual stage of mining.

2.6.5 WATER REQUIREMENT /WATER BALANCE

WATER BALANCE : The total water received in year 16748221 m3, the water harvested in mining pits is about 10128221 m3. This collected water in the Mine Pit will be used for water sprinkling and greenbelt development

Total Water requirement is about 664 KLD .

Table No: 2.11 The Breakup of the Water Requirement

Purpose	**QTY (KLD)**	**Source**
Dust Suppression	600	Rain water harvested in mine pit
Green Belt	20	
Vehicle Washing	8	
Domestic	36	Bore Well
Total	664	

Source of Water

The area is coastal area rich in rainfall of about 3500 mm. The Rainwater over the catchment area will be harvested into the recharge pits and mine pits. The harvested

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water will be utilised for the mining operations such as dust suppression. Application for permission to withdraw ground water has been made to Water Resources Dept., Goa. Water from borewell registered with Water Resources Dept., Goa will be utilised for the drinking & domestic purposes.

2.6.6 POWER REQUIREMENT

The estimated overall power requirement including utilities and auxiliary facilities for the proposed mine are indicated below:

- Energy consumption per day : 5.0 MW

Source of Power : Electric power supply is available from State Grid.

Standby DG Set with capacity of 1000 KVA -1 no., 500 KVA -1 no., 200 KVA- 3 nos

2.6.7 LIFE OF MINE

Considering the ore production of 84.743 million tonnes during the present mining plan period and subsequent 3.0 million tonnes per annum of ore production, the expected life of the mine is about 30 years from the date of execution of mining operations. Life of the mine will increase based on the exploration proposed during plan period

2.7 PROJECT DESCRIPTION – INCLUDING DRAWINGS SHOWING PROJECT LAYOUT, COMPONENTS OF THE PROJECT ETC.

The lease area of 478.5206 Ha falls under Block 1 - Bicholim Mineral Block in Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages of Bicholim Taluka, North Goa District, Goa State. The lease area falls under the Topo sheet No. 48 E/14, Survey of India and bounded by latitude of 15° 34' 20.518" N to 15° 36′ 54.018″ N & longitude of 73°54′ 4.754" E to 73° 57′ 09.51″ E The location plan, lease plan and surface plan are enclosed vide Plate No.1, Plate No.2 & plate No 5

Mineral Reserves/Resources: Mineral Resources: (Mineral resources may be estimated purely based on level of exploration, with reference to the threshold value of minerals declared by IBM) is given below table 2.12

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Table No.2.12 Level of Exploration

Level of Exploration	Reserve & Resources in million tonnes	Grade
G1 – Detailed Exploration	83.078	+45
G2 – General Exploration	--	--
G3 - Prospecting	1.664	+45
G4 – Reconnaissance	--	--
Total	84.743	+45

The details are given Vide Plate Nos .4A & 4B i.e., Geological Plan enclosed

2.8 DESCRIPTION OF MITIGATIVE MEASURES TO BE IMPLEMENTED

2.8.1 Mitigative measures for control of Air Pollution

Air pollution mitigation measures would be for the point and fugitive sources within the plant.

Mostly, the air pollution mitigation measures guided by the Indian regulatory standards are mostly confined to the control of particulate dust, SO_2 and NO_2 emissions. Dust will be generated from loading/Unloading operations, due to vehicular movement, due to machineries used in the activity.

Proper mitigation measures will be taken to reduce impact from activity like water sprinkling, barricading etc. to prevent dust escaping to atmosphere.

During operation phase, proper maintenance of vehicles and equipment will help in controlling the gaseous emissions. Vehicle meeting PUC norms will be used to further control the gaseous emission. Water sprinkling on roads will prevent fugitive dust.

2.8.2 Mitigative measures for control Water Pollution.

Parameters, which influence the water quality due to mining activities, are suspended solids and dissolved solids generated due to wash off from the dumps, runoff from workings.

Mitigative measures Proposed are afforestation of backfilled areas to stabilize the soil, diverting the surface runoff to the settling ponds through garland drains.

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Retention walls shall be constructed at the toe of dumps to arrest the silt content in the rainwater passing directly from dumps.

2.8.3 Mitigative measures for control of Noise Pollution

Proper noise abatement measures will be taken and persons working close to machine and machine operators will be provided with personal protective equipment viz. Ear plugs / Ear muffs etc. for further protection.

Various measures proposed to reduce noise pollution include reduction of noise at source, provision of acoustic lagging for the equipment & suction side silencers, selection of low noise equipment.

2.8.4 Solid Waste Management

Waste generated at this mine will be transported to backfilling/ temporary dumping site by 40 tonner dumper. The entire waste shall be surface dumped and backfilled in the exhausted portion of the pit. The inactive dump areas shall be stabilized by using geotextile mats and growing local plant species in consultation with the local forest department.

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Chapter-3
DESCRIPTION OF THE ENVIRONMENT

Sensitivity: Public (C4)

3.0 DESCRIPTION OF THE ENVIRONMENT

3.1 STUDY AREA

The study area of 10 km radius (from the boundary of Mineral Block) has been considered for assessing the baseline environmental status. Mineral Block Area is the Core Zone and the 10 km radius area around the Mineral Block Area is the Buffer Zone. The study area covering 10 km radius of the Mineral Block falls in Toposheet Number 48 E/14 of Survey of India.

3.2 STUDY PERIOD

The base line data have been collected for various environmental components from March to May- 2023, which is the Summer season was carried out by Environmental Laboratory(Unit of Mineral Engineering Sevices) approved by MoEF&CC & CPCB

3.3 ENVIRONMENTAL COMPONENTS

Considering the Environmental setting of the project, project activities and their interaction, and environmental regulations & standards, the following Environmental Table.3.1 Attributes have been included in EIA Study, as a part of baseline data.

Table.3.1

•	Site Specific Micrometeorological Data (hourly readings from core zone) on wind speed & direction (wind roses), temperature, humidity, atmospheric pressure. There was no rainfall during monitoring period i.e March to May 2023
•	Ambient Air Quality Sampling at 9 Stations on 24-hourly basis, for 2 days in a week for 13 weeks in summer season for the parameters PM_{10}, $PM_{2.5}$, and Heavy Metals analysis in Particulates, SO_2, NO_2, CO, Ozone, Benzene and Benzo(a)pyrene.
•	Noise Level Measurements at 9 locations for, Leqday and night , values once in the season
•	Water Quality Sampling by grab sampling once in the study period
➢	Surface Waters -7 locations
➢	Ground Waters -10 Locations
•	Soil Quality Sampling at 7 locations once in the study period for
➢	Textural & Physical Parameters
➢	Nutrients (like NPK etc.)
•	Land use & Land Cover pattern using LISS IV Mx Data from NRSC
•	Biotic Attributes
➢	Flora & Fauna –Core & Buffer Zones
•	Socio-Economic Profile, based on 2011-Census and Survey 2023:
➢	Total Population / Household Size / Age
➢	Gender Composition
➢	S.C. / S.T.
➢	Literacy Level
➢	Occupational Structure

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3.4 METHODOLOGY

The methodologies followed are detailed below.

3.4.1 MICROMETEOROLOGY

The micrometeorology and microclimatic parameters were recorded by installing a Weather Monitoring Station. The data on wind speed, wind direction, ambient temperature, relative humidity, rainfall was recorded at hourly intervals during the study period.

3.4.2 AMBIENT AIR QUALITY

Calibrated Fine Particulate Samplers were used for sampling PM_{10}. Calibrated Respirable Dust Samplers were used for sampling $PM_{2.5}$. Gaseous samples were collected by using integrated gas sampling assembly.

Table 3.2: Parameters for Air Monitoring

Monitored parameters & duration	Method used
24 hourly monitoring twice a week for one season	
PM_{10} $PM_{2.5}$	Gravimetric Sampling using Respirable Dust Sampler
Sulphur Dioxide (SO_2)	Modified West & Gaeke Method
Nitrogen Dioxide (NO_2)	Jacob & Hoechhiesher Method
Lead	AAS Method after sampling on EPM 2000 or equivalent filter Paper
Ammonia	Independent blue method
Benzene	Adsorption & desorption followed by GC analysis
Nickel	AAS Method after sampling on EPM 2000 or equivalent filter Paper
Arsenic	AAS Method after sampling on EPM 2000 or equivalent filter Paper
Benzo-alco-pyrene	Solvent extraction followed by HPLC/GC analysis
Hourly Monitoring: twice a week for 4 weeks per month for one season of 3 months	
CO	Non dispersive Infrared (NDIR) Spectroscopy
Ozone	Chemical method

3.4.3 NOISE LEVELS

Noise levels were monitored during day time as well as night time. The sound level meters were used in accordance with IS: 9979 and IEC 651 standards for noise surveys. The basic unit of measurement is A-weighted sound level, the most widely used scale. The measurements were taken in the fast mode and were sampled to yield Leq (logarithm equivalent noise level).

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3.4.4 WATER QUALITY

Samples of ground water and surface water were collected by engaging the services of MoEFCC recognized laboratory. The samples were analysed for physico-chemical and bacteriological parameters.

Samples for chemical analysis were collected as per CPCB Guidelines for Water Quality Monitoring DOC no MINARS/27/2007-08. Sterilized bottles were used for collection of water samples for bacteriological analysis. Due care was taken to ascertain the integrity during transportation of samples.

Table 3.3 : Standard/Method followed for Analysis of Water Parameters

Sl.No.	Parameter	Unit	Reference
1	Taste	-	IS:3025 (5)
2	Odour	-	IS:3025 (7)
3	pH	-	IS:3025 (11)
4	Colour	Hazen units	IS:3025(4)
5	Turbidity	NTU	IS:3025 (10)
6	Total Dissolved Solids	mg/l	IS:3025 (16)
7	Total Hardness	mg/l	IS:3025(21)
8	Iron (as Fe)	mg/l	IS:3025 (53)
9	Chlorides (as CI)	mg/l	IS:3025(32)
10	Residual Chlorine	mg/l	IS:3025(26)
11	Calcium (as Ca)	mg/l	IS:3025(40)
12	Magnesium (as Mg)	mg/l	IS:3025(46)
13	Alkalinity (as $CaCO_3$)	mg/l	IS:3025(23)
14	Dissolved Oxygen	mg/l	IS:3025(38)
15	Sulphate (as SO_4)	mg/l	IS:3025(24)
16	Fluoride (as F)	mg/l	IS:3025 (60)
17	Nitrate (as NO_3)	mg/l	IS:3025(34)
18	Cyanide (as CN)	mg/l	IS:3025(27)
19	Pesticides	mg/l	APHA 23nd ED
20	Phenols (as C_6H_5OH)	mg/l	IS:3025(43)
21	Manganese (as Mn)	mg/l	IS:3025 (59)
22	Chromium (as Cr)	mg/l	IS:3025 (52)
23	Copper (as Cu)	mg/l	IS:3025(42)
24	Selenium (as Se)	mg/l	IS:3025 (56)
25	Cadmium (as Cd)	mg/l	IS:3025 (41)
26	Arsenic (as As)	mg/l	IS:3025(37)
27	Boron (as B)	mg/l	IS:3025(57)
28	Mercury (as Hg)	mg/l	IS:3025(48)
29	Lead (as Pb)	mg/l	IS:3025(47)
30	Zinc (as Zn)	mg/l	IS:3025(49)
31	Percent sodium	mg/l	APHA 23nd ED
32	BOD_3 days @ 27 °c	mg/l	IS:3025(44)
33	COD	mg/l	IS:3025 (58)
34	Oil & Grease	mg/l	IS:3025(39)
35	Total Coliform per 100 ml	--	IS:15185:2016

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Sl.No.	Parameter	Unit	Reference
36	E.Coli per 100 ml	--	IS:15185:2016
37	Total Suspended Solids	mg/l	IS: 3025(17)

3.4.5 SOIL CHARACTERSTICS & METHODOLOGY

Soils of the district can be classified into 4 types namely (i) Laterite soil (ii) Saline soil and (iii) Marshy soil and (iv) Alluvial soil.

The soil types observed within the buffer area are as follows:

(i) Lateritic soil is the major soil type in the district. It is highly porous & permeable, slightly acidic with low pH values, low in organic matter, Calcium and Phosphorus.

(ii) Saline soil in the district occurs in the flood plains of Bicholim taluka.

The dominant soil type observed in the mining lease is of lateritic type.

Methodology: Soil samples have been collected from 6 locations during Summer season 2023 using sampling augers for analysis of physical and chemical parameters

Prepare a map of the area to be covered in a survey showing different sampling unit boundaries. Each area is traverse separately.

A slice of the plough layeris cut at intervals of 15 to 20 steps or according to the area to be covered. Collect at least 10 to 15 samples from each sampling unit and place in a bucket or tray. Generally, 10 to 20 spots must be taken for one composite sample depending on the size of the field. Scrap away surface liter; obtain a uniform thick slice of soil from the surface to the plough depth from each place. A "V'' shaped cut to a depth of 15 cm in the sampling spot using spade to remove 1 to 2 cm slice of soil. The sample may be collected on the blade of the spade and put in a clean bucket. In this way collect samples from all the spots marked for one sampling unit. In case of hard soil, samples are taken with the help of augur from the plough depth and collected in the bucket. The collected sample from each location is uniformly mixed before homogenizing the soil samples.

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Table : 3.4 Sampling Method for different crops

Sr. No	Crop	Soil Sampling Depth (Cm)
1	Grasses and grasslands	5-7
2	Rice, finger millet, groundnut, pearl millet, small millets etc. (shallow rooted crops)	15-20
3	Cotton, Redgram, sugarcane, banana, tapioca, vegetables etc., (deep rooted crops)	22-25
4	Perennial crops,plantations and orchard crops	Three soil samples at 30,60 and 90 cm

3.4.6 CALIBRATION

The monitoring and analytical instruments with valid calibrations were used. The correction factors, if any, were applied in the computation of the data.

3.4.7 FLORA-FAUNA

A general ecological survey covering an area of 10 km radius around ML Area was conducted using least count quadrate method and reported. Tree species were surveyed by taking quadrates of 100 m x 100 m distributed randomly.

Shrub species were surveyed by taking quadrates of 10m x 10m. Herb species were surveyed by taking quadrates of 1 m x 1 m. The data obtained was further used to estimate Relative Dominance, Relative Density (RD), Relative Frequency (RF) and Importance Value index (IVI) as per the formulae. Faunal survey covered the Terrestrial Fauna, Avian Fauna and Aquatic Fauna. The survey was based on personal observation, enquiry with local population and records available. This study included the identification of endangered and rare species as per Red Book.

3.4.8 SOCIO-ECONOMIC SURVEY

The Socio-Economic profile of the population living in study area was prepared based on Census 2011 data and Survey 2023. The location of the proposed project lies within an earlier Mining Lease Area, thus the project does not involve resettlement/ rehabilitation.

Sensitivity: Public (C4)

3.4.9 LAND ENVIRONMENT:

Landuse and Landcover:

Study of existing land use through satellite image processing. The data used for analysis was sourced from RESOURCESAT-2 LISS IV with satellite data of 5.0 m resolution dated 08.03.2023.

Geology: The geology of the region was studied to understand the rock formations and mineral compositions, terrain using topographic maps and relief maps.

Hydro geology:

The study involved finding sources of water including ground and surface water bodies in the Mineral Block area and buffer zone of 10km radius. The drainage pattern in the region was studied.

3.5 ENVIRONMENTAL SCENERIO

3.5.1 GEOLOGY

3.5.1.2 REGIONAL GEOLOGY

Goa is dominantly covered by the rocks belonging to Dharwar Supergroup of Archean-Proterozoic age, except for a narrow strip along the North-eastern corner occupied by the Deccan Traps of Upper Cretaceous to Lower Eocene age. Iron Ore Formations of Goa indicate two successive and transitional epochs and environments of deposition. Based on the prominent structural discordance and environment of deposition, the Goan Iron Ore Formations can be broadly categorized into two formations namely, North Goa and South Goa Formations. Precambrians at North Goa form the extension of Dharwar Formations noted in Karnataka.

This forms a part and continuation of a major geosyncline, showing a general NNW-SSE elongation. Evolution of geosyncline is accompanied by sub-marine volcanism represented by metavolcanics.

Sensitivity: Public (C4)

This is followed by the deposition of Metagreywacke and Tilloid. Furthermore, the submarine volcanism and Greywacke deposition is accompanied by the deposition of Ferruginous Quartzite mainly along the borders of geosyncline.

The evolutionary stage ends up with three phases of folding, metamorphism and basic intrusions.

The impressions of these folding are marked in North Goa Iron Ore Formations. Dharwar super group of rocks in Goa are locally named as Goa Group of rocks which have characteristic NNW-SSE strike and dips are moderate. Of the above, Bicholim formation has pink phyllite horizon with banded ferruginous and manganiferous quartzite constitute the economically minable manganese and iron ore bearing horizon and extends over the entire length of Goa from north to south. Litho units are highly folded and the rocks have attained green schist facies grade of metamorphism. Extensive development of laterite in the form of capping over the rocks is seen and further, the rocks show the effect of deep weathering

3.5.1.2 LOCAL GEOLOGY

As per Geological Survey of India (GSI) studies, Bicholim Mineral Block area comes under Bicholim-Sirigao type Deposit. The deposit consists of two ore bands running nearly parallel to each other, in which the South-western ore band (Top) is larger extends for a length of 6.5Kms, has width 20 to 45m and North-eastern ore band is comparatively smaller extends over a length of 2Kms which also has 30 to 60m widths. The south-western ore band is in the shape of S and it occurs on the overturned south-western limb of the anticlinal fold and also on the refolded nose portion of the fold. The north-eastern ore band occurs on the other limb of the fold. Both the ore bands occur along the dip slope. Between the two limbs of anticlinal fold, which are ore bearing; there is a barren phyllite occurring, about 250m wide, which represents the axial portion of the fold. The mineral deposit extends over strike length of 7km in at 50-to-60-degree NW-SE direction.

Sensitivity: Public (C4)

The mineralisation occurs in the form of bands dipping at 45 to 70 due NE occupying slopes of the hillocks. Thickness of the strata exposed in the mine varies from place to place.

The average thickness of different litho units is as below; Laterite 10 to 15m, Lumpy Laterite 05 to 10m, Friable Powdery Ores 20 to 45m, Limonitic Clays 5 to 10m, Phyllite Clays 30 to 100m, Manganiferous Clays 10 to 30m, Intrusive / Dykes 02 to 15m.

Litho units are highly folded and the rocks have attained green schist facies grade of metamorphism. The rocks show the effect of deep weathering. Generally, phyllite clays are found along the strike length at footwall sides and phyllite, manganiferous clays and limonitic clays are found at hang wall sides. Banded Hematite Quartzite and Quartz-Chlorite-Schist are found in deeper sections. There are many basic intrusive/ dykes cutting across strike length, which are deeply weathered, occur in the form of variegated soft clays.

Structure: The rock formations in the area indicate a major overturned anticlinal fold extending over the length of about 6.5km along the NW-SE strike direction and plunging about 27 degrees towards Northwest. Entire crest portions of the anticline are eroded away in the past leaving behind two huge limbs of the folds. Both the limbs are steeply dipping / inclined towards North East. Litho-units within the major fold exhibit complex and tight folding. The area has undergone multiple basic igneous intrusions indicated by presence of many dikes and sills cutting across the strike length. Iron ore occur in the limbs of the folds in the hill slopes.

Entire area is covered with laterites. Lateritic Lumpy ores found occurring over the Banded Iron Formations at surface. Iron ores comprise of Hematite as major mineral, Limonite, Goethite and Martite being minor minerals. Silica, Alumina and Manganese occur as associated gangue minerals. Phyllite and Manganiferous clays present on either side of the ore bands as well as intercalations within the ore beds. Deeper sections of the area have BHQs and presence of Siliceous Ores in smaller quantities followed by Quartz-Chlorite-Biotite-Schists at bottoms. The geological formations are given vide **Plate.No. 8**

Sensitivity: Public (C4)

The lithology map is given vide **Plate No.8A**

3.5.2 TOPOGRAPHY/ GEOMORPHOLOGY / PHYSIOGRAPHY

Topography : The topography is undulating low hill terrain extending all along the Mineral Block in the North West and South East direction. There is no forest land within the Mineral Block area. As the area is located on the foot hills of Western Ghats and receives heavy rainfall during monsoon season; the average annual rainfall is about 3500mm.

The Bicholim Mineral Block is situated in north Goa district and extends between Lat 15° 34' 20.518" N to 15° 36′ 54.018″ N & longitude of 73°54′ 4.754" E to 73° 57′ 09.51″ E. The Block Area is 478.5206 ha occupied by a hill range running in a SE-NW direction. The highest and lowest elevations are 169.14 m (amsl) in the South western corner and -37.24 m (amsl) in the North East respectively.

Geomorphology : Geomorphologically, the state is divided into four morphological units namely;

1. The coastal plains with dominant marine land forms on the west,
2. Vast etch plain,
3. Low dissected denudational hills with valleys
4. Deeply dissected high Western Ghats with denudational hills rising to a maximum of 832m amsl and occurring all along the eastern part of the state. Geomorphology of the area is shown in ***Plate No.9***

Physiography : The topography is undulating low hill terrain extending all along the mining lease in the North West and South East direction. Physiographically, the Mineral Block is located on a hilly undulating terrain. Mineral Block does not have any forest land within the lease.

Physiographically Goa, though famous for its beaches, is essentially a rugged hilly and mountainous tract with narrow valleys and sandy linear plains along the coast. The Western Ghats run in a general north-south direction from Salginim to Surla Ghat along the eastern margin of the territory. This segment of Sahyadri ranges are clad with evergreen forests with altitude ranging from 600 m to over 800 m.

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The highest peak Mamai Devi is 832 m height. In the western margin of the territory, there are long and narrow strips of sandy plains and low flat topped laterite hills ranging in altitude from 50 m to 100 m. having a hillock in the center of the mining lease and sloping in all directions. There are no surface water bodies within the Mining Lease area. The average annual rainfall in the region is about 3881 mm per year since 2008 till date.

Due to the hilly topography, all the rain water flow along the first order drains observed flowing from the hill top downwards along the natural course forming a dendritic drainage pattern.

3.5.3 DRAINAGE PATTERN:

No specific drainage pattern is observed in the Mineral Block area. Bicholim Mineral block study area fall under Mondovi River basin of Taluka Bicholim, Bardez, Sattari, Sanguem, Tiswadi & Ponda. The catchment area of Mondovi River 1580 Sqkm. The Sahyadri hill ranges in the east forms the main watershed. The streams originating here flow in west and north west direction to join the Arabian Sea. The study area drainage pattern is dendritic and sub dendritic.

Main River in study area

Mandovi River -Aerial Distance of 2.30 Km at pilgao Village

Bicholim River - Aerial Distance of 0.23Km at Mandrekarwada (Bicholim)

Assonora River - Assonora river which touch Mining lease area

Chapora River- Aerial Distance of 7.3 Km at Colvale Village.

The drainage pattern in regional scale is sub-dendritic in nature. Principal perennial rivers draining through the district are, Terekhol, Chapora, Mandovi & Zuari and non – perennial (seasonal) river Baga. The river basin of all these westerly flowing short rivers originates from Sahyadri Hill ranges and drain in the Arabian Sea in the west under estuarine environment. Primarily the underlying rocks govern the drainage system in the area. The drainage pattern is generally dendritic type. The major river Zuari follows the major NW synclinal axis.

Sensitivity: Public (C4)

The river valleys are 'V' shaped in the western high hill ranges, but broadens in central midlands and become 'U' shaped in the low lands and coastal plains.

As the area is located on the foot hills of Western Ghats belt and receives heavy rainfall during monsoon season and the average annual rainfall is about 3500 mm. Dendritic to sub dendritic type of drainage is observed in study area. Water is accumulated in these mine pits during monsoon rainfall and seepage from the ore body.

The eastern border of the state generally marks the water divide between easterly and westerly flowing rivers.

The drainage pattern & Digital Elevation Map is given vide drawing ***Plate No 10. & Plate No 11***

3.6 BASE LINE & BASE MAPS -ENVIRONMENTAL COMPONENTS

3.6.1 BASELINE SCHEDULE

The location of air, water, noise and soil sampling stations were selected for appropriate monitoring. A monitoring station was positioned at core zone (project site) for micro-meteorological data collection. The schedule of the environmental monitoring programme is described below:

Table.No.3.5 Baseline Schedule

Environmental component	Monitoring period	Number of Sampling Stations	Parameters
Micro-Meteorology	Mar to May 2023	One	Temp, Relative humidity, Rainfall, Wind speed, wind direction
Air Quality	Mar to May 2023	9 Stations	PM_{10},$PM_{2.5}$,SO_2,NO_2,CO,NH_3,C_6H_6,B(a)P,O3,As, Lead & Nickel
Water Quality	May 2023	7 Samples Surface water & 10 Samples Groundwater	IS : 2296, 1982 Class C Norms , IS-10500:2012 & CPCB NORMS
Noise	April-2023	9 Stations	L_{day}, L_{night}, & L_{eq}
Soil	May-2023	7 Samples	Physical & Chemical parameters of Indian standards IS: 2720
Land use	May-2023	Core & Buffer Zone	--
Ecology & Biodiversity	April 2023	Core & Buffer Zone	Flora & Fauna Survey
Socio-Economic	April -2023	10 Kms Study area	Socio-economic Survey
Hydrogeology	Mar-2023	Core & Buffer Area	Bore well study

Sensitivity: Public (C4)

Table.No.3.6 Environmental Attributes & Frequency of Monitoring

Sl. no	Environmental Component	Sampling Locations	Sampling period	Sampling Parameters	Total Sampling period	Sampling Frequency
1.	Meteorology	Block I Bicholim Mineral Block office	Mar to May 2023	Temp, Relative humidity, Rainfall, Wind speed, wind direction	3 months	Hourly
2	Ambient Air Quality	A1- Bicholim Village (500m ML Area) A2- Lamgao village A3- Mulgao village A4- Sircaim village A5- Calvim village A6- Pilgao village A7- Sarvona village A8- Advalpale village A9- Latambarsem village	Mar to May 2023	PM_{10},$PM_{2.5}$,SO_2, NO_2, CO, NH_3, B(a)P, Heavy Metals : Pb , As, Ni, Hg & Free silica	2 days/ week	24 hourly
3	Noise	N1 – Bicholim Village N2 – Lamgao village N3 – Mulgao village N4 – Sircaim village N5 - Calvim village N6 – Sirigao Village N7 – Sarvona village N8 – Advalpale village N9 - Latambarsem village	April-2023	Day & Night (L_{eq})	24 Hourly	Once during study period
4	Surface Water Quality	SW1- Conflunce of Valvot & Bicholim River SW2- Confluence of Bicholim & Cudnem River SW3 – Bicholim River Upstream SW4 – Bicholim River Down Stream SW5- Assonara Upstream SW6- Assonara Down stream SW7 – Mayem Lake	May-2023	As per IS – IS:2296	Grab Sampling	Once during study period
	Ground Water Quality	GW1 – Bicholim (open well) GW2 - Sarvan village (open well) GW3 - Lamgao village(open well) GW4 - Mulgao village (open well) GW5 – Mavlinge village(open well) GW6- Nanoda Village (Open well) GW7 – Sircaim village (open well) GW8 - Assonora(open well) GW9 - Pilgao village (open well) GW10- Mayem village(open well)	May-2023	As per IS – 10500: 2012		

Sensitivity: Public (C4)

5	Soil	S1 - Top Soil ML Area S2 - Lamgao village S3 - Mayem village S4 - Sircaim village S5- Pilgao village S6 - Sirigao S7- Mulgao Village	May 2023	Physical and Chemical constituents, suitability for agricultural growth	Grab sampling	Once during study period
6	Land use	Core & Buffer Zone	May-2023	--	Grab Sampling	Once during study period
7	Ecology & Biodiversity	Core & Buffer Zone	April-2023	Flora & Fauna Survey		
8	Socio-Economic	10 Km Study area	April - 2023	Socio-economic Survey		Once during study period
9	Hydrogeology	Core & Buffer Area	Mar-2023	Bore well study		

3.6.2 MICROMETEOROLOGICAL STATUS

3.6.2.1 GENERAL CLIMATE

May is the hottest month where the mean daily temperature increases to 30^{0}C. January is the coolest with mean daily temperature of about 23^{0}C. The temperature is highest (around 33^{o}C) in pre – monsoon months of April & May and again in post monsoon months of November & January.

Due to proximity to the Arabian Sea, humidity throughout the year is more than 60% with range from 80 to 90% during monsoon period. As a result of orographic influence, rainfall increases towards the Western Ghats, with average annual rainfall of about 3948.30 mm. Over 90% of annual rainfall occurs during monsoon months of June to September. About 32% of the annual rainfall is received during July.

Table No. 3.7: Annual Rainfall Data from 2018-2022 in mm

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
2018	0	1.63	3.32	13.34	123.33	986.42	1177.28	747.19	113.75	130.98	12.38	1.64	3311.26
2019	0	0	1.97	4.79	2.2	631.17	1477.71	1396.07	779.79	508.25	50.35	0.19	4852.49
2020	0.05	0	6.49	20.48	22.59	934.62	748.26	1368.11	640.71	266.83	0.46	20.23	4028.83
2021	16.31	10.25	0.64	10.26	346.07	971.99	1038.61	401.84	606.93	240.19	192.86	76.55	3912.5
2022	0.75	0	10.39	42.18	121.64	728.32	1249.01	652.56	465.73	197.96	8.1	7.09	3483.73
										Average			**3917.76**

Source: - Hydromet Division, Indian Meterological Department, New Delhi

Sensitivity: Public (C4)

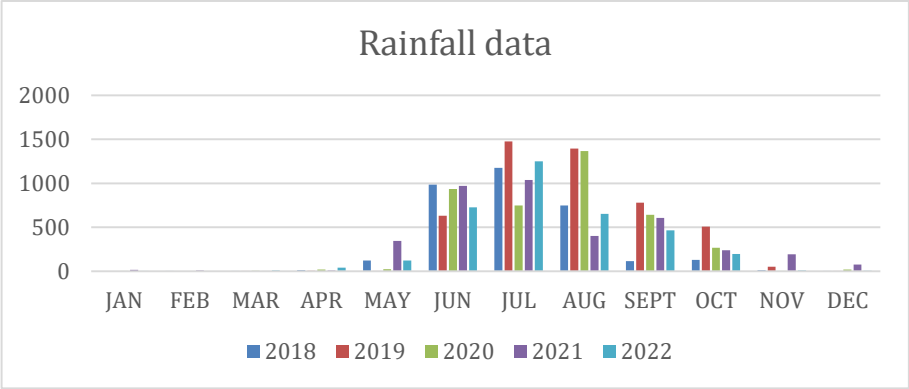


Fig.3.1 Monthly Rainfall for North Goa District

3.6.2.2 *BASE LINE MICROMETEOROLOGICAL STATUS*

In the abstract of collected hourly data during March to May , 2023, data pertaining to three months during Summer Season parameters viz. wind speed, direction, temperature, relative humidity, are presented in **Table 3.7.** Wind roses diagram have been drawn and presented as **Figure 3.2**

Observations:

Observations during the study period are as given below:

- Predominant winds directions were from West to East
- Wind Speed ranged between 1.9-17.3 kmph
- Calm condition prevailed for 36.73% of the study period
- Average Temperature ranged between Avg Min 17 to Avg Max 36 °C
- Relative humidity values ranged between 18.2% to 99.5%
- The collected meteorological data during this season represents the local weather phenomena.
- No major rainy days during the study period were observed

Table 3.9: Site-Specific Micro-Meteorological Data (March 2023 to May- 2023)

Date	Temperature in°C		Relative Humidity in %		Wind Speed m/sec	
	Min.	Max.	Min.	Max.	Max.	Average
01/03/2023	18.0	34.0	19.5	88.6	15.9	3.1
02/03/2023	19.0	34.0	19.3	89.5	14.3	2.8
03/03/2023	17.0	34.0	29.0	90.1	14.2	3.4
04/03/2023	19.0	34.0	34.2	91.2	11.6	2.8
05/03/2023	19.0	34.0	41.2	92.2	13.1	3.0
06/03/2023	19.0	34.0	48.2	91.3	12.9	3.2
07/03/2023	19.0	33.0	43.0	87.5	14.1	3.5
08/03/2023	19.0	34.0	37.0	92.3	15.7	3.7

Sensitivity: Public (C4)

09/03/2023	20.0	35.0	35.0	89.3	16.5	3.0
10/03/2023	19.0	35.0	30.2	90.6	12.3	3.0
11/03/2023	19.0	35.0	26.3	91.3	14.7	2.9
12/03/2023	19.0	35.0	28.1	91.1	13.5	2.9
13/03/2023	19.0	35.0	31.4	89.2	13.2	3.0
14/03/2023	21.0	36.0	41.3	89.3	15.5	3.3
15/03/2023	18.0	36.0	42.2	88.3	11.6	2.7
16/03/2023	20.0	36.0	41.1	87.2	15.6	2.8
17/03/2023	21.0	36.0	35.0	77.0	14.4	4.1
18/03/2023	21.0	36.0	36.5	88.0	17.3	3.8
19/03/2023	23.0	33.0	34.0	90.1	14.7	3.9
20/03/2023	20.0	33.0	27.3	87.4	15.0	3.8
21/03/2023	22.0	36.0	33.5	90.2	14.7	3.8
22/03/2023	22.0	35.0	30.2	91.3	14.2	3.6
23/03/2023	21.0	36.0	18.2	89.0	10.6	2.7
24/03/2023	22.0	35.0	26.1	89.5	13.6	2.9
25/03/2023	22.0	36.0	26.6	89.2	12.0	3.1
26/03/2023	22.0	36.0	43.2	96.4	9.9	2.3
27/03/2023	22.0	36.0	51.1	99.3	7.0	1.3
28/03/2023	22.0	36.0	47.1	95.4	6.9	1.8
29/03/2023	22.0	36.0	45.2	89.0	8.8	1.9
30/03/2023	22.0	36.0	41.0	94.1	9.7	2.2
31/03/2023	24.3	22.0	39.0	93.1	9.6	2.4

Date	Temperature in^{O}C		Relative Humidity in %		Wind Speed m/sec	
	Min.	Max.	Min.	Max.	Max.	Average
01/04/2023	21.0	37.0	43.3	97.5	9.2	2.3
02/04/20223	22.0	37.0	40.2	95.4	10.9	2.2
03/04/2023	22.0	37.0	32.5	96.0	8.6	1.6
04/04/2023	22.0	36.0	37.2	95.3	6.9	1.6
05/04/2023	23.0	37.0	45.2	93.5	8.6	2.5
06/04/2023	23.0	36.0	48.3	84.2	14.4	3.2
07/04/2023	23.0	37.0	47.0	98.5	10.2	2.1
08/04/2023	23.0	36.0	40.1	98.1	8.3	1.9
09/04/2023	23.0	36.0	53.0	97.5	8.6	2.2
10/04/2023	23.0	35.0	55.6	94.3	6.5	1.9
11/04/2023	21.0	37.0	33.0	91.4	10.8	3.1
12/04/2023	23.0	36.0	54.6	90.1	7.9	2.0
13/04/2023	23.0	37.0	46.1	96.1	13.5	3.5
14/04/2023	24.0	36.0	59.0	94.3	8.0	2.4
15/04/2023	23.0	32.0	45.2	98.0	10.7	1.7
16/04/2023	23.0	37.0	36.0	76.4	11.3	3.0
17/04/2023	19.0	35.0	50.5	90.4	7.8	2.41
18/04/2023	20.0	36.0	37.2	96.1	8.0	2.0
19/04/2023	22.0	37.0	49.1	93.1	7.1	2.1

Sensitivity: Public (C4)

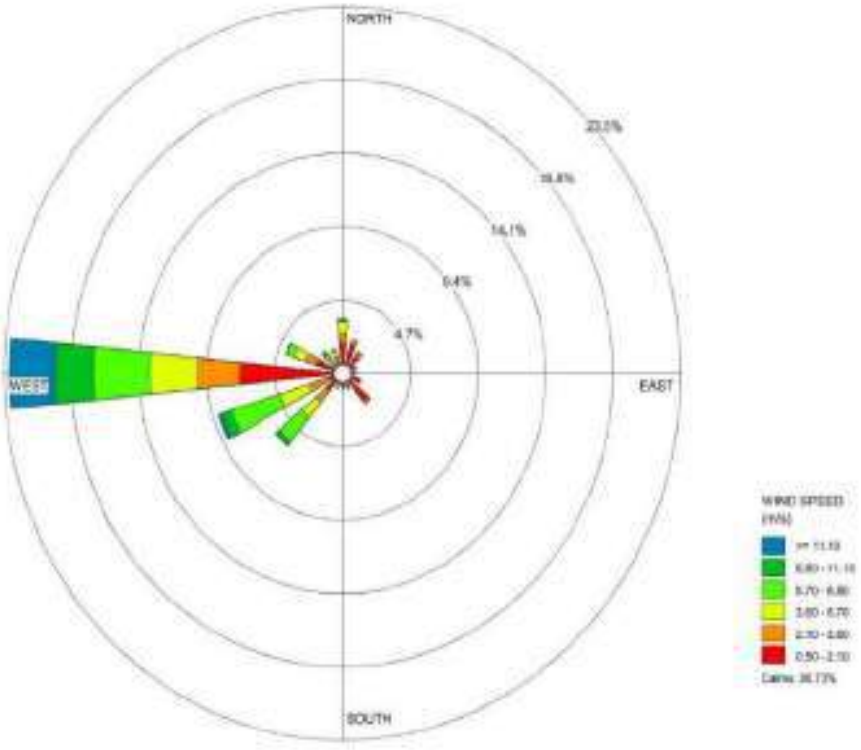
20/04/2023	22.0	37.0	34.1	89.4	8.0	2.0
21/04/2023	24.0	37.0	44.3	94.3	12.2	2.6
22/04/2023	23.0	37.0	31.0	82.4	8.7	1.7
23/04/2023	23.0	37.0	51.0	92.0	8.5	1.4
24/04/2023	22.0	37.0	42.3	98.6	6.3	1.3
25/04/2023	22.0	37.0	45.0	92.0	8.7	2.6
26/04/2023	23.0	37.0	41.3	97.0	8.4	2.1
27/04/2023	22.0	37.0	46.1	99.5	8.1	1.6
28/04/2023	20.0	36.0	59.2	97.0	8.0	2.2
29/04/2023	22.0	36.0	37.5	95.1	6.8	1.8
30/04/2023	21.0	37.0	49.5	95.4	7.2	1.9

Date	Temperature in°C		Relative Humidity in %		Wind Speed m/sec	
	Min.	Max.	Min.	Max.	Max.	Average
01/05/2023	22.0	37.0	42.1	97.0	8.1	2.0
02/05/2023	22.0	37.0	39.2	96.5	7.6	2.0
03/05/2023	23.0	37.0	39.0	98.3	8.6	2.4
04/05/2023	22.0	37.0	40.3	94.4	9.7	1.9
05/05/2023	20.0	36.0	50.5	94.2	7.5	1.8
06/05/2023	22.0	37.0	38.6	95.6	8.8	2.5
07/05/2023	21.0	36.0	42.1	90.0	9.4	2.8
08/05/2023	23.0	37.0	55.1	94.5	9.1	2.3
09/05/2023	23.0	37.0	59.3	91.0	10.1	3.3
10/05/2023	23.0	36.0	58.0	90.1	16.2	4.7
11/05/2023	23.0	28.0	38.5	87.5	10.5	4.4
12/05/2023	21.0	31.0	64.5	95.1	7.8	2.1
13/05/2023	21.0	33.0	59.0	99.2	7.0	1.3
14/05/2023	23.0	36.0	55.2	99.4	8.0	1.4
15/05/2023	22.0	36.0	64.1	99.3	5.4	0.7
16/05/2023	23.0	37.0	56.1	87.0	12.8	3.5
17/05/2023	22.0	33.0	51.4	81.5	10.3	3.6
18/05/2023	21.0	30.0	51.2	98.0	7.7	1.4
19/05/2023	20.0	28.0	52.1	98.5	11.2	2.0
20/05/2023	20.0	22.0	50.4	87.2	8.9	2.6
21/05/2023	19.0	25.0	63.6	99.0	1.9	0.5
22/05/2023	21.0	31.0	51.2	97.6	10.9	3.7
23/05/2023	21.0	33.0	62.5	96.2	8.2	2.7
24/05/2023	22.0	34.0	51.1	99.6	13.1	3.2
25/05/2023	22.0	34.0	46.2	90.0	13.4	4.3
26/05/2023	21.0	34.0	55.1	91.5	16.1	3.6
27/05/2023	21.0	33.0	51.2	89.2	7.7	2.1
28/05/2023	21.0	35.0	51.2	90.3	11.2	2.7
29/05/2023	21.0	35.0	50.4	87.2	8.9	2.6
30/05/2023	22.0	35.0	56.2	88.4	12.4	3.9
31/05/2023	22.0	35.0	56.0	91.1	11.0	3.7

Sensitivity: Public (C4)

The wind rose diagram at site is shown in Fig. 3.2

Fig 3.2 WINDROSE



3.6.3 AMBIENT AIR QUALITY

The ambient air quality of buffer zone covering 10 km radius around the mine was studied to determine the baseline condition.

The study area consisted of mostly rural environment. The various sources of air pollution in the region were dust arising from unpaved village roads, domestic fuel burning, and vehicular traffic.

The prime objective of baseline air quality survey was to assess the existing air quality of the study area. This will also be useful in assessing the conformity to standards of ambient air quality at operational stage.

Sensitivity: Public (C4)

3.6.3.1 SELECTION OF SAMPLING STATIONS

The baseline status of the ambient air quality was assessed through scientifically designed Ambient Air Quality Monitoring Network. The selection of sampling locations for the air quality surveillance programme was based on the following.

(a) Representation of the Mine

(b) Representation of down wind direction

(c) Representation of upwind direction

(d) Representation of cross wind direction

(e) Representation of residential areas

(f) Representation of regional background levels

(g) Representation of sensitive receptors

The AAQ monitoring, stations have been selected on the basis of wind direction. The wind direction conditions have been considered and correlated during the monitoring. The stations monitored for ambient air quality are furnished below and refer **Plate No.12**

Table 3.9 : Location of Ambient Air Quality Monitoring Stations

Location of Air Monitoring Stations									
Code No	Locations	Direction	Distance km	Latitude			Longitude		
				D	M	S	D	M	S
A-1	Bicholim(Within ML area)	--	--	15	34	26.32	73	57	6.30
A-2	Lamgao village	SEE	0.16	15	35	19.22	73	56	30.70
A-3	Mulgao village	N	0.63	15	37	8.81	73	54	56.00
A-4	Sircaim village	NWW	3.10	15	37	20.32	73	52	27.60
A-5	Calvim village	SSW	5.00	15	34	8.20	73	53	16.60
A-6	Pilgao	SSE	1.25	15	33	43.47	73	57	15.90
A-7	Sarvona village	SE	1.90	15	33	58.35	73	58	7.80
A-8	Advalpale village	NNW	3.00	15	38	22.92	73	53	50.90
A-9	Latambercem village	NNE	3.90	15	38	8.09	73	56	46.70

Sensitivity: Public (C4)

Table 3.10: National Ambient Air Quality Standards

Sl. no	Pollutants	Time Weighted Average	Concentration in Ambient Air		Methods of Measurement
			Industrial, Residential, Rural and other Areas	Ecologically, Sensitive Area (Notified by Central, Government)	
1	Sulphur Dioxide (SO_2), µg/m³	Annual * 24 Hours **	50 80	20 80	-Improved West and Gaeke Method -Ultraviolet Fluorescence
2	Nitrogen Dioxide (NO_2), µg/m³	Annual * 24 Hours **	40 80	30 80	-Jacob & Hochheiser modified (NaOH-NaAsO2) Method -Gas Phase Chemiluminescence
3	Particulate Matter (Size less than 10 µ) or PM_{10}, µg/m³	Annual * 24 Hours **	60 100	60 100	-Gravimetric -TEOM -Beta attenuation
4	Particulate Matter (Size less than 2.5 µ) or $PM_{2.5}$, µg/m³	Annual * 24 Hours **	40 60	40 60	-Gravimetric -TEOM -Beta attenuation
5	Ozone (O3) µg/m³	8 Hours * 1 Hour **	100 180	100 180	-UV Photometric -Chemiluminescence
6	Lead (Pb) µg/m³	Annual * 24 Hours **	0.50 1.0	0.50 1.0	-AAS/ICP Method after sampling on EPM 2000 or equivalent filter paper -ED-XRF using Teflon filter
7	Carbon Monoxide(CO), mg/m³	8 Hours ** 1 Hour **	02 04	02 04	-Non dispersive Infrared (NDIR) Spectroscopy
8	Ammonia (NH3), µg/m³	Annual * 24 Hours **	100 400	100 400	-Chemiluminescence -Indophenol blue method
9	Benzene (C_6H_6), µg/m³	Annual *	05	05	-Gas Chromatography (GC) based continuous analyzer -Adsorption and desorption followed by GC analysis
10	Benzo(a)Pyrene (BaP) Particulate phase only, ng/m³	Annual *	01	01	-Solvent extraction followed by HPLC/ GC analysis
11	Arsenic (As), ng/m³	Annual *	06	06	-AAS/ICP Method after sampling on EPM 2000 or equivalent filter paper
12	Nickel (Ni), ng/m³	Annual *	20	20	-AAS/ICP Method after sampling on EPM 2000 or equivalent filter paper
13	Free silica				

* Annual Arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

** 24 hourly or 8 hourly or 1 hourly monitored values, as applicable, shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

NOTE: Whenever and wherever monitoring results on two consecutive days of monitoring exceed the limits specified above for the respective category, it shall be considered adequate reason to institute regular or continuous monitoring and further investigations.

Sensitivity: Public (C4)

Photographs: Air Monitoring

Bicholim within Mineral Block Area

Lamgao Village

3.6.3.2 FREQUENCY OF MONITORING

Ambient air quality (AAQ) samples were collected on basis of 24-hour sampling and twice a week at each site. The ambient air quality samples were collected for continuous 13-weeks beginning from 1st March to 31st May, 2023.

The samples were preserved and analysed as per the standard methods recommended by Standard Operating Procedure (SOPs) of Central Pollution Control Board (CPCB 2011). Samples for Ozone (O_3) and Carbon Monoxide (CO) were collected by randomly collecting the gas through one hour sampling procedure. Samples for Ammonia (NH_3) were randomly collected for its presence.

3.6.3.3 METHOD OF ANALYSIS

Ambient air samples were analysed with Gravimetric, Colorimetric & Atomic Absorption Spectrophotometric (AAS) method as per standard methods specified by Central Pollution Control Board (CPCB 2011) and IS 5182.

3.6.3.4 OBSERVATIONS

The ambient air quality monitoring results for all the stations for the study period are presented under **Annexure No 5.** The statistical analysis report for SO_2, NO_2, PM_{10} & $PM_{2.5}$, are presented in the below table No.3.10, and all the parameters were found to be well within the limits.

Sensitivity: Public (C4)

Table 3.11 : Ambient Air Quality-Baseline Data- Statistical Analysis

Station Code : A1 Bicholim (Within Mineral Block area)					**A2 Lamgao village**				**A3 Mulgao village**			
	SO_2	**NO_2**	**PM 10**	**PM 2.5**	**SO_2**	**NO_2**	**PM 10**	**PM 2.5**	**SO_2**	**NO_2**	**PM 10**	**PM 2.5**
Min.	6	<9	27	14	5	9	30	15	7	9	35	18
98%	13	16	52	35	11	16	43	27	13	17	55	33
Max.	13	16	53	36	11	17	43	27	13	18	56	34
Avg.	9	12	42	24	9	12	38	21	10	13	46	25
SD	2	2	6	5	2	2	4	3	2	2	6	4
No. of obs	26				26				26			
Station Code : A4 Sircaim village					**A5 Calvim village**				**A6 Pilgao**			
	SO_2	**NO_2**	**PM 10**	**PM 2.5**	**SO_2**	**NO_2**	**PM 10**	**PM 2.5**	**SO_2**	**NO_2**	**PM 10**	**PM 2.5**
Min.	6	9	30	15	6	<9	29	15	6	9	34	18
98%	12	15	53	31	12	17	47	29	13	15	48	29
Max.	12	16	53	31	12	17	48	29	13	15	48	29
Avg.	9	12	44	24	9	12	38	21	9	11	40	23
SD	2	2	7	4	2	2	5	4	2	3	4	3
No. of obs	26				26				26			
Station Code : A7 Sarvona village					**A8 Advalpale village**				**A9 Latambarsem village**			
	SO_2	**NO_2**	**PM 10**	**PM 2.5**	**SO_2**	**NO_2**	**PM 10**	**PM 2.5**	**SO_2**	**NO_2**	**PM 10**	**PM 2.5**
Min.	6	9	30	15	<4	9	33	16	5	9	34	17
98%	13	18	50	34	9	14	52	28	10	16	50	30
Max.	13	18	51	36	9	14	54	29	10	16	50	30
Avg.	9	12	42	22	7	11	41	22	8	11	40	23
SD	2	3	6	5	1	2	5	3	1	2	5	4
No. of obs	26				26				26			

Limits for Industrial, Residential, Rural and other Areas for 24 hrs	**SO_2**	**NO_2**	**PM 10**	**PM 2.5**
	80	80	100	60

RESULTS:

The results of the air quality monitoring were found to be well within the permissible limits for the industrial, residential, rural and other areas as per the National Ambient Air Quality Standards (NAAQS) of Central Pollution Control Board (CPCB).

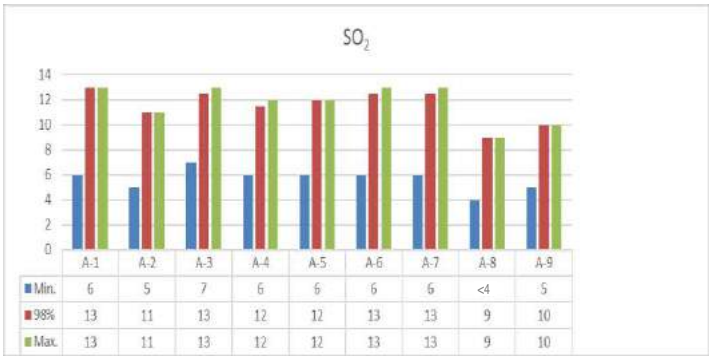
The quantities of Ammonia, Benzene, Benzo-(a)-pyrene, Arsenic & Nickel analyzed were below the detectable limit.

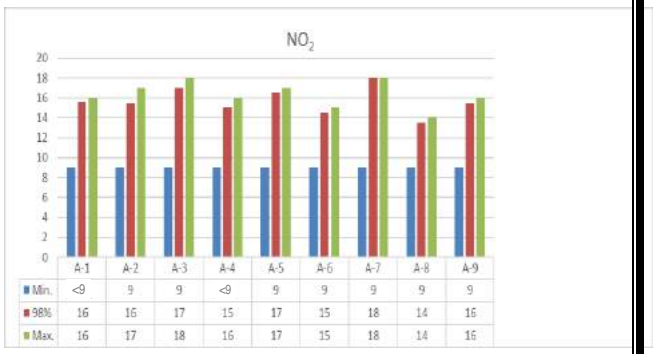
Analysis of Particulate Matter showed that there was no free silica in the PM_{10}, other heavy metal contents like lead, nickel, and arsenic were below the detection limit.

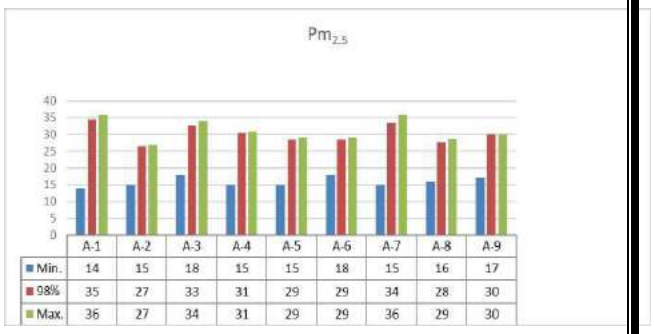
Sensitivity: Public (C4)

The details on the levels of the various parameters as observed during the AAQ study are as summarized below:

Results







A-1 Within ML Area Bicholim, A-2 Lamgao village, A-3 Mulgao village, A-4 Sircaim village, A-5 Calvim village, A-6 Pilgao, A-7 Sarvona village, A-8 Advalpale village, A-9 Latambarsem village

Fig.3.3 Graph Showing Air values

Particulate Matter (PM_{10}):

A maximum value of 56.0 µg/m^3 was observed at Mulgao Village. This was mainly due to the public transportation. A minimum value of 27.0 µg/m^3 was observed at Bicholim Village. The average values were observed to be in the range of 38.0 to 46.0 µg/m^3.

Respirable Particulate Matter ($PM_{2.5}$)

A maximum value of 36.0 µg/m^3 was observed at Bicholim (within ML area) and Sarvona village and minimum value of 14.0µg/m^3 was observed at Bicholim (within ML area). The average values were observed to be in the range of 21.0 to 25.0 µg/m^3.

Sulphur Dioxide (SO_2)

A maximum value of 13.0 µg/m^3 was observed at Bicholim (within ML area), Mulgao,

Sensitivity: Public (C4)

Piligao and Sarvona villages and minimum value of 4 μg/m^3 was observed at the Advalpale village. The average values were observed to be in the range of 7.0 to 10.0 μg/m^3.

Oxides of Nitrogen (NO_2)

A maximum value of 18.0 μg/m^3 was observed at Sarvona & Mulgao villages, and minimum value of <4μg/m^3 was observed at Pilgao village . The average values were observed to be 11 to 13.0 μg/m^3.

Ozone (O_3)

The O_3 concentrations at all the locations in the study area were observed to be well within the limits as specified by CPCB standards.

Ammonia (NH_3)

Concentrations of Ammonia at all the locations in the study area were observed to be below detectable limits. They were well within the limits as specified by CPCB standards.

Lead (Pb)

Concentrations of lead at all the locations in the study area were observed to be below detectable limits as Specified by CPCB standards.

Benzo (a)pyrene (BaP)

PAH concentrations at all the locations in the study area were below detectable limits.

Arsenic (As)

Concentrations of arsenic at all the locations in the study area were below detectable limits.

Nickel (Ni)

Concentrations of nickel at all the locations in the study area were below detectable limits.

Benzene (C_6H_6)

Benzene values at all the locations in the study area were observed below detectable limits.

Sensitivity: Public (C4)

3.6.4 MINERALOGICAL COMPOSITION OF PM_{10}

The Free Silica content in ore and waste was estimated as <0.043% using personal dust samplers as per DGMS circular which is much lower than the 5% limit of Free Silica. A copy of the report on Air borne dust and free silica analysis is enclosed vide **Annexure No. 5**

3.6.5 NOISE LEVEL

3.6.5.1 MONITORING STATIONS

The location of the sampling stations for studying noise levels during Summer, 2023 is given in Table 3.12.

Table 3.12: Location of Noise Level Monitoring Stations

Location of Noise Monitoring Stations										
Code No	Locations	Distance km	Direction	Latitude			Longitude			Zone
				D	M	S	D	M	S	
N1	Bicholim(Mineral Block office)	--	--	15	34	26.32	73	57	06.30	Industrial area
N2	Lamgao village	0.16	SEE	15	35	17.96	73	56	28.53	Residential area
N3	Mulgao village	0.63	N	15	37	8.81	73	54	56.00	Commercial area
N4	Sircaim village	3.1	NWW	15	37	17.83	73	52	47.98	Residential area
N5	Calvim village	5	SSW	15	34	8.20	73	53	16.60	Residential area
N6	Sirigao Village	1.25	SSE	15	36	18.58	73	53	53.15	Residential area
N7	Sarvona village	1.9	SE	15	33	58.35	73	58	7.80	Residential area
N8	Advalpale village	3	NNW	15	38	22.92	73	53	50.90	Residential area
N9	Latambarsem village	3.9	NNE	15	38	22.92	73	53	50.90	Residential area

The Location of Noise Monitoring Stations is given vide **Plate No. *13***

Photographs : Noise Monitoring

Sircaim Village

Lamgao Village

Sensitivity: Public (C4)

3.6.5.2 NOISE LEVEL BASELINE DATA

The reports for the ambient noise levels monitored during the Summer season, 2023 are presented in **Annexure No.5**

Observations: There is no mining activity in the core zone as it is a new auctioned mine . Only minimal movement of vehicles in the study area were observed during the survey.

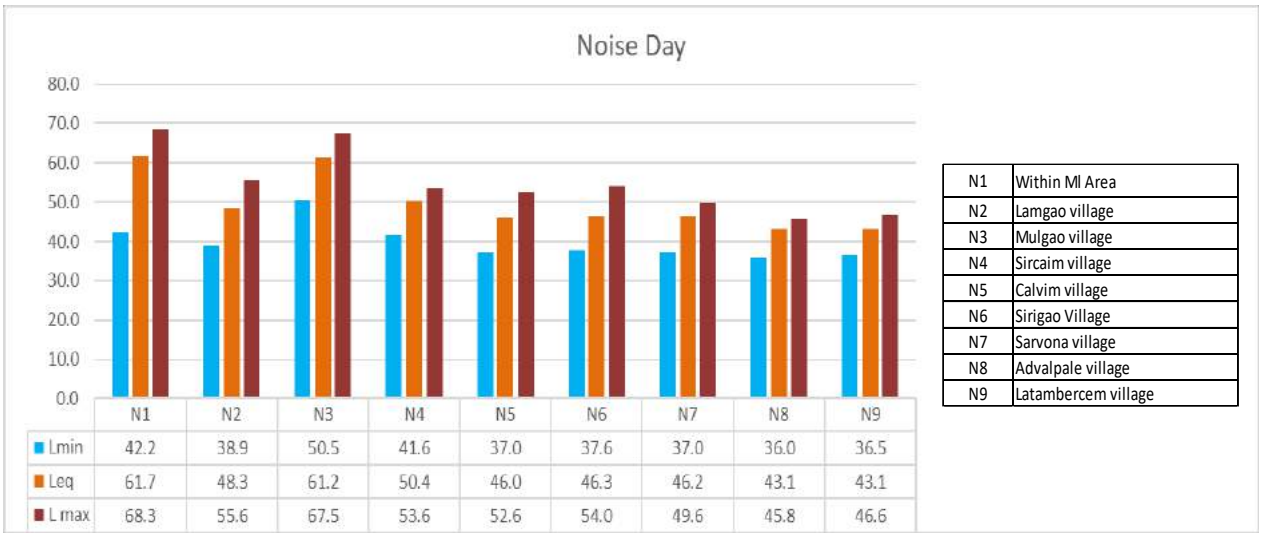
Table No 3.13 Results:

Code No.	Monitoring stations	Area	Day	Night
			L_{eq}	L_{eq}
Buffer Zone				
N1	Bicholim(Mineral Block office)	Industrial areas	61.7	49.3
N2	Lamgao village	Residential area	48.3	35.9
N3	Mulgao village	Commercial area	61.2	39.6
N4	Sircaim village	Residential area	50.4	40.0
N5	Calvim village	Residential area	46.0	39.0
N6	Sirigao Village	Residential area	46.3	44.9
N7	Sarvona village	Residential area	46.2	38.1
N8	Advalpale village	Residential area	43.1	38.1
N9	Latambarsem village	Residential area	43.1	37.3

Noise Quality Standards

Permissible limits as per ILO Code of Practice	Ambient Noise Levels	Leq. Limit dB(A)	
		Day	Night
For Unprotected ear - 8 hrs working shift	Industrial areas	75	70
Warning limit - 85 dB(A)	Commercial area	65	55
Danger limit - 90 dB(A)	Residential area	55	45
Worker not to be exposed for more than 115 dB(A)	Silence Zone	50	40

Sensitivity: Public (C4)



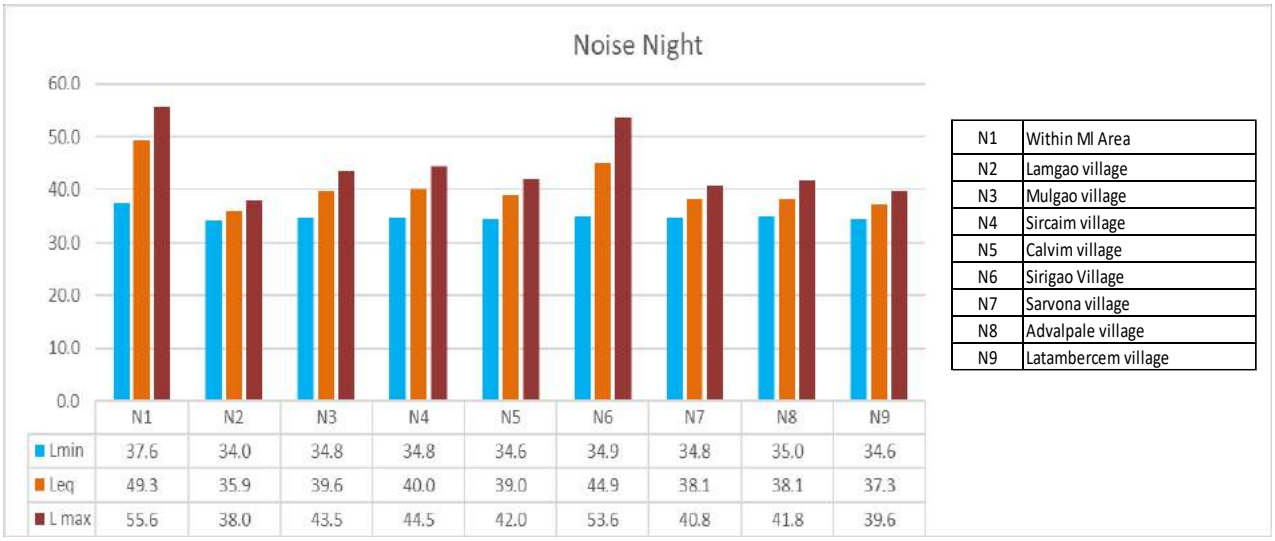


Fig.No: 3.4 Graph value for Noise Levels

The results are observed to be well within the permissible limits.

3.6.6 WATER ENVIRONMENT

3.6.6.1 WATER STREAMS/TANKS

There are no surface water bodies within the lease area. There is one river touching the lease boundary towards North-West direction. Main rivers in study area are:

Mandovi River -Aerial Distance of 2.30 Km at Pilgao Village

Bicholim River - Aerial Distance of 0.23Km at Mandrekarwada (Bicholim)

Assonora River - Assonora river which is touching Mineral Block boundary in North-West direction

Sensitivity: Public (C4)

Chapora River- Aerial Distance of 7.3 Km at Colvale Village

Mayem Lake- Aerial Distance of 0. 46 km

Amthane dam at 7 km

Assonora River originates near Mencurem village in Bicholim Taluka, Assonora River is one of the main tributaries of Mandovi River. The river flows through areas like Assonora, Sirsaim. The drainage area of this tributary is about 55 Sq. km.

3.6.6.2 GROUND WATER REGIME

The ground water table in the Mineral Block is at 10m bgl.. During rainy season most of the rain water from broken up area and dumps is diverted to the proposed mine pit through garland drain/trenches. The rain water will accumulate into the proposed mine pit which will recharge the ground water.

The detaile ground water study is given vide in Hydogeological report enclosed as **Appendix-I**

3.6.6.3 WATER QUALITY BASELINE DATA

The baseline data collected to assess the water quality in the study are included both surface water and ground water.

3.6.6.3.1 LOCATION OF SURFACE WATER & GROUND WATER QUALITY SAMPLING STATIONS

The Surface and ground water samples were collected during Summer season-2023.

Location of Surface & Ground Sampling Stations Plan is given vide ***Plate No.14 & 15***

Table 3.14: Location of Surface Water & Ground Water Sampling Stations

Code No	Locations	Physical Observation	Distance km	Direction	Latitude			Longitude		
					D	M	S	D	M	S
SURFACE WATER										
SW1	Confluence of Valvot & Bicholim River	Light brown color was observed due to algae formation, fishy odour	3.5	SE	15	33	12.80	73	58	33.35
SW2	Confluence of Bicholim & Cudnem River	Light brown color was observed due to algae formation, suspended solids were observed	4.2	SE	15	33	2.07	73	59	0.55
SW3	Bicholim River Upstream	Some suspended solids were observed, light brown color	0.71	SEE	15	35	15.41	73	57	2.35
SW4	Bicholim River	Suspended solids were	0.52	SE	15	34	30.92	73	57	26.27

Sensitivity: Public (C4)

	Down stream	present and sample color was observed to be brown color								
SW5	Assonora Up stream Water	The stream were observed to be green color due to stagnant water and algae formation, fishy odour, small aquatic fishes were observed	0.58	NW	15	37	11.25	73	54	21.28
SW6	Assonora Down stream Water	The stream where observed to be green color due to and algae formation, fishy smell odour	0.63	NWW	15	36	36.21	73	53	48.89
SW7	Mayem Lake	Green color observed due to algae , water is odour less and suspended solids were present	0.74	SSE	15	34	30.21	73	56	20.62
GROUND WATER										
GW1	Bicholim	Open Well. The water observed to be colorless, Less suspended solids, used for domestic purpose	0.5	SEE	15	35	11.61	73	56	58.35
GW2	Sarvan village	Open Well water Colorless, odour free & seen some dry leaves on the surface of the well	2.00	SE	15	33	58.35	73	58	7.80
GW3	Lamgao village	Open Well water Colorless and no suspended solids	0.086	SE	15	34	42.33	73	57	2.68
GW4	Mulgao village	Open Well water , No suspended matter , colorless and odour free	0.46	NNW	15	37	8.14	73	54	43.80
GW5	Mavlinge Village	Open Well water, Observed to be clear and colorless and less suspended matter	4.74	NE	15	37	1.75	73	58	30.10
GW6	Nanoda village	Open Well water , The sample is clear and observed to be no suspended solids	2.67	N	15	38	5.77	73	55	29.37
GW7	Sircaim village	Open Well water Colorless, odorless and less suspended matter	2.19	NWW	15	37	9.42	73	52	54.61
GW8	Assonora	Open Well water, No odour, less suspended matter	0.42	NW	15	37	1.12	73	54	5.43
GW9	Pilgao village	Open Well water Colorless , odour less and less suspended matter	1.25	SEE	15	33	43.47	73	57	15.90
GW10	Mayem village	Open Well water Colorless , odour less and less suspended matter	0.677	SSE	15	34	34.33	73	56	10.20

Sensitivity: Public (C4)

Photograph : Surface Water Samples

Mayem Lake

Assonora Downstream water

Photograph : Ground Water Samples

Piligao Village

Mulgao village

3.6.6.3.2 SURFACE WATER QUALITY

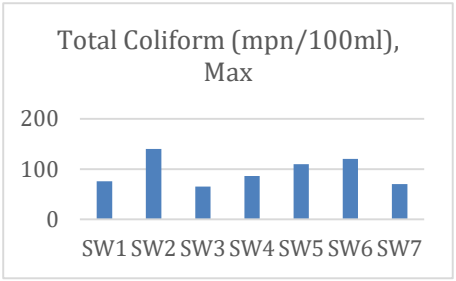
The surface water samples collected during Summer Season -2023 were analyzed and the results were compared with IS: 2296. The analysis reports of surface water are presented under **Annexure No.5**

Sensitivity: Public (C4)

Table.3.15 RESULTS

Sl.No.	Parameters	Limits For Stream Water Standards	Sample						
			SW1	SW2	SW3	SW4	SW5	SW6	SW7
i	pH	6.5 to 8.5	6.35	6.82	7.06	7.26	6.9	7.39	6.64
ii	Dissolved Oxygen (as O_2), mg/l, Min	4	6.2	6.9	6.3	6.2	6.7	6.8	6.2
iii	Biochemical Oxygen Demand (as O_2), mg/l,	3	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
iv	Total Coliform (mpn/100ml)	5000	84	148	63	94	109	120	70
v	Colour (Hazen Units)	300	5	5	5	5	5	5	5
vi	Fluoride (as F), mg/l	1.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
vii	Cadmium (as Cd), mg/l	0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
viii	Chloride (as Cl), mg/l	600	5620	5348	108	110	1250	1430	18
ix	Chromium (as Cr^{+6}), mg/l	0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
x	Cyanides (as CN), mg/l	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
xi	Total Dissolved Solids (mg/l)	1500	11240	10300	260	290	2600	2960	72
xii	Selenium (as Se), mg/l	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
xiii	Sulphates as SO_4 (mg/l)	400	840	830	40	60	390	410	10
xiv	Lead (as Pb) mg/l	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
xv	Copper (as Cu), mg/l	1.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
xvi	Arsenic as As (mg/l)	0.2	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
xvii	Iron (as Fe), mg/l	50	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
xviii	Phenolic compounds (as C_6H_5OH), mg/l	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
xix	Zinc (as Zn), mg/l	15	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
xx	Insecticides, mg/l	Absent	NA	NA	NA	NA	NA	NA	NA
xxi	Anionic detergents (as MBAS),mg/l	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
xxii	Oils and grease, mg/l	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
xxiii	Nitrates (as NO_3), mg/l	50	12.6	10.8	11.9	14	12.8	17.8	14.2
xxiv	Alpha Emitters (µcurie/ml)	10^{-9}	NA	NA	NA	NA	NA	NA	NA
xxv	Beta Emitters (µcurie/ml)	10^{-8}	NA	NA	NA	NA	NA	NA	NA
xxvi	Chemical Oxygen Demand (COD) mg/l	-	26	24	22.0	26.0	24	26	24.0
xxvii	Total Hardness (as $CaCO_3$), mg/l,	--	1400	1220	40	46	240	210	80
xxviii	Total Suspended Solids, mg/l	--	12	16	18	10	8	10	12

Surface Water :



Sensitivity: Public (C4)

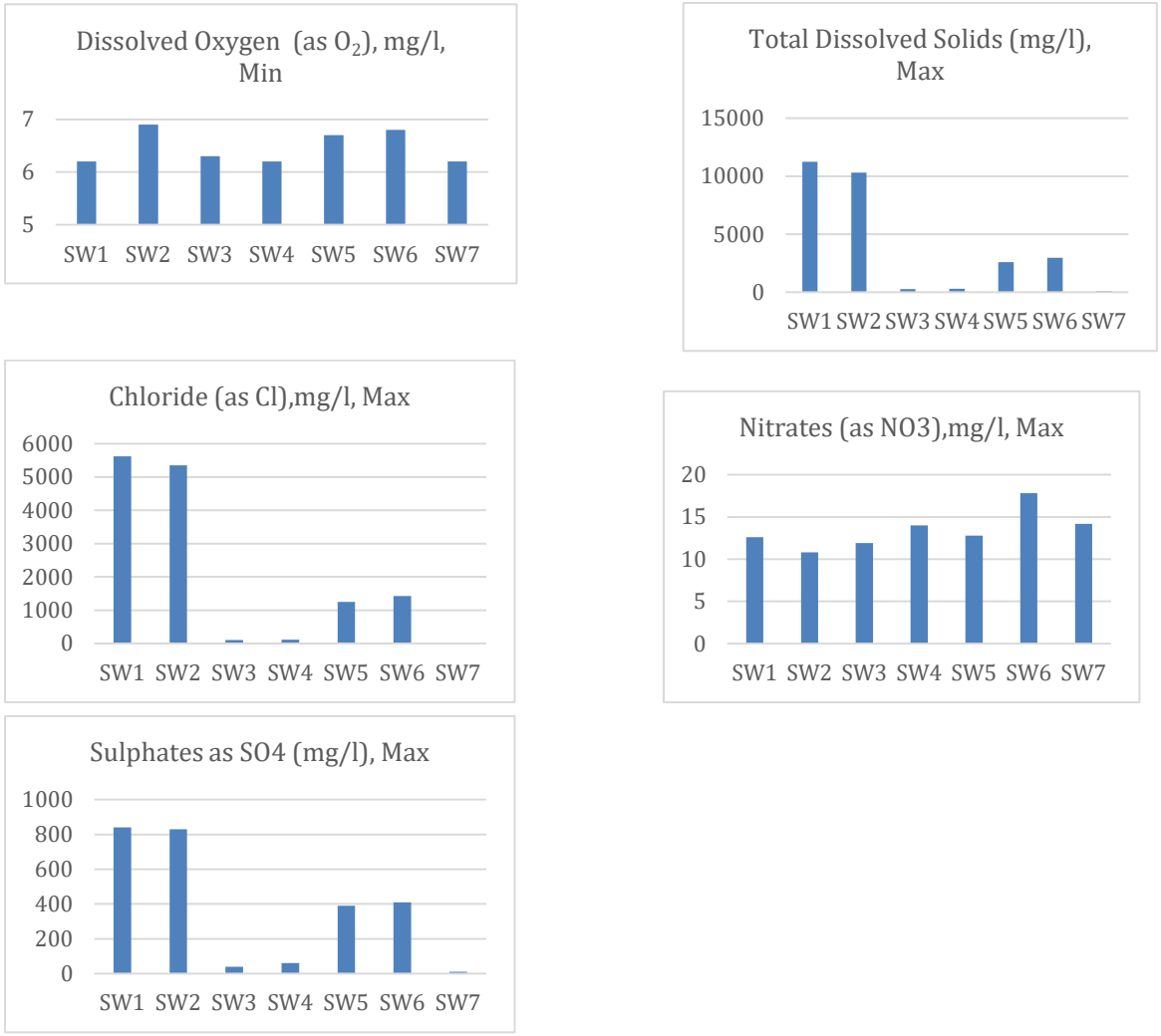


Fig.No. 3.5 Graph for Surface Water results

Results Interpretation:

The results of the analysis of the samples revealed that surface water samples of four locations i.e., Conflunce of Valvot & Bicholim River, Confluence of Bicholim & Cudnem River, Assonora Up stream Water & Assonora down stream Water were having high TDS, Total hardness, Sulphates, and Chlorides. This is mainly because of the influence of creek water.

The sample collected at Conflunce of Valvot & Bicholim River location was observed to be slightly acidic in nature. Whereas all the parameters of other locations were found to be within permissible limits.

3.6.6.3.3 GROUND WATER QUALITY

10 Nos. of Ground water Samples were collected from Core Zone and Buffer Zone and analysed as per IS 10500:2012 standards.

The parameter-wise results are given below and the test report is enclosed under

Sensitivity: Public (C4)

Annexure.No. 5

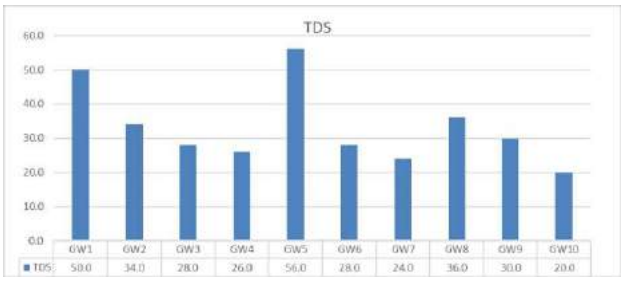
Table.No. 3.15A Results:

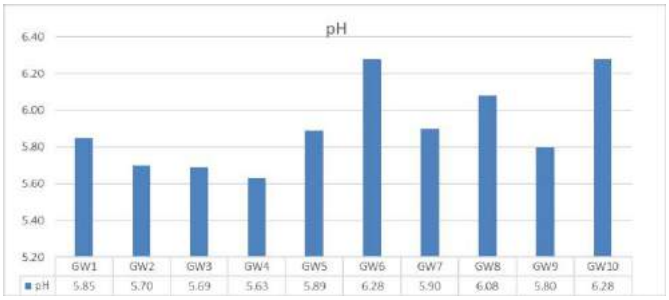
Parameters	GW1	GW2	GW3	GW4	GW5	Permissible Limits
Colour (Hazen Units),	1.0	<1	1.0	<1	1.0	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
pH	5.85	5.70	5.69	5.63	5.89	6.5 - 8.5
Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity, NTU, Max	0.8	0.90	1.2	0.5	1.6	5
Total Dissolved Solids, mg/l, Max	50.0	50.0	28.0	28.0	56.0	2000
Aluminium (as Al), Max	<0.01	<0.01	<0.01	<0.01	<0.01	0.2
Ammonia (as to tal Ammonia -N), mg/l, Max	<0.1	<0.1	<0.1	<0.1	<0.1	0.5
Anionic Detergents (as MBAS), mg/l, Max	<0.1	<0.1	<0.1	<0.1	<0.1	1.0
Barium (as Ba), mg/l, Max	0.08	<0.005	0.014	0.01	<0.005	0.7
Boron (as B), mg/l, Max	<0.1	<0.1	<0.1	<0.1	<0.1	1
Calcium (as Ca), mg/l, Max	10.62	7.35	6.54	6.54	12.26	200
Chloramines (as Cl_2), mg/l. Max	NA	NA	NA	NA	NA	4.0
Chloride as Cl (mg/l), mg/l, Max	17.00	16.10	15.10	15.10	20.13	1000
Copper (as Cu), mg/l, Max	<0.005	<0.005	<0.005	<0.005	<0.005	1.5
Fluoride (as F), mg/l, Max	<0.1	<0.1	<0.1	<0.1	0.30	1.5
Residual, Free Chlorine, mg/l, Max	<0.1	<0.1	<0.1	<0.1	<0.1	1
Iron (as Fe), mg/l, Max	0.072	<0.005	0.261	0.08	<0.005	1.0
Magnesium (as Mg) mg/l, Max	5.94	3.96	2.97	2.97	6.54	100
Manganese (as Mn), mg/l, Max	0.007	<0.001	0.038	0.013	<0.001	0.3
Mineral Oil, mg/l, Max	<0.5	<0.5	<0.5	<0.5	<0.5	0.5
Nitrates (as NO_3), mg/l, Max	4.2	1.8	3.5	3.5	2.8	45
Phenolics (as C_6H_5OH), mg/l, Max	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
Selenium (as Se), mg/l, Max	<0.005	<0.005	<0.005	<0.005	<0.005	0.01
Silver (as Ag), mg/l. Max	<0.005	<0.005	<0.005	<0.005	<0.005	0.1
Sulphates (as SO_4), mg/l, Max	10.6	8.9	8.4	8.4	12.6	400
Sulphide (as H_2S), mg/l, Max	<0.01	<0.01	<0.01	<0.01	<0.01	0.05
Alkalinity (as $CaCO_3$) mg/l, Max	10.0	10.0	10.0	10.0	10.0	600
Total Hardness (as $CaCO_3$), mg/l, Max	51.00	34.68	28.56	28.56	46.92	600
Zinc (as Zn), mg/l, Max	0.01	<0.005	0.015	0.015	<0.005	15
Cadmium (as Cd), mg/l, Max	<0.001	<0.001	<0.001	<0.001	<0.001	0.003
Cyanide (as CN), mg/l, Max	<0.01	<0.01	<0.01	<0.01	<0.01	0.05
Lead (as Pb), mg/l, Max	<0.005	<0.005	<0.005	<0.005	<0.005	0.01
Molybdenum (as Mo), mg/l, Max	<0.001	<0.001	<0.001	<0.001	<0.001	0.07
Mercury (as Hg), mg/l, Max	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.001
Nickel (as Ni), mg/l, Max	<0.001	<0.001	<0.001	<0.001	<0.001	0.02
Pesticides, mg/l, Max	NA	NA	NA	NA	NA	0.001
Polychlorinated biphenyls mg/l, Max	NA	NA	NA	NA	NA	0.0005
Polynuclear Aromatic Hydrocarbons (as PAH), mg/l, Max	NA	NA	NA	NA	NA	0.0001
Arsenic (as As), mg/l, Max	<0.002	<0.002	<0.002	<0.002	<0.002	0.01
Chromium (as Cr^{+6}), mg/l, Max	<0.03	<0.03	<0.03	<0.03	<0.03	0.05
Trihalomethanes, mg/l, Max	NA	NA	NA	NA	NA	--
Radioactive materials, Bq/l, mg/l	NA	NA	NA	NA	NA	--
Total Coliform (/100ml)	Absent	Absent	Absent	Absent	Absent	Absent
E-Coli (cfu/100ml)	Absent	Absent	Absent	Absent	Absent	Absent
Conductivity, µS/cm	102	89	80	80	164	--
Sodium, mg/l, Max	3.6	4.0	5.5	5.5	12.0	--
Potassium, mg/l, Max	<1.0	<1.0	<1.0	<1.0	<1.0	--
	1.0	<1	1.0	<1	1.0	

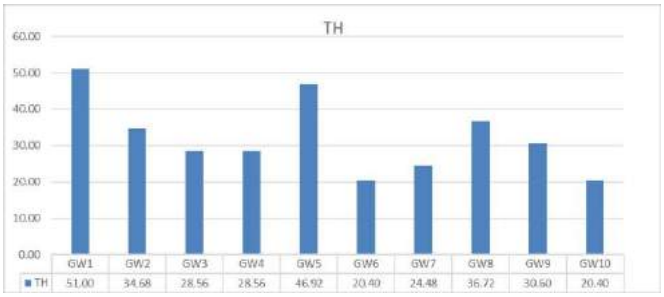
Sensitivity: Public (C4)

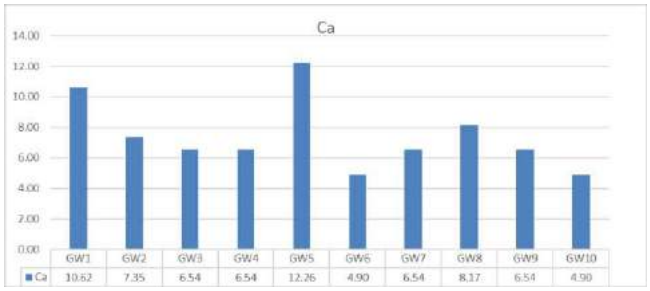
Parameters	GW6	GW7	GW8	GW9	GW10	Permissible Limits
Colour (Hazen Units), Max	<1	<1	1.0	<1	<1	15
Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
pH	6.28	5.90	6.08	5.80	6.28	6.5 - 8.5
Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity, NTU, Max	0.9	0.7	0.6	0.8	0.9	5
Total Dissolved Solids, mg/l, Max	48.0	24.0	36.0	30.0	48.0	2000
Aluminium (as Al), Max	<0.01	<0.01	<0.01	<0.01	<0.01	0.2
Ammonia (as total Ammonia -N), mg/l, Max	<0.1	<0.1	<0.1	<0.1	<0.1	0.5
Anionic Detergents (as MBAS), mg/l, Max	<0.1	<0.1	<0.1	<0.1	<0.1	1.0
Barium (as Ba), mg/l, Max	<0.005	0.077	0.022	0.076	<0.005	0.7
Boron (as B), mg/l, Max	<0.1	<0.1	<0.1	<0.1	<0.1	1
Calcium (as Ca), mg/l, Max	4.90	6.54	8.17	6.54	4.90	200
Chloramines (as Cl_2), mg/l. Max	NA	NA	NA	NA	NA	4.0
Chloride as Cl (mg/l), mg/l, Max	14.09	12.08	50.33	30.20	14.09	1000
Copper (as Cu), mg/l, Max	<0.005	<0.005	<0.005	<0.005	<0.005	1.5
Fluoride (as F), mg/l, Max	0.2	<0.1	<0.1	<0.1	<0.1	1.5
Residual, Free Chlorine, mg/l, Max	<0.1	<0.1	<0.1	<0.1	<0.1	1
Iron (as Fe), mg/l, Max	<0.005	0.13	0.06	0.09	<0.005	1.0
Magnesium (as Mg), mg/l, Max	1.98	1.98	3.96	3.47	1.98	100
Manganese (as Mn), mg/l, Max	<0.001	0.009	0.019	0.028	<0.001	0.3
Mineral Oil,mg/l, Max	<0.5	<0.5	<0.5	<0.5	<0.5	0.5
Nitrates (as NO_3), mg/l, Max	2.8	0.8	2.4	2.2	2.8	45
Phenolics (as C_6H_5OH), mg/l, Max	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
Selenium (as Se), mg/l, Max	<0.005	<0.005	<0.005	<0.005	<0.005	0.01
Silver (as Ag), mg/l. Max	<0.005	<0.005	<0.005	<0.005	<0.005	0.1
Sulphates (as SO_4), mg/l, Max	7.4	8.0	6.8	8.4	7.4	400
Sulphide (as H_2S), mg/l, Max	<0.01	<0.01	<0.01	<0.01	<0.01	0.05
Alkalinity (as $CaCO_3$) mg/l, Max	50.0	20.0	25.0	25.0	50.0	600
Total Hardness (as $CaCO_3$), mg/l, Max	20.40	24.48	36.72	30.60	20.40	600
Zinc (as Zn), mg/l, Max	<0.005	0.036	0.024	0.014	<0.005	15
Cadmium (as Cd), mg/l, Max	<0.001	<0.001	<0.001	<0.001	<0.001	0.003
Cyanide (as CN), mg/l, Max	<0.01	<0.01	<0.01	<0.01	<0.01	0.05
Lead (as Pb), mg/l, Max	<0.005	<0.005	<0.005	<0.005	<0.005	0.01
Molybdenum (as Mo), mg/l, Max	<0.001	<0.001	<0.001	<0.001	<0.001	0.07
Mercury (as Hg), mg/l, Max	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.001
Nickel (as Ni), mg/l, Max	<0.001	<0.001	<0.001	<0.001	<0.001	0.02
Pesticides, mg/l, Max	NA	NA	NA	NA	NA	0.001
Polychlorinated biphenyls mg/l, Max	NA	NA	NA	NA	NA	0.0005
Polynuclear Aromatic Hydrocarbons (as PAH), mg/l, Max	NA	NA	NA	NA	NA	0.0001
Arsenic (as As), mg/l, Max	<0.002	<0.002	<0.002	<0.002	<0.002	0.01
Chromium (as Cr^{+6}), mg/l, Max	<0.03	<0.03	<0.03	<0.03	<0.03	0.05
Trihalomethanes, mg/l, Max	NA	NA	NA	NA	NA	--
Radioactive materials, Bq/l, mg/l	NA	NA	NA	NA	NA	--
Total Coliform (/100ml)	Absent	Absent	Absent	Absent	Absent	Absent
E-Coli (cfu/100ml)	Absent	Absent	Absent	Absent	Absent	Absent
Conductivity, µS/cm	91	91	105	92	91	--
Sodium, mg/l, Max	12.0	10.0	8.0	11.0	12.0	--
Potassium, mg/l, Max	<1.0	<1.0	<1.0	<1.0	<1.0	--

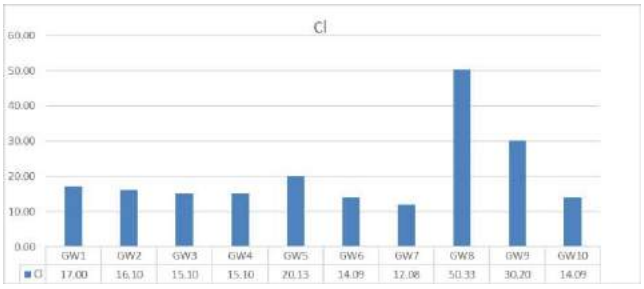
Sensitivity: Public (C4)

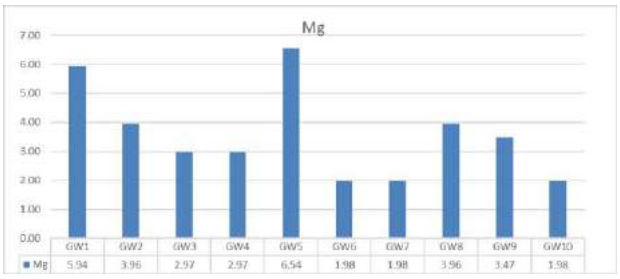












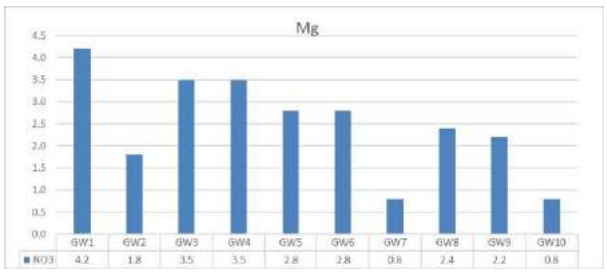


Fig.No. 3.6 Graphs Showing Ground water parameters

Results Interpretation: *The open well samples were found to have pH in slightly acidic in nature. This is possibly due to the occurrence of lateritic ore. The soil is rich in iron and aluminum oxides and hence it makes the ground water slightly acidic in nature. The other parameters were seen to be within the limits.*

Sensitivity: Public (C4)

3.6.5 SOIL QUALITY

3.6.5.1 LOCATION OF SOIL SAMPLING STATIONS

The locations of the sampling stations to assess soil quality during Summer season, 2023 are given in Table 3.16. Location of Soil Sampling Stations Plan ***Plate No.16***

Table 3.16: Location of Soil Quality Sampling Stations

Code No	Locations	Physical Obs.	Distance km	Direction	Latitude			Longitude		
					D	M	S	D	M	S
S1	Dump Soil Within ML Area	--	--	--	15	34	25.60	73	56	56.45
S2	Lamgao village	Agricultural soil	0.31	SEE	15	35	26.84	73	56	30.21
S3	Mayem village	Fairly dense forest Cashew Plantation	1.9	SW	15	35	3.27	73	54	48.54
S4	Sircaim village	Agricultural soil	2.9	NNW	15	37	13.43	73	52	29.72
S5	Pilgao village	Agricultural soil	1.3	SSE	15	33	42.23	73	57	15.72
S6	Sirigao	Agricultural soil	0.6	W	15	36	26.32	73	53	57.00
S7	Mulgao Village	Agricultural soil	0.3	N	15	36	50.04	73	55	11.62

3.6.5.2 SOIL QUALITY BASELINE DATA

The quality soil observed in the core zone and buffer zones are presented under **Annexure.No-5.**

Photographs: Soil Samples

Mayem Village

Pilgao Village

Table.3.16 A Results

Sensitivity: Public (C4)

SL. No.	PARAMETERS	Unit	S1	S2	S3	S4	S5	S6	S7	Normal	High
PHYSICAL PROPERTIES											
1	Colour	--	Red soil	Red soil	Red soil	Red soil	Red soil	Red soil	Red soil	--	--
2	Textural class	--	Sandy clay loam	Clay loam	Clay loam	Clay loam	Clay loam	Clay loam	Clay loam	--	--
3	**Size Distribution**										
	Sand	%	48.60%	44.96%	34.50%	42.62%	39.63%	36.55%	34.63 %	--	--
	Silt	%	27.60%	35.46%	33.63%	34.28%	34.85%	34.62%	35.62 %	--	--
	Clay	%	23.80%	19.58%	31.87%	23.10%	25.52%	28.83%	29.75 %	--	--
4	Moisture Content	%	14.30	11.3	10.6	11.65	9.82	9.48	8.96	--	--
5	Bulk Density	gm/cc	1.36	1.44	1.30	1.44	1.33	1.41	1.38	--	--
6	Porosity	%	48.87	45.86	51.13	45.86	50.00	46.99	48.12	--	--
7	Water holding capacity	%	35.26	30.26	33.63	30.47	30.42	31.05	32.56	--	--
8	pH	--	5.78	5.63	5.48	5.38	5.44	5.65	5.78	6.3	>8.3
9	EC	M mohs/cm	0.296	0.315	0.296	0.315	0.296	0.318	0.28	1.0 to 2.0	>2
Chemical Properties											
10	Organic Carbon	%	0.76	0.85	1.08	0.82	0.75	1.18	1.08	0.5 to 0.75	>0.75
11	Nitrogen as N	Kg/Ha	218	206	200	216	220	275	226	280-560	>560
12	Phosphorous as P	Kg/Ha	17.6	14.3	15.6	14.6	16.5	14.6	17.8	9 to 22	>22
13	Potassium as K_2O	Kg/Ha	255	247	230	240	260	246	263	50 to 120	>120
14	Calcium as Ca^{++}	mg/kg	760	480	630	790	680	768.00	586	--	--
15	Magnesium as Mg^{++}	mg/kg	136	128	134	122	146	230	140	--	--
16	Sodium as Na_2O	mg/Kg	170.00	172.00	160.00	144.00	162.000	156.00	160.000	--	--
17	Chloride as Cl	mg/Kg	196.00	200.00	185.00	164.00	190.00	176.00	170.00	--	--
18	Sodium Absorption Ratio	%	1.11	1.34	1.13	0.94	1.10	0.95	1.15	--	--
19	Salinity	ppt	0.35	0.36	0.33	0.30	0.34	0.32	0.31	--	--
20	Sulphate as SO_4	%	116	105	120	110	105	114	128	--	--
Micro-nutrients											
21	Boron (as B)	mg/Kg	0.28	0.36	0.47	0.35	0.29	0.18	0.34	--	--
22	Zinc (as Zn)	mg/Kg	0.22	0.16	0.42	0.35	0.47	0.27	0.28	--	--
23	Copper (as Cu)	mg/Kg	0.24	0.22	0.25	0.18	0.23	0.27	0.24	--	--
24	Iron (as Fe)	%	2.63	3.42	2.48	4.55	4.19	3.65	3.22	--	--

Sensitivity: Public (C4)

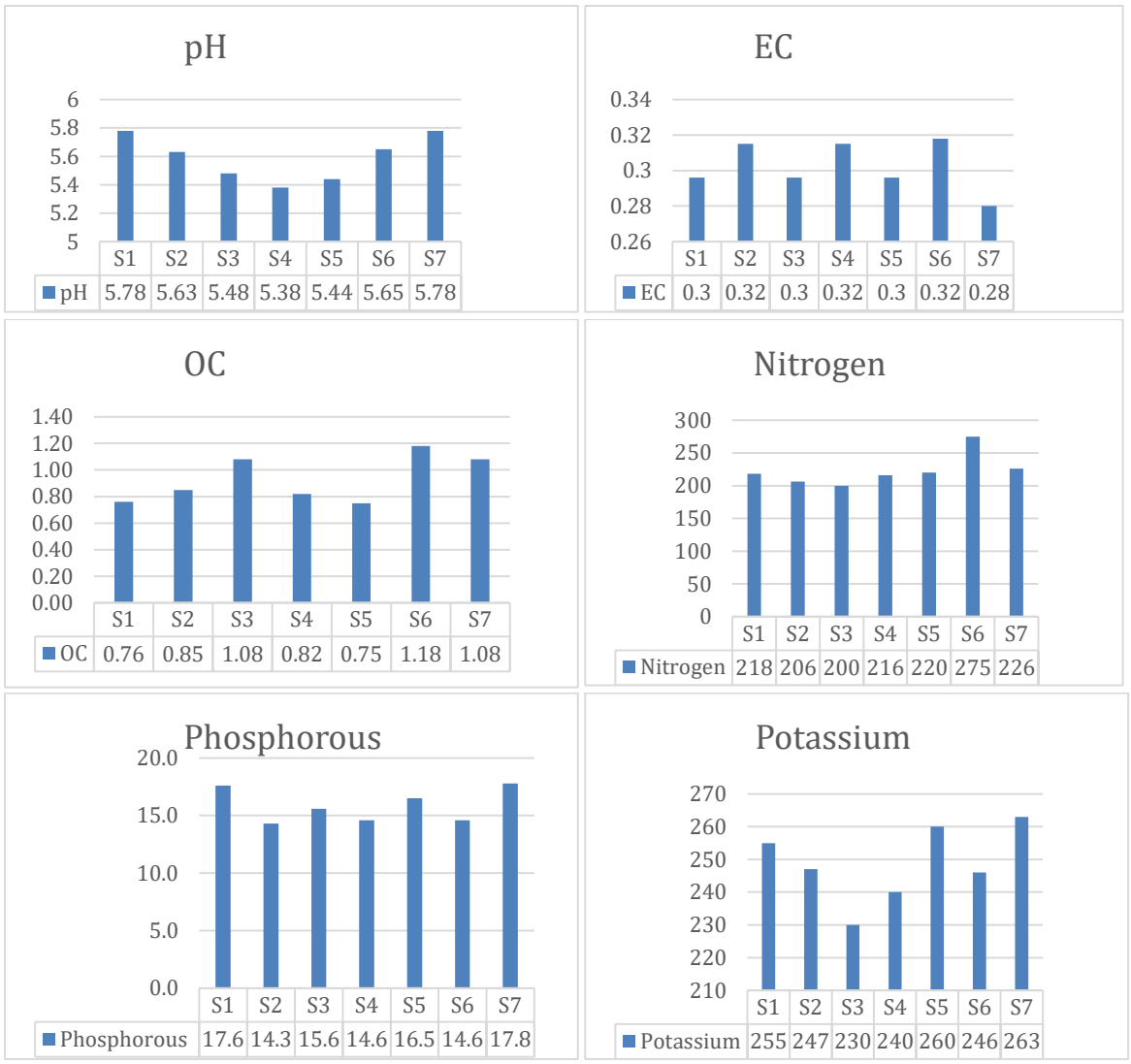


Fig.No. 3.7 Graphs : The graphs showing some critical Soil parameters

Results Interpretation

The dominant soil type observed in the mining lease is of lateritic type. The results show that the soils are with pH varies from 5.38 to 5.78, texture varies from sandy clay to clay loam, , Electrical Conductivity ranges from 0.296 to 0.315 µS/cm which is a measure of the soluble salts and ionic activity in the soil. The observed parameters are within the permissible limits.

3.7. LAND ENVIRONMENT

3.7.1 LAND USE AND LAND COVER FOR 10 KM RADIUS OF MINE

The map showing land use details within 10 km radius from the ML Area is furnished below. The land use of the entire study area is as given below in Table 3.17. The detailed plan showing the Land use and vegetation index is enclosed as drawing no.

Sensitivity: Public (C4)

Plate No.17 and *Plate No.18* respectively.

Table. No. 3.17 Land use of study area around 10 kms radius

Sl.no	Particulars	Area Ha	%
1	Forest Area	429.5	0.92
2	Mangroves	991.0	2.12
3	Water Bodies	3092.1	6.61
4	Open mixed forest/Cashew Plantation	21017.0	44.91
5	Flooded Vegetation	1328.0	2.84
6	Agricultural Land	2917.5	6.23
7	Settlements	7210.2	15.41
8	Scrub Land	9811.9	20.97
Total Area		46797	100.00

3.7.1.1 LAND USE - ML AREA

The Mineral Block Area consists of 478.5206Ha of land. Land use details of the existing period are given below in Table No. 3.17.

Table 3.18: Land Use - Mineral Block Area

Sr.No	Land use	Current land use Area (Ha.)
1	Settlements	32.4047
2	Pits & Excavation	306.8497
3	Dumps & Material Stocking	41.6116
4	Covered under Mine Infrastructure (plants & sheds)	6.4707
5	Land under Public Infrastructure / Utilities	1.021
6	Barren / Waste land with small bushes & shrubs/Archaelogical Monument	90.1629
7	Total area	478.5206

Sensitivity: Public (C4)

3.8 ECOLOGY AND BIODIVERSITY BASELINE DATA

3.8.1 A STUDY REGION

3.8.1.1 Study Region

The biodiversity study was undertaken to assess the biodiversity of Mining Lease Area and its buffer area of 10 Km radius with the following objectives.

1. Collection and synthesis of secondary information on the status of biodiversity in study region
2. Field survey to assess the status of flora and fauna component in core and buffer areas of project site
3. Identification and listing of flora and fauna which are important as per the Wildlife (protection) Act 1972.

The authenticated list of flora and fauna obtained from the Forest Department, is enclosed as **Annexure 6.**

3.8.1.2 Approach

A participatory and consultative approach was followed in executing the assignment on Ecology & Biodiversity assessment of the Mineral Block and 10-km buffer region. Further enquiries were made with forest officials, revenue department and local villagers. Literature survey included a review of the forest working plan, Census hand book, Gazetteer and other records related to the ecology of the region.

A team comprising flora and fauna specialist from Mineral Engineering Services along with Mr. M. S. Raju (EIA Co-Ordinator) had visited the Block-I Bicholim Mineral Block Iron Ore Mine and 10-km buffer area during 6th to 9th April 2023; and held discussion with Mr. Jagdish (Head Env Officer) & Ms. Sneha (Env officer).

For the study, "EIA Guidance manual for mining of minerals" prepared by the administrative staff college of Hyderabad was followed along with the internal standard operating procedure.

The baseline data on biodiversity of the region during collected during April, 2023 is presented in the format provided in model TOR in EIA Guidance manual prepared by Administrative Staff College of Hyderabad, 2010 on behalf of MoEF&CC, Government of India.

Sensitivity: Public (C4)

3.8.1.3 FLORAL STUDIES

Forest Types: Forest types were closely observed on the ground and identified using Champion & Seth, forest classification of India. The identified forest types were verified, and confirmed from forest working plan for the north Goa Forest Division with specific emphasis on Bicholim forest ranges, Bicholim village, Bicholim taluka published and other authenticated sources.

Quartile Approach: In order to provide representative ecological status 10-km buffer was divided into four quartiles for biodiversity sampling, i.e., NE (Q-1), NW (Q-2) SW (Q-3) and SE (Q-4) as given in Fig. 3.8.

Each of the quartiles were examined for representative flora on randomly sampled quadrats for trees (25x25-m), shrubs (10x10-m) and herbs (2x2-m) depending upon prevailing geographical conditions and bio-diversity aspects of study area.

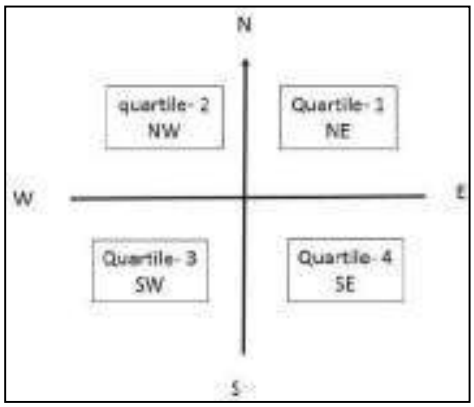


Figure. 3.8. Schematic diagram shown 10- km radius buffer area representation under four quartiles for ecology and biodiversity sampling.

Phyto-sociological parameters, viz., Abundance, Density, Frequency (%) were measured as given below. A total of 10 quadrats were laid down randomly within core area and 40 quadrats were laid down within four quartiles randomly (10/quartile) in buffer area each quadrat trees, shrubs, and herbs as per the Fig.3.8

Quadrats method: Quadrats of 25 × 25-m were laid down randomly within core and 10-km buffer area; each quadrat was laid to assess the trees (>5 cm GBH) and one, 10 × 10-m sub-quadrat nested within the quadrat for shrubs, and two, plots 2 × 2-m for

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herbs, climbers & grass is given in **Fig. 3.9**. The quadrats were laid randomly to cover the area to maximize the sampling efforts and minimize the species homogeneity, such as small stream area, trees in agricultural bunds, tank bunds, farm forestry plantations, wildlife areas, natural forest area, avenue plantations, house backyards, etc.

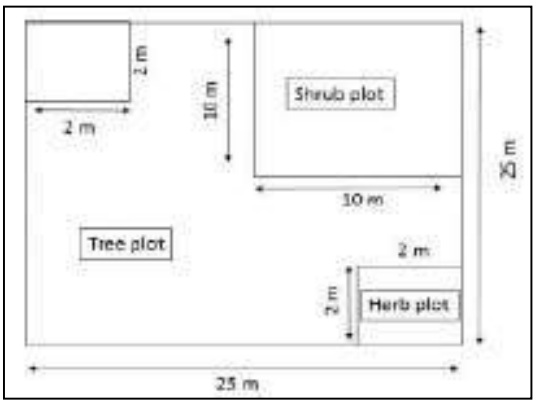

Figure.3.9. Schematic representation of quadrats for trees, shrubs, herbs & grass.

Following formulae was used for calculating the frequency (%), abundance and density of the floral species

$$\%\ \text{Frequency of species A} = \frac{\text{Number of quadrats of occurrence of species A}}{\text{Total number of quadrats studied}} \times 100$$

$$\text{Abundance of species A} = \frac{\text{Number of individuals of species A in total quadrats studied}}{\text{Number of quadrats of occurrence of species A}}$$

$$\text{Density of species A} = \frac{\text{Number of individuals of species A in total quadrats studied}}{\text{Total area studied}}$$

Biodiversity Analysis using index: Species diversity will be calculated by using Shannon and Wiener (1963) formula as follows:

$$H' = -\sum_{i=1}^{R} p_i \ln p_i$$

Whereas H is Shannon index of general diversity, p_i is often the proportion of individuals belonging to the i^{th} species in the dataset of interest.

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Screening IUCN and other sources for species Conservation status: Besides measuring these parameters, other biodiversity aspects in the form of endemic status, keystone species, threatened status, and IUCN, Red-data books of the Botanical Survey of India (BSI), have been verified for their conservation status (*see* http://www.iucnredlist.org/static/categories_criteria_3_1).A **keystone species** is a species that has a disproportionately large effect on its environment relative to its abundance. Such species are described as playing a critical role in maintaining the structure of an ecological community, affecting many other organisms in an ecosystem and helping to determine the types and numbers of various other species in the community. The IUCN Species Programme of the IUCN Species Survival Commission (SSC), has for more than four decades been assessing the conservation status of species, subspecies, varieties and even selected sub-populations on a global scale in order to highlight taxa threatened with extinction and therefore promote their conservation.

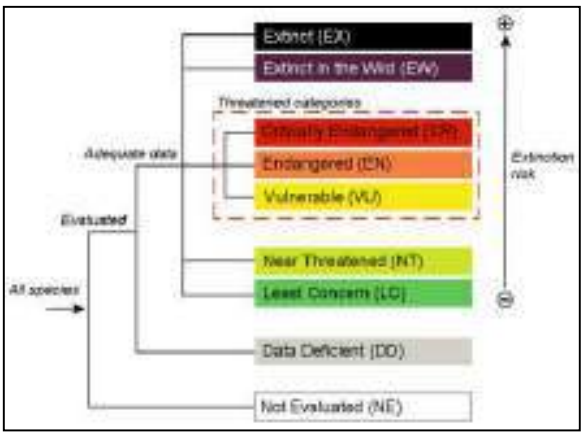

Figure 3.10. IUCN categories showing threatened species categories

The IUCN Red List of Threatened Species provides taxonomic, conservation status and distribution information on plants and animals that have been globally evaluated using the IUCN Red List Categories and Criteria (Fig. 3.10.).This system is designed to determine the relative risk of extinction, and the main purpose of the IUCN Red List is to catalogue and highlight those plants and animals that are facing a higher risk of

Sensitivity: Public (C4)

global extinction (i.e., those listed as *Critically Endangered, Endangered* and *Vulnerable*). The IUCN Red List also includes information on plants and animals that are categorised as *Extinct* or *Extinct in the Wild*; on taxonomic group that cannot be evaluated because of insufficient information (i.e., are *Data Deficient*); and on plants and animals that are either close to meeting the threatened thresholds or that would be *threatened* if not considered for an ongoing taxon-specific conservation programme (i.e., *Near Threatened*).

3.8.1.5 FAUNAL DIVERSITY

Mammals: Mammals were observed using indirect methods such as faecal matter (i.e., scat) and pug mark by establishing 10 × 100-m linear transects depending on the habitat (i.e., existing wildlife game routes/forest trails used). Few mammals were documented by direct sighting.

Bird: Point count method was used for bird documentation as per standard method by Sutherland (1996), which involved 10-minute observation in each point during early morning hours (6.00 to 10.00 AM). 20 point-counts were enumerated in each quartile, which constituted a total of 80 points-counts (20 × 4) within 10-km radius area.

Butterfly: The butterfly was enumerated by two linear transects, of 10 × 100 m were laid at each quartile at an interval of 1 km. Further, reptiles and fishes documented in existing literature and secondary information in consultation with local people and wildlife experts were recorded. Apart from field observation, consultations were held with knowledgeable persons of the villages and frontline forest department officials to validate the field observation and information cited in the literature.To know the endemic or conservation status of the fauna, Schedule 1 of the Wildlife Preservation Act (1972) was screened.

Sensitivity: Public (C4)

Fig No. 3.11 Study area quartile I, II, III, & IV

3.8.2 OBSERVATIONS AND DISCUSSIONS

3.8.2.1 Overview of project areas

The forest of the region was categorized as southern moist deciduous mixed forests and southern secondary moist mixed deciduous forests (Champion & Seth, 1967), in 'A revised survey of the forest types of India'. The region presents a wide range of altitudes, aspects, slopes, drainage, and spills giving rise to a variety of locality factors reflected in the occurrence of number of forest types from tropical semi-evergreen to mangrove forests. These types are broadly differentiated and described here as per recognized and revised forest classification of Champion & Seth.

- 3BC2 – Southern moist mixed deciduous forests
- 3BC2S1 – Southern secondary moist mixed deciduous forests

Sensitivity: Public (C4)

Photo.

Open grass regenerated with Acacia auriculiformis in open area

Native vegetation with coconut trees etc,

Mixed forest with cashew plantation and Trema orientalis species

Coconut trees in and arround Village settlement

FLORA: Total 34 species were recorded within core area, of which 21 species trees (5/ ha), and 7 species shrubs (13 /ha), and 6 species herbs (115/ha) recorded (Table 3.19)

Table . 3.19 List of plants (trees, shrubs and herbs) reported from Core area

Sl.No	Species name	Family	Common Name
TREE			
1	*Anacardium occidentale*	Anacardiaceae	Cashew
2	*Acacia auriculiformis* *	Fabaceae	Acacia
3	*Eucalyptus sps*	Myrtaceae	Nilgiri
4	*Casuringa equisettifolia*	Casuarinaceae	Suru
5	*Alstonia scholaris*	Apocynaceae	Saten
6	*Samanea saman*	Fabacaeae	Rain tree
7	*Bauhinia racemose*	Fabacaeae	Apto
8	*Artocarpus heterophyllus*	Moraceae	Phanas
9	*Bombox ceiba*	Bombacaceae	Sanwar
10	*Delonix regia*	Fabacaeae	Gulmohar
11	*Emblica officinalis*	Phyllanthaceae	Aonia
12	*Garcinia indica*	Clusiaceae	Kokum

Sensitivity: Public (C4)

13	*Gmelina arborea*	Lamiaceae	Shivan
14	*Leucaena leucocephala*	Fabacaeae	Subabul
15	*Mangifera indica*	Anacardiaceae	Mango
16	*Syzygium cumini*	Myrtaceae	Jamun
17	*Trema orientalis*	Cannabaceae	Charcoal tree
18	*Acacia catechu*	Fabacaeae	Khair
19	*Canthium dicoccum*	Rubiaceae	Ceylon boxwood
20	*Ziziphus mauritiana*	Rhamnaceae	Indian jujube
21	*Macaranga peltata*	Euphorbiaceae	Chandada
SHRUBS			
1	*Acacia paniculate*	Mimosaceae	sickle wattle
2	*Calotropis gigantean*	Asclepidiaceae	crown flower
3	*Carissa congesta*	Apocynaceae	Karamda
4	*Crotolaria virosa.*	Fabacaeae	Rattlepod
5	*Helictris isora*	Malvaceae	Marodphali
6	*Lantana camara**	Verbenaceae	Lantana
7	*Ziziphus oenoplea*	Rhamnaceae	Jackal jujube
HERBS AND CLIMBERS			
1	*Asparagus racemosa*	Asparagaceae	Satavar
2	*Bidens biternata*	Asteraceae	Chirchitta
3	*Ipomea cmuricata*	Convolvulaceae	Bhingari
4	*Ocimum sanctum*	Lamiaceae	*Tamole*
5	*Parthenium hysterophorus*	Asteraceae	Santa-Maria
6	*Smilax zeylanica*	Smilacaceae	Kumarika

NOTE: * Invasive species

FAUNA: Total 17 species were observed within the core area, of which 12 species are birds, 2 species of mammals and 3 species of reptiles **(Table 3.20).**

Table 3.20 List of faunal species – Birds, Mammals and Reptiles in the core area

Sl. No.	Common name	Scientific name	Family	IUCN / WPA status
	BIRDS			
1	Common Iora	*Aegithina tiphia*	Irenidae	R/IV
2	Common Myna	*Acridotheres tristis*	Sturnidae	R/IV
3	Crow Pheasant	*Centropus sinensis*	Cuculidae	R/IV
4	Green Bee Eater	*Merops orientalis*	Meropidae	MR/IV
5	House Crow	*Corvus splendens*	Corvidae	R/IV
6	House Sparrow	*Passer domesticus*	Passeridae	R/IV
7	House Swift	*Apus affinis*	Apodidae	R/IV
8	Indian Robin	*Saxicoloides fulicata*	Turdinae	R/IV
9	Jungle Crow	*Corvus macrorhynchos*	Corvidae	R/IV
10	Jungle Myna	*Acridotheres fuscus*	Sturnidae	R/IV

Sensitivity: Public (C4)

11	Red-wattled Lapwing	*Vanellus indicus*	Charadriidae	R/IV
12	Red-whiskered Bulbul	*Pycnonotus jocosus*	Pycnonotidae	R/IV
	MAMMALS			
13	Indian Hare	*Lepus nigricollis*	Leporidae	Lower risk/ IV
14	Rat	*Rattus rattus*	Muridae	Sch-V
	REPTILES			
15	Green Forest lizard	*Calotes calotes*	Agamidae	Common
16	Roux's Forest lizard	*Calotes rouxii*	Agamidae	Common
17	Garden lizard	*Calotes elloti*	Agamidae	Common

3.8.3 BUFFER AREA

Overview of buffer area (10-km radius) in all 4 directional quartiles - eco-sensitive areas, plantations, and development activities so on (Table 3.21).

Table. 3.21 General description of landscape within 10 km radius from core area (all 4 directions of North, East, West and South).

Table. 3.21

Quartiles	Trees/ Shrubs	Species richness	Density/ha	Species diversity (H')	Habitat Characteristics
Quartile 1 North-East	Trees	42	1834	2.37	Kharpal and Ambadgaon Reserve Forest Cashew mixed forest, Open scrub rest Main powerline (High tension wire) Maharashtra State boundary (<5 km)
	Shrubs	13	4710	2.14	
	Herbs	10	86500	2.16	
Quartile 1 North-West	Trees	35	1714	2.78	Konkan Railway track, Reserve Forest Amthane Dam. Main power line
	Shrubs	9	2120	1.84	
	Herbs	9	2050	2.36	
Quartile 3 South-West	Trees	54	234	1.87	Diwadi Island. Mandovi river and its tributaries Mangrove forest and swamps, Konkan railway track
	Shrubs	8	1220	1.84	
	Herbs	10	2500	1.36	
Quartile 4 South-East	Trees	44	734	2.17	Mandovi River and its tributaries, Mangrove Forest / swamps, Open scrub, Kudne river, Volvot river, Harvalem Waterfalls
	Shrubs	11	3820	2.64	
	Herbs	9	11500	2.06	
Overall	Trees	62			
	Shrubs	16			
	Herbs	15			

Sensitivity: Public (C4)

Detailed Eco-Sensitive Areas

Table 3.22 Ecologically Important habitat from the core area boundary

Sl. No.	Important ecosystem	Distance from Core area	Quartile direction
1	Ambadgaon RF	7.6 Km	Q 1 (North-East)
2	Kharpal RF	6.7 Km	Q 1 (North-East)
3	Kasarpal RF	5.1 Km	Q 1 (North-East)
4	Amthane dam & up-stream	5.8 km	Q 2 (North-East)
5	Chapora River	7.5 km	Q2 (North-West)
6	Mayem Forest	Common Boundary to Lease Area	Q2 (North-West)
7	Assonora River	Touches the Lease Area	Q2 (North-West)
8	Mapusa River	2.0 Km	Q2 (North-West)/ Q3 (South-West)
9	Mangroves	0.23 Km	Q2 (North-West)/ Q3 (South-West) & Q4 (South-East)/
10	Moira River	2.45 km	Q3 (South-West)
11	Mayem Lake	0.45 Km	Q3 (South-West)
12	Divar Island	5.8 Km	Q3 (South-West)
13	Mandovi River	5.3 Km	Q4 (South-East)/ Q3 (South-West)
14	Volvoti River	3.3 Km	Q4 (South-East
15	Bicholim River	0.2 Km	Q4 (South-East

FLORAL DIVERSITY

TREE: Overall 62 species of trees were enumerated from the reserve forest and riparian habitats.

Table 3.23 Trees growing buffer area of 10-km radius

Sl.No.	Species name	Family
1	*Acacia catechu (L.f.) Willd. var.*	Fabaceae
2	*Adina cordifolia Hook. f. ex Brandis*	Dipterocarpaceae
3	*Alstonia scholaris (L.) R.Br.*	Apocynaceae
4	*Annona squamosa L.*	Annonaceae
5	*Arlocapus lakoochu Wall. ex Roxb*	Moraceae
6	*Artocarpus heterophyllus Lam.*	Moraceae
7	*Artocapus integrifolius Auct.*	Moraceae
8	*Bischofia javanica Bl.*	Phyllanthaceae
9	*Bombax malabaricum DC.*	Bombacaceae
10	*Buchanania latifolia Roxb.*	Anacardiaceae
11	*Butea monosperma (Lam.) Taub.*	Fabaceae
12	*Caesalpinia bonducella (L.) Fleming*	Caesalpinaceae
13	*Canthium dicoccum (Gaert.) T. & B.*	Rubiaceae
14	*Careya arborea Roxb.*	Lecythidaceae
15	*Caryota urens L. (Kithul) sap.*	Arecaceae

Sensitivity: Public (C4)

16	*Cassia fistula L.*	Fabacaeae
17	*Casearia ovoidea Sleumer*	Salicaceae
18	*Cassia siamea Lam.*	Fabaceae
19	*Celtis cinnamomea Lindl. ex Planch.*	Ulmaceae
20	*Clerodendron sp.,*	Lamiaceae
21	*Cordia wallichii L.*	Boraginaceae
22	*Dalbergia calofolia Roxb.*	Fabaceae
23	*Delonix regia (Hk.) Raf.*	Fabaceae
24	*Diospyros montana Roxb.*	Ebenaceae
25	*Erythrina indica L.*	Fabaceae
26	*Ficus arnottiana (Miq.) Miq.*	Moraceae
27	*Ficus glomerata Roxb.*	Moraceae
28	*Ficus microcarpa L.f.*	Moraceae
29	*Flueggea leucopyrus Willd.*	Phyllanthaceae
30	*Gliricidia sepium (Jacq.) Kunth*	Fabaceae
31	*Glochidion velutinum L.*	Euphorbiaceae
32	*Grewia robusta L.*	Tiliaceae
33	*Grewia tiliifolia Vahl.*	Tiliaceae
34	*Holoptelea integrifolia (Roxb.) Planch.*	Ulmaceae
35	*Holarrhena pubescens (Buch.-Ham.)*	Apocynaceae
36	*Hopia perviflora Bedd.*	Lythraceae
37	*Hydnocarpus wightiana Bl.*	Achariaceae
38	*Lannea grandis (Dennst.) Engl.*	Anacardiaceae
39	*Macaranga peltata (Roxb.) Muell.*	Euphorbiaceae
40	*Mallotus philippensis (Lam.) Muell.*	Euphorbiaceae
41	*Mangifera indica L.*	Anacardiaceae
42	*Memecylon umbellatum Burm.*	Melastomataceae
43	*Mitragyna parviflora (Roxb.) Korth.*	Rubiaceae
44	*Olea dioica L.*	Oleaceae
45	*Peltophorum pterocarpum (DC.)*	Fabaceae
46	*Polyalthia longifolia Sonn.*	Annonaceae
47	*Pterocarpus marsupium Roxb.*	Fabaceae
48	*Radermachera xylocarpa (Roxb.) Schm.*	bignoniaceae
49	*Randia dumetorum L.*	Rubiaceae
50	*Sapindus emarginatus L.*	Sapindaceae
51	*Schleichera oleosa (Lour.) Oken*	Euphorbiaceae
52	*Semecarpus anacardium L. f.*	Anacardiaceae
53	*Spondias mangifera Willd.*	Anacardiaceae
54	*Syzygium caryophyllatum (L.) Alton*	Myrtaceae
55	*Syzygium cumini (L.) Skeels*	Myrtaceae
56	*Terminalia paniculata Roth*	Combretaceae
57	*Thespesia populnea (L.) Correa*	Malvaceae
58	*Trema orientalis (L.) Bl.*	Cannabinaceae

Sensitivity: Public (C4)

59	*Vitex alticima L. f.*	Verbenaceae
60	*Wrightia tinctoria*	Apocynaceae
61	*Xylia xylocarpa (Roxb.) Taub.*	Mimosaceae
62	*Ziziphus mauritiana Lam.*	Rhamnaceae

Shrubs: Total 16 species recorded in 10 km buffer area .

Table 3.24 Shrubs growing 10-km radius from lease boundary of Block I Bicholim mineral block

Sl.No.	Species name	Family
1	*Acacia paniculata Willd.*	Mimosaceae
2	*Amaranthus spinosus L.*	Amarantheceae
3	*Annona murocata L.*	Annonaceae
4	*Calotropis gigantean L.*	Asclepidiaceae
5	*Canthium parviflorum Lam.*	Rubiaceae
6	*Carissa congesta L.*	Apocynaceae
7	*Chromolaena odorata (L.) K.R.*	Astraceae
8	*Crotolaria virosa (Roxb.) Bake.*	Fabacaeae
9	*Dendrocalamus strictus*	Poaceae
10	*Helictris isora*	Malvaceae
11	*Ixora brachiata Roxb. ex DC*	Rubiaceae
12	*Jatropha gossypiifolia*	Euphorbiaceae
13	*Lantana camara L.*	Verbenaceae
14	*Rosa chinensis Jacq.*	Rosaceae
15	*Vitex negundo*	Verbenaceae
16	*Ziziphus oenoplea Miller.*	Rhamnaceae

Herbs: Total 15 species recorded in 10 km buffer area. The dominant species were *Acrostichum aureum, Asparagus racemose, Borreria articulata,* and *Cymbopogon citratus,*

Table 3.25. Checklist of herbsreported within 10-km radius from lease boundary of Block I Bicholim mineral block

Sl. No	*Species name*	Family
1	*Acrostichum aureum*	Pteridaceae
2	*Ageratum conyzoides*	Astraceae
3	*Asparagus racemose*	Asparagaceae
4	*Atlantia species*	Rutaceae
5	*Bidens biternata*	Asteraceae
6	*Borreria articulata*	Rubiaceae
7	*Cassia tora*	Caesalpinaceae
8	*Cymbopogon citratus*	Poaceae
9	*Cyperus difformis*	Cyperaceae

Sensitivity: Public (C4)

10	*Ipomea cmuricata*	Convolvulaceae
11	*Ocimum sanctum*	Lamiaceae
12	*Parthenium spp*	Asteraceae
13	*Premna coriacea*	Verbenaceae
14	*Sida cordifolia*	Malvaceae
15	*Solanum indicum*	Solanaceae

Mangrove forest

Total 16 species recorded from the mangrove estuary nearby Assonora and Mandovi River and closer to Salim Ali Bird Sanctuary. The dominant family was Rhizophoraceae and followed by Lythraceae and Acanthaceae

Table 3.26 Checklist of Mangrove species recorded from the 10 km radius from lease boundary of Block I Bicholim Mineral block

Sl. No.	Species Name	Family
1	*Rhizophora mucronata*	Rhizophoraceae
2	*Rhizophora apiculata*	Rhizophoraceae
3	*Avicennia marina*	Acanthaceae
4	*Avicennia officinalis*	Acanthaceae
5	*Sonneratia alba*	Lythraceae
6	*Sonneratia caseolaris*	Lythraceae
7	*Ceriops tagal*	Rhizophoraceae
8	*Bruguira gymnorhiza*	Rhizophoraceae
9	*Bruguiera cylindrica*	Rhizophoraceae
10	*Kandelia candel*	Rhizophoraceae
11	*Lumnitzera racemosa*	Combretaceae
12	*Aegiceras corniculatum*	Primulaceae
13	*Dolichandron spathecae*	Bignoniaceae
14	*Excocaria agalocha*	Euphorbiaceae
15	*Acanthus ilicifolius*	Acanthaceae
16	*Acrostichum aureum*	Pteridaceae

OUTSIDE FOREST LANDSCAPE:

Avenue trees and human settlement:

Total 25 species were recorded in the roadside and human settlement; most of these species were planted and some are naturally regenerated.

Sensitivity: Public (C4)

Table. 3.27 Checklist of species recorded from avenue forest and nearby human settlement within 10 km radius.

Sl. No	Species name	common name	Family	habit
1	*Tamarindus indica*	Tamrind/imli	Cesalpinaceae	Tree
2	*Annona reticulata*	Ramphal	Annonaceae	Tree
3	*Bambusa sp*	Bamboo	Bambocaceae	Tree
4	*Bougainvillea spectabilis*	Bouganvilla	Nyctaginaceae	Tree
5	*Cassia fistula*	Amaltas	Fabaceae	Tree
6	*Dalbergia latifolia*	Shisam/ Shisoo	Fabaceae	Tree
7	*Delonix regia*	Gulmohar	Fabaceae	Tree
8	*Phyllanthus emblica*	Awala/.Avala	Phyllanthaceae	Tree
9	*Psidium guajava*	Peru/Gauva	Myrtaceae	Tree
10	*Samanea saman*	Rain tree	Fabaceae	Tree
11	*Sapindus mukorossi*	Ritha/Reetha	Sapindaceae	Tree
12	*Swetenia mahagoni*	Mohagony	Meliaceae	Tree
13	*Syzygium cumini*	Jamun	Myrtaceae	Tree
14	*Terminalia bellerica*	Ghoting/behada	Combretaceae	Tree
15	*Acacia auriculiformis*	Babul	Mimosaceae	Tree
16	*Garcinia indica*	kokum	Clusiaceae	Tree
17	*Pongamia pinnata*	Karuaini	Fabaceae	Tree
18	*Ficus benghalensis*	Banyan tree	Moraceae	Tree
19	*Ficus religiosa*	Peepal Tree	Moraceae	Tree
20	*Vitex negundo*	Nirgundi	Lamiaceae	Shrub
21	*Mucuna pruriens*	Kavachkuiri	Fabaceae	Climber
22	*Dioscorea bulbifera*	Aerial yam	Dioscoreaceae	Climber
23	*Zornia diphylla*	Two-Leaf Zornia	Fabaceae	Herb
24	*Justicia simplex*	Simple Justicia	Acanthaceae	Herb
25	*Cynodon dactyl*	Lawn Grass	Poaceae	Grass

DOMESTICATED / CULTIVATED SPECIES

The landscape had many horticulture plants which were grown around the backyard of village houses. In addition, large scale plantations like Cashew, Coconut, Mango, and Areca nut were found in farmlands. There were seasonal paddy and vegetable cultivations within the 10 km buffer area.

Sensitivity: Public (C4)

Table. 3.28 List of species from 10 km radius which are domesticated or cultivated from the farmland

Sl. No.	Species name	common name	Family	habit
1	*Annona reticulata*	Ramphal	Annonaceae	Tree
2	*Phyllanthus emblica*	Awala/.Avala	Phyllanthaceae	Tree
3	*Psidium guajava*	Peru/Gauva	Myrtaceae	Tree
4	*Carica papaya*	Papaya	Caricaceae	Tree
5	*Musa paradisiaca*	Bannana	Musaceae	Tree
6	*Acacia auriculiformis*	Babul	Mimosaceae	Tree
7	*Anacardium occidentale*	Cashew	Anacardiaceae	Tree
8	*Areca catechu*	Areca Nut	Arecaceae	Tree
9	*Cocos nucifera*	Coconut	Arecaceae	Tree
10	*Garcinia indica*	Kokum	Clusiaceae	Tree
11	*Tamarindus indica*	Tamarind	Cesalpinaceae	Tree
12	*Mangifera indica*	Mango	Anacardiaceae	Tree
13	*Piper betle*	Betel leaves	Piperaceae	climber
14	*Oryza sativa*	Paddy	Poaceae	Herbs

The plant species recorded in the study area were grouped into three categories i.e. endemic, rare and threatened and keystone species and are given in below Table 3.26 Overall, 6 important species were recorded within the study area. Within buffer area, 5 keystone, one endemic species was recorded.

Table 3.29 Endemic, Keystone and Threatened species recorded in 10-km radius area

Sl. No.	Species	Family	Core/buffer region	Habitat	Status
1	*Artocarpus heterophyllus* Lam.	Moraceae	Buffer	Open / Reserve Forest	Endemic
2	*Ficus arnottiana* (Miq.) Miq.	Moraceae	Buffer	Open	Keystone
3	*Ficus benghalensis* L.	Moraceae	Buffer	Open	Keystone
4	*Ficus glomerata* Roxb.	Moraceae	Buffer	Open	Keystone
5	*Ficus racemosa* L.	Moraceae	Buffer	Open	Keystone
6	*Ficus religiosa* L.	Moraceae	Buffer	Open/ Rivulets	Keystone

BIODIVERSITY : FAUNA

Overall, 239 species were recorded in the study area. These were recorded through primary observation and from secondary publications and reports. In case of fauna Mammals (10 species), frogs and toads (17 species), Birds (153), butterfly (27) and aquatic fishes and crabs (16) were reported from the region.

Sensitivity: Public (C4)

The details are listed below -

Mammals: Total 10 mammal species were reported within core and buffer areas of which one species Schedule- I, 2 species of Schedule-II, 1 of Schedule-III and 3 species Schedule - IV, and 2 from Schedule V were recorded.

Table 3.30. List of the mammal species reported from 10-km radius.

Sl. No	Local Name	Scientific name	Family	IUCN Status/ WPA Schedule
1	Common grey mongoose	*Herpestes edwardsii*	Herpestidae	Lower risk/ IV
2	Indian Hare	*Lepus nigricollis*	Leporidae	Lower risk/ IV
3	Flying fox bat	*Pteropus giganteus*	Pteropodidae	Sch-V
4	Rat	*Rattus rattus*	Muridae	Sch-V
5	Indian porcupine	*Hystrix indica*	Hystricidae	Lower risk/IV
6	Wild boar	*Sus scrofa*	Suidae	Lower risk/III
7	Striped squirrel	*Funambulus palmarum*	Sciuridae	Sch-IV
8	Common leopard	*Panthera pardus*	Felidae	Lower risk/I
9	Small Indian civet	*Viverricula indica*	Viverridae	Lower risk/II
10	Bonnet macaque	*Macaca radiate*	Cercopithecidae	Lower risk/II

Reptiles: Total 16 reptile species were recorded within core and buffer areas. Out of which, 11 species of snakes and 5 species of lizards were recorded. As per IUCN, they are of least concern. Further, as per the wildlife Protection Act, 4 snake species and 1 lizard species are of Schedule-II.

Table 3.31 List of Reptile's reported from the 10-km radius.

Sl. No.	Common name	Scientific name	Family	IUCN status / WPA schedule
1	Common Sand Boa	*Gongylophis conicus*	*Boidae*	Common
2	Montane trinket snake	*Coelognathus helena monticollaris*	*Colubridae*	Common
3	Indian rat Snake	*Ptyas muscosa*	*Colubridae*	Sch-II
4	Common Kukri Snake	*Oligodon arnensis*	*Colubridae*	Common
5	Western Kukri Snake	*Oligodon affinis*	*Colubridae*	Uncommon
6	Checkered Keelback	*Xenochrophis piscator*	*Colubridae*	Sch-II
7	Striped Keelback	*Amphiesma stolatum*	*Colubridae*	Common
8	Hill keelback	*Amphiesma monticola*	*Colubridae*	Endemic to WGs
9	Saw scaled Viper	*Echis carinathus*	*Viperidae*	Sch-IV
10	Cobra	*Naja naja*	*Elapidae*	Rare/II
11	Russell's Viper	*Daboia russelii*	*Viperidae*	Sch-II
12	Green Forest lizard	*Calotes calotes*	*Agamidae*	Common

Sensitivity: Public (C4)

13	Roux's Forest lizard	*Calotes rouxii*	*Agamidae*	Common
14	Indian Garden lizard	*Calotes versicolor*	*Agamidae*	Common
15	Bark/Marbled Tree gecko	*Hemidactylus leschenaultia*	*Gekkonidae*	Common
16	Common Indian monitor lizard	*Varanus bengalensis*	*Varanidae*	Least concern/II

AMPHIBIANS

Total 17 species of frogs were recorded within the various habitat ranges from paddy field, scrub jungle, riparian forest, streams, and evergreen forest patches . The Jordon's narrow mouthed frog and Bronzed frog are near threatened and one Konkan bush frog vulnerable under IUCN was reported and the rest were under the least concern category.

As per WPA, 9 species were recorded under Schedule-IV and 8 species under common.

Table 3.32 List of toads and amphibians reported from 10-km radius.

Sl. No.	Common name	Scientific name	Family	IUCN status / WPA schedule
1	Common Indian toad	*Bufo melanostictus*	Bufonidae	LC
2	Jerdon's narrow mouthed frog	*Ramanella Montana*	Microhylidae	NT
3	Konkan bush frog	*Philautus bombayensis*	Rhacophoridae	VU
4	Marten's bush frog	*Philautus leucorhinus*	Rhacophoridae	LC
5	Bamboo tree frog	*Polypedates leucomystax*	Rhacophoridae	LC
6	Common tree frog	*Polypedates maculatus*	Rhacophoridae	LC
7	Malabar gliding frog	*Rhacophorus malabaricus*	Rhacophoridae	LC
8	Skipper frog	*Euphlyctis cyanophlyctis*	Ranidae	LC/IV
9	Jerdon's bull frog	*Hoplobatrachus crassus*	Ranidae	LC/IV
10	Indian bull frog	*Hoplobatrachus tigerinus*	Ranidae	LC/IV
11	Brown leaping frog	*Indirana semipalmata*	Ranidae	LC/IV
12	Paddyfield frog	*Limnonectes limnocharis*	Ranidae	LC/IV
13	Hill cricket frog	*Limnonectes syhadrensis*	Ranidae	LC/IV
14	Fungoid frog	*Rana malabaricus*	Ranidae	LC/IV
15	Bronzed frog	*Rana temporalis*	Ranidae	NT/IV
16	Indian burrowing frog	*Tomopterna breviceps*	Ranidae	LC/IV
17	Dobson's burrowing frog	*Tomopterna dobsoni*	Dicroglossidae	LC

Note: *LC - Least concern, NT - near threaten, VU – Vulnerable, Wildlife Protection Act -Schedule IV*

Sensitivity: Public (C4)

BIRDS

Total 153 species of birds were recorded within the habitat ranges from paddy field to evergreen forest . As per the Wildlife Protection Act 1972, 2- species were of Schedule I and 151 species were of Schedule IV and one threatened species was recorded. Out of that 126 species were resident locally, 2 were endemic belonging to the Western Ghats. 28 specie of migratory birds were recorded, in which 11 species were local migratory birds and two were vulnerable species.

Table 3.33 List of birds reported from 10-km radius.

Sl. No.	Common name	Scientific name	Family	IUCN status/ WPA schedule
1	Little Grebe	*Tachybaptus ruficollis*	Podicipedidae	R/IV
2	Little Cormorant	*Phalacrocorax niger*	Phalacrocoracidae	R/IV
3	Indian Shag	*Phalacrocorax fuscicollis*	Phalacrocoracidae	R/IV
4	Great Cormorant	*Phalacrocorax carbo*	Phalacrocoracidae	M/IV
5	Darter	*Anhinga melanogaster*	Phalacrocoracidae	RV/IV
6	Little Egret	*Egretta garzetta*	Ardeidae	R/IV
7	Western Reef Egret	*Egretta gularis*	Ardeidae	RM/IV
8	Grey Heron	*Ardea cinerea*	Ardeidae	RM/IV
9	Purple Heron	*Ardea purpurea*	Ardeidae	R/IV
10	Large Egret	*Casmerodius albus*	Ardeidae	R/IV
11	Median Egret	*Mesophoyx intermedia*	Ardeidae	M/IV
12	Cattle Egret	*Bubulcus ibis*	Ardeidae	R/IV
13	Indian Pond-Heron	*Ardeola grayii*	Ardeidae	R/IV
14	Little Green Heron	*Butorides striatus*	Ardeidae	R/IV
15	Black-crowned Night Heron	*Nycticorax nycticorax*	Ardeidae	RM/IV
16	Malayan Night Heron	*Gorsachius melanocephalus*	Ardeidae	M/IV
17	Chestnut Bittern	*Ixobrychus cinnamomeus*	Ardeidae	M/IV
18	Black Bittern	*Dupetor flavicollis*	Ardeidae	M/IV
19	Painted Stork	*Mycteria leucocephala*	Cioniidae	M/IV
20	Lesser Whistling-Duck	*Dendrocygna javanica*	Anatidae	MR/IV
21	Cotton Teal	*Nettapus coromandelianus*	Anatidae	MR/IV
22	Spot-billed Duck	*Anas poecilorhyncha*	Anatidae	M/IV
23	Oriental Honey-buzzard	*Pernis ptilorhyncus*	Accipitridae	T/IV
24	Black Kite	*Milvus migrans*	Accipitridae	R/IV
25	Brahminy Kite	*Haliastur indus*	Accipitridae	R/IV
26	White-bellied Sea-Eagle	*Haliaeetus leucogaster*	Accipitridae	R/I
27	Long-billed Vulture	*Gyps indicus*	Accipitridae	CE/IV
28	Crested Serpent Eagle	*Spilornis cheela*	Accipitridae	R/IV
29	Eurasian Marsh Harrier	*Circus aeruginosus*	Accipitridae	R/IV

Sensitivity: Public (C4)

30	Crested Goshawk	*Accipiter trivirgatus*	Accipitridae	MR/IV
31	Shikra	*Accipiter badius*	Accipitridae	R/IV
32	Besra Sparrowhawk	*Accipiter virgatus*	Accipitridae	R/IV
33	Black Eagle	*Ictinaetus malayensis*	Accipitridae	R/IV
34	Jungle Bush Quail	*Perdicula asiatica*	Phasianidae	R/IV
35	Red Spurfowl	*Galloperdix spadicea*	Phasianidae	R/IV
36	Grey Junglefowl	*Gallus sonneratii*	Phasianidae	R/IV
37	Indian Peafowl	*Pavo cristatus*	Phasianidae	R/I
38	Common Buttonquail	*Turnix suscitator*	Turnicidae	R/IV
39	Blue-breasted Rail	*Gallirallus striatus*	Rallidae	R/IV
40	White-breasted Waterhen	*Amaurornis phoenicurus*	Rallidae	R/IV
41	Purple Moorhen	*Porphyrio porphyrio*	Rallidae	RM/IV
42	Pheasant-tailed	*Hydrophasianus chirurgus*	Jacanidae	R/IV
43	Bronze-winged Jacana	*Metopidius indicus*	Jacanidae	R/IV
44	Common Ringed Plover	*Charadrius hiaticula*	Charadriidae	M/IV
45	Little Ringed Plover	*Charadrius dubius*	Charadriidae	M/IV
46	Kentish Plover	*Charadrius alexandrines*	Charadriidae	M/IV
47	Yellow-wattled Lapwing	*Vanellus malarbaricus*	Charadriidae	M/IV
48	Red-wattled Lapwing	*Vanellus indicus*	Charadriidae	R/IV
49	Eurasian Woodcock	*Scolopax rusticola*	Scolopacidae	R/IV
50	Nilgiri Wood Pigeon	*Columba elphinstonii*	Columbidae	RV/ IV
51	Spotted Dove	*Streptopelia chinensis*	Columbidae	R/IV
52	Emerald Dove	*Chalcophaps indica*	Columbidae	R/IV
53	Green Imperial Pigeon	*Ducula aenea*	Columbidae	R/IV
54	Mountain Imperial-Pigeon	*Ducula badia*	Columbidae	R/IV
55	Indian Hanging-Parrot	*Parrot Loriculus vernalis*	Psittacidae	R/IV
56	Rose-ringed Parakeet	*Psittacula krameri*	Psittacidae	R/IV
57	Plum-headed Parakeet	*Psittacula cyanocephala*	Psittacidae	R/IV
58	Blue-winged Parakeet	*Psittacula columboides*	Psittacidae	RE/IV
59	Brain fever Bird	*Hierococcyx varius*	Cuculidae	R/IV
60	Indian Cuckoo	*Cuculus micropterus*	Cuculidae	U/IV
61	Common Cuckoo	*Cuculus micropterus*	Cuculidae	M/IV
62	Banded Bay Cuckoo	*Cacomantis sonneratii*	Cuculidae	RM/IV
63	Indian Plaintve Cuckoo	*Cacomantis passerinus*	Cuculidae	R/IV
64	Drongo Cuckoo	*Surniculus lugubris*	Cuculidae	R/IV
65	Asian Koel	*Eudynamys scolopacea*	Cuculidae	R/IV
66	Small Green-billed Malkoha	*Phaenicophaeus viridirostris*	Cuculidae	R/IV
67	Greater Coucal	*Centropus sinensis*	Cuculidae	R/IV
68	Lesser Coucal	*Centropus bengalensis*	Cuculidae	U/IV
69	Oriental Scops-Owl	*Otus sunia*	Strigidae	R/IV
70	Forest Eagle-Owl	*Bubo nipalensis*	Strigidae	U/IV

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71	Ketupa zeylonensis	*Brown Fish-Owl*	Strigidae	R/IV
72	Brown Wood Owl	*Strix leptogrammica*	Strigidae	R/IV
73	Glaucidium radiatum	*Jungle Owlet*	Strigidae	R/IV
74	Spotted Owlet	*Athene brama*	Strigidae	R/IV
75	Indian Jungle Nightjar	*Caprimulgus indicus*	Caprimulgidae	RM/IV
76	Indian Edible-nest Swiftlet	*Collocalia unicolor*	Apodidae	RM/IV
77	White-rumped Needletail-Swift	*Zoonavena sylvatica*	Apodidae	M/IV
78	Brown-backed Needletail-Swift	*Hirundapus giganteus*	Apodidae	M/IV
79	Asian Palm Swift	*Cypsiurus balasiensis*	Apodidae	R/IV
80	Alpine Swift	*Tachymarptis melba*	Apodidae	U/IV
81	Pacific Swift	*Apus pacificus*	Apodidae	U/IV
82	House Swift	*Apus affinis*	Apodidae	R/IV
83	Crested Tree-swift	*Hemiprocne coronata*	Hemiprocnidae	R/IV
84	Malabar Trogon	*Harpactes fasciatus*	Trogonidae	R/IV
85	Small Blue Kingfisher	*Alcedo atthis*	Alcedinidae	R/IV
86	Oriental Dwarf Kingfisher	*Ceyx erithacus*	Alcedinidae	R/IV
87	Stork-billed Kingfisher	*Halcyon capensis*	Alcedinidae	R/IV
88	White-breasted Kingfisher	*Halcyon smyrnensis*	Alcedinidae	R/IV
89	Black-capped Kingfisher	*Halcyon pileata*	Alcedinidae	R/IV
90	Collared Kingfisher	*Todiramphus chloris*	Alcedinidae	R/IV
91	Blue-eared Kingfisher	*Alcedo meningting*	Alcedinidae	R/IV
92	Ceryle rudis	*Lesser Pied Kingfisher*	Alcedinidae	R/IV
93	Blue-bearded Bee-eater	*Nyctyornis athertoni*	Meropidae	R/IV
94	Small Bee-eater	*Merops orientalis*	Meropidae	R/IV
95	Blue-tailed Bee-eater	*Merops philippinus*	Meropidae	M/IV
96	Chestnut-headed Bee-eater	*Merops leschenaulti*	Meropidae	R/IV
97	Brown-headed Barbet	*Megalaima zeylanica*	Capitonidae	R/IV
98	Crimson-throated Barbet	*Megalaima rubricapilla*	Capitonidae	R/IV
99	Coppersmith Barbet	*Megalaima haemacephala*	Capitonidae	R/IV
100	Brown-capped Pygmy woodpecker	*Dendrocopos nanus*	Picidae	R/IV
101	Yellow-fronted Pied woodpecker	*Dendrocopos mahrattensis*	Picidae	R/IV
102	Wire-tailed Swallow	*Hirundo smithii*	Hirudinidae	R/IV
103	Red-rumped Swallow	*Hirundo daurica*	Hirudinidae	R/IV
104	Large Pied Wagtail	*Motacilla maderaspatensis*	Motacillidae	R/IV
105	Yellow Wagtail	*Motacilla flava*	Motacillidae	M/IV

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106	Paddyfield Pipit	*Anthus rufulus*	Motacillidae	R/IV
107	Large Cuckoo-shrike	*Coracina macei*	Campephagidae	R/IV
108	Small Minivet	*Pericrocotus cinnamomeus*	Campephagidae	R/IV
109	Scarlet Minivet	*Pericrocotus flammeus*	Campephagidae	R/IV
110	Red-whiskered Bulbul	*Pycnonotus jocosus*	Pycnonotidae	R/IV
111	Red-vented Bulbul	*Pycnonotus cafer*	Pycnonotidae	R/IV
112	White-browed Bulbul	*Pycnonotus luteolus*	Pycnonotidae	R/IV
113	Yellow-browed Bulbul	*Iole indica*	Pycnonotidae	R/IV
114	Common Iora	*Aegithina tiphia*	Irenidae	R/IV
115	Asian Fairy-Bluebird	*Irena puella*	Irenidae	R/IV
116	Jerdon's Chloropsis	*Chloropsis cochinchinensis*	Irenidae	R/IV
117	Malabar Whistling Thrush	*Myophonus horsfieldii*	Turdinae	R/IV
118	Orange-headed Thrush	*Zoothera citrinacyanotus*	Turdinae	R/IV
119	Oriental Magpie-Robin	*Copsychus saularis*	Turdinae	R/IV
120	White-rumped Shama	*Copsychus malabaricus*	Turdinae	R/IV
121	Indian Robin	*Saxicoloides fulicata*	Turdinae	R/IV
122	Pied Bushchat	*Saxicola caprata*	Turdinae	R/IV
123	Spotted Babbler	*Pellorneum ruficeps*	Timaliinae	R/IV
124	Indian Scimitar Babbler	*Pomatorhinus horsfieldii*	Timaliinae	R/IV
125	Rufous-bellied Babbler	*Dumetia hyperythra*	Timaliinae	R/IV
126	Black-headed Babbler	*Rhopocichla atriceps*	Timaliinae	R/IV
127	Yellow-eyed Babbler	*Chrysomma sinense*	Timaliinae	R/IV
128	Rufous Babbler	*Turdoides subrufus*	Timaliinae	RE/IV
129	Jungle Babbler	*Turdoides striatus*	Timaliinae	R/IV
130	Quaker Tit-Babbler	*Alcippe poioicephalA*	Timaliinae	R/IV
131	Streaked Fantail-Warbler	*Cisticola juncidis*	Sylviinae	R/IV
132	Franklin's Prinia	*Prinia hodgsonii*	Sylviinae	R/IV
133	Ashy Prinia	*Prinia socialis*	Sylviinae	R/IV
134	Plain Prinia	*Prinia inornata*	Sylviinae	R/IV
135	Common Tailorbird	*Orthotomus sutorius*	Sylviinae	R/IV
136	Tickell's Blue-Flycatcher	*Cyornis tickelliae*	Muscicapinae	R/IV
137	Tickell's Flowerpecker	*Dicaeum erythrorynchos*	Dicaeidae	R/IV
138	Plain Flowerpecker	*Dicaeum concolor*	Dicaeidae	R/IV
139	Purple-rumped Sunbird	*Nectarinia zeylonica*	Nectariniidae	R/IV
140	Black-headed Munia	*Lonchura malacca*	Estrildidae	MR/IV
141	House Sparrow	*Passer domesticus*	Passeridae	R/IV
142	Yellow-thraoted Sparrow	*Petronia xanthocollis*	Passeridae	R/IV
143	Common Myna	*Acridotheres tristis*	Sturnidae	R/IV
144	Jungle Myna	*Acridotheres fuscus*	Sturnidae	R/IV
145	Common Hill-Myna	*Gracula religiosa*	Sturnidae	R/IV
146	Black Drongo	*Dicrurus macrocercus*	Dicruridae	R/IV
147	Ashy Drongo	*Dicrurus leucophaeus*	Dicruridae	M/IV

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148	Bronzed Drongo	*Dicrurus aeneus*	Dicruridae	R/IV
149	Greater Racket-tailed Drongo	*Dicrurus paradiseus*	Dicruridae	R/IV
150	Indian Treepie	*Dendrocitta vagabunda*	Corvidae	R/IV
151	White-bellied Tree Pie	*Dendrocitta leucogaster*	Corvidae	U/IV
152	House Crow	*Corvus splendens*	Corvidae	R/IV
153	Jungle Crow	*Corvus macrorhynchos*	Corvidae	R/IV

Note: *M - Migratory, R - Resident, U - unclear, E - Endemic, CE - Critically endangered, NT - Near threatened, V – Vulnerable, I – IV – Schedule species as per WPA*

BUTTERFLY: Total 27 species of butterfly were recorded within various habitats such as paddy fields, degraded habitat, scrub forest, open grassland, evergreen forest, and near settlements. Out of these 1 species was under schedule-I, 4 were under Schedule-II and one in Schedule-IV, and 21 were common in these habitats.

Table 3.34 List of butterfly species recorded within 10-km radius around Bicholim Iron ore mine, Goa.

Sl. No.	Common name	Scientific name	Family	IUCN status/ WPA schedule
1	Spot swordtail	*Graphium nomius* Esper	Papilionidae	Common
2	Crimson rose	*Pachiopta hector* Linnaeus	Papilionidae	Schedule I
3	Common rose	*Pachliopta aristolachiae* Fabricius	Papilionidae	Common
4	Red helan	*Princepes helenus helenus* Hampson	Papilionidae	Common
5	Malabar banded peacock	*Papilio buddh* Westwood	Papilionidae	Schedule II
6	Lime butterfly	*Papilio demoleus* Linnaeus	Papilionidae	Common
7	Chocolate albatross	*Appias lyncida* Cramer	Pierinae	Schedule II
8	Common Jezebel	*Delias eucharis* Drury	Pierinae	Common
9	Common emigrant	*Catopsilla pomona* Fabricius	Coliadinae	Common
10	Common grass Yellow	*Eurema hecabe contubernalis* Moore	Coliadinae	Common
11	Angled Sunbeam	*Curetis dentata* Moore	Curetinae	Common
12	Common Silverline	*Spindasis vulcans fusca* Moore	Theclinae	Common
13	Angled pierrot	*Caleta caleta decidia* Cromer	Polypmmatinae	Common
14	Pea Blue	*Lamipes boeticus* Linneaus	Polypmmatinae	Schedule II
15	Common pierrot	*Castalius rosimon rosimon*	Polypmmatinae	Schedule II
16	Dark pierrot	*Tarueus ananda*	Polypmmatinae	Schedule IV
17	Common four ring	*Ypthima hubenri hubenri* Fabricius	Polypmmatinae	Common

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18	Common nawab	*Polyura athamas athamas* Drury	Charaxinae	Common
19	Angled Castor	*Ariadne ariadne pallidior* Frusthorfer	Nymphalinae	Common
20	Common castor	*Ariadne merione assama* Evans	Nymphalinae	Common
21	Lemon pansy	*Precis lemonias lemonias* L	Nymphalinae	Common
22	Commander	*Moduza procis procis* Cramer	Nymphalinae	Common
23	Tree Nymph	*Idea malabarica* Moore	Danainae	Common
24	Common Indian Crow	*Euploea core* Cramer	Danainae	Common
25	Plain Tiger	*Danaus (Anosia) chrysippus* L	Danainae	Common
26	Grass demon	*Edaspes folcus* Cramer	Hesperiidae	Common
27	Common dart	*Potanthus spp* Fabricius	Hesperiidae	Common

AQUATIC SPECIES: FISHES & CRABS

Total 16 species of fishes were recorded in the study area and two species of crabs in the streams, rivers, and estuaries. The species *Thunnus albacares was* under near threatened and *Thunnus obesus* are Vulnerable category. Most of them were not evaluated under IUCN status and no schedule species were recorded.

Table 3.35 List of Aquatic species reported from 10-km radius.

Sl.No.	Common name	Scientific name	Family	IUCN status/ WPA Schedule
Fishes				
1	Spangled emperor	*Lethrinus nebulosus*	Lethrinidae	Not evaluated
2	Mangrove red snapper	*Lutjanus argentimaculatus*	Lutjanidae	Not evaluated
3	Malabar blood snapper	*Lutjanus malabaricus*	Lutjanidae	Not evaluated
4	John's snapper	*Lutjanus johni*	Lutjanidae	Not evaluated
5	Yellowfin tuna	*Thunnus albacares*	Lutjanidae	Near Threatened
6	Bigeye tuna	*Thunnus obesus*	Lutjanidae	Vulnerable
7	Indian mackerel	*Rastrelliger kanagurta*	Lutjanidae	Data Deficient
8	Black marlin	*Makaira indica*	Lutjanidae	Data Deficient
9	Goatee croaker	*Dendrophysa russelli*	Sciaendae	Not evaluated
10	Blotched croaker	*Nibea maculate*	Sciaendae	Not evaluated
11	Indian oil-Sardinella	*Sardinella longiceps*	Sciaendae	Least Concern
12	Indian spiny turbot	*Psettodes erumei*	Psettodidae	Not evaluated
13	Malabar tonguesole	*Cynoglossus macrostomus*	Cynoglossidea	Not evaluated
14	Dorab wolf-herrings	*Chirocentrus dorab*	Chirocentridae	Not evaluated
15	Chacunda gizzard-shad	*Anodontostoma Chacunda*	Clupeidae	Not evaluated
16	Engraved catfish	*Arius caelatus*	Ariidae	Not evaluated
Crabs				
17	Christian crabs	*Charybdis cruciate*	Portunidae	Not evaluated
18	Blue swimming crab	*Portunus Pelagicus*	Portunidae	Not evaluated

Sensitivity: Public (C4)

3.9 SOCIAL ENVIRONMENT

3.9.1 BRIEF METHODOLOGY OF DATA COLLECTION

DESCRIPTION OF ENVIRONMENT

Generally, population and environment are dependent upon each other in echo balance. People's livelihood and their lifestyles are to a large extent depend upon the environment. However, the fragile balance between population and environment may be disturbed when people over exploit the natural resources more than required.

An attempt was made to understand the current socio-economic status of the study area and to predict the impact of the mining project on their lives and surroundings. The data would also help in designing suitable CSR (Corporate Social Responsibility) activities in the mining buffer zone to bring positive changes on the livelihood of the population in the area.

The data for the study was collected in April 2023 using methods like random sample survey of households, in-depth interviews and Focus Group Discussions (FGDs). Data on socioeconomic status of population was collected using random sample survey of households. Data on the infrastructure facilities was collected from the village elders, local officials and secondary sources. Assessment of minimum needs of the community was collected using FGDs and in-depth interviews. Data on morbidity pattern was collected from any one or more heath institutions (PHC or CHC or Clinic or Dispensary) either in buffer zone or nearby buffer zone. Data on village population, caste composition, literacy status, labor force participation, and occupational and industrial classification of workers have been collected from Census 2011 and through a sample survey.

There are 68 villages/towns - 56 villages and 12 census towns (CT), in the buffer zone. Of these, 68 villages/towns, 48 villages and 12 towns are located in 6 talukas of North Goa and 8 villages in one taluka in Maharashtra. As the data pertains to large number of villages and towns are in North Goa, the buffer zone is compared to North Goa District.

Five Villages/towns, namely Mayem, Bicholim, Sirigao, Lamgao and Pilgao, were selected randomly probability proportional to population size. All households were listed in selected villages and town for the selection of households. Twenty households were selected randomly with equal probability from each village/town. In all, data

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were collected from 100 households for the study.

The Census 2011 data was tabulated and was projected by using statistical tools to arrive at probable data for 2021. The Census 2011 and projections for 2021 were compared to see the trend and were then compared with the survey 2023 data to make meaningful conclusion.Detailed methodology, sampling, aims and objectives, data collection methods, schedules, tabulation plan, quality checks, report layout and other techniques are presented in SoP. The Socio-Economic survey was conducted on 12th to 16th of April 2023.

The list of villages in which the survey was conducted are give below table No.3.36

Table No : 3.36

Villages Names	Nos of Households
Mayem	25
Bicholim	15
Sirigao	30
Lamgao	10
Pilgao	20

A special emphasis was given on the educational institutions present near to the proposed mining area. The educational institutes present are tabulated below:

Table No 3.37

Sl. No.	Name of the School	Strength of the School	School time	Distance from mine (Km)	Direction
1.	Bicholim - ITI	450	8.30 am to 5.30 pm	0.17	NE
2.	Goa Polytechnic School	400	9.00 am to 5.30 pm	0.02	SW
3.	Mulgao School	Currently not in operation/Closed	NA	Within mining lease	N
4.	Lamgao School	09	7.45 am to 1.30 pm	0.015	NE
5	Ideal High school, Pilgao	292	9.00 am to 5.30 pm	1.525	S
6	Govt. high school Sirigao	56	9.00 am to 5.30 pm	0.874	W
7	Govt. high school, Mulgao	117	9.00 am to 5.30 pm	0.608	N
8	Govt. high school, Shriodwadi, Mulgao	50	9.00 am to 5.30 pm	0.702	N
9	Vijyanand high school, Mayem	94	9.00 am to 5.30 pm	3.958	S
10	Shree Mahamaya High school,	170	9.00 am to	1.245	SW

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	Mayem		5.30 pm		
11	Our lady of grace high school, Bicholim	1106	9.00 am to 5.30 pm	0.505	NE
12	Shree Shantadurga high school, Bicholim	1286	9.00 am to 5.30 pm	0.616	NE

Out of these Mulgao school is not operational and is closed.

3.9.1.1 Demographic Status:

Population size and sex composition are presented in Tables 3.38 and 3.39 from census and survey. Generally, population size is expected to grow steadily over time, but small habitats like villages and small towns may sometimes experience negative growth because of migration and other rare causes like endemic diseases.

***3.9.1.1a* Population in the Buffer Zone- Broad Findings:**

The total population of buffer zone was 253,834 according to census 2011 and marginally grew to 272,287 according to projections 2021.

The village population size varied widely from a minimum of 93 persons in Ambarim to a maximum of 7544 in Mayem.

Ten villages had population less than 1000, followed by 22 villages between 1000 and 1999, 13 villages between 2000 and 2999, nine villages between 3000 and 3999, and two villages and 12 towns more than 4000.

All towns were having more than 4000 population.

The sex ratio in buffer zone was found to be balanced as it is closed to 1000 - 978 females per 1000 males according to 2011 census and 955 according to Survey 2023.

There were 22 villages/towns having less than 950 females per 1000 males, followed by 19 villages/towns between 950 and 999 females per 1000 males, 27 villages/towns more than 1000 females per 1000 males.

The average number of persons per household was similar according to census 2011 (4.2) than in survey 2023 (4.0) buffer zone.

Table 3.38: Population in buffer zone villages, 2011 Census.

Village	Number of households	Male	Female	Total	Sex ration/(F/M per 1000)
Alorna	600	1351	1300	2651	962
Ibrampur	555	1262	1167	2429	925
Cansarvornem	310	752	630	1382	838
Dargalim	1331	2872	2824	5696	983
Tuem	652	1422	1329	2751	935
Oxel	633	1329	1465	2794	1102

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Revora	631	1308	1322	2630	1011
Nadora	295	648	609	1257	940
Pirna	632	1267	1301	2568	1027
Assonora	944	1898	1972	3870	1039
Sircaim	713	1442	1408	2850	976
Paliem	314	778	599	1377	770
Ucassaim	278	509	568	1077	1116
Nachinola	645	1360	1365	2725	1004
Corjuem	640	1303	1422	2725	1091
Calvim	113	180	223	403	1239
Olaulim	172	308	351	659	1140
Pomburpa	757	1554	1541	3095	992
Mapusa (M Cl)	9466	20322	19667	39989	968
Salvador do Mundo (CT)	1516	3228	3145	6373	974
Aldona (CT)	1624	2925	3345	6270	1144
Ambarim	27	44	49	93	1114
Navelim	280	522	611	1133	1170
Goltim	423	755	879	1634	1164
Malar	382	813	817	1630	1005
Bainguinim	388	754	747	1501	991
Jua (CT)	1057	1971	2163	4134	1097
Corlim (CT)	1583	3386	3182	6568	940
Goa Velha (CT)	1055	2129	2193	4322	1030
Mercurim (CT)	1233	2329	2641	4970	1134
Dumacem	59	147	149	296	1014
Salem	761	1724	1703	3427	988
Adwalpale	326	686	726	1412	1058
Sirigao	361	820	797	1617	972
Mulgao	926	1998	1894	3892	948
Ona	167	336	349	685	1039
Maulinguem North	323	739	718	1457	972
Curchirem	435	1033	1010	2043	978
Sarvona	787	1865	1721	3586	923
Maem	1728	3763	3781	7544	1005
Vainguinim	156	347	359	706	1035
Aturli	112	234	233	467	996
Naroa	419	952	945	1897	993
Piligao	600	1295	1348	2643	1041
Cudnem	763	1714	1594	3308	930
Amone	694	1482	1481	2963	999
Navelim	611	1387	1316	2703	949
Bicholim (M Cl)	3978	8771	8215	16986	937
Sanquelim (M Cl)	3239	7071	6580	13651	931
Podocem	241	479	487	966	1017
Ravona	256	606	559	1165	922
Morlem	762	1674	1616	3290	965
Maloli	90	218	198	416	908
Tivrem	454	960	918	1878	956
Betqui	382	871	836	1707	960
Adcolna	385	883	805	1688	912
Cundaim	913	1988	1871	3859	941
Ponda (M Cl)	5818	11729	10935	22664	932
Candola (CT)	1280	2742	2612	5354	953

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Orgao (CT)	1156	2264	2338	4602	1033
Maneri	472	945	1026	1971	1086
Kasai	931	1964	1847	3811	940
Girode	64	145	121	266	834
Vazare	342	698	695	1393	996
Ambadgaon	283	552	565	1117	1024
Matane	467	1073	921	1994	858
Ayee	386	850	803	1653	945
Talekhol	278	630	571	1201	906
Buffer Zone	60654	128356	125478	253834	978
North Goa	191766	416677	401331	818008	963

Table 3.39: Survey population in buffer zone villages, Survey 2023.

Village	Number of households	Male	Female	Total	Sex ration (F/M per 1000)
Buffer Zone	100	221	211	432	955

The age structure of the population is presented in **Table 3.40** from survey 2023. Age structure by sex is very important parameter because it influences many socioeconomic and medical needs of population.

3.9.1.1b Percentage distribution of population by age and sex in buffer zone- Broad Findings:

Fertility seems to be low in buffer zone, as the percentage of population less than 14 years is around 22 according to the survey (proportion of population age less than 15 is a rough indicator of level of birth rate for 15-year period).

The buffer zone is going through the second state of demographic transition.

About 14 per cent of the population is in school going age (5-14) needing support in the form of scholarships to needy students, transport facility etc.

About 63 per cent of the population is in the working age group (15-59).

Many of them are in need of employment, especially females. Therefore, Supporting self help groups for establishment of microenterprises, vocational training for youth, Agriculture & dairy development programs will help .About 8 per cent of the population aged 15-19 is potential entrants into labor force.

Skill development/ Vocational programs can be designed and implemented to make a job ready talent pool in the area. They can be trained in vocational centers taking local needs of the industry into consideration.

About 50 per cent of females are in adult reproductive ages, Specialized health camps, awareness programme on health hygiene will help them.. About 14 percent of children are in less than 9 years of age are in need of support in education and recreation. About

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7% of females are in adolescent age of 10-14 years and need awareness on personal hygiene and support in sanitation hygiene.

Table 3.40 : Percentage distribution of population by age and sex in buffer zone, Survey 2023.

Age	Male	Female	Total
0- 4	7.0	6.8	6.9
5- 9	7.4	7.1	7.3
10-14	7.8	7.5	7.6
15-19	8.1	7.5	7.8
20-24	9.6	8.4	9.0
25-29	9.2	9.0	9.1
30-34	8.6	8.7	8.6
35-39	8.6	8.7	8.7
40-44	7.5	7.4	7.5
45-49	6.5	6.5	6.5
50-54	5.3	5.3	5.3
55-59	4.3	4.7	4.5
60-64	3.9	4.5	4.2
65-69	2.6	3.1	2.8
70-74	1.7	2.3	2.0
75-79	1.0	1.3	1.1
80+	0.8	1.3	1.1
Total	100.0	100.0	100.0

3.9.1.2 Social Status

The percentage distribution of population by caste from census 2011 and survey 2023 has been presented in **Tables 3.41A** and **3.41B**. The SCs and STs are socially disadvantage groups needing special attention to integrate them into the main stream of socioeconomic development. So, SC and ST groups needs to be given special focus. It is, generally, not desirable to describe SC and ST population growth trends because caste composition keep changing by addition of new castes in each census and due to conversions into other denomination.

Broad Findings:

The percentage of SC population in the buffer zone is 2.5 per cent according to census 2011 and 3.0 according to the survey 2023.

The percentage of SC population varies widely from 0.1 per cent in Bainguinim and 12.9 per cent in Maulinguem North.

Sensitivity: Public (C4)

The SC population is not listed in 13 villages/towns, followed by less than one per cent in 17 villages/towns; between one and less than 5 per cent per cent in 28 villages/towns, and more than 5 per cent in 10 villages/towns.

The percentage of ST population in buffer zone is 3.5 per cent according to census 2011 and 4.0 per cent in survey 2023.

The percentage of ST population varies widely from 0.1 per cent in Vainguinim to 40.9 per cent in Betqui.

The percentage of ST population is not listed in 24 villages/towns, followed by less than one per cent in 21 villages/towns, between one and less than 5 per cent in 9 villages/towns and more than 5 per cent in 14 villages/towns.

Table 3.41A: Percentage Distribution of Population by Broad Caste Groups in Buffer Zone, 2011 Census.

Village	% SC	% ST	% Others	Total
Alorna	5.9	0.2	94.0	100.0
Ibrampur	6.8	0.4	92.8	100.0
Cansarvornem	2.4	0.0	97.6	100.0
Dargalim	5.0	0.0	95.0	100.0
Tuem	4.9	0.1	95.0	100.0
Oxel	0.3	0.0	99.7	100.0
Revora	4.3	0.3	95.4	100.0
Nadora	0.0	0.0	100.0	100.0
Pirna	1.8	0.0	98.2	100.0
Assonora	1.8	0.2	98.0	100.0
Sircaim	2.2	0.1	97.7	100.0
Paliem	0.9	0.0	99.1	100.0
Ucassaim	0.0	0.7	99.3	100.0
Nachinola	3.8	1.7	94.6	100.0
Corjuem	9.2	2.0	88.8	100.0
Calvim	0.0	5.0	95.0	100.0
Olaulim	4.4	0.6	95.0	100.0
Pomburpa	0.5	0.3	99.2	100.0
Mapusa (M Cl)	4.1	0.4	95.5	100.0
Salvador do Mundo (CT)	3.2	2.4	94.5	100.0
Aldona (CT)	3.3	3.2	93.5	100.0
Ambarim	0.0	0.0	100.0	100.0
Navelim	1.6	26.0	72.4	100.0
Goltim	0.5	16.0	83.5	100.0
Malar	0.3	4.7	95.0	100.0
Bainguinim	0.1	0.7	99.3	100.0
Jua (CT)	0.9	2.0	97.0	100.0
Corlim (CT)	0.5	18.4	81.1	100.0
Goa Velha (CT)	0.5	2.7	96.9	100.0
Mercurim (CT)	0.3	12.1	87.6	100.0
Dumacem	0.0	0.0	100.0	100.0
Salem	3.1	0.0	96.9	100.0

Sensitivity: Public (C4)

Adwalpale	8.1	0.0	91.9	100.0
Sirigao	0.0	0.0	100.0	100.0
Mulgao	4.3	0.0	95.7	100.0
Ona	5.5	0.0	94.5	100.0
Maulinguem North	12.9	0.1	87.0	100.0
Curchirem	0.0	0.0	100.0	100.0
Sarvona	1.6	1.0	97.4	100.0
Maem	1.0	0.0	99.0	100.0
Vainguinim	0.0	0.1	99.9	100.0
Aturli	0.0	0.0	100.0	100.0
Naroa	4.4	9.2	86.4	100.0
Piligao	1.7	38.2	60.2	100.0
Cudnem	1.9	0.9	97.2	100.0
Amone	0.5	0.0	99.5	100.0
Navelim	0.2	14.7	85.1	100.0
Bicholim (M Cl)	2.2	0.5	97.3	100.0
Sanquelim (M Cl)	1.2	0.7	98.2	100.0
Podocem	0.6	0.0	99.4	100.0
Ravona	0.9	0.0	99.1	100.0
Morlem	3.6	0.0	96.4	100.0
Maloli	0.0	0.0	100.0	100.0
Tivrem	1.0	6.5	92.5	100.0
Betqui	4.7	40.9	54.4	100.0
Adcolna	0.6	27.1	72.3	100.0
Cundaim	2.0	23.4	74.5	100.0
Ponda (M Cl)	1.2	0.5	98.3	100.0
Candola (CT)	0.5	15.1	84.5	100.0
Orgao (CT)	0.0	12.6	87.4	100.0
Maneri	9.0	0.0	91.0	100.0
Kasai	3.8	0.8	95.3	100.0
Girode	0.0	0.0	100.0	100.0
Vazare	5.0	0.0	95.0	100.0
Ambadgaon	0.7	0.1	99.2	100.0
Matane	1.6	0.1	98.4	100.0
Ayee	8.5	1.3	90.2	100.0
Talekhol	0.0	0.3	99.7	100.0
Buffer Zone	2.5	3.5	94.0	100.0
North Goa	2.2	6.9	90.9	100.0

Table 3.41B: Percentage Distribution of Survey Population by Broad Caste Groups in Buffer Zone, Survey 2023.

Village	% SC	% ST	% Others	Total
Buffer Zone	3.0	4.0	93.0	100.0

3.9.1.3 Educational Status

Literacy status: The literacy rates from the census 2011 and survey 2023 have been presented in Tables 3.41C and 3.41D. The literacy rates are defined as percentage of literates to the population aged 6+. This is according to the definition of census and

Sensitivity: Public (C4)

the same is being followed across India. Literacy is a social as well as economic measure. It is said that literacy helps society to integrate with the ongoing developmental process.

Percentage of literacy among males and females is steadily growing over many years, but the percentage of male literacy is always higher than females with a wide margin. However, the difference between male and female literacy rates are narrowing in the recent years.

Broad Findings:

The literacy rates are higher in projections 2021 than in 2011 in buffer zone and the census. The literacy rates in the buffer zone are the same according to survey 2023 (90.7 per cent).

The literacy rates moderately vary from 70.6 per cent in Matane to 94.6 per cent in Vainguinim.

The literacy rates are less than 80 per cent in 6 villages/towns, followed by between 80 and less than 90 per cent in 33 villages/towns and more than 90 per cent in 28 villages/towns.

The literacy rates are higher among males than females and the different varies widely from less than 5 percentage points in 9 villages, followed by between 5 and less than 10 percentage points in 28 villages, between 10 and less than 15 percentage points 22 villages and more than 15 percentage points in 9 villages.

Table 3.41C: Literacy Rates in Buffer Zone, 2011 Census.

Village	Male	Female	Total
Alorna	92.7	81.2	87.0
Ibrampur	88.8	76.3	82.8
Cansarvornem	87.9	74.6	81.9
Dargalim	95.6	85.1	90.4
Tuem	92.8	83.1	88.1
Oxel	95.8	87.7	91.6
Revora	96.2	88.8	92.5
Nadora	96.4	87.2	92.0
Pirna	92.7	83.8	88.2
Assonora	95.7	91.0	93.3
Sircaim	94.6	89.3	92.0
Paliem	94.3	86.6	91.0
Ucassaim	91.9	84.3	87.9
Nachinola	90.9	86.4	88.6
Corjuem	92.8	87.5	90.0

Sensitivity: Public (C4)

Calvim	87.4	76.5	81.3
Olaulim	92.6	82.9	87.3
Pomburpa	96.2	89.1	92.6
Mapusa (M Cl)	94.4	89.6	92.0
Salvador do Mundo (CT)	93.5	89.3	91.4
Aldona (CT)	94.0	88.2	90.9
Ambarim	90.2	93.2	91.8
Navelim	92.3	83.7	87.7
Goltim	96.3	88.5	92.1
Malar	97.3	87.8	92.5
Bainguinim	92.6	88.4	90.5
Jua (CT)	91.3	91.9	91.6
Corlim (CT)	93.1	86.0	89.7
Goa Velha (CT)	92.7	85.7	89.2
Mercurim (CT)	93.4	86.1	89.5
Dumacem	95.5	88.0	91.8
Salem	93.7	83.3	88.5
Adwalpale	92.7	77.7	84.9
Sirigao	97.0	86.4	91.8
Mulgao	95.2	87.1	91.3
Ona	93.6	80.5	86.9
Maulinguem North	87.6	70.8	79.2
Curchirem	84.0	68.0	76.0
Sarvona	92.5	86.9	89.8
Maem	94.3	85.0	89.7
Vainguinim	97.8	91.6	94.6
Aturli	92.6	79.5	86.2
Naroa	93.5	79.7	86.6
Piligao	94.1	82.4	88.1
Cudnem	94.0	83.2	88.8
Amone	96.4	86.4	91.4
Navelim	93.4	82.4	88.1
Bicholim (M Cl)	94.6	88.9	91.9
Sanquelim (M Cl)	94.2	88.5	91.5
Podocem	90.5	77.0	83.7
Ravona	90.5	70.9	81.1
Morlem	92.7	79.6	86.3
Maloli	92.3	78.9	86.0
Tivrem	93.4	88.5	91.0
Betqui	91.4	78.1	84.9
Adcolna	90.8	80.5	85.9
Cundaim	94.2	83.5	88.9
Ponda (M Cl)	95.9	93.0	94.5
Candola (CT)	94.1	86.3	90.3
Orgao (CT)	95.8	88.9	92.3
Maneri	89.6	74.9	81.8
Kasai	93.8	84.1	89.1
Girode	95.2	74.3	85.7
Vazare	85.0	58.7	72.0
Ambadgaon	86.1	60.0	72.9
Matane	82.9	56.7	70.6
Ayee	87.4	65.7	76.6
Talekhol	94.9	82.9	89.3

Sensitivity: Public (C4)

Buffer Zone	93.8	86.2	90.0
North Goa	93.4	85.6	89.6

Table 3.41D: Literacy Rates in Buffer Zone, Survey 2023.

Village	Male	Female	Total
Literacy rates	93.9	87.5	90.7
Mean years of schooling	9.5	8.7	9.1

3.9.1.4 Homestead land

Of the 38,299 hectare of land area in buffer zone, 11.1 per cent is being used for homestead.

3.9.1.5 Employment

The labor force participation rates (percentage of workers to the total population) from the census 2011 and survey 2023 have been presented in **Tables 3.42A** and **3.42B**. The labor force participation rate is a measure of economically active population. As the work is getting complex with industrialization, simple manual work does not suffice until workers acquire special skills to get employment.

The skills generally are acquired by schooling and vocational training at home or in institutions.

Any secular trend in labor force participation cannot be described because female participation is uncertain and entry into and exit from labor force is frequent. Also, the definitional changes of 'worker' itself influence female labor force more than male. Therefore, it is not advisable to describe trend in labor force participation.

Broad Findings:

The labor force participation is marginally higher (41.3 per cent) according to census 2011 than the survey 2023 (40.3 per cent) in buffer zone.

The labor force participation rates vary among villages from 39.3 per cent in Oxel to 54.8 per cent in Maloli. The male labour force participation rates vary from 46.1 per cent in Calvim to 64.9 per cent in Ambadgaon with a difference of 19 percentage points.

Whereas, the female labor force participation rates vary from 12.4 per cent in Sirigao to 53.0 per cent in Maloli, a difference of 41 percentage points.

There is a definite need to promote skill development for female population to bring

Sensitivity: Public (C4)

them into labor force. Total participation rates will be higher if female participation rates will also be higher.

Table 3.42A: Labor force Participation Rates (% workers) in Buffer Zone, 2011 Census.

Village	Male	Female	Total
Alorna	54.6	25.5	40.3
Ibrampur	56.3	21.3	39.5
Cansarvornem	60.6	16.8	40.7
Dargalim	59.6	26.0	43.0
Tuem	54.7	24.8	40.2
Oxel	52.5	13.2	31.9
Revora	60.9	26.6	43.6
Nadora	57.4	20.4	39.5
Pirna	57.2	17.7	37.2
Assonora	58.1	32.4	45.0
Sircaim	56.7	18.8	38.0
Paliem	54.1	19.7	39.1
Ucassaim	52.8	19.4	35.2
Nachinola	58.2	27.3	42.7
Corjuem	47.3	21.2	33.7
Calvim	46.1	22.0	32.8
Olaulim	57.5	49.0	53.0
Pomburpa	54.9	22.5	38.8
Mapusa (M Cl)	58.3	22.4	40.6
Salvador do Mundo (CT)	56.9	24.9	41.1
Aldona (CT)	52.2	20.1	35.1
Ambarim	47.7	34.7	40.9
Navelim	52.7	18.3	34.2
Goltim	51.1	21.3	35.1
Malar	55.0	25.2	40.1
Bainguinim	61.3	29.9	45.6
Jua (CT)	55.8	16.5	35.2
Corlim (CT)	62.0	27.0	45.1
Goa Velha (CT)	54.9	27.5	41.0
Mercurim (CT)	47.4	23.2	34.6
Dumacem	55.1	27.5	41.2
Salem	54.4	13.6	34.1
Adwalpale	59.6	26.6	42.6
Sirigao	52.6	12.4	32.8
Mulgao	55.3	17.4	36.9
Ona	52.4	21.8	36.8
Maulinguem North	52.2	16.6	34.7
Curchirem	56.1	24.0	40.2
Sarvona	57.7	16.2	37.8
Maem	55.7	20.7	38.1
Vainguinim	53.0	15.3	33.9
Aturli	55.1	24.5	39.8
Naroa	59.2	19.6	39.5
Piligao	55.8	19.9	37.5
Cudnem	59.5	16.0	38.5
Amone	54.6	13.2	33.9

Sensitivity: Public (C4)

Navelim	55.4	16.3	36.4
Bicholim (M Cl)	56.2	17.9	37.7
Sanquelim (M Cl)	59.3	19.9	40.3
Podocem	63.0	31.0	46.9
Ravona	63.2	40.6	52.4
Morlem	57.7	28.8	43.5
Maloli	56.4	53.0	54.8
Tivrem	58.0	21.8	40.3
Betqui	54.4	19.0	37.1
Adcolna	57.4	21.1	40.1
Cundaim	55.9	24.9	40.9
Ponda (M Cl)	59.2	22.3	41.4
Candola (CT)	57.8	24.4	41.5
Orgao (CT)	58.8	25.9	42.1
Maneri	58.5	19.4	38.2
Kasai	53.6	13.3	34.1
Girode	63.4	36.4	51.1
Vazare	60.5	35.3	47.9
Ambadgaon	64.9	15.0	39.7
Matane	60.7	22.4	43.0
Ayee	61.6	18.2	40.5
Talekhol	62.1	40.5	51.8
Buffer Zone	57.1	21.9	39.7
North Goa	57.4	22.1	40.1

Table 3.42B: Labor force Participation Rates in Buffer Zone, Survey 2023.

Village	Male	Female	Total
Buffer zone	59.5	20.8	40.3

3.9.1.6 Industrial status

The percentage distribution of workers by industry according to the census 2011 is presented in **Table 3.42C**. It has been documented that there a significant shift from primary sector (agriculture) to secondary and tertiary sectors of economy.

Generally, there is underemployment in the agriculture sector pushing labor force to non-agriculture sector, mostly to service sector. Thus, the percentage of work in primary sector is declining and other sectors (secondary and tertiary) is growing.

The same is being observed in the talukas and buffer zone.

Broad Findings:

Of all workers, only 12 per cent in buffer zone and 9 per cent in the district are engaged in agriculture sector. About 80 per cent of net area sown is unirrigated area depending upon rain.

Therefore, cultivation depends upon rainfall and vagaries of weather. This may negatively impact household income.

Sensitivity: Public (C4)

Table 3.42C: Percentage distribution of workers in Buffer zone and in Rural District by industry, Census 2011 and 2021 (Projected).

Census 2011	Male	Female	Total
Buffer zone			
Cultivators	5.4	8.2	6.2
Agriculture laborers	4.3	8.4	5.4
Household industry	3.0	3.4	3.1
Others	87.2	80.0	85.2
Total	**100.0**	**100.0**	**100.0**
District			
Cultivators	3.9	7.0	4.7
Agriculture laborers	3.6	6.2	4.3
Household industry	2.5	3.2	2.7
Others	90.0	83.6	88.3
Total	**100.0**	**100.0**	**100.0**
Projections 2021			
Buffer Zone			
Cultivators	4.6	7.5	5.6
Agriculture laborers	4.1	7.9	4.9
Household industry	3.2	3.3	3.1
Others	88.1	81.3	86.4
Total	**100.0**	**100.0**	**100.0**
Cultivators	3.4	6.4	5.1
Agriculture laborers	3.2	5.7	4.3
Household industry	2.4	3.1	2.6
Others	91.0	84.8	88.0
Total	**100.0**	**100.0**	**100.0**

Village Level Industrial Status: The percentage of workers in primary sector of economy is presented in **Table 3.42D**. These data indicate the village economy. Mining and other related activities have brought in the non-agriculture activities into villages. The activities mostly related to transportation of iron ore and patty shops.

Broad Findings:

The percentage of workers in agriculture sector varies across villages in the buffer zone. It ranges from 4.2 per cent in Bainguinim to 82.9 per cent in Maloli. The percentage of workers engaged in agriculture sector is less than 50 per cent in 8 villages.

Sensitivity: Public (C4)

Table 3.42D: Percentage of workers engaged in primary sector (agriculture) by village, Census 2011.

Village	Total
Alorna	35.5
Ibrampur	28.2
Cansarvornem	16.4
Dargalim	17.1
Tuem	16.6
Oxel	11.6
Revora	27.1
Nadora	13.3
Pirna	20.4
Assonora	11.4
Sircaim	10.4
Paliem	12.1
Ucassaim	5.8
Nachinola	10.0
Corjuem	13.6
Calvim	16.7
Olaulim	45.8
Pomburpa	11.5
Mapusa (M Cl)	1.4
Salvador do Mundo (CT)	2.7
Aldona (CT)	5.8
Ambarim	13.2
Navelim	15.2
Goltim	10.6
Malar	16.5
Bainguinim	4.2
Jua (CT)	1.7
Corlim (CT)	5.2
Goa Velha (CT)	4.6
Mercurim (CT)	16.9
Dumacem	17.2
Salem	26.6
Adwalpale	21.4
Sirigao	8.3
Mulgao	11.4
Ona	8.3
Maulinguem North	11.7
Curchirem	42.9
Sarvona	10.6
Maem	20.0
Vainguinim	16.3
Aturli	23.1
Naroa	19.9

Sensitivity: Public (C4)

Piligao	9.2
Cudnem	14.1
Amone	12.8
Navelim	10.9
Bicholim (M Cl)	1.8
Sanquelim (M Cl)	3.5
Podocem	19.6
Ravona	60.8
Morlem	27.4
Maloli	82.9
Tivrem	9.9
Betqui	27.5
Adcolna	10.9
Cundaim	11.1
Ponda (M Cl)	2.6
Candola (CT)	3.9
Orgao (CT)	5.9
Maneri	55.1
Kasai	22.8
Girode	57.4
Vazare	75.4
Ambadgaon	77.7
Matane	43.9
Ayee	50.1
Talekhol	50.3
Buffer Zone	11.6
North Goa	9.0

3.9.1.7 Information on agriculture situation

The percentage distribution of households by size of land holdings from the survey 2023 is presented in **Table 3.43**. The buffer zone is having low concentration of economically and socially weaker section of the population (SCs and STs) excepting in small number of villages.

Many of them are dependent on secondary and tertiary sectors due to lack of farming land to cultivate. It can be observed that only one household each from SCs and STs reported having land to cultivate.

Many households from other castes reported having farm land. Of them, 20 per cent have no land to cultivate, followed by 39 percent less than one hector, 27 per cent one to less than 2.5 hectors and 14 per cent more than 2.5 hectors.

The Socioeconomic and Caste Census (SECC) 2011 indicates population in North Goa do not depend on agriculture.

Sensitivity: Public (C4)

According to SECC 2011, the percentage of rural household owning un-irrigated land is only 4.6 per cent, owning irrigated land is 4.4 per cent and owning other land is 3.8 per cent. The percentage of landless households (14.4 per cent) is deriving household income from manual labor.

According to the SECC 2011, about 18 per cent of the total rural households is depending upon monthly salary from government or public sector establishments and 42 per cent from private sector establishments. Locally, mining related activities provide major opportunity for employment.

Therefore, mining industry and allied activities will supplement the local economy.

Table 3.43: Percentage Distribution of Households by Size of Land Holdings and Caste, Survey 2023.

Land holdings	SC	ST	Others	Total
No land	66.7	75.5	20.4	24.0
< 1 Ha	33.3	25.5	38.7	38.0
1.0 to <2.5 Ha	-	-	26.9	25.0
2.5+ Ha	-	-	14.0	13.0
Total	100.0	100.0	100.0	100.0

3.9.1.8 Annual household income from various sources

The estimated average household income per annum is more than Rs 95,000. Of the total household income, about 85 per cent is contributed by non-agriculture sector and 15 per cent by agriculture sector. According to the SECC 2011, about 39 per cent of rural households are getting monthly income of rupees less than 5,000, about 40 per cent between rupees 5,000 and less than 10,000 and about 29 per cent above rupees 10,000. Therefore, the household's income is not high.

3.9.1.9 Information on family budget

The family expenses are mostly on food items (68 per cent), followed by childrens' schooling, on transport, and others (8 per cent), entertainment (7 per cent), personal hygiene (6 per cent), health care (6 per cent), and other emergencies (5 per cent).

3.9.1.10 Savings

The respondents often reported that the savings are very low, lower than one percent. Often there is a need to borrow to supplement the family expenses.

Sensitivity: Public (C4)

3.9.1.11 Family amenities and assets

Household Amenities: The percentage of households having various amenities from the census 2011 is presented in **Table 3.44A**. People's living conditions can be assessed by household amenities.

Any deficiencies in amenities can be recommended to the project proponent to incorporate into the CSR activities.

People always would be aspiring for comfortable living with all amenities. Therefore, percentage of households having amenities will steadily increase with time.

Broad Findings:

In general, households have good amenities in buffer zone. It is observed that about 99 per cent of all households are living in good or livable house, 97 per cent living in house having one or more than one room, 83 per cent living in their own house, 80 per cent have treated tap water supply within the house, 96 per cent use electricity for lighting, 20.5 per cent have any type of latrine facility within the house, 91 per cent use any type of bath room facility within the house, 65 per cent have some type of drainage facility, 74 per cent use LPG/NPG for cooking. The variations in the percentage of household amenities are significant across villages.

Table 3.44A: Percentage of households living in good house with amenities, Census 2011.

Village	Percentage of households living in/having/using								
	Good or liveable house	House having at least one room	Own house	Treated tap water	Electricity as main source of lighting	Any type of latrine within house	Any type of bath room	Any type of drainage	LPG/ NPG for cooking
Alorna	96.3	97.8	97.1	87.5	96.7	51.1	63.5	31.2	29.8
Ibrampur	98.9	94.6	85.7	82.0	96.1	32.8	75.7	48.1	37.1
Cansarvornem	99.3	94.5	93.4	84.2	96.0	45.6	79.8	9.9	14.0
Dargalim	99.6	97.7	94.7	77.9	97.5	24.9	85.8	36.2	59.2
Tuem	99.5	96.7	96.3	91.7	97.5	33.8	92.3	25.8	70.5
Oxel	100.0	99.2	96.4	90.2	98.1	23.6	93.8	86.1	91.5
Revora	98.4	98.5	95.6	80.4	97.5	31.6	90.1	56.6	64.1
Nadora	98.7	98.7	95.0	93.4	99.0	22.3	86.7	48.5	90.4
Pirna	99.2	99.3	92.8	69.4	98.4	32.8	91.0	29.1	67.8
Assonora	99.9	96.3	83.3	93.4	97.5	21.4	89.8	69.5	87.6
Sircaim	99.5	96.9	93.2	87.6	98.8	5.5	94.5	71.7	92.6
Paliem	99.6	99.3	90.4	82.3	98.5	23.6	93.0	64.2	93.0
Ucassaim	98.7	97.4	94.8	28.3	97.4	13.9	90.4	89.1	87.4
Nachinola	99.6	97.5	77.7	90.6	99.5	3.2	95.1	94.1	92.1
Corjuem	98.9	99.2	96.7	69.7	98.6	9.8	92.1	64.1	79.0

Sensitivity: Public (C4)

Calvim	100.0	99.1	100.0	95.7	99.1	0.0	100.0	99.1	98.3
Olaulim	97.7	99.4	97.7	41.1	99.4	20.0	94.9	93.7	93.7
Pomburpa	99.4	98.5	95.1	62.4	98.5	17.7	93.0	69.1	86.9
Mapusa (M Cl)	98.8	96.9	77.5	89.4	98.4	11.2	97.5	93.2	85.9
Salvador do Mundo (CT)	96.1	97.7	81.4	81.6	98.6	13.4	93.8	41.0	89.3
Aldona (CT)	99.3	98.7	93.2	65.8	97.6	7.9	98.0	84.2	86.8
Ambarim	100.0	93.1	100.0	86.2	96.6	13.8	82.8	55.2	82.8
Navelim	100.0	98.9	94.3	90.0	98.6	14.6	82.9	17.8	88.6
Goltim	100.0	97.2	91.2	85.5	99.8	7.1	97.5	0.5	90.1
Malar	99.7	98.6	93.2	90.8	99.5	22.0	83.5	39.3	90.0
Bainguinim	86.9	98.6	71.1	73.1	91.9	15.6	89.9	79.5	81.8
Jua (CT)	99.0	99.1	90.5	96.3	99.0	11.7	96.9	13.7	91.0
Corlim (CT)	99.1	99.0	69.2	91.1	98.2	6.2	97.5	47.9	81.1
Goa Velha (CT)	97.7	98.8	91.5	89.5	97.7	17.6	98.1	13.9	90.9
Mercurim (CT)	98.7	97.8	87.9	85.8	94.6	12.9	91.4	35.6	76.7
Dumacem	100.0	100.0	74.3	50.0	74.3	59.5	97.3	77.0	14.9
Salem	98.0	96.8	92.8	84.4	97.4	30.1	88.4	94.8	42.7
Adwalpale	99.1	97.8	91.0	42.9	96.9	33.6	90.1	95.1	49.4
Sirigao	99.2	99.4	99.2	96.1	99.4	15.7	92.5	95.6	81.5
Mulgao	99.4	96.2	76.3	73.6	91.5	23.6	81.1	78.5	63.7
Ona	100.0	100.0	95.8	80.7	95.2	60.8	90.4	98.2	59.6
Maulinguem North	99.7	98.8	94.7	55.3	92.2	80.0	53.1	57.2	27.8
Curchirem	98.0	96.8	98.6	54.1	87.9	83.1	22.7	7.0	12.8
Sarvona	99.3	92.7	71.0	88.8	96.1	26.3	88.1	65.1	65.3
Maem	99.1	94.5	91.8	65.8	94.8	29.8	84.6	63.7	67.8
Vainguinim	100.0	98.7	91.8	76.7	95.0	28.9	86.2	69.2	77.4
Aturli	100.0	100.0	96.2	49.1	99.1	55.7	94.3	25.5	53.8
Naroa	98.5	96.4	91.8	54.9	91.3	46.7	71.3	49.4	60.7
Piligao	99.8	98.8	96.0	69.3	91.4	45.3	74.1	62.5	55.0
Cudnem	98.3	99.9	87.0	67.9	98.8	31.9	89.3	48.3	73.3
Amone	100.0	96.2	91.6	95.3	99.3	12.5	92.8	83.5	83.0
Navelim	99.5	96.8	94.5	79.0	96.6	21.0	89.3	81.7	81.5
Bicholim (M Cl)	98.7	97.3	68.4	87.1	96.3	15.6	95.9	87.4	82.1
Sanquelim (M Cl)	100.0	94.6	89.2	67.5	79.3	13.3	96.1	54.7	80.8
Podocem	94.9	99.6	78.4	95.3	93.2	48.3	72.9	80.9	47.9
Ravona	98.9	98.9	98.1	37.5	95.4	67.0	95.4	47.1	13.4
Morlem	99.2	98.3	95.5	71.7	96.4	25.2	87.6	16.1	57.9
Maloli	97.8	98.9	95.5	0.0	89.9	41.6	43.8	34.8	47.2
Tivrem	99.5	98.8	79.3	88.9	96.8	21.0	95.4	94.5	73.5
Betqui	100.0	95.7	94.6	58.8	95.4	73.6	59.6	4.3	39.6
Adcolna	93.6	98.2	79.3	86.2	97.4	24.6	86.4	62.1	65.5
Cundaim	98.9	95.4	80.5	91.8	98.2	27.9	88.5	69.9	68.8
Ponda (M Cl)	99.3	98.1	67.7	98.0	99.1	3.4	98.3	94.8	85.4
Candola (CT)	98.9	97.8	75.4	80.3	98.3	24.2	92.0	67.6	79.6
Orgao (CT)	99.2	98.2	80.1	88.3	99.6	11.1	94.3	78.0	93.1
Maneri	98.4	99.8	97.1	54.5	93.8	43.1	87.9	9.8	6.0
Kasai	98.6	95.1	78.3	13.3	94.1	29.0	85.9	25.2	34.4
Girode	95.0	95.0	100.0	96.7	91.7	90.0	38.3	0.0	1.7
Vazare	92.5	99.7	96.9	4.1	82.7	82.1	78.3	3.5	2.2
Ambadgaon	99.0	99.3	99.3	0.0	77.3	78.0	98.9	0.0	0.0

Sensitivity: Public (C4)

Matane	100.0	99.8	96.8	0.2	70.8	79.6	61.3	0.5	0.7
Ayee	100.0	100.0	96.2	67.0	85.0	70.0	93.6	1.3	4.0
Talekhol	97.9	95.3	92.5	25.1	80.3	47.7	94.3	40.9	2.2
Buffer Zone	98.8	97.4	83.4	79.6	95.8	20.5	91.4	65.4	73.9
North Goa	98.7	81.3	81.3	80.7	97.1	21.3	89.3	64.2	74.0

3.9.1.13 Household Assets: The percentage of households having various assets from the census 2011 is presented in **Table 3.44B**. Most of the assets presented relate to communications and transportation facilities. The data will help in assessing the people's, mobility and their awareness of developmental activities. This will help the households in utilizing welfare programs effectively. Also, it will be easy for the project proponent in implementing CSR activities.

Transport and communication facilities are needed when the local economy is being integrated with market economy. Therefore, transport and communication facilities are growing rapidly.

Broad Findings:

It is observed that about 85 per cent of all households have a bank account; 28 per cent have radio or transistor, 81.7 per cent have television, 32 per cent have laptop with or without internet connection, 88 per cent have landline or mobile phone; 23 per cent have bicycle, 56 per cent have scooter or motorcycle or moped and 24 per cent have car or jeep or van.

The variations in the percentage of household assets are significant across villages.

Table 3.44 B: Percentage of households having the following assets, Census 2011.

Village	Percentage of households having							
	Bank account	Radio or tran-sistor	Television	Computer or laptop with or without internet	Landline or mobile or both	Bicycle	Scooter or motorcycle or moped	Car or jeep or van
Alorna	86.4	12.2	63.3	17.9	76.6	22.5	38.8	7.4
Ibrampur	81.5	6.6	70.7	30.1	85.5	16.4	29.3	6.4
Cansarvornem	87.1	3.3	76.1	12.2	83.5	19.1	62.1	7.7
Dargalim	95.2	18.9	79.7	21.1	90.1	20.3	53.5	13.6
Tuem	98.3	8.2	82.7	17.3	86.2	20.3	49.9	7.7
Oxel	94.5	12.3	90.5	18.7	92.6	25.9	62.2	19.1
Revora	98.2	28.6	79.3	20.2	82.8	26.5	58.4	18.9
Nadora	96.3	17.9	82.1	18.3	90.3	20.6	54.5	15.9
Pirna	95.1	14.9	78.6	15.4	85.4	30.1	53.8	10.3
Assonora	97.8	25.5	86.5	30.9	91.7	18.3	49.5	20.3
Sircaim	95.6	23.2	87.3	23.5	89.1	13.3	53.8	20.1
Paliem	85.2	42.4	81.5	29.9	91.2	28.4	64.9	23.6

Sensitivity: Public (C4)

Ucassaim	81.7	60.0	84.3	32.1	83.9	33.0	59.1	23.0
Nachinola	93.3	47.5	93.9	28.8	95.6	23.7	75.2	30.9
Corjuem	93.8	31.0	86.0	45.4	92.2	17.1	53.8	21.6
Calvim	98.3	67.5	84.6	100.0	95.8	40.2	55.6	11.1
Olaulim	94.9	57.1	86.9	21.7	89.1	37.1	47.4	20.6
Pomburpa	89.3	48.3	89.6	39.0	86.1	20.3	61.7	22.0
Mapusa (M Cl)	89.8	45.7	90.8	42.4	95.1	26.8	65.4	36.4
Salvador do Mundo (CT)	93.2	48.2	89.9	44.4	95.9	30.4	71.3	40.1
Aldona (CT)	92.9	42.6	88.7	29.8	89.0	25.0	56.7	25.0
Ambarim	100.0	58.6	86.2	13.7	68.9	3.4	48.3	20.7
Navelim	95.7	66.2	86.8	24.9	90.8	22.8	63.3	22.1
Goltim	96.8	43.3	89.4	22.6	91.2	15.9	63.8	30.6
Malar	95.1	20.1	87.5	16.8	87.5	23.6	56.1	18.7
Bainguinim	87.3	46.0	83.2	47.7	94.2	25.7	59.8	46.8
Jua (CT)	91.1	55.5	86.9	20.3	89.2	23.7	58.3	20.5
Corlim (CT)	81.3	24.2	85.3	23.7	91.3	23.7	50.8	20.8
Goa Velha (CT)	96.7	53.8	89.6	33.2	85.2	34.5	62.5	26.1
Mercurim (CT)	91.9	44.9	81.6	37.6	93.1	40.0	66.9	31.3
Dumacem	71.6	16.2	63.5	16.2	79.8	37.8	50.0	9.5
Salem	92.3	8.6	75.1	11.9	78.1	22.8	43.5	10.1
Adwalpale	87.3	7.1	71.3	18.2	52.5	19.8	42.6	11.7
Sirigao	95.0	11.9	83.4	22.4	89.5	15.2	66.0	15.7
Mulgao	79.6	28.3	70.9	34.5	90.4	24.6	52.4	22.8
Ona	80.7	43.4	75.3	16.2	80.1	33.1	54.2	13.3
Maulinguem North	28.1	6.6	60.9	7.5	48.5	8.1	25.9	6.9
Curchirem	25.3	10.0	42.9	11.1	51.1	17.2	22.3	6.0
Sarvona	62.1	15.6	79.4	26.2	93.0	20.7	54.9	18.7
Maem	74.4	18.9	76.3	31.1	84.6	27.3	50.4	13.6
Vainguinim	86.2	28.9	71.1	25.8	75.5	40.9	45.3	15.7
Aturli	54.7	8.5	88.7	14.1	89.7	26.4	61.3	7.5
Naroa	63.9	19.0	71.1	27.5	82.4	19.0	49.2	14.5
Piligao	88.4	14.6	71.1	19.3	75.4	15.3	45.5	14.0
Cudnem	80.7	8.2	78.7	19.7	82.3	9.8	47.2	17.6
Amone	72.4	10.6	78.9	19.7	86.1	16.8	54.3	15.9
Navelim	75.5	29.1	83.3	36.4	90.6	24.2	53.6	22.7
Bicholim (M Cl)	83.8	25.2	82.9	38.5	93.4	23.6	58.9	25.0
Sanquelim (M Cl)	87.2	5.9	88.2	47.8	95.5	21.2	59.1	21.7
Podocem	58.9	9.3	69.9	16.9	82.6	9.7	39.0	12.3
Ravona	77.8	3.8	52.9	24.5	65.9	14.9	36.8	4.6
Morlem	87.5	31.6	68.8	16.8	74.2	23.9	48.1	7.6
Maloli	79.8	13.5	52.8	16.8	42.7	18.0	40.4	4.5
Tivrem	91.9	28.3	82.3	49.6	91.9	18.2	53.2	20.3
Betqui	46.9	7.3	63.9	10.7	71.7	8.1	39.4	8.4
Adcolna	80.1	11.5	78.5	11.5	86.6	11.5	41.9	13.6
Cundaim	71.5	21.0	74.4	20.3	78.3	19.4	42.0	18.8
Ponda (M Cl)	89.2	26.6	88.3	47.7	95.7	20.2	63.7	39.5

Sensitivity: Public (C4)

Candola (CT)	83.7	22.1	82.6	40.6	90.0	16.7	58.4	20.3
Orgao (CT)	88.5	31.4	87.1	32.8	92.5	18.4	53.8	24.1
Maneri	83.5	20.8	52.0	8.1	70.1	12.9	26.6	3.8
Kasai	77.4	7.8	67.3	11.0	82.0	20.8	37.9	8.6
Girode	65.0	6.7	50.0	1.7	80.0	28.3	46.7	10.0
Vazare	41.5	16.4	37.1	1.6	40.0	27.4	28.9	3.1
Ambadgaon	27.8	0.0	32.1	12.3	24.6	2.5	9.4	0.0
Matane	34.8	7.0	29.5	8.4	30.9	14.4	17.2	0.9
Ayee	30.8	15.5	39.7	1.4	52.0	22.5	23.3	2.4
Talekhol	63.4	8.2	39.4	5.0	54.8	16.5	24.4	2.2
Buffer Zone	84.8	28.0	81.7	32.3	87.9	22.7	55.7	23.7
North Goa	87.2	32.2	81.7	31.4	88.8	23.3	56.6	24.8

3.9.1.14 Respondent's perception about the proposed mining project

Mining and related activities are the only industry creating direct well as indirect employment in the surrounding villages. The local economy became vibrant because of mining in terms of all round cash flow and service activity. Therefore, mining is going to be a dominant regional economic activity.

The local population is optimistic about the mining project and has a very positive view.

3.9.1.15 Employment and income

Broad Findings: The percentage of workers age 10+ engaged in various activities from the survey 2023 has been presented in **Table 3.45.**

Mining is the dominant economies in the buffer zone as well as in district. Of the total 38299 hectares of land area, 42 per cent is under net area sown and 6 per cent is under forest. The agriculture is dominated by Rice cultivation and Coconut gardens.

About 7 per cent of the population is engaged in agriculture sector as cultivators and another 12 per cent as agriculture laborers.

While 7 per cent of the population is employed in public and private sectors, another 9.2 per cent is working in mining related activities like truck drivers, cleaners, garage workers, petty shop owners.

Table 3.45: Percentage distribution of workers (age 10+) by occupation in Buffer Zone, Survey 2023.

Industry and occupation, buffer zone	Male	Female	Total
Housewife	0.0	45.8	23.1
Student	22.3	19.4	20.8
Not working	20.9	13.4	17.1

Sensitivity: Public (C4)

Disabled	0.0	0.0	0.0
Retired	3.7	0.5	2.0
Cultivators	7.3	5.7	6.5
Agriculture Laborers	13.4	10.1	11.8
Professionals	2.8	0.2	1.5
Employed (private or public)	7.4	2.8	5.1
Bank employee	0.9	0.5	0.7
Drivers, cleaners, garage workers	6.6	0.0	3.3
Truck business	4.5	1.1	2.8
Traditional occupation	0.9	0.0	0.4
Self-employed Hotel	2.2	0.5	1.3
Self-employed other business	2.9	0.0	1.4
Mine workers	4.2	0.0	2.1
Total	**100.0 (189)**	**100.0 (181)**	**100.0 (370)**

3.9.1.16 Data relating to historically, culturally, and ecologically important places in core as well as buffer zone.

Idgah which is archeological monument exists within the mine area. There are several temples in the surrounding villages which are culturally important to the locals, there are several archaeological monuments in the study area.

3.9.1.17 Information on notified tribal settlements, if any.

Notified tribal settlements are not there in buffer zone.

3.9.1.18 Details of private lands with ownership in the core area indicating financial loss annually.

The mining lease is private and government land. There is no compensation involved. There is no financial loss.

3.9.1.19 Health status of the population in the study area.

Morbidity status: Morbidity data presented in Table 3.46 were collected from two PHCs working in the buffer zone. Three months data prior to the survey was collected. Morbidity data in a small geographic area will not show the general pattern. However, an attempt is made to get the local morbidity episodes which are useful for the purpose of providing health care and medicines.

Broad findings:

The frequently reported diseases, more than 5 per cent, are Anaemia, Disease of eye, Cough and fever, Cough cold without fever and Influenza.

Those reported, one to 5 per cent, are Gastroenteritis, Dysentery, Disease of ENT,

Sensitivity: Public (C4)

Vomiting, Skin diseases, Gastroenteritis, Disease of mouth, teeth, gums, Arthritis, Rheumatism-pain, Disease of Kidney, Accidents, Asthma, Bronchitis, Diabetes, Throat infection and Blood Pressure.

Many diseases like Cholera, Tetanus, Filariasis, Pleurisy, Whooping cough, Poliomyelitis and Pregnancy related diseases have not been reported in the last three months. Rarely reported diseases, less than one per cent, are Leprosy, AIDS, Malnutrition, Cancer, Epilepsy, STD, Tuberculosis (TB), Malaria, Burns, Dengue fever, Heart disease, Mental disorder, Pneumonia, Goitre, Disease of thyroid gland, Measles, Jaundice, Food poisoning, Cough cold with fever, Fever not classified elsewhere, Gout or any joint problems accompanied by fever, Typhoid/paratyphoid and Piles.

The possibility of any health hazards due to toxic elements does not arise because iron ore does not contain any toxic elements. The management shall be taking enough care to minimize occupational health hazards like noise-induced hearing loss, any occupational lung diseases due to inhalation of dust. There are few cases of hearing loss mostly associated with old age. The percentage of pneumonia episodes is very negligible (0.1143 per cent). The percentage of Asthma or Bronchitis is reported at 3.6985 per cent because of vices like consumption of tobacco and alcohol, especially among males. The number of skin allergy cases are substantial (2.1989 per cent) because of lack of personal hygiene.

Table 3.46: Number of Patients suffering from the following Diseases in Buffer Zone and around it, Survey 2023.

Sl. No.	Morbidity	% patients visited doctor or clinic
1	Cholera	0.0000
2	Typhoid/paratyphoid	0.8809
3	Gastroenteritis	2.2662
4	Gastroenteritis, Dysentery	1.2037
5	Tuberculosis (TB)	0.0740
6	Leprosy	0.0067
7	Tetanus	0.0000
8	Dengue fever	0.0874
9	Jaundice	0.1950
10	Malaria	0.0807
11	Filariasis	0.0000
12	STD	0.0403
13	AIDS	0.0067
14	Cancer	0.0336
15	Goitre, Disease of thyroid gland	0.1681
16	Diabetes	3.7657
17	Blood Pressure	4.7071
18	Disease of Kidney	3.1807

Sensitivity: Public (C4)

19	Heart disease	0.0874
20	Asthma, Bronchitis	3.6985
21	Pleurisy	0.0000
22	Influenza	20.5837
23	Pneumonia	0.1143
24	Whooping cough	0.0000
25	Poliomyelitis	0.0000
26	Measles	0.1748
27	Epilepsy	0.0336
28	Piles	0.9145
29	Disease of eye	6.4959
30	Disease of ENT	1.3113
31	Gout or any joint problems accompanied by fever	0.4371
32	Arthritis, Rheumatism-pain	3.0529
33	Skin diseases	2.1989
34	Disease of mouth, teeth, gums	2.5957
35	Throat infection	3.9137
36	Malnutrition	0.0067
37	Anemia	5.4267
38	Pregnancy related diseases	0.0000
39	Food poisoning	0.2219
40	Accidents	3.4026
41	Burns	0.0807
42	Mental disorder	0.0941
43	Vomiting	2.0308
44	Cough and fever	11.7141
45	Cough cold without fever	11.8755
46	Cough cold with fever	0.2421
47	Fever not classified elsewhere	0.2421
48	Others	2.3536
49	Total	100.0000 (14871)

Medical lab facilities: The data on nearest medical laboratory facilities are presented in Table 3.47.

Villagers have to travel to Bicholim (about 2 Kms) to avail various medical lab facilities.

Table 3.47: Distance of medical laboratories conducing following Tests from the Buffer Zone, Survey 2023.

Medical test	Distance
X-ray	Bicholim PHC about 2 Kms
Pulmonary functions test	Bicholim PHC about 2 Kms
Testing of hearing	Bicholim PHC about 2 Kms
Identifying tuberculosis	Bicholim PHC about 2 Kms
Blood test	Bicholim PHC about 2 Kms
Urine test	Bicholim PHC about 2 Kms

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3.9.1.20 Summary of socio-economic and demographic survey, and need assessment study:

Socio-economic and Demographic Status

Population size of village varies in buffer zone. There are more males than females according to census and survey in buffer zone and in the district, but the sex ratio is balanced.

The SC and ST population is very small, concentrated only in small number of villages.

The literacy rates are high both in buffer zone and in the district. There is significant variation in literacy rates across villages and between males and females.

Agriculture sector is not an important economy because villages largely depend upon tertiary sector (service) secondary sector (industrial) in both buffer zone and in the district.

The local economy is characterized by labor force participation in mining and mining related activities.

The general morbidity pattern is found that mining related diseases are not high, but chronic diseases have to be monitored.

Skin allergy is substantial due to poor hygiene.

Oral hygiene is very poor and need to be attended to.

The households, in general, are having better amenities to live comfortably. However, protected tap water for drinking and the use of LPG/NPG for cooking need to be addressed.

The possession of assets indicates households have good communication facilities, highly mobile and well connected with outside world. Therefore, population is open to receive new ideas and modern lifestyles.

The population in buffer zone can easily be integrated with many development programs under CSR activities.

Indirect assessment of community needs

Reproductive health care for females in general and in villages/towns where the sex ratio is imbalanced in particular can be considered.

Separate heath camps, water supply and sanitation facilities and the like may be considered in villages having high concentration of SC and ST groups.

Elderly (60+) are in need assistance like general health checkups, eye checkups, vision

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glasses and old age supporting equipment like walking sticks, and the like.

School going population will require support in terms of improving educational aids in schools, scholarships to needy students and strengthening of transport facilities provided by government to school students.

About 15 per cent of the population aged 10-19 is potential entrants into labor force. They can be trained in vocational centers taking local needs of the industry into consideration.

About 63 per cent of the population is in the working age group (15-59). Supporting self help groups for establishment of microenterprises, vocational training for youth, Agriculture & dairy development programs will support the target group.Females in reproductive ages and children in less than 5 years of age are in need of reproductive and child health (RCH) care.

Regular health camps to monitor chronic diseases and general health should be organized.

In general, female labor force participation is lower than males. Some welfare programs like milk dairy and poultry etc., and child care assistance can be designed. Villages having low labor force participation among males/females can be selected for implementation of welfare programs.

There is a need to revamp agriculture with support of zonal agriculture office and subject matter experts by adopting new advanced techniques in the field of agriculture and make it less labour intensive, conduct agriculture camps etc.

Although dependence on agriculture is low in buffer zone, it is high in some villages. So, welfare programs for farmers and agriculture laborers and vocational training for youth may be considered.

The project proponent can contribute in facelifting of the surrounding educational institutes by repairing and renovating existing infrastructure and introduce vocational courses relevant to the nearby industries.Providing educational aids to school. The school children require transport, sanitation and clean drinking water facilities.

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3.10 TRAFFIC DENSITY MEASUREMENT:

The traffic survey is essential to assess the prevailing traffic volumes and travel characteristics realistically and accurately by undertaking classified volume count. The objective of traffic volume count survey is to assess the traffic intensity on the most vulnerable section of the road under question. 24 hours continuous volume count was manually undertaken during May-2023.as given below table no 3.48A

The Iron Ore will be transported from Mine to Sarmanas jetty through dedicated road with only 0.94km stretch of public road i.e., MDR 20. Width of the Road is 7.0m.

The total distance is 5.48km (4.54 dedicated road and 0.94 km MDR-20 public road).
It is to mention that during the transportation of ore there are two junctions which the trucks need to cross namely Mayem junction and Pilgao junction. During the transportation , the company will provide dedicated personnel to manage the traffic on these junctions. Government has already proposed construction of the underpass at Mayem junction at the cost of project proponent. Till that time the existing arrangement of manpower for managing traffic will continue.

The analysis of traffic counts provides an estimate of average daily traffic (ADT). In order to convert recorded vehicles into a common scale, the passenger car units (PCU) equivalent factor as per IRC: 64 has been adopted. The following tables reveal ADT (Average daily Traffic) in terms of number which translates into PCU (Passengers Cars Units). The details given below table no 3.48A to 3.48C

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Table No 3.48A

Time	Motor Cycle		Passenger Car		Agricultural tractor, Light Commercial Vehicle		Truck or Buses		Agricultural tractor Trailer, Truck Trailer	
	To	From	To	From	To	From	To	From	To	From
0:00:00	5	2	1	0	0	0	0	0	0	0
1:00:00	4	3	0	1	0	0	0	0	0	0
2:00:00	2	3	0	0	0	0	0	0	0	0
3:00:00	3	2	0	0	0	0	0	0	0	0
4:00:00	0	0	0	00	0	0	0	0	0	0
5:00:00	6	5	2	3	0	0	0	0	0	0
6:00:00	10	8	1	3	0	0	0	0	0	0
7:00:00	15	13	2	4	0	0	0	0	0	0
8:00:00	44	45	5	9	2	3	3	2	0	0
9:00:00	70	61	15	13	8	10	6	9	0	0
10:00:00	82	70	20	15	12	10	8	6	0	0
11:00:00	61	56	16	12	8	13	9	4	0	0
12:00:00	57	63	13	14	9	12	5	5	0	0
13:00:00	53	54	8	10	5	13	9	3	0	0
14:00:00	40	36	6	7	7	4	2	3	0	0
15:00:00	43	46	8	7	7	5	2	1	0	0
16:00:00	36	32	6	8	5	4	3	2	0	0
17:00:00	28	18	10	12	6	3	02	01	0	0
18:00:00	16	13	8	6	8	4	3	2	0	0
19:00:00	20	18	7	3	3	2	1	1	0	0
20:00:00	18	23	2	4	6	3	0	0	0	0
21:00:00	10	12	3	2	7	4	0	0	0	0
22:00:00	8	13	4	5	6	2	0	0	0	0
23:00:00	6	5	0	0	2	3	0	0	0	0
Total	637	601	137	138	101	95	53	39	0	0

PCU factor given below table Table No.3.48B

Type of Vehicle	PCU Factor	No. of Vehicles /Day	No. PCU/ Day
Motor Cycle	0.5	1238	619
Passenger Car	1	238	238
Agricultural tractor, Light Commercial Vehicle	1.5	196	294
Truck or Buses	3	92	276
Agricultural tractor Trailer, Truck Trailer	4.5	0	0
Total			1427

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As per guidelines for capacity of roads in rural areas of IRC, recommended design series volumes for two lane roads are 15000 PCU/day.

Present Traffic & Loss of services (LOS) is given below table

Table No .3.48C

Road	V (Volume in PCU/day.)	C (Capacity in PCU/day.)	Existing V/C Ratio	LOS
Mine To Jetty	1427	15000	0.095	A Excellent

Transportation route works only 237 days in year & capacity of truck is 10.5 tonne as instructed by Dept. of Mines & Geology, Goa

Fig 3.12 Transportation Route Mines to Sarmanas jetty

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Chapter-4
ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

Sensitivity: Public (C4)

4.0 ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

4.1 ENVIRONMENTAL IMPACTS

The mining activities proposed will have both positive and negative effects on the surroundings. This change is called an impact. The impact could be either useful or detrimental to the environment. The net impact could be determined by evaluating the impact on various parameters.

The parameters with adverse impact due to certain unavoidable reasons have to be nullified, kept to the minimum or brought to have positive effects by taking suitable corrective measures. With a proper understanding of cause and effect and designing suitable measures, it is possible to create better environment.

The proposed project will have a bearing on the socio-economic aspects as well as on the environment due to mining and other incidental activities. The impact depends upon the magnitude, mechanization and method of mining, extent of infrastructural facilities, environmental profile and characteristics of environment.

The impact prediction due to the project has been made in respect of the parameters considered in the present scenario. The quality parameters of ambient air, water, socio-economics aspects, inventory of flora due to mining operations in the buffer zone over a period of one year are available. These help in prediction of the impact more correctly.

The Environmental Impacts can be broadly categorized into Primary and Secondary Impacts. If the impact is directly due to the Project Activity, it is termed as Primary Impact. In case, the impacts are indirectly induced, then it is called Secondary Impact. The project can create impact in two phases. One is during the construction phase, which is temporary and short term in nature, while the impacts created during the operation phase can have long term impacts.

Environmental impacts due to project location, possible accidents, project design, project construction, regular operations, final decommissioning or rehabilitation of a completed project are discussed in this Chapter.

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4.2 IMPACT DUE TO PROJECT LOCATION & PROPOSED MITIGATIVE MEASURES FOR THE PROJECT

The Block 1 Bicholim Mineral Block Mine is located in Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, of Bicholim Taluka, North Goa District, Goa State over an area of 478.5206 Ha.

4.2.3 IMPACTS ON LAND ENVIRONMENT

IMPACTS ON LAND USE DUE TO MINING ACTIVITY

The land within the Mining Lease is a non forest land. Due to proposed mining activity in this area, there will be change in the ground profile in the form of pit and waste dumps. The ore bearing area will be mechanically mined-out up to the ultimate pit limit maintaining required bench height and width with due consideration towards the slope stability. Assnora river touches one end of the lease boundary. The elevation difference from mine workings and river level is found to be more than 10mts . The safety buffer of minimum of 50 mts shall be maintained from the Assnora river and proper mitigative measures proposed to reduce surface-runoff shall have no major impact on the Assnora river and nearest streams. Detailed study as proposed in TOR w.r.t proposed environment protection measures to be taken up w.r.t Assnora River is given vide **Appendix No.III**

Vegetation Loss:

The proposed Mining Block is already stripped off the major vegetative cover to win the ore. Once the lease is executed some vegetative cover shall be removed. The vegetation proposed to cut for mining activities is of Acacia Auriculiformis which was planted by the earlier lessee.

4.2.3.1 IMPACT DUE TO WASTE GENERATION OF THE MINING ACTIVITIES

The project proponent intends to produce a maximum quantity of 3.0 MTPA of Iron Ore. The ore to overburden ratio is 1:8.39. The Max. quantity of material handling which shall be generated in the fifth year is given in the Table No.4.1 below

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Table No.4.1

S.No.	Particulars	Quantity in Tonnes
1	ROM	3000000
2	Waste	25161767
3	Total handling	28161767

The hard material generated during the next five years of mining plan period will be utilized for environmental protective measures like creation of bunds, retention walls, covering on dump portions ,mulching etc.

Table No. 4.2: Proposed backfilling during the plan period is given below

Year	Waste Quantity (M3)	Pit ID	Area Ha
I	1244889.0	5 Top	7.87
I	2238957	5 Top	17.83
I	2238957	1 top	12.78
II	732414	5 Top	5.11
II	1810240	5 Top	16.70
II	1810240	1 top	10.98
III	500000	5 Top	2.36
III	2000000	5 Top	11.19
III	1502000	1 top	11.75
III	1497434	3 Top	13.17
IV	6768535	3/4 bottom	21.60
IV	4410262	3 /4 bottom	18.38
V	8170622	2 Top	10.36

MITIGATION MEASURES

PROPOSED PROTECTIVE MEASURES:

During the plan period appropriate protective measures will be undertaken to prevent any surface run-off from the working area, dumping and backfilled areas.

- Entire waste dump area covered during the present plan period shall be concurrently reclaimed by plantation.

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- The finalized areas on the waste dump will be covered with biodegradable geotextiles to prevent the soil erosion.
- Inward slope will be maintained on the dump top to prevent erosion of dump slope.
- Laterite boulder walls will be constructed all along the toe of the dump followed by trenches which would be connected to series of settling ponds.
- Storm water management will be important aspect of dump management plan and use of metal pipes and garland drains will be made to channelize the rain water from dump top to the settling ponds such that minimum erosion takes place.

  Just before the onset of monsoon, the geotextile laid areas will be sprayed with a mix of organic manure and grass seeds so as to develop a green cover
- Further, such areas will be taken up for plantation of native species under the guidance of State Forest department
- Native forest and horticultural plant species will be used for afforestation activity. Some of the plant species which would be planted are Cashew, Kokum, Avla, Arjun, Bayo, Bamboo, ber, Glyricidia, Ficus, Mango, terminalis species etc .
- Entire rain water that is encountered in the mining area will be properly channelized through trenches into the mining pit.
- The accumulated water into the mining pit will be treated with lime and flocculent if required for faster settling of suspended solids.

By taking all these protective measures, suspended solids in the runoff water flowing through the dump is reduced considerably.

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Table.No.4.3: The various protective measures that will be undertaken are as follows:

Plan Period	Plantation			Retaining Wall (m)	Garland Drains (m)	Settling Pond (No.)
	Area (Ha.)	No. of Sapling	Name of species			
I	4.0432	10108	Mix of forest and horticulture Species like, Ficus species, Terminalia Sp., Cassia Sp. Bamboo Sp . Cashew, Mango ,Jambul Aonla ,etc.	--	1600	--
II	3.1319	7830		--	2000	--
III	4.092	10230		--	1700	--
IV	4.7443	11861		--	300	--
V	3.1609	7902		--	500	--
Conceptual Stage	105	2,65,000		--	--	--

4.2.4 IMPACT DUE TO POSSIBLE ACCIDENTS & PROPOSED MITIGATIVE MEASURES

The impact due to possible accidents on the Environment and the mitigative measures are as proposed below.

4.2.4.1 IMPACT DUE TO ACCIDENTS CAUSED BY VEHICLES USED IN MINING OPERATIONS

The accidents on mines involving men and machinery may lead to damage to vehicles, Spillage of Diesel & Oil, Injury to employee

MITIGATION MEASURES ON THE LAND ENVIRNMENT

Safety will be given prime importance in the mining operations. All the employees working on the mines will be provided with safety training and awareness about various risks and hazards in the mines.

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Following measures would be taken to prevent accidents:

1. Haulage roads will be maintained regularly
2. Proper illumination on the roads and mine
3. Regular maintenance of all the mining machinery to meet the requirement of environmental standards
4. Speed limit of 30km/ hr will be implemented in the mine, sign boards will be displayed at regular intervals at the mines
5. Proper wide roads and gradient will be maintained
6. Proper Personal Protective Equipment (PPE) will be provided to all employees

In case of accidents the vehicles / machinery will be taken to work shop and repaired. Any diesel and oil, which shall be spilled are cleared, collected and places of spillage shall be cleaned immediately. The Waste Diesel and oil are stored in the airtight containers and handed over to GSPCB authorized dealers.

Treatment and rest shall be provided to injured persons until restoring the normal health condition to enable them to get back to work to function effectively

4.2.4.2 IMPACTS DUE TO LAND SLIDE

IMPACT

Opencast mining particularly in areas of heavy rainfall is vulnerable to landslides causing loss of human life, property and deforestation.

MITIGATION MEASURES

A proper and scientific geological study is conducted to study the strata before commencement of mining operations and maximum care shall be taken to avoid the slope failures. Mining will be carried out by forming benches with maximum height of the each bench as 7 m. shall be maintained. The width of the benches shall be 10m. The slope of the benches shall be maintained at 70^0 with overall pit slope of 26^0. Hence, there are no possibilities of failure of mine bench slopes. Internal dumps are stabilized by using coir mats, afforestation of slopes and other engineering structures as envisaged in R&R Plans.

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The detailed bench stability study is undertaken by National Institute of Rock Mechanics (NIRM) and concluded that the existing bench faces are stable and fit for further mining .

The report is enclosed vide **Appendix No. II**

4.3 IMPACTS DUE TO PROJECT DESIGN AND PROJECT CONSTRUCTION, REGULAR OPERATIONS AND PROPOSED MITIGATIVE MEASURES, FINAL DECOMMISSIONING OR REHABILITATION OF COMPLETED PROJECT.

4.3.1 LAND USE

The previous lessee already works the mining project in the past and the previous lessee has undertaken all the construction activities such as mine office, canteen, and other infrastructure facilities. As such, no further construction activity is required to be undertaken. During the mining operations, the land use shall be altered to win the ore. The current land use and conceptual Land use are in the show vide plate No 6A & 6B and its tables are given below in Table 4.4 and Table 4.5

Table No: 4.4 Current Land use

Sr.No	Land use	Current land use Area (Ha.)
1	Settlements	32.4047
2	Pits & Excavation	306.8497
3	Dumps & Material Stocking	41.6116
4	Covered under Mine Infrastructure (plants & sheds)	6.4707
5	Land under Public Infrastructure / Utilities	1.021
6	Barren / Waste land with small bushes & shrubs/ Archaeological site	90.1629
7	Total area	478.5206

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Table No. 4.5 Land Use at the Conceptual Stage

Sr.No	Land use	Conceptual land use Area (Ha.)
1	Settlements	32.4047
2	Pits & Excavation	355.5659
3	Dumps & Material Stocking	6.7146
4	Covered under Mine Infrastructure (plants & sheds)	6.4707
5	Land under Public Infrastructure / Utilities	1.021
6	Barren / Waste land with small bushes & shrubs/Archaeological site	76.3437
7	Total area	478.5206

Mitigation measures for mined out land and mine closure

The land degraded within the ML by mining, waste dumping and other infrastructures is reclaimed by afforestation. At conceptual stage the area of 105.8894 Ha will be reclaimed by planting 2,65,000 plants and fruit bearing trees like Cashew, Bamboo, Arjuna, Alva etc which will be beneficial to the society and also for immigration of avifauna.

Retaining walls with drains are provided at the toe of the dump. Before taking up active afforestation the inactive / dead waste dumps are terraced and planted with suitable grass and leguminous local plant species as a temporary stabilization measure. In critical areas geo-textiles are used along the dump slopes.

The Environment Plan and Protective measures Plan are enclosed as **Plate. No 19** and **Plate No. 20** respectively.

Mine Closure will be carried out considering the following aspects:

1. Compensate the damage to vegetation due to opening and operation of the mine.
2. Prevent the spread of fugitive dust and noise generated due to mining and allied activities.

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3. Help stabilize the slope of waste dump and control soil erosion
4. Increase green cover and improve aesthetics
5. Attract birds to re-colonize the area when the mine is abandoned

4.4 IMPACTS DUE TO OPERATIONS & PROPOSED MITIGATIVE MEASURES

The Bicholim Mineral Block is auctioned ass a new/ fresh mine and shall be operated by taking all precautionary measures to reduce the impact of mining operations on Air, Water, Noise , Soil , Land use and Biological environment.

The impacts on Land environment is evaluated in detail in section 4.11

4.5 IMPACT ON AIR ENVIRONMENT & PROPOSED MITIGATIVE MEASURES

The various activities proposed to be carried out in the Mine viz., loading & unloading, transportation, Crushing and screening at plant etc., are likely to generate dust, which will have impact on Air Environment.

4.5.1 IMPACT ON AIR QUALITY

The proposed mine with its capacity of 3.0 million TPA of ROM and other ancillary activities , is likely to generate dust, NO_2 and SO_2. The impact on air quality of integrated mining complex depends on the magnitude of iron ore extraction operations and transportation & handling.

The intensity of operation is directly related to the rate of production of ore and waste from the mine and its dry size classification.

The ambient air quality monitoring results show that in the villages around the ML area, PM_{10} concentrations are within the prescribed limits (CPCB standards) However, at present the only source of pollution is due to domestic activities and vehicular movement in the surrounding villages .

Once the mining operation starts, it is anticipated that marginal increase in the particulate levels of the core and the buffer zones will occur. Dust suppression

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measures are, therefore, of utmost importance. Vehicular movements within the mine site will add marginally to NO_2 and CO concentrations.

Monitored values of SO_2, NO_2 and CO in the ambient air are reported to be low in the study area. It is proposed that the Lessee ensures regular maintenance of vehicles so that the emission levels remain within the stipulated limits. As adequate dust suppression measures will be provided, the dust particles will not get transported to villages in the downwind direction of the impact area.

PM levels will be higher within the active operational areas (mine area) due to excavation and transportation, however, the buffer zone is not likely to be affected with dust problems, if proper dust suppression and mitigation measures are taken up.

Air pollution sources at the proposed opencast mine can be classified into four categories, viz., Point Source, Area Sources, Line Sources and instantaneous Point Sources as described below:

Point Source/Single Source: These are stationary sources, which emit air pollutants into the atmosphere from a certain fixed point. In the proposed mine, the following sources or activities form the point sources, which emit particulate matter.

Mining: Top OB/Ore benches would be developed in horizontal slicing pattern; hence hydraulic excavator along with matching dumpers would be deployed.

Loading & unloading of waste/ore: The loading of Waste/Ore is proposed by excavators. These activities are likely to contribute air pollution in the form of dust/ particulate matter during discharge of material from bucket and gaseous pollutant like SO_2, NO_2 and hydrocarbons due to combustion of diesel in the loading machinery. The generated waste/ore will be transported by dumpers and unloaded at the designated locations i.e. at dump site or plant site .

During unloading operation at the dump site of the waste/Ore, air pollution in the form of dust (PM) and gaseous pollutants namely SO_2, NO_2 and hydrocarbons due to consumption of diesel in dumpers is anticipated.

Crushing and Screening activity at plants: The ore will be crushed and screened at the

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plant having capacity of 4 MTPA. The Goan ore has inherent moisture of about 11% and hence the generation of dust is minimum.

All the point sources where there is likely hood of dust generation (PM) will be covered. Wherever required the conveyor belts would be covered.

Line Sources: These are normally mobile sources, which emit pollutants in the area through which they pass. The following are the sources of air pollution falling under this category.

Transportation: Surface transport consists of transport of overburden and Iron Ore. Overburden will be transported by dumpers to respective waste dumps. Haul roads have been provided for movement of dumpers. Transportation also includes movement of iron ore to the nearest jetty. The traffic on the haul roads is likely to contribute towards increase in dust and gaseous pollutants concentration in the mining area.

Dozing: Dozing is envisaged during mining operations. The dozing activity is likely to contribute to air pollution in the form of PM, SO_2, NO_2 and hydrocarbons due to use of diesel operated machines.

Area Sources/Multiple Sources : The total mine area with all mining activities like operation of equipment/machinery, active mine pit, mineral stock yard and waste dump locations and haul roads constitute the area source, which lead to increase in air pollution in and around mine lease area.

The size of the dust particles emitted into the atmosphere plays a major role in deciding the distance to which they may be transported. Particles of larger size fall fairly rapidly and closer to their source because of gravitational settling.

The composition of these particles largely depends on the composition of the mineral being processed i.e. iron Ore in this case.

Prediction of fugitive dust level in the surrounding area is carried out with the help of AERMOD. This AERMOD model for area sources uses the steady state Gaussian plume equation for a continuous source. The model was developed by 'Envitrans'.

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4.5.2 AIR QUALITY PREDICTION THROUGH MATHEMATICAL MODELLING– IMPACT OF MINING OPERATIONS ON ENVIRONMENT - AIR QUALITY PREDICTION THROUGH MATHEMATICAL MODELLING.

Prediction of fugitive dust level in the surrounding is carried out with the help of AIRMOD. This model for area sources uses the steady state Gaussian plume equation for a continuous source. Isopleths representing PM10 ,So2,Nox & CO are presented herewith along with ground-level concentrations at core and buffer zone to estimate the total impact load.

4.5.2.1 *AIR QUALITY PREDICTIONS THROUGH MATHEMATICAL MODELLING FOR BLOCK-I BICHOLIM MINERAL BLOCK*

Air Pollution Modeling:

Air quality models are the primary tools for relating emissions to air quality impacts. Models, in turn, require acceptable input data for emissions, surface topography, meteorological parameters, receptor configurations, baseline air quality and initial boundary conditions for each modeling scenario.

Since the quality and reliability of model outputs can never be any better than the inputs, input of the quality data is very important.

Prediction of impacts on air environment has been carried out using mathematical model based on a steady state Gaussian plume dispersion model designed for area sources for short term. In the present case, AERMOD dispersion model based on steady state Gaussian plume dispersion, designed for area sources for short term and developed by United States Environmental Protection Agency [USEPA] has been used for simulations from point sources.

Pollutants Considered for Computation:

The model simulations are done for the air pollutant arising from the mining operations, namely, PM_{10}, $PM_{2.5}$, SO_2 & NO_X. GLCs for PM_{10}, $PM_{2.5}$, SO_2 & NO_X have been computed using hourly meteorological data

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Modeling is done for maximum production & development to know the GLC. The maximum production of 3.0 MTPA is expected to be achieved from this project. Out of this around 85% would be wet fines and around 15% lumps which would require crushing. Hence for this model purpose the study details are as follows:

EMISSION SOURCES:

Pollution source type from the activities of Block I- Bicholim Mineral Block are as follows:

ACTIVITY

A. Excavation of ore & Waste and Dry Screening and Crushing of Ore

B. Ore & Waste transportation

SOURCE TYPE

Open pit : Area

Line: Point

Quantification of particulate emissions has been carried out by the emission factor technique. Emission factor is a statistical average of the rate at which a pollutant is released during an activity.

This factor when multiplied by the level of that activity in a given situation will give the overall effect. Particulate emissions have been predicted by using standard equations given in "Indian Mine and Engineering Journal" and suggested by USEPA for mining & allied activities. Equations for various activities are:

Activity A. Excavation of Waste & Ore and Dry Screening and Crushing of Ore

B. Ore & Waste transportation

Emission factor is calculated by the following empirical formulas

Equation for Excavation of Waste and Ore

23.6 kg/hr particulate matter for every 1000 Tonnes per hour material handling

Equation for Transportation of ore and waste

0.2 kg/vehicle/km.

Sensitivity: Public (C4)

A. Excavation of Waste, Ore and Dry Screening and Crushing of ore:

The maximum production and development of Block -I Bicholim Mineral Block

28.161767 MTPA.

Particulars of activity	**Total**
Excavation of Waste , Ore , crushing & screening (T/A)	28.161767 (MTPA) or 2,81,61,767 T/annum
Excavation of Waste , Ore , crushing & screening TPD taking 365 working days	77,155 Tones/day
Material excavated/tph(24hrs)	3215 tones/hr
Dust emission kg/hr during excavation	76 Kg/hr 21.1 g/sec.

B. Ore & Waste transportation:

Dust emission from the transport vehicles plying for the movement of Iron ore & waste are estimated using the empirical value of

0.2 kg/vehicle/km.

From Excavation of ore and waste transport

DT = Tv x 0.2 x d

DT = Dust emission in kg/hr

Tv = No. of transport vehicles plying in one hour

Waste & Ore Excavated - 3215TPH

Vehicle capacity for transportation: 40 T

Lead: 4.5Kms

Maximum no of Trips per hour

Dust emission due to excavation:

- 40 T Dumpers utilizing 3215 tonnes/hr =80.37

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Using empirical formula 0.2 kg/vehicle/km.

- 80.37 x 0.2 x 4.5 = 72.33 kg/hr or 20.1 gm/sec

From transport of ROM from mine to Sarmanas Jetty outside the lease

DT = Tv x 0.2 x d

DT = Dust emission in kg/hr

Tv = No. of transport vehicles plying in one hour

Ore to be Transported outside - 30,00,000Tpa

Ore to be transported outside Nos: 30,00,000/256 days x 10 hrs

=1172 T/hr

Capacity of the Transportation Trucks : 10.5 T

No of vehicles plying per hour : 1172/10.5=111.6 or say 112

Lead :5.4 Kms

Waste generated in Kg/hr= 112x 0.2 x 5.4

=120.96 Kg/hr = 33.6 gms/sec

far less than the established emissions. Considering the above, the emission rates are derived and used in the model.

Total diesel consumption: 7556 tons per annum

Total Diesel Consumption for inside Machinery 995 kg/hr

Total Diesel Consumption for Truck :- 196 Kg/hr

Gases Emissions

SO_2 emission is calculated based on the hourly fuel consumption of each equipment and the sulphur content in the fuel as provided by the fuel supplier.

Excavation

The daily max consumption of Fuel is 995 Kg/hr and assuming the Diesel fuel emits 100 mg/kg of fuel consumed, the emission rate will be 0.02763g/s

Sensitivity: Public (C4)

Transportation & Miscellaneous

The daily max consumption of Fuel is 196 Kg/hr and assuming the Diesel fuel emits 100 mg/kg of fuel consumed, the emission rate will be 0.00054gm/s

NO_X emission is calculated based on hourly fuel consumption of each equipment and the Nitrogen oxides content in the fuel as provided by the fuel supplier.

Excavation

The daily max consumption of Fuel is 995 Kg/hr and assuming the Diesel fuel emits 200 mg/kg of fuel consumed is 0.0553 g/s

Based on the above, the expected emission rate due to various operations in this project without control measures is calculated and is given below: Emission rate and Emission sources without control measures

EMISSION SOURCE COORDINATES:

The center of mine was considered (0, 0) in the mathematical modeling.

MATHEMATICAL MODEL FOR POLLUTANTS DISPERSION:

In the present case Aermod model has been used to predict the impacts. This model for area sources uses the steady state Gaussian plume equation for a continuous source.

Further the model has following specialties:

- Simulates dispersion from single/multiple/area/line/volume sources. Allows calculations to be made at a user specified regular rectangular/radial grid or at specified special receptors.
- Provides estimates of concentrations for any averaging time period for the entire period of input meteorology.
- Allows calculations to be underwritten for source groups as selected by the user. Uses Pasquill-Gifford or Briggs dispersion curves (for urban areas) as selected by the user, to derive the plume spread parameters.Adjusts dispersion curves to account for user specified information on aerodynamic roughness.

Sensitivity: Public (C4)

Adjusts for wind speed variation with height, using user specified default urban/rural power law coefficients.Simulates dispersion from buoyant, non-buoyant point sources, non- buoyant area, non-buoyant volume sources and non-buoyant line sources.Simulates dry deposition using a simple tilted plume model with user specified reflection coefficients.Simulates building wake effects.Can include the effects of exponential decay.Uses Briggs' 1975 plume rise algorithm to calculate plume height.

4.5.2.2 METEOROLOGICAL CONDITIONS USED IN PREDICTIONS:

The hourly meteorological data has been generated at the site for Summer season of 2023 (Mar to May-2023) and the same has been used in the predictions.

4.5.2.3 RESULTS AND DISCUSSIONS:

Ground level concentrations (GLC) have been computed. Its details are given below:

The results of the Peak GLC's for various environmental parameters with control measures are given below:

ACTIVITIES/ POLLUTANTS	PM10 (g/sec)	PM2.5 (g/sec)	SO2 (g/sec)	NOX (g/sec)
Excavation	21.1	6.33	0.02763	0.0553
Transportation & Miscellaneous	53.7	12.81	0.00054	0.0109
Total	74.8	19.14	0.028	0.0662

The Isopleths of PM 10, PM2.5, SO2 & NOX concentrations is given in Figure 4.1 to Fig No.4.4.

It is observed that the peak incremental concentration for PM_{10}, $PM_{2.5}$, SO_2 & NO_X is occurring very near the source only. At away places from the active source, the values are getting reduced due to wind dispersion and distance effects.

However, various mitigation measures as mentioned above will be strictly enforced in this project during working and the GLC values will be brought down substantially less.

Sensitivity: Public (C4)

The predicted concentrations at Receptors i.e Villages within the buffer zone area where baseline data was collected and Aermod was run by selecting this villages as receptors.

The predicted concentrations of PM_{10}, $PM_{2.5}$, SO_2 & NO_X is given in the table 4.6

Table:4.6

Location	PM10 (µg/m3)			PM 2.5(µg/m3)			SO2 (µg/m3)			NOX (µg/m3)		
	Base line	Incre-ment	Total	Base line	Incre-ment	Total	Base line	Incre-ment	Total	Base line	Incre-ment	Total
A-1 With ML Area	52	4.78	56.78	35	1.56	36.56	13	0.029	13.029	16	0.0024	16.0024
A-2 Lamgao	43	14.54	57.54	27	4.84	31.84	11	0.089	11.089	16	0.0074	16.0074
A-3 Mulgao	55	2.99	57.99	33	0.99	33.99	13	0.018	13.018	17	0.0015	17.0015
A-4 Sircaim	53	0.912	53.912	31	0.3	31.3	12	0.0056	12.0056	15	0.0005	15.0005
A-5 Calvim	47	0.961	47.961	29	0.32	29.32	12	0.0059	12.0059	17	0.0005	17.0005
A-6 Pilgao	48	2.76	50.76	29	0.91	29.91	13	0.017	13.017	15	0.0014	15.0014
A-8 Sarvona	50	5.17	55.17	34	1.72	35.72	13	0.0319	13.0319	18	0.0026	18.0026
A-9 Advalpale	52	0.87	52.87	28	0.29	28.29	9	0.0054	9.0054	14	0.0004	14.0004
A-10 Latamberce	50	0.68	50.68	30	2.05	32.05	10	0.0127	10.0127	16	0.001	16.001

NAAQS standards (µg/m3)

	SO_2	NO_2	PM 10	PM 2.5
24hrs	80	80	100	60
Annual	50	40	60	40

From the predict concentration the values of PM_{10}, $PM_{2.5}$,SO_2 & NO_X is within the permissible limits

Sensitivity: Public (C4)

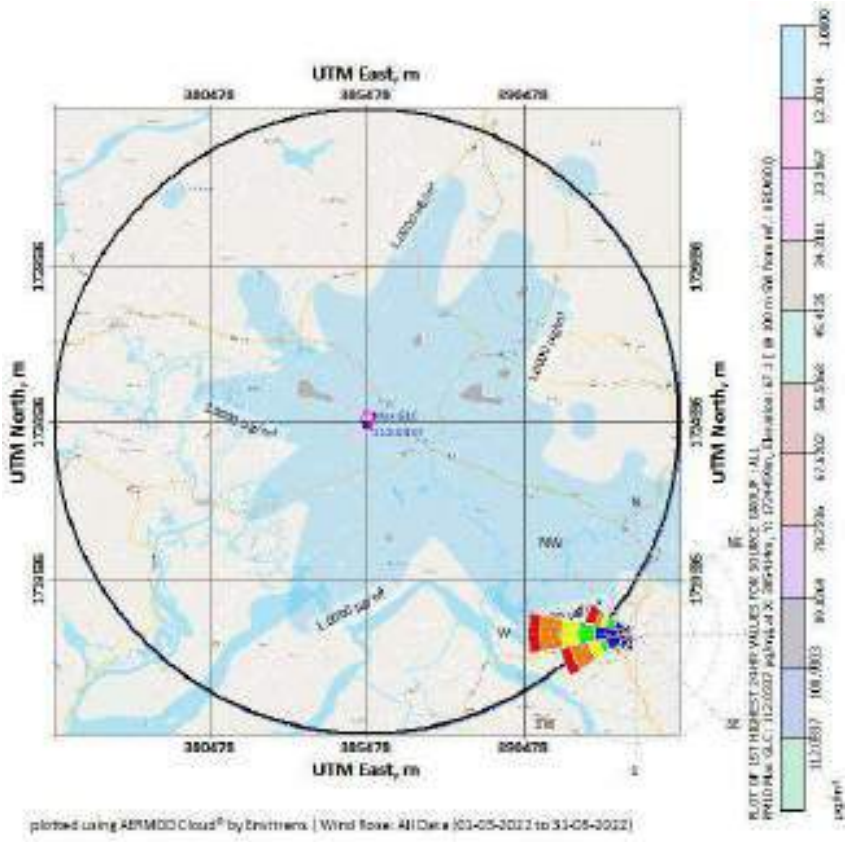

Fig.4.1 PM10 Prediction

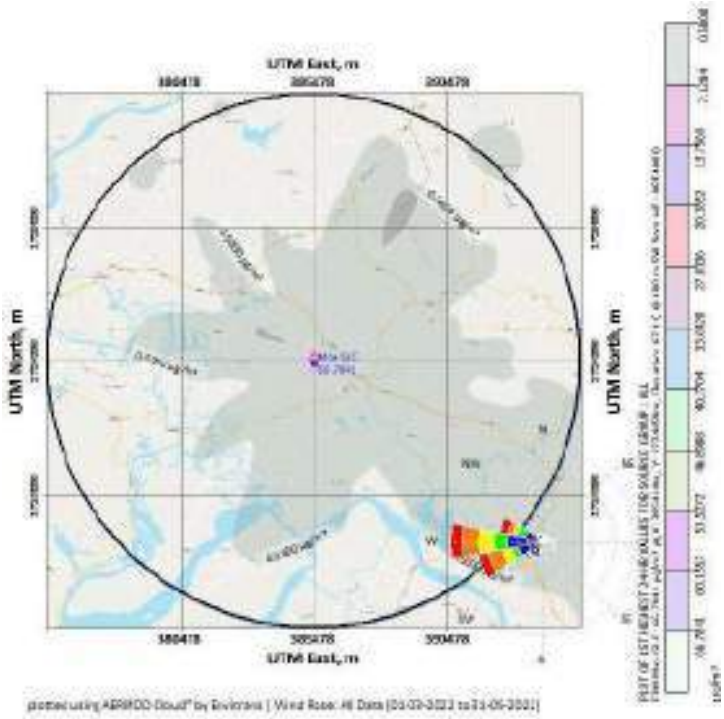

Fig.4.2 PM2.5 Prediction

Sensitivity: Public (C4)

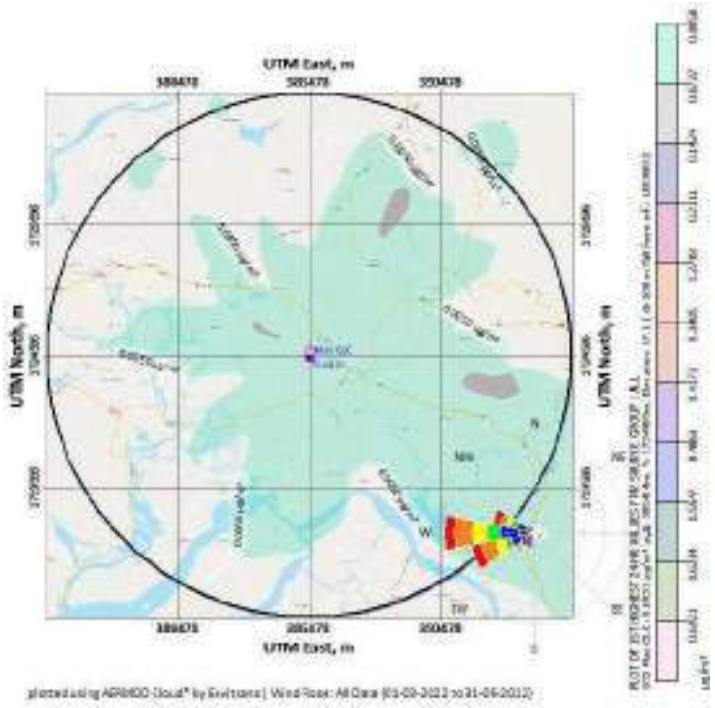

Fig.4.3 SO_2 Prediction

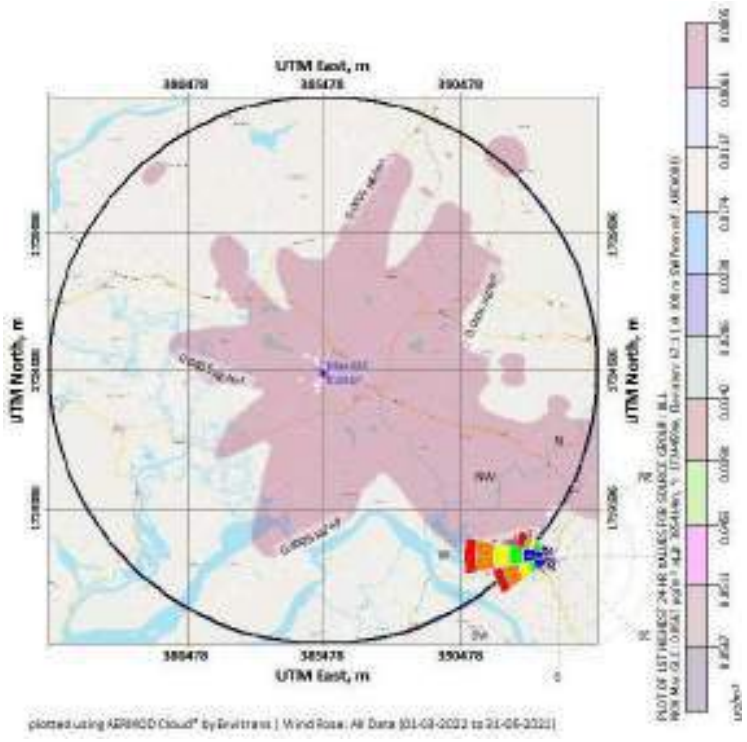

Fig.4.5 NO_x Prediction

Sensitivity: Public (C4)

Table.No.4.7 Proposed Impacts and Mitigative measures of Air pollution

Sl. No.	Activities in Mines	Air Pollutants	Mitigative measures undertaken
1	Ripping& Dozing	PM_{10} & $PM_{2.5}$	No drilling & Blasting involved during mining operations and well maintenance of ripper and dozer machines.
1	Loading & unloading	PM_{10} & $PM_{2.5}$ SO_2 & NO_2	Continuous Water spray over the areas, , proper maintenance of machinery & equipment as per manufactures specification, avoiding over loading of trucks
2	Haul Road	PM_{10} & $PM_{2.5}$, SO_2 & NO_2	Water spray on mine haul roads, It is proposed about 600 KLD of water for dust suppression , speed restriction, proper Maintenance of roads, proper maintenance of machinery & equipment as per manufactures specification, all the HEMM will be with air conditioned cabins
3	Mining area	PM_{10} & $PM_{2.5}$, SO_2 & NO_2	Wide green belt surrounding ML area. Proper maintenance of machinery & equipment. Introducing the state-of-the-art dust suppression system, Fixing permanent pipe sprinklers along the haul road wherever possible. Enclosures to all the dust generating areas on crushing and screening plant;
4	Transportation	PM_{10} & $PM_{2.5}$, SO_2 & NO_2	No overloading of trucks, speed restriction, all the trucks will be covered with tarpauline before going out on public road, plantation along the road side proper maintenance of machinery & equipment as per manufactures specification, PUC for transport vehicle, maintenance of surrounding transport roads , most of the road used for transportation is company owned dedicated road
5	Waste & Topsoil Handling	PM_{10} & $PM_{2.5}$	Stabilization of waste dumps with proper wind erosion control measures, covering with geo-textiles immediately, plantation with initial reclamation crops of grasses and mulches, afforestation with shrub and tree species

4.5.3 AIR QUALITY PREDICTION –IMPACT OF TRAFFIC ON ENVIRONMENT

The off site traffic will be resulting from movement of trucks in and out of the Mine. The entire transportation of Iron Ore will be through trucks. Major transportation of ore from mine to Sarmanas jetty is by company's own road of 4.64 km. and limiting utilization of public road to only 0.94 km. The total distance from the mine to Sarmanas jetty is 5.58 km.

Sensitivity: Public (C4)

The vehicles, trucks, will comply with the standards prescribed by CPCB and will be regularly checked for PUC certificate. Transportation of Ore from mines is mainly through existing transport route passing through the Mining Lease. Ore will be transported through trucks, which are fully covered by tarpaulin sheets, so dust generated from movement of vehicle is intrinsic in nature. The regular maintenance of the road and regular dust suppression will be carried out. The junctions and mine exits will be washed on daily basis at night time

4.6 IMPACT OF NOISE LEVEL & VIBRATION ON ENVIRONMENT

During the mine operation phase, noise will be generated from all sources. With increasing distance from the source, the noise level decreases due to wave divergence. Additional decrease also occurs due to atmospheric effects and interaction with objects in the transmission paths.

Machinery / equipment proposed to be deployed in mining complex are used as input as noise generating sources. Noise generation is assumed 1 m above ground and spreading on a flat terrain devoid of any barriers.

Noise attenuation effects due to barriers like shrubs, bushes and trees, absorption by air, wind, temperature and humidity shall also reduce the noise levels.

The noise level will remain well within the prescribed CPCB standards and thus the impact of the project operation on the ambient noise level of study area will be insignificant.

No impact of vibration on environment as there is no drilling and blasting involved in the mining.

Sensitivity: Public (C4)

4.6.1 MITIGATION MEASURES

4.6.1.1 CONTROLLING NOISE LEVEL OF MACHINERIES-ENGINEERING CONTROLS

The following mitigation measures can be adopted to control noise.

No drilling operations generating high noise level and blasting operations generating impulsive noise are completely avoided.

The ML is enclosed by wide green barrier.

Following management measures will be adopted to control noise levels:

1. Reduction of noise level at source is achieved by proper maintenance of machinery and the equipment. Interruption of noise path from the source to the receiver is achieved by the development of wide green belts in-between.
2. Provision of acoustic cabins for operators deployed on HEMM
3. Vehicular traffic within the mine is restricted by reducing the number of trips, using heavy duty dumpers of capacity 40 T within the ML.
4. Selection of new low-noise equipment from the manufactures failing which use of additional retrofits if available.
5. Green belt developed acts as an acoustic barrier.

4.6.1.2 USE OF PROTECTIVE EQUIPMENT- ADMINISTRATIVE CONTROL

As part of a hearing protection the proponent shall consider:

- Defining hearing protector areas
- Issuing of hearing protection equipment to individuals
- Cleaning, maintenance and replacement of hearing protectors
- Training and education of people wearing hearing protectors.
- Provision of job rotation in noisy areas that will reduce personal exposure
- Setting targets for noise levels in existing work areas
- Training on noise impact and consequences
- Including Noise aspects in work agreements with contractors

Sensitivity: Public (C4)

4.7IMPACTS ON WATER AND PROPOSED MITIGATIVE MEASURES

Impact on Surface Water

Asnora river is touching to the block boundary. Bicholim Mineral Block study area fall under Mondovi River basin of Talukas Bicholim, Bardez, Sattari, Sanguem, Tiswadi & Ponda. The catchment area of Mondovi River is 1580 Sqkm. The Sahyadri hill ranges in the east forms the main watershed. The streams originating here flow in west and north west direction to join the Arabian Sea.

The study area drainage pattern is dendritic and sub dendritic

Main River in study area

Mandovi River -Aerial Distance of 2.30 Km at Pilgao Village

Bicholim River - Aerial Distance of 0.23Km at Mandrekarwada (Bicholim)

Asnoara River - Assonra river is touching to the block boundary

Chapora River- Aerial Distance of 7.3 Km at Colvale Village

The impact on the surface waterbodies is envisage during monsoon season due discharging of mine runoff in the surrounding water bodies in the streams. In case the mine runoff is not treated / managed properly, it may lead to silition of water bodies

Impact on Ground water

The mining operations shall intersect the ground water table as the deepest mine workings in the mining plan period is -67 mts. Average depth of Ground water level within the mine is about 10m bgl Therefore, it requires major pumping operations. Average annual rainfall in the area is about 3500 mm.

The total monsoon water either drains outside the lease area through natural valleys and surface runoff from the operational area is collected in the mining pits.

The average depth of water table varies from 37m to 45m below ground level respectively in Lamgao village, 2m to 27m below ground level in Mandrekarwada,4 to 58m below ground level in Mulgao village . No leachable heavy/toxic metals/elements are present in the ore and the wastes. The suspended solids content in the surface water samples are also well within the limits and therefore there shall be no effect on aquatic life.

Sensitivity: Public (C4)

These clearly establish the Taluk in general and study area of Bicholim Mineral Block is in **SAFE** category in ground water development point of view.

MITIGATION MEASURES

The proposed mitigative measures for surface and ground water

1. Boulder walls will be provided at the foot of the dump to arrest the flow of silt.
2. Garland drain around the dump yard is constructed 1m bottom width, 2m top width and 1m deep with a length of 6100 m to divert water to settling pond for arresting the suspended solids .
3. Covering slopes of the dumps with lateritic material , coir mat and planting grasses, legumes and bush variety of species to prevent erosion
4. Mining : Garland drains to divert rain water to settling pond for settling of suspended solids. Construction of rubble walls to arrest suspended solids. Collecting the rainwater in a sump at the bottom of the Mine Pit to settle the suspended solid particles
5. Proposed rain water harvesting measures: The total water received in year 16748221 m^3, the water harvested in mining pits is about 10128221 m^3. This collected water in the Mine Pit will be used for water sprinkling and greenbelt development
6. The. Proper safety barrier of 50 mts shall be maintained near the Assnora river from the mine pit. The entire surface runoff water is diverted in to mine pit allowed to settle.
7. There shall be no generation of industrial waste water from Mining Operations
8. Ground Water Intersection: Detailed hydrogeological report is given vide **Appendix No. I**
9. Detailed study on proposed engineering measures to prevent pollution of Assnora river is enclosed vide **Appendix No. IV**

The detailed evaluation of impact using BEE's methodology is undertaken which is a weighing scaling checklist under the **section 4.11**

Sensitivity: Public (C4)

4.8 ANTICIPATED IMPACTS ON BIOLOGICAL ENVIRONMENT

Identification of all potential environmental impacts due to a project is an essential step of Environmental Impact Assessment. In generally Mining are normally carried out over a long period till the ore gets exhausted.

The impact on biodiversity would be high if the project is located close to a sensitive area. So, impact of biological environment was assessed based on the ground observation and distance from the project.

The impact will be assessed 1 to 10 scale, if the scale 1 indicate higher chances of impact on biodiversity and 10 score will be least impact on biodiversity as given in the Table 4.8.

Table 4.8. Significance of Impact on Biological Environment (Score 1 higher impact and 10 – least impact on biodiversity)

Issues	**Observations**
Proximity to national park / wildlife sanctuary/ reserve forest/mangroves/ coastline/estuary/sea	Amthane dam (7km)and Mandovi River (2.3 km) upstream river riparian vegetation closer to the core area (<3.5 km range) Eco-sensitive scale ranges 2 (higher sensitive area).
	Mangrove ecosystem nearest south east and west region <3 km Eco sensitive scale range 1
	Salim Ali Bird Sanctuary and Mangrove ecosystem >10 km from core area Eco-sensitive scale would be 8. (Less sensitive area).
	Assnora, Bicholim and Mandovi river aquatic life and riparian vegetation, eco-sensitive scale ranges 1 (high sensitive areas)
Activities of the project affects the breeding/nesting sites of birds and animals	Migratory bird species may be effected due to the Mining activity due to noise, dust and ground vibrations from the vehicles etc . Yellow wattled lapwing and Red wattled lapwings birds prefers the ground for their nesting may be impacted. Eco-sensitive scale would be 9
	The butterfly may get affected due to host plant availability and due to dust deposition on the host plant nearby area. Eco-sensitive scale would be 9
	Fishes and crabs may be effected due to downstream soil erosion to the Assnora, and Mandovi river and its aquatic species. Eco-sensitive scale would be 9
Located near an area populated by rare or endangered species	The fauna's species is given in chapter 3, from the given species list dominate species are locally resident and seasonal migratory species. Eco-sensitive scale would be 10

Sensitivity: Public (C4)

Proposed project restricts access to waterholes for wildlife.	There is possibility of wild boars venture into the core areas for water/foraging . Eco-sensitive scale would be 9
Proposed mining project impact on surface water quality that also provide water to wildlife	No such water effectively used for wildlife, the large proportion of water utilized itself for native species plantations and land stabilization process. Eco-sensitive scale would be 9
Proposed mining project increase siltation that would effect nearby Biodiversity area.	There are chances of soil erosion, but use of geotextiles, proper garland trench and followed by settling ponds avoids damages to aquatic biodiversity at the downstream orders. Eco-sensitive scale would be 8
Risk of fall/slip or cause death to wild animals due to project activities	By chance any such incident or wild animals are reported inside the mine; local forest department would be informed and with their support the animal will be rescued, emergency contact number of forest department would be made available in the mine office . . Eco-sensitive scale would be 8
The project release effluents into a water body that also supplies water to a wildlife	No such effluents coming from Block area,. Eco-sensitive scale would be 10
Mining project effect the forest based livelihood/ any specific forest product on which local livelihood depended	The proposed ML, have no such non-timber forest product depending communities. There is small hamlet of them who are depending upon Agriculture.
	Many village households will be employed in the mines for various types of technical as well as non-technical jobs . Eco-sensitive scale would be 9
Project likely to effect migration routes	No such wildlife corridors . Eco-sensitive scale would be 10
Project likely to effect flora of an area, which have medicinal value.	No such significantly important medicinal value species within the mine area. Eco-sensitive scale would be 10
The project likely to affect wetlands, fish breeding grounds, marine ecology	There is very less chance of soil erosion to the nearby rivers Assnora, and Mandovi and 1st and 2nd order stream. There will be proper mine EMP to be followed to not to let out any sedimentation from the mine lease area . Eco-sensitive scale would be 7

Outside the mine areas degraded landscape were colonized by fast growing, exotic species such as Acacia auriculiformis, Chromolina sp., and L. camara species, which suppress the native species and effects the soil seed bank for future establishment of native forest.

The common threats observed in the buffer zone are grazing, invasive and exotic species proliferation and fuel wood collection by local communities.

Sensitivity: Public (C4)

The given study site receives higher precipitation level (ranges 3000-35000 mm), such intensive rainfall, may contributes proportionally higher turbidity due to the adding up of soil erosion; irrespective of how much precautions been taken. These may affect both lentic and lotic ecosystem and also riparian vegetation. Further transportation / vehicle movement act as a barrier for many elusive / cryptic mammals and also often road transportation may kill many cold-blooded animals like snakes, lizards, frogs and butterflies.

Network of electric line not only cause mechanical injuries but makes many species prone to electrocution to wide span winged birds, flying foxes, macaque and panthers some time become prone to electrocution.

MITIGATION MEASURES

The proposed project, threats may arise as a result of developmental activities in the buffer zone of the mine area . As mentioned in the MoEF&CC guidelines eco-sensitive zones need to be identified around the protected area, which acts as a wildlife corridor or as a shock absorber. The likely disruptive activities include road construction, mining, and dumping of excavated material and human population pressure on land and biological resources of the sanctuary. The mine lease area is close to the aquatic ecosystem may cause significant impacts on downstream aquatic and riparian ecosystem.

The flora and faunal conservation point of view, we are hereby suggesting biodiversity conservation and management plan for the region with the following objectives in mind:

- Sustainable development of natural ecosystems and areas which may hold potentially important species from the conservation and/or economic significance;
- Preservation of natural habitats in the core and buffer zone and identification of areas that require special attention;
- Special efforts for in-situ or ex-situ conservation of rare/endangered/threatened (RET) plant species;
- Mitigation of biotic and/or abiotic pressures/influences on the habitats;

Sensitivity: Public (C4)

- To improve habitat conditions by taking up afforestation with bamboo and fruit yielding species, which attract faunal diversity and soil conservation measures;
- To create awareness regarding conservations, and ensure people's participation in the conservation efforts.

The following areas require special attention with reference to conservation and management of flora and fauna:

- Mine greenbelt area and its buffer zone ecosystems (both aquatic and terrestrial)
- Development of ex-situ area for conservation of RET plant species
- Riparian areas buffer area with protection and restoration of river bank vegetation
- Downstream and upstream areas of river from the mine site.

The nearby forest should be free from fire, fuel wood collection, poaching, invasion of weeds, grazing pressure etc., which are the main limiting factors affecting wildlife habitats and their corridors directly. These threats will cause the following problems in the region.

- Human–Wildlife conflicts
- Reduction in food availability for herbivores
- Soil erosion and water shortage in summer
- Create imbalance in tropic level and food chain
- Disease propagation from livestock to mammals
- Reduction in area of wilderness needed for the wildlife
- Frugivorous birds replace insectivorous birds
- Lack of pollinators and fruit dispersal agents

The detailed evaluation of Impact on Biological environment is given under section 4.11

4.9 SOCIOECONOMIC IMPACT OF BLOCK-I BICHOLIM MINERAL BLOCK (ANTICIPATED IMPACT)

4.9.1 Impact on human habitations.

a) Displacement of population in the core block area.

There are 2 villages within the ML area namely Lamgao and Mulgao villages . The mining operations and habitat are co-existing since many decades and there is no issue

Sensitivity: Public (C4)

as the mining operations shall involve no drilling and blasting and sufficient barrier of 50mts from each villages shall be maintained. No Population has to be displaced because of mine.

Household income from agriculture being low, farmers are looking for income from other sources. The mining is the only other source providing direct or indirect employment for local people rejuvenating household income.

b) Impact on health on pollution in buffer zone

The major impact on the nearby villages would be within 2 kms radius due to factors like Air pollution and noise pollution. Although sufficient safety buffer/ green belt would be maintained from habitations , there could be some influence on the health of the population.

As per the base line study the impact of pollutants will be some of the impacts are listed below:

- Respiratory diseases due to dust
- Loss of sleep due to noise and lights
- Skin diseases due to pollution/ dust etc

Mitigation Measures to minimise health impact on the population:

Various mitigation measures to prevent environmental pollution are detailed in Chapter 10, some of the measures w.r.t air and noise are listed below:

- Dust suppression on the mines
- Green belt development
- Safety buffer of 50m towards habitation
- Well maintained roads on the mines
- Regular maintenance of machinery to reduce the noise generation
- Regular monitoring of air, water and noise levels in core and buffer zone to keep a check on the same.

Sensitivity: Public (C4)

- Various interventions are proposed in the neighbouring village's w.r.t health and a budget of 102 lakhs is provided in CER which would be spent in a span of three years.

c) Impact on population in buffer zone.

The villages covered over the 10 kms of ML area is given in the Fig 4.5 below

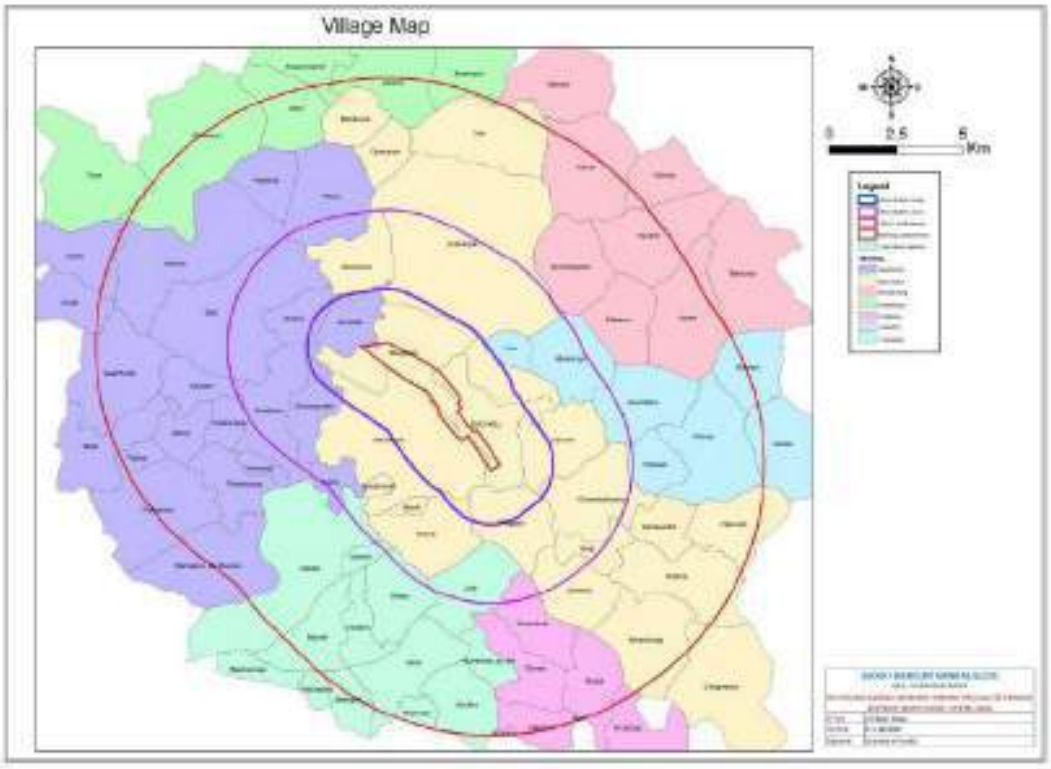

Fig No: 4.5 Village Map

Sl. No	Villages Names within 0-2 km radius	Impact of mining on the nearby population	Mitigative Measures
1	Asnoda	***Environment Pollution*** : **Air:** The major impact on the nearby villages within 2 kms radius is Air pollution in which the pollutants like PM10, PM2.5, SO2 & NOX are predicted by using Aermod in which the incremental values were observed are about PM10-14.45 at Mulgao, PM2.5 -4.84 at Lamgao, SO2 – 0.089 at Lamgao & NOx- 0.0074 at Lamgao	***Air Pollution*** : Dust Suppression : Water sprinkling on the haul roads to control dust emission , Tarpaulin covering of trucks during transportation , Plantation of trees on the either side of the haul roads to minimize dust emission Green belt area :
2	Mulgaon		
3	Dicholi(Lamgao)		
4	Mayem		

Sensitivity: Public (C4)

		Water : Majorly water pollution will be the suspended matter which flow from the mine during rainy season into the nearby nallahs. There are two water bodies nearby 1. Assnora river adjacent to ML area 2. Mandovi River -Aerial Distance of 2.30 Km at Pilgao Village 3. Bicholim River - Aerial Distance of 0.23Km at Mandrekarwada **Noise** : The noise impact from the HEMM and due to transportation of the vehicles	Lamgao : 2.55 Ha (50m wide) Mulgaon : 9.881 Ha (50 m barrier shall be provided) Archeological monuments : Idgah Masque : 1.3414 Ha green belt(200m width) High conopy planataion(local species like Cashew , Avla, Arjuna, Bamboo etc) shall be carried out . ***Ref: Map showing sensitive areas and safety barriers vide plate No.20*** ***Water Pollution*** : Construction of garland drains through out the mine pit near Assnora river bed which is adjacent to ML area which channelizes the water inside the pit and no workings are carried out at 50m width , check dams and settling pond to prevent the sediments runoff in the nearby water bodies . ***Ref: Map showing sensitive areas and safety barriers vide plate No.20*** ***Noise Pollution*** : No drilling and blasting involved in the mining , Maintenance of vehicles to reduce the noise

Sl. No	**Villages Names within 2-5 km radius**	**Impact of mining on the nearby population**	**Mitigative Measures**
1	Advalpal	***Environment Pollution*** : **Air**: The impact on the villages within 5 kms will have less impact in Air pollution in which the pollutants like PM10, PM2.5, SO2 & NOX .	***Air Pollution***: Dust Supression : Water sprinkling on the haul roads to control dust emission , Tarpauline covering of trucks during transportation ,
2	Kasarpal		
3	Mavlinge		
4	Sarvan		
5	Gowandwada		

Sensitivity: Public (C4)

6	Virdi		Plantation of trees on the either side of the haul roads to minimize dust
7	Narva		
8	Aturli		
9	Vayangini		
10	Kalvi		
11	Khorujuven	***Water*** : There are surface water bodies Mandovi river - - 2.3 kms	***Water Pollution*** : Construction of garland drains, check dams and settling pond to prevent the sediments runoff in the nearby water bodies .
12	Aldona		
13	Sirsai	**Noise** : The noise impact shall from the HEMM and due to transportation of the vehicles	***Noise Pollution*** : No drilling and blasting involved in the mining , Maintenance of vehicles to reduce the noise

Already, the State and the Central Governments have been implementing many rural developmental and welfare programs. The mining company will also engage with government and try to utilize the DMF fund for carrying out various development and social works in the surrounding villages.Company will also focus on implementing the CER activities which will be planned basis the suggestions which come during the public hearing.

These activities will impact village economy and socio-economic development.

These activities, may includelike provision of drinking water, health care like medicines, first aid, heath camps and dispensary with a doctor and basic medicines, education and training by providing school uniforms, rain wear, notebooks etc, recreation facilities by donating to sports and to social and cultural organizations and infrastructural facilities like proving street light fixtures, building materials, etc.

The welfare programs may bring some changes in the community and in the individual lifestyles. They have been listed below. The list is not complete and mutually exclusive.

- Use of latest technology in agriculture thus making it less labour intensive
- Employment in non-agriculture sector will increase,
- The literacy rates will improve,
- Money circulation will increase,

Sensitivity: Public (C4)

- Standard of living will improve,
- Aspirations among people will increase, and
- Infrastructural facilities like transport and communication will improve.

There are some aspects which will not change because of mining activity. They are listed below:

- Water quality will remain the same,
- Human settlements will not be disturbed,
- Common property resources, in particular, grazing land will not decline, and

4.9.2 LIVELIHOOD

In general, along with mining agriculture sectors will also flourish. Cash flow in the local market will have greater impact on cash transfers. Income from non-agriculture is going to be the significant source of household economy.

4.9.3 ECONOMICS.

Local economy will become vibrant because of mining activities. The village economy will be rejuvenated because of money flow and monetization of economy.

4.9.4 INFRASTRUCTURE

The mining authorities are going to spent large amount of money in development of infrastructural facilities and this will have positive impact on quality of life.

4.9.5 IMPACT ON THE CROPPING PATTERN AND THE CROP PRODUCTION IN THE BUFFER ZONE.

It is observed from the informal meetings, focus group discussions and in-depth interviews that mining will have least impact on agriculture yield.

4.9.6 COMPENSATION FOR LOSS OF LAND AND CROPS.

The project is a fresh grant of mining lease and as such there are no compensation claims towards the company. There would be a structured system of grievance redressal for any external complaints. Advise will be taken from zonal agriculture office as well as Agricultural consultants to improve the agriculture in the surrounding areas.

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4.9.7 IMPACT ON THE COMMUNITY RESOURCES SUCH AS GRAZING LAND.

The mining activities will have least impact on the common property resources.

4.9.8 MITIGATION MEASURES.

The some of the following tentative mitigating measures are being implemented with well designed plan of action and adequate budget. This list is not exhaustive, but only suggestive.

- Supply of drinking water to villagers,
- Construction and renovation of schools,
- Laying and maintenance of village roads,
- Construction of houses for economically and socially weaker sections,
- Construction and renovation of temples,
- Self-employment program (such as tailoring, wire netting, doll making, cane furniture, etc.) for women members of SHGs,
- Vocational training schools for general or self-employment,
- Afforestation or tree plantation, either fruit bearing or timber or any forest plant,
- Community Health Center/ mobile health van
- Health, safety and medical facilities like first aid and basic medicines provided by their medical facility.
- Education and Training (transport facility for students, educational aids to students), and
- Direct employment for locals for both skilled and unskilled workers.

4.10 IMPACT ON LOCAL TRANSPORT INFRASTRUCTURE DUE TO THE PROJECT. TRANSPORTATION STUDY CONDUCTED AS PER INDIAN ROAD CONGRESS GUIDELINES.

Sl.No	ROM	Quantity TPA	Tones /Day	Trips per Day	Mode of Transport
1	Iron ore	30,00,000	12658	1205	Road
Total Trips per day				1205	

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To & from

1205 * 2 = 2410

Addition Load of Traffic

Total PCU = 2410 * 3= 7230 PCU

Additional Load is 7230 PCU per day

Road	V (Volume in PCU/day.)	C (Capacity in PCU/day.)	Existing V/C Ratio	LOS
Mine To Jetty	8657	15000	0.577	C Good

Sl.No	V/C Ratio	LOS
1	0-0.2	A Excellent
2	0.2-0.4	B very good
3	0.4-0.6	C Good
4	0.6-0.8	D Fair/ Average
5	0.8-1.0	E Poor
6	1.0 above	F Very Poor

4.10.1 Mitigation Measures

1. The project proponent will deploy road safety marshals for preventing any nuisance to the normal commuters.
2. It is proposed to construct an underpass at the Mayem junction to prevent interface between ore transport and general public
3. The transportation on the public road is stopped during the school timings i.e 7to 8am in the morning, 12.45 to 2 pm in the afternoon. The transportation activity is stopped at 6.30pm in the evening

The impact evaluation on the Social environment (Human Interest) is given under section 4.11.

4.11 EVALUATION OF IMPACTS

For the purpose of evaluation of quality of the environment at Block 1 - Bicholim Mineral Block Project, Battelle Environmental Evaluation System (BEES) methodology

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has been adopted. This methodology is the most commonly adopted method for evaluation, through a weighing-scaling checklist. The checklist for the present opencast iron ore project would consist of 48 selected parameters identified for this purpose. All these parameters have been assigned importance weight by the experts in different fields. The resultant importance weight points i.e., Parameters Importance Unit (PIU) are presented in Fig… by indicating the numbers in the parenthesis. Typical functional relationships also called value function graphs have been developed for various parameters.

The Environmental Quality (EQ) is represented on a scale of 0 to 1, 0 representing poor environmental quality and 1 representing good environmental quality.

An Index is obtained in Environmental Impact Unit (EIU) for each alternative and baseline environmental conditions (i.e., EIU with EMP (Environmental Management Plan) EMP & EIU without EMP).

$$EIU_j = \sum_{i=1}^{n} (EQ)_{ij} \quad X \quad (PIU)_i$$

Where,

EIUj = Environmental Impact units for Jth alternative

EQij = Environmental Quality Scale for ith factor

PIUi = Parameter Importance Unit for ith factor

All the parameters identified for this project have been distributed in four major categories viz., All the parameters identified for this project have been distributed in four major categories viz.,

1) Biological Environment
2) Environmental Pollution
3) Aesthetics
4) Human Internet

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ENVIRONMENTAL IMPACT (1000)

- Biological Environment (300)
- Environmental Pollution (450)
- Aesthetics (100)
- Human Interest (150)

TERRESTRIAL		(200)
.	Natural Vegetation	(40)
.	Crops	(30)
.	Species diversity	(30)
.	Foodweb Index	(20)
.	Rare & Endangered Plant species	(30)
.	Pest Species	(20)
.	Soil Microbiology	(30)
AQUATIC		(100)
Natural vegetation		30
Foodweb Index		10
Species diversity		15
Rare and endangered Species		10
Ground water Characteristics		20
Pests species		15

WATER		(100)
.	Temperature	(10)
.	pH	(15)
.	B.O.D	(15)
.	D.O	(10)
.	Nutrients	(10)
.	T.D.S	(10)
.	Turbidity	(10)
.	Feacal Coliform	(10)
.	Toxic substances	(10)
AIR		(150)
.	SPM	(70)
.	SO_2	(40)
.	Nox	(40)
LAND		(140)
.	Landuse Pattern	(80)
.	Soil erosion	(30)
.	Soil chemistry	(30)
NOISE		(60)
.	Community noise	(15)
.	Occupational noise	(45)

.	Topographic character	(20)
.	Appearance of Water body	(10)
.	Odor	(10)
.	Landscape	(10)
.	Sound	(10)
.	Visual quality Of air	(20)
.	Natural fauna	(10)
.	Green belt	(10)

.	Economy output	(20)
.	Employment	(25)
.	Housing	(15)
.	Education	(15)
.	Drinking water supply	(15)
.	Sanitation	(10)
.	Transportation & Communication	(15)
.	Community health	(20)
.	Occupational health	(15)

FIG.NO. 4.6 ASSIGNED WEIGHTS FOR ENVIRONMETAL PARAMETERS

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4.11.1 Biological Environment :

(A) Terrestrial Environment :

The impacts of Iron Ore mining activities are presented in table No.4. Natural vegetation of study area or core zone is very scanty and consists of only bushy growth.

The tree species found within the core zone represent the dry-deciduous type. Due to mining activities community structure of the forest is changing. Diversity of plant species and foodweb Index of the area reduces to certain extent.

However, if the proposed reclamation of the mining area and dumped out area using proper revegetation techniques and development of green belt around the ultimate pit limit, there shall be an improvement in the species diversity and foodweb Index.

(B) Aquatic Environment :

The existing quality of natural vegetation in the aquatic environment is good. However, due to the dumping of overburden from the mines may lead to soil erosion ultimately affecting the turbidity and chemical characteristics of surface water. This in turn will alter the aquatic natural vegetation by way of change in species diversity. With the provision of check dams and vegetation of dumped areas there shall be reduction in soil erosion. This in turn will improve the natural vegetation by improving the species diversity, foodweb Index and surface water characteristics.There are no rare and endangered aquatic species reported in the study area. There are no aquatic weeds reported in the surface waters. Hence no change in this parameters are anticipated.

In general, due to various mining activities, adverse impacts are anticipated in terrestrial and aquatic components of the Biological Environment. However, with the implementation of the EMP, which is being proposed, there will be significant improvement in the parameters of biological environment (Table No.4).

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Table No.4.9 **ENVIRONMENTAL EVALUATION: BIOLOGICAL ENVIRONMENT**

Environmental Parameters	PIU/EQU EIU	Baseline (A) EIU	Without EMP (B) EIU	With EMP (C) EIU	Change In EIU (C-B)	Change In EIU (B-A)	NET Change EIU (C-A)
TERESTRIAL							
Natural vegetation	40	28	20	32	12	-8	4
Crops	30	18	15	18	3	13	0
Species diversity	30	15	12	18	6	-3	3
Foodweb Index	20	16	10	14	4	-6	-2
Rare and endangered	30	18	12	18	6	-6	0
Plant Species	20	12	8	12	4	-4	0
Pests species	20	12	8	12	4	-4	0
Soil microbiology	30	21	15	21	6	-6	0
Sub-Total	200	128	92	133	41	-36	5
AQUATIC							
Natural vegetation	30	24	15	21	6	-9	-3
Foodweb Index	10	7	4	8	4	-3	1
Species diversity	15	9	6	12	9	-3	3
Rare and endangered	10	7	5	7	2	-2	0
Species Ground water	20	12	8	12	4	-4	0
Characteristics Pests species	15	9	6	9	3	-3	0
Sub-Total	100	68	44	69	25	-24	1
Total	300	196	136	202	66	-60	6

4.11.2 ENVIRONMENTAL POLLUTION:

Due to the continuity of the mining activities of the project the following four components are affected. Viz.,

Air

Water

Land

Noise & Vibration

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Air Environment :

In the proposed opencast mine operations like ripping,dozing, loading, crushing and screening ,transportation and unloading operations of overburden and iron ore may deteriorate the air quality. The baseline levels of ambient air quality in the buffer zone villages are well within the permissible limits. However, the dust concentrations in the fugitive sources are likely to increase during mining operations . The concentration of NOx and SO2 are very much below the permissible limits.

Reduction in dust concentration is anticipated by green belt development and water spraying on all the haul roads and at the screening plant.

Water Environment :

Major Parameters which represent the water environment are BOD, DO, Total Solids (TS), Turbidity, Faecal coliforms, toxic metals, pH, temperature and nutrients.

The water flowing through the overburden dumps will carry suspended solids, dissolved metals and nutrients, which will affect the quality of the groundwater as well as surface waters.

Provision of rubble walls, garland drains, settling ponds and plantations of trees, grasses, legumes etc., on the overburden dumps will arrest soil erosion to a great extent. This will improve the surface and ground water quality.

Land Environment:

Excepting the mining lease area, there will not be any adverse effect on the land in the buffer zone area. With the measures proposed under EMP there will not be any effect of land degradation other than the mining lease area.

Noise:

The sources of noise in mining area are due to ripping, dozing, loading, haulage, crushing, screening and unloading of ore and waste using shovels, Unloading of overburden using dumpers and transportation of ore to the crushing and screening

Sensitivity: Public (C4)

plant, and transportation of ore to the sidings.

Table No.4.10 ENVIRONMENTAL EVALUATION OF: ENVIRONMENTAL POLLUTION

Environmental Parameters	PIU/EQU	Baseline (A) EIU	Without EMP (B) EIU	With EMP (C) EIU	Change In EIU (C-B)	Change In EIU (B-A)	NET Change EIU (C-A)
WATER							
Temperature	10	4	3	4	1	-1	0
pH	15	9	6	7.5	1.5	-3	-1.5
B.O.D	15	7.5	6	7.5	1.5	-1.5	0
D.O	10	8	6	7	1	-2	-1
Nutrients	10	4	3	4	1	-1	0
T.D.S	10	7	6	7	1	-2	-1
Turbidity	10	6	4	5	1	-2	-1
Faecal Coliform	10	9	5	7	2	-4	-2
Toxic Substances	10	8	6	7	1	-2	-1
Sub-Total	100	62.5	45	56	11	-17.5	6.5
AIR							
PM_{10}	70	56	35	52.5	17.5	-21	-3.5
SO2	40	32	24	31	7	-8	-1
NOx	40	32	24	31	7	-8	-1
Sub-Total	150	120	83	114.5	31.5	-37	-5.5
LAND							
Land use pattern	80	56	40	52	12	-16	-4
Soil erosion	30	24	18	23	5	-6	-1
Soil Chemistry	30	21	15	20	5	-6	-1
Sub-Total	140	101	73	95	22	-28	-6
NOISE							
Community Noise	15	12	9	11	2	-3	-1
Occupational noise	45	38	26.5	36	9.5	-11.5	-2
Sub-Total	60	50	35.5	45.5	10	-14.5	-3
TOTAL	450	333.5	236.5	311.0	74.5	-97	-8

4.11.3 AESTHETIC ENVIRONMENT

The topography of the mining area i.e., gently hilly terrain shall alter to certain extent due to excavation of ore and dumping of overburden. The development of proposed green belt around the ultimate pit limit and afforestation of backfilled areas will enhance diversity of vegetation. The visual quality of water any change slightly. .

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The aesthetic parameters with EMP and without EMP have been presented in Table No.4.11.

Table No.4.11 ENVIRONMENTAL EVALUATION OF: AESTHETIC ENVIRONMENT

Environmental Parameters	PIU/EQU	Baseline (A) EIU	Without EMP (B) EIU	With EMP (C) EIU	Change In EIU (C-B)	Change In EIU (B-A)	NET Change EIU (C-A)
Topographic Character	20	14	10	14	4	-4	0
Appearance of waterbody	10	6	4	6	2	-2	0
Odour	10	8	7	8	1	-1	0
Land scape	10	9	5	8	3	-4	-1
Sound	10	8	6	7	1	-2	-1
Visual Quality Of air	20	14	10	14	4	-4	0
Natural fauna	10	6	4	6	2	-2	0
Greenbelt	10	8	5	9	4	-3	1
Total	100	73	51	72	21	-22	-1

4.11.4 HUMAN INTEREST

Operation of mining and associated activities will result in some socio-economic impacts, of direct consequence and some of indirect nature. The social status of the people will improve due to increased income for workers as a result of increase in employment opportunities. There will be occupational problems due to the mining activity, but these problems can be contained by adopting all the measures suggested in EMP.

Education and sanitation status will improve in this are due to this project. The respective score for all the human interest parameters are presented in Table No.4.12.

Table No.4.12 ENVIRONMENTAL EVALUATION OF : HUMAN INTEREST

Environmental Parameters	PIU/EQU	Baseline (A) EIU	Without EMP (B) EIU	With EMP (C) EIU	Change In EIU (C-B)	Change In EIU (B-A)	NET Change EIU (C-A)
Economy output	20	6	14	18	4	8	12
Employment	25	12.5	15	20	5	2.5	7.5
Housing	15	4.5	9	10.5	1.5	4.5	6
Education	15	6	9	10.5	1.5	3	4.5
Drinking Water Supply	15	9	7.5	10.5	3	-1.5	1.5

Sensitivity: Public (C4)

Sanitation	10	5	7	8	1	2	3
Transportation & Community	15	9	10.5	12	1.5	1.5	3
Community Health	20	12	12	16	4	0	4
Community Health	20	12	12	16	4	0	4
Occupational Health	15	9	7.5	12	4.5	-1.5	3
Total	150	73	91.5	117.5	26	18.5	44.5

The Net Environmental Impact of Block I Bicholim Block for biological category is +6. This is due to the increased plantation and proper land use as envisaged in the EMP.

The Net Impact under environmental pollution category is -ve with -8 points. This -ve impact is due to mining operations and transportation activities. The dust levels are bound to increase. The noise levels also will increase due to the operation of various mining equipment and screening plants.

The Aesthetic category marks minor – ve impacts due to change in appearance of water, diversity of vegetation and marginal change in visual quality. The human interest parameters show +ve impact due to increased job opportunities, transportation, medical facilities etc.,

It is observed that the estimated change in EIU from baseline to the project without EMP is -160.5. the overall change in EIU due to the project with EMP over the baseline is a +ve of +42. The total Net impact is therefore +ve for the iron ore mining project. The summary of environmental evaluation is presented vide Table No.4.13.

Table No.4.13 SUMMARY OF ENVIRONMENTAL EVALUTION

Environmental Parameters	PIU/EQU	Baseline (A) EIU	Without EMP (B) EIU	With EMP (C) EIU	Change In EIU (C-B)	Change In EIU (B-A)	NET Change EIU (C-A)
Biological Environment	300	196	136	202	66	-60	6
Environmental Pollution	450	333.5	236.5	311.0	74.5	-97	-8
Aesthetic	100	73	51	72	21	-22	-1
Human Interest	150	73	91.5	117.5	26	18.5	45
Total	1000	675.5	515	702.5	187.5	-160.5	42

Sensitivity: Public (C4)

With a view to analyse subjectivity and uncertainty in decision making for the continuation of this mining project, two evaluation scenarios with equal and unequal PIUs are considered. The results are tabulated in table No.4.14. the project evaluation scores with assigned set of PIUs and those with equal PIUs have been analysed. The current evaluation score with unequal PIUs is+42 units whereas with equal PIUs (Hypothetical Evaluation) the score is +64.5. Therefore, the continuity of project contributes positively.

Table No.4.14

SCENARIO A : UNEQUAL PIUs (CURRENT EVALUATION)

Environmental Parameters	PIU/EQU	Baseline (A) EIU	Without EMP (B) EIU	With EMP (C) EIU	Change In EIU (C-B)	Change In EIU (B-A)	NET Change EIU (C-A)
Biological Environment	300	196	136	202	66	-60	6
Environmental Pollution	450	333.5	236.5	311.0	74.5	-97	-8
Aesthetic	100	73	51	72	21	-22	-1
Human Interest	150	73	91.5	117.5	26	18.5	45
Total	1000	675.5	515	702.5	187.5	-160.5	42

ENVIRONMENTAL EVALUTION WITH EQUAL AND UNEQUAL PIUs

SCENARIO B : EQUAL PIUs (HYPOTHETICAL EVALUATION)

Environmental Parameters	PIU/EQU	Baseline (A) EIU	Without EMP (B) EIU	With EMP (C) EIU	Change In EIU (C-B)	Change In EIU (B-A)	NET Change EIU (C-A)
Biological Environment	250	163	113	168	55	-50	5
Environmental Pollution	250	185	130	172.5	42.5	-55	-12.5
Aesthetic	250	182	128	180	52	-54	-2
Human Interest	250	122	152.5	196	43.5	30.5	74
Total	1000	652	523.5	716.5	193	-128.5	64.5

Sensitivity: Public (C4)

Chapter-5

ANALYSIS OF ALTERNATIVES (TECHNOLOGY & SITE)

Sensitivity: Public (C4)

5.0 ANALYSIS OF ALTERNATIVES (TECHNOLOGY & SITE)

5.1 ALTERNATIVE TECHNOLOGIES

This proposal is for Environmental Clearance under EIA Notification 2006 and as amended time to time. The proponent proposes to adopt systematic mechanized open cast mining with HEMM technology for mining the ore, which is a conventional methodology used all over the world. The project proponent plans to adopt the State of Art technology in mining and to procure new generation HEMM for mining of Iron Ore deposits. Hence, no other alternative technology for mining is considered as the present technology is proven, tested and viable technology.

5.2 ALTERNATIVE SITES

Vedanta Limited is intending to start iron ore mining in Block-I Bicholim Mineral Block, located at Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, of Bicholim Taluka, North Goa District, Goa State over an area of 478.5206 Ha, to be leased over a period of 50 years after fulfillment of conditions of LOI issued by the Department of Mines and Geology, Government of Goa. The proposed Mining Lease area falls in Toposheet no. 48 E /14 of Survey of India. The 'Block-I Bicholim Mineral Block'' will be provided with all necessary infrastructural facilities for the production of Iron Ore. The proposed production of 3.0 MTPA is planned within the existing Mining Lease Area. There is no forest land involved in the said Mining Lease. Since the Mining activity is site specific activity, seeking alternative site is not applicable.

Sensitivity: Public (C4)

Chapter-6

ENVIRONMENTAL MONITORING PROGRAM

Sensitivity: Public (C4)

ENVIRONMENTAL MONITORING PROGRAMME

6.0GENERAL

The monitoring and evaluation of the management measures envisaged are critical activities in implementation of the proposed project. Monitoring involves periodic checking to ascertain whether activities are performed according to the plan. This provides necessary feedback for project management to check the efficacy of environmental performance. The purpose of the environmental monitoring plan is to ensure that the envisaged purpose of the project is achieved and accrues desired benefit. To ensure the effective implementation of the proposed mitigation measures, the broad objectives of monitoring plan are:

- To evaluate the performance of mitigation measures proposed in the EMP.
- To evaluate the adequacy of Environmental Impact Assessment
- To suggest improvements in environmental management plan, if required
- To enhance environmental quality.
- To undertake compliance monitoring of the proposed project operation.

A separate department, the "Environment Management Department (EnMD) shall be constituted to carry out day to day environmental monitoring/ inspection requirements at the project site.

6.1 TECHNICAL ASPECTS

6.1.1 METHODOLOGIES

Environmental monitoring is required to know the Quality of Ambient Air, Water and Noise Levels during the operation phase of the proposed project and take required corrective measures, in case of any non-compliance with the norms stipulated by regulatory authorities. The methodologies adopted for environmental monitoring will be in accordance with the CPCB guidelines.

Sensitivity: Public (C4)

Environmental Monitoring will be done in accordance with National Ambient Air Quality Monitoring Series: NAAQS/2003-04, Guidelines for Ambient Air Quality Monitoring, Central Pollution Control Board, April, 2003, Guidelines For The Measurement Of Ambient Air Pollutants Central Pollution Control Board May, 2011, Minars/27/2007-08, Guidelines For Water Quality Monitoring, Pollution Control Board Methods of Monitoring and Analysis, Annex IV of guidelines. A planned monitoring program to evaluate the effectiveness of various/specific aspects of technological/ mitigation measures shall be drawn.

Monitoring shall be conducted by the environmental management cell by engaging a laboratory recognized by MoEF&CC.

6.1.2 FREQUENCY & LOCATIONS OF ENVIRONMENTAL MONITORING

A comprehensive monitoring programme is given under

Table 6.1: Monitoring Schedule for Environmental Parameters

S.No.	Particulars	Frequency of Monitoring	Sampling	Parameters Required to be Monitored
Air Quality				
1	Ambient Air quality in and around the Mine	Twice a week	24 hours continuously	$PM_{2.5}$, PM_{10}, SO_2 & NO_2
Water Quality				
2	Water Quality around the Mine (Surface & Ground Water)	Once in a Month	Grab Sampling	As per IS: 10500
Noise Level Monitoring				
3	Ambient Noise levels & work place Noise monitoring	Once in a Quarter	Continuous for 24 hours with 1-hour interval	Noise Level
Soil Quality				
4	Soil Quality around the Mine	Once in a year	Grab Sampling	IS: 2720

Sensitivity: Public (C4)

6.1.3 DATA ANALYSIS

The procedures that will be followed for analyzing the parameters are indicated below:

- Water samples will be analyzed for various parameters as per IS: 10500
- $PM_{2.5}$ & PM_{10} will be analyzed as per IS: 5182 Part IV, SO_2& NO_2 as per IS: 5182 Part II & Part VI respectively using APM 550 dust sampler or equivalent.
- SO_2 samples will be analyzed using improved West-Gaeke method for air samples with the help of spectrophotometer.
- NO_2 samples will be analyzed using Jacob and Hocheiser modified (Na-As) method for air samples with the help of spectrophotometer.

6.1.3.1 MICROMETEOROLOGY

A micro-meteorological station will be set-up at an approximately central location of the mine lease. The site selected shall be free from obstructions to ensure free movement of air. An "Automatic Weather Station" will be installed at least 5 m above the ground. The following attributes will be measured at one-hour interval continuously round the clock:

- Wind Speed
- Wind Direction
- Air Temperature
- Relative Humidity

Precipitation will be recorded on a daily basis.

The data will be recorded automatically on a data logger.

6.1.3.2 Air Quality

Air quality will be monitored at 8 locations on a regular basis. Totally 4 buffer zone stations and 4 core zone stations - 1 ambient air quality station and 3 fugitive dust monitoring stations shall be monitored in the up-wind and down-wind w.r.t. the ML area. The number of stations may be increased if directed by State Pollution Control Board (SPCB) or the Regional Office of MoEF&CC. The locations shall be selected in consultation with the Regional Officer of SPCB.

Sensitivity: Public (C4)

Selected parameters of National Ambient Air Quality Norms [PM_{10}, $PM_{2.5}$, SO_2 & NO_2,] shall be monitored. Ambient air and Core zone stations will be monitored on 24 hourly basis and shall be collected twice a week at all the stations. The fugitive dust samples shall be collected as per IBM and DGMS guidelines.

It is proposed to set up One Continuous Ambient Air Quality Monitoring (CAAQM) station near the mining office inside the lease for monitoring dust particles (PM_{10} & $PM_{2.5}$) within a period of 1year from the date of execution of lease deed.

6.1.3.3 Work Zone Air Quality

Work-zone air quality shall be monitored at various strategic locations (mine faces, crushing plant, loading-unloading points, screening plant, and haulage road). 8 hourly samples shall be collected at each of the locations twice a month.

6.1.3.4 Ground water levels

Water levels in wells at varying distances all around the project area shall be monitored every month.

6.1.3.5 Surface and Ground water quality

Surface water samples shall be collected at 8 locations which include all the mine discharge points and upstream and down stream of Bicholim and Asnora river.. Samples shall be collected once a month. The parameters listed in IS: 2296 shall be monitored.

Ground water samples shall be collected at five different locations around the mine site. Samples will be collected once on a seasonal basis. The parameters listed in IS: 10500 shall be monitored.

6.1.3.6 ***Ambient Noise***

Ambient noise levels shall be monitored at 6 locations in the surrounding villages including the habitation near transportation route. Noise levels shall be recorded at one-hour intervals continuously for 24 hours at each of the locations once in a season. The frequency of monitoring may be altered if directed by the concerned statutory authorities.

Sensitivity: Public (C4)

6.1.3.7 ***Work zone Noise***

Work-zone noise levels shall be monitored at various strategic locations (mine faces, crushing plant, loading-unloading points, mine workshop(s), mine office, etc.).

Additional locations may be covered if directed by concerned statutory authorities (SPCB, MoEF&CC, and DGMS). Noise levels shall be recorded at one-hour intervals continuously for 8 hours at each of the locations once a month.

6.1.3.8 Occupational ***health and safety***

An Occupational Health Centre (OHC) for Bicholim Mine shall be established. A systematic programme for medical check-up at regular intervals will be followed at the Occupational Health Centre (OHC) for all workers to ascertain any changes in health condition due to the working conditions.

All workmen employed in hazardous working conditions will be provided with adequate Personnel Protective Equipments (PPE).

6.1.3.9 Plantation and green belt development

Green belt development vis-a-vis safety zone management and progressive plantation in and around the project site shall be developed and maintained. There already exist a green belt in the mine lease, The same will be maintained and also strengthened . Annual plantation programme would be carried out during monsoon season and the data on list of species, area of green cover, survival rate etc. shall be maintained. Native species will be planted under the guidance of State Forest Department.

Annual plans for tree plantation with specific number of trees to be planted shall be made. The fulfillment of the plan shall be monitored by the Environment department . Necessary after care to the plants like watering of the plants, manuring, weeding etc will be carried out for minimum 5 years by involving the local population.

Sensitivity: Public (C4)

6.1.3.10 SOCIO-ECONOMIC DEVELOPMENT

CSR activities are expected to play a significant role in the peripheral development of the region. The project will improve the infrastructure & economic conditions leading to overall socio-economic development of the region.

The communities, which are likely to be benefited by the project, are thus one of the key stakeholders for the mining project. Vedanta Limited will plan structured interactions with the community to disseminate the measures taken and also to elicit suggestions for overall improvement for the development of the area.

6.1.4 REPORTING SCHEDULE

After completion of analysis, the results of analysis will be sent to Goa State Pollution Control Board on a monthly basis and MoEF&CC & CPCB on a six-monthly basis.

Copies of the reports will be maintained at the Mine and will be made available to the concerned inspecting authorities like Indian Bureau of Mines (IBM), GSPCB, MOEF &CC etc.

6.1.5 EMERGENCY PROCEDURE

As there is no point source of emission and no generation of any industrial effluent, the possibility of emission/waste water discharge exceeding the norm & leading to emergency situation is not envisaged.

6.1.6 DETAILED BUDGET & PROCUREMENT SCHEDULES

The budgetary allocation for Environmental Monitoring is around Rs. 44 lakhs per annum. A third-party laboratory recognized by CPCB, MoEF&CC shall be engaged to monitor all the environmental parameters. Hence, no procurement of any monitoring equipment is required except the CAAQM's which is one time capital investment 44 lakhs which shall be procured within 1 year of commencement of mining operations.

Half yearly compliance report in respect of stipulated prior environmental clearance terms & conditions will be submitted on 1st June and 1st Dec of each calendar year to MoEF&CC.

Sensitivity: Public (C4)

Environmental Issue/ Impacts	Mitigation Measure	Approximate Location	Responsibility
Meteorology	Meteorological parameters through a continuous monitoring system.	Near Mine office	EMD
Ambient Air Quality	Ambient Air Quality with respect to RPM, SO_2, NOx shall be monitored	1 control station in upwind side and remaining stations in downwind side w.r.t quarries and external dumps	EMD
Work Zone Air Quality	Work Zone Air Quality with respect to RPM, SO_2, NOx shall be monitored	At loading/unloading point near Mine & main haul road	EMD
Ambient Noise	Periodic measurement with Noise meter	At nearest villages/settlements alongside the lease	EMD
Work Zone Noise levels	Periodic measurement with Noise meter	At loading/unloading point near quarry & main haul road	EMD
Surface Water Quality	Changes in surface water quality will be monitored by water quality analysis.	All mine discharge points, Upstream and Downstream of Bicholim and Assnora river	EMD
Ground Water Quality	Changes in ground water quality will be monitored through water quality analysis.	Changes in ground water quality will be monitored in the up-gradient and down gradient w.r.t. the mine	EMD
Solid Waste Generation, OB Dumping & Backfilling	Overburden generated during mining operations will be either dumped in pre-identified dumping area or will be backfilled within the exhausted quarry areas.	Backfilled areas	Mines manager/ Technical services
Slope Failure	Regular examination will be carried out to look for slope failure on open cast mine faces, ore and overburden benches etc.	Backfilled areas / Quarry benches/ Fines stacks	Mine manager/ Technical services
Maintenance of Storm Water Drainage System	The drains will be periodically cleared to maintain storm water flow.	Drainage network within the lease area.	Operations
Green Belt and Progressive Afforestation	Progressive afforestation, green belt development & maintenance of safety zone.	Planting trees in the open area	EMD
Occupational Health	Health checkup, Training	Workers at Mine site, workshop, siding, crusher house & other units in the premises.	Plant Medical Unit
Socio-economic Development	Structured interactions with the community	Stake Holders	Operations/CSR/ EMD

Environmental Monitoring Programme

Note: EMP = Environmental Management Plan, EMD = Environment Management Division, CSR = Corporate Social Responsibility

Sensitivity: Public (C4)

Chapter-7

ADDITIONAL STUDIES

Sensitivity: Public (C4)

7.0 ADDITIONAL STUDIES

7.1 PUBLIC CONSULTATION

This EIA & EMP Report has been prepared in compliance with the EIA Notification dated 14th September 2006 and the Terms of Reference (ToR) issued by the Ministry of Environment, Forests & Climate Change vide letter **No F.No IA-J-11015/3/2023-IA-II(NCM) dated 16.06.2023.** The input on various mining parameters, mining lease area, production levels, mining technology, waste generation, handling & storing etc. have been taken from the mining plan approved by Indian Bureau of Mines, for the preparation of the EIA Report. The public hearing was conducted on 11.08.2023 at Narayan Zantye Multipurpose Sports Complex, Sarvan, and Bicholim taluka North Goa district, Goa and, the proceedings of the same, were recorded by Goa State Pollution Control Board and hard copy of the proceedings of the public hearing were received by Project proponent on the same day. The proposed action plan with the budget, to comply with points raised in public consultantion is presented in the Final EIA Report.

Advertisement

Press notification regarding the date, time and venue of the Environmental public hearing for Block-1 Bicholim Mineral Block on 07/07/2023 in BhangarBhui, Heraldo, Lokmat & Free press journal (Mumbai Edition) News papers. The details are given below:

Sensitivity: Public (C4)

BhangarBhui News Paper **Date of Advertising : 07/07/2023**	**Heraldo News Paper** **Date of Advertising : 07/07/23**	**Lokmat News paper** **Date of Advertising : 07/07/2023**

Sensitivity: Public (C4)

Minutes of the meeting and Response

The minutes of the public hearing is enclosed along with the attendance sheet. Speaker wise and Point-wise concerns raised during public hearing and response with detailed time bound action plan and budgetary provisions are presented in **Annexure-10**

Representations received as part of public consultation, and Response with detailed time bound action plan and budgetary provisions per MoEF&CC O.M. dated 30/09/2020 is presented in Table 7.1.

Public Hearing Photos

Sensitivity: Public (C4)

Table No 7.1 Action plan as per MoEF&CC O.M. dated 30/09/2020

Sr. No.	Activities	Budget (Rs. In Lakhs)	Yearwise Physical targets & Budget		
			Year1	Year2	Year3
I	**Education**				
1	Educative wall Paintings in 16 Govt. Primary Schools in Mulgao, Piligao, Sirigao, Mayem and Lamgao villages.	17.00	Benefit to 5 schools namely: 1. Govt.Primary School-Piligao; 2. Govt.Primary School-Sirigao; 3. Govt.Primary School-Lamgao; 4. Govt.Primary School- Bordem and 5. Govt.Primary School-Kantar Dabdaba villages. (170 students) **Rs. 5lakh**	Benefit to 5 schools namely: 1. Govt.Primary School-Bagwada, Mulgao; 2. Govt.Primary School-Manasbag, Mulgao; 3. Govt.Primary School-Shirodwadi, Mulgao; 4. Govt.Primary School-Bagwada, Piligao; and 5. Govt.Primary School-Mathwada, Piligao (80 students) **Rs. 5lakh.**	Benefit to 6 schools in Mayem-Vaiguinim Panchayat namely: 1. Govt.Primary School-Bhavkai; 2. Govt.Primary School-Kelbaiwada; 3. Govt.Primary School-Haturli; 4. Govt.Primary School-Gaonkarwada; 5. Govt.Primary School-Haldanwadi; and 6. Govt.Primary School-Sikerim. (100 students) Rs. 7 lakh

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2	Teaching learning kits and Sports kits to 16 Government Primary Schools in Mulgao, Sirigao, Mayem, Lamgao, Bordem, Dabdaba and Piligao villages	8.50	Benefit Govt.Primary School-Bhavkai, Govt.Primary School-Kelbaiwada ,Govt.Primary School-Haturli, Govt.Primary School-Gaonkarwada, Govt.Primary School-Haldanwadi, and Govt.Primary School-Sikerim in Mayem-Vaiguinim Panchayat. **Rs 3.5lakh**	Benefit Govt.Primary School-Bagwada, Mulgao Govt.Primary School-Manasbag Mulgao, Govt.Primary School-Shirodwadi Mulgao and Govt.Primary School-Bagwada, Piligao and Govt.Primary School-Mathwada Piligao. (80 students) **Rs 2.5lakh**	Benefit Govt.Primary School-Piligao, Govt.Primary School-Sirigao, Govt.Primary School-Lamgao, Govt.Primary School- Bordem & Govt.Primary School-Kantar Dabdaba villages. (170 students) **Rs. 2.5lakh**
3	Outdoor play equipments in Govt. Primary School Manasbag Mulgao.	1.00	-	Govt. Primary School Manasbag, Mulgao. (12 students) 1Lakh	-
4	Construction/Repair of Anganwadi building at Lamgao village	20.00	Construct/repair new building for anganwadi at Lamgao village.(approx.20 children) 20Lakh	-	-

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Sensitivity: Public (C4)

5	Computer Labs in 4 high Schools in the buffer zone	14.00	Each computer Lab will be provided with 10, computers, tables & chairs. Benefit 4 High Schools (~2800 students) namely: 1.Our lady of Grace High school-Bicholim; 2.Radhakrishana Vidyalaya -Bicholim; 3.Ideal High school, Piligao and 4 Govt. High School Mulgao. 10.9lakh	Continue operation of all 4 computer labs in year 2. (benefitting ~2800 students) 1.5lakh	Continue operation of all 4 computer labs in year 3. (benefitting ~2800 students) 1.6Lakh
6	Construction of 2 classrooms in Vijayanand High school, Tikhajan-Mayem	20.00	Construct 2 classrooms in Vijayanand High School, Mayem. 20 Lakh	-	-
II	**Health Care Facilities**				
7	Mobile Health Van (MHU) catering to Mulgao, Mayem, Piligao, Lamgao and Sirigao villages providing basic medical care services at doorstep. Additionally 10 specialised health camps per year for women, children and elderly.	102.00	Weekly two MHU visits to each targetted villages (5nos) namely Mayem, Mulgao, Piligao, Lamgao and Sirigao. 2 specialised health camps in each targetted village (5nos.) 30Lakh	Weekly two MHU visits to each targetted village (5nos) namely Mayem, Mulgao, Piligao, Lamgao and Sirigao. 2 specialised health camps in each targetted village (5nos.) 34Lakh	Weekly two MHU visits to each targetted village (5nos) namely Mayem, Mulgao, Piligao, Lamgao and Sirigao. 2 specialised health camps in each targetted village (5nos.) 38 Lakh

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Sensitivity: Public (C4)

III	**Agriculture Development**				
8	Support for agriculture rejuvenation by providing necessary inputs like Seeds, Fertiliser, ploughing, Fencing support etc in Mayem, Mulgao, Piligao, Bicholim villages to benefit over 300 farmers. Farmers awareness and motivational workshop by involving Agriculture department and other experts.	45.00	100 farmers beneficiary 10 lakh	100 farmers beneficiary 15lakh	100 farmers beneficiary 20 lakh
9	Supplying water for irrigation of horticulture garden (Orchards of coconut, arecanut plantation) in Mulgao village during non monsoon season.	1.80	20 farmers of Mulgao, apprx. Area 7000m2 0.6Lakh	20 farmers of Mulgao apprx. Area 7000m2 0.6Lakh	20 farmers of Mulgao apprx. Area 7000m2 0.6Lakh
IV	**Skill Development**				
10	Start 2 computer skilling /vocational training centres in Mayem Panchayat and Bicholim Municipal Council offering courses Like DCA, Tally & GST, Web designing, Advance excel and DTP.	23.00	Centre will be equiped with 10 computers, chairs , tables, internet facility and trainer. Training 240 local youths from Mayem-Vaiguinim Panchayat and Bicholim Municipal Council areas. 10lakh	Operation of 2 computer skilling centres in year 2. Training 240 local youths. 6lakh	Operation of 2 computer skilling centres in year 3. Training 240 local youths. 7Lakhs

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Sensitivity: Public (C4)

11	10 Skill training workshops covering around 300 women self help group members on rural enterprise development. Creating 10 women enterprises	35.00	2 training workshops in each village namely Piligao, Mulgao, Mayem, Sirigao and Bicholim. 6Lakh	2 training workshops in each village namely Piligao, Mulgao, Mayem, Sirigao and Bicholim. Support 3 groups/individual for micro enterprises 12lakh	10 women enterprises from Piligao, Mulgao, Mayem, Piligao and Bicholim villages. 17lakh
V	**Infrastructure Development**				
12	Retaining wall to agriculture field of Satyavan Chodankar, Mulgao village	22.00	-	Retaining wall of 40m x5m area. 22lakhs	-
	Total	**309.30**	**116**	**99.6**	**93.7**

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7.2 RISK ASSESSMENT

Vedanta Limited has developed the management system to accomplish the objectives set out in the health and safety policies. It is oriented towards the provision and maintenance of a healthy, safe, and sustainable work environment; to the satisfaction of the stake holders, in accordance with legislation, by providing adequate training to staff to ensure competency and pro-actively reducing the risk of accidents or environmental issues. The proposed operations, storage and handling of raw materials have been studied to identify & assess the Risks (Hazards) and prepare Emergency Preparedness and Response Plan & Disaster Management Plan for natural calamities.

Based on the Hazard Identification and Analysis, the major emergency scenarios have been predicted to estimate the consequence of failure.

In the proposed open-cast mining operations at Bicholim Mine, the following Risks are identified as shown under:

1. Pit slope failure
2. Waste Dump slope failure
3. Water Inundation
4. Fire

1. Pit slope failure

In order to cope up with dangers due to open cast slope failure, slope stability estimations will be made for the mine quarries after determining various physical parameters of the ground mass like uni-axial compressive strength, tri-axial compressive strength, cohesion, angle of friction, specific gravity of the rock, water pressure etc.

Besides, the identification and pragmatic preventive action shall be taken if there is any chance of planer failure or wedge failure resulting due to discontinuities.

The slope stability study was done by NIRM IN Aug 2010 for the old workings.

Pit were maintained as per the study conducted and suggestions provided are summarised below:

i. The analysis for the individual benches in different lithological units under dry as well as fully saturated condition indicated that the maximum angle of the individual benches shall be 70°, and the maximum height shall be 7m. However, for the benches in Phyllitic clay, Limonitic clay and Manganiferous clay, a maximum slope angle of 64° is required with bench height of 6m. The width of all the individual benches shall be minimum 12 m.

ii. The existing overall slope profiles at different Sections in 1 Top pit at Bicholim iron ore mine under dry as well as fully saturated conditions are having safety factor more than 1.3, indicating the stability of the slopes.

iii. The overall safe slope angle for the maximum depth of 100 m of the pit is estimated as 23° under fully saturated conditions. However, the ultimate pit slope for a depth of 130 m is estimated as 21°.

This can be achieved by maintaining the Phyllite clay bench height at 5 m and the width of these benches shall be 15 m for the depth range of 100 m to 130 m. To achieve the safe ultimate pit slope, at least two high grade ore benches have to be left against the ultimate pit slope in order to provide the recommended safety factor.

While approaching the ultimate pit limits, regular monitoring of slope/crack movement shall be carried out using instruments such as inclinometers, total station, crack meters, piezometers etc. It is appropriate here to mention that, measures such as stabilization features for the dumps using geotextiles exist. Precautions are taken for improving the drainage system by providing systematic garland drains throughout the periphery of the mine.

The slopes will be monitored at regular intervals to check for any possible failure. However, the well-developed drainage system within the lease area will minimize the development of hydrostatic pressure during rainy season. Regular inspection of these measures shall be carried out. Maximum number of benches proposed for working in this mine are two numbers with a height of not more than 6 m each. The formations being hard laterite and ore, the possibility of slope failure is almost nil.

2. Waste Dump slope failure

The slopes of dumps shall be planned at an overall angle of less than 27° with individual lifts at less than 37°. The dumps shall be planned by retreating method of dumping. The

advantage of this method is that adequate area can be made available for plantation to be carried out.

Use of geotextiles , grass and plantation with native species will help to stabilize the dump slopes and prevent slope failure. Inward slope will be provided to each dump step so that the run off water is channelized properly in to garland drains and then to the settling ponds. Laterite boulder walls will be constructed at the toe of the dump .

3. 10.5.2

During monsoon, mine pit will receive water due to precipitation over mine area. This accumulation of water may flood the mine pit leading to inundation of working area. This may cause drowning of workmen & equipments.

Bicholim Mineral block study area fall under Mondovi River basin of Taluka Bicholim, Bardez, Sattari, Sanguem, Tiswadi & Ponda. The catchment area of Mondovi River 1580 Sqkm. The Sahyadri hill ranges in the east form the main watershed. The streams originating here flow in west and north west direction to join the Arabian Sea. The study area drainage pattern is dendritic and sub dentric which is in shown Vide ***Plate.No.10***

Main River in study area

Mandovi River -Aerial Distance of 2.30 Km at pilgao Village

Bicholim River - Aerial Distance of 0.23Km at Mandrekarwada (Bicholim)

Assonara River - Assonara river which touch Mining lease area

Chapora River - Aerial Distance of 7.3 Km at Colvale Village

Assonora River originates near Mencurem village in Bicholim Taluka, Assonora is one of the main tributary of Mandovi River. The river flows through areas like Assonora, Sirsaim. The drainage area of this tributary is about 55 Sq. Km.

HFL of Assonora River is 3.5m MSL

Flood Analysis

Source WRD Goa

The mine boundary is about 10.9 m MSL hence is there is no impact of flood of Assonara River as the mine elevation is 7.4m above the HFL of Assonora river

Drainage Density is 724.642km/467.97sq km = 1.548 km/sqkm

4. Action plan to prevent fire

In the mining premises, cutting burners, welding appliances or any other equipment which may generate sparks of any kind would be used only with prior permission of concerned authorities where there is a risk of fire. Fire extinguishers shall be kept at engine rooms, generator, workshops, near transformer etc. Automatic fire extinguishers will be installed on all the Heavy earth moving Machinery.

A competent person shall examine all equipment, material and arrangement provided for fire**10.5.2.1** hting at least once in a month and record of the examination shall be maintained in a register. Fire extinguisher shall be examined by a competent person at least once in 3 months.

Risk Management

No impact of HFL to mine site.

Storage of explosives

No explosives shall be used.

7.2.1 EMERGENCY SCENARIOS & CONTROL MEASURES

Table 7.2: Risks, Cause & Control Measures

S.No.	Activity/ Scenario	Risk	Cause	Control Measure
1.	Removal of Mineral	Landslide	Loose Soil Angle of Bench being steep	The following safety measures will be followed and the same will be ensured for the proposed project also. Bench height of 7 m with individual bench slope of 70^0 and overall slope angle of less than 26^0 maintained. Inactive slopes will be terraced and mulched , covered with geotextiles and planted with grasses, legumes and bush variety of species
2.	Movement of Mineral, Top Soil/Wastes etc., in trucks	Accident causing injuries to human/ /damage to properties	Operating vehicle in reverse direction Loss of control of trucks while driving Speeding Overtaking Overloading	Providing awareness training to truck drivers on safe driving, clearly explaining DOs & DON'Ts and also providing refresher training every year. Providing and ensuring use of appropriate Personal Protective Equipment. Undertaking Alcohol Checks, Speed limit, regular inspection of vehicles

S.No.	Activity/ Scenario	Risk	Cause	Control Measure
			Not using hand brake Drinking & Driving	
3.	Fire Accident	Causing injuries to human/ /damage to properties	Electrical Short Circuit	Ensuring storing of inflammable materials separately. Restricting smoking to only smoking zone area allotted. Keeping Fire Extinguishers near the storage area, Automatic fire extinguisher system for HEMM.
4.	Water inundation	Threat to life of mine operators Damage to mining machinery/ trucks	Heavy rain/ flood Intersection of ground water table	No impact of HFL or water inundation on mine site. Sufficient capacity pumps will be installed to pumpout water from the mine pits to maintain safe level.

7.2.2. EMERGENCY PREPAREDNESS & RESPONSE PLAN

7.2.2.1 OBJECTIVES OF EMERGENCY PREPAREDNESS & RESPONSE PLAN

The Emergency Preparedness and Response Plan is aimed to ensure safety of life, protection of environment, protection of equipment and restoration of production in this same order of priorities.

For effective implementation of Emergency Preparedness and Response Plan, it shall be widely circulated and personnel shall be trained through mock drills.

To tackle the consequences of a major emergency inside the mine, an Emergency Preparedness and Response Plan has been formulated.

The objective of the Emergency preparedness and Response Plan is to make use of the combined resources of the Mine and the outside services to achieve the following.

- Control and bring the emergency situation to a safe condition
- Safeguard employees
- Arrange rescue and medical treatment of causalities
- Minimize damage to property and the environment
- Secure the affected areas
- Preserve subsequent records and equipment for subsequent enquiry to identify the cause and circumstances leading to emergency.
-

7.2.2.2 EMERGENCIES

The emergencies that could be envisaged in the Mine are as follows:

- Drowning
- Collision
- Fall of vehicle
- Fire (to machines and plantation)
- Dump slide / bench collapse
- Fall of person

SITUATION: DROWNING

Overall Responsibility: Mines Manager

In absence of Mines Manager, Shift In-charge shall take the charge of the situation.

Resources needed:

1) Safety equipment such as nylon/jute ropes, wireless sets, mobile phones, life buoys, life jackets and life line
2) Personal Protective Equipment
3) First Aiders

Emergency Response Plan:

a. Work Person: Work person accompanying the victim shall throw the life buoy tied to the rope/lifeline towards the drowning person. If he finds that this help is not yielding any result, he shall give a wireless message to the Supervisor or Shift Engineer.
b. Shift Engineer: As soon as the information is given to the Shift Engineer, he shall inform the Shift in-charge and Land Transport In-charge as applicable through wireless message/phone and ask for ambulance.
c. Land Transport In-charge: Land transport in-charge will arrange for the ambulance.
d. Shift In-charge: Shall inform the Mines Manager and will rush to the site.
e. Doctor/Nurse/First Aider: After receiving the information will rush to the site with ambulance with the First Aid Kit and give necessary First Aid to the victim.
f. Mines Manager: Will rush to the site and make additional arrangement to deal with the emergency if required.

Mitigation Measures:

1. A strong life-line and adequate number of life buoys and life jackets shall be kept at each pump site.
2. In case of land-based pumps, the area shall be adequately fenced.
3. A safe approach road on dry ground shall be maintained to the pump sites on which track- mounted machinery can travel safely.
4. Persons engaged in water pumping operations shall be only those who know swimming.
5. No person shall be allowed to board a pontoon/float without wearing life jacket.
6. Whenever a person gets on to the float, at least one person shall be present nearby the shore to assist in case of any untoward incident. Not more than 4 persons shall ride the float at any time.
7. Water pumping operations shall be carried out under the supervision of a competent person / De-watering In-charge.
8. The pontoons used for floating of water pumps shall be inspected and certified for buoyancy at least once a year by a competent authority.
9. The pontoons in use shall be adequately secured / anchored by ropes.

Legal obligations in case of emergency, if any:

In case of any incident in the mine involving serious injury or fatality, the same will be reported to DGMS/DMS by Mines Manager.

Records to be maintained:

- Mock Drill Report
- Incident report
- Incident Investigation Report

Reporting of emergency:

Report emergency internally to Head – Safety, Business Manager and at corporate level within timeline.

SITUATION: COLLISION

COLLISION: Includes Collision of dumpers with light vehicle, dumper with dumper, dumper with shovel, dumper with compressor, or collision with permanent / temporary structures etc.

Overall Responsibility: Mines Manager

In absence of Mines Manager, Shift In-charge shall take control of the situation.

Resources needed:

1. Safety equipment such as hand-held Walkie-talkies, wireless sets in vehicles and/or mobile phones
2. Personal Protective Equipment
3. First Aiders

Emergency Response Plan:

a. Work Person/ Driver of the vehicle: Work person or driver of either of the vehicle, if in a position of informing to the supervisor, shall do so immediately. If the driver is not in a position to inform, then the work person witnessing the accident shall inform the supervisor/Engineer nearest available.
b. Shift Engineer: As soon as the information is given to the Shift Engineer, he shall inform the same to the Shift in-charge and Land Transport In-charge on wireless set/phone and ask for ambulance.
c. Land Transport In charge: Land transport in-charge shall arrange for ambulance.
d. Shift In-charge: Shall inform the Mines Manager and rush to the site.
e. Doctor/Compounder/First Aider: After receiving the information will rush to the site with ambulance with the First Aid Kit and give necessary First Aid to the victim.
f. Mines Manager: Shall rush to the site and make additional arrangements to deal with the emergency if required.

Mitigation Measures:

I. Mock Drills shall be conducted as per schedule.
II. Training and refresher training shall be conducted as per the schedule and drivers shall be assessed.
III. Drivers with rough performance or bad records shall be given special attention and training.

IV. Reverse cameras for all vehicles and dumpers

Legal obligations in case of emergency, if any:

In case of any incident in the mine involving serious injury or fatality, the same will be reported to DGMS/DMS by Mines Manager.

Records to be maintained:

- Mock Drill Report
- Incident report
- Incident Investigation Report

Reporting of emergency:

Report emergency internally to Head - Safety, Business Manager and at corporate level within timeline

SITUATION: FALL OF VEHICLE

Overall Responsibility: Mines Manager

In absence of Mines Manager, Shift In-charge shall take hold of situation.

Resources needed:

i. Safety equipment such as hand- held Walkie- talkies, wireless sets in vehicles and/or mobile phones

ii. Personal Protective Equipment

iii. First Aiders

Emergency Response Plan:

1. Work Person: Any Work Person including the driver of the vehicle witnessing the accident shall give the information to the nearest available supervisor / Engineer.
2. Shift Engineer: As soon as the information is given to shift Engineer, he shall inform the same to the shift in-charge and Land Transport In-charge on wireless set/phone and ask for ambulance.
3. Land Transport In charge: Land Transport In-charge shall arrange for ambulance.
4. Shift In-charge: Shall inform the Mines Manager and rush to the site
5. Doctor/Compounder/First Aider: After receiving the information will rush to the site with ambulance with the First Aid Kit and give necessary First Aid to the victim
6. Mines Manager: Shall rush to the site and make additional arrangements to deal with the emergency if required.

Mitigation Measures:

1) Mock Drills shall be conducted as per the schedule.
2) Road markings, sign boards, convex mirrors, speed breakers, escape lanes, embankments, fluorescent poles, traffic islands, etc. shall be provided as per requirement.
3) Haul road width and gradient shall be maintained as per law enforce.
4) Roll over cabin protection shall be provided on dumpers as applicable.

Legal obligations in case of emergency, if any:

In case of any incident in the mine involving serious injury or fatality, the same will be reported to DGMS/DMS by Mines Manager.

Records to be maintained:

- Mock Drill Report
- Incident report
- Incident Investigation Report

Reporting of emergency:

Report emergency internally to Head - Safety, Business Manager and at corporate level within timeline.

SITUATION: FIRE

FIRE: Includes fire to the hauling or loading machines.

Overall Responsibility: Mines Manager

In absence of Mines Manager, Shift In-charge shall take control of the situation.

Resources needed:

1) Safety equipment such as fire extinguishers, fire suppression system and wireless sets
2) Water tankers with water hose
3) First Aiders & Fire fighters
4) Personal Protective Equipment

Emergency Response Plan:

a. Operator: Operator shall be well versed with the operation of fire extinguishers and fire suppression system. Operator shall also inform the available supervisor.
b. Supervisor: Supervisor shall inform the shift In-charge and assist in extinguishing the fire.

c. Shift In-charge: On getting information shall visit the incident site and if required, make arrangements for Water tanker and extra fire extinguishers if required.

d. Shift In-charge shall also send information to the Mines Manager, Land Transport In-charge as applicable and Workshop In-charge for rescue operations.

e. The General Emergency Preparedness Plan (EPP) shall be kept in place for the mine by Mines Manager.

Mitigation Measures:

1) All HEMM shall be equipped with operational fire extinguishers and fire suppression system.
2) Regular housekeeping of HEMM shall be followed.
3) Mock drills shall be conducted as per schedule.
4) Response time analysis of mock drill will be carried out for further improvement.
5) All operators/supervisors shall be trained in firefighting and operating fire extinguishers and fire suppression system.

Legal obligations in case of emergency, if any:

In case of any incident in the mine involving serious injury or fatality or major fire incident, the same will be reported to DGMS/DMS by Mines Manager

Records to be maintained:

- Mock Drill Report
- Incident report
- Incident Investigation Report

Reporting of emergency:

Report emergency internally to Head - Safety, Business Manager and at corporate level within timeline

SITUATION: PLANTATION FIRE

Overall Responsibility: Mines Manager

In absence of Mines Manager, Shift In-charge shall take control of the situation.

Resources needed:

1) Safety equipment such as Fire Extinguishers, Fire brigade and wireless sets
2) Water tankers/sprinklers with water hose

3) First Aiders / Fire fighters and Security personnel
4) Personal Protective Equipment

Emergency Response Plan:

1. Security: Security personnel shall inform the Mines Manager / Security Officer about the fire.
2. Mines Manager / Security Officer shall make arrangements for Fire Fighters / Security personnel & Water tankers & rush to the site.
3. If required, Mines Manager shall make arrangements to call Fire Brigade
4. Shift In-charge: On getting information shall visit the incident site and if required, make arrangements for more Water tankers/Sprinklers.
5. Mines Manager and team shall ensure that the plantation fire is brought under control and does not spread further and destroy green cover.

Mitigation Measures:

a. All security check points shall be facilitated with fire extinguishers.
b. Mock Drills shall be conducted as per schedule.
c. Response time analysis of mock drill will be carried out for further improvement.
d. The plantation areas shall be inspected once in a while and protective measures taken.

Legal obligations in case of emergency, if any: Nil

Records to be maintained:

- Mock Drill Report
- Incident report
- Incident Investigation Report

Reporting of emergency:

Report emergency internally to Head - Safety, Business Manager and at corporate level within timeline.

SITUATION: DUMP SLIDE

Overall Responsibility: Mines Manager

In absence of Mines Manager, Shift In-charge shall take control of the situation.

Resources needed:

1) Safety equipment's such as wire ropes and wireless sets/mobile phones
2) First Aiders
3) Personal Protective Equipment

Emergency Response Plan:

1. Work Person: Work Person or Operator whose dumper is stuck up while dump collapse shall inform the supervisor.
2. As soon as the information is given to the Supervisor / Engineer, the same will be also communicated to the Shift In-charge and Land Transport In-charge as applicable on wireless set and ask for Extra Tow Chains.
3. Spotter: Who is near the site shall immediately put the wire rope to the dumper and the Dozer which is available near the spot.
4. Shift In-charge: Shall inform the Mines Manager and rush to the site along with extra Tow Chains and wheel loader if required.
5. Mines Manager: Shall rush to the site and make additional arrangements like dump cutting with ripper dozer, making access road, additional excavator, etc. to deal with the emergency if required

Mitigation Measures:

1. Mock Drills shall be conducted as per schedule.
2. Dumping activity shall be carried out systematically in the form of steps and maintaining safe height and slope as per law in force, under the control of the Mines Manager/Location In-charge and the environment department personnel.
3. Pulpy/wet material shall be unloaded separately and not on the active dump side to prevent collapse.
4. Inward slope shall be maintained for each step of the dump for proper drainage during monsoons.
5. Regular dump slope monitoring shall be carried out.
6. Geo-textiles shall be laid along the slopes of finalized/inactive position of the waste dump before monsoon for stability of the dump.

Legal obligations in case of emergency, if any: Nil

Records to be maintained:

- Mock Drill Report
- Incident report
- Incident Investigation Report

Reporting of emergency:

Report emergency internally to Head – Safety, Business Manager and at corporate level within time

SITUATION: FALL OF PERSON

Overall Responsibility: Mines Manager

In absence of Mines Manager Shift In-charge shall take charge of the situation.

Resources needed:

1) Safety equipment such as ropes and wireless sets
2) First-Aiders
3) Personal Protective Equipment

Emergency Response Plan:

a. Work Person: Work person accompanying the victim shall throw rope towards the fallen person.
b. If this does not help or fallen person is severely injured, he shall give a wireless message to the shift engineer or shift in-charge or land transport office. If the injured person has been pulled up, immediate first-aid shall be provided
c. Shift Engineer: As soon as the information is received by the Shift Engineer, the engineer shall inform Shift In-charge & Land Transport office on wireless set and ask for ambulance.
d. Land Transport In-charge: Land transport In-charge will arrange for the ambulance.
e. Shift In-charge: Shall inform the Mines Manager and will rush to the site.
f. Doctor/Compounder/First Aider: After receiving the information will rush o the site with ambulance with the First Aid Kit and give necessary First Aid to the victim.
g. Mines Manager: Will rush to the site and make additional arrangements to deal with the emergency if required.
h. The General Emergency Preparedness Plan (EPP) in place for the mine shall be followed by Mines Manager.

Mitigation Measures

a. Mock Drills shall be conducted as per schedule.
b. Areas with loose strata, undercut shall be barricaded.

c. Workers shall be given training and refresher training on unsafe act/conditions.
d. Workers shall be motivated & rewarded in reporting unsafe acts/conditions and near-misses.
e. During dark hours illumination shall be provided

Legal obligations in case of emergency, if any:

In case of any incident in the mine involving serious injury or fatality or major fire incident, the same will be reported to DGMS/DMS by Mines Manager

Records to be maintained:

- Mock Drill Report
- Incident report
- Incident Investigation Report

Reporting of emergency:

Any emergency will be immediately reported to Mines Manager, Head of operations, Head – Safety, Security In-charge and Inhouse Doctor and if required Local police (100) , Ambulance (108) and government officials

7.3 DISASTERS

A disaster is catastrophic situation in which suddenly, people get into a situation of helplessness and suffering and as a result, need protection, clothing, shelter, medical and social care and other necessities of life. Disasters from natural phenomena like earthquakes, cyclones, storms, floods, landslides etc., are considered here.

There can be no set criteria for assessing the gravity of a disaster in the abstract as it depends, to a large extent, on the physical, economic and social environment in which it occurs.

However, all disasters call for immediate action, whether at the local, national or international level, for the rescue and relief of the victims. This includes the search for the dead and injured, medical and social care, removal of the debris, the provision of temporary shelter for the homeless food, clothing and medical supplies, and the rapid re-establishment of essential services.

The disasters due to natural phenomena are to be handled in a proper manner with the help of local administration immediately on occurrence. Further supports required,

depending upon the severity, are to be provided by District/State/National Level Authorities.

The resources available in the mine will be extended to the maximum possible extent by the project proponent in the event of occurrence of any such natural disasters to provide rescue, first aid, ambulance service, medicines, shelter & food, to the affected people.

7.4 OCCUPATIONAL HEALTH & SAFETY

As no additional construction of any civil structures are envisaged in this mine, the Occupational Health and Safety related issues are restricted to operational stage only. The existing practices with regard to Occupational Health & Safety will be ensured for the existing mining operations.

The Occupational Health and Safety (OHS) Plan aims to

- ensure that all known safety factors are taken into account in the operation and maintenance of HEMM and trucks
- allocate sufficient resources to maintain safe and healthy conditions at work place
- ensure that adequate OHS knowledge is imparted to all employees
- provide necessary protective equipment and safety appliances and ensure their proper use
- make the employees aware of the mine operations and the potential hazards
- train the employees to take preventive steps in a proactive manner and execute the work safely and understand occupational health issues
- review all operations and methods of work for making necessary changes from the safety point of view in the light of experience and up to date knowledge
- provide appropriate facilities for first aid and prompt treatment of injuries and illness at work
- ensure that adequate publicity is given to OHS matters
- ensure proper precautions are taken to prevent fire and provide appropriate firefighting facilities
- publish instructions and notices in the local language to employees
- prepare safe operating procedure for all operations
- ensure regular inspection by a competent person at regular intervals for identifying any deviations in safety and occupational health related matters
- provide rrelaxation facilities to workers with good ventilation & air circulation

- ensure Good Housekeeping Practices
- provide enclosure for noise generating sources
- isolate diesel storage areas
- rotate employees in specific areas to avoid continuous exposure

7.4.1 OCCUPATIONAL HEALTH RISKS

The principal Occupational Health Risks associated with the project are likely incidence of tuberculosis, silicosis, hearing loss, accidents due to inundation of mine working pits, fire and slope failure. The order of severity on health status of workers in mining is tuberculosis, silicosis, respiratory diseases and hearing loss.

7.4.2 PRECAUTIONARY MEASURES

a. Dust

As dust is a major pollutant, that can cause a heath disorder, the following precautionary measures are followed.

- Sprinkling of water on the haul roads and working places
- Maintenance of the mining machinery and vehicles used as per the manufactures specifications to ensure their efficient operation
- Ensuring usage of Personal Protective Equipment like respiratory masks, ear plugs, helmet, safety shoes by the employees
- Development of wide green belt proposed to attenuate the spread of dust and also the noise generated from mining operations

b. Noise

Workmen and staff exposed to higher sound levels will be provided with ear plugs/mufflers of approved type by DGMS to guard them against any hearing impairment is being followed to ensure noise levels are within limits.

c. Injuries

By ensuring that all employees are following safe operating procedure and using the required Personal Protective Equipment, the risk of injuries due to accidents can be prevented.

7.4.3 PERSONAL PROTECTIVE EQUIPMENT (PPE)

The following Personal Protective Equipment (PPE) are provided to the Mine employees

- ❖ Industrial Safety Helmets

- ❖ Zero power plain goggles with cut type filters on both ends
- ❖ Cylindrical type earplugs/Earmuffs
- ❖ Industrial safety shoes with steel toe
- ❖ Reflectary jackets

7.4.4 TRAINING

All the workers shall be imparted with initial vocational training (Induction) as per the statute to make them familiar with their jobs covering the occupational hazards involved, need to use Personal Protective Equipment, following safe operating procedures and the safety precautions to be taken while doing their jobs. Awareness programme for the workers on work related health hazard, HIV prevention etc. are being conducted. They shall also be given refresher training as per statute after completing one year of service.

7.4.5 OCCUPATIONAL HEALTH SURVEILLANCE

Impact of mining on health shall be assessed by a trained doctor in occupational health and the tests conducted include general health checkup, spirometry, audiometry and vision test in addition to X-Ray and ECG examination.

In order to evaluate the impacts on mining on the health of workers, baseline health studies shall be carried out on every worker at the time of joining duty. Medical examinations will be conducted for employees every year.

7.4.6 PIT SAFETY COMMITTEE

The pit safety committee headed by Mines Manager consists of

Mines Manager	-	1
Geologist	-	1
Mine Foreman	-	1
Mining Engineer/Environmental Officer	-	1
Company Doctor	-	1
Workers	-	2

The functions of the Safety Committee are:

- Ensuring remedial measures against the unsafe conditions and practices in the mine as pointed out by the workmen or Inspectors or otherwise brought to the notice of the committee

- Planning safety and health measures including related codes of practice and making appropriate recommendations before commencement of any new section of the mine or introduction of any new mining technique
- Ensuring investigation of accidents that take place in the Mine and making appropriate recommendations
- Ensuring meeting at least once in 30 days to consider the matters placed before it and any other matter that may be raised by the members and making such recommendations as it may deem fit
- Serving as a forum of communication on safety and occupational health matters

7.4.7 FIRE PROTECTION

Firefighting equipment such as Carbon dioxide, DCP, Soda acid type, Fire buckets shall be provided. Regular inspection of Fire Extinguishers to ensure replacement of refills and the working condition of the extinguishers shall be carried out.

7.4.8 BUDGET

An annual budget of Rs. 32.5 lakhs will be allocated for safety and occupational health activities.

7.5 R & R ACTION PLAN

There is presence of habitation within ML Area at Mulgao and lamgao villages. Safety Buffer of 50m will be maintained from the habitations. No Rehabilitation & Resettlement Plan is proposed.

7.5.1 Schools within the Mineral block:

There are two government primary schools located inside the Block 1 , Bicholim mineral block . These schools are located inside the habitation in Mulgao village at Gaonkarwada and Manasbaag . These schools were in existence during the tenure of earlier mining operations also.

Out of these two schools, The school at Gaonkarwada is not functional since few years. The no of students studying in Manasbag school is also very less (only 12 no of students during the current year). There are many other schools both government and

private with good infrastructure in the Bicholim town which are well connected with the villages and are preferred in general.

Mitigation measures w.r.t School:

1. In General a safety buffer of 50m will be maintained towards the habitation .
2. W.r.t the schools , the distance from ultimate pit limit to the Manasbag school is 138 m and from Gaonkar wada school is 190 m
3. These schools are situated inside the habitation and has a direct road approach from the village, there is no hindrance from mining activity or transportation.
4. There is no drilling and blasting proposed during the mining operations and as such there is no possibility of fly rock or ground vibrations
5. Support will be provided to the schools in terms of improving infrastructure , teaching facilities, play equipment etc. and budget for same is provided in CER.

We would like to state that there won't be any significant impact of the mining operations on the schools mentioned above and as such shifting of these schools wont serve any purpose and hence shifting is not proposed.

7.6 CARE AND MAINTENANCE DURING TEMPORARY DISCONTINUANCE

a) Precautions to be taken

An emergency plan for the situation of temporary discontinuance due to court order or due to statutory requirements or any other unforeseen circumstances may indicate measures of care, maintenance and monitoring of status of discontinued mining operations expected to re-open in near future.

Although no temporary closure is planned or expected, the following protective measures would be taken to deal with the unforeseen circumstances which may be created due to temporary closure of the mine.

1. All heavy earthmoving mining machineries deployed in various blocks of iron ore mine will be withdrawn and brought to the safe place so that these do not get buried

due to bench collapse, if any, and get damaged during discontinuance. These will be subjected to preventive maintenance.

2. The entries to the pits in various blocks will be fenced off with display of notice boards at the fence prohibiting entry into the pits by unauthorized persons.
3. Pit boundaries would be fenced and high berms will be provided to prevent cattle from entering the pit. At the entrance and strategic points in the mine areas, sentries and watchman would be deployed to guard the sensitive/important mine area, explosive magazine and other sensitive stores and services. They would be provided with mobile phones / walky-talkies to contact mine authorities/police/fire station etc. for help during emergency.
4. The mine area would be kept well illuminated during night time.
5. Audible warning sirens would be established at strategic points to be used during emergency so that prompt help can be received from proper sources and protective measures are immediately taken by all personnel available.
6. Managerial, supervisory and competent persons of the mine would be engaged elsewhere in other mines of the company as per the needs.

b) Economic repercussions of closure of mine and manpower retrenchments. Manpower retrenchment, compensation to be given, socio-economic repercussions and remedial measures consequent to the closure of mines should be described, specifically stating the following:

It is too early to discuss the socio-economic repercussions and remedial measures consequent to the closure of mines. However, the workers shall be employed from surrounding areas who are basically agricultural labourer. In case of closure, they will go back to their family occupation.

i) Number of local residents employed in the mine, status of the continuation family occupation and scope of joining the occupation back:

Most of the workers shall be employed from the surrounding areas who are basically dependent upon agriculture activity. In case of closure, they will go back to their family occupation.

ii) Compensation given or to be given to the employees connecting with sustenance of himself and their family members:

The employees will get compensation as per the government and company rules and system

iii) Satellite occupations connected to the mining industry number of persons engaged therein continuance of such business after mine closes:

There can be no satellite occupation connected to the mining industry.

iv) Continued engagement of employees in the rehabilitated status of mining lease area and any other remnant activities:

Not Applicable.

Chapter-8
PROJECT BENEFITS

8.0PROJECT BENEFITS

8.1 PROJECT BENEFITS

Project benefits are attributed in various ways as under:

1) Environment

2) Employment

3) Social

8.1.1 SOCIO-ECONOMIC DEVELOPMENT

The proposed project area is barren private land over an area of 478.5206 Ha, with indigenous species including fruit and flower varieties; it promotes immigration of avifauna into this area.

No Rehabilitation or Resettlement is involved and it is a forestland and there are no human settlements or PAPs within the ML area, which requires Rehabilitation and Resettlement. There are 68 villages/towns - 56 villages and 12 census towns (CT), in the buffer zone. Of these, 68 villages/towns, 48 villages, and 12 towns are located in 6 talukas of North Goa and 8 villages in one taluka in Maharashtra. As the data pertains to large number of villages and towns are in North Goa, the buffer zone is compared to North Goa District. The total population of these villages is 253834. Due to the proposed mining activity, no significant adverse changes are visualized in the traditional way of life of the people residing in the villages in the buffer zone.

This mine shall provide employment for about 521 people by direct and indirect employment which includes mine officials, skilled, semi-skilled and unskilled labour and indirect employment, in contractual works & transport. Preference shall be given to local people for employment.

The company is conscious of its obligations to society at large & is bound to contribute in overall socioeconomic development of the area in the coming years by increasing its efforts towards overall development of the proposed project area.

8.2 ENVIRONMENTAL BENEFITS

Mining project will be beneficial for environment in many ways which are as following:

- At the conceptual stage total excavated area will be 355.5659 ha out of which 293.5 ha area will be backfilled. The pit will be used as reservoir. The water reservoir will be helpful for recharging the ground water
- At end of life of mine, total Greenbelt/Plantation of over 105 Ha will be developed by planting 2,65,000 saplings which will be beneficial to the Environment & will also create an aesthetic appeal.

8.3 EMPLOYMENT BENEFITS

8.3.1 EMPLOYMENT OPPORTUNITY

This mine shall provide employment to about 521 people by the way of direct employment which include mine officials, skilled, semi-skilled and unskilled labour.

Table No 8.1 Employment details

S.No	Designation	Nos
1	Mines Manager (1st Class)	5
2	Mines Manager (2nd Class)	8
3	Mining Engineer	21
4	Geologist	3
5	Mechanical Engineer	12
6	Electrical Engineer	8
7	Mining Foreman	20
8	Mine-mate	12
9	Skilled workers/operators	220
10	Semi Skilled	70
11	Unskilled	128
12	Other	14
	Total	**521**

In addition, about 195 semi-skilled and un-skilled workers will be employed. Apart from this, there will be employment by way of indirect works such as truck drivers, machinery operators of contractors, road maintenance, garage, watch & ward, canteen etc.

8.4 SOCIAL BENEFITS

Vedanta Limited will undertake activities for the upliftment of the social community through community development in various ways as given under:

i. Education
ii. Health & Family Welfare Programme
iii. Infrastructure Development
iv. Social Welfare & Skill Development Activities
v. Sustainable Livelihood

i. Education

- Providing support to schools/educational institutions to promote various activities towards development of children.
- Providing support to Anganwadi centers /schools for building/ upgrading infrastructure (by undertaking or supporting construction work or equipping

them with furniture, , books, note books, musical instrument, etc.) for promoting education.

- Scholarship to underprivileged and meritorious students for undertaking/ continuing technical and professional courses.
- Imparting employability training, vocational courses and skill development.

ii. Health & Family Welfare Programmes

- Arranging specialized Health Camps for villagers.
- Supply of drinking water through installation of water tanks and construction / repairing of existing water systems.
- Declaration of ODF Village by way of constructing toilets.
- Awareness program on AIDS disease and their preventive measures.

iii Infrastructure Development

- Construction of community halls and centers at nearby villages.
- Construction of CC roads of nearby villages
- Construction of retaining wall, stone pitching, pond desilting work and construction of school, boundary wall at village.
- Construction of various structures like school boundary in nearby villages.
- Facilities development at Govt Departments / Panchayats, police stations

iv se

- Promotion of Art and Culture by associating with various agencies through sponsorship, support, contribution, etc.
- Construction work at various temples
- Other CSR programme coordination including brochures, painting, leaflets, CSR documentary film, display boards inauguration function etc.
- Providing saplings/ plants for villagers / nearby localities / schools for plantation

Table No 8.roposed CSR Expenditure (Rs.in lakhs) for 5 years

Sr. No.	Thematic area	1st year	2nd year	3rd year	4th year	5th year
1	Agri & Animal Husbandry	1,000,000	1,200,000	1,500,000	1,500,000	1,700,000

2	Health Care	1,000,000	1,200,000	1,500,000	1,500,000	2,000,000
3	Education	4,850,000	4,200,000	4,200,000	4,400,000	4,300,000
4	Community Asset	700,000	900,000	1,000,000	1,200,000	1,500,000
5	Drinking water & sanitation	600,000	700,000	700,000	700,000	700,000
6	Skilling	500,000	750,000	750,000	800,000	800,000
7	Cultural	100,000	100,000	200,000	200,000	200,000
8	Sports	100,000	100,000	200,000	200,000	300,000
9	Women Empowerment	800,000	1,000,000	1,000,000	1,200,000	1,200,000
10	Environment - Community plantation	100,000	100,000	100,000	100,000	100,000
	Total	**9,750,000**	**10,250,000**	**11,150,000**	**11,800,000**	**12,800,000**

Medical assistance:

Specialized Health camps in the buffer zone villages shall be organized awareness programme on health and sanitation and blood donation camps.

Primary education:

Transport facility for students, to provide educational aids to students . Repairing of school buildings at nearby villages shall be taken up.

This policy continues with adequate budgetary support.

- In order to improve the educational activities in the area, following assistance will be provided.
- Repair/Rebuilding of village schools
- scholarships for meritorious & needy students
- Encouraging pre-primary school education
- Supporting adult education programs
- Drinking water to villagers
- Training for self-help groups & Supporting SHG for establishment of microenterprises.
- Orientation programs for self-employment in collaboration with District Industries Centre and Rural Development Agencies
- The local people especially the women from the downtrodden community and women self-help group shall be involved in afforestation, in the nursery

development and avenue plantation programmes, developing fruit orchid, fodder farms and in vocational training including tailoring, embroidery, other cottage industries.

- Youth shall be given technical vocational training so that they can get employment in service sector as technicians or in self-employment schemes.
- Assistance in availing government schemes
- Collaborate with the local private hospitals and primary health centers in providing primary health care
- Rainwater harvesting

Thus, this project is expected to yield a positive impact on the socio-economic environment of the region. It will help in sustainable development of this area including further development of physical & social infrastructural facilities. This project would create direct and indirect employment, a skilled and educated talent pool and entrepreneurs through its various social beneficiary programs. The production of iron ore would generate revenue to the country in terms of taxes on ore production and exchequer revenue for the State in terms of royalty etc.

8.4.1Employment-based skill development plan for the local after imparting training

As part of its CSR, Vedanta is running Sesa Pvt ITI in Sanquelim, Bicholim Goa, offering NCVT affiliated courses in electrician, fitter, instrument mechanic, and machinist since 1994.

The institute enrolls students from across communities and ensures 100% job placements.

Company is planning to start Computer Operator and Programming Assistant (COPA) course exclusively for girls. To encourage and support girls in technical fields scholarship will be provided to girl students who take admission in ITIs across Goa.

Company also runs "Sesa Football Academy" – having two residential facilities at Sanquelim & Sirsaim, in Bicholim taluka , Goa. It provides for professional football training for 4 years. It supports women empowerment through sports by way of Vedanta Women's League wherein more than 150 girls participate. Nonresidential

Grassroot football centers for children, Youth leagues, and football camps etc. are organized as part of grassroot program. Going ahead, it plans to start two non-residential football centers exclusively for girls.

Company also runs a computer training center in Bicholim which provides for Diploma in Computer Application and advance courses such as coral draw, web designing, tally/GST etc. Every year +120 youths will be benefiting from this initiative thereby equipping them for various job opportunities. Company has plans to start one more center in the Bicholim area to cater to larger local population of the area.

In addition to this, company under its women empowerment thematic area, will initiate women entrepreneurship development program which to benefit hundreds of women every year.

Employment: Preference will be given to locals while providing direct employment to work on the mines. The mining operations will also provide significant employment opportunities to local in the form of ore transportation contracts. The mining operations will also lead to employment opportunities to locals in the form of setting up businesses to provide ancillary facilities like garages, hotels, etc.

CHAPTER-9

Environmental Cost Benefits

Environmental Cost Benefit Analysis is not recommended at the Scoping stage

Chapter-10

ENVIRONMENTAL MANAGEMENT PLAN

10 ENVIRONMENTAL MANAGEMENT PLAN

10.0 OBJECTIVE

The major objectives and benefits of utilizing Environmental Impact Assessment in project planning stage itself, is to prevent losses to Environmental Resources. Environmental Management includes protection/mitigation/ enhancement measures as well as suggesting post project monitoring programme.

The mining activity in the study area needs to be intertwined with judicious utilization of non-renewable resources and Environmental degradation should be within the assimilative capacity. The assimilative capacity of the study area is the maximum amount of pollution load that can be discharged in the Environment without affecting the designated use and is governed by dilution, dispersion, and removal of possible pollutants generated during the operation. The Environment Management Plan (EMP) is required to ensure Sustainable Development. Hence it needs to be comprehensive plan for which the Industries, Government, Regulating agencies and more importantly the population of the study are contented.

The Environmental Management Plan will address the possible impacts on the Environmental attributes in the region viz., Air Quality, Water Quality, Land Use, Ecology and Public Health and the control measures that will be put in place to protect the Environment in and around the study area.

The Management Action Plan aims at controlling pollution at the source level to the maximum possible extent with the available and affordable technology followed by treatment measures before they are discharged.

Environmental Management Plan aims at the preservation of ecosystem by considering the pollution abatement facilities at the inception stage. For the proposed Iron Ore Mine, the pollution abatement has become an integral part of planning and design.

10.1 ENVIRONMENTAL MANAGEMENT CELL

The Environmental Management Cell (EMC) is headed by Head-Environment Health and Safety (EHS) having adequate experience in the fields of EHS. The Head-EHS will report to the Business Head of the Unit and also to Corporate Head Environment and shall have direct access to Head of Organisation.

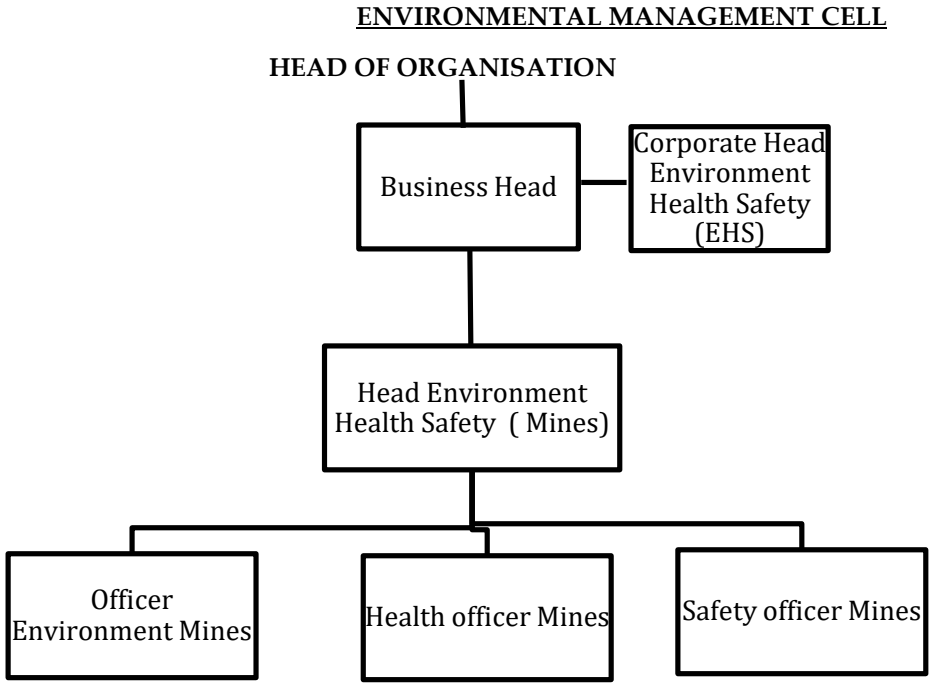


Fig No.10.1 Environmental Management Cell

A built-in mechanism for reporting on compliance of the Environmental/ Forest and other related aspects have been evolved. As per guidelines of MoEFCC, New Delhi, the status of environment compliance will be put up on the website of the company regularly. Periodic auditing and performance measurement will also be taken up to look for improvement areas.. The Environment Management Plan (EMP) which includes works like storm water management (drainages, settling ponds, trenches, desilting etc), dump stabilization (inward slope to dump, laying of geotextiles , grass seeds) , afforestation etc will be planned jointly by a team comprising of mines manager, surveyor, geologist and environment Officer.

The team will meet frequently to assess the progress of the EMP so that the storm water management and dump stabilization jobs are completed well before the onset of monsoon and plantation is carried out in monsoon. The status will be reviewed by senior management on weekly basis. For successful implementation of the environmental management plan other agencies will also be involved by mines, if required (for regulatory requirement or technical support). The coordinating agencies, which may be involved for specific environmental and project related activities, are given below:-

i) Interaction with State Pollution Control Board for legal compliance , new updates in environmental law, awareness etc

ii) Interaction with State Agriculture and forest department for engagement w.r.t plantation

iii) Interaction with consultants, reputed institutes for various projects related to mine reclamation, water positivity study, projects on carbon foot print.

The Environment management Cell will also coordinate to carry out environment monitoring as stipulated by the authorities. The monitoring will be undertaken by a Environment laboratory recognized by MoEF&CC. the monitoring data will be regularly submitted to the authorities like GSPCB, regional office of MoEF&CC.

10.2 HEALTH, SAFETY &ENVIRONMENT POLICY :

The project proponent Vedanta ltd. has a very well defined policy on Health safety and environment which is produced below

vedanta
transforming for good

Health, Safety & Environment Policy

Document No: HSES/POL-01

We are committed to achieving excellence in Occupational Health, Safety and Environment (HSE) management.

The policy applies to all Vedanta subsidiaries, operations and managed sites including new acquisitions, corporate offices and research facilities and to all new and existing employees and contractor employees, business partners suppliers and consultants who should be required to comply with the policy when they act on behalf of Vedanta. This Policy is applicable to the entire operational lifecycle (including exploration and planning, evaluation, operation, and closure) as well as applicable to downstream operations (including distribution, logistics, and sale of products & services up to the customer).

Vedanta will:

- Comply with applicable national, regional, and local HSE regulations and statutory obligations, in the absence (or lack) of appropriate legislation, industry best practices and applicable international standards will be used;
- Develop, implement, and improve HSE management systems, with our commitments and beliefs and consistent with world class standards;
- Set targets and objectives to avoid, reduce or mitigate HSE related impacts on people and planet;
- Continuously monitor performance, identify, prioritize, assess and take actions to mitigate HSE risks and opportunities;
- Drive continuous HSE improvement through setting and reviewing targets using appropriate best available practices and providing all employees with appropriate training to understand the impacts of their work activities on the environment;
- Promote a positive HSE culture through effective communication, participation and consultation with employees and business partners;
- Communicate with all our stakeholders on the progress and performance of Health, Safety, Environment and Sustainability management;
- Prevent injury and ill-health to employees and business partners by eliminating hazards and providing a safe and healthy work environment and minimizing the risks associated with occupational hazards;
- Drive positive healthcare outcomes for our employees, business partners and the local community;
- Implement regular health surveillance and risk-based exposure monitoring of employees and ensure the participation and consultation of workers, and their representatives (when applicable) in the decision-making process for Occupational Health and Safety matters;
- Conserve natural resources by adopting environment-friendly and energy-efficient technologies and through process improvements;
- Manage waste from our operations and adopt the principles of waste avoidance, reuse, recycling and beneficial utilization to minimize discharge and disposal to the environment;
- Consistently assess our climate-related risk, manage our emissions, take appropriate mitigation and adaptation measures and communicate our climate strategy to our stakeholders;
- Ensure that all tailings storage facilities are designed, constructed, operated and closed in compliance with all applicable laws and regulations and in alignment with accepted international practice;
- Work with employees and local community representatives to educate them on the nature of our impacts, how we manage them, our environmental obligations, and our performance;
- Raise awareness and train employees, business partners, suppliers and other stakeholders to adopt principles and practices in alignment with our policies.

The Policy is part of the Vedanta Sustainability Framework and each Vedanta business shall implement this policy and its related technical and performance standards. This policy is overlighted by Vedanta Board of Directors. Business leaders will be held accountable for HSE performance and line managers are responsible for the full implementation of the HSE related standards. We will measure and report performance on a periodic basis to ensure on-going management of health, safety, and environment including the sharing of good practices throughout the Vedanta organization. The content and implementation of this policy will be reviewed periodically.

Vedanta sustainability policies:
https://www.vedantalimited.com/Pages/VSFDocuments.aspx

Date: June 2022

Mr Sunil Duggal
Chief Safety Officer & Group CEO

10.3 SYSTEM OF COMPLYING WITH LEGAL REQUIREMENTS AND REVIEWING BY MANAGEMENT/ BOARD MEMBERS

A. Responsibility

· The departments for ensuring and implementing compliance are identified.

· The Checklist is disseminated to the Head of departments (HODs) and lower level for understanding and ensuring compliance requirements;

· Responsibility is fixed on a particular person in each department for ensuring compliance; and

· Person responsible for ensuring compliance , reports the compliance status to the HOD on monthly/periodically basis.

B. Reporting Mechanism

· HOD reviews the compliance status reported to him and submits it in the internal portal which is reviewed by compliance department;

All the compliances filed are audited by the third party on monthly basis

· If any non-compliance is reported, HOD devises an action plan and target date to close the non-compliance;

· Legal department prepares monthly and quarterly exception report based on compliances status reported by responsible person and internal audit; and

· Monthly non compliance report shared with senior management and internal auditors for appraisal and review.

C. System of Positive Assurance

· Compliance certificate and quarterly compliance exception report is signed by CEO and sent to audit committee and the Board;

· The report is discussed and reviewed in the audit committee/Board meeting

D. Independent Audit

· Internal compliance team checks line items mapped on portal;

· Independent third-party agency audits the compliance status of the company on monthly basis ; and

· Audits are conducted to assess the robustness of compliance framework and accuracy of reporting at each unit every year.

10.4 TRAINING

- Employees will be provided trainings as per job requirements on various aspects like environment management, natural resource conservation, reporting of environmental incidents, legal requirements, environmental monitoring, waste management; general environment awareness etc . The training will be provided by Internal as well as external resources .

10.5 ENVIRONMENTAL MANAGEMENT PLAN

The Environmental Impact Assessment revealed that the study area has not been affected adversely and is likely to get new economical boost.

The Block I- Bicholim Mineral Block is auctioned as a new/ fresh mine and it will be operated taking all precautionary measures to reduce the impact of mining operations on Air, Water, Noise and Soil and ensuring all control measures to comply with the prescribed standards.

The proposed production of Iron Ore within the exiting Block Area will be carried out following the Open Cast conventional type of mining, which involves no drilling and blasting. All the necessary environment protective measures will be implemented.

Further, regular Environmental Monitoring will be conducted during life of the mine in the project site and in the surroundings to maintain the pollutants level from the mining activity within the permissible limits.

10.5.1 AIR POLLUTION CONTROL

Control of Fugitive Emissions

- Proper Maintenance of the haul roads and implementing speed limit to prevent dust pollution
- Regular water sprinkling by means of five hired water tanker of 10KL capacity on haul roads & loading points will be carried out
- Use of fixed dust suppression systems like sprinklers; fog cannons etc

- Enclosures for all the dust generation sources at crushing and screening plant
- Washing of mine exits, junction (Mayem junction, Pilgao Junction & road near jetty exit gate), after transportation hours
- Transportation trucks are loaded to the prescribed capacity and covered with tarpaulin before leaving the mine premise
- Manual and mechanised machine for road sweeping
- The dump slopes are covered with geotextile which will also help to prevent dust generation
- Development of green belt/plantation around the mine boundary, roads side & dumps etc
- Safety buffer of 50m will be maintained towards habitation
- No drilling and blasting
- All the Heavy Earth Moving machineries with air-conditioned cabins.
- Regular maintenance of transport vehicles and Machineries
- General aspects of air quality management will be included in induction training to all employees
- Regular monitoring shall be conducted to check the status of Air Quality levels.
- Installation of Wheel wash system at the mine exit

Table : 10.1 Air Pollution Management and Control

Potential Impact	Action	Parameters for Monitoring	Timing
Air Emissions	All equipment are operated within specified design parameters.	Random checks of equipment	During site clearing & Operation of mine
	Vehicle trips to be minimized to the extent possible	Vehicle logs / automatic vehicle monitoring system/ Increase the capacity of vehicle	During Operation of mine
	Ensure regular checks of vehicular pollution	Pollution under control certificate of vehicle	During operation of mine.
	Covering of Vehicles transporting the mined mineral	No. of Trucks with covering / Random checks of trucks on roads	During operation of mine.

	Plantation of trees on the boundary of lease area, these will reduce dust and noise in the vicinity area.	No. of Saplings per year and area covered by plantation	During operation of Mine till closure as per approved mining plan
	Regular water spraying shall be done	Quantity of water requirement shall be monitored	During operation of mine.
	Ambient air quality within the premises of the proposed unit to be monitored. Continuous Ambient Air Quality Monitoring CAAQM) station shall be set up near the mine office inside the lease within a period of 1year from the date of execution of lease deed.	The Ambient Air Quality shall conform to the standards	As per CPCB guidelines during operation of Mine

10.5.2 WASTEWATER MANAGEMENT

- No generation of wastewater from the mining operation
- Treatment of domestic wastewater generated from the domestic usage shall be treated in septic tank and soak pit arrangement.

10.5.2.1 WATER MANAGEMENT

- The environment protective structures within the Block I –Bicholim Mine Block implemented by earlier lesse are still in good and effective condition. The project proponent after execution of the lease shall continue to utilize the existing protective structures and shall put additional structures to arrest the silt content.
- The surface runoff generated during monsoon season shall be diverted and channelized through ERW pipes, garland drains and a series of settling ponds (11nos) , filter beds , check dams before final discharge
- Annual Desiltation of the settling ponds, drains.
- Regular monitoring of surface and ground water.
- The inactive dump slopes will be stabilized by Geotextile coir mats , planting grasses, legumes and local native plant species in consultation with the Forest Department.

- The dump bottom shall be provided with retention walls to arrest the silt content
- Use of Lime and flocculants for water treatment
- The water stored in the pits will be utilized for various mining operations like water sprinkling , plantation of trees etc.
- A buffer of 50m from assnora river
- The proposed Year wise construction of Garand Drains during the plan period given below

Table 10.2 Proposed Construction of Garland Drians

Year	Garland Drains (m)
1st	1600
2nd	2000
3rd	1700
4th	300
5th	500

The drains are connected to the series of settling ponds of dimensions as given below:

Table 10.3 Dimension and capacity of settling ponds

Settlong pond ID	Area in m^2	Depth in m	Volume in m^3	Location
pond 1	1824	1.8	3283.2	5 top area
Pond 2	1667	1.8	3000.6	
Pond 3	27879	8	223032	
Pond 4	5208	2	10416	
Pond 5 5	8602	2	17204	
Pond6	4661	2.5	11652.5	
Pond 7	3896	1.5	5844	1 top area
Pond 8	3753	1.5	5629.5	3 top area
Pond 9	5564	1.5	8346	
Pond 10	6728	5	33640	3-4 bottom area
Pond 11	22556	20	451120	5 bottom

Table -10.4 Dimension and capacity of Existing Boulder wall and Garland drains

Existing boulder wall (width-height-length)	(1.5m x 2m x 4267m)
Existing garland drainage (width- depth-length)	(2.0m x 1.5m x 11313m)

As part of the environment management plan , various jobs like desilting of settling ponds, construction of boulder walls, drainages ,laying of geotextiles etc will be completed every year before the onset of monsoon. The existing measures within the Block-I Bicholim Mineral Block are depicted in picture shown below :

Dump slopes with geotextiles and garland drains

laterite boulder walls at toe of dump

Filter-beds

water channelization

The **Environmental Plan** showing the various Environmental protective measures is given vide **Plate.No.19.**

The impact of Mining operations on the Assnora river and management is given vide **Appendix.No-III**

The study concluded that the garland drains, settling pits and check dams are made properly in the mine lease area and being maintained for the proper flow of rainfall runoff generated during year. The de-siltation work shall be monitored and done before the monsoon season. The de-siltation will be done through series of ponds which has

been provided by natural slope and enough time is maintained for the proper settling of sediments. The daily silt load calculated is found to be 53.82 mg/l. All the structures which are made in the lease area to avoid erosion and settling of sediments are maintained and checked before monsoon season. All the structures made for the settling of sediments are found to be more than sufficient to accommodate sediments even during peak rainfall.

The likelihood of seepage from Assonora River in the 5 bottom pit is studied very carefully and in detailed manner. The lithology of the beds nearby the river and pit is observed through borehole logs and cross-section which clearly depicts that the dip of the bedding plane and the clay rich lithology obstruct the seepage of water from the river to the 5 bottom pit. The depth of the river nearby pit is only 2.5 meter and underlain by clay rich lithology, so leakage water inside the mine is negligible.

10.5.2.2Water Conservation Measures:

The project proponent shall take all the necessary steps to conserve water and reduce the specific water consumption as given below

Channelising the rain water into mine pits and harvest the rain water

Use of harvested rain water during the mining operations like dust suppression and vehicle washing etc

To carry out water foot print study to become water positive

Use of water tankers with special nozzles to make optimum use of water and covering more areas with less water

Feasibility of using lignin based or other environment friendly dust suppressants to reduce the water consumption for dust suppression

Use of fixed dust suppression systems like sprinklers, fog guns etc which will further reduce water consumption as well as reduce fuel consumption for plying water tankers

Use of waterless urinals to reduce domestic water consumption

Monitoring of specific water consumption on monthly basis and take annual specific water consumption reduction targets

10.5.3 NOISE POLLUTION CONTROL

The ambient noise levels will be ensured to less than 75 dBA during daytime & less than 70 dBA during night time by taking all required measures.

- Development of wide green belt along the mine boundary , cushing and screening plant area and all along the haulage road which will act as an acoustic barrier
- No Drilling and Blasting is involved.
- All the HEMM are provided with air conditioned, noise proof cabins
- Possibility of using Polyurathane liners for feed chutes of primary and secondary crusher.
- Providing protective devices like acoustic wool, earplugs and earmuffs to the workmen in noise prone zones in the mine
- Green belt all along the lease boundary and all along the haulage roads
- Regular monitoring of noise levels in core and buffer zone
- Safety buffer of 50m will be maintained from habitation
- Imposing Speed limit and proper maintenance of roads and machineries

Table : 10.5 Noise Pollution Management and Control

Potential Impact	Action	Parameters for Monitoring	Timing
Noise	List of all noise generating machinery onsite along with age to be prepared. Equipment to be maintained in good working order.	Equipment logs, noise reading	During mining operations.
	Generation of vehicular noise	Maintenance records of vehicles	During transportation.

	Implement good working practices (equipment selection and siting) to minimize noise and also reduce its impacts on human health (ear muffs, safe distances and enclosures).	Site working practices records, noise level readings and record of PPE's issued.	During Mining operations
	Noise to be monitored in ambient air near the lease boundaries.	Noise levels	As per prescribed standards and requirement
	The Noise level should not exceed the permissible limit both during day and night time.		
	All equipment operated within specified design parameters.	Random checks of equipment logs/ manuals	During mining operation
	Vehicle trips to be minimized to the extent possible	Vehicle logs	During mining operation
	Plantation of dense hedges on the boundary of lease area, these will reduce dust and noise in the vicinity area.	No of Saplings per Year	During Each year from operations till closure as per approved mining plan

10.5.4 PROTECTIVE MEASURES FOR GROUND VIBRATIONS/AIR BLAST CAUSED BY BLASTING:

No drilling and blasting involved

10.5.5 SOLID & HAZARDOUS WASTE MANAGEMENT

10.5.5.1 SOLID WASTE MANAGEMENT

The solid waste generated are Overburden , intercalated waste and Mineral rejects . Annually 2,51,61,767 T of waste will be generated to produce 30,00,000 T of waste. The mineral rejects is stacked seprately and overburden waste is dumped in the designated dump yards with proper terracing and slopes. The lateritic waste will be used for the erection of bunds below the dumps, and used as safety barriers and all along the road passing through the block Area

Table 10.6 Proposed backfilled during the plan period is given below

Year	Waste Quantity (M3)	Pit ID	Area Ha
I	1244889.0	5 Bottom	7.87
I	2238957	5 Top	17.83
I	2238957	1 top	12.78
II	732414	5 Bottom	5.11
II	1810240	5 Top	16.70
II	1810240	1 top	10.98
III	500000	5 Bottom	2.36
III	2000000	5 Top	11.19
III	1502000	1 top	11.75
III	1497434	3 Top	13.17
IV	6768535	3/4 bottom	21.60
IV	4410262	3/4 bottom	18.38
V	8170622	2 Top	10.36

The following environment management measures are undertaken to prevent soil erosion

- Terracing, mulching, planting grasses, legumes and bush variety of species, on the inactive slopes to prevent erosion
- Concurrent back filling using generated waste to reclaim & afforest the mined out portion of the pit
- The wastes and ore generated are non toxic, no heavy metals area present and also non-acidic. The possible pollutants in the water are the suspended solids which are derived from erosions within the mining areas and dumps. Rainwater directly falling over the pit area will be allowed to settle in the pit itself thereby helping in groundwater recharge. During the rainy season, the pumped out water from the pit is passed through settling pit to remove the solid suspensions, such that clear water shall leave the ML area.
- Provision of boulder walls at the toe of the waste dump to arrest erosions

- ❖ Provision of garland drains around the dump yard and diversion of water to sedimentation pits to separate the soil particles
- ❖ Connecting the drains along the roads to sedimentation pit to separate the soil particles
- ❖ Conversion of mined out pit (as and when it happens) into rainwater harvesting reservoir
- ❖ The following engineering control structures will be constructed like check dams, retaining walls, gully plugs and settling tanks to store the run off water
- ❖ Covering the dump slopes with biodegradable geotextiles and carrying out afforestation on the slope.
- ❖ The domestic bio-degradable waste will be treated in pits and converted to compost.
- ❖ The other non-biodegradable dry waste will be segregated and disposed to local collection center of Bicholim municipality

10.5.5.2 Hazardous waste :

The mine shall generate minor quantities of Hazardous waste due to maintenance of plants and machineries . Hazardous waste authorization will be obtained from GSPCB for proper collection, storage and disposal of hazardous waste. The quantity of hazardous waste likely to be generated are namely spent oil (60 TPA) , waste residue contaminated with oil (9 TPA), Filters contaminated with oil (5 TPA) ,Empty paint tins (0.1 TPA). The hazardous waste will be properly segregated and stored at dedicated place and disposed to recyclers registered with CPCB and having vaild authorization from SPCB.

10.5.6 LAND RECLAMATION / ECORESTORATION

The plantation will comprise of saplings of native species, which are generally grown in the state of Goa. Fruit Trees like cashew, mango, jamun, avla which attract lot of birds and can generate revenue to the locals in future will be given preference. The plantation would be a mix of various forest and fruit tree species technical advice would be taken

from state forest and agriculture departments. The saplings will be procured from various nurseries like forest department nursery , nurseries developed by locals and also a small inhouse nursery will be developed

10.5.6.1 Plantation along mining lease boundary

The Block-I Bicholim Mineral Block is already having a 7.5m wide green belt all along the mine block boundary except the areas where the mine block shares a common boundary with adjoining mine block. A 50m green belt exists towards the habitation within the lease and the same would be further strengthened and maintained. A dedicated 200m green belt would be developed and maintained towards the Idgah area. A density of 2500 saplings per ha will be maintained.

10.5.6.2 Plantation around Office Building & Road

Avenue Plantation is provided around the built-up areas and in open spaces. Extensive plantation would also be done along the sides of connecting roads.

10.5.6.3 Plantation on Dump Slopes

Plantation on slope of the dump should start after the stages are ready. The terraces on the slopes should be sloped inward. Pits of size 60cm x 60cm should be dugs at 1.5m interval and filled with a mixture of top soil, organic manure and phosphate fertilizer. The slopes and terraces should be covered with a layer of soil held with coir net blanket. Seeds of grass and small shrubs of local varieties should be sprinkled on the soil covering the dump slope. Seedling of the plants should be planted in pit in the slopes.

10.5.6.4 Plantation on Backfilled areas

Plantation on the mining benches can also be taken up once the active pit is closed for mining. The abandoned pit, after backfilling and levelling, a layer of lateritic material should be spread. Grass seed/ seedlings should be planted on the soil layer to stabilize the soil. Plants selected for plantation on mining benches should be draught hardy, with fast growth rate and with glabrous/ pendulous leaves.

Garland drains sloping along the mining benches to facilitate conveying of water from higher benches to the next lower benches should be constructed.

The mining operations will change the land use of the area and will create pits, waste dumps etc. At the conceptual stage around 355.5659 ha of area will be degraded due to pits and excavation, around 6.8 ha due to dumping and material stacking and around 6.5 ha with mining infrastructure like plants and buildings.The entire block area at the end of mine life should be restored in such a way that it compliments with the surrounding areas and nature at large Vedanta Ltd has a lot of experience in scientific mining and mine reclamation. They have developed and implemented a systematic mine eco-restoration work in one of its mine called Sanquelim iron ore mine in the state of Goa. The said mine is considered as one of the case study for eco-restoration of mines and appreciated all over the country and internationally.

The company will adopt following practices for carrying out scientific and systematic eco-restoration of the mines, namely:

1. Concurrent mining and mine reclamation activities
2. Use of latest software for mine planning
3. Associating with various research institutes like NEERI, ICAR, ICFRE and consultants for mine reclamation projects
4. Associating with various technical departments of state government like Forest department, Agriculture department, Fisheries department, Water Resource department etc.
5. Identifying all the stakeholders and engaging with them in a structured manner throughout the life of the mine. This will help to identify the issues , concerns of the stake holders and satisfying them in a systematic method. It will also help to take inputs form the stakeholders in eco-restoration in the mines
6. Regular Biodiveristy Assessment and preparing and implementing of Biodiversity Management Plan which help the company to achieve a No Net Loss w.r.t biodiversity.
7. Converting of mining pits into water reservoirs, pond with other ecotourism

facilities like water sports, boating, fishing etc.

8. Develop Pisciculture in mine pits and also involving the community for cage fishing to make it a commercially viable venture.
9. Developing theme based gardens like medicinal gardens, horticulture gardens, spice gardens
10. Developing garden near the Idgah which is within the mining block area and providing proper road for access of visitors and pilgrims .
11. Converting the mining infrastructure like office buildings, workshops etc into public utility infrastructure like school, training centre, medical centre etc

The objective of the Eco restoration would be to create a positive land scape which will help the community or the mining employees to generate revenue even after the mining operations close. Develop vast tracts of scientifically developed green belts, water bodies , and other infrastructure . Develop the place in to a ecotourism area which will attract lot of tourist.

At the conceptual stage around 105 ha of land will be brought under plantation and around 20ha under water bodies.

Before the commencement of the monsoon, the side slopes of mining benches should be covered with a layer of soil by means of mechanical binders like coir net / blanket and sprinkle with water. Seeds of grass and scrub of indigenous variety should be sprinkled on the soil covering the bench side slopes.

Table.10.7. Green belt planning next 5 years

Plan Period	Plantation			Retaining Wall (m)	Garland Drains (m)	Settling Pond (No.)
	Area (Ha.)	No. of Sapling	Name of species			
I	4.0432	10108	Species like Cashew, Mango ,Jambul Aonla ,etc.	--	1600	--
II	3.1319	7830		--	2000	--
III	4.092	10230		--	1700	--
IV	4.7443	11861		--	300	--
V	3.1609	7902		--	500	--

Potential species for green belt listed in Table 10.5

Table 10.8 List of Species suggested for future Greenbelt development

S.No	Botanical Name	Family	Common Name	S/T	Habitat	Height
Shrubs - < 5m (1st tier of Plantation)						
1	*Citrus limon*	Rutaceae	Lemon	T	Shrub	3m
2	*Duranta repens*	Verenaceae	Golden Dew Drop	T	Shrub	3m
3	*Hibiscus rosa sinensis*	Malvaceae	China Rose/ DasavaLa	T	Shrub	3m
4	*Nerium indicum*	Apocynaceae	Oleander/Chandaatha	T	Shrub	5m
Trees 5 - 10m (2nd tier of Plantation)						
6	*Acacia nilotica*	Mimoseae	Gum Arabic/ Babli	T	Tree	8m
7	*Bauhinia varigata*	Caesalpinaceae	Kachnar/ Arisinantige	T	Tree	5m
8	*Annona squamosa*	Annonaceae	Setha palla	T	Tree	6m
9	*Butea monosperma*	Fabaceae	Flame of the Forest/ Muttuga	T	Tree	10m
10	*Gardenia jasminoides*	Rubiaceae	Cape jasmine/ Suvasane Malle	T	Tree	5m
11	*Moringa oleifera*	Moringaceae	Drumstick Tree/Guggala	S	Tree	10m
12	*Pithecellobium dulce*	Mimosaceae	Manilla Tamarind/Seeme hunase	T	Tree	8m
13	*Thevetia peruviana*	Apocynaceae	Mexican oleander	T	Shrub	6m
14	*Phyllanthus emblica*	Phyllanthaceae	Ambla	T	Shrub	7m
Trees >10m (3rd tier of Plantation)						
15	*Aegle marmelos*	Rutaceae	Maredu / Bilva	T	Tree	12m
16	*Albizia lebbeck*	Mimoseae	Siris tree	T	Tree	20m
17	*Albizia procera*	Mimoseae	White siris/Belari	T	Tree	20m
18	*Alstona scholaris*	Apocynaceae	Devil Tree/ Aelele Haale	T	Tree	15m
19	*Azadirachta indica*	Meliaceae	Neem/ Turakabevu	T	Tree	20m
20	*Bambusa vulgaris*	Poaceae	Yellow Bamboo	T	Perennial grass	15m
21	*Cassia fistula*	Caesalpinaceae	Golden Shower/ Kakke	T	Tree	12m
22	*Delonix regia*	Caesalpinaceae	Flame Tree/ Kempu torai	T	Tree	15m
23	*Ficus benghalensis*	Moraceae	Banyan tree/ Aaladamara	T	Tree	20m
24	*Ficus religiosa*	Moraceae	Peepal/ Arali	T	Tree	20m
25	*Mangifera indica*	Anacardiaceae	Mango/ Mavinamara	S	Tree	15m
26	*Polythia longifolia*	Anonaceae	Ashok/Ubbina	S	Tree	15m
27	*Wrightia tinctoria*	Apocynaceae	Alae mara	T	Tree	12 m
28	*Hardwickia binata*	Fabaceae	Small leaves	T	Shrub	6m
29	*Syzygium cumini*	Myrtaceae	Neredu/ Neereedu	T	Tree	20m
30	*Tectona grandis*	Verbenaceae	Teak	T	Tree	20m

vii) Post Plantation Care

Post plantation care is very important and will be an integral part of mine management. A dedicated cell in the mine will be made to care of post plantation, which include, regular watering, weeding, manuring, protective measures etc. Diseased and dead plants shall be uprooted and replaced by fresh saplings. Regular monitoring on survival rate and remedial action should be done in an organized and planned manner.

viii) Plan for Reduction of Impact on Fauna

The impact on fauna species in the mining area is mostly due to noise and loss of vegetation cover. The strong light in the project premises during night may cause some disturbance to fauna of nearby forests. The light posts along the ML boundary should face inwards and downwards with reflector facing downward, so those lights do not spread outside ML area. The green belt developed all along the mine pits will also help as a buffer.

10.6 CONSERVATION OF MANGROVE AND MANAGEMENT

MANGROVE FOREST RESTORATION

Mangrove forest restoration management strategy to compensate for degraded and lost ecosystem goods and services. It has the potential to increase the mangrove resource base, provide employment to local populations, protect fragile tropical coastlines and enhance biodiversity and fisheries productivity.

Mangrove Restoration through planting of mangrove propagules and saplings is recommended when:

- There is limited waterborne propagules due to lack of nearby parent trees or hydrological connection which inhibit dispersal;
- There is need to introduce valuable specific species which have been lost in the area
- Degradation due to human encroachments in the mangrove habitats

1. **Natural Regeneration:** This approach uses natural occurring mangrove propagules (or seeds) to restock degraded sites. In this case, regeneration is from direct, freely falling and dispersed mangrove propagules, where species composition of the regenerated forest depends on the species types and combinations of the adjacent

forest from where propagules are dispersed. In the family Rhizophoraceae for example, propagules furnished with pointed hypocotyls fall freely from the parent and can plant themselves into the mud.

2. **Artificial Regeneration:** Artificial regeneration entails direct planting of desired propagules and saplings (of less than 1.2 m high), and rarely the use of small trees (of up to 6 m high) of chosen species at the designated restoration site.
3. Use of propagules and nursery-raised saplings is the most common method of mangrove restoration. The techniques of mangrove planting have not been perfected for many species. Most mangrove restoration projects have used families, Rhizophoraceae and Avicenniaceae.
4. The listed mangrove species (Table 10.4) for restoration at Asnora & Mandovi river wherever it has been degraded due to illegal shrimp farming or agricultural practices, to be identified with the help of the local forest department, and the proponent collaborate with the forest department to carry out the mangrove restoration.

Table 10.9. List of species recommended for mangrove species restoration

Scientific Name	Family	Vernacular name
Rhizophora mucronata Lamk.	Rhizophoraceae	Kandal
Rhizophora apiculata Blume	Rhizophoraceae	Kandal
Ceriops tagal (Perr.)V B. Rob	Rhizophoraceae	kirkiri
Avicennia marina (Forsk.) Vierh	Avicenniaceae	Tivar
Avicennia officinalis L	Avicenniaceae	Tivar
Sonneratia alba J. Smith	Sonneratiaceae	Chipi
Aegiceras corniculatum (L.) Blanco.	Myrsinaceae	Sugandha
Lumnitzera racemosa Willd.	Combretaceae	
Acanthus ilicifolius L.	Acanthaceae	Marandi
Excoecaria agllocha L.	Euphorbiaceae	Huri

10.7. WILDLIFE MANAGEMENT AND CONSERVATION PLAN

The project area does not involve any forest area for mining purpose. Wildlife management needs to considered multifaceted factors such as food-web, resources competitions, anthropogenic factors, forest fragmentation, and sociological issues such community livelihoods, culture, ethics and forest dependency etc. The detailed Wild Life Conservation Plan study is enclosed as **Appendix-IV** and the acknowledgement from Chief Wildlife Warden is enclosed as **Annexure-8**

Total of 4 species of fauna falls within the category of Wildlife Protection Act 1972 under Schedule I. The details of each species ecology and conservation issues given below.

Table.10.10 List of Scheduled I Wildlife species

Sl. No.	Common Name	Scientific name	Family	IUCN / WPA schedule
	Mammals			
1	Common leopard	Felidae	*Panthera pardus*	I
	Birds			
2	White-bellied Sea-Eagle	Accipitridae	*Haliaeetus leucogaster*	I
3	Indian Peafowl	Phasianidae	*Pavo cristatus*	I
	Butterflies			
4	Crimson rose	Papilionidae	*Pachiopta hector*	I

BRIEF MITIGATION MEASURES FOR CONSERVATION OF WILDLIFE:

MITIGATION MEASURES FOR CONSERVATION OF WILDLIFE:

(i) Water holes for habitat improvement:

Animals and birds need a regular water source for their daily consumption. As the area receives copious amount of Avg. 3500 mm rainfall annually. During hot summer wild animals and birds stray outside forest in search of water source for quenching thirst. It is therefore proposed to construct water holes/check-dams in the forested area at buffer zone at convenient points.

These water holes would be sufficient to store the water to meet drinking requirement of animals and birds.

The water holes should be provided with cement concrete bedding, side walls with stone pitching and grass should be grown in gap for gripping while animals enter into the water holes.

These water holes are cleaned at regular intervals to remove leaf litter, de-silting and refilling water. Few shades are provided around water holes for animal resting during summer season. Fruit bearing trees shall be grown around water holes to nesting and food for birds and shade for wild animals.

(ii) Noise levels

During mine operation noise levels will increase due to Machinery movement of HEMM. Wildlife is sensitive to higher noise levels like human beings. To reduce the

noise levels during mining operations the following steps are proposed.

i) Use of well-maintained loading machines with sharp bucket teeth

ii) Well maintained roads. No over speeding of vehicles

(iii) Air Quality:

The ambient air quality in the buffer zone shall be maintained within the CPCB limits in respect of PM_{10}, $PM_{2.5}$ SO_2, NO_2 and CO emissions. For this the following steps are proposed.

i) Regular sprinkling of water on roads

ii) No overloading to avoid spillage, trucks covered with tarpaulins.

iii) Creation of green belt around the mine area and avenue plantation with thick foliage to arrest dust.

(iv) Green Belt Development

- The area shall be earmarked for green belt development to mitigate the effects of air and noise pollution from the project activity. Kindly refer the Environmental Plan vide plate No.19
- The species proposed to be planted shall be selected based on the criteria prescribed by CPCB as "Guidelines for Developing Greenbelts" and also in consultation with local forest department.

Table 10.12: Tree Species for green belt development

Sr. No.	Vernacular Name	Scientific Name	Family
1	Asan	*Terminalia alata*	Combretaceae
2	Awala	*Emblica officinalis*	Euphorbiaceae
3	Bor	*Ziziphus jujuba*	Rhamnaceae
4	Chich	*Albiziaodo ratissima*	Caesalpiniaceae
5	DesiBadam	*Terminailia catapa*	Combretaceae
6	Karanj	*Pongamia pinnata*	Fabaceae
7	Coconut	*Coconut nucifera*	Arecaceae
8	Mango	*Mangifera indica*	Anacardiaceae
9	Cashew	*Anacardium occidentale*	Anacardiaceae
10	Teakwood	*Tectona grandis*	Lamiaceae
11	Jamun	*Syzygium cumini,*	Myrtaceae

12	Cocum	*Garcinia indica*	Clusiaceae

Table 10.13:Details of Green Belt Development Plan(Rs in lakhs)

Year	Afforestation/Development of green belt(Ha)	No of saplings	Expenditure (Rs)
1st	4.0432	10108	414428
2nd	3.1319	7830	321020
3rd	4.092	10230	419430
4th	4.7443	11861	486291
5th	3.1609	7902	323992

(iv) Training staff and Awareness activity :

All the mine workers and staff shall be provided awareness and training in conservation of wildlife and develop a liking for wildlife conservation by celebrating Environment Day involving local village people and school students. The drivers shall be trained to give way for wildlife with the support of local forest department.

The villagers are also made aware of wildlife conservation by conducting meetings using pamphlets, audio and video means. Various biodiversity./ wild life awareness activities like conducting quiz, drawing, painting competitions and essay writing for school students.

Villagers are awarded for protecting and preventing wood theft and tree cutting helping Forest Dept. Guards in catching Poachers. Conservation activities for protection of flora & fauna shall be implemented in consultation of Forest Department officials.

(v) Watch towers:

One machan (watch tower) shall be erected near the water reservoir to prevent any poaching in the area.

(vi) Fund for wildlife conservation:

The approved wild life conservation plan will be implemented by forest department and financially supported by the project proponent. The budgetary allocation of funds

towards wildlife conservation shall be 50 Lakhs for five years

The habitat management in and around the study area must be adopted by planting suitable fodder species to enable wild herbivores to thrive upon.

Following suggestions, if implemented will encourage the native fauna to return to the areas:

- A dense green belt consisting of shrubs and trees of different species must be created around the mine area and also along the roads which will act also as a dust and noise barrier.
- Awareness programs amongst the local people as well as mine staff, regarding the importance of wildlife, their habits and habitats, should be organized so that stray and displaced fauna (due to degradation and de-fragmentation of their habitat) is not killed.
- Rock fill dams and check dams shall be constructed in the forest area of buffer zone to prevent the soil erosion. This will be able to store sufficient quantity of filtered water in the area and will act as water holes for the faunal life present in the region.
- The green cover loss due to construction of roads and heavy vehicular movements will restrict the animal movements to the adjoining areas. Therefore, development of a green belt and massive afforestation program of local species and shade giving plant species in the forest area along with approach road shelter for them.
- Awareness programme for the local people/schools children as well as project staff shall be carried out regarding the importance of regional biodiversity and need for their conservation for posterity.
- Fire lines should also be cleared along permanent features like roads, nallas and footpaths at suitable intervals to prevent forest fire from spreading, in case it breaks out.
- People should be trained with forest fire fighting measures and equipped with necessary materials like rakes, shovels, billhook, bucket etc and suitable dresses.
- Obviously, all this would be done at project cost and would be apart from what the local forest department traditionally practices.

10.8 EMP Budget

Table. No. 10.14 EMP Cost per annum

Details	Capital Cost	Recurring Cost	Remarks
	(Rs in lakhs)		
Plantation	-	7.5	Green belt, Plantation on dump slopes etc
Environment monitoring	44	44	Air, Water, Noise, CAAQMS, AMCs
Air pollution control measures	20	300	It includes maintenance of wheel wash, operation of road sweeping machine, tarpaulin covering for trucks, road washing with water tanker, dust suppression on mines, maintenance of roads. Capex-fixed dust suppression system
Water Treatment	-	11	Use of lime and flocculants
Erosion control /monsoon measures	-	221	De-silting trenches-settling pits, boulder wall construction , geotextile, stack covering with silpaulin, Making trenches
Personal protective equipment	-	15	Safety shoes & gumboots, helmet, ear plugs, dust masks, goggles
Maintenance of fire protection systems	-	1.5	Providing Fire extinguishers; fire suppression systems
Environment awareness & training	-	5	Training sessions for employees and community; celebration of environment week, vanamahotasav and various significant days
Health	8	16	Premedical test; Occupational health centre on mines
Total	72	621	
CER Cost			
Budget for meeting the demands of public	-	309.3	Action plan keeping the demands of Public hearing
Grand Total	72	930.3	

The project proponent shall assess the health conditions of the workers as per DGMS guidelines to abate the likely adverse impacts relating to occupational health. However, Workers in the mines will not be exposed to any extreme or hazardous environment. Noise, Climatic conditions, water and other such parameters which will be maintained well within the limits. Air may get slightly affected.

The projected level of damage will also be within the permissible limits but slight damage to the health cannot be over ruled as the process (of damage to the health) is irreversible one due to mine air pollution. Regular monitoring the health of the workers shall be undertaken.

10.9 ENVIRONMENTAL MONITORING STRATEGY

The monitoring of various environmental parameters is necessary which forms part of the environmental protection measures. Monitoring is an important feature because the efficiency of control measures can only be determined by monitoring.

For analysis of Environmental Parameters and monitoring, the services of an approved and recognized laboratory is being utilized. A budgetary allocation of Rs. 44 lakhs/annum has been earmarked for Environmental monitoring. A comprehensive monitoring programme is given under.

Table 10.11 : Monitoring Schedule for Environmental Parameters

S.No.	Particulars	Frequency of Monitoring	Sampling	Parameters Required to be Monitored
Air Quality				
1	Ambient Air quality in and around the Mine	Twice a week	24 hours continuously	PM2.5, PM10, SO2 & NO2
Water Quality				
2	Water Quality around the Mine	Once in a Month	Grab Sampling	As per IS: 10500
Noise Level Monitoring				
3	Ambient Noise levels in and around the Mine	Once in a Quarter	Continuous for 24 hours with 1 hour interval	Noise Level
Soil Quality				
4	Soil Quality around the Mine	Once in a year	Grab Sampling	IS: 2720

The company also proposes to install a Continuous Ambient Air Quality Monitoring System within a period of 1 year from the date of execution of lease.

10.10 OCCUPATIONAL SAFETY AND HEALTH PLAN

10.10.1 HEARING IMPAIRMENT.

The most significant occupational health hazard is noise induced hearing loss. There are no reported cases of hearing loss due to noise pollution as per the observation of local doctors. However, mining authorities will conduct periodic health checkups by in-house medical team for any hearing impairment of workers. This is according to health plan policy and such policy will continue as long as mining is in operation.

10.10.2 SKIN DISEASES.

According to local doctors, 2.2 per cent of the patients have suffered from skin diseases, which is because of lack of personal hygiene rather than dust pollution due to mining. The mining authorities will take enough precautionary measures to minimize the dust pollution.

However, mining authorities will conduct periodic health checkups by in-house medical team to detect any skin allergies among mining workers and the population, especially school children. This is according to health plan policy and such policy will continue as long as mining is in operation.

10.10.3 EYE DISEASES.

According to local doctors, patients suffering from eye related problems are absent. The eye infections are generally not related to dust pollution due to mining. It is mostly due to general infection and old age. The mining authorities will take adequate precautionary measures to minimize the dust pollution. However, mining authorities will conduct periodic health checkups by in-house medical team for eye diseases among mining workers and school children. This is according to health plan policy and such policy will continue as long as mining is in operation.

10.10.4 JOB STRESS BECAUSE OF WORKING IN ACCIDENT PRONE PLANT ENVIRONMENT

The job stress is expected to be low because of incentives like providing food in work place, weekly holidays and recreational facilities. This is according to health plan policy

and such policy will continue as long as mining is in operation.

10.10.5 RESPIRATORY DISEASES

Iron ore does not contain toxic elements. Hence, the possibility of any health hazards due to toxic elements does not arise. The most significant occupational health is lung diseases due to inhalation of dust. However, management is taking enough care to minimize these occupational health hazards.

The percentage of Pneumonia episodes is 0.11 is very low. The percentage of Asthma or Bronchitis is moderately high (3.7). The Pneumonia and Asthma episodes are because of vices like consumption of tobacco and alcohol, especially among males. However, mining authorities will conduct periodic health checkups by in-house medical team for any respiratory infections among mining workers and villagers.

This is according to health plan policy and such policy will continue as long as pellet plant is in operation.

10.10.6 MATERIALS LIKE ASBESTOS, SILICA, CHROME DUST ETC. ARE HAZARDOUS TO MINE WORKERS.

The hazardous materials are not used on the mining site. However, mining authorities will take care not to use any hazardous material either for construction or for any other use. This is according to health plan policy and such policy will continue as long as mining is in operation.

10.11 OCCUPATIONAL SAFETY

10.11.1 Provision of rest shelter for workers with facilities of drinking water.

Rest room with fresh drinking water and toilets facilities with running water for wash are provided on the work site for all workers. Canteen and Dispensary/OHC shall also be provided.

10.11.2 *Awareness of safety and ensure using personal protective equipment (PPE) by workers.*

All workers will be made aware of safety measures to be followed on the work site. The awareness programmes will be conducted by professionals who have graduated in the industrial safety. All the workers are given helmet, gum boots, safety shoes and working

dress. These equipments will be replaced periodically.

10.11.3 ***Regular maintenance of testing of equipment.***

The safety and testing equipment's will be maintained regularly.

10.11.4 ***Periodic medical examination of all workers.***

Periodic medical check up of all the employees will be carried out regularly. The mine also will have a dedicated OHC .

10.11.5 ***Safety measures of risk assessment in underground mining.***

There is no underground mining activity

10.11.6 ***Conduct of mock drill.***

Mock drill will be regularly conducted for all the emergency situations identified, like fire, land slide, drowning etc..

10.11.7 ***Safe storage of handling of explosives.***

No explosives will be used.

10.12 *SOCIO-ECONOMIC CONDITIONS OF THE REGION*

10.12.1 Medical assistance.

Medical facilities in the state of Goa are very well developed. Occupational Health centre will be established in the mines . Regular health check ups of workers will be conducted . Medical camps would be conducted in surrounding villages . This will be continued with adequate annual budget. This is according to health policy of the company.

10.12.2 Primary education

Budgetary provision will be made to support educational scheme/assistance towards development of children , upgrading educational infrastructure in existing schools, scholarships to underprivileged and meritorious students. Imparting employability training, vocational courses and skill development

10.12.3 Animal husbandry

Animal husbandry will be included in the welfare with proper budgetary allocation in the course of time.

10.12.4 Rural water supply

All the villages are connected with government water supply. In case of any such requirement support will be provided to strengthen the government system.

10.12.5 Agriculture improvement

It is also proposed to support the agriculture by providing various inputs like good quality seeds, manure to the farmers . know how about latest agricultural techniques will be imparted to the farmers with help of experts and agriculture department.

10.12.6 Vocational training.

Vocational training will be included in the welfare programs in future. It is going to be an important welfare program that can counter the unemployment.

10.12.7 Assistance in utilizing government programs.

The in-house medical team will work with the local medical sub-centers and primary health centers in providing primary health care and referring patients to the government health facilities. This policy will continue in future.

10.12.8 Employment

The mining project will create lot of direct and indirect employment opportunities in the surrounding villages. Apart from direct employment on the mines, a lot of employment will be generated due to activity of transportation of ore.

10.12.9 Communication and Accessibility

All Villages are well connected by roads leading to taluka or district headquarters. Mining authorities will provide street light fixtures to Panchayats.

10.13 Environmental Management plan towards the sensitive receptors within the ML area

The following sensitive receptors like habitat, water body and archeological monument is already presented . The Fig showing the location of sensitive receptors and safety buffer from Mine workings is shown in Plate No. 20. The action plan proposed towards management of sensitive receptors is given vide Table No. 10.12

Table No.10.12 Action Plan for EMP

Sl.No	Site Specific	Major Impact	Protective Measures
1.	Habitations (Within ML area) Mulgaon Lamgao	Dust Emission Fly rocks due Blasting and Drilling	Air Pollution shall be minimized by following measures. Buffer of 50mts shall be maintained from mine workings High canopy plantation shall be done which reduces the dust emission (local species like Cashew , Alva, Arjuna, Bamboo etc) shall be carried out Green belt area : Lamgao : 2.55 Ha (50 m wide) Mulgao : 9.881 Ha (50 m width) Arrangement of water sprinklers for dust suppression No Drilling & Blasting operation proposed
2.	Archeological monuments	Dust Emission Fly rocks due Blasting and Drilling	Idgah Mosque: 1.3414 Ha (200m width) around green belt High canopy planation(local species like Cashew , Alva, Arjuna, Bamboo etc) shall be carried out No Drilling & Blasting operation proposed
3.	Water bodies • Asnora river adjacent to ML area • Mandovi River - Aerial Distance of 2.30 Km • Bicholim River - Aerial Distance of 0.23Km • Mayem lake	Runoff water through mines during monsoon carry the suspended matter into the river and HFL	Safety buffer of 50m shall be maintained and planted with plant species .Construction of garland drains , Check-dams, Retention walls settling ponds, filter beds shall reduce sediment run-off's. HFL of Assonora River is 3.5m MSL , The mine boundary is about 10.9 m MSL hence is there is no impact of flood of Assonara River
4.	Schools within the Mineral block: There are two government primary schools located inside the	Dust Emission	6. In General a safety buffer of 50m will be maintained towards the habitation .

	Block--I , Bicholim mineral block. These schools are located inside the habitation in Mulgao village at Gaonkarwada and Manasbaag . These schools were in existence during the tenure of earlier mining operations also. Out of these two schools, The school at Gaonkarwada is not functional since few years. The no of students studying in manasbag school is also very less (only 12 no of students during the current year). There are many other schools both government and private with good infrastructure in the Bicholim town which are well connected with the villages and are preferred in general.	Fly rocks due Blasting and Drilling	7. W.r.t the schools , the distance from ultimate pit limit to the Manasbag school is 138 m and from Gaonkar wada school is 190 m 8. These schools are situated inside the habitation and has a direct road approach from the village, there is no hindrance from mining activity or transportation. 9. There is no drilling and blasting proposed during the mining operations and as such there is no possibility of fly rock or ground vibrations 10. Support will be provided to the schools in terms of improving infrastructure , teaching facilities, play equipment etc. and budget for same is provided in CER. We would like to state that there wont be any significant impact of the mining operations on the schools mentioned above and as such shifting of these schools wont serve any purpose and hence shifting is not proposed.

			No Drilling & Blasting operation proposed
5.	Temples Shri Lairaidevi temple Lamgao caves Sateri Temple(Lamgao) Kelbai Temple Mahadev Temple & other places of worship	Dust Emission Fly rocks due Blasting and Drilling	Plantation of green belt with canopy trees to reduce the emission of dust, No mine workings are carried out at 50m width around the temple area. No Drilling & Blasting operation proposed

*Mitigation measures w.r.t School:

Chapter-11

SUMMARY & CONCLUSION

11.0 SUMMARY AND CONCLUSION

This Chapter provides the concise summary of the Key Project Parameters along with overall justification for implementation of the project and explanation of how the possible impacts have been mitigated as required under the generic structure of Appendix III of the EIA Notification 2006. Further, the conclusion on the studies undertaken is also included in this Chapter.

11.1 INTRODUCTION

In pursuant to the notice inviting tender dated 30.09.2022 by the Government of Goa in accordance with Mines and Minerals (Development and Regulation) Act 1957, and the Mineral (Auction) Rules, 2015 and as amended from time to time, Vedanta Limited intends to obtain prior Environmental clearance from MoEF&CC for the production of 3.0 MPTA in Block-I Bicholim Mineral Block located in Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages of Bicholim Taluka, North Goa District, Goa State.

The e-auction process was conducted in accordance with the Tender Document for said Mineral Block. Vedanta Limited emerged as the highest qualified bidder having submitted the highest final price offer and was declared as the preferred bidder under Rule 9(9) (iii) of Auction Rules.

Further, upon submission of the first installment, being 20% of the upfront payment, Government of Goa issued a **Letter of Intent (LOI) vide letter no. DMG/25/Auction Cell/LOI-function/2023/2801 dated 13.01.2023** for the grant of a mining lease for Block-I - Bicholim Mineral Block in Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages of Bicholim Taluka, North Goa District, Goa State over an area of 478.5206 Ha over a period of 50 years.

11.2 PROJECT DESCRIPTION

The Block area of 478.5206 Ha falls under Block 1 - Bicholim Mineral Block in Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages of Bicholim Taluka, North Goa District, Goa State.

The proposed lease area is having about 84.743 million tonnes of mineral reserves & resources. The mined Iron Ore shall be utilized at the company-owned pig iron plant, other domestic and export markets.

The block area falls under the Toposheet No. 48 E/14, Survey of India and bounded by latitude of 15° 34' 20.518" N to 15° 36′ 54.018″ N & longitude of 73°54′ 4.754" E to 73° 57′ 09.51″ E. The general elevation of ML area varies from 169.14 m to -37.24 m above MSL. State Highway SH-1 is about 0.65 km from ML area, the nearest Railway station is Thivim Railway station which is at a distance of 10.5 km by road, the nearest Airport is Mopa Airport at a distance of 27.3 km.

11.3 ENVIRONMENTAL SENSITIVITY

No National Park, Wildlife Sanctuary or Migratory Corridors of Fauna is present inside the Project Site or within 10 Km radius area of the Project Site. Assonora river is touching NW end of the lease area . Few habitats like Mulgao and Lamgao exists within the Block I-Bicholim Mine Block. Idgah which is an archeological monument exists within the lease area.

11.4 GRANT OF TOR & BASE LINE DATA MONITORING

The MOEF&CC accorded the TOR for the Project vide TOR identity TO23A0000GA5700309N dated 16/06/2023 The Baseline Data was collected during the period from March to May 2023.

11.5 MINING METHODOLOGY

The proposal of obtaining environment clearance is for 3.0 Million tonnes per year with overall overburden ratio of 1 : 8.39. Mining operations will be by way of mechanized opencast method without drilling & blasting, complying with all the statutory requirements using Heavy earth moving machineries like Rippers & Dozers, shovels, dumpers, wheel loaders and tippers. Rippers & Dozers will be used for ripping of hard material and wheel loaders are used for loading and dozers for levelling. The Run of Mine (ROM) Iron Ore will be subjected to the dry crushing and screening. Finished product (Lumps & Fines)/ROM will be utilized in the Pig Iron plant of the company other domestic and export markets. The ore transportation from mine to the jetty will be carried out by tippers with the capacity of 10.5 Tonnes.

11.6 PRODUCTION, RESERVES AND LIFE OF MINE

The total reserves/resources as on 13.01.2023 are 84.743 Million Tonnes, which is considered for defining the Life of the Mine. The life of the mine will be 30 years which may enhance based on the future results of exploration planned during the Mining Plan period. However, the lease is valid till 50 years.

11.7 MANPOWER, WATER & POWER REQUIREMENT

The Project shall provide direct employment to about 521 people, which includes mine officials, skilled, semi-skilled and unskilled labour and about 195 indirect employment opportunities to the locals. Over and above this a lot of employment will be generated in the form of contracts like transportation, plantation, workshops and garages, and allied activities .

The Water Requirement of the Project is estimated to be maximum 664 KLD. Out of this, 36 KLD of the water is required for domestic, 20KLD for green belt, 8KLD for wheel washing and the balance 600 KL/Day for dust suppression. The entire water requirement except that of domestic consumption will be met through Rain water harvested within the mine pits . Efforts will be put for reduction of specific water consumption year on year.

LED lights will be used, within the office and workshop premises. Feasibility of using Solar energy for office area will be carried out. Diesel Fuel is used by Heavy Earth Moving Machineries like excavator, loader and transport vehicles etc. Trials of using electric HEMM like wheel loaders and excavators will also be taken.

11.8 RESETTLEMENT & REHABILITATION

There is no proposal for Resettlement & Rehabilitation during the entire life of the mine.

11.9 DESCRIPTION OF THE ENVIRONMENT

The Block-I Bicholim Mineral Block is the core zone for the present EIA study. The area encompassing 10 km radius from the boundary of the core zone has been defined as the buffer zone. The core zone and the buffer zone together constitute the study area.

The Baseline Environmental data with respect to Air, Water, Noise and Soil Quality in the study area for the present EIA study is considered for the Summer Season 2023. The various studies on hydrogeology, flora, fauna, and socioeconomic study were also conducted during the same period. Sampling and analysis has been
carried out by M/s. Environmental Laboratory (Unit of Mineral Engineering Services), Bangalore, Laboratory accredited by NABL and recognized
by CPCB/MoEF&CC.

11.9.1 Topography

The topography is undulating low hill terrain extending all along the mining block in the North West and South East direction. Mine does not have any forest land within the lease. The area is located on the foot hills of Western Ghats belt and receives heavy rainfall during monsoon season, the average annual rainfall is about 3500mm.

The Block I- Bicholim Mineral Block is situated in North Goa district and extends between Lat 15° 34' 20.518" N to 15° 36′ 54.018″ N & longitude of 73°54′ 4.754" E to 73° 57′ 09.51″ E. The mine block area is about 478.5206 ha. The Mine is located on a hill range running in a SE-NW direction. The general elevation of ML area varies from 169.14 m to -37.24 m above MSL.

11.9.2 Drainage

The drainage pattern in the study area is dendritic and sub dendritic. Bicholim Mineral block study area falls under Mondovi River basin of Taluka Bicholim, Bardez, Satari, Sanguem, Tiswadi & Ponda. The catchment area of Mondovi River 1580 Sqkm. The Sahyadri hill ranges in the east form the main watershed. The streams originating here flow in west and north west direction to join the Arabian Sea.

11.9.3 Ambient Air Quality

For Ambient air quality, 9 stations have been fixed covering all the directions, the frequency of monitoring is 2 days/ week for 3 months and the parameters covered were as per CPCB NAAQS guidelines.

The statistical analysis of Ambient Air Quality is as follows, the maximum values of SO_2, NO_2, PM10 & PM2.5 in the core zone are observed to be 13, 18, 56 & 36 µg/m3 respectively All the parameters including CO, Pb, and O3 as per NAAQ are monitored and monitoring

results compared to AAQM are observed to be well within the limits.

11.9.4 Noise Levels

For noise quality 9 stations including one station in core zone and 8 in buffer zone villages were monitored and Leq during day & night are observed. The Leq value during day in the core zone is observed as 61.7 dB(A) and in night 49.3 dB(A) and monitoring results when compared to Noise Quality Standards are well within limits.

11.9.5 Water quality

Water Quality Monitoring was done by grab sampling once in a season for 7 surface Water and 10 Ground Water samples. IS: 3025, APHA, & IS:1622 standards are used for analysis. Thus, the analysis results are compared to IS standards IS:2296 & IS:10500:2012. The results of few surface water samples shows high TDS, Total hardness, Sulphates, and Chlorides. This is mainly because of the influence of creek water. The open well samples were found to have pH slightly acidic in nature. This is possibly due to the occurrence of lateritic ore.. Whereas other parameters are within permissible limits of respective standards.

11.9.6 Soil Quality

Soil Quality Monitoring at 7 locations including one from the ML area and others from nearby village agricultural fields are collected and analysed, during the study period for Physical Parameters and chemical parameters. They are all observed to be within normal soil quality fit for cultivation.

11.9.7 Land Environment

The existing major land use of study area covering 10 km radius are 6.61% of water bodies, 0.9% reserve forests, 2.12% of mangroves, 6.23% of agriculture land, 20.97% of scrub land and 15.41% of Settlement area.

After the ore is exhausted in the pits the broken-up land will be backfilled and will be progressively planted and rehabilitated with local species like Cashew, mango, Jamun, Cocum, Terminalia etc. All the efforts will be taken for maximum survival and growth of

the plants.

11.9.8 Biological Environment

The Mine area is located at the distance of around 10.553 km from the Salim Ali Bird Sanctuary, hence, there is very less chance of threat to the sanctuary and mangrove ecosystem, however, mine management could work with downstream riparian and mangrove forest and assist ecologically restoration as per the EMP suggested species.

The Mine pit area is already degraded and been away from community settlement usage, hence there is not much additional impact or social ecological constraints.

In case of conservation of flora and fauna as per suggested EMP, greenbelt shall be developed all along the boundary, unused areas, inactive dump slopes and roadside of core and buffer areas.

The proposed biodiversity management plan will be implemented as per the standard guidelines prescribed by regulatory authorities.

Budget allocations and time bound interventions will be monitored by local authority to ensure that the conservation of biodiversity and no damage occurs to the existing ecosystem habitats in the study area.

The dominant species in the reserved forest were Anacardium occidentale, Cassurina equisatifoilia and Acacia auriculiformis, which have been promoted significantly on both private and degraded government land. The Mango and Coconut orchards is significantly promoted to farmers on agricultural bunds and house backyards. There are no endangered or endemic species of flora or fauna in the core zone.

11.9.8 Socio-economic environment

There are 68 villages/towns - 56 villages and 12 census towns (CT), in the buffer zone. Of these, 68 villages/towns, 48 villages and 12 towns are located in 6 talukas of North Goa and 8 villages in one taluka in Maharashtra. As the data pertains to large number of villages and towns are in North Goa, the buffer zone is compared to North Goa District.

Usually, villagers grow coconuts, cashew or mango in the small piece of land. In the absence of mining activity, agriculture and tourism are the only source for employment.

The infrastructure and amenities available in the study area denotes the economic well-being of the region. It is observed that good infrastructure facilities are available in the

project study area, which consists of education, health care, drinking water facilities, communications, transportation, etc.

Due to the proposed mining activity, no significant adverse changes are visualized in the traditional way of life of the people residing in the villages in the buffer zone. Further people residing in the nearby villages will be benefited by the direct and indirect employment opportunities created by the mining activities along with the various socio-economic development activities taken by company. The communication, health and education facilities will improve and thus the mining activity will be beneficial and will have a positive impact in the region.

11.10 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The Block-I Bicholim Mineral Block is yet to start mining and shall operate taking all precautionary measures to reduce the impact of mining operations on Air, Water, Noise and Soil and ensuring all control measures to comply with the prescribed standards.

11.10.1 Air Environment

The impacts on Air Environment are assessed through Aermod Modelling and results show the cumulative impacts on the surrounding buffer zone villages after commencement of mining operations are within the permissible limits

Following measures will be undertaken to control the Air pollution/dust generation during the mining activities:-

- Due to high inherent moisture of the ore as well as waste, generation of dust while loading will be minimal. Speed limit of transport vehicles will be enforced.
- Transportation trucks will be loaded to the prescribed capacity and covered with tarpaulin.
- Dust Sprinkling system with a fine mist spray will be used for dust suppression along the road as well as stacks.
- The dump slopes will be covered with geotextiles, which will prevent generation of dust. during the monsoon the finalized geotextile laid areas will be taken up for plantation.
- Plantation done on the slope of waste dump itself act as a wind breaker.

- Latest machinery having air-conditioned cabin will be used for loading and dozing operations.
- Proper maintenance of transport machinery with regular PUC will be done.
- Providing acoustic enclosure and proper exhaust chimney height to DG set.
- Proper dust suppression measures at crushing and screening plant.
- General aspects of air quality management will be included in induction training to be provided to all employees.
- Installation of Wheel wash at mine exit
- Manual and machanised machine for road sweeping, washing of mine exits, junctions after transportation hours

11.10.2 Water Environment

The rain water is harvested into mine pits is used for various mining activities like dust suppression, vehicle washing, gardening etc. Though the ground water shall be encountered in the pit, there shall be no adverse impact due to pit dewatering as the radius of influence due to pit dewatering falls 10m from the periphery of the ML area. The protective measures in the form of garland drainages, trenches, settling tanks, retention wall application of coco logs will be undertaken to control the water pollution. Thus, there shall be no adverse impacts on surface and ground waters. In fact, the local villagers will be benefited by supply of pit discharge water after treatment.

11.10.3 Noise Environment

Maximum noise is produced from operation of earth moving machineries & movement of dumpers. No drilling and blasting operations are involved. Wide green belt shall be provided surrounding ML to attenuate noise pollution. Regular maintenance of mining equipment, machinery & all vehicles as per the manufactures recommendations to minimize the Noise generation shall be followed. Following management measures will be adopted to control noise levels:

1. Provision of acoustic cabins for operators deployed on HEMM
2. Selection of new low-noise equipment from the manufactures failing which use of additional retrofits if available.
3. Green belt developed all around the mine acts as an acoustic barrier.

11.10.4 Impact on Land Environment

At the conceptual stage around 105 ha of land will be brought under plantation by planting mix fruit bearing trees like Cashew, Jack fruit and forestry species. Around 20 Ha of the area will be reclaimed by forming a water reservoir . This water reservoir will serve in augmenting the ground water condition of the region and also the pit discharge water will be supplied to local villagers for agricultural purpose.

The BEES methodology was employed to evaluate the impact on Environmental Pollution Parameter and the Impact score obtained was -8.

11.10.5 Impact on Biological Environment

As there exists schedule I species falling within 10 km radius of the ML, a full-fledged biodiversity assessment study has been taken up by the proponent along with wildlife conservation plan with financial outlay to assist the local forest department. The proponent shall take mitigation steps within ML area for immigration of wildlife through massive afforestation. The BEES methodology was employed to evaluate the impact and the impact score obtained was +6. This positive score is due to the massive afforestation the project proponent has proposed to be taken up on the already stripped area.

11.10.6 Impact on socio economic environment

This mine shall provide direct employment to about 521 people, which includes mine officials, skilled, semi-skilled and unskilled labour and about 195 indirect employment opportunities to locals in the form of hired truck drivers, hired machine operators, local workshops, contract workers for construction works like parapet wall, work of covering trucks with tarpauline, , plantation work, cleaning works etc.. The mining activities help in sustainable development of this area including further development of physical & social infrastructural facilities. The mining activity provides revenue to the state and center in form of taxes and royalty etc. The project proponent shall assess the health conditions of the workers as per the DGMS guidelines. Noise, air, water quality will be maintained well within the limits. The BEES methodology was employed to evaluate the impact and the score obtained was +45.

The overall impact score obtained from BEES methodology is +42 which shows the project shall be beneficial to the local community and the local Government.

11.11 ADDITIONAL STUDIES

In additional studies, Risk Analysis followed by Disaster Management Plan, which will help in identifying the possible risks and to promote towards preparedness to counter any mishap. Risk analysis and disaster management plan have been prepared and incorporated in EIA Report.

11.12 ENVIRONMENT MANAGEMENT PLAN

A Comprehensive Environment Management Plan including development of Green Belt has been suggested. Identification of all potential environmental impacts of a project is an essential step of Environmental impact Assessment. These are critically examined and major impacts are further studied. In case of mining projects, change in topography and land use, air pollution, water pollution, waste management, biodiversity and socio-infrastructure issues are significant. The Mine will be operated taking all precautionary measures to reduce the impact of mining operations on Air, Water, Noise and Soil and ensuring all control measures to comply with the prescribed standards. The impact of change of land use will be positive only, as portion of abandoned pit is partly backfilled and afforested and balance portion is left as water reservoir beneficial to local villagers. Development of green belt along the boundary of ML area will ensure a better environment. The budget of Rs. 72 lakhs capital cost and Rs. 621 lakhs recurring cost is presented in the report.

11.13 CORPORATE SOCIAL RESPONSIBILITY

The Lessee proposes to undertake a number of activities under the Corporate Social Responsibility Initiative during the operation of Mining Project. The company carries out CSR activties under following thematic areas namely Agriculture, Health care, Education, Skill dovelpement, Sports, women empowerment etc. The CSR interventions by the company will help to improve social economic status surrounding villages.

11.14 CORPORATE ENVIRONMENT RESPONSIBILITY

In addition to the CSR, the Lessee proposes to undertake a number of activities as one time measure under the Corporate Environment Responsibility Initiative during the operation of Mining Project. The demands made in public hearing and during

consultation with public representatives. The list of activities envisaged with a total cost of Rs. 309.3 lakhs is presented in the report.

11.15 ENVIRONMENTAL MONITORING PROGRAM

Environmental monitoring is required to know the Quality of Ambient Air, Water and Noise Levels during the operation phase of the proposed project and take required corrective measures, in case of any non-compliance with the norms stipulated by regulatory authorities. The methodologies adopted for environmental monitoring will be in accordance with the CPCB. SPCB and Indian Bureau of Mines requirement.

11.16 EXPLANATION ON HOW ADVERSE EFFECTS ARE MITIGATED

The EIA/EMP Report has established the Base Line Environment of the Project Area and has assessed anticipated impacts of the Project on the overall ecology & environment. Accordingly, general as well as specific mitigation measures for management of the Key Environmental Parameters have been suggested. Further, specific measures towards monitoring and implementation of the Environment Management Plan along with details of the funds required towards implementation of the Pollution Control Measures are also included in the Report. By implementing the suggested Environment Management Plan adverse effects of the Project can be mitigated.

11.18 CONCLUSION

The Block- I Bicholim Mine Block is newly auctioned mineral block. The Impacts predicted for various Environmental Attributes were found to be on the positive scale. The EMP proposed will have a positive impact on the surrounding environment and the landscape of the area. The local population will be benefitted from this project by way of employment and CSR activities carried out by the company.

Chapter-12
DISCLOSURE OF CONSULTANTS ENGAGED

DISCLOSURE OF CONSULTANTS

Declaration by ACO and Experts contributing to the EIA Report

I, hereby, certify that I was a part of the EIA team in the following capacity that developed the above EIA.

EIA coordinator (EC): M. S. Raju

Name: M. S. Raju

Signature and Date :

Period of involvement: 15.02.2023

Contact information: 9448367421

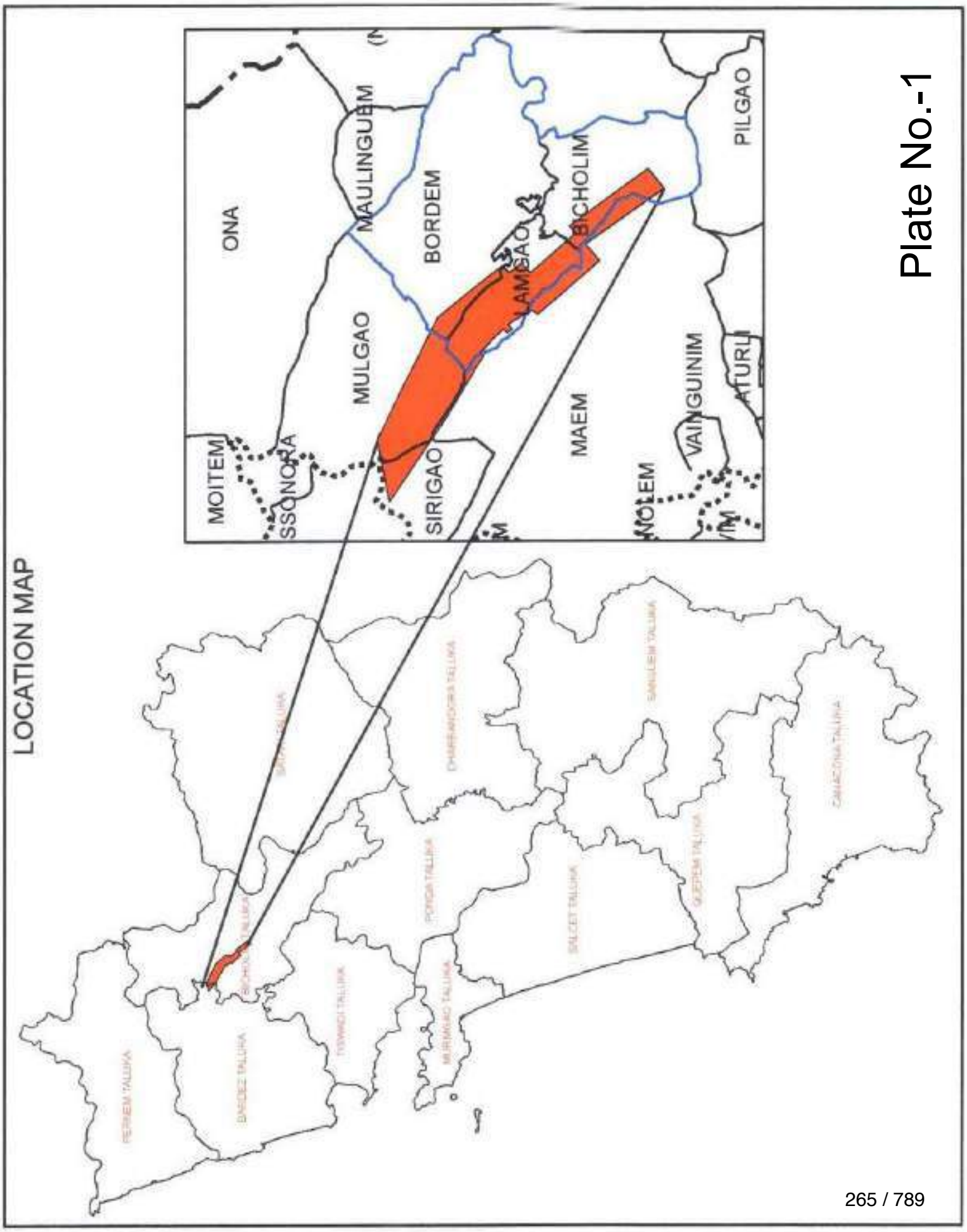
Functional area experts:

S. No.	Functional areas	Name of the expert/s	Involvement (period and task**)	Signature and date
1	AP*	M. Sachin Raju	15.02.2023 to Jun 2023	
	Team Member	M.R.Durga Prasad	Mar-2023 to Jun-2023	
2	WP*	M.Sachin Raju	15.02.2023 to Jun 2023	
	Team Member	K. Janaki	15.02.2023 to Jun 2023	
3	SHW*	M.S.Raju	15.02.2023 to Jun 2023	
4	SE*	K.N.M.Raju	Apr-2023	
5	EB*	H C Chetan	Apr-2023	
6	HG*	M.C.Reddy	Apr-2023	
7	GEO*	M.S.Raju	15.02.2023 to Jun 2023	
8	SC*	Nagaraja B C	May- 2023	
9	AQ*	M. Sachin Raju	15.02.2023 to Jun 2023	
10	NV*	M.S.Raju	15.02.2023 to Jun 2023	
11	LU*	Nagaraja B C	15.02.2023 to Jun 2023	
12	RH*	M.S.Raju	15.02.2023 to Jun 2023	

*One TM against each FAE may be shown

**Please attach additional sheet if required

PLATES


LOCATION MAP
ONA
MAULINGUEM
BORDEM
PILGAO
BICHOLIM
LAMGAO
MULGAO
MOITEM
SSONORA
SIRIGAO
MAEM
VAINGUINIM
ATURLI
NOLEM
Plate No.-1
265 / 789

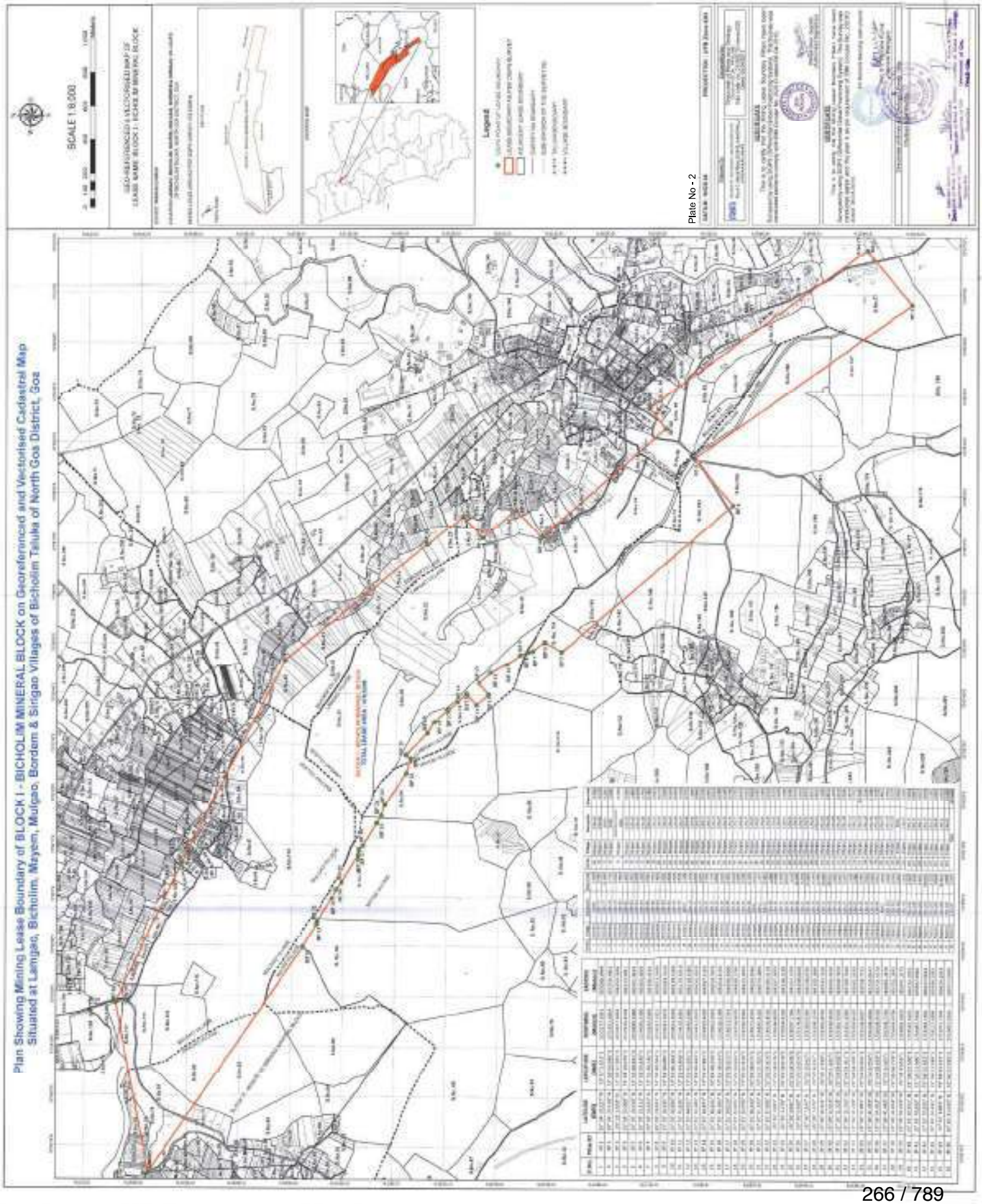
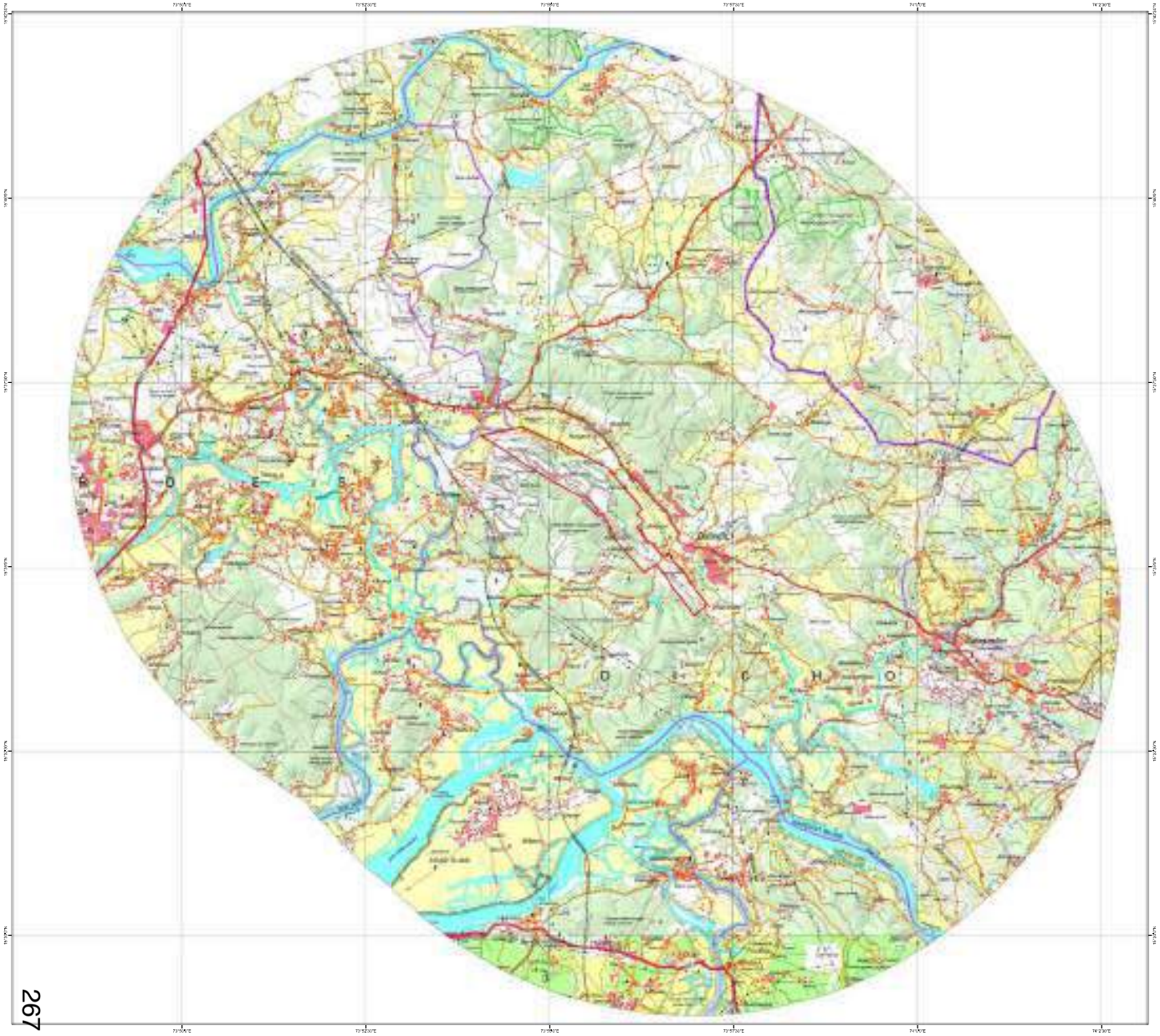


Plate No - 2
Plan Showing Mining Lease Boundary of BLOCK I - BICHOLIM MINERAL BLOCK on Georeferenced and Vectorised Cadastral Map
Situated at Lamgao, Bicholim, Mayem, Mulgao, Bordem & Sirigao Villages of Bicholim Taluka of North Goa District, Goa

Key Plan



N
W E
S

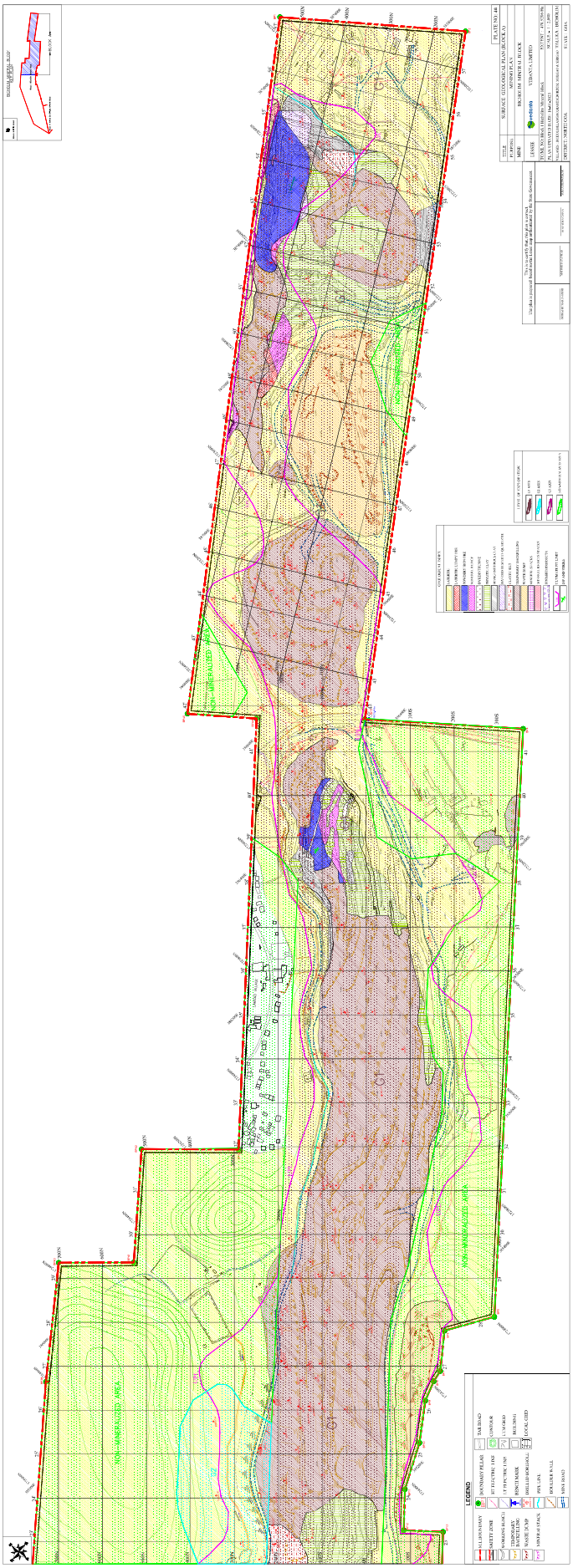
0 2.5 5 Km

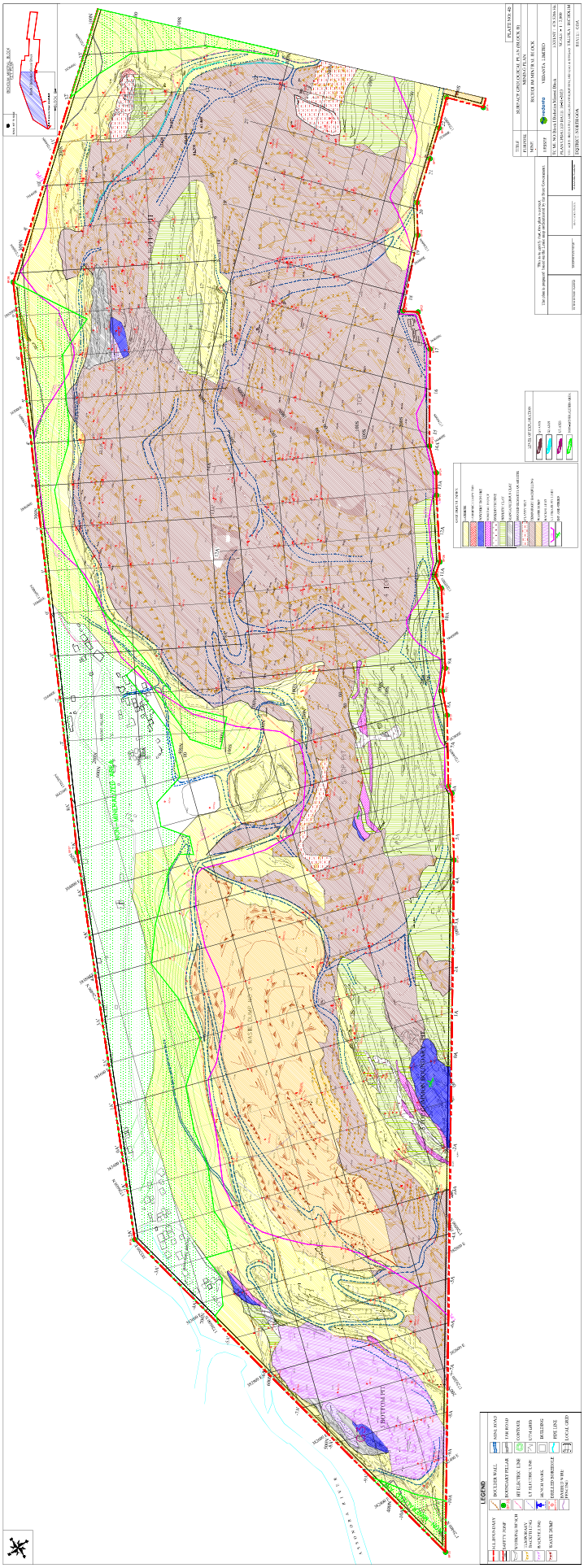
Legend

- Mining Lease Area
- 10km bufferzone

Plate. - 3

BLOCK-I BICHOLIM MINERAL BLOCK Vedanta Limited BICHOLIM,LAMGAO,BORDEM, MAYEM DISTRICT: NORTH GOA STATE : GOA	
TITLE	key Plan
SCALE	1:50,000
Topo Sheet No	NEW : D43B14, D43B15,D43C2 & D43C3
	Old : 48E/14, 48E/15, 48I/2 & 48I/3





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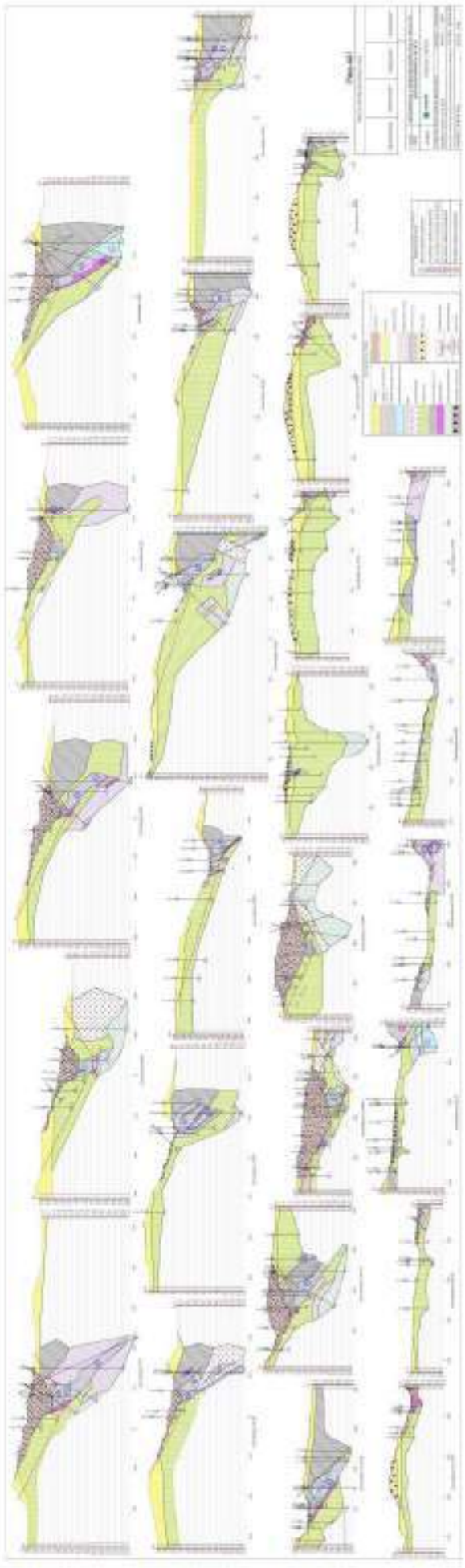

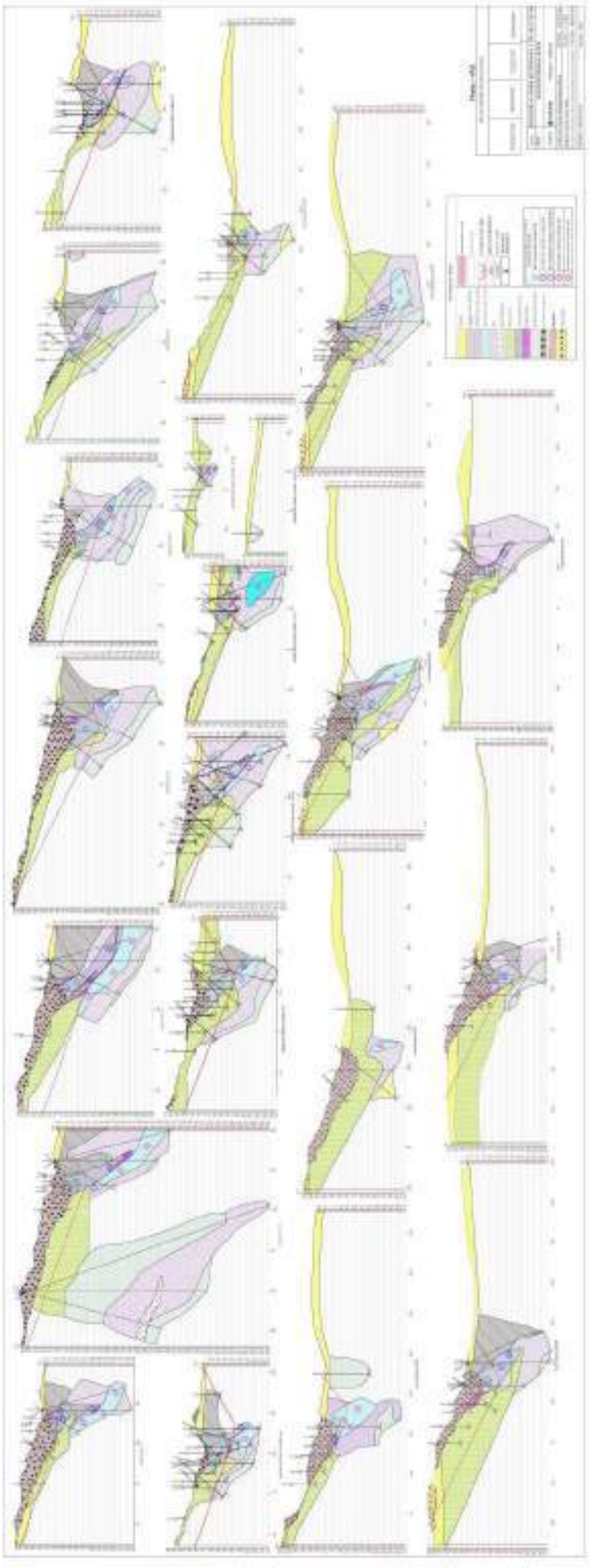

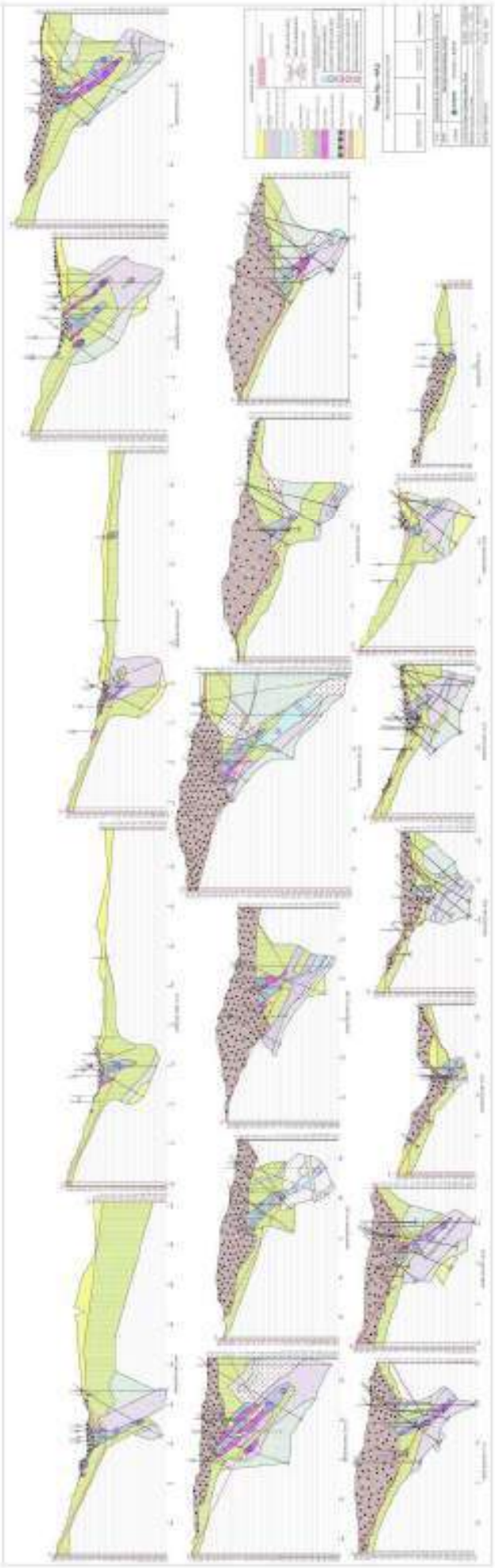

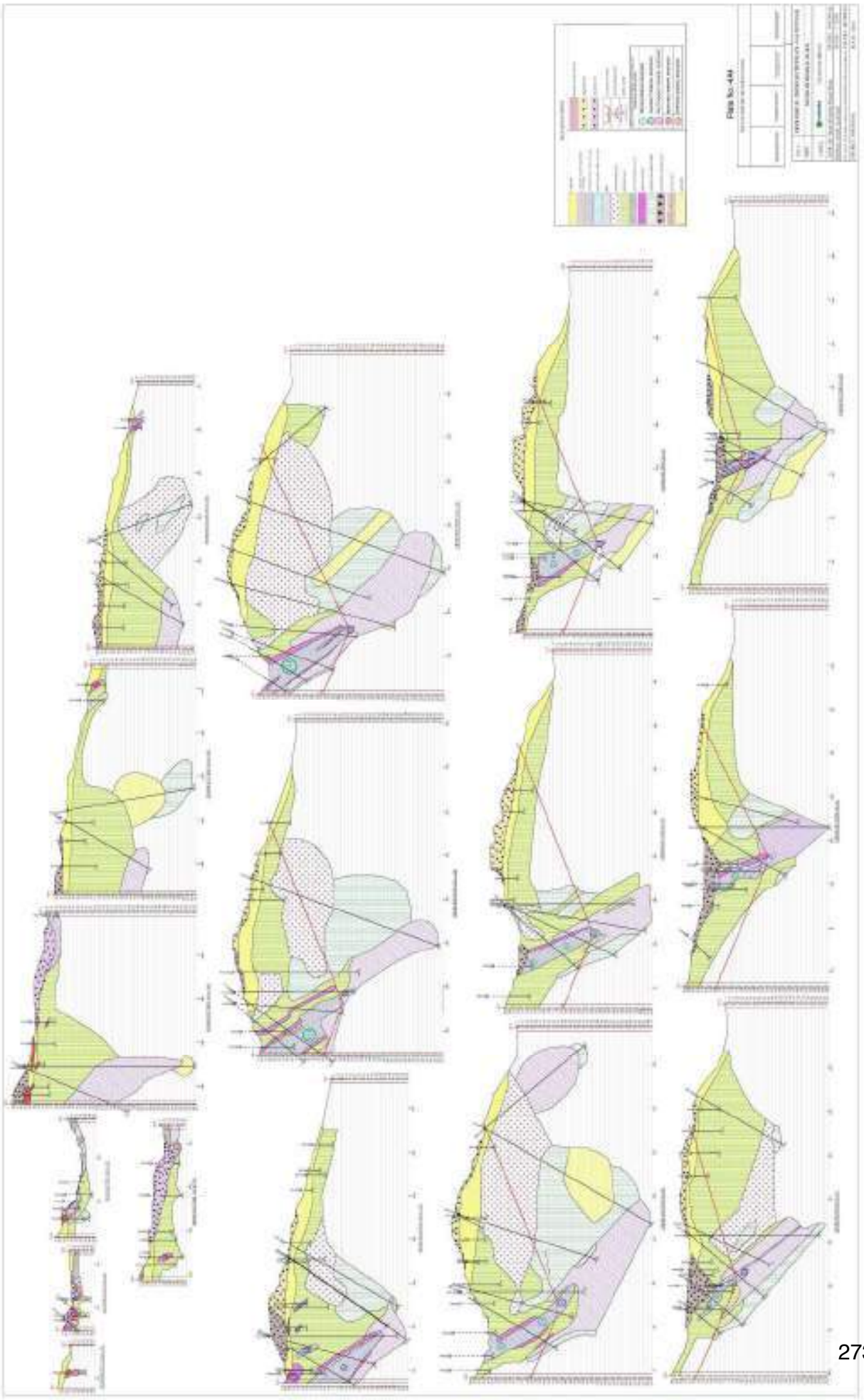

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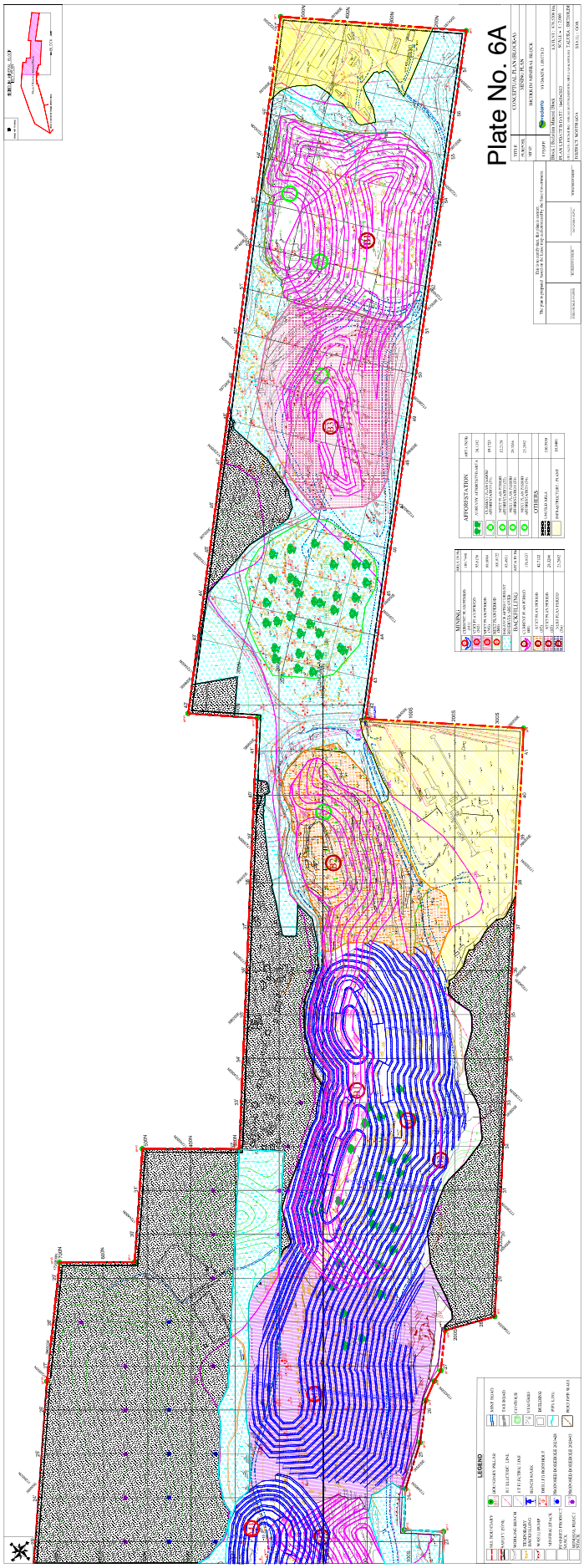


Plate No. 6A
CONCEPTUAL PLAN (ELEVATED)
SENOKOT PLAN
PROPOSED MANDIRA HOUSE
LEGEND

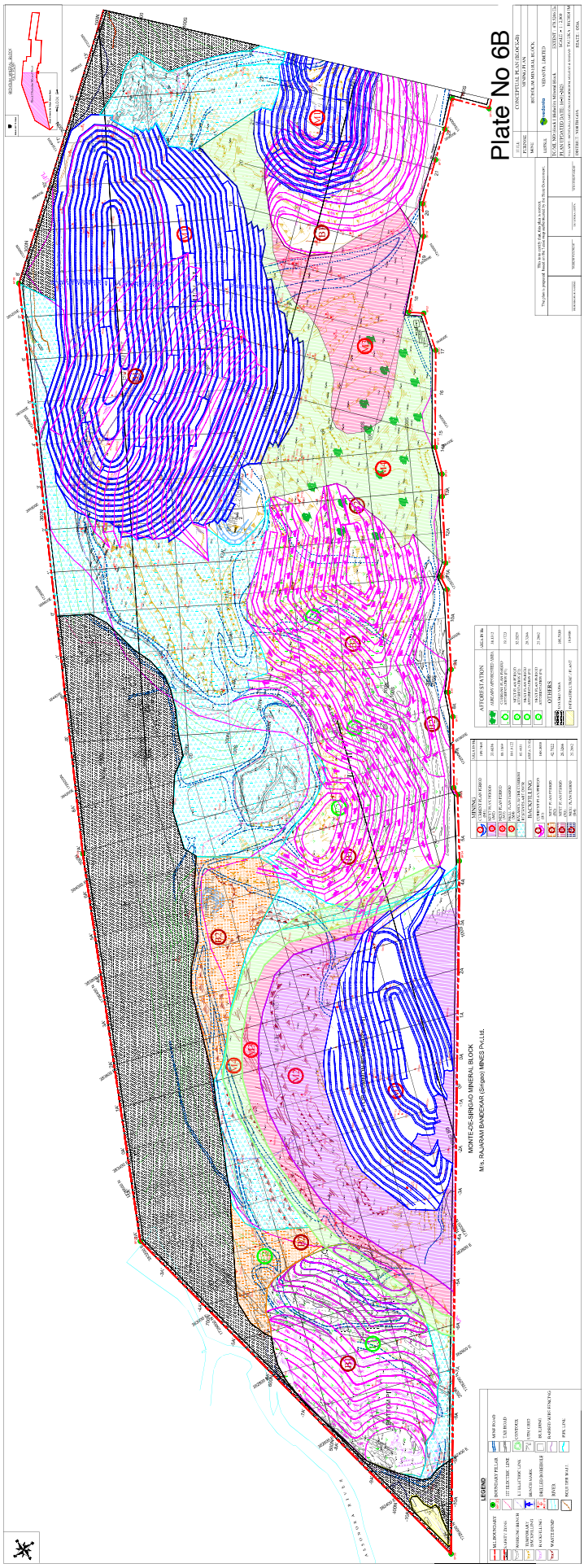


Plate No 6B
CONCEPTUAL PLAN (BLOCK-I&II)
M/S. RAJARAM BANDEKAR (Singao) MINES Pvt.Ltd.
MONTE-DE-SIRIGAO MINERAL BLOCK
LEGEND

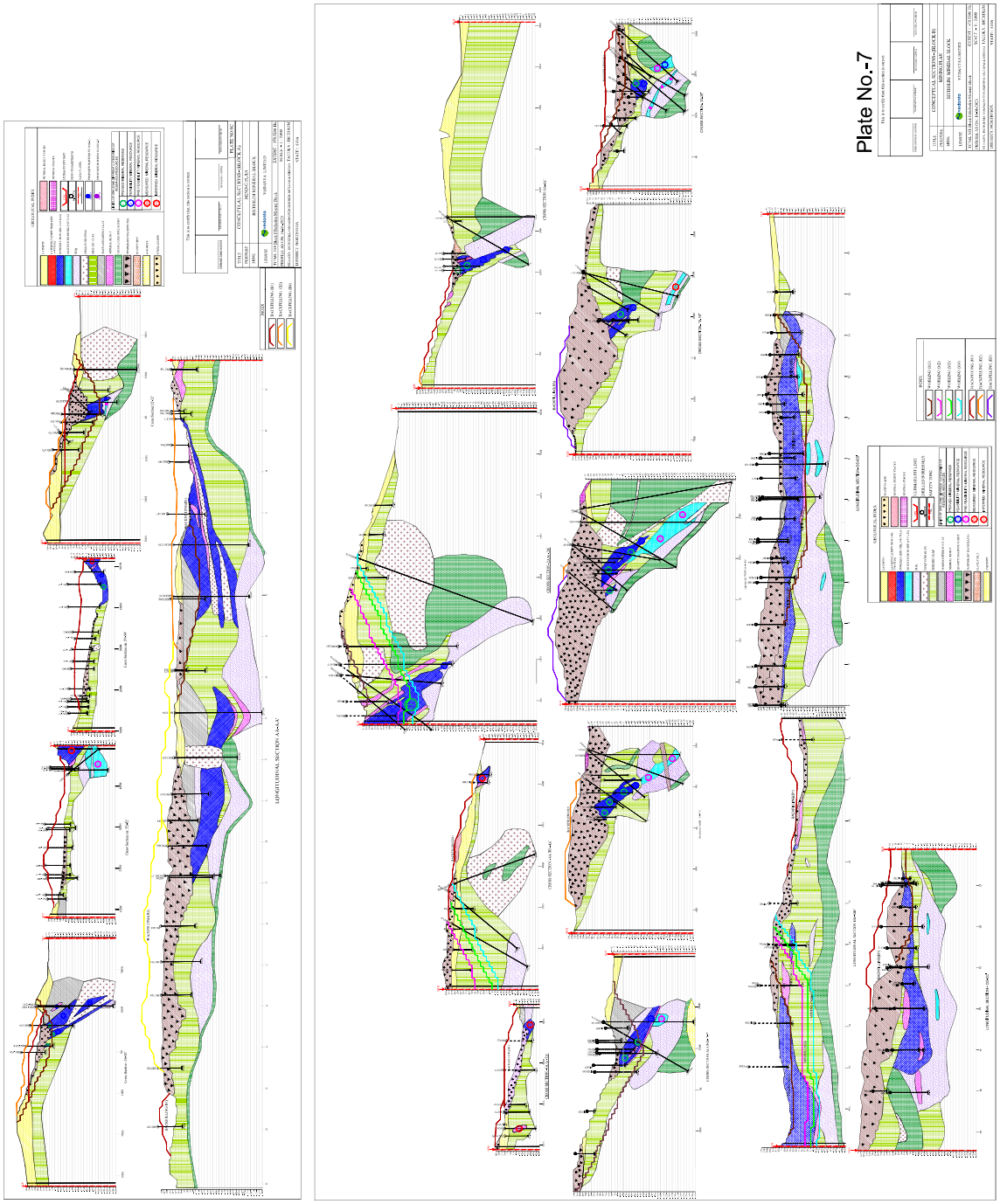
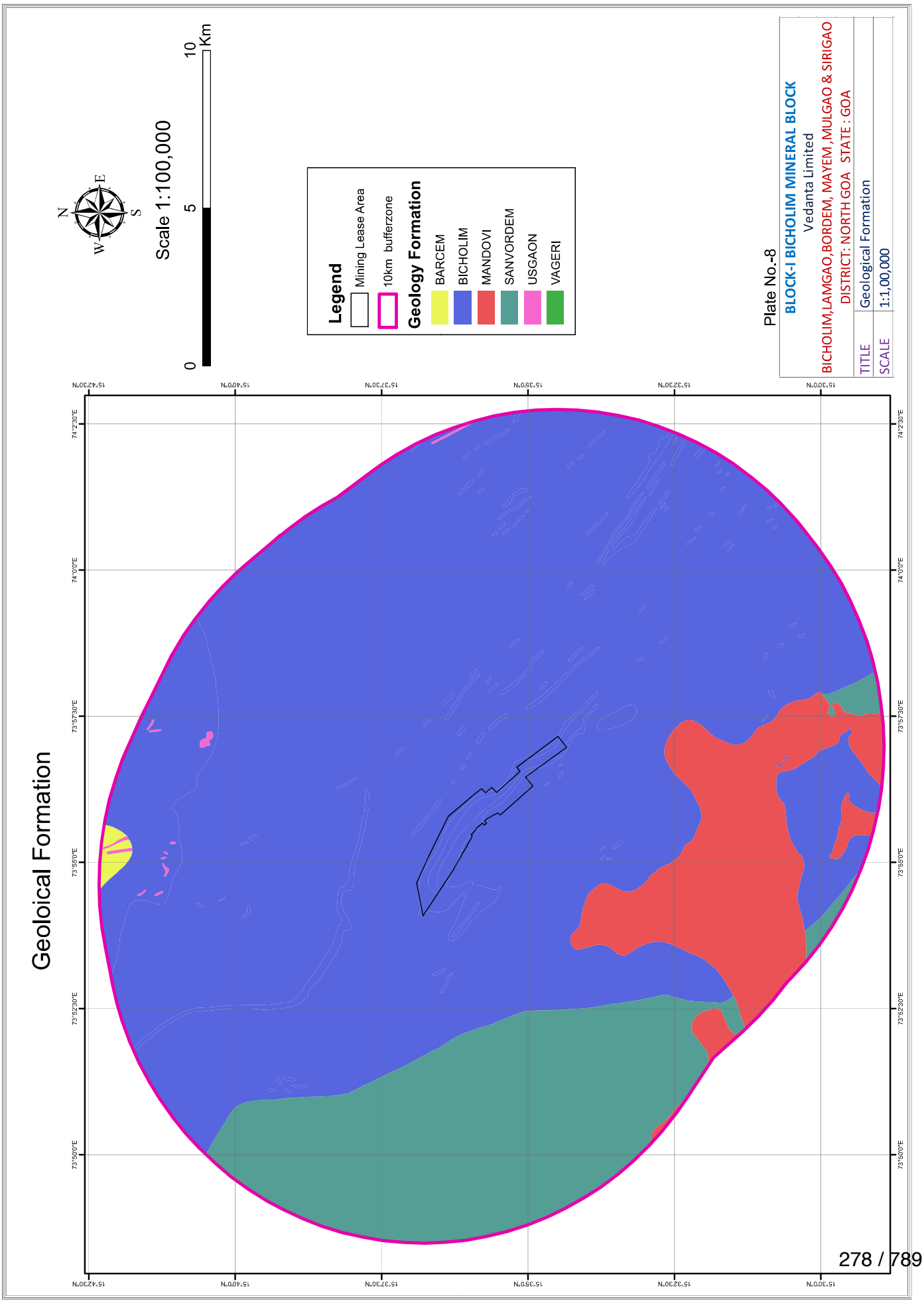
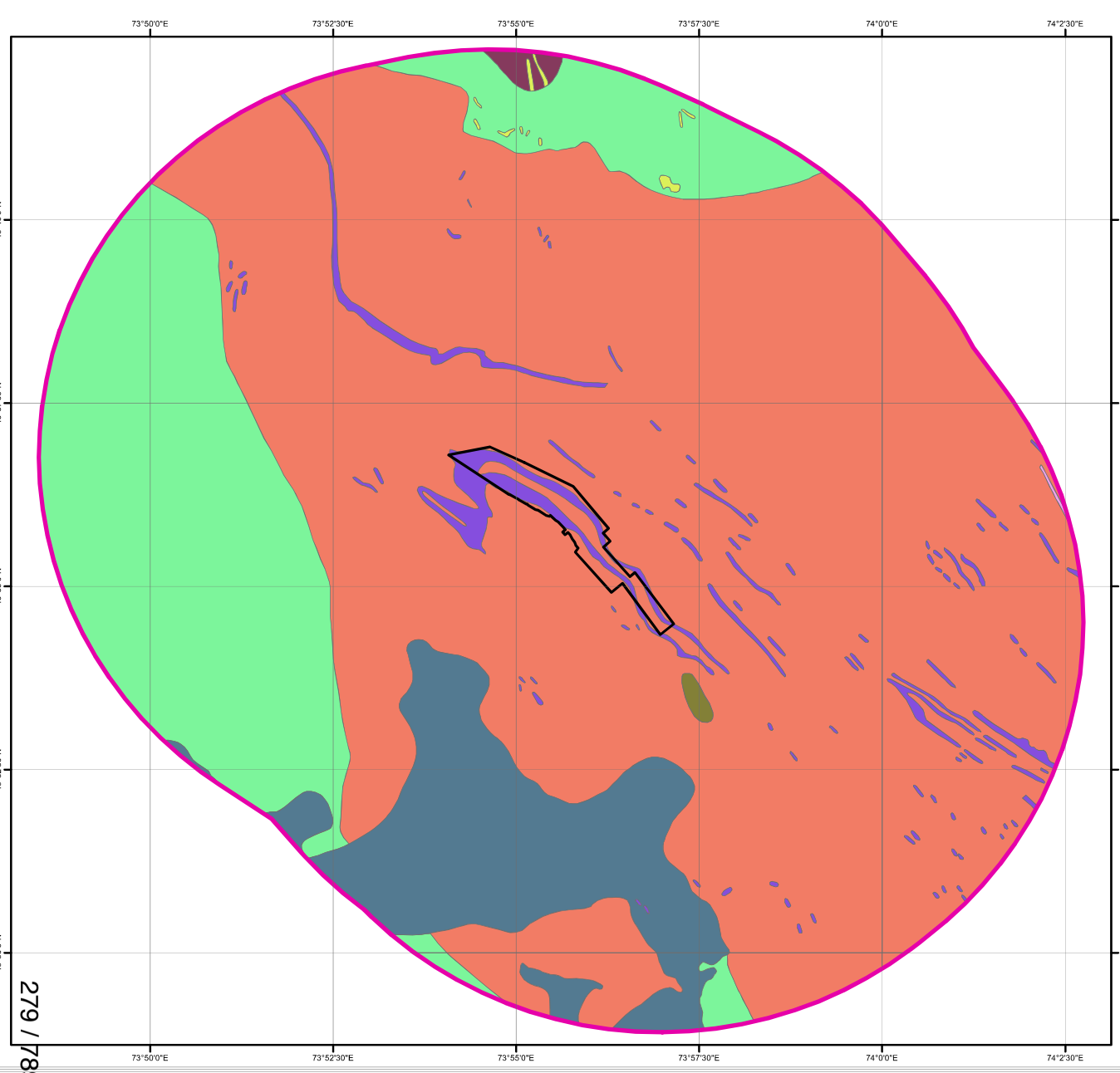


Plate No.-7


Geoloical Formation
Plate No.-8
BLOCK-I BICHOLIM MINERAL BLOCK
Vedanta Limited
BICHOLIM,LAMGAO,BORDEM, MAYEM, MULGAO & SIRIGAO
DISTRICT: NORTH GOA STATE : GOA
TITLE
Geological Formation
SCALE
1:1,00,000
Legend
Mining Lease Area
10km bufferzone
Geology Formation
BARCEM
BICHOLIM
MANDOVI
SANVORDEM
USGAON
VAGERI
Scale 1:100,000
0
5
10
Km
N
E
S
W
15°42'30"N
15°40'0"N
15°37'30"N
15°35'0"N
15°32'30"N
15°30'0"N
74°2'30"E
74°0'0"E
73°57'30"E
73°55'0"E
73°52'30"E
73°50'0"E

Lithology Map



Scale 1:100,000

0 5 10 Km

Legend

- Mining Lease Area
- 10km bufferzone

Lithology

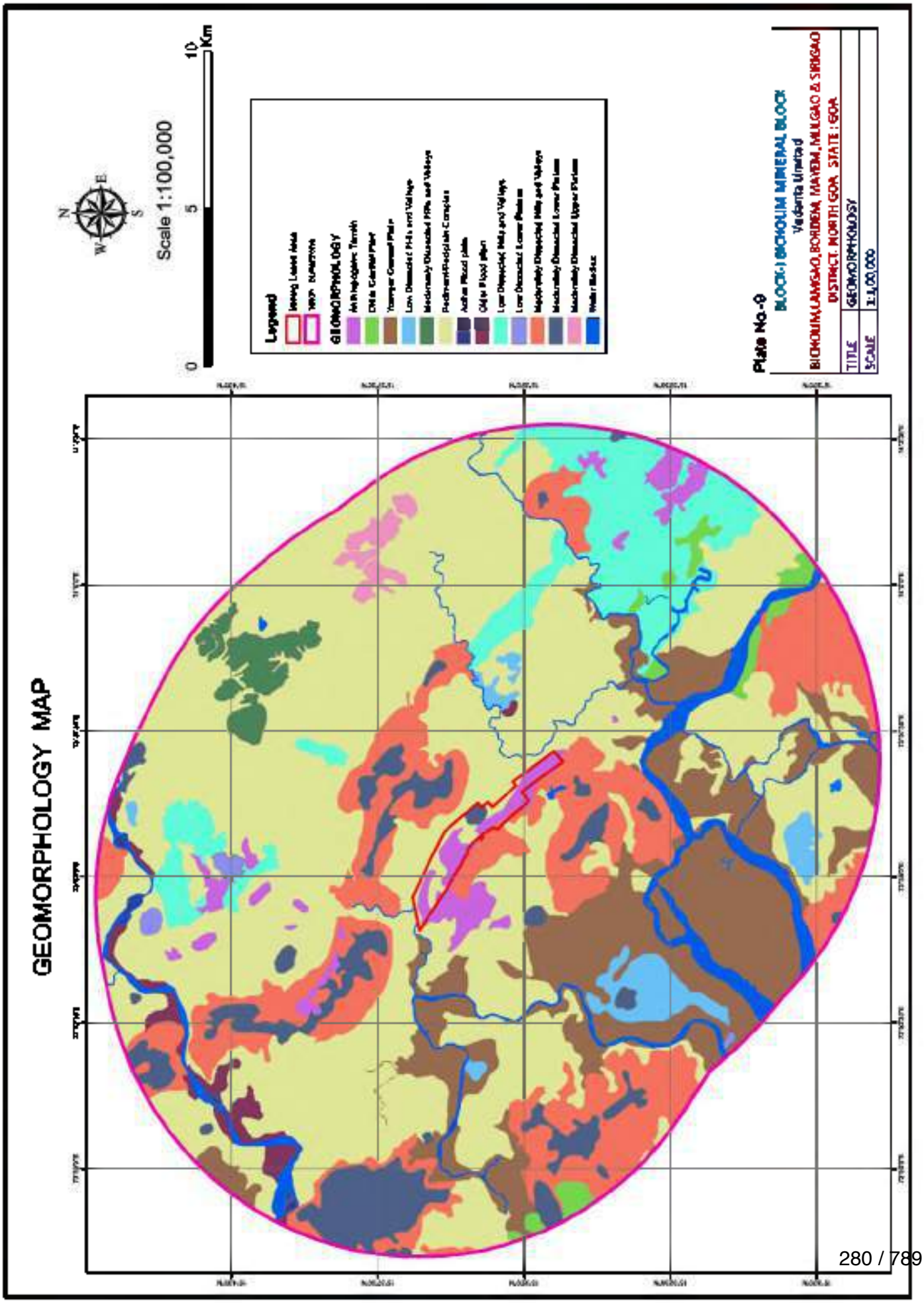
- ARGILLITE
- BANDED IRON FORMATION
- CHLORITE SCHIST
- CLAYEY SAND (ACTIVE FLOODPLAIN)
- GABBRO
- GRAYWACKE
- META-BASALT
- META-GABBRO

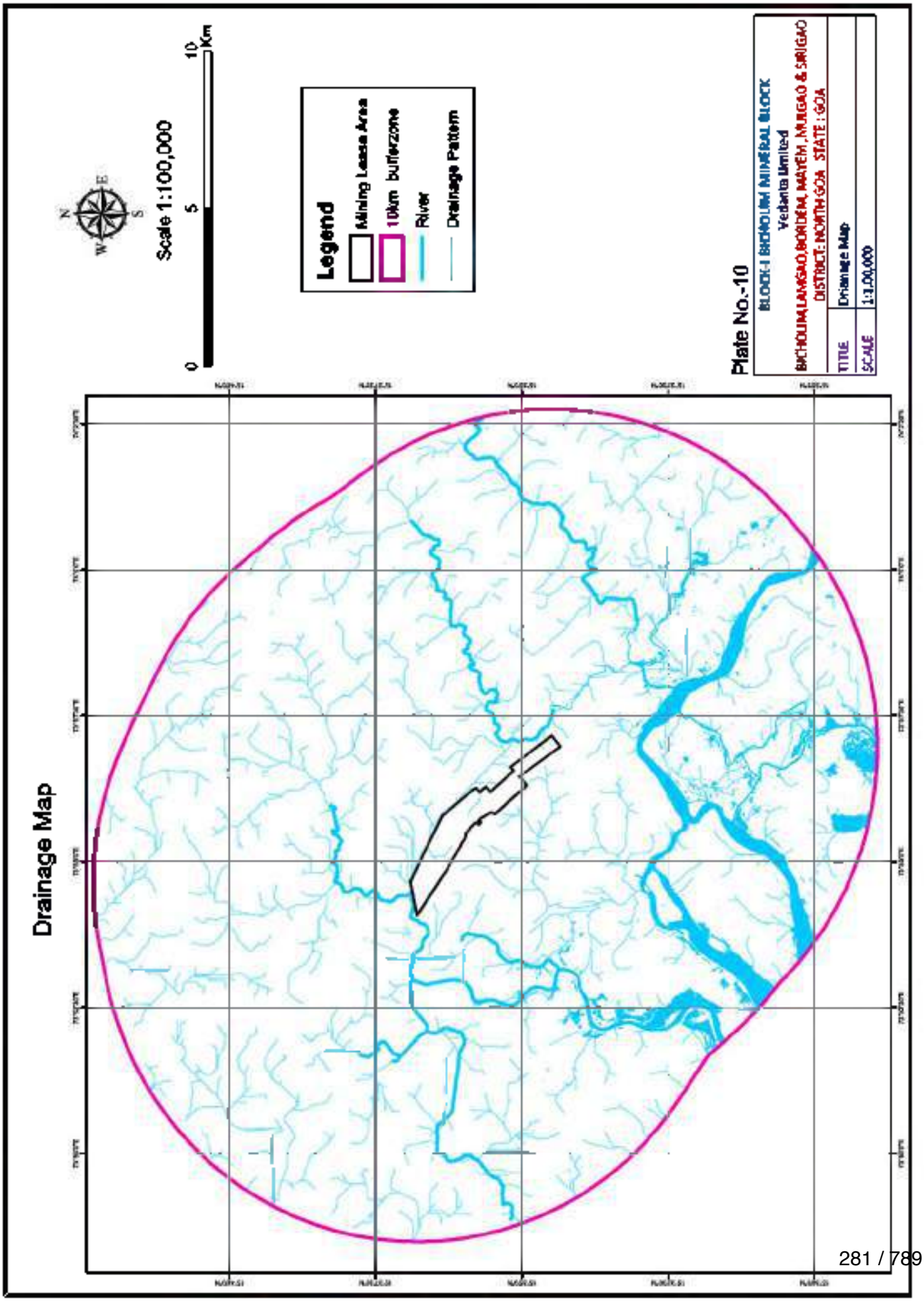
Plate No.- 8A

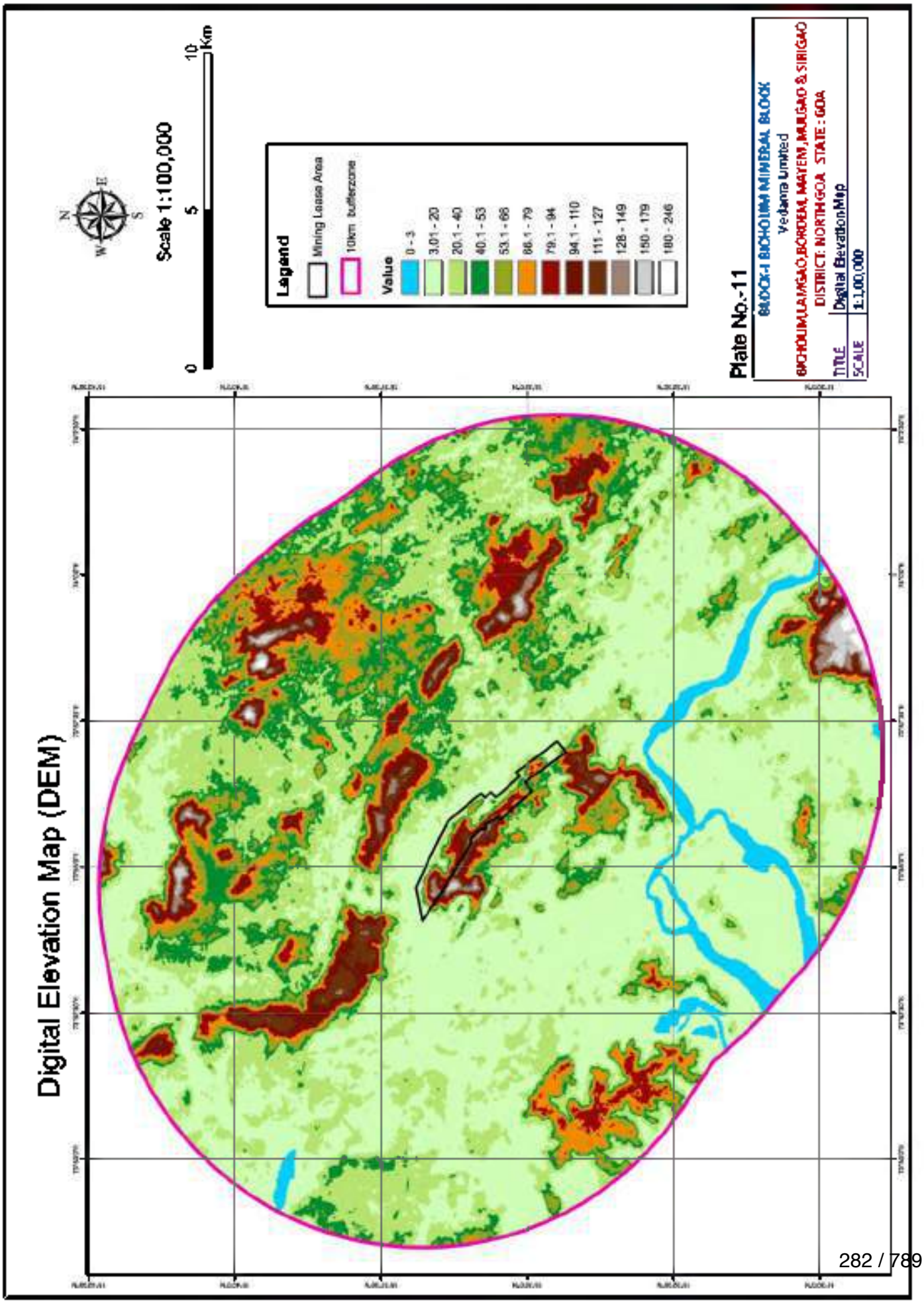
BLOCK-I BICHOLIM MINERAL BLOCK	
Vedanta Limited	
BICHOLIM,LAMGAO,BORDEM, MAYEM ,MULGAO & SIRIGAO	
DISTRICT: NORTH GOA STATE : GOA	
TITLE	Lithology
SCALE	1:1,00,000

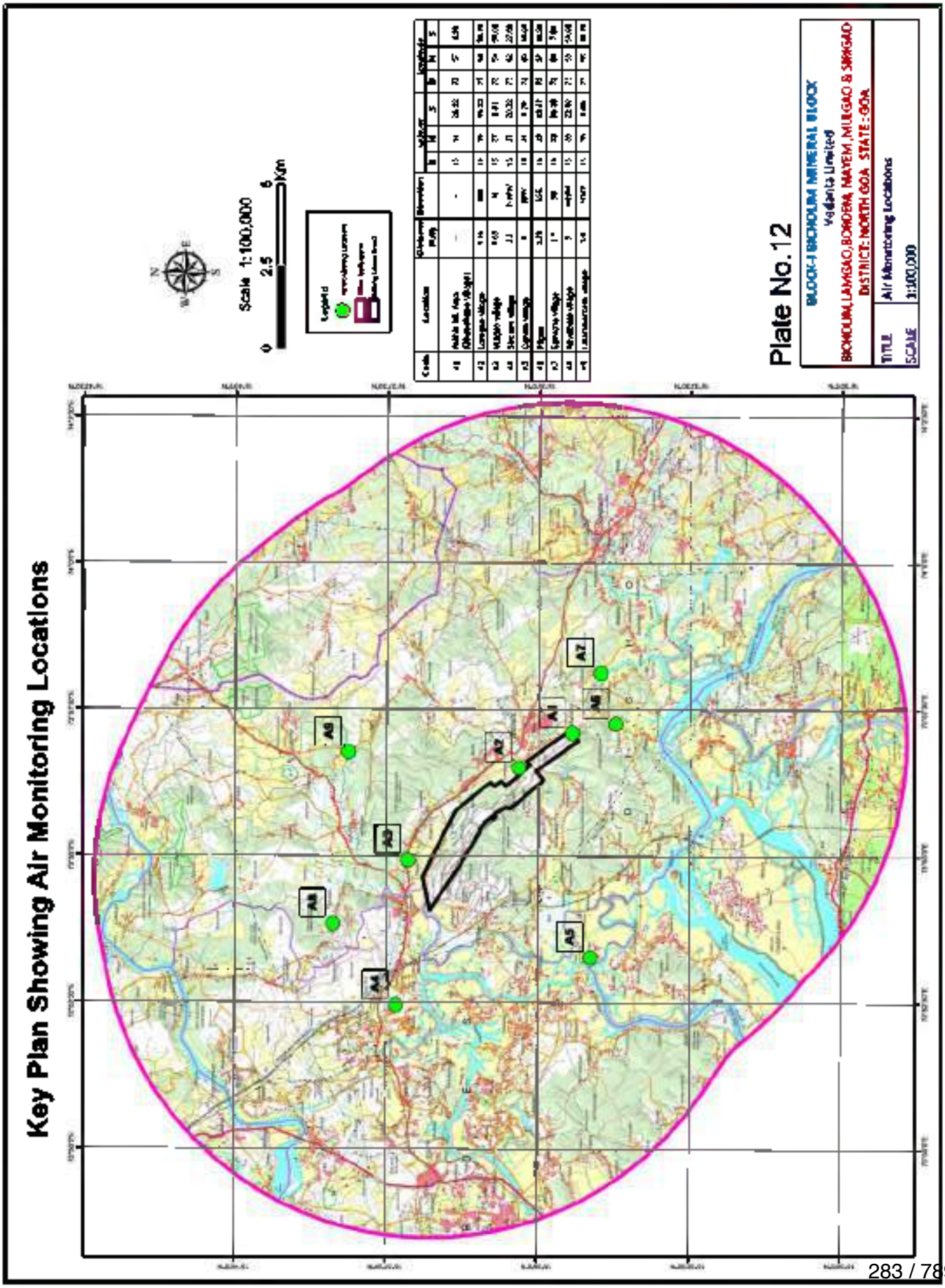
279 / 789

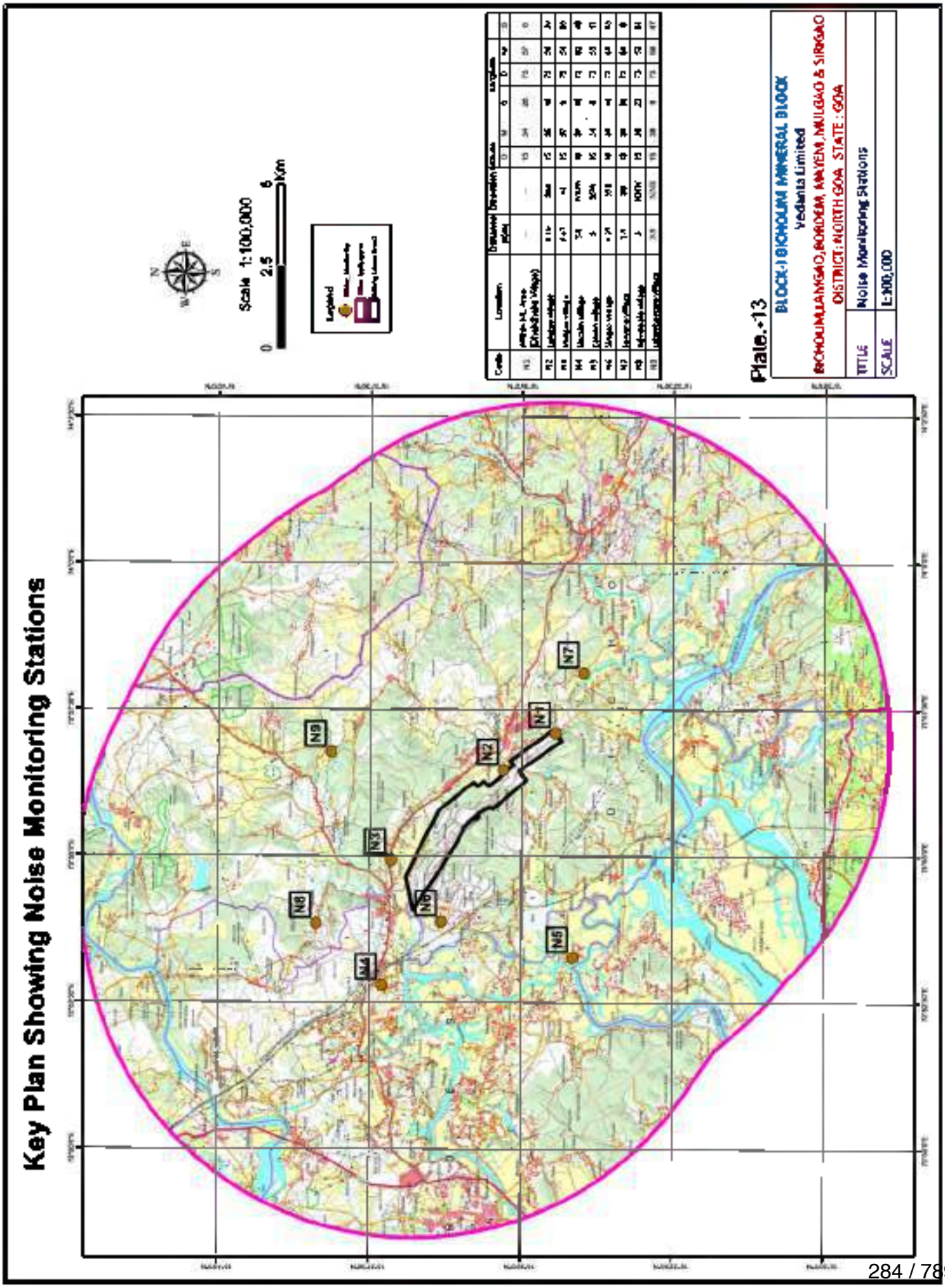
1231

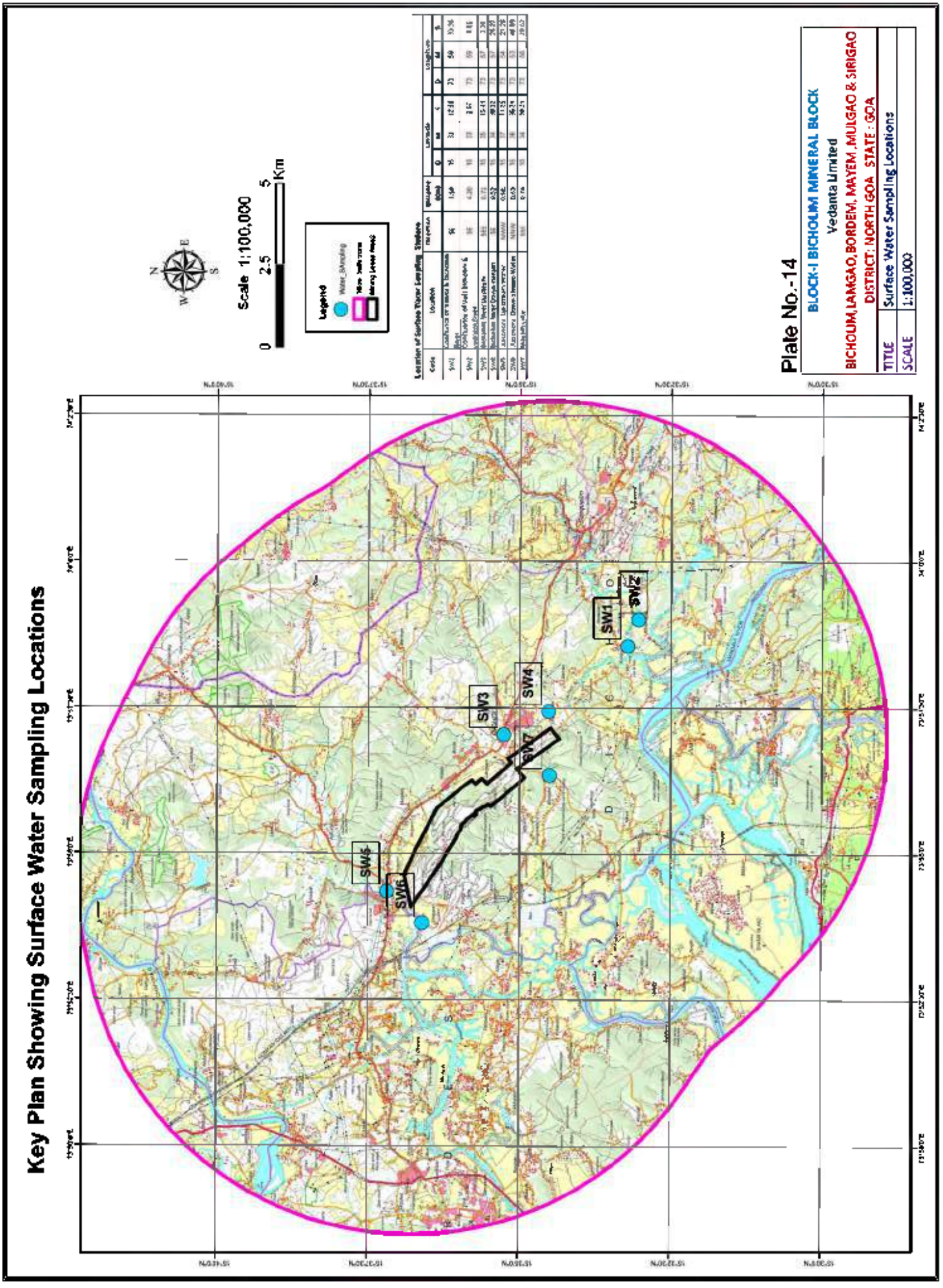

GEOMORPHOLOGY MAP
Plate No.-9
BLOCK-I BICHOLIM MINERAL BLOCK
Vedanta Limited
BICHOLIM,LAMGAO,BORDEM, MAYEM, MULGAO & SIRIGAO
DISTRICT: NORTH GOA STATE : GOA
TITLE GEOMORPHOLOGY
SCALE 1:1,00,000
Legend
Scale 1:100,000
0
5
10 Km
N
S
E
W


Drainage Map
Plate No.-10
BLOCK-I BICHOLIM MINERAL BLOCK
Vedanta Limited
BICHOLIM,LAMGAO,BORDEM, MAYEM, MUNGAO & SARIGAO
DISTRICT: NORTH GOA STATE : GOA
TITLE
Drainage Map
SCALE
1:1,00,000
Legend
Mining Lease Area
10km buffer zone
River
Drainage Pattern
Scale 1:100,000
0
5
10 Km
N
E
S
W

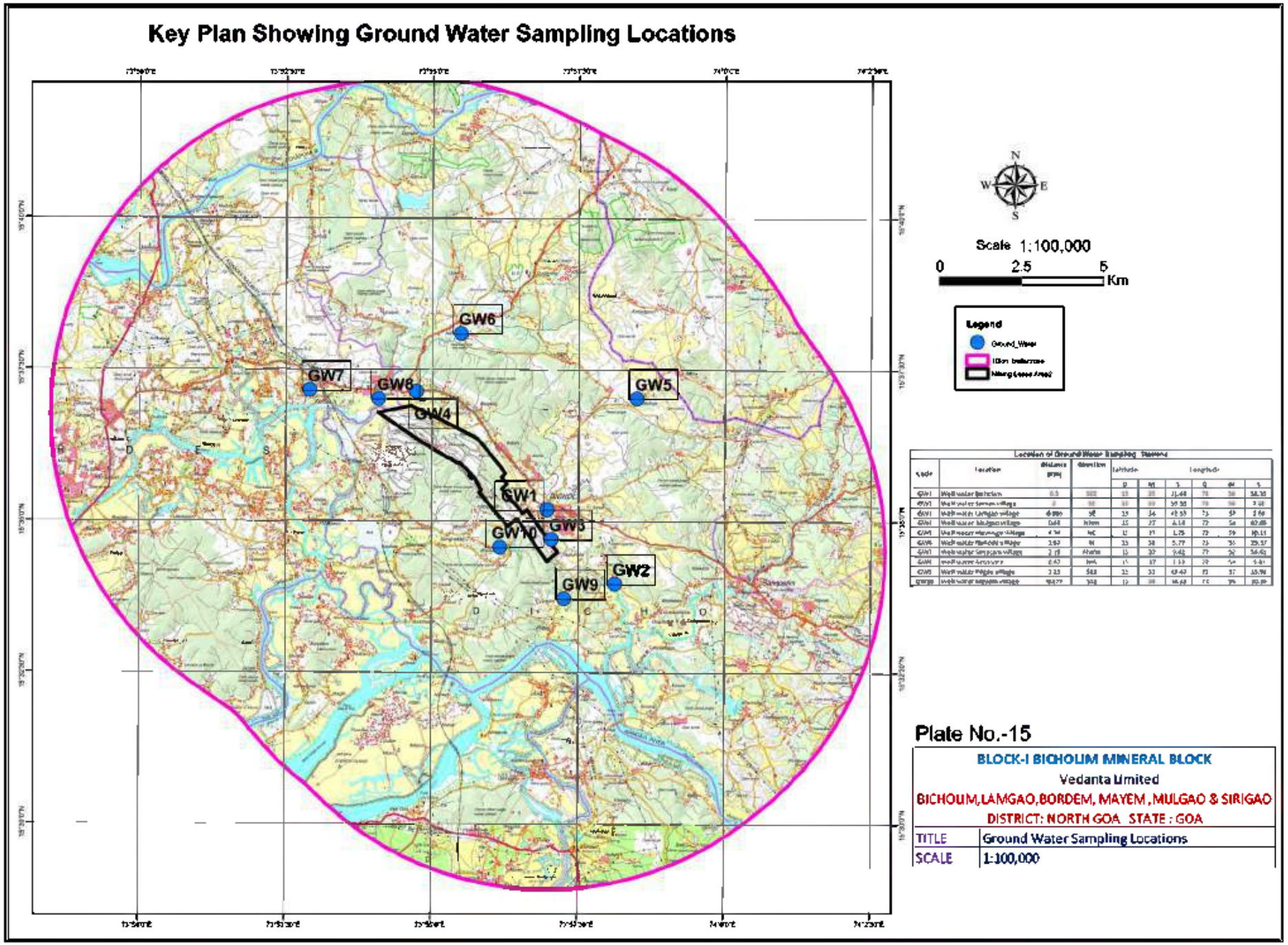

Digital Elevation Map (DEM)
Plate No.-11
BADOKI-I BICHOLIM MINERAL BLOCK
Vedanta Limited
BICHOLIM,LAMGAO,BORDEM, MAYEM, MULGAO & SIRIGAO
DISTRICT: NORTH GOA STATE : GOA
TITLE
Digital Elevation Map
SCALE
1:1,00,000
Legend
Mining Lease Area
10km buffer zone
Value
0 - 3
3.01 - 20
20.1 - 40
40.1 - 53
53.1 - 66
66.1 - 79
79.1 - 94
94.1 - 110
111 - 127
128 - 149
150 - 179
180 - 246
Scale 1:100,000
0
5
10 Km
N
E
S
W


Key Plan Showing Air Monitoring Locations
Plate No.12
BLOCK-I BICHOLIM MINERAL BLOCK
Vedanta Limited
BICHOLIM,LAMGAO,BORDEM,MAYEM,MULGAO & SIRIGAO
DISTRICT: NORTH GOA STATE : GOA
TITLE
Air Monitoring Locations
SCALE
1:100,000
Scale 1:100,000
2.5
5
Km
A1
A2
A3
A4
A5
A6
A7
A8


Key Plan Showing Noise Monitoring Stations
Plate.-13
BLOCK-I BICHOLIM MINERAL BLOCK
Vedanta Limited
BICHOLIM,LAHKAMO,BORDEM, KAVREM, MULGAO & SIRIGAO
DISTRICT: NORTH GOA STATE : GOA
TITLE
Noise Monitoring Stations
SCALE
1:100,000
Scale 1:100,000
2.5
5
Km
0
Legend
N1
N2
N3
N4
N5
N6
N7
N8
N9


Key Plan Showing Surface Water Sampling Locations
Plate No.-14
BLOCK-I BICHOLIM MINERAL BLOCK
Vedanta Limited
BICHOLIM,LAMGAO,BORDEM, MAYEM, MULGAO & SIRIGAO
DISTRICT: NORTH GOA STATE : GOA
TITLE
Surface Water Sampling Locations
SCALE
1:100,000
Scale 1:100,000
0
2.5
5
Km
Legend
SW1
SW2
SW3
SW4
SW5
SW6
SW7

Key Plan Showing Ground Water Sampling Locations



Location of Ground Water Sampling Stations

Code	Location	Distance (KM)	Direction	Latitude			Longitude		
				D	M	S	D	M	S
GW1	Well water Bethlem	0.5	SSE	15	35	21.48	73	56	58.36
GW2	Well water Sonaulim village	2	SE	15	34	59.38	73	56	3.48
GW3	Well water in Uarlim village	0.850	SE	15	34	42.53	73	57	2.66
GW4	Well water Mulgao village	Dald	N-Nom	15	37	4.58	73	56	40.88
GW5	Well water Marcaim village	4.34	NE	15	37	1.75	73	59	49.11
GW6	Well water Pednem village	3.67	N	15	38	5.79	73	55	29.37
GW7	Well water Sangolda village	1.78	W-NW	15	36	9.42	73	56	56.62
GW8	well water Arrosim	0.42	NW	15	37	1.19	73	56	1.61
GW9	Well water Pilgao village	3.23	SSE	15	33	49.49	73	57	35.98
GW10	Well water Salgaon village	1.77	SW	15	34	16.68	73	56	20.39

Plate No.-15

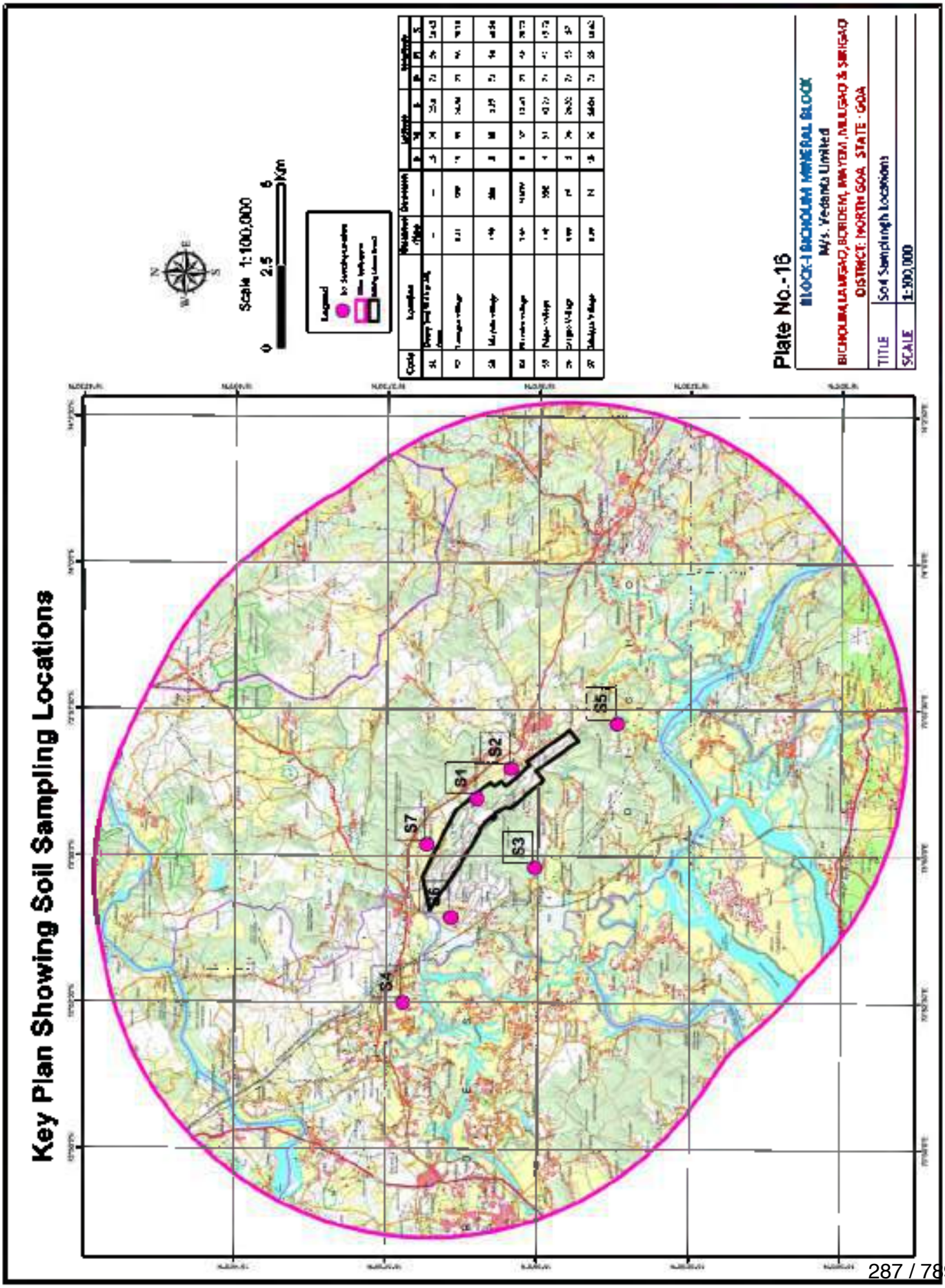
BLOCK-I BICHOLIM MINERAL BLOCK

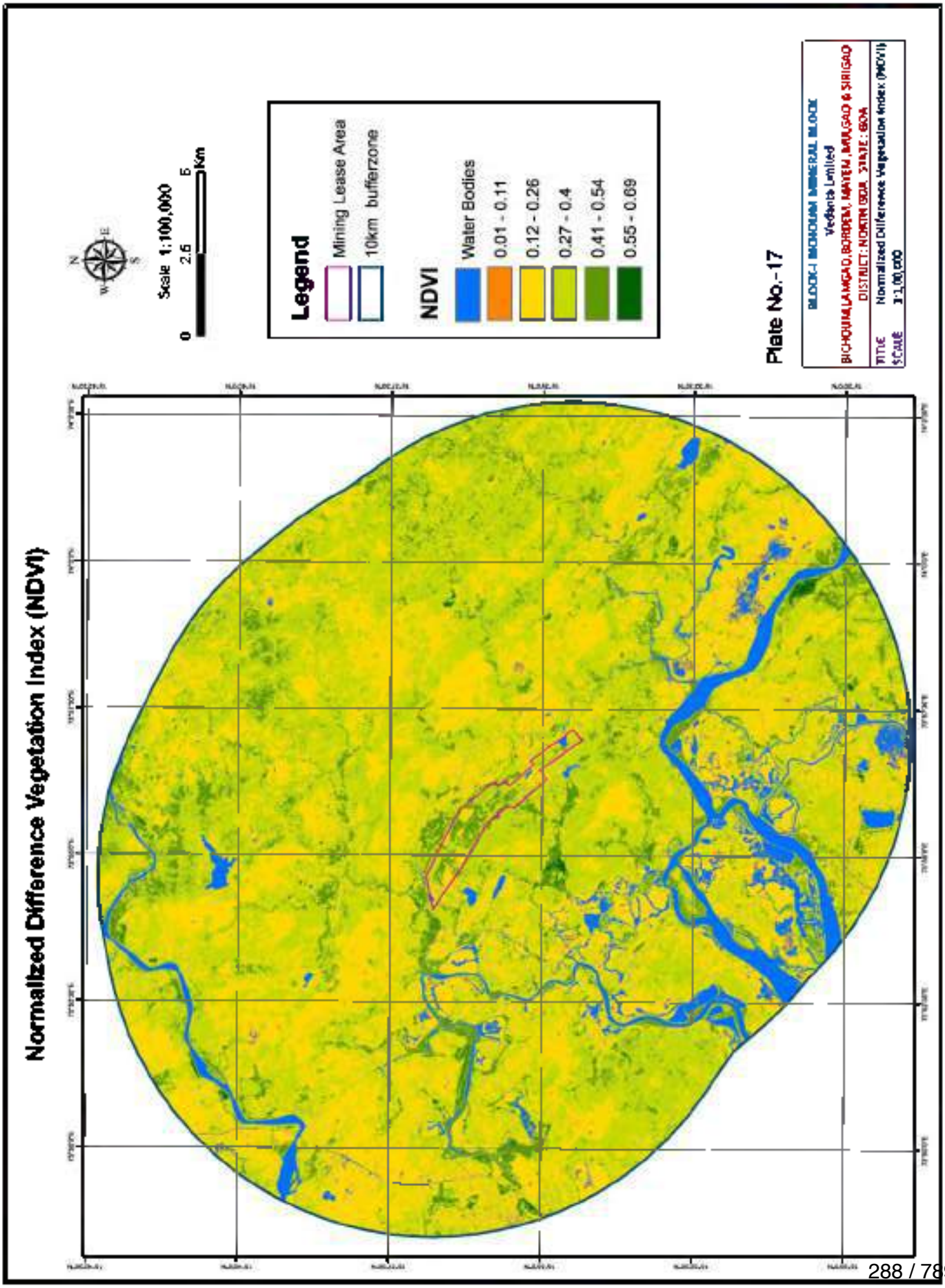
Vedanta Limited

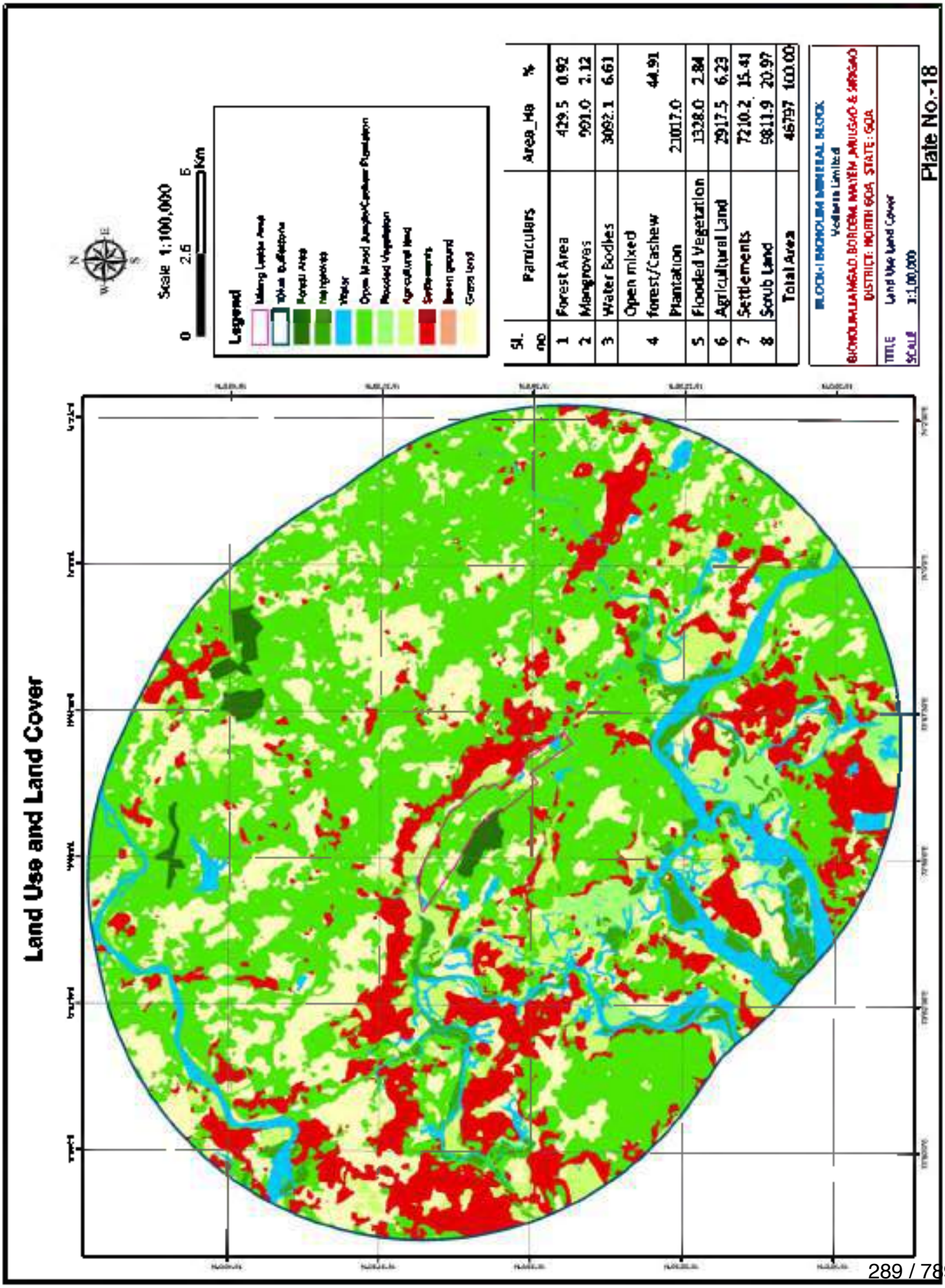
BICHOLIM,LAMGAO,BORDEM, MAYEM ,MULGAO & SIRIGAO

DISTRICT: NORTH GOA STATE : GOA

TITLE	Ground Water Sampling Locations
SCALE	1:100,000


Key Plan Showing Soil Sampling Locations
Plate No.-16
BICHOLIM BICHOLIM MINERAL BLOCK
M/s. Vedanta Limited
BICHOLIM,LAMGAO,BORDEM, MAYEM, NILGAO & SIRIGAO
DISTRICT: NORTH GOA STATE : GOA
TITLE
Soil Sampling Locations
SCALE
1:100,000
Scale 1:100,000
2.5
0
5
Km
Legend
S1
S2
S3
S4
S5
S6
S7


Normalized Difference Vegetation Index (NDVI)
Legend
Mining Lease Area
10km bufferzone
NDVI
Water Bodies
0.01 - 0.11
0.12 - 0.26
0.27 - 0.4
0.41 - 0.54
0.55 - 0.69
Scale 1:100,000
0
2.5
5
Km
Plate No.-17
BLOCK-I BICHOLIM MINERAL BLOCK
Vedanta Limited
BICHOLIM,LAMGAO,BORDEM, MAYEM, MULGAO & SIRIGAO
DISTRICT: NORTH GOA STATE: GOA
TITLE Normalized Difference Vegetation Index (NDVI)
SCALE 1:100,000


Land Use and Land Cover
Legend
Mining Lease Area
Mine Effected Area
Forest Area
Mangroves
Water
Open Mixed Jungle/Cashew Plantation
Flooded Vegetation
Agricultural land
Settlements
Barren ground
Grass land
Scale 1:100,000
0
2.5
5
Km
N
E
S
W
Sl. no
Particulars
Area_Ha
%
1 Forest Area 429.5 0.92
2 Mangroves 991.0 2.12
3 Water Bodies 3092.1 6.61
4 Open mixed forest/Cashew Plantation 21017.0 44.91
5 Flooded Vegetation 1328.0 2.84
6 Agricultural Land 2917.5 6.23
7 Settlements 7210.2 15.41
8 Scrub Land 9811.9 20.97
Total Area 46797 100.00
BICHOLIM I BICHOLIM MINERAL BLOCK
Vedanta Limited
BICHOLIM,LAMGAO,BORDEM,MAYEM,JAMGAO & SARGAO
DISTRICT: NORTH GOA, STATE: GOA
TITLE Land Use Land Cover
SCALE 1:100,000
Plate No.-18

1242

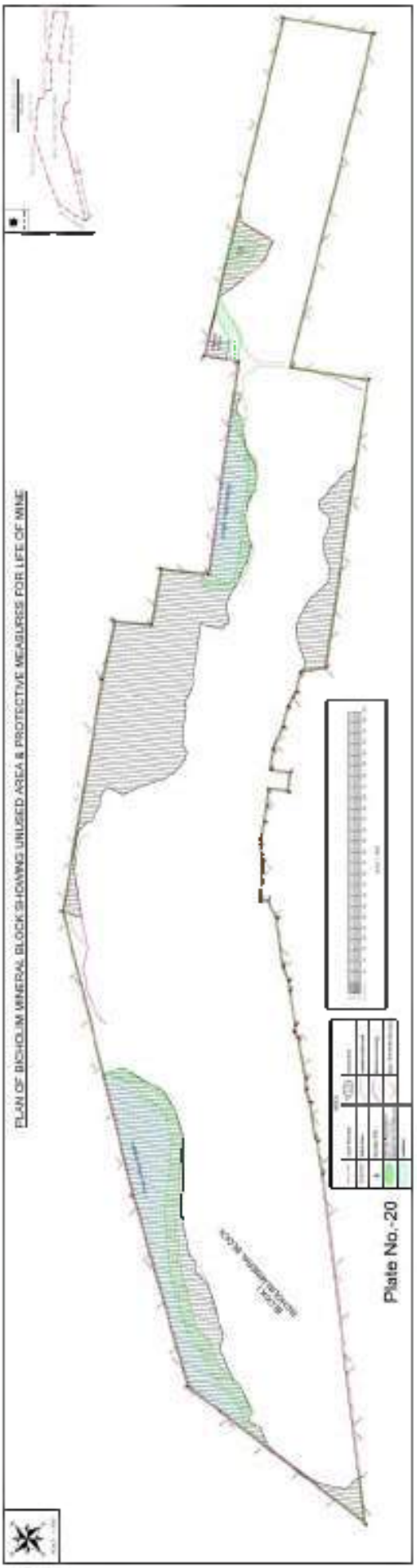

PLAN OF BICHOLIM MINERAL BLOCK SHOWING UNUSED AREA & PROTECTIVE MEASURES FOR LIFE OF MINE
Plate No.-20

Plate No.21

BENCHMARK: GCP68

BENCHMARK DETAILS					
Point Id	Easting [m]	Northing [m]	Height [m] above MSL	WGS84 Latitude [°]	WGS84 Longitude [°]
GCP68	387469.58	1722491.57	16.384	15° 34' 39.43" N	73° 57' 01.65" E

vedanta
transforming elements

sesa goa iron ore

ANNEXURE-R4-4

Letter No. VL/MIN/Block I/23-24/006 Date: 28/08/2023

To,
Member Secretary,
Goa State Pollution Control Board
Near Pilerne Industrial Estate, Opp Saligao Seminary,
Saligao - Goa - 403511

Subject: Regarding clarification against the Environmental Public Hearing held on 11/08/2023

Madam,
Please find attached herewith the point wise clarification w.r.t the points raised by the speakers. We have also included the responses w.r.t some of the letters which were shared by your good office.

We request you to kindly forward our responses to MoEF &CC and share the copy with us for further necessary online submissions to MoEF &CC from our end .

Thanking you,

Yours faithfully
For Vedanta Limited

Jagdish Desai
Head Environment- Sesa Goa
Authorized Signatory

Clarification against the Environmental Public Hearing held on 11th August 2023, w.r.t. Block-I, Bicholim Mineral Block

Sr No	NAME & COMMENTS	RESPONSE	BUDGET
1	**Deepak Popkar**	Various air pollution control activities will be undertaken during the mining operations, details are provided in chapter 10. A sufficient buffer of 50m will be maintained from habitation, Drilling and blasting activities are not proposed and hence there are no chances of damage to houses etc. All the necessary erosion control, monsoon preparedness activities will be carried out to prevent flow of silt outside the mining area. The details of the same are mentioned in chapter 10 of EIA document. The Baseline monitoring is carried out during March to May 2023 by NABET accredited consultants.	
	He is the resident of Bicholim.		
	He stated that he stands here on behalf of resident of Bicholim.		
	He stated that dust can cause pollution in villages which affects children and old people, which causes cold and other diseases.		The budget towards Environment Monitoring and Air pollution control measures: 408 Lakhs
	He stated that fields, houses get destroyed. Because of this EC should not be granted, He stated that he had filed RTI in Municipality.		The budget towards erosion control measures, monsoon preparedness on mines and water treatment: 232 Lakhs
	The agencies were hired to conduct monitoring. The agency if approved then the report is correct or else it is faulty		
2	**Siddesh Parab, Bicholim**	Thank you for the support.	
	He is the resident of Bicholim.		

Sensitivity: Internal (C3)

	He stated that the mine was closed and now reopening.		
	He stated that all the truck owners etc. are thankful that the mine is reopening as they depend on it.		
3	**Nilesh Dhabolkar, R/o of Mayem**	There is habitation within the mineral block at Mulgao and Lamgao villages, the same is mentioned in the EIA document. A buffer of minimum 50m. would be maintained form the habitation. The allegations made regarding fabrication of EIA are false and baseless. Details of water bodies are provided in EIA report. The habitations, water bodies, places of worship near the mines will not be affected. The EIA document is prepared by Mineral Engineering Services (accredited by QCI-NABET) and based on the Terms of reference issued by MOEF&CC	
	He strongly objects to the operation of the mine, No EC to be granted to the mine.		
	He stated that he stays 1 km away from the mining lease area.		
	He stated that the houses in the villages are one and half kilometre away from the mine, water bodies are located within the lease area, however it is not shown in the EIA report. EIA report is false and fabricated.		
	He stated that the earlier mining activities have impacted our full village.		
4	**Bhimakar H. Pal, r/o Bordem, Bicholim**	The speaker has made generalised statement which cannot be ascertained. He has requested the government authorities for inspection. Agriculture development is one of the key aspect of companies CSR. The company will engage with the farmers and with help of state agriculture dept will help the interested farmers to cultivate their fields. A minimum buffer of 50 m. would be maintained towards all the habitations which are located inside the mineral block. Budget will be provided as part of CER towards agriculture development in the surrounding areas.	
	He stated that he is from Bordem. He is a farmer.		
	His parents were also farmers. He stated the land which is inherited from ancestors is destroyed. Governments Subsidies and funds are provided for farmers. Bordem village is a land of farmers.		
	He requested to conduct a joint survey to see how the land is destroyed.		The budget towards erosion control

Sensitivity: Internal (C3)

	Tractors cannot be used in the fields as the fields are filled with water.		measures, monsoon preparedness on mines and water treatment: 232 Lakhs
	He stated that he does not get to see the farmers and cannot see the fields.		
	He stated that there is a Devasthan but it is also submerged in water.		
	He requested the officials to visit the site and see the problems faced by the villagers of Bordem.		
	He stated that as he can see the photo of his father, but he cannot see him in the same way, he can see his fields in Form I and XIV and not his land.		
	He stated that he cannot do any agricultural activity because of mining.		
5	**Naresh Naik**	A 50m buffer will be maintained from the habitation. The land use of study area is provided in Chapter 3 of EIA. All the necessary environment protective measures would be adopted to safeguard the water bodies from surrounding villages. The speaker (Nagesh Naik) was employee of erst while mine owner i.e., Sesa Mining Corporation limited (SMCL) and was retrenched by SMCL company. The project proponent has provided opportunity to join the work force for all such retrenched employees and many of the employees took benefit of the opportunity and joined the company. State government has auctioned the mine as fresh mineral block and Vedanta ltd is selected as preferred bidder. Total 716 no of employment opportunities would be generated and preference will be given to locals.	The budget towards erosion control measures, monsoon preparedness on mines and water treatment: 232 Lakhs
	He is a resident of Kelbaiwada Mayem.		
	He stated that in ward no.1 and ward no.2 that there are several lakes, Kulagars, springs, water bodies, ponds which are not mentioned in the EIA Report.		
	There are many ponds in the village which are destroyed due to mining, He stated that he was an employee of Sesa and Vedanta and he has proof of it, but he has been retrenched.		
	He sought to know how the company retrenched him when it is still in operation.		

Sensitivity: Internal (C3)

6	**Prashant Dhargalkar** He states that he is supporting mining. He states that Divkar village is totally dependent on the mining company, our all fate is dependent on mining. He states that because we don't have any other source of income. He states that if I am unemployed, how will I take care of my children, their studies and their needs, etc. He further state that Sesa Company has promised many things, it is we people should be united and get it done	Thank you for the support.	
7	**Pritibha Dhargalkar** She states that she lives in Bicholim. She states that since 2012 mining is shut/ closed. Many people suffered, due to unemployment and shortage of money, etc. She states that since we don't have income, we cannot put our children for higher studies. So, I am totally supporting the mining wants mining activities to resume as soon as possible and youngsters should get employment	Thank you for the support.	
8	**Shrikant Dhargalkar**	Thank you for the support.	

Sensitivity: Internal (C3)

	He states that He is resident of Lamgao, Bicholim.		
	He requested to start the Bicholim block.		
	So, he is totally supporting the mining		
9	**Sanjay Parab**	Thank you for the support., Preference will be given to locals for employment	
	He stated that he fully supports the mining activities. He requests the mining company to provide employment to all the nearby villagers.		
10	**Shailesh Navelkar**	Thank you for the support.	
	He stated that he fully supports the mining activities as all the people in the villages will get employment.		
11	**Sanjay Mandrekar , R/o Lamgaon**	Thank you for the support.	
	He stated that he supports the mining activities.		
	He stated that he is stays right next to the mine lease area and that there are no bad effects of the mine to the water bodies or residential houses.		
	He stated that if the mines start there will be a lot of employment opportunities in the villages as trucks drivers, canteen facilities etc will get employment.		
	He stated that around 1000 people are dependent on mining activities.		
	He requests to start the mine and give employment to all.		
12	**Kustulo Pal**		

Sensitivity: Internal (C3)

	He states that he strongly objects to the operations of the mine.	The company will have detailed environmental management plan in place. and will take all the necessary measures to prevent flow of silt outside the mine. The details of EMP are provided in Chapter 10. Company as part of its CSR activities conducts lot of agriculture development programme in association with Agriculture department and any farmer who is interested in cultivating his filed will be provided support by the company. Budget for the same will be provided in CER. We would also like to highlight that the person is a retrenched worker by earlier mine owner.	
	He stated that from 2003 a lot of mud has come into his field and destroyed the field		The budget towards erosion control measures, monsoon preparedness on mines and water treatment: 232 Lakhs
13	**Kamlesh Teli Ex Councillor Bicholim**	Thank you for the support.	
	He states that he strongly supports the operations of the mine.		
	He stated that employment opportunities will be generated, and the truck owners will be benefited		
14	**Anand Naik**	Thank you for the support., Preference will be given to locals for employment. A buffer of 50m will be maintained from habitations. Necessary environment protective measures will be adopted during mining operations.	Budget towards environment management plan: 693 lakhs
	He stated that he is happy for the commencement of mining.		
	He has requested that mining should be started.		
	He states that if mining has to start some criteria has to be followed. In Karnataka the mines are 25 to 30 km away from the residential area.		
	Mining has to start as it provides employment opportunities		
	He states that he strongly supports to the operations of the **mine.**		

Sensitivity: Internal (C3)

	He stated that he was working in the mine and is unemployed now. Hence mining has to start.		
	But he states if the mining starts no temple, no water bodies, no villages should be destroyed.		
	· He stated that that not only the other people but the people living in the area near the mining lease have to be given employment.		
	· He requests the company that if the employers were taken out of the company, they should hold talks with the ex-workers and come to a solution and take them back in the company as employees.		
	· He stated that the company has to start 100% but nothing should be destroyed or affected by the mining operation.		
15	**Sandeep Gaokar- not present**		
16	**Shailesh Gaonkar**	Thank you for the support.	
	· He is a resident of Bicholim.		
	· He stated that there is a mine around his house.		
	· He sought to know whether pollution is caused due to mining industry only?		

Sensitivity: Internal (C3)

	· He stated that that mining company has been taking all the precautions to curb pollution.		
	· He sought to know whether any survey is conducted to know how many people are dependent on mining.		
	· He stated that mining is required in Goa. He supports the project.		
17	**Milind Bharve**	Thank you for the support.	
	· He supports the project.		
	· He requested to grant the EC as soon as possible.		
	· For the last 10-12 years the people dependent on mining are waiting for it to be started.		
	· He stated that if there are any small issues, they can be sought it up.		
	· People can sit together and support mining and solve the problem.		
	· He stated that the State of Goa should be sustainable where ore is available within the State than why it should be imported.		
	· He stated that there will be social benefits due to the mining.		
	· He stated that the EC should be granted to the project proponent.		
18	**Sadashiv Falkar**	Thank you for the support.	
	· He is a resident of Pilgao.		
	· He supports the project.		

Sensitivity: Internal (C3)

	· He requested to grant EC to the project.		
19	**Franco Sequeira**	Thank you for the support.	
	· He requested for sustainable mining by proper discussion as it will provide employment to the youth. He supported the project.		
20	**Sudan Govekar, r/o Lamgaon, councillor**	Thank you for the support, 50m buffer would be maintained from habitation.	Budget towards environment management plan : 693 lakhs
	· He states that he strongly supports the operations of the mine activities as soon as possible.		
	· He states that there are 200 truck owners, garage, shop which were depending on mining operation which have been stopped now. However, he requests to save the temples, village boundaries and water bodies and start the operation.		
	· He thanks the CM for taking a led in the start of mine		
21	**Shailendra Natekar**	Thank you for the support.	
	· He is a resident of Bicholim.		
	· He supports the project.		
	· He requested to grant EC to the project.		
	· He stated that the workers, villagers and the Government should come together and solve the issues.		
22	**Dinesh Divekar**	Thank you for the support.	
	· Mining should start as soon as possible		
	· Mining is shut for 10 years		

Sensitivity: Internal (C3)

	· Favour of mining as thousand lost their jobs · Mining is backbone of small state like Goa · It is required for development		
23	**Manuel Fernandes Bicholim** · He states that he and his family are fully dependent on the mine, and he supports the operations of the mine activities.	Thank you for the support.	
24	**Pradeep Revodkar Mulgao** · He states that He strongly objects to the operation of the mine. · He states that last 50 years he has seen the people cultivating the fields the Mining operations have destroyed the fields, temples, houses and the water bodies and other plantations in the nearby villages. · He strongly opposes the grant of EC. · He states that this is dictatorship and not democracy.	All the Necessary environment protective measures will be adopted during mining operations as detailed in Chapter 10. A buffer of minimum 50m will be maintained from the habitation and the fields, houses, temples, water bodies within the habitation will be protected.	The budget for environment management plan is 693 lakhs
25	**Kashinath Shivram Parab** · He is a resident of Barazan Wado Bicholim. · He stated that his house is located near the mining pit. · He stated that cracks are developed for his house. · His stated that his company was informed about this for the past 12 years.	There is no drilling and blasting involved in the project. Also, a buffer of 50m would be maintained from the habitation. A proper stake holder engagement and grievance redressal mechanism would be followed in case of any stake holders facing issues due to mining. It is understood that the speaker is in discussion with the erst while company (SMCL)for compensation and till then the monthly house rent is paid by the earlier mining company to him.	

Sensitivity: Internal (C3)

	· He stated that he is going to the company to get compensation.		
	· He stated that the company asked him to submit the Form I & XIV. He stated that he has spent Rs. 50,000/ towards his mutation.		
	· He stated that the slab of his house is leaking.		
	· He requested to company to give a plot whether the company stated that they have taken the loan on that plot, but we will give you compensation however till date no compensation is paid, i have been given the flat in rental bases. I have remained the company to give the payment.		
	· He requested the company to give him tarpaulin, but the company did not give him tarpaulin. He stated that the company gives lots, but they don't get anything.		
	· He requested the Collector, GSPCB to solve the problems of other workers.		
	· He stated that he wants the company to restart only after these problems are resolved.		
	· He stated that his application may be considered.		

Sensitivity: Internal (C3)

	· He had asked for the plot however the company stated that they have taken loan in that plot. Hence the company can't give the plot, but the company stated that they will give compensation even after 13 months no compensation is paid.		
	· He stated that he had asked for simple tarpaulin, but the company didn't give the same.		
	· He stated that the company gave him a rental flat and every time he had to remind the company to pay his rent.		
26	**Nikhil Jan Naik**		
	· Mining will affect natural water bodies/ springs /lakes	Necessary environment protective measures will be implemented to safeguard the surrounding areas. A buffer zone of 50 m will be maintained along the habitation. The EIA also addresses the measures taken w.r.t Assnora river. The EIA also comprises of detailed hydrogeology report based on CGWA guidelines which concludes that there won't be any adverse impact of mining on surrounding ground water regime. The water bodies/springs /lakes in surrounding areas will not be affected.	The budget towards erosion control measures, monsoon preparedness on mines and water treatment: 232 Lakhs

Sensitivity: Internal (C3)

	· Will invite disease-cardiovascular/health issues	Proper dust control measures will be implemented during the operations of mine. The employees will be provided with necessary PPE's. The details of various air pollution control measures are provided in chapter 10 of EIA. Company will provide budget for health-related facilities in surrounding villages as part of CER. It will maintain medical records of all the people visiting the facility. health camps also will be conducted in the villages.	The budget towards Environment Monitoring, Air pollution control measures and PPE's: 423 Lakhs
	· Farms are destroyed by silting	The speaker is making generalised statement. The impacts associated with mining are discussed in Chapter 4. All the necessary safeguards will be followed while carrying out the mining operations.	The budget towards erosion control measures, monsoon preparedness on mines and water treatment: 232 Lakhs
	· Trees which require 10 to 15 years to grow shall be destroyed in 5 mins		
	· Possible chances of landslide		
	· No geographical study is done by the authorities	Details of land use of the study area is provided in Chapter 3 of EIA.	
	· Buddhist caves, etc like worship places shall be affected.	The places of worship like Buddhist caves in Lamgao and other temples within the habitation won't be affected due to mining operations.	
27	**Premnath Hoble**	Preference will be provided to locals w.r.t employment, around 716 no of direct employment opportunities will be available. Habitation/ places of worships etc inside and outside the mineral block will be protected a buffer of 50m will be maintained towards the same. Noise levels will be maintained within the norm's details of Noise level management and control are provided in Chapter 10. Impact on wildlife and measures proposed to prevent any negative impact on wild animals are discussed in EIA. The speaker is referring to retrenchment of the workers executed by earlier mine owner i.e., SMCL. Vedanta Ltd has not retrenched any	
	· He is a resident of Bicholim.		
	· He stated that there are around 1500-2000 locals.		
	· Around 40-50 workers are employed out of which some are locals, and some are outsiders.		
	· He stated that he wanted the security of his village and not mining.		
	· He stated that there are Buddhist caves in Bicholim.		

Sensitivity: Internal (C3)

	· He stated that the village should be protected.	employee moreover all the retrenched employees were provided opportunity to join the company's work force.	
	· Villagers were not taken into consideration.		
	· Lamgaon is the lease. Plan has to be there.		
	· Lamgao village can be developed through tourisms and through mines.		
	· He stated that who has God faith face problem here.		
	· He stated that if you operate after 10 the animals will come to the village and eat the dogs. There is money but it brings tension.		
	· The area is histories, should we destroy it? We should make it tourist and no mining.		
	· He further stated that his brother is working now he is removed.		
	Village is destroyed.		
28	**Ganesh Govekar – Not present**		
29	**Vasant Gad**	All the procedure stipulated in the EIA notification is followed. EIA as well as executive summary (Konkani and English) of the EIA was submitted to all the surrounding village panchayats. The habitation within the mineral block at Mulgao and Lamgao will be protected and a buffer of 50m will be maintained towards habitation. Various environment protective measures will be carried out during the mining	The budget for environment management plan is 693 lakhs
	· He is the resident of Mulgao.		
	· He stated that people are affected and facing problems.		
	· There is limit of their patience.		
	· He stated that Government should consider everything before given EC.		

Sensitivity: Internal (C3)

	· When Mulgao Village Panchayat received EIA report in Panchayat, it was kept on table. Sarpanch, Panch did not know anything. · If public did not know about it and then how they will place their grievances. 223 houses, 13 temple, Panchayat building, 2 schools, lakes, ponds in Mulgao are not shown in EIA · Our village will be destroyed. · We have written to GSPCB. 30% of area of Mulgao is coming within lease. In my tenure 3 times mining collapsed and Sesa has not given mining support. People were injured. · Surface right is not given. The mine should be restored back to original. No water in Kulaghar. · If still it goes again in the same way, I am sure the villagers are not supporting mining. · Workers are not taken for jobs. All the workers are from Dempo Mining Corporation. · Supreme Court Petition was filed; workers went door to door support. · If Mulgao Villagers problems are not solved, remove from lease. If we are not satisfied no EC to be granted.	operations to prevent any negative impact on the habitation, the details of the measures are provided in Chapter 10 of EIA. The water bodies referred by speaker within the mineral block in Mulgao are settling ponds which were constructed by the erst while mining company and was regularly maintained by them. The same will be maintained in future also. The land use details of surrounding villages are provided in Chapter 3. The earlier mine owner i.e. SMCL retrenched the workers, however the project proponent provided opportunity to all the retrenched workers to join the company's work force and many of the retrenched workers who wanted jobs took opportunity of the offer. Locals will be given first preference for employment.	

Sensitivity: Internal (C3)

30	**Pandurang Parab** · Requested GPSCB to restore the earlier damage area by the Sesa Goa and then only grant the EC.	The allegations on Sesa Goa are false. The project proponent Vedanta Ltd will ensure all the necessary environment protective measures during mining operations. Details are provided in Chapter 10 of EIA and Budget for the EMP is also provided.	The budget for environment management plan is 693 lakhs
31	**Bhau Gad – Not present**		
32	**Gajanan Gaonkar –** · He states that he is a resident of Lamgao. · Mining has affected fields/forests · Dust pollution is caused. · Unwanted trees are planted · Springs are destroyed · Fields in the area are affected and no royalty given. They come as and when they want. · Rs. 250 to Rs. 300 is given as compensation which is insufficient · Survey should be made of springs/ lakes. · By sitting in ACs cabins won't give the exact picture. · Ignorant about fields and livelihood · For 5 years Sesa never turned up, 6th year came and said adopting the village · No company is ready to give in writing about the give and take terms	The impacts associated with mining operations are discussed in Chapter 4. Necessary environment protective measures will be carried out during mining operations to prevent air, water, noise pollution. Budget for the EMP is provided in the EIA. Only native plant species (mix of horticulture and forest species (It will be used for plantation in consultation with state forest and agriculture department. Water bodies in the surrounding villages will be protected. The speaker has made general comments. During the course of mining operations, in case of complaints regarding silting of fields, damage to crop due to company operations, the company will take support of state agriculture department or qualified agriculture valuer to determine the damages caused and compensation will be paid accordingly. The company will also scientifically desilt or reclaim the area scientifically.	The budget for environment management plan is 693 lakhs

Sensitivity: Internal (C3)

	· All said verbally and hence goes unfulfilled		
	· Children of the employees go unemployed after their end in service		
33	**Prashant Shirodkar**	Thank you for the support.	
	· He is a resident of Mayem.		
	· He supports the project.		
	· He stated that the mine has been operating for the past 50 years.		
	· He stated that the workers are 40-50 years old.		
	· He stated that decision should be taken considering both sides.		
	· He stated that the workers are jobless.		
	· Further he stated that nobody will support when you are in need.		
	· That the company has given 50% during the past 12 years.		
	· Whereas other companies have taken out people from their jobs.		
34	**Ramkrishna Kundaikar – Mulgao**	As part of CSR activities, company carry out agriculture development programmes within its buffer zone. Budget for the same will be provided in CER.	
	· He states that he used to sell brown rice but now because of the mine there is a loss of revenue.		The budget towards erosion control measures, monsoon preparedness on mines and water treatment : 232 Lakhs

Sensitivity: Internal (C3)

	· He states that the walls have been collapsed but they have not done anything about it nor have they repaired the same and given.		
	· He states that their ancestors used to live on farming and plantation as there was revenue generated from the same.		
35	**Satyavan Chodankar**	As part of CSR activities, company carry out agriculture development programmes within its buffer zone. The company will engage with the villagers and verify the issue w.r.t retaining wall. In case the request is genuine, the repair work will be executed. It is also understood that the earlier mine owner had desilted the entire affected area in Mulgao in the past however the farmers didn't show any interest in cultivating the same.	
	· He states that he is a resident of Mulgao village.		
	· He states that his 20000sq m area was under cultivation and due to mining he is not able to cultivate the same.		
	· He is having a farmhouse in Sy. no. 70/1, his retaining was near his house has collapsed 16 yrs ago 2 times which hasn't been repaired till date.		
	· The company is a liar as they had said they would build a wall of concrete, but nothing has been done till date.		
	· The farmhouse area is 4000sq m in which betel nut plantation and coconut plantation and pepper corn plantation has been destroyed.		The budget towards erosion control measures, monsoon preparedness on mines and water treatment: 232 Lakhs
	· 156 m compound wall has been collapsed.		
	· The trenches are not repaired.		
	· 17000sqm paddy field has been destroyed.		

Sensitivity: Internal (C3)

	· Once upon a time he was selling rice for Rs.10 per kg and now the same rice he has to buy Rs.70 per kg. · His house is in the lease area. · When the mine collapsed in 2016, 565 pepper plantations were destroyed. · The company didn't compensate for the same. · He fully opposes for the same.		
36	**Prakash Popkar** · Resident of Lamgaon. Entire village is destroyed. · First do survey and then give lease · I am not opposing mining but because of mining everything will be destroyed · Big machines are being bought by Vedanta · Our village is a agricultural Village · 90% of the Village is farming · First do desilting of farms so that we can cultivate the farm. · Lakes are destroyed, name of lake is also removed by the company · 1984 first revolt was done, and I was sent to jail · I request you to do survey first and then give lease	The speaker is asking government to survey the habitation and then issue lease. It is to note that the mine was in operation since several decades and state government has auctioned the same lease area as a fresh mineral block. The area of the mine remains the same and the habitation at Lamgao and Mulgao was always part of the mines. Necessary environment protective measures will be carried out during mining operations. a safety buffer of 50m would be maintained towards the habitation. A budget for agriculture development is provided as part of CER, any farmer group who is interested in cultivation can contact the company for the same.	The budget for environment management plan is 693 lakhs

Sensitivity: Internal (C3)

37	**Vithal Parab – Not present**		
38	**Gajanand Mandrekar** · He is the Deputy Sarpanch of Mulgao. · He stated that when the company was operated by Dempo, villagers had no issue, Vedanta has created lot of issues. · He opposes mining activity by the company.	The speaker has not raised any specific issues and falsely alleged that Vedanta has created issues. Company will engage with the local communities as part of its stakeholder management and grievance redressal mechanism.	
39	**Madhukar Halarnkar** · He Strongly opposes the mine operations. · He states that all the points have been discussed. · He thinks that the company has done a One man show as they have submitted an EIA report without taking the villagers, local people and the farmers and the other committee members into account and have done the demarcation. · He states that the company is a liar as they promised that they will come for discussion in front of a joint meeting with the people of the area, however they didn't turn up for the said meeting of the said day.	The EIA document is prepared by Mineral Engineering Services (accredited by QCI-NABET) and based on the Terms of reference issued by MOEF&CC. The officials of company had a meeting with the Village Panchayat members who are elected representatives of the community. Regarding the joint meeting, company had communicated to the concerned in advance their inability to attend the said meeting.	
40	**Gopal Parab** · He Strongly opposes the mine operations and requests not to grant EC clearance to the mine.	Necessary environment protective measures will be carried out during mining operations. Water bodies in the surrounding villages will be protected. Preference will be given to locals w.r.t employment. The EIA also comprises of	

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	· He states that the mining has destroyed the fields and the plantation and the water bodies and the villages in the area.	detailed hydrogeology report based on CGWA guidelines which concludes that there will not be any adverse impact of mining on surrounding ground water regime. Company will provide support to farmers in case they are interested cultivate their fields. Pit water will be pumped and channelised to the horticulture gardens in Mulgao village.	The budget towards erosion control measures, monsoon preparedness on mines and water treatment: 232 Lakhs
	· He states that there is o employment, no land left for cultivation after the mine came into existence.		
	· First there were big fields but now there is no water for the fields and the water table is destroyed completely.		
	· When the mines collapsed the bodies were washed into his fields.		
	· He states that that the company is a liar, and he says everything is done systematically but nothing is done at all.		
41	**Devidas Govenkar – Not present**		
42	**Ganpat Parab**	Thank you for the support.	
	· He supports the mining project.		
43	**Shaikh Nisar**	Preference will be given to locals w.r.t employment. Said Idgah is within lease area and 200m buffer zone will be maintained. The Idgah is maintained by archaeological department. A thick green belt is proposed as a buffer between the mine pit and Idgah.	
	· One issue pertains to workers of the company.		
	· Company had 10-12 years to ensure that the fields in Mulgao Village are cultivated.		
	· He stated that Muslim community in Bicholim i.e. young generation are not given job opportunities by the company.		
	· Idgah at Gaunkarwada has not been supported by the company.		

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	· Company should help poor people of the area.		
	· No financial support is given to the Muslim Wada.		
44	**Nilesh Gosavi**	Thank you for the support.	
	· He states that he strongly supports the operations of the mine activities as soon as possible as he states that the mine has generated a lot of employment.		
45	**Swayam Kamat**	It is understood that Mayem farmers had approached court and as per court directions the earlier mining companies have paid compensation to the farmers. There is no negative impact on agriculture envisaged in Mayem w.r.t the current project.	
	· He is a resident of Mayem		
	· Farmers presented their grievances		
	· 12 000 sq. meters field is owned by him, inherited from his father, but now he cannot ask his sons to step down into the fields as they are thickly layered with mud soil.		
	· 600 farmers are registered, and he is representing them, and they are affected by this mining.		
	· He said for consultation purpose we are charged by the government, and we have to pay consultation fee.		
	· He says matter is pending in court and on the other hand this project is considered.		
	· Mayem people are fond of Parboiled rice (Uokde Rice) but in the circumstances		

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	it seems to be not possible for getting the seeds		
	· Green Field Project is only in pictures, but colour is brown.		
	· If we want to eat Parboiled rice (Uokde Rice), we should give strength to farmers.		
	· He asked to make the farmers strong and then to look into the project.		
46	**Tushar Falari**	Thank you for the support.	
	· He states that he strongly supports the operations of the mine activities and requests to start it as soon as possible as he states that the mine has generated a lot of employment.		
	· He states it will provide employment to the truck owners.		
	· There are skilled youth which are waiting for the mines to start as they are unemployed and need employment in the field of mining related area.		
	· When the mining stopped all the students who studied mining related work had to go out of the state inspite of being qualified.		
	· He requests for starting of the mine.		
47	**Krishna Gadekar**	Necessary environment protective measures will be carried out during mining operations to prevent flow of silt outside the mine area. The EIA also comprises of detailed	The budget towards erosion control measures, monsoon
	· He is the President of All India Kissan Sabha Mayem.		

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	· He stated that a large number of people from Mayem depend on agriculture.	hydrogeology report which concludes that there won't be any significant impact on ground water in surrounding areas because of the project. As understood, the 600 farmers were paid compensation by the earlier mine owners as per the court order. There is no population to be displaced because of mine hence the rehabilitation plan is not applicable.	preparedness on mines and water treatment: 232 Lakhs
	· He stated that there are four major water bodies in Mayem. All four water bodies are filled with silt on account of mining activities by the company.		
	· He stated that water shortages for agriculture is caused due to this.		
	· ZAO report is submitted that fields in Mayem are damaged due to mining silt.		
	· Company has dragged more than 600 farmers to the Court.		
	· The effect of granting a 50 year lease to the company on local farmers is not being considered by the Authority.		
	· He stated that the Company does not have a rehabilitation plan.		
	· Further, he stated that continuous mining operation will cause huge water shortages.		
	· He strongly opposes grant of EC to the company.		
48	**Chandrashekar Palni**	Thank you for the support. Company will engage with the local communities as part of its stakeholder management and grievance redressal mechanism.	
	· I am supporting the Block 1 project and he further stated that mines should start as fast as possible.		
	· The Trucks should be restarted and given back work.		

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	· The Difficulties of every household should be solved.		
49	**Rutvik Sanjay Mandrekar**	Thank you for the support.	
	He stated that the mining has stopped in 2012.		
	He stated that 2.5% mining operational in Goa.		
	He stated that royalty loss to the Government.		
	He stated that he supports the mining.		
	He stated that the lease owner/ mining truck owner/ worker are given jobs through mining,		
	The truck owners are supported by the mining company.		
	The truck owners have not given any compensation during tenure of 2012 till date.		
	He stated that there are profit and losses in the business and start mining in sustainable manner.		
50	**Narayan Kharade**		
	EIA report seems to be more of Advertisement /Publication.	The EIA document is prepared by Mineral Engineering Services (accredited by QCI-NABET) and based on the Terms of reference issued by MOEF&CC	
	It was informed consent / objective is defied in a EIA, However it is misinformed that Consent has been provided.		
	He refused to call EIA it is more like Advertisement.		

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	He referred to Office Memorandum MOEF of dated 29th October 2014 , which is related to Impact of Mining Activity on Habitations- Issues related to mining project wherein Habitations and Villages are the part of mine lease areas or Habitations and Villages are surrounded by the mine lease area- Regarding, he further requested authorities for the same.	Necessary environment protective measures will be carried out during mining operations as given in EMP of EIA to prevent air, water, noise pollution. Minimum buffer of 50 meters will be maintained from Habitation. No drilling and Blasting will be carried out as stated in EIA	The budget towards Environment Monitoring / Air pollution control measures : 408 Lakhs The budget towards erosion control measures, monsoon preparedness on mines and water treatment : 232 Lakhs
	He found that this Green Field Project is just smeared with new face.	The mine is a fresh grant through auction regime by state govt for which LOI is issued to Vedanta Ltd. As per the MoEF&CC minutes of meeting, in case of LOI grant it is termed as green field.	
	If the company does not have re- habitation and resettlement plan than project proponent does not have right to present before public.	There is no population to be displaced because of mine hence the rehabilitation plan is not applicable.	
	He blamed new media for making false propagating.		
	The productivity of agriculture is affected as certified by agriculture admits compensation has to be given then it moves to collector but in the end nothing happen.		
	he pointed out the company as videshi (foreign) it not a swadeshi, the Sesa head office is located in London so we cannot call them as swadeshi company.	These are false statements, Vedanta ltd is an Indian company.	

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	As CSR activities by companies including the Mining Establishments has become mandatory up to 20% of their financial turn- over, Socio Economic Development of the neighbourhood . Habitats could also be planned and executed by the PPs more systematically based on the Need based door to door survey by established Social Institutes / workers on the lines as required under TOR. " R& R Plan / compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/ National Rehabilitation & Resettlement Policy should be kept in view.	Socio economic studies have been carried out within scope of TOR. Annual CSR spend of Vedanta Limited is more than 2% (mandatory requirement as per CSR rule) in the previous financial years. There is no displacement involved due to mining therefore the rehabilitation plan is not applicable.	
	2500 Zambia workers represented in UK Court, which judged it as illegal.	Not related to the project	
	He further submitted that he will submit the written submission.		
51	**Sanjay Gaonkar – Not present**		
52	**Rajesh Vaigankar**	Thank you for the support.	
	Mining should be started as fast as possible		
53	**Pandu Kundaikar – Not present**		
54	**Sandesh Palni – Not present**		
55	**Uday Saraf**	Thank you for the support.	
	He states that he strongly supports the operations of the mine activities and requests to start it as soon as possible as he		

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	states that the mine has generated a lot of employment.		
56	**Sitaram Walawalkar**	Thank you for the support.	
	· I am in support of giving EC to this project since we had participated in lot of morcha strike etc to start of this mining in past, so I am confident people will support and Ec will be granted to this project		
57	**Udesh Mandrekar**	Thank you for the support.	
	· He expressed grief about a child wanting to study further and states it is not possible as father is mining affected.		
	· The child in future falls in bad company due to mining bandh.		
58	**Nitesh Parab Gaonkar – Not present**		
59	**Sanjay Pawaskar**	Thank you for the support., Company will engage with the local communities as part of its CSR, stakeholder management and grievance redressal mechanism.	
	· He states that he strongly supports the operations of the mine activities and requests to start it as soon as possible as he states that the mine has generated a lot of employment.		
	He states it will provide employment to the truck owners .		
	· He states Discussion has to be held on the problems faced by the people.		
60	**Prajal Gaonkar – Not present**		
61	**Vishwas Thanekar**	Thank you for the support.	

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	· Many people are depended on mining because of this I am in support of this project.		
62	**Dinesh Naik** · He is a resident of Sankhalim · He starts that mining should be resumed.	Thank you for the support.	
63	**Ajay Anant Gaonkar He supports the mine.** He demands modernisation of education, give employment, legal agreements are required to be made between him and the company	Thank you for the support. Education is one of the important focus areas of development under company's CSR and required support would be provided to local schools for its upgradation. Preference will be given to locals in employment	
64	**Chandra Gaonkar** · I have fully support for the mining Block 1 Bicholim project. · He further requested to start project as earlier as possible.	Thank you for the support.	
65	**Ramchandra Popkar** · He is a resident of Lamgao. · He states that he is in favour of mining.	Thank you for the support.	
66	**Rajesh Parab – Not present**		
67	**Sandip Sinari – Not present**		
68	**Amit Naik** He is a resident of Sirsaim. He states that mining dependents for past 23 years. He is in support for mining. He states that he was paid by the Company during its non- operation.	Thank you for the support.	

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	He requested that mine should be kept in operation.		
69	**Milind T. Pal– Not present**		
70	**Santosh Devari**	Thank you for the support.	
	· He supports the mining project .		
	· He stated that sustainable mining should be carried out in everybody's interest.		
71	**Vaibhav Fadte**	Thank you for the support. Necessary environment protective measures will be carried out during mining operations. As part of its CSR approach and Stakeholders management, stakeholders will be regularly engaged, and grievance redressal mechanism will be followed to address local concerns if any.	
	· He states that he strongly supports the operations of the mine activities and requests to start it as soon as possible as he states that the mine has generated a lot of employment.		
	· He states that the problems faced by the people have to be solved and a sustainable mining has to be done.		
	· A lot of people depend on mining and had taken loans previously and when the mining stopped they faced a lot of problems hence he requests to start the mining operations .		
	· He states to protect the temples, houses and the fields of the villages and solve all the problems they face.		The budget towards erosion control measures, monsoon preparedness on mines and water treatment : 232 Lakhs
72	**Vithal Gawas**	Thank you for the support.	

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	· I am supporting Block 1 Bicholim · In 2012 mining was closed for past 10 years we are representing the Government to start Mining. · The efforts which we put to start the mining now got result. · Many people say that sustainable mining, he raised the question what is sustainable mining? I feel sustainable mining means all peoples grievances should company resolved by the company. · So I am fully support to the project.		
73	**Sandeep Sinari – Not present**		
74	**Umesh Kadam** - Honda · He states that he strongly supports the operations of the mine activities and requests to start the operation as soon as possible as it will provide employment for the people as the people faced a lot of problems when the mining activities were stopped.	Thank you for the support.	
75	**Lawrence Braganza** · I am fully support of mining activity at Block 1 Bicholim · Today we have got one step to start mining by way of Public Hearing. · But I am of opinion that company should look into people's grievances and resolve by the same.	Thank you for the support.	

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	· Many people is of opinion that Vedanta company is giving false assures but I am disagreeing with the same.		
	· All grievances should go to our company owner Mr.Amit Agrawal he will definitely help us, since during the covid time he supplied with oxygen, he supported education fields.		
76	**Babal Shetgaonkar**	Thank you for the support.	
	· He stated that he is in full support of the mine.		
77	**Kashinath Mayenkar**	Thank you for the support.	
	· From 2012 Mining was stopped , for 11 years everything was in dark		
	· I am the truck owner and we had seen very difficult time.		
	· So I fully support Block 1 Bicholim Project		
78	**Bala Khan Goni**	Thank you for the support. Preference will be given to locals in employment	
	He states that he strongly supports the operations of the mine activities and requests to start the operation as soon as possible as it will provide employment for the people.		
	He represents the Muslim wada and he request to provide employment opportunities to the people of the community as only one person is provided with employment for the time being.		

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	He request to construct a way which is the biggest problem faced by the community.		
	He states that he worked for Sesa and dempo but he states that when Sesa took over there was a huge turnover and the employees were benefitted by the same. however, when dempo was operating the mine no benefits were given to the employees.		
79	**Sanjay Naik**	Thank you for the support.	
	· Company has never had any of its employees.		
	· He is support of the mining company		
80	**Pramod Sawant**	Thank you for the support.	
	· He states that he strongly supports the operations of the mine activities.		
81	**Shivdas Gawade**	Thank you for the support.	
	I fullysupport Block 1 Bicholim Project, since there is lot of employment issue in the village & EC should be granted.		
	Many problems are faced by us due to closure of mining activities, like many graduate's engineer are unemployed and I feel they should get jobs.		
82	**Sameer Kurdikar**	Thank you for the support.	
	He stated that for the upliftment of village, restoration of employment and to get freed from debts.		
	He supports mining.		

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83	**Rajaram Gaonkar -** Representative Bicholim Municipal Council	Thank you for the support. Preference will be given to locals in employment as well as in truck business	
	He states that he strongly supports the operations of the mine activities.		
	He was a truck member and had taken a loan and faced problems regarding the repayment of the same due to the closure of the mines.		
	He requests the management to solve the worker problems and to provides business to the truck owners.		
	He states that he has some issues, but he has given a written representation regarding the same which may be considered.		
	He requests that a sustainable mining shall be done.		
84	**Sandesh Sinari – Not present**		
85	**Sameer Teli – Mayem Bicholim**	Thank you for the support.	
	He states that he strongly supports the operations of the mine activities.		
	He requests to start the operation as soon as possible as it will provide employment for the people as the people faced a lot of problems when the mining activities were stopped.		
	There are skilled youth which are waiting for the mines to start as they are		

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	unemployed and need employment in the field of mining related area.		
	When the mining stopped all the students who studied mining related work had to go out of the state in spite of being qualified.		
	He request for starting of the mine.		
86	**Subhash Kinalkar**	Thank you for the support.	
	I am representing Bicholim Truck Owner as an Association Secretary we have seen many people spoken their grievances but no one has spoken about us. That is effected truck owners who has suffered due to the closure activity of the mining.		
	No company has supported us or given any compensation during the closure of the mining activity, it is Manohar Bhai Parrikar who had brought Umbrella Scheme for effected truck owners, 138 cases running in the court against truck owners but no one has taken note of the same.		
	Many times our children ask to complete their wishes but we can not full fill the same because we are in huge loans. Therefore if mines starts we will be very grateful.		
	Now sustainable mining if Hon'ble Supreme Court wants to start why this peoples are opposing for the same .		

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	I asked GSPCB to have communication with the Government to relax tax levied on them.		
87	**Azad Kadkade** He is a resident of Bicholim He stated that he has seen mining from childhood. He stated that the development in the village is solely due to mining. He clarified that the person who claimed that company did not give place has also paid house rent for 10 long years.	Thank you for the support.	
88	**Samir Teli– Not present**		
89	**Premanand Gaonkar – Not present**		
90	**Vishwajit Chari – Not present**		
91	**Laximan Gaonkar – Not present**		
92	**Ladu Mardolkar – Not present**		
93	**Devanand Parab – Not present**		
94	**Paresh Ghadi – Not present**		
95	**Sujay Parrikar** He supports the mining operation but he states that the youth have done diploma in mine engineering hence he request to provide employment for the people.	Thank you for the support. Preference will be given to locals in employment	
96	**Siddhesh Naik – Not present**		
97	**Sudhir Kamat – Not present**		
98	**Vaman Gawas – Not present**		
99	**Riaz Anwar Baig – Not present**		

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100	**Kashinath Mhato – Not present**		
101	**Sanjay Sawant – Not present**		
102	**Tulsidas Chodankar**	Thank you for the support. Agriculture development is one of the important focus areas of CSR by the company. Based on the needs of the farmers will carry out necessary programmes for crop cultivation. Preference will be given to locals in employment	
	He is a resident of Mayem.		
	He stated that Mayem is a picturesque village. It has lots of orchards and farming activities during mining the farmers undergo lots of difficulties.		
	If ever compensation is sought it has to be only through strikes.		
	Most of the people are directly dependent on mining.		
	The residents should be given first preference with regards to employment.		
	Requisite compensation and other facilities are to be given on time.		
	Mining should be resumed but it should not bring disgrace to the village.		
	He supports mining.		
103	**Dilip Shet – Not present**		
104	**Vasudev Gaonkar – Not present**		
105	**Manohar S. Naik – Not present**		
106	**Rajan Naik – Not present**		
107	**Atmaram Tilve- Bicholim**	Thank you for the support.	
	He states that he strongly supports the operations of the mine activities and requests to start the operation as soon as possible as it will provide employment for		

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	the people as the people faced a lot of problems when the mining activities were stopped.		
108	**Mahesh Mhambre – Not present**		
109	**Surekha Suresh Navelkar**	The Block I Bicholim mineral block does not fall in Pilgao village. The company will engage with the farmers in the surrounding areas and support Agriculture development through CER and through government support.	
	She states that she is a resident of Pilgao.		
	She states that she has an agricultural land in the proposed mining area.		
	She further states that our agricultural land we want for the future, so she strongly opposes the project		
110	**Krupali Kashinath Parab r/o Barazan wada.**	There is no drilling and blasting involved in the project. Also, a buffer of 50m would be maintained from the habitation. A proper stake holder engagement and grievance redressal mechanism would be followed in case of any stake holders facing issues due to mining. It is understood that the speaker's family is in talks with the earlier mine owner to settle their claims till then the earlier mine owner is paying their monthly house rent.	
	She states that her house walls got cracks 12 years ago due to mining.		
	She states that she was promised a plot of 300 Sq meters and 120 Sq mtrs house.		
	She states that she was later promised by Mr. Patil and Mr. Joshi that she will be provided with alternate land.		
	She states that they showed her 2 plots at Borda. She states that there was an agreement done w.r.t that land.		
	She states that later Mr. Joseph Coelho came and said that the land is under the loan and we cannot allot the land.		
	So, Mr. Coelho showed another place at Dhab-Dhaba (waterfall).		

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	She states that they made false promises for 13 years.		
	She further states that she approached Municipality and met Shri. Santosh Mandrekar and told him her grievances.		
	She further states that she approached Honorable Shri. Chandrakant Shetye, the local MLA.		
	The MLA later called the company and asked them about the situation regarding land allotment.		
	She states that they informed the MLA that it will happen.		
	She further met Honorable Chief Minister and discussed about her grievances.		
	She sates that they had made all fake promises that they had sanctioned money but when went to ask, they just ignored us		
	Hence, I strongly oppose the project		
	In 2014 an agreement was done by Mahesh Patil and Upendra Joshi to give my husband Kashinath Parab 300 mts land and 120 mts house in it.		
	And also made and agreement of exchange of deed.		
111	**Neena B. Salelkar**	Thank you for expressing support for mining. All the necessary measures will be carried out to prevent dust pollution. The details of the same are mentioned in chapter	
	She States that she is depended on mining.		
	She wants a mining with proper measures.		

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	she states that her house is just near the plant and near the mining dump.	10 of EIA document. A 50m buffer will be maintained from the habitation. All the retrenched workers of earlier mining company were offered employment, and many of the workers took benefit of the offer and joined the work force of the project proponent.	The budget towards erosion control measures, monsoon preparedness on mines and water treatment: 232 Lakhs
	She states that we are losing our agricultural land due to mining activities.		
	She states that she is facing the dust every second.		The budget towards Environment Monitoring / Air pollution control measures: 408 Lakhs
	She states that there are many people employed and many are unemployed in our locality.		
	He states that one of them is her husband, who went on strike for starting of the mines activities.		
	The Government should give us justice		
112	**Mohini , Pilgao sarpanch**	The speaker is making false allegations on Vedanta ltd. The company operations will not damage the fields, temples and other areas within habitation. Pilgao village doesn't form part of Mineral block. A ll the retrenched workers of earlier mining company were offered employment, and many of the workers took benefit of the offer and joined the work force of the project proponent.	The budget towards erosion control measures, monsoon preparedness on mines and water treatment: 232 Lakhs
	She stated that the Vedanta company is a liar.		
	She stated because of the mining company there are disputes between workers and family members and I request to all to give us justice.		
	She stated the villages, fields the temples are destroyed in other areas and i don't want the same in my village hence I strongly object to the operation o f the operation of the mine.		

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113	**Sunaina Halarnkar – r/o Pilgao**	Necessary environment protective measures will be adopted during mining and transportation activities. The proposed measures are listed in chapter 10 of EIA.EIA document is prepared in line with TOR given by MOEF&CC	
	She Objects to the operation of the mine		
	She states that the environment is effected due to the operation of the mine		The budget towards Environment Monitoring / Air pollution control measures : 408 Lakhs
	There is dust problems , due to transportation and dumping of the Ore		
	She states that the water bodies are destroyed		The budget towards erosion control measures, monsoon preparedness on mines and water treatment : 232 Lakhs
	She states that a proper survey has to be done with village committee and the final report has to be shown to the village committee		
114	**Priya Dinesh Morajkar**	Thank you for the support.	
	She states that she fully supports the mining activities and requests to start the mines activities as soon as possible.		
115	**Manasi M. Khautankar – Not present**		
116	**Sushma S. Sutar**	Thank you for the support.	
	Resident of Dhabdaba.		
	She stated that she supports for mining.		
117	**Ashwita S. Mandrekar – Not present**		
118	**Anil Salelkar**	The person is referring Leopard as the Tiger. Chapter 3 of EIA mentions presence of schedule I species which includes	
	He states that he is from Pilgaom.		

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	He states that few days back that a Tiger entered the village eat dogs in the Mulgao Village as the Tigers don't have a place to stay in the forest area.	Leopard. A detailed wildlife management plan is also prepared and submitted to forest department. All the necessary measures will be carried out to prevent dust pollution as referred in EMP chapter 10 of EIA. The person is not part of monitoring team and the allegations made regarding incorrect monitoring are false and baseless. As part of company's Stakeholders management program, stakeholders will be regularly engaged, and grievance redressal mechanism will be followed to address any local concerns.	
	If this situation remains the same they will start eating the humans.		
	He further requested all to come at the unloading point and see the dust on the houses, almost all the houses are covered with dust, there is no need of painting the houses in that area.		The budget towards Environment Monitoring / Air pollution control measures : 408 Lakhs
	He states that when he was deployed to operate pollution control machine .		
	He asked his senior as why all machines are placed in particular direction, on which his senior replied stating that we should not get the black paper		
	We strongly oppose this project till our all grievances like agricultural land and worker issue, etc are not resolved.		
119	**Mukund S. Prabhugaonkar – Not present**		
120	**Sudesh Vaigankar – Not present**		
121	**Adv. Ajay Prabhugaonkar**		
	He opposes the Project.		
	The mining was operational since 1941.		
	He stated that the mining was started for production of 1.2 to 3.0 million tons.		

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	He stated that the loading, screening, dumping activities damage the fields / national habitat.	All the necessary measures will be carried out to prevent pollution as referred in EMP chapter 10 of EIA. Sufficient buffer would be maintained from the habitation.	The budget towards Environment Monitoring / Air pollution control measures : 408 Lakhs The budget towards erosion control measures, monsoon preparedness on mines and water treatment : 232 Lakhs
	He is the resident of Pilgao Village.		
	He objects to the word Green field used in the EIA report and this project is destroying the Land, fields and other greenery.	The state govt has auctioned mine as a fresh lease and as per minutes of meeting of MoEF&CC in case LOI is issued it is termed as Green field.	
	He stated that the EIA report is bogus and faulty.	The allegation made regarding EIA is false and baseless. The EIA report is prepared as per the TOR issued by MoEF&CC. Detailed list of Flora and Fauna is mentioned in Chapter 3 of EIA.	
	The EIA report at page no. 148 shows only rats and rabbits. No details of other wildlife animals are mentioned.		
	EIA report is not based on ground reality.		
	He stated that recently employment was not given on skilled basis, it was given on compensation basis while doing retrenchment they removed everyone. We want a sustainable mining.	Locals will be given preference for jobs on mines based on the skill and educational qualifications.	

Sensitivity: Internal (C3)

	Future of Bicholim Taluka will be decided based on this public hearing. He opposes this public hearing.		
	He requested to scrap the EIA report. The EIA report has to be as per the actual.		
122	**Hanumant Salelkar**	Vedanta Ltd has been awarded the LOI. There is no lake within the working / mining area of the mineral block. There are some settling ponds constructed by the earlier mine owner which are referred by the locals as lake. All the necessary measures will be carried out to prevent pollution as referred in EMP chapter 10 of EIA.	
	· He is a resident of Barazan waddo, Bicholim.		
	· He stated that his ancestors land is destroyed by mine.		
	· He stated that plants spread an area of 2.5 kilometres has destroyed the environment. There was a lake within the mine which has been destroyed due to dumping.		The budget towards erosion control measures, monsoon preparedness on mines and water treatment : 232 Lakhs
123	**Sakharam A. Pednekar**	The person has asked these questions to the government. As part of the EIA detailed biological assessment was conducted and the list of flora and fauna is listed in chapter 3, which is authenticated by the forest department. As a good practice the company will engage with the local biodiversity committees and take into account the local flora while preparing annual environment management plan when the mining operation starts.	
	· He States that he is a Chairman of Mayem Biodiversity Board and various other committees.		
	· We had placed all the grievances before Government		
	· Pior an inspection has to be carried out to check upon damage caused by mines and largely		
	· compensation cases are pending till date.		
	· Technically oppose the project		
	· We have carried out study and found.		

Sensitivity: Internal (C3)

	· There are 170 birds species.		
	· Questioned the authority, whether the mining companies have fulfilled the terms and condition of lease.		
	· The one who failed earlier cannot be re-considered for fresh lease. Such units, should be blacked listed		
	· Discussion to be conducted at village level, sustainable plan to be prepared.		
124	**Ramesh S. Gawas**		
	He questioned whether the consultants is present here for the Public Hearing.	The Consultant was present for the public hearing throughout the proceedings. The consultant went on the stage only when the collector invited him when he was required to provide the clarifications.	
	As per the EIA report they are supposed to remain present for the hearing or else there is no meaning for public hearing as they have to answer the issues raised in the public area.		
	Vedanta Goa was doing copper mining in Zambia, they were thrown out from there for doing illegal mining.	Allegations made against Vedanta are incorrect and further it is Not related to the project.	
	what is green field mining project may be explained,	The state govt has auctioned mine as a fresh lease and as per minutes of meeting of MoEF in case LOI is issued it is termed as Green field.	
	Vedanta is de-listed from London stock exchange.	Incorrect statement. The current project proponent is Vedanta Ltd which was never listed on London stock exchange. The other issues raised are also not related to the project. The Block I Bicholim mineral block was auctioned in terms of Supreme Court directions only.	
	SC passed judgment saying that they were carrying carry out illegal mining.		
	From 2011 -2012 100 Crores are due by Vedanta to the government.		

Sensitivity: Internal (C3)

	30 lakhs fine levied by SEBI illegal and misleading.		
	He challenged if anyone proves the water from pit is rain water or it is ground water.	The mine pit comprises of both rainwater which is channelised in to the mine pit as well as ground water. Applied for permission of Ground water withdrawal from Goa state water resources department.	The budget towards erosion control measures, monsoon preparedness on mines and water treatment : 232 Lakhs
	60 well water went dry as all the ground water is accumulated in the Sirigao pit.	Detailed hydrogeology study is carried out as per CGWA guidelines which is part of EIA report. The water accumulated in pit is not having any impact on surrounding wells.	
	Dr. Mohan Rao prepared siltation reports of mayem lake. As per the report the Mayem lakes is silted due to mining.	Details of Environment management plan is provided in chapter 10 to ensure that there is no water pollution caused to surrounding areas. Proper care will be taken for dump stabilisation as mentioned in the EIA report.	The budget towards erosion control measures, monsoon preparedness on mines and water treatment : 232 Lakhs
	1:8.39 ratio flooding of Bicholim River and 140 inches rain fall one can imagine how dangerous it will be.		
	No data given regarding tippers used to match with the production to verify its factuality.	Traffic density study is provided in chapter 4 of EIA.	
	Affected football ground.	This is not related to the project	
	Water Body in front of Shantadurga H/S, Surface study is not in EIA. It originates in the mining lease it meets River Bicholim carrying huge silt and emptying it in Mandovi River.	The same nalla flows and mixes with the Bicholim river and Upstream and downstream of the Bicholim river is collected.	
125	**Dilip D. Kudaskar– Not present**		
126	**Hanuman Gaonkar– Not present**		
127	**Ashok Karbe**	Thank you for the support.	

Sensitivity: Internal (C3)

	· I am resident of sirsai , and I am mining dependent, mines were closed since 2012 all workers have suffered .		
	· We made request to government to start mining activities and also made many representation to Government to know how mining is important to us.		
	· Supreme Court after 9 years passed judgement to start with sustainable mining, so we should welcome this decision.		
	· I am fully in support of mining project.		
	· In 2009 Sesa Goa has purchased this mine and they got hardly one year to run this mining activity, for 50 years back peoples complaints		
	/ grievances , we should not blame/ put the Sesa Goa/ Vedanta.		
128	**Ajay B. Gaonkar – not present**		
129	**Ujwala Uttam Shirodkar**	The anticipated impacts of the mining operations are dealt in chapter 4 of EIA and the necessary measures/EMP required for control of pollution are provided in EMP chapter 10 of EIA. Company will engage with the local communities as part of its stakeholder management and grievance redressal mechanism. Mayem lake is not destroyed, in fact it is one of the tourist places and is in very good condition.	The budget towards erosion control measures, monsoon preparedness on mines and water treatment : 232 Lakhs
	· She is resident of Mayem.		
	· She stated that the fields are destroyed by the mining.		
	· She stated that her orchards land is destroyed.		
	· She further stated that the Mayem lake is destroyed due to mining.		
	· She requested fields and orchards lands should be restored.		

Sensitivity: Internal (C3)

	· She stated that mining should start by restoring the environment.		
130	**Ratan Pednekar**		
	· She is a resident of Mayem.		
	· She stated that money is not given to her for 5 to 7 years. The orchards, fields and water pond are destroyed.	The speaker is mentioning about some money matter pending with Mamlatdar. Company will engage with the local communities as part of its stakeholder management and grievance redressal mechanism.	
	· She stated that her husband was working in Dempo.		
	· She requested to look into her money matter. She stated that Mamlatdar has not taken any action.		
131	**Kanchan Chodankar**	Thank you for support, as part of CSR activities, company will carry out agriculture development programmes within its buffer zone. Preference will be given to locals in employment.	
	She stated that if farmers believe in sustainable farming than proceed with mining		
	Mayem is affected at large as it is skipped w.r.t. distribution of fertilizer		
	Mining maybe restarted if unemployed youths should be given employment and also our agricultural problems are resolved		
132	**Pundalik Pal – not present**		
133	**Nasir Baig– not present**		
134	**Ganesh Gaonkar**	The allegation made regarding EIA is false and baseless. The EIA report is prepared as per the TOR issued by MoEF&CC. The state govt has auctioned mine as a fresh lease and as per minutes of meeting of MoEF&CC in case LOI is issued it is	
	Resident of Sirgao and is opposing the project		
	Representation are already given by him		

Sensitivity: Internal (C3)

	report given by mining company is false, pictures shown during presentation are false, no conditions are fulfilled. Data which is shown is manipulated by the mine owners in the report,	termed as Green field. The socio-economic survey was a sample survey wherein data from 25 villages was collected. A detailed study carried out with respect to impact of mine pit on Assonora river and same is annexed to the EIA report as annexure number III which concludes because of the elevation difference, existing environment protective measures inside the mine and the impervious lithology there is no flow of water between mine pit and the river. As per the mining plan backfilling of waste is proposed into the pit near the Assonora river. There are temples and other public utility infrastructure within the habitation however minimum 50m buffer will be maintained from the habitation. As part of CSR activities, company will carry out agriculture development programmes within its buffer zone. Company will engage with the local communities as part of its stakeholder management and grievance redressal mechanism. Regarding the land rights, the mine has been auctioned as fresh lease and the property rights will be settled once the mining lease is executed.	
	Green field project which is declared is wrong		
	all five villages are destroyed namely Bicholim, mulgao, Lamgao, shirgao etc. requesting authority to practically come on site and do inspection before granting EC.		
	the company person should come to their village and tell from where they collected the data. I am the president of Devastan, no one approached me.		
	4 temples come within the vicinity of mining area. Mining people told that the retaining wall will be built by them and taps will be provided but nothing is done.		
	After 3 years gap we approached the mine company but they told that no funds are available. I have all the photographs of the collapsed retaining wall. One day the temple wall will come down due to the landslide.		
	One mining pit is there near the temple, 50 meters away from the river. No refilling is done in this pit. The depth of river is 3 to 4 meters. The dept of the pit is 25 meters.		

Sensitivity: Internal (C3)

	Because of this pit all agricultural fields are destroyed.		
	Yearly we harvest 2 types of crops. So, in order to harvest		
	2 types of crops the field should be not be dry, but come to april and may month water is there in field and everything is polluted.		The budget towards erosion control measures, monsoon preparedness on mines and water treatment : 232 Lakhs
	Company told they will pay.		
	Government told they will pay through DMF, but not done.		
	Area occupied by mining is not their land it is communidade land		
	Government asked to produce the land ownership documents, but they failed. The company should produce the Form I and XIV, Property is not theirs than they should not be granted lease.		
135	**Dinanant Gaonkar,**	The EIA report is prepared as per the TOR issued by MoEF&CC. The state govt has auctioned mine as a fresh lease and as per minutes of meeting of MoEF&CC in case LOI is issued it is termed as Green field. Company will engage with the local communities as part of its stakeholder management and grievance redressal mechanism. The speaker also informed that the fields are restored by the mining company. It is also	
	He is a President of Tenant Association.		
	He stated that the EIA Report is prepared in an office and not by ground visits.		
	Project is specified as Greenfield in report which is false.		
	Villages have written to the Director of Mines and Geology to exclude Shirigao		

Sensitivity: Internal (C3)

	buildings, Panchayats etc from the mining lease, however the DMG has not replied.	understood that the earlier mining company used to provide access to the villagers to perform religious procession and same will be continued.	
	The road used for religious procession is destroyed by the Mining company.		
	Old survey record shows existence of road used for religious procession yet company denies its existence.		
	High Court directions to restore fields and only after the High Court Directions fields are restored. This was caused due to Mining company activities.		
	Issues are pending before Mamlatdars Courts.		
	When so many issues are pending, I oppose grant of EC and conduct of Mining operation.		
136	**Narendra Prabhugaonkar – not present**		
137	**Santosh Sawant – not present**		
138	**Devidas Prabhugaonkar – not present**		
139	**Anil Naik – not present**		
140	**Anand Gad, Advalpal**	The speaker is making false allegations on the company. The issues raised by the speaker are with respect to the mines in Advalpal village and not related to the existing project namely Block I Bicholim Mineral Block. The EIA report is prepared as per the TOR issued by MoEF&CC.	
	He states that his village is not in Block 1 and is in the other unit of Vedanta.		
	The mine was closed due to some accident and then it was restarted by the impact it caused.		
	He states that the Vedanta company is not fit to run the mine.		

Sensitivity: Internal (C3)

	He states that The company has changed so many names and they always lie to the villagers.		
	He states that he has 2 field and the company has put dumps in his field.		
	He questioned why should we not oppose because of some people who are dependents on the mine for their living.		
	There was mining silt which came from the mines and destroyed the nallahs & fields.		The budget towards erosion control measures, monsoon preparedness on mines and water treatment : 232 Lakhs
	There was alot of air pollutions when the mines were in previously in operation but the people were very happy when the mines stopped as the air and dust pollution had stopped.		The budget towards Environment Monitoring / Air pollution control measures : 408 Lakhs
	He states that the picture of the EIA report is all false and fabricated.		
	He states that He still is fighting the cases his ancestors have filed against the company for his land.		
141	**Laxmikant Gaonkar – not present**		
142	**Sharmila Volvoikar Panch member of pilgao**	There is no beneficiation plant (washing plant) proposed in the project and hence there will not be any generation of	

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	She states that she is not against mining but against the granting of EC to the lease for 2.00 MTPA.	tailings. The anticipated impacts of the mining operations are dealt in chapter 4 of EIA and the necessary measures/EMP required for control of pollution are provided in EMP chapter 10 of EIA. There are no chemicals used in mining as mentioned by the speaker. Preference will be given to locals in employment. Offer to join the workforce was provided to all the workers who were retrenched by the earlier mine owner. many of them took benefit of the offer and joined the company work force.	
	She states Dempo was allotted 1.3MTPA EC was granted for beneficiation plant to the mining company		
	A tailing pond was constructed but still waste enters in the agricultural fields causing destruction to the fields and other land.		The budget towards erosion control measures, monsoon preparedness on mines and water treatment : 232 Lakhs
	There is contamination of water and 60 Hectares of agricultural field was destroyed due to mining chemicals. If the capacity is increased more 1.3. siltation will increase in agriculture land and will destroy the fertile land.		
	She strongly objects for the mine.		
	The company needs to employ the 35 nos of employees which were removed.		
143	**Ibrahim Shaikh – not present**		
144	**Glen – not present**		
145	**Prakash Parab- Pilgao**	Thank you for the support.	
	He states that he strongly supports the operations of the mine activities as soon as possible as he states that the mine has generated a lot of employment.		
146	**Dr. Govind Parab – not present**	Thank you for the support.	

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147	**Raghuvir K. Karbotkar**		
	He is a resident of Lamgao.		
	His residence is located within 2 Km from the mining area.		
	He stated that the destruction which has taken place should be rectified.		
	He supports the sustainable mining.		
148	**Sebastiao A. Rodrigues**	The EIA report is prepared as per the TOR issued by MoEF&CC. The baseline study was conducted during March to May 2023 for preparation of this EIA. The state govt has auctioned mine as a fresh lease and as per minutes of meeting of MoEF&CC in case LOI is issued it is termed as Green field. All the necessary precautions will be carried out during monsoon to manage the storm water. Details are provided in Chapter 10 of EIA	The budget towards erosion control measures, monsoon preparedness on mines and water treatment : 232 Lakhs
	He sought clarification from the project proponent		
	He observed that application for EIA was 16/03/2023		
	Baseline data collected		
	project proponent stated baseline study carried out pre- monsoon which was locked down period of covid and such wrong dates are mentioned		
	fresh baseline data has to be created		
	fresh PH should be carried out		
	The Project is referred as Green Field which is wrong		
	He questioned so as to how Dempo Mining Corporation got changed to Sesa Mining Corporation, if so done all the prior liabilities should be transferred to the later company.		
	He states that Bicholim is a flood prone area		

Sensitivity: Internal (C3)

	He states that 2 scientific studies are done in bicholim river pollution by Rane and Matha of marine science department of goa. North goa disaster management Plan pertaining to mining lease of the project proponent.		
	The collector requested copies of these two studies. Both studies were shared on whats app no.9921876712.		
149	**Abhijeet Prabhudessai**	The speaker has made false statements. State government has auctioned the mine as fresh lease, Vedanta limited was declared as a preferred bidder and LOI is issued by the government. The consultant mineral engineering services was present throughout the PH, however he came on the stage only when the collector called him to clarify certain points. The distance between the Mineral Block and Dr. Salim Ali Wildlife Sanctuary is 10.553 Kms. The state govt has auctioned mine as a fresh lease and as per minutes of meeting of MoEF&CC in case LOI is issued it is termed as Green field. EIA does not mention desert in any of the chapters. Details of flora and fauna is provided in chapter 3. Details of environment settings are provided in chapter 2 wherein Asnora creek and mangroves are mentioned. The influence of creek water is also seen in the surface water quality in buffer zone mentioned in chapter 3.	
	He stated that it has been 80 years since lease is granted to this mine		
	He stated that the grievances put forth by farmers states that they are not benefited by mining.		
	He states that the situation of everyone ie. Farmers, Fisherman, workers etc is helpless.		
	He sought to know during the time the mines were not in operation why the loans of the workers were not forgiven if the government was really concerned.		
	He pointed out that the major violations in todays public hearing is that the Consultant is not present for the hearing. Hence there is no point in seeking clarification.		
	Dr. Mohan, representative of GSPCB, clarified that the consultant will be available to answer the concerns.		

Sensitivity: Internal (C3)

	He stated that Dr. Salim Ali Wildlife Sanctuary is within range of 10 Kms.		
	The report seems to be fraud		
	Fresh lease is clubbed within earlier 5 years and termed as Block-I.		
	He requested that the houses coming under the mining lease be skipped out.		
	He stated that in the name of Greenfield project, the people are deceived.		
	He stated that the EIA report falsely points out that area as desert and in future this will give the wrong notion that it was barren.		
	Before the commencement of mining, everything in the village should be recorded . if not, people will have to leave their homes.		
	Things are hidden in EIA. Back waters are to be covered in the EIA report.		
	He referred to Dr. Mohan Girap's report on Mayem Lake which clearly points out to the entry of Manganese ore.		
	He sought to know the future of the forth coming generation as they have more right on these mining areas.		
	He pointed out that 30% of the mining ore which belongs to future generation has been already extracted.		

Sensitivity: Internal (C3)

	He requested common man to be involved in the study.		
	He stated that there is no mention of flora /fauna and hydrological life in the EIA Report.		
	In view of above, he stated that the project has to be rejected.		
150	**Manoj Parab**	The speaker has made baseless and general remarks. The EIA report is prepared as per the TOR issued by MoEF&CC. The project is for mining of iron ore. Preference for employment will be given to the locals. Locals will be involved for the transportation of ore from mines to the jetty by using their 10.5 T capacity tipper trucks. The higher capacity trucks mentioned by the speaker are the company owned heavy earth moving machinery which will be used inside the mines. The state govt has auctioned mine as a fresh lease and as per minutes of meeting of MoEF&CC in case LOI is issued it is termed as Green field.	
	EIA report submitted is a false report and joke on Goans.		
	The EIA report contains a chapter on chemical analysis of ore. The report does not mention analysis of 35% of ore sample. This 35% will include heavy metals and rare elements.		
	The EIA report is being hidden from Goans.		
	Goa has gold in its ore and mud. This is not mentioned in the EIA report.		
	Dr. Nandakumar Kamat has done a research on this and submitted a paper on this to Chief Minister and Mining Minister.		
	Vedanta seeks to export this gold to China.		
	Research paper of Dr. kamat states that 6-8 kilo of one ton of ore will be gold.		
	EC states 3 MT of ore will be excavated from mines and as such 20- 24 thousand of kilos of gold amounting to 10,000 crores worth of gold will be excavated by the company.		

Sensitivity: Internal (C3)

	Why is Goa's gold sold to China and benefit not given to Goans.		
	Research papers of Dr. kamat regarding gold in Goan soil should be refered to.		
	He demands that a sample of ore should be analyse to prove evidence of gold.		
	He states that mining is required .		
	Government should made it compulsory for the mining company to give jobs for locals.		
	Company is using only 20 ton trucks, Volvo trucks. Locals do not have these trucks. Transport contracts will not be given to locals.		
	Government is dividing locals for and against mining.		
	He states that he has worked at a mining company of Vedanta at Codli and it has done huge frauds.		
	He states that 10,000 crores to be earned by the company should be informed to the Goans, but illegal mining is not wanted.		
	Huge loss is being caused to the state due to loss of royalty on gold as ore being excavated.		
	5 villages in mining lease area have unemployed youths. Human resource mapping is not done by the company in the EIA reports.		

Sensitivity: Internal (C3)

	Details of jobs to be given to locals is not done. In Mopa, locals have been cheated of jobs by the locals.		
	In an LAQ government has stated that mining company will only		
	give preference to Goans in jobs in mining companies. It is not a compulsion.		
	EIA report does not have a social impact study. He states that company has wrongly submitted that the project is Greenfield. It should have been verified before conducting the hearing.		
	He states that the EIA report should be redone and environment and locals of Goa should be saved.		
151	**Jayesh Walawalkar - not present**		
152	**Pandu Pilgoankar**	Thank you for the support.	
	He supports the mining company		
153	**Nilesh Karbotkar - not present**		
154	**Kishor Ishwar Lokre**	The state govt has auctioned mine as a fresh lease and as per minutes of meeting of MoEF&CC in case LOI is issued it is termed as Green field. The EIA report is prepared as per the TOR issued by MoEF&CC.	
	He stated that the Government has removed notification that it is a Green Field Project .		
	He stated that mining is operating from 1941 this is not a green project. And should be taken back.		
	The EIA report is false. The agency has not come on the site and the 3 seasons are not taken into account while preparing the EIA		

Sensitivity: Internal (C3)

	report peoples problems are not taken into account the authorities have considered this false report and conducted this public Hearing .		
	If now there are problems for the villages then after 50 years what will be the situation.		
	He requested the collector to tell the MoEF that the EIA the report itself is false . he stated that he was working in the mine once.		
	He states that it is not a green project and he strongly objects to the operation of the mine. Fresh EIA report has to be prepared after considering 3 seasons data.		
	It is not green project and prepare EIA report is false.		
155	. **Manohar Shirodkar R/o Lamgao**	State government has freshly auctioned the mine as new mine, Vedanta limited was declared as a preferred bidder and LOI is issued by the government. A buffer of 50m will be maintained from habitations. EIA report is prepared as per the TOR issued by MoEF&CC. The Buddhist caves are located in the habitation within the mineral block in Lamgao village. These caves are not notified monuments and hence were not specifically mentioned in the draft EIA. However, the same will be included in the final EIA. As mentioned above, a buffer of 50m will be maintained from habitations and the distance from the ultimate pit limit and the caves is around 300m. Preference will be provided to	
	The Mining had started from the time of the Portuguese and going on for last 60 years.		
	There are good and bad effects of the mining unit.		
	· It has reached the residential area and still why more 50 years are given to the mine, Unit to excavate the area.		
	· The company if given 30 years of excavation then the mine will reach the field are the humble request to the GSPCB		

Sensitivity: Internal (C3)

	that before issuing the EC, carry out site visit and survey along with the mining dept, local villagers, committee, GSPCB.	locals w.r.t employment. Necessary environment protective measures will be adopted during mining operations. Company carries out CSR activities in the buffer zone of its area of operations. The focus would be on agriculture, healthcare, education, alternative livelihood, sports, women empowerment.	
	· He stated that the EIA report is false.		
	· He states that the picture shown is one sided that CSR activities will be taken up by the company but will they executes their promise and who will monitor the issues.		
	· He stated that There are Buddhist caves and tourists spot are shown the mining area and this issue has to be taken.		
	· We are not against the mining operation but has to be done in sustainable manner.		
	· The Union workers were having problems with the company.		
	· The temples, the tourist spots and the Buddhist caves are shown in the mining area, the same will be destroyed if the mines are given to operate		The budget for environment management plan is 693 lakhs
	· We want mining but not at the cost of destruction of our houses, water bodies, fields etc.		
	· The CM can solve all our problems if he takes the issue personally.		
156	**Vinayak Samant - not present**		
157	**Arun Naik**	EIA report is prepared as per the TOR issued by MoEF&CC. The anticipated impacts of the mining operations are dealt in	The budget for environment
	· Resident of Lamgaon.		

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	· He stated that the mine has been existing for a long period.	chapter 4 of EIA and the necessary measures/EMP required for control of pollution are provided in EMP chapter 10 of EIA. Baseline study is for the period of March to May 2023.	management plan is 693 lakhs
	· He stated that the previous experiences showed that environment are effected due to mining. The report submitted by the Project Proponent is one sided.		
	· He requested for a detailed survey to be conducted along with the villagers and also by taking in account of previous experiences.		
	· He stated that mining company has never given justice.		
	· They have never fulfilled their promises.		
	· Mining lease should be given for 30 years , he sought to know why this mining project was granted 50 years of lease.		
	· He sought to know whether this lease is revocable, if not the clause should be added in the lease.		
	· He sought to know whether the report are done considering the period when the mine was in operation or for the last 12 years.		
158	**Navin Jan Naik**	A buffer of minimum 50m will be maintained from habitations. The anticipated impacts of the mining operations are dealt in	The budget for environment
	He is a resident of Lamgaon.		
	He stated that he oppose the project.		

Sensitivity: Internal (C3)

	· He stated that the area marked for mining is below 500 meters.	Chapter 4 of EIA and the necessary measures/EMP required for control of pollution are provided in EMP Chapter 10 of EIA. EIA report is prepared as per the TOR issued by MoEF&CC.	management plan is 693 lakhs.
	· He stated that area which is marked is close to Lamgao and can cause damage to Environment, health safety of locals.		
	· He stated that the mine has an adverse effect on health and our fields.		
	· He stated that the EIA is one-sided mining has destroyed ecosystem.		
159	**Gajanan Karbotkar**	Thank you for the support.	
	· He is a resident of Mayem.		
	· He stated that he is in full support of this project.		
	· He requested the Goa State Pollution Control Board to grant the Environmental Clearance.		
160	**Sagun Gad**	Thank you for the support.	
	· He requested to start the Mining block.		
	· So he is totally supporting the mining activity to start.		
161	**Mansi Kauthankar**	All the steps prescribed in the EIA notification with respect to public consultation are followed. The EIA and executive summary of the report was submitted to all the surrounding Panchayats and Municipal Councils. A buffer of minimum 50m will be maintained from habitations. The mines management had meeting with the panchayat members who are the elected representatives of the community.	
	· She is a Panch member of Mulgao.		
	· She stated that she opposes the project.		
	· She stated that the EIA is given to Village Panchayat.		
	· She stated that the report is not explained to the people.		

Sensitivity: Internal (C3)

	· Temples, fields which will be destroyed should be checked.		
	· The company was called for a joint meeting in the Panchayat but they sought for police protection.		
	· She stated that the people questioned them during the gram sabha .		
	· She stated that the government should think about the welfare of the people.		
	· She stated that the job is required, food is required but not of the cost of their lives.		
162	**Anil Nagvenkar**	Thank you for the support.	
	· He states that he is from Bicholim.		
	· He states that he is very grateful to Chief Minister and MLA for starting of mining activity.		
163	**Ajay Shetkar**	Thank you for the support.	
	· He states that he is a resident of Mayem Village.		
	· He states that his main grief is about unemployment, if mining is started than our main problem will be resolved.		
164	**Suresh Kudaskar-Not Present**		
165	**Vivek Kudaskar**	Thank you for the support.	
	He is a resident of Mayem.		
	He supports the project.		
	He requested to grant EC to the project .		
166	**Mohan Parab**	Thank you for the support.	

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	He states that he requests the Government to start the company as soon as possible. He strongly supports the project.		
167	**Satish Sutar** · He states that he strongly supports to the operations of the mine. · He stated that employment opportunities will be generated and the truck owners will be benefited.	Thank you for the support.	
168	**Govind Ghatwal** · He states that he is a resident of Shirgao. · He supports the company.	Thank you for the support.	
169	**Shankar Rawale** · He states that he strongly supports the operations of the mine as soon as possible.	Thank you for the support.	
170	**Swapnesh Sheldekar** He states that he is placing objection on granting of EC to M/s Vedanta Ltd for starting of Block I Bicholim Mineral Block, He is a resident of Mulgao Village and the Chairman of Biodiversity from his Village. He states that the EIA report is prepared without consultation or taking local knowledge of the people into consideration. He states that no one has approached their village to collect the baseline data.	EIA report is prepared as per the TOR issued by MoEF&CC. baseline study was conducted during March to May 2023, details are provided in the Chapter 3. Prominent and famous temple like Lairai Devi temple, notified archaeological monuments like Namujgah are mentioned in the EIA. There are several other religious places of worships within the habitation located in mineral block, minimum buffer of 50m will be maintained. The speaker has made false allegations w.r.t the EIA report.	

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	He states that the data collected is inaccurate, unreliable.		
	He states that no authority is aware of any person visiting the village for collection of the data.		
	Data collected from buffer zone .		
	The data provided in the EIA report is nor accurate and appears to be fabricated.		
	False data is given in the report .		
	Temples, caves. Lakes etc does not find mentioned in the EIA report.		
	Entire study to be redone after taking into consideration biodiversity committees and local bodies and then conduct public hearing.		
171	**Vinod Naik - Pirna**	Thank you for the support.	
	· He states that he strongly supports the operations of the mine as soon as possible.		
172	**Shrikant Karbotkar**	Thank you for the support.	
	He states that he strongly supports the operations of the mine activities.		
	He requests to start a sustainable mine without hurting the sentiments of the villagers.		
173	**Prashant Kinalkar - Mayem**	Thank you for the support.	
	He states that he strongly supports the operations of the mine activities.		
	He states that he has his vehicles in the area. ‘		

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	He request company should take into the confidence all the truck owners and other people who they used to provide benefits monetary and others into confident and start the mining operation as soon as possible.		
174	**Prakash Naik – not present**		
175	**Navnath Jannaik** · He is the resident of Lamgao · Production of supari has decreased due to mining . · the cost of fertilizers is more than the input they get from the produce	Agriculture development is one of the key aspects of company's CSR. The company will engage with the farmers and with help of state agriculture dept will help the interested farmers in crop development	
176	**Sumit Talawnekar - Mayem** He states that he strongly supports the operations of the mine activities as soon as possible. · He states that he is a Truck owner and his land is next to the mine lease area. · He states that he is unemployment and no one came to his aid when the mines were shut down.	Thank you for the support.	
177	**Khemlo Sawant – Not Present**		
178	**Pravir Prabhakar Fadte** He states that he has inwarded Goa Foundations' application in Collector office yesterday on 10-08-2023.	EIA report is prepared as per the TOR issued by MoEF&CC. it is true that this particular mineral block was earlier operated by Sesa mining Corporation ltd (formerly known as Dempo mining corporation Ltd). Pursuant to Supreme Court	

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	The necessary environmental information and data which are required to be produced in response to the TOR are missing from the draft EIA document. The suppression of necessary information has been achieved by claiming that the Mining Block is a "Greenfield project" . Such a characterization of what is clearly accepted. The Mining Block has been operated from inception as a series of five leases (TC 11- 15/1941) neighbouring each other in a straight line, and thereafter, amalgamated lease is the relabelled "I-Bicholim" and has the same boundaries.	judgement in Goa Foundation 2 dated 07.02.2018, all the mining leases granted by the state government were cancelled. Thereafter, State Government in terms of the said order and as per the provisions of MMDR Act put this block for auction as a fresh lease/ grant. Vedanta Ltd was selected as the preferred bidder in the said auction for Block I Bicholim mineral block and accordingly LOI was issued to Vedanta Ltd. As per the MoEF&CC EAC minutes of meeting, in case of LOI grant it is classified as green field and hence in the EIA it has been mentioned as green field. There is no hiding of facts as alleged by the speaker/ goa foundation, as the earlier pits can be seen in the surface plan which is provided as plate no 5 of EIA.	
	These 5 leases before and after amalgamation have been in operation since 1941, and have been operated by a variety of actors, including Dempo Mining Corporation and Sesa Mining Corporation Ltd. SMC is a wholly owned subsidiary of Vedanta Ltd., which is now assigned this mineral block. The production data of the 5 leases, from 1941 to 2012, is available in public domain. The leases were also operated between 2015 and 2018 by SMC /Vedanta. In normal and legal terminology, such a mine site could never been cauterised as a Greenfield project for the purpose of obtaining Environmental Clearance.	The EIA also comprises of detailed hydrogeology report based on CGWA guidelines which concludes that there won't be any adverse impact of mining on surrounding ground water regime.	

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	The important thing to emphasis here is that the wilful characterisation of the project site as a "Greenfield" project has been relied upon to withhold data and the past record of this project proponent (PP) required to be made part of the draft EIA and to the public. This includes the environmental data collected since the lease started operation in 1941 as well as studies by academics and entities like NEERI, which data and information must be used to understand past impacts so as to foresee future impacts.	As per our information, the erstwhile leaseholders have complied with all recommendations prescribed by NEERI in PIL no 1/2008. According to the official records, the three erstwhile leaseholders namely Chowgule and Company Private Limited, Rajaram Bandekar Mines Private Limited and Sesa Mining Corporation Limited have submitted an amount of Rs. 65,00,000 with the High Court. Desilting work is being carried out by Water Resource Department.	
	There are people who have their own grievances and hence has to be give sufficient time to place their grievances and requested to adjourn the public hearing as EIA report has suppressed basic data . It series of 5 leases which are amalgamated to single number		
	The investigation report of assessment of depletion of ground water sources and land degradation in Sirgao Village ,and mitigation Measures by National Environmental Engineering Research institute under Council of Scientific & Industrial , Nagpur dated 16/06/2008 in PIL No. 1/2008 was submitted to the Hon. High Court of Bombay at Goa in which it clearly shows the worst condition of natural water		

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	sources and other issues are mentioned in it. Why this report was not included in the draft EIA. Copy of the report is submitted to Goa State Pollution Control Board.		
	He requested the Collector to personally visit the mining lease areas and do the surveys of the critical conditions of the people living there and requested to re-schedule the Public Hearing.		
179	**Narayan Sawant - not present**		
180	**Hanumant Malik - not present**		
181	**Vallabh Parab - not present**		
182	**Vinod Mandrekar**	State government has freshly auctioned the mine as new mine and Vedanta ltd is selected as preferred bidder. As mentioned in the EIA the project will generate employment opportunities to 716 locals and preference will be given to the locals. A buffer of minimum 50 m. will be maintained towards habitation. There are primary schools (at Gaonkarwada (not in use) and Manasbag) in Mulgao village within the Mineral block. A buffer of 120m will be maintained from the Manasbag habitation and will be updated in the EIA report. Necessary protective measures to be taken are mentioned in EMP which also includes drainage details. There is no planned activity in the unused area.	
	He States that he strongly opposes the mine lease		
	He States that he wants to seek clarification from the Project proponent.		
	He questions how many people are employed from the core mining belt.		
	He States that the most important thing is roti kapda and makan.		
	He States that if roti is provided but their homes are taken		
	He requests the GSPCB to excluded the houses and demarcate the area.		

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	He wants clarification whether the GSPCB, have visited all the villages.		
	He States that there are govt primary schools in Manasgao Mulgao which is not mention in the report.		
	He States that he visited the school today and the same is operational but the GSPCB nor Project Proponent has visited the school.		
	He States that the mining lease boundary in my village mulgao, there is no drainage system which has to be taken into account.		The budget towards erosion control measures, monsoon preparedness on mines and water treatment : 232 Lakhs
	He States that he wants a detailed report what activities are proposed in the unused area as the same are not mentioned by the Project Proponent.		
183	**Kalidas Kavlekar**	The speaker has made false allegations. EIA report is prepared as per the TOR issued by MoEF&CC. Land use plan given as an annexure covers all the water bodies in 10km buffer zone including Mayem lake. Important archaeological sites are mentioned in EIA for ex. Namujgah which is located within the mineral block. The presence of habitation within mineral block (in Lamgao and Mulgao Village) is clearly specified in the EIA report. Necessary environment protective measures will be adopted during mining operations and the same is covered in Chapter 10 of EIA. Representatives from mining company	
	He is from Mayem Village. The EIA report is erroneous, It is not known as to who and when survey is conducted.		
	Several complaints against the mining go unattended. Likewise many cases are pending before Mamlatdar which are unsolved.		
	There are 167 water bodies mayem lake not shown on the EIA report.		

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	Heritage sites are omitted. He requested that proper survey be conducted and then processed EC.	and the EIA consultant were present for the PH. the Consultant also clarified the points raised on request of Collector.	
	Ancestors houses not shown or mentioned .		
	Latambarcem / Mayem details not given.		
	If mines can give justice to everyone than they can definitely proceed with lease mining project.		
	No representative present from mine.		
	Lots of dust pollution due to mines which is creating air pollution in the area.		The budget towards Environment Monitoring / Air pollution control measures : 408 Lakhs
	GSPCB should take everyone into confidence and the same presentation should be presented before the villagers.		
184	**Rohan Shirodkar**	The EIA report along with executive summary was submitted to all surrounding Village Panchayats office for further awareness. The presence of habitation within mineral block (in Lamgao and Mulgao Village) is clearly specified in the EIA report and a minimum buffer of 50m will be maintained from the habitation. The notified archaeological monument within the mineral block is listed in the EIA. EIA report is prepared as per the TOR issued by MoEF&CC. Company will engage with the local communities as part of its stakeholder management and grievance redressal mechanism for any concerns.	
	He strongly objects to the operation of the mine.		
	He states that the EIA report has not reached him.		
	The presentation given states that there are 200 houses which are illegally demarcated.		
	There are archaeological protected sites which are there in the lease area.		

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	He states that no local person or farmers were taken into consideration while preparing the EIA report.		
	Our houses temples, villages have to be taken into account before commencing the mining operations.		
	Previously only few were given employment because their houses were effected . And now there are taken out of employment. Their problems have to be solved first.		
	Their he requests the company to solve their problems first.		
185	**Bhagwant Gaonkar**	Thank you for the support.	
	He is a resident of Mayem.		
	He stated that his house is within 3 kms.		
	He supports the mine.		
186	**Trupti Gad**	The anticipated impacts of the mining operations are dealt in chapter 4 of EIA and the necessary measures/EMP required for control of pollution are provided in EMP chapter 10 of EIA. A minimum buffer of 50m will be maintained from the habitation. Company will engage with the local communities as part of its stakeholder management and grievance redressal mechanism.	The budget towards Environment Monitoring / Air pollution control measures : 408 Lakhs The budget towards erosion control measures, monsoon preparedness on
	There are different committees in our villages and all the committees had come together and a draft ahd been put up with all the problems faced by the villages of the area.		
	She states that the temples, houses, fields are in the lease area.		
	She states that 2 times the mine had collapsed and they had to face a lot of problems.		

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	She requests to first solve the problems of the villagers affected by the mining operations and then start the mine.		mines and water treatment : 232 Lakhs
187	**Ranjana Chodankar**	The speaker has made general statements like requesting to cut big trees in her area, cleaning the area. Company will engage with the local communities as part of its stakeholder management and grievance redressal mechanism. Preference will be given to locals for employment. All the retrenched employees of earlier mine owner were offered job and many of them have taken advantage of this opportunity. Company also runs a technical institute (ITI) in Sanquelim village which caters to skill development of local youth and making them employable.	
	She states that there are big trees which have been grown in our area and which have to be cut down and the area has to be cleaned.		
	She states that the area has to be cleaned as there are crocodiles there.		
	She states that no employment is given to our children .		
	She states that mining has destroyed everything.		
	She requested the company to first solve the problems of the people and then start the mining activities.		

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Clarifications provided by the consultant during the Public Hearing on 11th August 2023

Sr No	NAME & COMMENTS	RRESPONSE	BUDGET
1	**Shri. Swapnesh Sheldekar**		
	He sought to know the exact duration for which the baseline data was collected by the consultant for incorporating in the EIA report.	The baseline data initially collected in the year Oct, Nov, Dec 2020, since the data validity was nearing expiry on Sep 2023, the baseline data was again collected from March to May 2023.	
	How is it that the consultant representatives have not been seen or identified by the local villagers during the exercise of collection of baseline data in the village of Mulgao as claimed to be carried out by the Consultant.	It is a sample survey, and the sampling team has collected the baseline data.	
	Does the Consultant posses photograph of the Leopard clicked during the process of data collection?	It is clearly mentioned in the Draft EIA report that the information of presence of Leopard was provided by locals i.e. secondary data. The detailed List of Flora and Fauna is provided in Chapter 3	
	There was no mention of forest in Mulgao Village in EIA report , how is this possible when across the boundary of village of Mayem is shown to have forest in the EIA report and also how can this be possible when there are two temples located in the village of Mulgao dedicated to the Goddess of Forest (Dhaktivan Devi and Vodlivan Devi).	The is no forest land within the Mineral Block and the same is confirmed by the state govt.	
	The EIA report does not mention the presence of large number of water bodies and temples in the Village of Mulgao. How is this possible?	Only major temples like Lairai Devi temple are mentioned in EIA. However, there are several such temples in the habitation for which a buffer of 50 m from the habitation is mentioned. There are no natural water bodies within the mineral block. As per the information there are settling ponds which were developed or constructed by erst while	

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		mining company. These ponds were maintained, desilted by the earlier mining company and the same system will be followed. Flow of water to the Mulgao horticulture area will be ensured as was done by earlier mine owner.		
	The existence of archaeological site that is 2500 year old Buddhist caves at Lamgao are not been mentioned in the EIA report. How is this possible? The Project Proponent is requested to include this in the report	The Lamgao caves are not a notified monument, however the same will be incorporated in final EIA. It is within the habitation of Lamgao and a sufficient safety buffer will be maintained.		
	Project proponent was questioned as to how the consultant being qualified has classified this project as a Greenfield project knowing fully that it is a Brownfield project	The mine is a fresh grant through auction regime by state govt for which LOI is issued to Vedanta Ltd. As per the MoEF&CC minutes of meeting, in case of LOI grant it is classified as green field.		
	With reference to table 2.3 at page no. 15 of 600 of the EIA report, Consultant was requested to clarify as to the feasibility of the figure of 17.05 of Free Feasibility Mineral Resource which requires washing as the mine does not have facility for washing.	Clarified that it is not a proved reserve and will have to undertake further exploration to prove the same.		
	Based on the reserves as stated at Table 2.3 at page 15 of 600 of the EIA report can the Project Proponent windup operations in 10 years?	NO		
	With reference to a corrigendum dated 06/06/2023 issued by the DMG putting a gap of 40 trips per hour on the road on the company, the Company will not be able to transport more than 1 million tons per annum. The Project Proponent was requested to clarify.	The above referred notification is for auction ore only.		
2	**Shri. Ramesh Gauns**			

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	According to EIA the Consultant visited 68 places out of which 58 are the villages having Gram Panchayats. And the Gram Panchayat maintains biodiversity register based on the Biodiversity Act. Whether the consultants approached gram Panchayts to go through the register to find out the Biodiversity of the Village.	NO		
	They studied the surface water but did not study the surface water of the water body flowing infront of Shantadurga School and which emerges from within the mining lease carries lot of silt then meets the River Bicholim and empties into Mandovi River. It is a pollution of water body is concealed.	The same nalla flows and mixes with the Bicholim river and Upstream and downstream of the Bicholim is collected.		
	The water in the pits according to EIA report is stated that pit water is rain water. But when the study is carried out the main period of summer in the month of March, April and May, the pits are full of water in the month of May. The colour of the water clearly states that it is ground water and not rain water.	The rainwater is channelised in to the mine pits and as per the hydrogeological survey there exists bands of impervious layer comprising of Phyllite and clay and hence there is no ground water seepage. However the project proponent will take approval form Water resources Dept for pumping of the rain water/ ground water accumulated in the mine pit.		
	He sought to know whether the wells have been studied from Mulgoa, Mayem, Bicholim, Lamgao, as wells are the indicators of ground water and they should have checked the levels of well water in the month of May not to give any scope to the company that the drying of wells is not because of them. The study would have provided a substantial evidence against the Company to refute on the perennial fresh water in the wells.	All villages mentioned above is covered.		

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	Mayem lake is used for surface water study but the 2 springs have gone completely dry because of the pit which has gone deep at Dhabdabha resulting in the depletion of water level of these 2 lakes goes low in the month of May.	There is no connection between the mine pit and Mayem lake. A detailed hydrogeology study is provided as part of EIA.		
	Then there are lakes in Malgao and Mulgao. Among these there are 6 lakes are in Mulgao and 7 lakes in Lamgao according to the RTI sought from the Mamlatdar of Bicholim on 01/07/2009. The total area of all these lakes comes to more than 27,000 sq. mtr which is nearly 3 hector of the land. All these lakes are totally silted which once upon a time feed the agriculture in Mulgao, bittlenut plantation in Mulgao so also in Lamgao. All these lakes find no place in the EIA report. One of the lake in Lamgoa belong to Government having 3375 sq. mtr. This fact is defeated by the company instead they claim it to be their tailing pond. The same lake was used for Ganesh immersion and now no immersion takes place in the tailing ponds.	All the water bodies within the buffer zone are covered under Land use pattern under chapter 3 of EIA		
	A number of tipper/trucks is missing in EIA which would have helped to calculate actually the ore is transported and thereby can be matched up with the production as given in the EIA report.	Covered under Chapter 4 pg No.129		

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	He asked for the gradient of the mining area as the top most point of this area is 169 meter plus a huge waste generated to a tune of 1:8.39 tons based on the annual production of 3 million tons the waste generated will be 2, 51,70,000. Therefore, the gradient is very high to ration. The gradient to was very much important because no mechanism can stop a huge silt moving out of the mining lease when entering into River Bicholim which is connected to the mining lease precisely to the lake which is sy. No. 25/1. The steam is as of now heavily silted used for fishing purpose in the town it self. Everything is wiped off.	The gradient of Dumps is provided in the EIA report. The EIA also contains the environment protective measures which will be carried out for dump stabilisation.		
3	**Shri. Vinod Mandrekar**			
	There is a Government Primay school located at Manasbhag Mulgao which is operational as on 10/08/2023. This school is located within the mining lease/core are of the proposed project. However, this school is not mentioned any where in the EIA report. The Consultant is requested to clarify this point.	We will reconfirm regarding this additional school in Mulgao, Manaswada and functionality of Govt Primary school shall be included. However, a sufficient buffer zone will be maintained towards habitation.		
	In the EIA report there is a mention of unused area (refer Map on page 262 of the detailed EIA report). Consultant is requested to clarify as to the meaning of the term unused area. Further, consultant is specifically requested to clarify as to whether unused area in the EIA that includes the residential areas in the unused area.. If not the Consultant	The residential area is included in unused area as per existing available exploration data. 50 meters buffer zone will be maintained from the residential areas/houses in the village of Mulgao.		

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	should give a specific undertaking in this regard whether it will be used in the future.			
4	**Shri. Pravir Phadte**			
	Do you think that your draft EIA report can be understood by common people without any awareness programme about it? Or what are your suggestions to enable common people /illiterate people to understand this EIA report?	All the procedure stipulated in EIA notification is followed.		
	The amount time taken by you to prepare this EIA report? How is it that though the TOR for the project was granted on 16/06/2023 the draft EIA? report was signed on 20/06/2023 by the Mining Engineering Services Consultant, M.S. Raju.	The work of EIA was started basis the standard TOR issued by the MoEF&CC and the baseline was carried out from march to May. Although the TOR was issued on16th June, the minutes of meeting including all the points was received earlier and the EIA work was continued and completed.		
	Explain in detail how the Consultant has classified this project as a Greenfield project?	Explained earlier		
	Why was the detailed EIA report not explained to the public/ awareness regarding the same not done by the Project Proponent when keeping the report with the Local Panchayat. How does the project Proponent expect the detailed EIA report to be understood by the Public present for today's hearing only on the basis of short Power Point Presentation made today?	Explained earlier		

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	As the time to seek clarification is being restricted to 5 minutes; it is requested that the written submissions submitted to the Collector's Office on 10/08/2023 by The Goa Foundation should be clarified by the project proponent now. Copy of the submission is handed over.	All the issues raised during the PH will be addressed in the final EIA		
	Why has the MoEF terminology not been explained in the EIA report?	EIA is prepared based on the TOR issued		
5	**Dr. Sebastiao A Rodrigues,Convener of Bharat MuktaMorcha (Goa State)**			
	Regarding baseline data presented in EIA, so I want to know periods of data collections . Because the consultant Raju has stated that he had collected data upto September, 2020 .When I questioned on that on this subject Mr Raju informed that indeed baseline study was upto September 2020	Explained earlier. The base line data was done during Mar to May 2023.		
	Regarding project proponent application dated 16/03/2023 seeking TOR ,wherein it is mentioned that the period of baseline data collection as from 01/10/2020 to 31/12/2020.	Explained earlier		
	October 2020 to December 2020 there was covid-19 lock down in Goa. Did company carry out baseline data collection during lockdown period?	Yes, explained earlier. The data was again collected afresh during March to May 2023 which is considered in EIA.		
	When TOR requires baseline data collection of three non monsoons in a year, why baseline data was collected only for one season of march to may 2023?	Mr. Raju answered that only one season data is required. I mentioned that PP has admitted for tweaking TOR on baseline data collection in EIA. Mr. Raju denied.		
	Asked whether the comments received from public will be incorporated in the EIA report and shown to the public again.	Mr. Raju answered all the issues raised shall be addressed and submitted to MoEF&CC.		

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	Now my last clarification is will all the applications received against this mining projects be forwarded to MOEF&CC considering that former environment cum public relation officer of Project proponent Mr. Mahesh Patil is the Chairman of GSPCB, as the case of likely conflict of interest.	All shall be forwarded. Collector North requested the people present that if they so desire, they may file their written objection/suggestion/views within 7 days from today to the GSPCB. The same will be part of the hearing and accordingly it would be forwarded to the concerned Regulatory Authority.	

Clarifications to the letters received w.r.t. the Public Hearing on 11th August 2023

REPLY TO LETTERS RECEIVED			
Sr. No.	**Letter**	**Response**	**Budget**
Letter 1 and letter 2 are same letters hence common response provided	**Dr. Sebastiao A. Rodrigues,** 48/2, P.O. Piedade, Vanxim, lihas, Goa-403403 Mobile:9923336347, 17August2023 **From: Ramesh S. Gauns** 1724, Pajwadda, Bicholim. Goa Mobile:9270085105		

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	17August2023 The Member Secretary Goa State Pollution Control Board, Saligao, Bardez, Goa Subject: Failure of GSPCB to complete minutes of the Public Hearing of Block - | Bicholim Mineral Block on 11 August 2023 at Sarvan Bicholim Madam, Above referred Public Hearing (PH) that began at 09.00 am on 11 August 2023 came to an abrupt end at 01.30 am on 12 August 2023 without minutes being finalized and shared in hard copies to the participants of the PH. It was total mess thanks to incompetent staff in compiling notes at the PH. It was observed that the large number of points raised by several speakers were not recorded in the minutes. In some cases entire presentation of the speakers found to be omitted along with their names. In other cases in spite of rectifications suggested by speakers who were present at the PH venue till mid night minutes could not be completed. Mess created by the on duty staff went out of control of the Presiding Officer who is North Goa Collector and an IAS officer. Presiding officer went on to announce at 1.30 am that the minutes of the PH will be shared online at GSPCB website. This is complete violation of the norms of PH followed where in minutes used ta be finalized immediately after the conclusion of the PH and print copies were shared with the participants present at that time at the venue duly	These are false allegations, the public hearing was completed after the minutes of meeting were read out in presence of public and the finalised minutes were signed by the Chair of the meeting and representative of GSPCB. The entire proceedings of the PH were video graphed by the GSPCB. The consultant was present for the Ph throughout the proceeding; however he went on the stage only when he was invited by the Chair of the meeting for providing clarifications to the speakers. The speaker is making false and baseless allegations on the officials, it appears that he has come with a predetermined agenda. We would like to state that the Minutes of public hearing meeting were finalised on the same day in the presence of the public. The document was signed by the Chair (Collector North Goa) and the GSPCB representative Dr. Girap and the copy of the same was handed over to us as well as the collector immediately after the conclusion of PH. The speaker also could have collected the copy immediately after the conclusion of the PH.	

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	signed by the Collector as the Presiding officer. We are worried that messy situation created thus might be used by vested interests to manipulate/omit/delete part of the contents before the minutes are made available online. Biggest danger we fear to the integrity of minutes is from the Chairman of the GSPCB Mahesh Patil who is an exEnvironment cum Public Relations Officer of Sesa Mining Corporation that is wholly subsidiary of Vedanta who Is currently the project proponent. Tempering of minutes in order to favor Project Proponent is real possibility. And quality of online minutes confirms this further. Therefore we strongly object to the procedures adopted by Presiding Officer of PH of putting minutes of the PH online without giving print copies immediately after the conclusion of the PH. When Ramesh S. Gauns asked for the consultant of EIA Presiding Officer responded saying that Consultant is not present at the PH proceedings. Consultant appeared in the night at around 08.00 pm. Time given for asking queries was only 05 minutes. Ridiculous trend is set in PH by granting only 10 minutes to seek clarification on document that consisted more than 600 pages of EIA/EPM. Several People could not get access to the Hall before 11.00 am because Project Proponent mobilized management and employees from all its buffer zone and out of buffer zone units to enter the Hall and occupied the entire hall to its fullest capacity. Minutes are put online after five days on 16 August 2023. What is recorded in the minutes is different from what was spoken at the meeting. Minutes has innumerable errors,		

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	Pages 12, 31, 32, 33 encompassing 20 people and their presentations are missing from the records of minutes. Your are therefore required to hold Public Hearing afresh based on fresh EIA. Thanking you, Yours Sincere, Dr. Sebastiao A. Rodrigues Copy to: 1. Collector (North Goa), Panaji 2. Union Minister of Environment, Forest and Climate Change, Indira Paryavaran Bhavan, Jorbag Road, New Delhi 110 003 INDIA 3, Chairman and Members of Expert Appraisal Committee, MoEF&CC, Indira Paryavaran Bhavan, Jorbag Road, New Delhi 110 003 INDIA		
Letter 3 and Letter 4 are same hence merged and common	**Dr. Sebastiao A. Rodrigues** 48/2,.P.0 Piedade, Vanxim, Ithas, Goa 403 403 Mobile: 9923336347 Date: 18" August 2023 Member Secretary, Goa State Pollution Control Board, Saligao, Bardez, Goa **Ramesh S. Gauns** 1724, Pajwadda, Bicholim. Goa Mobile: 92 70085105 Date: 18" August 2023 Member Secretary, Goa State Pollution Control Board, Saligao, Bardez, Goa	A detailed traffic density study was conducted and details are provided in Chapter 3 of EIA. The google map showing the transportation route is also part of the EIA. The details of the road are also provided in the traffic density study, Out of the 5.4 km of transportation route around 0.9km of road is public road after which the trucks enter the iron ore loading jetty at Sarmanas(not the public ferry jetty) .The pollution control measures proposed to be taken are detailed in Chapter 10. The entire transport route is shown on the google earth map which is part of the EIA. It is true that there are two	The budget towards environment monitoring and air pollution control measures is 408 lakhs.

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response provided	Subject: Concealment of usage of Public Road in front of the main Gates at Bicholim of Block I Bicholim Mineral Block in ETA report Madam, Road from Bicholim to Chorao Ferry, Narve, Mayem lake, Poira, Siqueri, Mayem, Tikhazan is under crowded vehicles (two wheeler and four wheeler) daily except Sunday. The same road is intersected in front of the gates of the mining area. The road has got a slope and if ends exactly at a point of intersection. Most of the vehicles on road are headed towards the Ferry crossing into Chorao. Local people of all the villages mentioned above use the road to approach to reach Bicholim town for various reasons particularly taking the young children for schooling in Bicholim. Therefore instead of using this public road use a fly-over like structure to avoid risk for the lives of the heavily crowded ruad by all the commuters. Secondly, mining road from within the Project Proponent's mining area also intersects the road to Pilgao village in front of the turn to Sarmanas Ferry. Some fly over like structure is required to be installed to ensure safety of the commuters. 900 meters road as mentioned in EIA does not reveal actually which public road will be uscd for the transportation of the ore. EIA does not speak that it is none other than the Pilgao road which ts also heavily crowded by the two wheeler and the four wheeler to reach Sarmanas ferry to attend to their duties. In fact immediately after that 900 meters of the said road the ferry point hardly at a	junctions namely at Mulgao and Pilgao on the transportation route and both the junctions will be provided with traffic marshals for smooth flow of public as well as ore traffic. Government will be constructing the underpass at the cost of project proponent at Mayem junction so that the interface between ore transportation and public is avoided . Till the underpass is constructed, dedicated manpower would be deployed to facilitate smooth and safe flow of transport.	

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	distance of 100 meters but it is not recorded in EIA, There are two ferries operating indicating that there is a heavy load on the road by the people travelling with two wheeler and four wheeler. Therefore using the 900 meters of public road of Pilgao village is nothing but creating dangerous situations two all the commuters. Also the loaded trucks will create dust pollution which people will face and also the clothes will be severely dusted. Hence the road should not be used for transportation instead a conveyor belt from the road from where trucks move on the public road of 900 meters should be constructed and used. On ground verification of 900 meters road at Pilgao connecting Sarmunas Jetty is 1 km distance and not 900 meters in length as mentioned in EIA report. This means that Project Proponent has cheated with facts on ground. Project Proponents therefore be denied Environmental Clearance for the Block I Bicholim Mineral Block as use of Public Village road is in violation of Terms of Reference. Thanking You. Yours sincerely, **Dr. Sebastiao A. Rodrigues** **Ramesh gauns**		
Letter 5	From: Ramesh S. Gauns 1724, Pajwadda, Bicholim. Goa Mobile: 92 70085105 Date: 17 August 2023 The member secretary, Goa State Pollution Control Board, Saligao, Bardez, Goa SubJect: Discrepancies in baseline data collection in EIA	The base line data was earlier conducted during Oct-Dec 2020. The same was mentioned in the TOR application also. However, as there is a validity of three years for the baseline data, The base line monitoring was again conducted for the period Mar- May 2023. The base line monitoring is carried out as per the TOR issued by MoEF&CC and is valid.	

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	Project Apptlication and Statement of Consultant M.S. Raju of Mineral Engineering Services regarding Block-I Bicholim Mineral Block Madam, We wish to bring to your notice the following discrepancies with regards to period of baseline data collection as stated in above mentioned subject: 1. Project Proponent (PP) Vedanta Limited submitted application to MoEF&CC dated 16 March 2023 seeking Terms of Reference (TOR) to prepare EIA/EMP. In their application PP has stated that the baseline data for EJA Study was collected from the three month post monsoon season period 01 October 2020 to 31 December 2020. 2. EIA report in compliance to TOR 44 by PP states that the baseline data was conducted during summer season 2023. 3. At the Public Hearing held on 1) August 2023 regarding this project consultant M.S. Raju stated during clarification queries by Swapnesh Sherlekar that consultant had collected bascline data upto September 2020 and this is even recorded in the minutes posted online at Goa State Pollution Control Board (GSPCB) on 16" August 2023. 4. Project consultant M.S. Raju confirmed again in response to query raised by Dr. Sebastiao A. Rodrigues that the baseline data collected was upto September 2020. The three months bascline data upto September 2020 would involve data covering monsoon season of July to September 2020 in violation of TOR 44. When it was pointed out to the above consultant that the Project application for TOR states that period of data collection mentioned is of post monsoon season from Of October 2020 10 31 December	Mr. Ramesh Gauns is making false and baseless allegations. Measurement of rain is a very common practise and the same is done every year by the mining companies. The consultant has collected the rain data for last 5 years from the earlier mine owner. All the land use features are provided in the EIA. Details about the habitation aswell as main water resources like river etc are provided.	

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	2020 Mr. Raju denied having collected baseline data during this period stated in the Project Application for FOR. This indicates that the baseline data collection period mentioned in the Project Application as from 01 October 2020 to 33 December 2020 is false. Further Mr. Raju stated the rainfall data stated in EIA as 3500 mm was collected not only from the meteorological department but also from on-site physical monitoring of rainfall at Block -I Bicholim Mineral Block. This means that baseline data collected is of monsoon season. When it was questioned about the credibility of the content of Project Application to MoEF &CC regarding baseline dats collection period M.S. Raju denied his own statement saying his baseline data is upto September 2020 and said period from 01 October 2020 to 31 December 2020 is correct. {f this was indeed correct then why did Mr. Raju stated that his baseline data is upto September 2020? This means that baseline data collection periods stated both in Project Application to MoEF & CC as well as in EIA report are fictitious in nature. 5. Additionally Consultant M.S. Raju was questioned by Dr. Sebastiao A Rodrigues whether his agency really carried on baseline data collection during 01 October 2020 to 31 December 2020 considering that it was strict lockdown period due to Covid-19, Project Consultant M.S. Raju answered affirmatively stating that indeed baseline data in 2020 was collected during COVID-19 lockdown period. 6. Since the stated period of data collection (01 October 2020 to 31 December 2020) stated by PP in Project Application is impossible to believe or accept on the ground of inherent inconsistency the suspicion of the conduct of		

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	the PP manifesting fraud are established beyond doubt. The stated period of baseline data in EIA of March to May 2023 too is suspect due the past record of cheating about baseline period datas as established from above facts and analysis. 7. Baseline data being the foundation of EIA and having established that Consultant ot PP has engaged in gross manipulations fresh documentation and fresh EIA be directed to be conducted by PP. This is required to be done not only because of several defects in EIA relating to baseline data related to lakes, rivers, wells and Perennial flowing rivers but more because PP has violated TOR and cheated on disclosure period of bascline data collection itself thereby violating TOR 44 & 70. Hoping for sincerely and decisive directions from MoEF & CC to direct PP to compile fresh documentation and conduct Public Hearing again as required under TOR 70. Thanking you, Yours sincerely, Ramesh S. Gauns Copy to (1) The Minister of Environment, Forest and Climate Change, New Detha (2) The Chairman and members of the Expert Appraisal Committee, MoEF&CC, New Delhi		
Letter 6	From: Anil D Salekar, Begwada, Pilgao, Bicholim, Goa Mobile: 9850138372 date: The Member Secretary, Goa State Pollution Control Board, Saligao. Bardez, Goa Subject: Grievances regarding choice of venue for Block-I	The venue of the public hearing was selected by the GSPCB as it was the most convenient in all aspects. The venue is also less than 2 km aerial distance from the mine boundary. The project proponent also provided refreshments twice during the hearing. Ample time was provided to the public for	

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	Bicholim Minerai Block Public HearinG (PH) held on 11 AuGust 2023 at Sarvan organised by Goa State Pollution Control Board GSPCB Madam, We have observed that the venue for PH at Zantye Sports Complex, Savona, Bicholim chosen by GSPCB was unreasonably far from the villages in the core zone areas and those impacted directly. Venue was 13 kms from Sirigao, 09 kms from Mulgao, 05 kms from Lamgao, 07 kms from Pilgao, 12 kms from Maem and 03 kms from Bicholim. Case law in india requires that the venue for the PH should be within 01 kms from the proposed mining project. PH was held in Sarvan village Panchayat Jurisdiction that is not in the core zone of the mining project. Several people could not make it to the venue as it was far from the the core zone localities. There were available Halls attached to Temples in Sirigao, Muigao, Lamga Maem, and very big Hirabai Zantye Memorial Hall in Bicholim but the were not taken. The venue of PH at Bicholim was inconvenient because Public Hearing that an at 09.00 am on 11 August 2023 went on till 01.30 am on 12 August 2023 for nearly seventeen hours. There was not a single hotel at the venue of the Public Hearing. Number of people stayed in the hall starving. Women who stayed on till 01.00 am at night had major problems. We were under impression that It was an absolute prerogative of GSPCB to decide on the date and venue of PH. However after the consultation with some knowledgeable	registration. Hence the allegations are of baseless nature as 834 people attended the PH.	

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	people in this matter we realized that venue had to be within 2 kms from the proposed project. if we had to know this in advance then we would have objected to the venue selected by GSPCB to hold this PH. In the light of various judicial directions given by National Green Tribunal B6(NGT) and Gujarat High Court Judgement of 2003 we call upon you to conduct fresh PH close to our localities and villages at core zone of the mining project. Thanking you, Yours sincerely, Anil D Salelkar Copy to 1. The Union Minister for Environment, Forest and Climate Change, Indira Paryavaran Bhavan, Jorbag Road, New Delhi 110 003 INDIA 2. Chairman and the Members of the Expert Appraisal Committee, MoEF & CC, indira Paryavaran Bhavan, Jorbag Road, New Delhi 110 003 INDIA		
Letter 7	From: Mr. Sharadchandra Krishnarao Vishwasrao Desai Son of late Shri. Krishnarac Ravioba Vishwasrao Desai & that of Ms. Sundarabai Krishnarao Vishwasrao Desai Resident of house no: 1996, Vishwasnagar, Larngao, Bicholim Goa. Date: 11.08.2023. To _ The Member Secretary Pollution Control Board Saligao, Bardez Goa. he Deputy collector of Bicholim Taluka Bicholim Goa. SUBJECT: OBJECTION FOR MINING IN LAMGAO VILLAGE & IN BICHOLIM BLOCK Sir, I am permanent resident of Bicholim being born and	With respect to civil suit bearing no. 188/2015, it is our understanding and on the basis of available official records, the matter was filed against the erstwhile leaseholder SMCL. Vedanta Limited is not a party to the proceedings and no adverse orders have been passed against it. With respect to case no. SDM.BICH.133 CRPC,4.2013., it is our understanding and on the basis of available official records, the matter was filed against the erstwhile leaseholder SMCL wherein SMCL had challenged the order dated 20.02.2018 in a criminal revision application before	The budget towards Environment Monitoring and Air pollution control measures: 408 Lakhs The budget towards Erosion Control Measures,

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	brought up at Village Lamgao having my landed properties in Bicholim and in Lamgao Village. I have alse filed civil suit bearing no: 188/2015-C which is pending in the court of Civil Judge Junior division at Bicholim. Already there is intunction granted by the Civil Court in my favour vide order dated 18.04.2022. The said order reads as under: ORDER i. The application for temporary injunction at exhibit D-3 is granted. ii. The Defendants, thcir relatives, servants, agents, or any other person claiming through or under them are hereby restrained from interfering with the suit property and digging pit in the suit property or from carrying out any such mining activity in the suit property bearing survey no; 15/1 of village Lamgao of Bicholim tatuka until the disposal of suit on merits. The Defendants in the above referred order are : i. Sesa Mining Corporation Limited, Bichclim Iron Ore Mines, Dhabdhaba Bicholim Goa, Pincode: 403504. ii. The Mines Manager, Sesa Mining Corporation Limited, Bicholim Iron Ore Mines, Dhabdhaba_ Bicholim Goa, Pincode: 403504. iii. The A.G.M. Sesa Mining Corporation Limited, Bicholim Iron Ore Mines, Dhabdhaba Bicholim Goa, Pincode: 403504. That the above stated order dated 18.04.2022 passed by the civil court is till date operational in force and binding on the defendants of the suit.	the District and Sessions Court, Mapusa. On 04.07.2023, the District and Sessions Court passed an order quashing the order dated 20.02.2018. With respect to case no. MAM.BICH.MINE.08.2016, it is our understanding and on the basis of available official records, the matter was filed against the erstwhile leaseholder SMCL and the same is pending for adjudication. Necessary measures will be put in place to ensure that there is no flow of mine silt in the neighbouring habitations/ agriculture land. The details of various erosion control measures are provided in Chapter 10. Only the water within the mining area is channelised into the pits and harvested. Detailed hydrogeology study is carried out as per CGWA guidelines and attached as anexure to the EIA. The complainant is referring to the incidents happened during earlier mining operations. All necessary safety and environment protective measures will be taken during the mining operations so as to ensure that there is no occurrence of any untoward incident.	Monsoon preparedness on mines and water treatment is 232 lakhs.

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	That the honorable Deputy Collector has passed Judgement and order dated 20.02.2018 in case no: SDM.BICH.133 CRPC, 4.2013. The said order reads as under: ORDER The Opponent is hereby directed to refill the existing pits with mud in the property surveyed under no: 15 and 16 of village Lamgao on or before 15.03.2018 under strict compliance. Pronounced in the open court. The opponent of the above mentioned case is: M/s Sesa Mining Corporation, Dhabdhaba Bicholim Goa. That the Opponent went in appeal in the Session Court and have got the said order set aside and the matter is sub judice before the Deputy Collector of Bicholim. I have also filed contempt application before Deputy collector Bicholim and the same is pending under no: DCB.BICH. 133 CRPC.4. 2013.2019. That I have also filed application to the office of Mamlatdar of Bicholim Taluka which is also pending under no MAM.BICH.MINE.09.2016 with respect to survey numbers 26/1, 18/6, 24/3, 11/1-O, 11/1-L, 11/1 M, 11/1-Q of village Lamgao of Bicholim Taluka. That there is contamination of well water in the area of village Lamgao. I am having Water testing report issued by the office of Pollution control Board. Water wells of Lamgao Village were getting dried up so also were getting pollutants in the water due to mining. I am having my residential house 1856 in the property surveyed under no: 16/1-A of village Lamgao. That one Mr. Narayan Mone has also filed application to the		

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	office of Mamlatdar of Bicholim Taluka which is also pending under no MAM.BICH.MINE.08.2016 with respect to properties situated in village Maem of Bicholim Taluka. The properties of Mone are situated touching the Mining area mining belt. The zonal agricultural officer / official has also deposed that the plantation is getting affected due to running of mining silt in the water pond serving irrigation of plant. There were frequent accidents of mining burst brining mining silt, boulders, stones down in the Bicholim city, Mulgao Village. One such land slide was witnessed on 16.07.2011 at Mulgao, on 06.06.16 at Pajwada Bicholim. Reference of the above incidents has come in the Judgement of Deputy Collector dated 20.2.2018.. That old Temple situated at Lamgao Village had to be reconstructed. The school in village Lamgao had to be reconstructed due to passing of pit water through school building. The mining pit which is existing at present is situated at the higher level than village of Lamgao and Bicholim City. The said mining pit is having huge accumulation of water posing danger to the inhabitants of Lamgao Village and Bicholim City. If any untoward incident takes place there will be flowing away of nearby human habitation causing numerous casualties and countless monetary & economic irreparable loss of property. That the farmers are getting affected due to reckless mining done previously by the Dempo Mining Corporation' / Sesa Mining Corporation / Vedanta limited. The above companies did mining only by changing their names one after another. The names were changed to cheat farmers.		

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	Farming and plantation in the nearby areas has become difficult rather impossible. The water in the locality is channelized in one pit affecting water elsewhere in the locality. In Lamgao Villlage previously there use to be water at a just distance of 1 to 3 meters from surface but now it is not possible to have the same due to mining pit taking water dip in the pit. Houses have also got cracks due to mining done in the locality. Environmental damage caused by previous mining is irreparable. Flaura and fauna is affected causing damage to nature, plants, water sources, water courses, animals, birds. Considering all the above facts, I pray that no mining be permitted in "Bicholim Mineral Block" as sought to be proposed. Yours faithfully, .		
Letter 8	GOA FOUNDATION, G-8, St Britto's Apartment, Feira Alta, Mupusa, Goa, INDIA The Collector (I), North GOA District, North Goa Collectorate, Panaji 403001 Goa. Subj: Request to cancel Public Hearing on the Vedanta mineral block I-Bicholim, scheduled for 11 August, 2023 Dear Sir, We are writing to you to seek cancellation of the Public Hearing scheduled in respect of the Vedanta mineral block I-Bicholim on 11 August, 2023.	EIA report is prepared as per the TOR issued by MoEF&CC. it is true that this particular mineral block was earlier operated by Sesa mining Corporation ltd (formerly known as Dempo mining	

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	There are very serious grounds for considering and acceding to this request. These are set out below: a) The necessary environmental information and data which are required to be produced in response to the TOR are missing from the draft ELA document. The suppression of necessary information has been achieved by claiming that the Mining Block is a "greenfield project." Such a characterization of what is clearly a brownfield project as a greenfield project is wholly incorrect and cannot be accepted. The Mining Block has been operated from inception as a series of five leases (TC 11-15/1941) neighbouring each other in a straight line, and thereafter, as an amalgamated lease with a single lease number (08/AMLG). The amalgamated lease is the relabelled "I-Bicholim" and has the same boundaries. b) These 5 leases before and after amalgamation have been in operation since 1941, and have been operated by a variety of actors, including Dempo Mining Corporation and Sesa Mining Corporation Ltd, SMC is a wholly owned subsidiary of Vedanta Ltd, which is now assigned this mineral block. The production data of the 5 leases, from 1941 to 2012, is available in public domain. The leases were also operated between 2015 and 2018 by SMC/Vedanta. In normal and legal terminology, such a mine site could never been characterized as a "Greenfield project" for the purpose of obtaining environment clearance. c) The important thing to emphasize here is that the willful	corporation Ltd). Pursuant to Supreme Court judgement in Goa Foundation 2 dated 07.02.2018, all the mining leases granted by the state government were cancelled. Thereafter, State Government in terms of the said order and as per the provisions of MMDR Act put this block for auction as a fresh lease/ grant. Vedanta Ltd was selected as the preferred bidder in the said auction for Block I Bicholim mineral block and accordingly LOI was issued to Vedanta Ltd. As per the MoEF EAC minutes of meeting, in case of LOI grant it is classified as green field and hence in the EIA it has been mentioned as green field. There is no hiding of facts as alleged by the Goa foundation, as the earlier pits can be seen in the surface plan which is provided as plate no 5 of EIA. As per our information, the erstwhile leaseholders have complied with all recommendations prescribed by NEERI in PIL no 1/2008. According to the official records, the three erstwhile leaseholders namely Chowgule and Company Private Limited, Rajaram Bandekar Mines Private Limited and Sesa Mining Corporation Limited have submitted an amount of Rs. 65,00,000 with the	

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	characterization of the project site as a “Greenfield” project has been relied upon to withhold data and the past record of this project proponent (PP) required to be made part of the draft EIA and to the public. This includes the environmental data collected since the lease started operation in 1941 as well as studies by academics and entities like NEERI, which data and information must be used to understand past impacts so as to foresee future impacts. d) We were not able to write this letter earlier for obvious reasons. The Terms of Reference have been communicated to the PP on 16 June 2023 and the 624 page has been manufactured in 4 days! It is unrealistic to expect the public to be able to read such a report in the space of a month. In fact, all the data produced is related to periods prior to the issue of TOR letter, including a report prepared in 2010! In other words, the draft EIA cannot be considered as conforming to the TOR either in letter and spirit. e) Please note that the lease is now granted for a period of 50 years. During the past existence of these leases unparalleled damaged has been done by the mining activity to water bodies including the Asnoda river, springs, fields (most outside the lease boundary), biodiversity, hill slopes, and most seriously, to the ground water aquifer. This has been permanently destroyed. The entire development has been documented and proven in the NEERI report organized under the directions of the	High Court. Desilting work is being carried out by Water Resource Department. The EIA also comprises of detailed hydrogeology report based on CGWA guidelines which concludes that there won’t be any adverse impact of mining on surrounding ground water regime. Explained as above. The EIA report is prepared on the lines of TOR issued to Vedanta ltd. The Baseline monitoring was carried out in march to May 2023. The EIA work did not wait for the issuance of TOR, as standard TOR is available for this purpose. Other specific points raised during EAC meeting held on 3rd May were immediately noted and studies carried out without waiting for the Minutes of Meeting. The	

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	Bombay High Court. The water resources available to this hitherto water surplus village have evaporated, turning the village into an area of drought. The PP has now sought to eradicate all this history of severe ill-effects of mining by terming it a "Greenfield project". This makes a complete mockery of the EIA process, and cannot be permitted under any circumstances. For these reasons, the public hearing is important. It is the right of the people, especially the villagers of Sirigao, to represent what happened in the past 50 years, and to hear whether the scenario would be repeated in the next fifty years. No village should be gifted with such a ghastly legacy. f) We set out various items from the Terms of Reference Compliance section draft EIA report (pp.5-18) which have not been complied with. 6. The Project Proponent shall conduct drone survey of the mine lease area and buffer area and submit during the appraisal for EC. **The drone survey was conducted and will be Submitted during appraisal for EC** **Comment of Goa Foundation: This is material information to understand the topography of the site in the context of aspects such as hydrogeology. If the survey has been conducted, why is it being suppressed?** 7. During the meeting, the EAC noted that old excavated pits exist within the mine lease area. Hence, the Project Proponent needs to submit a letter from the Department	complainant is simply trying to make false allegations. The mineral block is auctioned as a fresh lease and EIA is based on the baseline study carried out during the period March to May 2023. The project proponent has detailed out the various impacts and the environment management plan in details to reduce the environmental impact. As clearly specified in the TOR, the drone survey will be submitted to the EAC during appraisal for EC The clarification from State govt is obtained as part of the Final EIA.	

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	of Geology and Mining, Government of Goa clarifying whether any illegal mining within the mine lease area has been carried out or not and whether the same has been carried out by M/s. Vedanta Limited or not? **The state govt. auctioned Block-I Bicholim Mineral Block as fresh mine and Vedanta was preferred bidder. We have requested to state Govt. for the Clarification, and response is awaited and same shall be provided** **Comment of Goa Foundation: This is an absurd statement given that Sesa Mining Corporation/Vedanta was the earlier operator. Whether illegal mining took place by the project proponent is material information for a public hearing** 20. Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994. The production details need to submit since inception of mine duly authenticated by Department of Mines & Geology, State Government **GREEN FIELD PROJECT** **Comment of Goa Foundation: This is another absurd statement given that Sesa Mining Corporation/Vedanta was the earlier mine operator. The relevant information required to be produced has not been produced.** 24. The PP should submit the real-time aerial video	The 3 month data collected from two PHC's is representative and sufficient for evaluation for the EIA purpose and budgetary allocations are made in the EIA The state government in compliance to the hon. Supreme court order auctioned the mine as a Fresh lease . Vedanta Ltd was selected as a preferred bidder and LOI issued. In such case past data is not required. In case the application for EC was w.r.t renewal of mine lease or expansion project the past production data etc are required. In this particular case the past production data is not required to be produced. The real time video footage of the mine lease will be submitted at the time of EAC meeting. The point made by complainant is in case of a operational mine which is applying for EC for the purpose of lease renewal or expansion. In this case the mine is auctioned as a Fresh lease and the proposal is accordingly prepared.	

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	footage & video of the mining lease area and of the transportation route. **PP shall submit the real —time video footage of the mining lease at the time EAC Meeting.** **Comment of Goa Foundation: This is material information to understand the vegetation that currently exists in the mine and along the transportation route. It must be provided as a link so that the public can study the facts on the ground.** 34. Compliance of the Ministry's Office Memorandum No. F: 350/2017-IA.III (Pt.), dated 30.05.2018 on the judgment of Hon'ble Supreme Court, dated the 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India needs to be submitted and included in the EJA/EMP Report **The Affidavit is enclosed as Annexure-2** **Comment of Goa Foundation: This relates to violations of the Environmental Clearance by Vedanta and is material information for the public hearing. An affidavit is not equivalent to compliance. Compliance would require a statement of violations, if any, and payment of sums as required as per the MoEFCC OM.** 35. PP Shall Submit a Certificate from Chief Conservator of Forests regarding involvement of forest Land in the Mining lease area if any. In case forest and is involved: i) PP should submit the proof of application made for obtaining forest clearance and ii) a map clearly showing the forest & nonforest area.	The annexure 3 is the letter of approval of mining plan. The surface plan and geological sections are part of EIA as plate no 5 and plate no 4A1 to A4. The auction document of the state government clearly states that there is no forest area within the mineral block. Letter from the state forest department is also attached in the final EIA. Even earlier i.e before auction of the mines , there was no forest land within the mines. Approved lease sketch is attached in the EIA and land classification is provided in final EIA.	

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	As per the auctioned document given by state govt. there is no forest area involved in Block-I Bicholim Mineral Block Comment of Goa Foundation: No certificate is produced as required by the TOR. 36. Status of forestry clearance for the broken-up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished. **NA** **Comment of Goa Foundation: This is another absurd statement considering that the leases have been operated from 1941 till 2018.** 37. PP should submit the details of survey number [viz. survey no, area in hectare, classification of land (government, private, forest, grazing land etc.), villages] duly authenticated by State Government, falling in the mining lease area **Enclosed in lease sketch as Plate.No.2** **Comment of Goa Foundation: The classification of land has not been provided by survey number as required.** 55. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations. **The socio-economic study was conducted Ref. Chapter-3, Para.3.9**	The base line monitoring is carried out as per the TOR . The data is valid as per specific TOR point no 4.1 . Point clarified above. The report from Regional office is required in case of a existing valid EC. In this particular case there is no existing EC. The mine is auctioned as fresh mine and for which purpose EC is being applied for . Once the EC is obtained the lease would be executed and other permissions obtained, then the mining operations will start.	

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	Comment of Goa Foundation: The health survey in para 3.9.1.19 has been conducted by collecting data from two PHCs working in the buffer zone, for just three months prior to the survey. This is absurd as much longer data is available, especially since the PP and Mineral Foundation of Goa partly funded by the PP have been conducting health camps as part of CSR for decades. 68. The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry **Comment of Goa Foundation: There is no response at all by Vedanta. The response to the Questionnaire ts not roduced.** 70. Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. rocess) will entail conducting the PH again with the revised documentation **Baseline collected during summer season, 2023** **Comment of Goa Foundation: The response has little connection with the ToR point. Note that since required information has been suppressed, this would anyway require conducting the PH again with revised documentation**	The project proponent will obtain both CTE and CTO from the GSPCB before starting the mining operations.	

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	71. As per the circular no. J-11011/618/2010-IA.II (I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable. **Green field Project** **Comment of Goa Foundation: The claim is that because this is a Greenfield project (which is incorrect), the report need not be produced.** g) Other important information relevant for a public hearing has not been provided, most important of which is the mining plan. Without a mining plan, it is not possible to evaluate its environmental impacts. The Annexure 3 of the EIA / EMP also refers to an "*annexure attached of surface mining plan and cross-section*", which is missing. I am confident that once you recognize this glaring misrepresentation and suppression of essential information after receipt of this letter, you will also conclude that the Public Hearing is vitiated due to an incomplete draft EIA report — which is based on the false claim that the project is a green field project when it is actually (and quite clearly and without doubt) a brownfield project. The Public Hearing is being conducted with the assistance of the Goa State Pollution Control Board. The Board will doubtless produce before you, if required, copies of the		

Sensitivity: Internal (C3)

	consent orders issued to the erstwhile leaseholder (Sesa Mining Corporation/Vedanta) for operation of these leases since the time the Board was constituted in 1987. In fact, if this were a Greenfield project, why is there no consent to establish (CTE) issued by the Board? An environmental Public Hearing is not an occasion to correct blatant errors in the draft EJA nor is the public required to point out such egregious claims. The draft EIA report must conform to the TORs in all respects, and only then can the public hearing proceed. The draft EIA uploaded to the website of the PCB is severely deficient in this regard. This issue needs to be settled first. Your office can sort out this problem with the PCB, especially with regard to the claim of then project being a “Greenfield project.” After a proper draft EIA report conforming with the TORs in all respects is received and verified, the public hearing can be notified and held. We therefore reiterate our demand that the public hearing be cancelled in the circumstances, till a fresh draft E]A — prepared with some degree of honesty and scientific integrity — can be placed before the public. Sincerely, Dr Claude Alvares Director Cc: Goa State Pollution Control Board		
Letter 9	Letter from Village Panchayat Mulgao dtd 7/8/2023		

Sensitivity: Internal (C3)

	1. Demarcation of village boundaries active mining lease boundaries & Buffer Zone boundaries to be done in presence of all committees and Village Panchayat Mulgao. 2. Company should exclude houses, Temples, Lakes paddy Fields bhagayatis from mulgao mining blocks as per new mining lease. 3. Desilting of paddy fields should be carry out by company on priority. 4. Pending compensations of famers from 2011 to till date to be release on immediate basis. 5. Priority to be given to mulgao villagers for Employment, the Company should also give preference to mulgao villagers for business opportunities. 6. Mulgao Communidade is having 2.21 laks sq.mrts area in the said mining block of which lease rent is in arrears from the year 2011. 7. Mulgao communidad is having three water lakes under Survey No.69/1 & 71/0 which has been filled with mining silt need to be cleaned in original form. 8. Arrangement of smooth flow of water to the kulagars in the area in summer season. 9. Attend and provide solution to the difficulties faced by the ritreched sesa mining worker of the	The mineral block is auctioned by state government. The habitations within the lease were always existing . A safety buffer of minimum50m will be maintained form these habitations which includes houses, temples, agriculture properties etc. Vedanta ltd is a new lessee and the mining operations have not started. There is no compensation liability with Vedanta ltd company. The earlier mine owner was a different entity and the compensation matters would be dealt by them. Employment preference will be given to locals only. There would be lot of indirect employment and business opportunities due to mining which will benefit the local population. The lease needs to be executed first for further needful in this case. It is understood that the earlier mining company had constrcted these ponds which are referred by the villagers as lakes. These ponds were maintained and desilted by earlier mine owner and the practise will follow. Flow of water will be ensured .	

Sensitivity: Internal (C3)

	mulgao village. 10. Mining grants to Village Panchayat and Devasthan to be increased. 11. Compensation for houses damaged caused due to operation of mines in the VP Jurisdiction. 12. Also brings to your notice that villagers require Public information in details with regards mining in mulgao village. We strongly opposed resumption of mining in mulgao village till we fulfill the above Point.	All the retrenched workers were provided opportunity to join the work force of Vedanta ltd and many of the workers took benefit of this opportunity. Vedanta has won the mine in auction and has not yet started the mining operations. It is to ensure the villagers of mulgao that a safety barrier of minimum 50 m will be maintained towards the habitation. There wont be any drilling and blasting . There is no shifting of habitation proposed.	
Letter 10	Letter from Pilgao village panchayat RefNo.VP/PIL/BICH/2023-24/L.SI To The Mermber Secretary, Goa State Pollution Control Board, Saligao Bardez Goa. Sub :- Point to be discussed in Public Hearing. Sir, With regards to the public Hearing as per the Environmental impact assessment 2006 w.rt Block Bicholim Mineral Block with area of 478.5206 ha located in Bicholim Taluka whích was held on 11/08/2 023. In this regards I would like to bring to your attention to add the following points on the record as the same has not been recorded on the minutes of the hearing. 1) The Dempo Mining Corporation was allotted approximately 1.3 MPTA EC as per the reliable sources.	The current project doesnot include beneficiation plant.	

Sensitivity: Internal (C3)

	Accordingly they had designed and structure the beneticiation plant (Washing Plantl Known as New Beneficiation Plant in Pligao Village Bicholim Goa. The tailing Pond was also constructed considering the 1.3 MPTA EC still the water from the tailfíng point (silt) enters in the agriculture field which leads to the contamination of soil, ground water and surface water by chemical emitted from mining processes and agriculture field get destroyed, about 60 hector of agriculture field has been destroyed so far. Later on Sesa Mining Corporation Linited took over mining business from Dempo Mining Corporation and presently Vedanta is running the said mining business. 2) The Beneficiation plant has a capacity of 1.3 MPTA if the capacity is increased beyond the 1.3 MPTA than the tailing point will overflowed and silt will enter in the agriculture field and water bodies, which will leads to soil contamination and water pollution. The infrastructure of Mining Company was not enough to handle 1.3 MPTA of Ore and it will destroyed all major fertile land and natural habited if any Mining company is allowed to operate over and above. Hence we have strong objection for production of 2.0 MPTA Ore and all the damages to the fields and land to be restored. 3) Also there is some agriculture land bearing sy.no.66/40,164/01, 184/4,5,9,10,14, 15,16,19,20 &21. 165/8. 187/4,5,6,8, 10,12, 13. 66/40, 154 and others of Village Piligao, where there is illegal encroachment have been done by mining company to run miníng activities.	There is a beneficiation plant of SMCL in Pilgao village. However it is a separate project and not part of the Block I Bicholim mineral block. In case the SMCL company requires to expand its capacity, they would be required to obtain Environment clearance for the same.	

Sensitivity: Internal (C3)

	Hence the issue related to above agriculture land farmers regards to the agriculture land has to be resolved on the priority, until it gets resolved we have strong objectíion for operatíon of míning activities in Piligao Village Bicholim Taluka. Kindly take note of the above point and do the needful.		

Sensitivity: Internal (C3)

ANNEXURE-R4-5

Government of India
Ministry of Environment, Forest and Climate Change
IA Division
(Non-Coal Mining)
***

Minutes of Expert Appraisal Committee meeting Non-Coal Mining held from 21/09/2023 to 22/09/2023

Date: 29/09/2023

MoM ID: EC/MOM/EAC/553451/9/2023

Agenda ID: EC/AGENDA/EAC/553451/9/2023

Meeting Venue: N/A

Meeting Mode: Virtual

Date & Time:

21/09/2023	10:30 AM	05:30 PM
22/09/2023	10:30 AM	05:30 PM

1. Opening remarks

The 20th meeting of the Re-constitution of Expert Appraisal Committee (EAC) for Environmental Appraisal of Mining Projects (Non-Coal) of the Ministry of Environment, Forest and Climate Change was held during 21-22 September, 2023 through video conference. The list of participants is annexed herewith. After login of the Committee Members through video conference link provided by NIC discussion on each of the Agenda Items was taken up ad-seriatim.

2. Confirmation of the minutes of previous meeting

The minutes of the 19th EAC meeting held during 24-25 August, 2023 were placed before the members of the EAC.

3. Details of proposals considered by the committee

Day 1 -21/09/2023

3.1. Agenda Item No 1:

3.1.1. Details of the proposal

Majhgawan Diamond Mine of M/s. NMDC Ltd for 0.72 LTPA of overburden removal and processing of kimberlite ore (8 LTPA) for production of 1.00 lakh carats of Diamond per annum within mine lease area of 162.631 Ha (Supplementary Mine Lease) Located at Majhgawan, Tehsil & District Panna, Madhya Pradesh by **NMDC LIMITED** located at **PANNA,MADHYA PRADESH**	
Proposal For	Fresh EC

Proposal No	File No	Submission Date	Activity (Schedule Item)
IA/MP/MIN/442291/2023	J-11015/121/2018-IA-II(M)	02/09/2023	Mining of minerals (1(a))

3.1.2. Project Salient Features

The instant proposal of M/s NMDC Ltd. is for mining of Diamond in Majhgawan Diamond Mine for 0.72 LTPA over burden removal and processing of Kimberlite ore of 8.0 LTPA for production of 1.00 lakh carats of Diamond per annum in the mine lease area of 162.631 Ha (Supplementary mine lease), located at Village Majhgawan, District Panna, Madhya Pradesh.

3.1.3. Deliberations by the EAC in previous meetings

N/A

3.1.4. Deliberations by the EAC in current meetings

The Project Proponent has informed the EAC that they have changed the EIA Consultant of M/s Vimta Labs Ltd to M/s Ecomen Laboratories Ltd. The Project Proponent also informed the EAC that M/s Vimta Labs Ltd has given no objection certificate dated 15.09.2023 to M/s NMDC to appoint any other Accredited EIA Consultant for the above said project. The new EIA Consultant, M/s Ecomen Laboratories Pvt Ltd has also given an undertaking vide letter dated 16.09.2023 stating that they have gone through the content and data of Final EIA/EMP Report. The EAC noted that the new EIA Consultant has given an undertaking at an interval of one day only. The EAC was of the view that the new EIA Consultant, M/s Ecomen Laboratories Ltd has to revalidate the baseline data for one month to ascertain the facts and figures presented in the EIA report and also to ascertain the ground reality.

The EAC also noted that the mine lease area is located within the Gangau Wildlife Sanctuary of Panna Tiger Reserve. The Project Proponent has informed the EAC that the Hon'ble Supreme Court order in I.A No: 1485 and 1507 dated 13/8/2008 and I.A No: 47252 of 2021 dated 30/11/2022 in W.P (Civil) no: 202 of 1995 permitted mining operations in Diamond Mining Project, Panna in Gangau wildlife sanctuary of Panna Tiger Reserve.

The PCCF (Wildlife) / Chief Wildlife Warden, Bhopal, Madhya Pradesh vide letter no: 1608 dated 24/2/2023 has accorded approval for renewal / extension of Wildlife clearance under Wildlife (Protection) Act, 1972 over 275.963 Ha (main and supplementary mining lease area) lease falling in Gangau sanctuary under Panna Tiger reserve and for mining in an area of about 10 Ha (of which 1.5 Ha is forest area) for a period of 20 years which is valid upto 30/6/2040.

The EAC noted the recent orders of the Hon'ble Supreme Court dated 26.04.2023 and 28.04.2023 wherein it has been directed that *"any activity, which is prohibited by both the guidelines as well as the ESZ notification shall strictly be prohibited. Since the mining activity in ESZ area is a prohibited activity, there is no question of such an activity being permitted in an ESZ area even if it falls beyond the distance of one kilometer from the boundary of the protected area"*.
In view of the above, the EAC opined that the Project Proponent may seek a legal opinion regarding the applicability of the aforesaid orders in this instant proposal. The EAC also opined that the Ministry may seek comments from the ESZ Division since the project is located within the Gangau wildlife sanctuary of Panna Tiger Reserve and whether the aforesaid orders dated 26.04.2023 and 28.04.2023 are applicable in the instant proposal or not. Based on the discussions held, the EAC **deferred** the proposal for want of following additional information: -

i. The Project Proponent needs to revalidate the baseline data by collecting one-month fresh baseline data by new EIA consultant to ascertain the facts and figures presented in the EIA report and also to ascertain the ground reality. The Project Proponent also needs to the submit the comparison of both baseline data.

ii. The EAC opined that the Project Proponent may seek a legal opinion regarding the applicability of the orders dated 26.04.2023 and 28.04.2023 in this instant proposal.

iii. The EAC also opined that the Ministry may seek comments from the ESZ Division since the project is located within the Gangau wildlife sanctuary of Panna Tiger Reserve and whether the aforesaid orders dated 26.04.2023 and 28.04.2023 are applicable in the instant proposal or not.

3.1.5. Recommendation of EAC

Deferred for ADS

3.2. Agenda Item No 2:

3.2.1. Details of the proposal

Expansion of Jilling Langalotta Iron Ore Mine by **ODISHA MINING CORPORATION LIMITED** located at **KENDUJHAR,ODISHA**			
Proposal For		Fresh EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/OR/MIN/440292/2023	J-l1015/959/2007-IA.ll(M)	15/08/2023	Mining of minerals (1(a))

3.2.2. Project Salient Features

1. The instant proposal is for mining of Iron Ore in Jilling Langalotta Iron Ore Mine of M/s Odisha Mining Corporation Limited with total excavation of 17.4385 Million TPA [Saleable Iron ore- 7.7723 Million TPA, Mineral rejects-2.2276 Million TPA, Waste-7.4385 Million TPA, Topsoil: Nil] along with existing: 5 nos. with Total Capacity - 1400 TPH (Stationary Crushing Unit), 2 x 300 TPH, 2 x 200 TPH, 1 x 400 TPH, Existing: 3 nos. with Total Capacity - 150 TPH (Mobile Screening Unit), 1 x 150 TPH Mobile Screening Plant 1 x 50 TPH, Stationary Screening Plant, 1 x 100 TPH Mobile Screening Plant, New: 10 nos. with Total Capacity - 4550 TPH (Crushing Unit), 1x800 TPH, 3 x 600 TPH, 3 x 400 TPH, 1 x 300 TPH, 1 x 250 TPH, 1x 200 TPH, New: 4 nos. with Total Capacity - 1000 TPH (Portable Screening Units), 4 x 250 TPH in the mine lease area of [456.037 ha (as per DGPS)/456.100 ha (as per RoR)] located at Village(s) Jalahari, Jurudi, Banspani, Khuntapani, Bholebeda, Jajang, Baitarani Reserve Forest in Barbil Tehsil, Keonjhar District, Odisha.

2. The details of the project as ascertained from the documents submitted by the Project Proponent and as revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude 21°56'37.5297”N to 21°08'53.4185”N and Longitude: 85°25'08.8832”E to 85°26'37.1370”E. The mine lease area falls under the Survey of India Toposheet No: 73F/8 and 73G/5 and falls in Seismic Zone-II.

ii. The proposed project activity is listed at Schedule no. 1(a) Mining of Minerals of the schedule of the EIA Notification, 2006 and falls under Category “A” as the mining lease area is greater than 250ha and appraised at the Central level.

iii. The Project Proponent has submitted that the previous lessee obtained Environmental Clearance for a production capacity of 6.28 MTPA of Iron Ore vide EC letter J-11015/959/2007-IA-II (M) dated 7th June 2012.

iv. Details of Terms of Reference (ToR):

Date of application	File. No/ Proposal No	Consideration	Details	Date of accord
13.04.2021	IA-J11015/ 34/2021-IA-II(M) IA/OR/MIN/ 207724/2021	13-16 July, 2021	Terms of Reference of M/s Odisha Mining Corporation for Jilling Langalotta Iron Ore Mine [456.037 ha (as per DGPS)/456.100 ha (as per RoR)] with total excavation of 15.668 Million TPA [Saleable Iron ore- 9.239 Million	04.08.2021

			TPA, Mineral rejects-0.761 Million TPA, Waste 5.668 Million TPA, Topsoil: Nil] with proposed 1 x 2000 TPH stationary multistage crushing & screening plant along with existing 1x300 TPH Stationary Crusher Plant (In pit plant), 1x300 TPH Stationary Crusher Plant (OCU1), 1 x 200 TPH Stationary Crusher Plant (OCU-2), 1 x 300 TPH Stationary Crusher Plant (OCU-3), 1 x 200 TPH Stationary Crusher Plant (OCU-5), 1 x 400 TPH Mobile Crusher Plant, 1 x 50 TPH Stationary Screening Plant, 1 x 150 TPH Mobile Screening Plant, 1 x 100 TPH Mobile Screening Plant, 5 x 150 TPH Mobile Screening Plant at Village(s) Jalahari, Jurudi, Banspani, Khuntapani, Bholebeda, Jajang, Baitarani Reserve Forest in Barbil Tehsil, Keonjhar District, Odisha	
26.10.2022	IA-J11015/ 34/2021-IA-II(M) IA/OR/MIN/ 292822/2022	9-11 November, 2022	Amendment in Terms of Reference (ToR) dated 04.08.2021 for M/s Odisha Mining Corporation Limited for Jilling Langalotta Iron Ore Mine [456.037 ha (as per DGPS)/456.100 ha (as per RoR)] with total excavation of 17.4385 Million TPA [Saleable Iron ore-7.7723 Million TPA, Mineral rejects-2.2276 Million TPA, Waste-7.4385 Million TPA, Topsoil: Nil] along with Existing: 5 nos. with Total Capacity - 1400 TPH (Stationary Crushing Unit), 2 x 300 TPH, 2 x 200 TPH, 1 x 400 TPH, Existing: 3 nos. with Total Capacity - 150 TPH (Mobile Screening Unit), 1 x 150	28.11.2022

			TPH Mobile Screening Plant 1 x 50 TPH, Stationary Screening Plant, 1 x 100 TPH Mobile Screening Plant, New: 10 nos. with Total Capacity - 4550 TPH (Crushing Unit), 1×800 TPH, 3 x 600 TPH, 3 x 400 TPH, 1 x 300 TPH, 1 x 250 TPH, 1× 200 TPH, New: 4 nos. with Total Capacity – 1000 TPH (Portable Screening Units), 4 x 250 TPH, located at Village(s) Jalahari, Jurudi, Banspani, Khuntapani, Bholebeda, Jajang, Baitarani Reserve Forest in Barbil Tehsil, Keonjhar District, Odisha	

v. Details of Mine Lease:-

S.no	Grant of Pl/mine lease/ Order	Date of the grant	Name of the Mineral	Period of Grant	Granted by	Mine lease area in Ha
1	Reservation of Jilling-Langlotta Iron Ore vide No 299/ IV(AB)SM-01/ 2021/SM, Bhubansehwar	11.01.2021	Iron Ore	10 years	Govt of Odisha	456.037 ha (as per DGPS)/ 456.100 ha ha (as per RoR)
2	Letter of Intent vide 307/IV(AB) SM-01/2021/SM, Bhubansehwar	11.01.2021	Iron Ore	10 years	Govt of Odisha	456.037 ha (as per DGPS)/ 456.100 ha ha (as per RoR)
3	Order No 317/IV (AB) SM-01/ 2021/SM and Order is valid for a period of 2 years from the date of execution of the lease deed or till the date of getting fresh approvals, clearances, licenses, permits and the like whichever is earlier.	11.01.2021	Iron Ore	10 years	Govt of Odisha	456.037 ha (as per DGPS)/ 456.100 ha ha (as per RoR)
4	Grant of mining lease vide order no 338/SM	11.01.2021	Iron Ore	10 years	Govt of Odisha	456.037 ha (as per DGPS)/ 456.100 ha ha

						(as per RoR)

vi. Details of executed Mine leases

S.no	Date of grant of Lease execution	Period of Grant		Details
		From	To	
1	Date of entering into original lease deed.	11.01.2021	10.01.2031	Certificate No: IN-OD01560940427432T

vii. Land Use/Land Cover of the Mine Lease Area:

Private land	42.001 ha
Forest Land	392.289 ha
Non-Forest Govt. Land	21.747 ha
Total Mining lease area (MLA)	456.037 ha (as per DGPS Survey)
Private land for crusher, workshop & other infrastructure outside the MLA	All facilities within ML Area
Additional information(if any)	ML Area 456.100 ha as per RoR

viii. Details of Mining Plan: -

Modification of Mining Plan along with Progressive Mine Closure Plan approved by Indian Bureau of Mines	Letter No.	Lr No. MPM/A/15-ORI/BHU/2021-22/1241
	Date	18.11.2021
	MLA	456.037 ha (as per DGPS)/ 456.100 ha ha (as per RoR)
	Mineral	Iron Ore (Major Mineral)
	Validity	Up to 2024 - 25
Additional information (if any)	On account of correction in the waste quantity, a corrigendum to the Mining Plan Approval Letter was issued by IBM vide letter No. ORI/IRON/KJR/MCDR-93/BBS dated 11.10.2022	
Mining Parameters	Quantitative Description	
Method of Mining	Fully Mechanised Open Cast Mining	
Drilling/Blasting	In Jilling-Langalotta, Jilling-Gangaigora and Appahatu quarries 13 m and 11 m deep boreholes respectively will be drilled using 115 - 150 mm dia DTH drills. These will be filled with explosives and blasted. The powder factor has been estimated to be 12 t/kg. The explosives consumption at the 6.28 MTPA stage ~875 t/yr which is expected to increase to 1306 t/yr at the 10 MTPA stage.	
Bench Height	10 m	
Bench Width	10 - 15 m	
Individual bench slope	80° - 85°	
Overall pit slope	45^{o}	
Life of mine	8 years incl. present plan period. May be revised on basis if reserves are updated on basis of further detailed exploration	
RoM output size	10.0 MTPA	
Transportation details	At least 70% of the production will be despatched by railway wagons from private siding located within ML area. Max. 30% of production will be despatched by road.	
Dumpers capacity	28 nos. 60 t capacity + 40 nos. 80 t capacity	
OB/Waste	About 11.59 Mm3 overburden will be generated and 1.74 Mm3 will be dumped in existing active external OB dump within ML. About 0.528 Mm3 will be dumped in 2 new external OB dump within mine lease.	

	Balance 9.32 Mm3 will be used for backfilling exhausted quarries. All mineral rejects, generated during the residual mine life to be blended with high quality iron ore & sold. Accumulated stock of mineral rejects, presently dumped in 2 nos. external dumps to be re-handled and sold off with / without blending. Any top soil to be generated shall be concurrently used in plantation.
Additional information (if any)	One of the existing open cast quarries (out of the four) exhausted. These will be backfilled.

ix. Water requirement:

Total water requirement	1166 m^3/day	Fresh water	916 m^3/day
		Treated water	250 m^3/day
Source	Ground water and Surface water		
Permission	No Objection Certificate has been obtained from CGWA vide letter no. CGWA/NOC/MIN/REN/1/2023/7964 dated 22-06-2023 for abstraction of fresh water of 480 m^3/day and is valid up to the period 30.03.2024.		
Additional information(if any)	In future, about 916 m^3/day of fresh water is required, 436 m^3/day shall be drawn from DalkoNala which flows through the ML area. OMC is submitting an application to the Department of Water Resources, Govt. of Odisha for drawal of water from DalkoNala. The balance 480 m^3/day (only for potable use) shall be drawn from bore-wells.		

x. Nearest village / town/ highway/railway station / water bodies/monument:

Particulars	Particular's Name	Distance & Directions
Village	Jalahari Jurudi	Part of Village located within NW part of ML area Adjacent to M.L. area on West
Town	Joda	~2.5 km N
Highway	Expressway No. 2 NH-215	Expressway No. 2 passes through ML area NH-520: ~6.8 Km N
Interstate Boundary	Odisha-Jharkhand	~15.2 km, NE
Railway Station/line	Jalhari	~0.7 km W of ML
	SE-Rly.'s Padapahar Jn.– Banspani – Keonjhar – Jakhapura Jn. B.G. Main Line passes through ML	
Water body	DalkoNala Baitarani River	Flows from W to E through approx. Middle of ML area ~0.5 km, E
Monument	None within 15 km	

xi. Presence of Environmentally Sensitive areas in the study area:

Forest Land/Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter/Remarks
Forest Land	Yes	An area of 392.289 ha of forest land lies within mine lease area. Stage II FC obtained vide Lr No F.No-8-49/98FC(pt) dated 8th October 2014 for an area of 342.602 ha of forest land. An application for diversion of balance area of 22.697 ha of forest land has been submitted vide proposal no. FP/OR/MIN/142115/2021 dated 08.05.2021. Compliance to the ADS sought by MoEFCC during scrutiny of Stage-I FC compliance

		is under recommendation process by State Forest Dept. Net Present Value (NPV) of the Forest amounting to Rs. 27,71,46,750/- has been paid.
National park	No	Nil within 10 km radius
Wildlife Sanctuary	No	
Eco-Sensitive Zone(ESZ)/Eco-Sensitive Area(ESA)	No	
Wildlife corridor, migration route etc.	No	Karo-Karampada Elephant corridor: ~18 km, NW
Schedule-I Species	Yes	Indian Elephant, Sloth-bear & Mouse Deer as per the list authenticated by DFO Keonjhar Division.
Wildlife Conservation Plan	Yes	Site-Specific Conservation Plan has been prepared and approved by the PCCF (WL) vide letter No.10895 dt.15.12.2010. Total financial out lay: Rs.412.00 lakhs .

xii. Green belt/plantation details:

Proposed area for green belt/plantation	183.718 ha at Conceptual Stage
Budget for green plant& plantation till the end of life of mine.	Rs 4,54,50,000/- (Rupees Four Crore Fifty Four Lakhs Fifty Thousand Only)
Budget for nursery	Nil as plantation will be outsourced to Odisha State Forest Development Corporation (a Govt. of Odisha entity) who has their own nurseries.
7.5 m barrier & non-mineralized zone	*83.0191 ha (40.696 ha over external dumps + 39.5539 ha mineral storage area + 2.7692 ha mineral processing area)*
50 m safety zone of nallah, roads, electric lines	Included in above
500 m safety zones of nearest habitation villages	-
Additional information (if any)	Plantations over an area of 1.91 ha of exhausted quarry benches & backfilled areas

xiii. Baseline details:

Baseline Data (Air / Water / Noise / Soil / Ground water table/ others)	
Period of baseline data collection	01-10-2021 to 31-12-2021
Season (Summer / Pre-monsoon / Post-monsoon / Winter)	Post-Monsoon Season
Predominant Wind direction (From)	West
Ambient Air Quality (no. of locations) and results	No. of Location Parameters Results 9 PM10 44.0 to 95.0 mg/m^3 PM2.5 27.0 to 55.0 mg/m^3 SO2

	4.0 to 10.2 mg/m^3 NO2 10.3 to 22.0 mg/m^3 CO 0.087 to 1.654 mg/m^3
Noise level (no. of locations) and results	No. of Location Parameters Results 08 During Day Time [Leq dB(A)] 38.1 to 56.4 During Night Time [Leq dB(A)] 37.1 to 45.8
Water Quality (no. of locations) and results	Ground water quality No. of Location Parameters Results 06 pH 6.71 to 7.08 TDS (mg/l) 54 to 306 Fluoride (mg/l) 0.1 to 0.24 Chloride (mg/l) 13.5 to 61.7 Fe (mg/l) 0.05 to 1.96 Surface Water Quality No. of Location Parameters

	Results 06 pH 6.94 to 7.26 DO (mg/l) 5.6 to 6.8 BOD (mg/l) 2.0 to 3.0 Total Coliform (MPN/100 ml) 1000 – 1700
Soil Quality (no. of locations) and results	No. of Location Parameters Results 06 pH 5.67 to 7.62 Electrical Conductivity (µS/cm) 49.7 to 254 Organic Matter (%) 0.84 to 5.91 Available Nitrogen (kg/ha) 50 to 188 Available Phosphorus (kg/ha) 0.2 to 3.1 Available Potassium (kg/ha) 98 to 476
Traffic study (no. of locations) and results	The maximum daily traffic on this road as monitored in December, 2021 was 12697 PCUs (see Table 3.53.2 in Chapter 3). It is expected that expansion of the mine will lead to increase in vehicular traffic by ~1140 PCUs per day (1 truck =

	3 PCUs). Thus the resultant vehicular traffic (~13,840 PCUs/day) will remain much below the maximum design service volume. The maximum daily traffic on this road as monitored in December, 2021 was 12697 PCUs. It is expected that expansion of the mine will lead to increase in vehicular traffic by ~1140 PCUs per day (1 truck = 3 PCUs). Thus the resultant vehicular traffic (~13,840 PCUs/day) will remain much below the maximum design service volume.

xiv. Public Hearing (PH) Details:

Advertisement for PH with date	• English daily newspaper: **"**The New Indian Express", Bhubaneshwar edition dated 06 April, 2023 • Odiya daily newspaper: "The Pragatvadi", Bhubaneshwar edition dated 06 April, 2023
Date of PH	09th May, 2023
Venue	JalahariMouza (Khata No. 34, Plot Nos. 253, 254 &253/431), Barbil Tehsil, Keonjhar District
Chaired by	ShriJadumaniMahala, OAS, (SAG), Addl. District Magistrate (Revenue), Keonjhar
Main issues raised during PH	1. Employment 2. Supply of clean drinking water 3. Improvement in education facilities and infrastructure 4. Improvement in health care delivery systems 5. Air pollution and diseases due to air pollution 6. Poor conditions of roads 7. Need for support to Self Help Groups (SHGs) l) Garbage disposal
Budget proposed for addressing issues raised during PH	Rs. 1865.582 Lakhs (To be spent over 3 years)
Additional information (if any)	Meeting attended by 482 persons including 328 persons from the Core Zone Villages. 39 persons (37 from the Core Zone villages). 33 written representations also havebeen received.

xv. Details of CTE, CTO, Certified Compliance Report and Past production details:-

Consent to Establish (CTE)	Odisha State Pollution Control Board granted the Consent to Establish vide order dated 09.08.2018 in favour of M/s Essel Mining and Industries Limited.
Consent to Operate (CTO)	Odisha State Pollution Control Board granted the Consent to Operate vide order dated 31.03.2022 for production of Iron Ore (ROM) 6.28 MTPA and the consent order is valid for the period 01.04.2022 to 31.03.2023 in favour of M/s OMC Ltd.
Certified Compliance Report (CCR)	Certified Compliance report issued by the Regional Office, MoEF&CC vide F.No: 101-420/23/EPE dated 09.08.2023 for the EC dated 07.06.2012. Site visit was conducted on 07.07.2023.
Past production	Certified production details issued by the Dy. Director of Mines vide Lr.Memo No: 2265/Mines, dated 18.05.2021 for the period 1994-95 to 2022-23. Year of Production EC sanctioned capacity (t) Actual Production (t) Excess Production beyond the EC sanctioned capacity

	1993-94 - - - 1994-95 - 442127 - 1995-96 - 555942 - 1996-97 - 622305 - 1997-98 - 922181 - 1998-99 - 934156 - 1999-00 - 819426 - 2000 – 01 -

	1277927 - 2001 – 02 - 1613107 - 2002 – 03 - 1967094 - 2003 – 04 - 2054898 - 2004 – 05 - 3378059 - 2005 – 06 4200000 3856454 - 2006 – 07 4200000 3460258 - 2007 – 08 4200000 3997499 -

	2008 – 09 4200000 4599848 399848 2009 – 10 4200000 4224984 24984 2010 - 11 4200000 *2947756* 0 2011 - 12 4200000 172558 0 2012 - 13 6280000 2306742 0 2013 - 14 6280000 2683497 0 2014 - 15 6280000 0 0 2015 - 16 6280000

	0 0 2016 - 17 6280000 0 0 2017– 18 6280000 447629 0 2018– 19 6280000 6271381 0 2019 - 20 6280000 6268396 0 2020 - 21 6280000 196350 0 2021 - 22 6280000 5653000 0 2022 - 23 6280000 6280000 0

Compliance of Hon’ble Supreme Court order dated 02.08.2017	A request letter was submitted by OMC to Jt. Director of Mines, Joda, Dept. of Steel & Mines with a request to duly authenticate the production figures since inception of mine and to provide the details of demand served to the ex-lessee, if any, for the Ores/Minerals raised in excess of the approved quantity with respect to EC for violation of EP Act, 1986 and violation of Mining Plan and CTO pertaining to Jilling-Langalotta Iron Ore Mining Project. In response to the above, Joint Director Mines, Joda, District Keonjhar vide letter dated 30.12.2021 has provided the certificate regarding payment towards compensation for excess production made by Ex-lessee. Details of Demand Notices and Status-Common Cause Judgement S.No Details of Violation Demand Notice Amount 1 EC Demand Notice No. 4040/ Mines dt.02.09.20I7 Rs.641,2432,386/- 2 FC Demand Notice No.6375/Mines, dt. 26. I2.2017 Rs.1056,05,98,961/- 3 MP/CTO Demand Notice No.3862/Mines, dt. 19.09.2018 Rs. 128,12,05,207/- As per records available, M/s. Essel Mining & Industries Ltd, had deposited a total of Rs. 1825,87,36,554/- towards the compensation amount in the designated bank account as directed by the Hon’ble Supreme Court vide order W.P. (C) No. 114/2014 (Common Cause) dated 02.08.2017. Further, OMC started operating Jilling-Langalotta Mine with effect from28-02-2021. Since then, no Environment & Forest related violation has been reported in respect of Jilling-Langalotta Iron Ore Mines. Project Proponent has submitted the Certificate from the Office of the Joint Director Mines Joda, Dist; Keonjhar vide No. 7304/Mines, dated 30.12.2021 certifying that the present lessee M/s Odisha Mining Corporation Limited is confined the mining activity within the granted and executed leasehold area.

	Project Proponent also submitted the Affidavit in a non-judicial stamp paper of Rs 100 bearing no. M 054791 dated 09.07.2021 stating that the M/s OMC shall comply with all the statutory requirements and judgement of Hon'ble Supreme Court dated 02.08.2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India and Others before grant of ToR/EC pertaining to Jilling-Langalota Iron Ore mining project.

xvi. Rehabilitation & Resettlement (R&R):

R & R details	Present proposal does not involve any land acquisition. There are some patches of private land within the ML area but these will not be acquired. Thus the project does not involve any R & R of land oustees.

xvii. Court case details:

Court Case	The Project Proponent submitted they do not have any litigation and also not received any court notice so far in respect of Jilling-Langalotta Mines after allotment of the mine to OMC.

xviii. Affidavit/Undertaking details:

Project Proponent submitted an Undertaking vide letter dated 09.08.2023	The Project Proponent has submitted an undertaking stating that the prescribed Terms of Reference has been complied while conducting the EIA Studies. The contents (information and data) as given by the Consultant in the EIA/EMP report are factually correct with full knowledge.
Consultant submitted an Undertaking vide letter dated 10.08.2023	The EIA/EMP report has been prepared as per ToR prescribed by MoEF&CC vide ToR letter dated 04.08.2021 and amended ToR letter dated 28.11.2022 based on baseline environmental data monitored by Environmental Engineering Laboratory, MECON Limited (CPCB recognized Laboratory) during Post-Monsoon Season 2021 and ToR prescribed for above mentioned project has been complied while conducting the EIA-EMP studies and the data submitted is factually correct.

xix. Details of the Environmental Management Plan (EMP):

Activities	Recurring cost (Lakhs Rs./yr)	Capital cost (Lakhs Rs.)
Pollution control	45	423[a]
Pollution monitoring (laboratory)& CAAQMS	42[b]	400
Occupational safety	50[c]	20[d]
Green belt & plantation at safety zone	-	454.5[e]
Net Present Value(NPV) of Forest	-	2771.47
Compensatory Afforestation	-	61.995
Wildlife Conservation	6.55 [g]	346.50[f]
Socio-economic welfare measures in nearby villages (CSR budget)	57.51[h]	-
Budget for addressing Public Hearing commitments (erstwhile known as CER)	-	1865.58[i]
Total	201.06	~6343.045

Note:
a =Surface drainage (garland drains, settlement pits, retaining wall etc.) + dust suppression system.
b =Cost for EMC (Environmental monitoring work is outsourced to accreditedlabs)& AMC of CAAQMS installed

c =Cost towards routine medical examinations, training & awareness
d =Cost of safety appliances procurement
e =On Basis of costs prevailing in 2022 – 23.
f = To be deposited with Divisional Forest Officer
g = Rs. 65.5 Lakhs to be spent over 10 years
h = Budget for 2022-23. Likely to be revised every year.
i = This money will be spent over a period of three years

xx. Details of project cost and employment:

Particulars	(Rs. In Crore)
Total cost of EMP (Capital Cost of EMP)	EMP Capital Cost: Rs.44.77 Crores
Project Cost	Rs.431 Crores
Employment	488 Nos.

3.2.3. Deliberations by the EAC in previous meetings

N/A

3.2.4. Deliberations by the EAC in current meetings

The Project Proponent and the Consultant presented the KML file to indicate the site features in the vicinity of the mine lease area and in the study area of 10 km radius. The Project Proponent has shown the boundary of the mine lease area and also the active quarries i.e., on the north western side and other one in southern side in the mine lease area. One Quarry i.e., Khuntapani was exhausted. A private railway siding is located on the north western side to dispatch the material. Backfilling has been started in the center quarry of the mine lease area. Some part of the area in the north eastern side has been taken by the State Govt for supply of water to the Joda Town. A small township is located within the mine lease area. There is a small stream (Dalko Nallah) passing from west to east in the mine lease area which is joining the Baitarani River located at a distance of about 0.5 km on the eastern side of the mine lease area. Adequate safety zone of about 13 ha will be maintained all along the nallah. No proposal to divert Dalko Nallah. NH-520 is located about 7km from the mine lease area. Other mines such as Tata Steel Ltd is located on the northern side of the mine lease area and Rungta Mines is located on the southern side of the mine lease area.

The Project Proponent has briefed about the chronology of the auction of the mine lease area. The Transfer of EC has been obtained in the name of M/s Odisha Mining Corporation Ltd and due to technical error in Parivesh portal the same could not able to download. In the instant proposal, there is no proposal for setting up of beneficiation plant in the mine lease area. The Project Proponent has informed the EAC that the total mine lease area is 456.037 ha (as per DGPS Survey), out of which 42.001 Ha is a Pvt land, 329.289 ha is a Forest land and 392.289 ha is a non-forest land. Stage II FC has been obtained vide letter dated 8th October 2014 for diversion of forest land of 342.602 ha in the name of M/s Essel Mining & Industries Ltd. Transfer of FC is under process with the State Govt. An application for diversion of balance area of 22.697 ha of forest land has been submitted vide proposal no. FP/OR/MIN/142115/2021 dated 08.05.2021 and is under process. Life of the mine is 8 years and is likely to increase with updation of reserves by further exploration. All mineral rejects, generated during the residual life of mine will be blended with high quality iron ore & sold out. The mineral dispatch is carried out at least 70% through rail from pvt. sidings within mine lease and balance 30% by road. No R&R involved in this proposal.

The Project Proponent has informed the EAC that there is no wildlife corridor and migration route within the study area. Karo-Karampada Elephant corridor is located at a distance of about 18 km on the North Western side and there is no movement of elephants in the study area. The EAC not convinced with the statement of the Project Proponent. The Project Proponent has informed the EAC that there is only occasional movement of elephants in the study area and it is not a habitat of elephants. Site-Specific Conservation Plan has been approved by the PCCF (WL) in the year 2010. The implementation status is under process. Long term regional level elephant management plan by Wildlife Institute of India is also under process. The EAC noted that National Highway also have specific elephants crossing area in Odisha. The EAC was of the view that the linear barriers created for movement of elephants and habitat use needs to be properly addressed in terms of scientific management and a plan for movement of elephants from one forest to the other forest area shall be included in the conservation plan. The EAC asked the Project Proponent to submit the activities proposed under Wildlife Conservation Plan along with the budget.

The EAC asked the Project Proponent that whether the quality of surface water is being monitored at Baitarani River during the monsoon. The Project Proponent has informed the EAC that the quality of surface water is being monitored regularly and submitted to the State Pollution Control Board. The Project Proponent has shown the retaining wall and garland drain around OB dump. The EAC opined that the Project Proponent needs to strengthen the garland drain. The EAC asked the Project Proponent whether railway line passing through the mine lease area or not. The Padapahar Jn. – Joda – Kendujhargarh - Jakhapura Railway Line passes through the ML area occupying 34.967 ha area. This includes 26.990 ha of Forest Land. Indian Railways had taken separate permission for construction of this Railway Line. OMC's existing operations are beyond this railway corridor and the status quo shall be maintained.

The Project Proponent has informed the EAC that the Joint Director of Mines, Joda, District Keonjhar vide letter dated 30.12.2021 has provided the certificate regarding payment towards compensation for excess production made by Ex-lessee. As per records available, M/s. Essel Mining & Industries Ltd, had deposited a total of Rs. 1825,87,36,554/- towards the compensation amount in the designated bank account as directed by the Hon'ble Supreme Court vide order W.P. (C) No. 114/2014 (Common Cause) dated 02.08.2017. Project Proponent also informed the EAC that M/s OMC started operating Jilling-Langalotta Mine with effect from 28-02-2021. Since then, no Environment & Forest related violation has been reported in respect of Jilling-Langalotta Iron Ore Mines. Further, the Project Proponent has informed the EAC that a Certificate has been obtained from the Office of the Joint Director Mines Joda, Dist; Keonjhar vide letter dated 30.12.2021 certifying that the present lessee M/s Odisha Mining Corporation Limited is confined the mining activity within the granted and executed leasehold area.

The Project Proponent has shown the Certified Compliance report issued by the Regional Office (RO), MoEF&CC vide letter dated 09.08.2023 for the EC dated 07.06.2012. Site visit was conducted on 07.07.2023. Regional Office has mentioned that the greenbelt development may be increased, reclamation of backfilled area with vegetation may be initiated and density of plantation may be increased. The EAC asked the Project Proponent whether the action taken report has been submitted to the Regional Office or not. The Project Proponent has informed the EAC that they will submit the action taken report. The EAC also asked the Project Proponent to clarify whether any court case/litigation pending against the previous lessee w.r.t temporary working permit and whether the same has been transferred to M/s Odisha Mining Corporation Ltd or not. Based on the discussions held, the EAC **deferred** the proposal for want of following additional information: -

i. The Project Proponent needs to submit the action plan for strengthening the garland drains including their dimensions along with the timeline.

ii. The EAC was of the view that the linear barriers created for movement of elephants and habitat use needs to be properly addressed in terms of scientific management and a plan for movement of elephants from one forest to the other forest area shall be included in the conservation plan. Accordingly, the Project Proponent needs to submit the activities proposed under Wildlife Conservation Plan along with the budget.

iii. The Project Proponent needs to submit the action taken report for the non-compliances identified by the Regional Office.

iv. The Project Proponent needs to submit the treatment methods to eliminate iron in groundwater so as to make it fit for drinking purpose.

v. The Project Proponent needs to clarify whether any court case/litigation pending against the previous lessee w.r.t temporary working permit and whether the same has been transferred to M/s Odisha Mining Corporation Ltd or not.

vi. The Project Proponent should submit measures taken to prevent contaminated water meeting Baitarani river.

vii. The Project Proponent needs to submit the action plan for effective dust suppression system near haul roads and crushers with a provision for installation of online dust monitoring system.

3.2.5. Recommendation of EAC

Deferred for ADS

3.3. Agenda Item No 3:

3.3.1. Details of the proposal

"Ball Clay, Fire clay, Red & Yellow ochre" Mining Project, M.L. No. 21/2004 by **DEEPAK MINERAL BIKANER** located at **BIKANER,RAJASTHAN**			
Proposal For		Fresh ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/RJ/MIN/435186/2023	J-11015/269/2005-IA.II(M)	18/08/2023	Mining of minerals (1(a))

3.3.2. Project Salient Features

1. The instant proposal of M/s Deepak Mineral Industries is for mining of Ball Clay, Fire Clay, Red & Yellow Ochre Mine with enhancement in production capacity of Ball Clay from 20,000 TPA to 5,35,880 TPA (ROM) (Overburden: 2,35,880 TPA, Marketable mineral: 2,70,000 TPA, Mineral Waste: 30,000 TPA) in the mining lease area of 69.59 ha, located near Village Sarah Kishnayat, Tehsil- Kolayat, District Bikaner, Rajasthan.

3.3.3. Deliberations by the EAC in previous meetings

N/A

3.3.4. Deliberations by the EAC in current meetings

The Project Proponent informed the EAC that the instant proposal was earlier was earlier considered in the EAC meeting held during 14-15 May, 2018 and the Ministry informed the Committee that PP had enhanced the production capacity without EC and in light of the Common Cause Judgment pronounced by the Hon'ble Supreme Court on dated 02.08.2017 this is a case of violation. The Committee, therefore, deferred the proposal noting that a separate Committee has been constituted for dealing with the projects involving violation of EPA, 1986 vide notification issued by the Ministry on 14.03.2017.

The EAC noted that the Project Proponent has submitted the fresh proposal for grant of Terms of Reference. The EAC asked the Project Proponent that whether the proposal submitted during the year 2018 and at present is same or different or whether there is a change in the scope or not? The Project Proponent has informed the EAC that during the year 2018, the proposal for Terms of Reference (ToR) was submitted for enhancement of production capacity from 20,000 TPA to 3,00,000 TPA (ROM) and now the proposal has been submitted for enhancement in production capacity of Ball Clay from 20,000 TPA to 5,35,880 TPA (ROM). The Project Proponent also informed the EAC that difference is that earlier Overburden: 2,35,880 TPA was not included in the proposal and now the same has been included. The EAC was of the view that there is a change in the scope of the proposal and hence the instant proposal shall be treated as fresh proposal. The EAC asked that the Project Proponent to submit the proposal to the SEIAA, Rajasthan as per the provisions of EIA Notification, 2006 and its subsequent amendments.

Then, the Project Proponent vide email dated 22.09.2023 informed that as per Ministry's Notification no S.O No. 3977(E) dated 14th August 2018, the proposal was already submitted to SEIAA, Rajasthan vide online proposal no: SIA/RJ/MIN/29973/2018 dated 24th Nov 2018 and the proposal was considered in the SEAC meeting held during 1-4 July, 2019 wherein the SEAC has noted that the Project Proponent has not submitted original record of the MoEF& CC pertaining to the project. The SEAC considered the matter in its 4.15thmeeting held on 04.07.2019 and resolved to ask the PP again, to bring original report of the MoEF&CC. In this regard, the Project Proponent vide email dated 22.09.2023 requested the Ministry to transfer the old project file to SEIAA, Rajasthan. Based on the request of the Project Proponent, the EAC opined that the Ministry may transfer the old project file to SEIAA, Rajasthan as per the provisions of EIA Notification, 2006 and its subsequent amendments. Therefore, the EAC **returned the proposal in present form.**

3.3.5. Recommendation of EAC

Returned in present form

3.4. Agenda Item No 4:

3.4.1. Details of the proposal

Majhgawan Diamond Mine of M/s. NMDC Ltd with total excavation of 13.90 LTPA [ROM Kimberlite ore @ 8 LTPA and Overburden removal @ 5.90 LTPA for production of 1.00 lakh carats of Diamonds per annum] within the mine lease area of 113.332 Ha (Main Lease) Located at Majhgawan, Tehsil & District Panna, Madhya Pradesh by **NMDC LIMITED** located at **PANNA,MADHYA PRADESH**			
Proposal For		Fresh EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/MP/MIN/442288/2023	J-11015/120/2018-IA-II(M)	02/09/2023	Mining of minerals (1(a))

3.4.2. Project Salient Features

The instant proposal is for mining of Diamond in Majhgawan Diamond Mine with total excavation of 13.90 LTPA [ROM Kimberlite ore @ 8 LTPA and Overburden removal @ 5.90 LTPA for production of 1.00 lakh carats of Diamonds per annum] in the mine lease area of 113.332 Ha (Main Lease), located at village Majhgawan, Tehsil & District Panna, Madhya Pradesh.

3.4.3. Deliberations by the EAC in previous meetings

N/A

3.4.4. Deliberations by the EAC in current meetings

The Project Proponent has informed the EAC that they have changed the EIA Consultant of M/s Vimta Labs Ltd to M/s Ecomen Laboratories Ltd. The Project Proponent also informed the EAC that M/s Vimta Labs Ltd has given no objection certificate dated 15.09.2023 to M/s NMDC to appoint any other Accredited EIA Consultant for the above said project. The new EIA Consultant, M/s Ecomen Laboratories Pvt Ltd has also given an undertaking vide letter dated 16.09.2023 stating that they have gone through the content and data of Final EIA/EMP Report. The EAC noted that the new EIA Consultant has given an undertaking at an interval of one day only. The EAC was of the view that the new EIA Consultant, M/s Ecomen Laboratories Ltd has to revalidate the baseline data for one month to ascertain the facts and figures presented in the EIA report and also to ascertain the ground reality.

The EAC also noted that the mine lease area is located within the Gangau Wildlife Sanctuary of Panna Tiger Reserve. The Project Proponent has informed the EAC that the Hon'ble Supreme Court order in I.A No: 1485 and 1507 dated 13/8/2008 and I.A No: 47252 of 2021 dated 30/11/2022 in W.P (Civil) no: 202 of 1995 permitted mining operations in Diamond Mining Project, Panna in Gangau wildlife sanctuary of Panna Tiger Reserve.

The PCCF (Wildlife) / Chief Wildlife Warden, Bhopal, Madhya Pradesh vide letter no: 1608 dated 24/2/2023 has accorded approval for renewal / extension of Wildlife clearance under Wildlife (Protection) Act, 1972 over 275.963 Ha (main and supplementary mining lease area) lease falling in Gangau sanctuary under Panna Tiger reserve and for mining in an area of about 10 Ha (of which 1.5 Ha is forest area) for a period of 20 years which is valid upto 30/6/2040.

The EAC noted the recent orders of the Hon'ble Supreme Court dated 26.04.2023 and 28.04.2023 wherein it has been directed that *"any activity, which is prohibited by both the guidelines as well as the ESZ notification shall strictly be prohibited. Since the mining activity in ESZ area is a prohibited activity, there is no question of such an activity being permitted in an ESZ area even if it falls beyond the distance of one kilometer from the boundary of the protected area"*.

In view of the above, the EAC opined that the Project Proponent may seek a legal opinion regarding the applicability of the aforesaid orders in this instant proposal. The EAC also opined that the Ministry may seek comments from the ESZ Division since the project is located within the Gangau wildlife sanctuary of Panna Tiger Reserve and whether the aforesaid orders dated 26.04.2023 and 28.04.2023 are applicable in the instant proposal or not. Based on the discussions held, the EAC **deferred** the proposal for want of following additional information: -

i. The Project Proponent needs to revalidate the baseline data by collecting one-month fresh baseline data by new EIA consultant to ascertain the facts and figures presented in the EIA report and also to ascertain the ground reality. The Project Proponent also needs to the submit the comparison of both baseline data.

ii. The EAC opined that the Project Proponent may seek a legal opinion regarding the applicability of the orders dated 26.04.2023 and 28.04.2023 in this instant proposal.

iii. The EAC also opined that the Ministry may seek comments from the ESZ Division since the project is located within the Gangau wildlife sanctuary of Panna Tiger Reserve and whether the aforesaid orders dated 26.04.2023 and 28.04.2023 are applicable in the instant proposal or not.

3.4.5. Recommendation of EAC

Deferred for ADS

3.5. Agenda Item No 5:

3.5.1. Details of the proposal

Amendment /Revalidation of EC w.r.t specific condition No (I) of EC dated 31.08.2020 in Kakra- Panna Limestone Mine (ML Area 1594.34 ha), located at Villages Kakra, Kamtana, Judi, Devra, Devri Purohit and Saptai, in Amanganj Tehsil, District Panna, Madhya Pradesh proposed by M/s Jaykaycem Central Limited. by **JAYKAYCEM CENTRAL LIMITED** located at **PANNA,MADHYA PRADESH**

Proposal For		Amendment in EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/MP/MIN/435272/2023	J-11015/190/2016-IA.II(M)	01/07/2023	Mining of minerals (1(a))

3.5.2. Project Salient Features

1. The instant proposal is for amendment in EC dated 31.08.2020 w.r.t specific condition no: (i) of M/s Jaykaycem Central Limited in Kakra- Panna Limestone Mine for production capacity of 4.08 MTPA of Limestone in the mine lease area of 1594.34 ha, located at Villages Kakra, Kamtana, Judi, Devra, DevriPurohit and Saptai, in Amanganj Tehsil, District Panna, Madhya Pradesh.

2. The details of the project as ascertained from the documents submitted by the Project Proponent and as revealed from the discussions held during the meeting are given as under:

i. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" of the schedule of the EIA Notification, 2006 as the mining lease area is greater than 250 ha and appraised at the Central level.

ii. Initially, the Project Proponent has obtained Environmental Clearance (EC) on 31.08.2020 for mining of Limestone in Kakra- Panna Limestone Mine for production capacity of 4.08 MTPA of Limestone in the mine lease area of 1594.34 ha, located at Villages Kakra, Kamtana, Judi, Devra, DevriPurohit and Saptai, in Amanganj Tehsil, District Panna, Madhya Pradesh. One of the specific condition (I) stipulated by EAC is that *"Mining shall be restricted to the land already acquired near Judi Village (235 ha). Meanwhile the PP may acquire the land, modify the mining sequence to avoid the void in west side of Dewra Village and approach the Ministry for re-validation or amendment in environmental clearance for permission for the entire area proposed for mining within the ML area"*.

iii. Now, the Project Proponent requested to waive off the specific condition no: (I) and requested to allow the mining in the entire mine lease area of 1594.34 ha as per the approved Modified Mining Plan.

iv. The proposal was earlier considered in the 18th EAC (Non-Coal Mining) meeting held during 31st July & 1st August, 2023 wherein the EAC deferred the proposal for want of additional information. Then, the Project Proponent submitted the information on 25.08.2023 in Parivesh portal and accordingly the proposal was again reconsidered in the 20th EAC (Non Coal Mining) meeting held during 21-22 September, 2023.

Based on observation of EAC in its EAC meeting held during 31st July & 1st August, 2023 and compliance of observation of EAC made by PP are detailed below:

S. No	Observation of EAC in its meeting held during 31st July & 1st August, 2023	Reply by Project Proponent
1	The Project Proponent needs to give proper justification for amendment in EC with clear picture of sequence of mining, plan for backfilling and details of the land acquired and to be acquired in the villages for mining and location to access.	The Project Proponent has submitted that the EC was granted on 31.08.2020 with a specific condition stating that the "*Mining shall be restricted to the land already acquired near Judi Village (235 ha). Meanwhile the PP may acquire the land, modify the mining sequence to avoid the void in west side of Dewra Village and approach the Ministry for re-validation or amendment in environmental clearance for permission for the entire area proposed for mining within the ML area*". Accordingly, Mining Plan has been modified and approved on 19th June, 2023 with change of mining sequence to avoid the void in West side of Dewra Village. As on date, an area of 360.66 ha of land has been purchased, Surface right has been granted for mining on Govt. land over an area of 75.754 ha, hence, total land under possession is 436.414 ha. The balance of 1157.926 ha is under purchase as per the mining activities progress. Now, the mining has to be done as per the approved Modified Mining Plan and in the Modified Mining Plan, the mining has to be done near Dewra Village so that void is avoided on West side of Dewra Village which was the requirement of EC. As per the earlier Mining Plan, the backfilling was proposed near Village Judi from the 2nd five year. Now, as per the Modified Mining Plan, the backfilling is proposed from 2nd five year in West Side of Dewra and Judi. The backfilling plan also indicates that at the conceptual stage, both sides of the Village Dewra were surrounded by water reservoir and now in modified backfilling plan, the entire surrounding of the Dewra Village has been reclaimed and covered by Greenbelt/ Plantation. In the view of the fact that the Specific Condition 1 has been complied with and mining is to be done as per the Approved Modified Mining Plan. Therefore, mining may be allowed as per the Modified Mining Plan.
2	The Project proponent needs to submit the comparison of sequence of mining in earlier mining plan and modified mining plan with detailed note and colour coding map.	The Project Proponent has submitted that initially, mining plan was approved in the year 2015 having proposed 1st five year working near village Judi and 7th, 8th, 9th& 10th five year plans on the west of Dewra village with the proposal of creating water reservoirs in the mined out area at conceptual stage. At the time of EC appraisal, 235 ha land was under Company's acquisition and mining was restricted in 235 ha (available land at the time of EC) near Judi village. However, the 235 ha land was not in a continuous

		Block. As the land purchase is done in a progressive manner, as on date, the company is having total 436.414 haü(360.66 ha purchased and Surface right for mining on Govt. land of 75.754 ha) land under possession. Accordingly, the mining sequence has been modified and Modified Mining Plan has been approved by IBM, Jabalpur vide letter no. E 6699 MCDR-MPC0LST/15/2023-JBP-IBM_ RO_ JBP on dated 19th June, 2023. Now, the mining is to be done as per Modified Plan. In the conceptual plan of the Modified mining plan, mining is proposed in the 1st, 2nd& 11th five-year plan in the area falling on west side of Dewra village with backfilling starting from the 2nd five-year plan period to get it reclaimed and restored at the earliest to avoid the voids. The Project Proponent also submitted the map showing the status of the land such as purchased land, restricted land and Govt. land to be applied. Further, the Project Proponent also submitted the Progressive Mine Closure Plan and Conceptual Plan submitted at the time of EC appraisal and as per the Modified Mining Plan. The Project Proponent also submitted that to substantiate the requirement of backfilling material i.e. OB Soil and Waste rock, mining is proposed at 3 locations i.e. Block-A near Judi Village, Block-B on the west of Dewra Village and mine development at Block-C on the south of Dewra village having about 27 m thickness of OB Soil and waste rock above the limestone band of 26 m thickness. With the change in mining sequence, total volume excavated in Block-B is 2.45 million cu.m for removal of OB soil (2 m) & Limestone (18 m) and the quantity of backfilling material available from Block - C from 2nd Five-year plan is 3.32 million cu.m which is required to be mined out to expose limestone band in Block C for ensuring scientific & systematic mining with focus on mineral conservation. With the change in mining sequence, EC specific condition 1 shall be complied at the earliest period as well as waste rock shall be effectively utilized for backfilling which will also reduce requirement of large no. of OB/waste dumps. The distance of mining area from the earlier proposed location for 1st five-year plan period is about 5.0 km from crusher located inside ML area near plant boundary. The limestone transportation may have impact on habitation at three locations of village Dewra. To ensure least impact from the start of mining activities the modified mining plan was submitted and approved by IBM, Jabalpur on 19th June, 2023 and now the majority of mining is proposed in Block-B on west of Dewra village (about 75% quantity) having lead distance of 1.5 km. This will also support cement manufacturing process with optimum blend of limestone

		quality and mineral conservation. Mining Plan has been modified and approved on 19th June, 2023 with change of mining sequence to avoid the void in West side of Dewra Village. Now, the mining has to be done as per the Approved Modified Mining Plan and in the Modified Mining Plan, the mining has to be done near Dewra Village so that void is avoided on West side of Dewra Village which was the concern of the EAC. In the view of the fact that the Specific Condition 1 has been complied with and mining is to be done as per the Modified Mining Plan. Therefore, mining may be allowed as per the Modified Mining Plan. Further, the Project Proponent also submitted the year wise development plan submitted at the time of EC appraisal and as per the Modified Mining Plan.
3	The Project Proponent needs to ensure whether the tiger corridors/dispersal routes are passing through the study area or not as per the Integrated Landscape Management Plan for Greater Panna Landscape form the Chief Wildlife Warden, MP.	The Project Proponent has submitted that the distance of mine site from buffer zone of Panna Tiger Reserve is 12.94 km. Letter regarding the same has been received from CCF, Bhopal (Madhya Pradesh) on 15.06.2020. The Project Proponent also submitted that a letter has been obtained from DFO (South Panna), Madhya Pradesh on 11.08.2023 stating that *"Currently, Integrated Landscape Management Plan Greater Panna is not notified"*.
4	The Project Proponent needs to submit the compliance of the Wildlife Conservation Plan and their implementation status along with the proof of payments made to the State Forest Dept w.r.t approval of Wildlife Conservation Plan dated 13.12.2019.	The Project Proponent has submitted that the Wildlife Conservation Plan has been modified as per the recommendations to incorporate the revised financial outlay and the same has been submitted to the Forest Department. Further, the Company has deposited 100% amount; Rs. 289 Lakhs/- proposed for 10-year budget on 19th August, 2023. PP also submitted the copy of acknowledgement receipt for amount paid along with the copy of approved Wildlife Conservation Plan.
5	The EAC wanted to know the documentary proof for the required acquisition of additional land. Hence, the Project Proponent needs to submit the land possession certificate for an area of 436.414 ha.	The Project Proponent has submitted that the break-up of 436.414 ha of land, i.e., out of 436.414 ha; an area of 360.66 ha is a Private land and remaining area of 75.754 ha is a Government land. Out of 360.66 ha of Private land, an area of 288.1 ha land has been transferred in the name of M/s Jaykaycem (Central) Limited and transfer of remaining area of 72.56 ha is under in Company's name is under process.

v. The Project Proponent has submitted that the Mining Plan has been modified and approved by Indian Bureau of Mines vide Letter No: E 6699 MCDRMPC0LST/15/2023-JBP-IBM_RO_JBP dated 19.06.2023 with change of mining sequence to avoid the void in West side of Dewra Village. As on date, an area of 360.66 ha of land has been purchased and surface right has been granted over an area of 75.754 ha of Govt. land for mining and thus total land under possession is 436.414 ha. The balance area of 1157.926 ha is under purchase as per the mining activities progress. Hence, in compliance of Specific Condition no I, the Project Proponent requested to allow the mining as per the approved Modified Mining Plan.

vi. The Project Proponent has submitted that there was no production done till 31st March, 2023. PP also submitted that there is no change in production capacity, land area, mining equipment and mining technology. All the declarations, undertakings, EIA/EMP report, Public hearing action plan submitted during detailed deliberations for earlier granted EC dated 31st August, 2020 are same as per the earlier proposal.

3.5.3. Deliberations by the EAC in previous meetings

Date of EAC 1 :31/07/2023

Deliberations of EAC 1 :

The Project Proponent/Consultant informed the EAC that the instant proposal is for amendment in EC dated 31.08.2020 w.r.t waive off the specific condition no: 1 of M/s Jaykaycem Central Limited in Kakra-Panna Limestone Mine for production capacity of 4.08 MTPA of Limestone in the mine lease area of 1594.34 ha, located at Villages Kakra, Kamtana, Judi, Devra, DevriPurohit and Saptai, Amanganj Tehsil, District Panna, Madhya Pradesh. The specific condition (1) of EC dated 31.08.2020 states that *"Mining shall be restricted to the land already acquired near Judi Village (235 ha). Meanwhile the PP may acquire the land, modify the mining sequence to avoid the void in west side of Dewra Village and approach the Ministry for re-validation or amendment in environmental clearance for permission for the entire area proposed for mining within the ML area"*.

The Project Proponent/Consultant has presented the KML file to indicate the site features in the study area. The Project Proponent also informed the EAC that there is no change in production capacity, mine lease area and method of mining. The mining operations started in the year 2023 only and till date only 165 Metric Tonnes of Limestone was excavated. The EAC asked the Project Proponent whether the instant mine lease falls under tiger dispersal route or not. The Project Proponent has informed the EAC that the instant mine lease does not fall in the tiger dispersal route.

The Project Proponent has informed the EAC that the Mining Plan has been modified and approved by Indian Bureau of Mines vide letter dated 19.06.2023 with change of mining sequence to avoid the void in West side of Dewra Village as per the specific condition no 1 as on date, an area of 360.66 ha of land has been purchased and Surface right has been obtained over an area of 75.754 ha of Govt. land for mining and thus the total land under possession is 436.414 ha. The balance area of 1157.926 ha is under purchase as per the mining activities progress. The Project Proponent has shown the earlier and proposed sequence of mining and their conceptual plans respectively. The sequence of mining has been changed and hence, in compliance of Specific Condition no 1, the Project Proponent requested to allow the mining as per the approved Modified Mining Plan and to waive off the specific condition no: 1.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC noted that the Project Proponent has submitted the approved modified plan showing the change in sequence of mining as advised by earlier committee. The EAC wanted to know whether the Project Proponent acquired the land as per the advice of earlier committee. The EAC also wanted to know the documentary proof for the required acquisition of additional land and the location to access. Based on the discussions held, the EAC **deferred** the proposal for want of following additional information: -

i. The Project Proponent needs to give proper justification for amendment in EC with clear picture of sequence of mining, plan for backfilling and details of the land acquired and to be acquired in the villages for mining and location to access.

ii. The Project proponent needs to submit the comparison of sequence of mining in earlier mining plan and modified mining plan with detailed note and colour coding map.

iii. The Project Proponent needs to ensure whether the tiger corridors/dispersal routes are passing through the study area or not as per the Integrated Landscape Management Plan for Greater Panna Landscape form the Chief Wildlife Warden, MP.

iv. The Project Proponent needs to submit the compliance of the Wildlife Conservation Plan and their implementation status along with the proof of payments made to the State Forest Dept w.r.t approval of Wildlife Conservation Plan dated 13.12.2019.

v. The EAC wanted to know the documentary proof for the required acquisition of additional land. Hence, the Project Proponent needs to submit the land possession certificate for an area of 436.414 ha.

3.5.4. Deliberations by the EAC in current meetings

The EAC deliberated on the additional details submitted by the Project Proponent and the EIA Consultant. The Project Proponent has informed the EAC that initially EC was granted on 31.08.2020 wherein the specific condition (i) of EC dated 31.08.2020 states that the *"Mining shall be restricted to the land already acquired near Judi Village (235 ha). Meanwhile the PP may acquire the land, modify the mining sequence to avoid the void in west side of Dewra Village and approach the Ministry for revalidation or amendment in environmental clearance for permission for the entire area proposed for mining within the ML area"*. Accordingly, Mining Plan has been modified and approved on 19.06.2023

with change of Mining sequence to avoid the void in West side of Dewra Village. As on date, an area of 360.66 ha of land has been purchased and surface right has been granted for mining on Govt. land of 75.754 ha and the total land under possession is 436.414 ha. The balance area of 1157.926 ha is under purchase as per the mining activities progress. Now, the mining activity has to be carried out as per the approved Modified Mining Plan. Accordingly mining has been proposed initially near Dewra Village so that backfilling can be started immediately in the mined-out pit to avoid any open void on the West side of Dewra Village, which was the suggestion of EAC and requirement of EC.

The Project Proponent also shown the comparison of progressive mine closure and conceptual plan as per earlier Mining Plan and Modified Mining Plan. The Project Proponent has informed the EAC that at the conceptual stage, water bodies on both the sides of the Dewra Village as per the earlier mining plan is now modified to be backfilled area/reclaimed area on both the sides of the Dewra Village in Modified Mining Plan. The additional acquired land falls in the 2nd five year working. The crusher area is located close to the Cement Plant. The Project Proponent informed the EAC that the distance of mine site from buffer zone of Panna Tiger Reserve is 12.94 km. Letter regarding the same has been received from CCF, Bhopal (Madhya Pradesh) on 15.06.2020. The Project Proponent also informed the EAC that a letter has been obtained from DFO (South Panna), Madhya Pradesh on 11.08.2023 stating that *"Currently, Integrated Landscape Management Plan Greater Panna is not notified"*. The Project Proponent has informed the EAC that the Wildlife Conservation Plan has been modified as per the recommendations to incorporate the revised financial outlay and submitted to the Forest Department. An amount of Rs 289.0 Lakhs has been deposited on 19.08.2023 and the Project Proponent has shown the Copy of acknowledgement receipt for amount paid along with approved Wildlife Conservation Plan.

The EAC noted that the Project Proponent has modified the mining sequence to avoid the void in west side of Dewra Village and accepted to waive off the specific condition no. (i). After detailed deliberations made by the Project Proponent and the Consultant, the EAC in its meeting held during 21-22 September, 2023 under the provisions of EIA Notification 2006 and its subsequent amendments, **recommended** the proposal for grant of amendment in Environmental Clearance dated 31.08.2020 to w.r.t waive off the specific condition no: (i) of M/s Jaykaycem Central Limited in Kakra- Panna Limestone Mine for production capacity of 4.08 MTPA of Limestone in the mine lease area of 1594.34 ha, located at Villages Kakra, Kamtana, Judi, Devra, DevriPurohit and Saptai, in Amanganj Tehsil, District Panna, Madhya Pradesh along with the following additional specific conditions:-

3.5.5. Recommendation of EAC

Recommended

3.5.6. Details of Environment Conditions

3.5.6.1. Specific

Dust Suppression	
1.	The Project Proponent needs to make provision for permanent water sprinklers so as to reduce the water consumption. Further, 10 nos. of fog canon/mist sprayer of atleast 40 m throw shall be installed at various locations in the mine area. Effective dust suppression system shall also be adopted at other parts of the mining lease to arrest the fugitive dust emission. Online air monitoring system should be installed near crusher and haul roads to control dust generation during mining.
Single Use Plastic	
1.	The Project Proponent shall create awareness among the local people working within the project area as well as its surrounding area on the ban of Single Use Plastic (SUP) in order to ensure the compliance of Notification published by MoEF&CC on 12/08/2021. A report, along with photographs, on the measures taken shall also be included in the six monthly compliance report.
Clean Energy	
1.	The Project Proponent shall explore the possibility of using atleast 20% of Electric vehicles/CNG/Solar instead of diesel operation within three years.

Greater Panna Landscape	
1.	The Project Proponent shall not transport the mineral though tiger dispersal route and it should be routed through other side without causing traffic, pollution and road kill in the tiger reserve area.
Greater Panna Landscape	
1.	Although the site is not located in any classified corridor, tigers move in the landscape randomly through the agriculture and open areas. Therefore, the Project Proponent should have site-specific assessment of tiger movement and shall ensure that there is no disturbance on the western area towards Ken River. Further, based on site assessment, local level mitigation plan shall be in place.
Greater Panna Landscape	
1.	The Project Proponent needs to use modern equipment's such as Camera Traps for ensuring presence and movement of Tigers in the study area in consultation with Wildlife Wing of Forest Department. Appropriate interventions shall be taken to minimize stress conditions for Tigers and to avoid Man-Animal conflict.
Greater Panna Landscape	
1.	Biodiversity management plan, including restoration and carbon offset scheme shall be included in the mine plan and operation.
Greater Panna Landscape	
1.	The project proponent needs to submit the quarterly compliance report to the State Forest Department/NTCA/RO w.r.t monitoring of the movement of tiger in the study area and their effectiveness of implementation of mitigation plan.
Skill Development	
1.	The Project Proponent needs to provide the apprenticeship to the local people. The data and the outcome should be maintained for the same imparted to the local people.
Miscellaneous	
1.	All other terms and conditions mentioned in the EC letter dated 31.08.2020 shall remain unchanged.

Day 2 -22/09/2023

3.1. Agenda Item No 1:

3.1.1. Details of the proposal

M/s Sai Balaji Minerals OBULAPURAM IRON ORE Mine(Violation) by **SAI BALAJI MINERALS** located at **ANANTAPUR,ANDHRA PRADESH**			
Proposal For		Fresh ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/AP/MIN/423323/2023	IA-J-11015/5/2023-IA-II(NCM)	05/09/2023	Mining of minerals (1(a))

3.1.2. Project Salient Features

1. The instant proposal is for mining of Iron Ore in Obulapuram Iron Ore Mine of M/s Sai Balaji Minerals with production capacity of Iron Ore: 99,789 Tons/Annum in the mine lease area of 4.003 ha, located at Sy.No: 370, Sy.No: 58/P Of Obulapuram Village, D-Hirehal Mandal, Anantapuram District, Andhra Pradesh.

2. The details of the project as ascertained from the document submitted by the Project Proponent and as revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude: 15º02'56.85605"N - 15º03' 09.41610"N and Longitude: 76º51'31.93150"E - 76º51'42.96087"E and falls under the Survey of India Toposheet No: 57 A/16 and falls in Seismic Zone-II.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the instant proposal attracts the general conditions as the Interstate boundary of Andhra Pradesh and Karnataka is located at a distance of 0.6 km from the mine lease area and appraised at the Central level.

iii. Details of Mine lease:

S.no	Prospecting License/ Letter of Intent (LoI)/ Grant of Mine lease and Lr No	Date of the grant	Name of the Mineral & (Major/ Minor)	Period of Grant	Granted by	Mine lease area in Ha
1	Grant of Mine Lease vide G.O Ms.No 158	20.06.2007	Iron Ore (Major Mineral)	20 years	Government of Andhra Pradesh	4.046 Ha – as per Lease 4.003 Ha – as per DGPS (10.0 Acres)

iv. Details of execution of mine lease:

S. No	Details of grant of Mine Lease deed execution	Period of Grant		Name of the Mineral	Mine lease area in Ha
		From	To		
1	Proc: 3272/ML/07, Dated: 22.09.2007	22.09.2007	21.09.2027 (deemed extension upto 2057)	Iron Ore	4.046 Ha – as per Lease 4.003 Ha – as per DGPS

v. Land Use/Land Cover of the Mine Lease Area:

Private land	Nil
Government land	4.003
Forest land	Nil
Total Mining lease area (MLA), ha	4.003
Private land for crusher, workshop & other infrastructure outside the MLA	Nil

vi. Mining plan details:

Review of Mining Plan including Progressive Mine Closure Plan approved by Indian Bureau of Mines	Letter No.	AP/ANP/MP/Iron ore-12/Hyd
	Date	23.08.2022
	Mineral & (Major/Minor)	Iron Ore – Major Mineral
	Mine Lease Area, Ha	4.046 Ha – as per Lease 4.003 Ha – as per DGPS Survey

	Validity	2026-27
Mining Parameters	Quantitative Description	
Method of Mining	Opencast Mining – Mechanized	
Drilling/Blasting	Yes	
Geological Reserves	1797225 tonnes	
Mineable Reserves	1195671 tonnes	
Life of mine	6 years	
Mine Bench Height & Bench Width	6 x 6	
No. of Mine Benches	Nil	
Existing Depth, m bgl	Nil	
Ultimate Depth of Mining, m bgl	4	
Ground Water Table, m bgl	60	
Details of ground water intersection	Nil	
Individual bench slope	45^0	
Overall pit slope	60^0	
Details of existing/ proposed Crusher	Nil	
Mineral Beneficiation	Nil	
RoM output size	Boulders	
Transportation details including capacity of dumper/tipper, mode of transport and distance	1. 2 Back Hoe/Excavator (0.9M^3) 2. 3 Dumpers (10tons capacity) 3. 1 Dozer (1.2 M^3)	
Generation of Topsoil/OB & its Management during plan period & conceptual period	Plan Period: Overburden: 272740 tons 1255 $m^3$of topsoil will be generated	
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	241145 m^3 of waste generated. 0.70 ha will used for Dumping as Approved mining plan.	

vii. Water requirement:

Total water requirement	10.0 KLD	Freshwater	10KLD
		Treated water	
Source	Initially, Groundwater till 5 years and later from rain water harvested from the excavated pits.		

viii. Nearest village/town/ highway/interstate boundary/railway station/water bodies/monument/ forest

Particulars	Particular's Name	Distance & Directions
Village	Obulapuram	2.1 km towards SSW
Town	D.Hirehal	5km towards SSW
Highway	NH-150A (Rampura- Bellary)	500m towards East
Interstate Boundary	AP-Karnataka	700m towards NE as per Toposheet
Railway Station/Railway line	Railway line (Bellary Rayadurga) SW Railway Line	470m towards East
Water Bodies	Tungabhadra High level canal Allipura Reservoir	1.2 km, E 11 km towards North
Forest	Bellary R.F	1.2 km, NW

ix. Presence of Environmentally Sensitive areas in the study area

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	No	Not Applicable
National Park	No	Not Applicable
Wildlife Sanctuary	No	Not Applicable
Elephant/Tiger Reserve	No	Not Applicable
Eco-Sensitive Zone(ESZ) /Eco-Sensitive Area (ESA)	No	Not Applicable
Coastal Regulation Zone (CRZ)	No	Not Applicable
Schedule-I species (No.s and name of schedule-I species with authenticated letter)	No	Not Applicable
Wildlife Conservation Plan	No	Not Applicable

x. Green belt/plantation details:

Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	0.840

xi. The Project Proponent has submitted the letter from the Office of the Department of Mines and Geology vide Lr.No: 3272/ML/2007 dated 08.12.2022 with regard to permitted quantity from the 2007-08 to 2022-23 as mentioned below: -

S. No	Year	Permitted quantity in MTs
1	2007-08	510
2	2008-09	5865
3	2009-10	29410
4	2010-11	96270
5	2011-12	76500
6	2012-13	19210
7	2013-14	12988
8	2014-15	2499
9	2015-16	27515
10	2016-17	69878
11	2017-18	0
12	2018-19	0
13	2019-20	6
14	2020-21	6524
15	2021-22	19750
16	2022-23 (08.12.2022)	0
	Total	366925

xii.. If violation under SOP, dated 7th July, 2021. Point-Wise Compliance to SoP:

S. No.	SOP dated 07.07.2021	Compliance
1	S. No Status of EC Actions	Order to close its operation

	1 If no prior EC has been taken Order to close its operation 2 If prior EC is available for existing/old unit Order to revert the activity/ production to permissible limits 3 If prior EC was not required for earlier production level but is now required Restrict the activity/production to the extent to which prior EC was not required	
2	Action under Environment (Protection), Act 1986	The Ministry to initiate action under section 15 read with section 19 of the Environment (Protection) Act, 1986 against the Project Proponent
3	Appraisal under EIA Notification, 2006	As per Ministry's SOP dated 07.07.2021
4	Penalty Provisions for Violation Cases and applications 1. For new projects: 1. Where operation has not commenced: 1% of the total project cost incurred up to the date of filing of application along with EIA/EMP report; [Ex: Rs. 1 lakh for project cost of Rs 1 Cr] 1. Where operations have commenced without EC: 1% of the total project cost incurred up to the date of filing of application along with EIA/EMP report PLUS 0.25% of the total annual turnover during the period of violation. [Ex: For Rs. 100 Cr project cost and Rs.100 Cr total turnover, the penalty shall be Rs. 1 Cr + Rs 0.25 Cr = Rs 1.25 Cr]. 1. For expansion projects: 1. Where operation/ production with expanded capacity has not commenced: 1% of the total project cost attributable to the expansion, incurred up to the date of filing of application along with EIA/EMP report.	The penalty shall be decided during the time of appraisal for EC.

	1. Where operation/ production with expanded capacity have commenced: 1% of the total project cost (attributable to the expansion activity), incurred up to the date of filing of application along with EIA/EMP report PLUS 0.25% of the total annual turnover (attributable to the expanded activity/capacity) involved during the period of violation.	

xiii. The Project Proponent has submitted an Affidavit in a non-judicial stamp paper of Rs 100 dated 02.01.2023 stating that as on date, the instant mine does not have a valid EC. The Project Proponent also undertaken to comply with all the statutory requirements and judgment of Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition (Civil) No.114 of 2014 in the matter of Common Cause versus Union of India and Ors., before grant of Terms of Reference (ToR)/ Environmental Clearance (EC).

xiv. Rehabilitation & Resettlement (R&R): No R&R is involved.
xv. Court case details: No Court cases are pending.
xvi. Details of project cost and employment:

Particulars	(Rs. In Crore)
Project Cost	50 Lakhs
Employment (No.s)	30

3.1.3. Deliberations by the EAC in previous meetings

N/A

3.1.4. Deliberations by the EAC in current meetings

The Project Proponent/Consultant presented the KML file to indicate the site features in the study area of 10 km radius. The instant proposal attracts the general conditions as the Interstate boundary of Andhra Pradesh and Karnataka is located at a distance of 0.6 km from the mine lease area. The Project Proponent has informed the EAC that railway line is located at a distance of around 500m on the eastern side from the mine lease area. Nearest Village is Obulapuram and it is located at a distance of about 2.0 km from the mine lease area. The Project Proponent also showed the old working pits within the mine lease area in the KML file. The balance life of the mine is 6 years. No National Park, Wildlife Sanctuary, ESZ/ESA within 10 km of the mine lease area. The mined out material will be transported by road through NH at a distance of 40km to Jindal and nearby mini steel plants and sponge iron plants. No village is passing through the transportation route.

The Project Proponent has informed the EAC that the mine lease deed was executed on 22.09.2007 and is valid upto 21.09.2027. A proposal was submitted to SEIAA, Andhra Pradesh during the year 2017. The EAC asked the Project Proponent that what is the reason for applying for ToR in the year 2023 after a gap of 6 years. The Project Proponent has informed the EAC no permits were issued by the Mining Dept., and Indian Bureau of Mines (IBM) has directed to obtain EC. The Project Proponent also informed the EAC that the State Pollution Control Board has directed to submit the copy of EC while submitting the application for renewal for consent for operation.

The mine commenced its operation in the year 2007 as no Environmental Clearance was required for mining of major minerals less than 5 Ha as per EIA Notification, 2006. The mine was in operation from the year 2007-08 to 2021-22. The Project Proponent also informed the EAC that as on date mine is not in operation. By Suo moto, the Project Proponent accepted that instant proposal is a violation case. The Project Proponent has shown the certified production details from the year 2007-08 to 2021-22. The EAC observed that the Project Proponent has exceeded the production of the base year 1993-94 i.e., 510 MT from the year 2008-09 to 2016-17 and 2020-21 to 2021-22 and also the Project Proponent has been mining without EC. Thus the EAC opined that the instant proposal attracts the judgment of Hon'ble Supreme Court dated the 2ndAugust 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors and violation of the EIA Notification, 2006. The EAC reiterated the Ministry's SOP dated 07.07.2021 for identification and handling of Violation cases under EIA 2006stating that "*the percentage rates*

shall be halved if the project proponent suo-moto reports such violations without such violations coming to the knowledge of the Government either on inquiry or complaint". The EAC noted that as per Ministry's OM dated 07.07.2021, Clause 11: SOP for dealing with the violation cases if no prior EC has been taken then order to close its operation. In view of the above, the EAC asked the Ministry to close its operation and to take action against the Project Proponent under the provisions of the Environment (Protection) Act, 1986. The Project Proponent requested for exemption of public hearing as per Ministry's OM dated 12.11.2020. The EAC opined that the said OM does not applicable to this instant proposal.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC in its meeting held during 21-22 September 2023 under the provisions of EIA Notification, 2006 and subsequent amendments therein and as per Ministry's SOP dated 07.07.2021 for identification and handling of Violation cases under EIA 2006, **recommended** the proposal for grant of Terms of Reference (ToR) to M/s Sai Balaji Minerals for mining of Iron Ore in Obulapuram Iron Ore Mine with production capacity of Iron Ore: 99,789 Tons/Annum in the mine lease area of 4.003 ha, located at Sy.No: 370, Sy.No: 58/P Of Obulapuram Village, D-Hirehal Mandal, Anantapuram District, Andhra Pradesh for undertaking detailed EIA/EMP study subject to the following specific conditions in addition to the standard ToR conditions and applicable for non-coal mining projects:-

3.1.5. Recommendation of EAC

Recommended

3.1.6. Details of Terms of Reference

3.1.6.1. Specific

Environment Monitoring and EMP	
1.	The Project Proponent needs to monitor the ambient air quality and noise level at the mine lease boundary, nearest village, predominant downwind direction and at other sensitive receptors. The Project Proponent should prepare the EMP considering the scenario of pollution to be generated for normative and peak total excavation for assessing air and noise pollution.
Forest Department	
1.	The Project Proponent needs to submit the letter from the State Forest Dept of Andhra Pradesh and Karnataka regarding the distance of the location of the National Park, Wildlife Sanctuary, Tiger Reserves/ Tiger Corridor etc., along with the authenticated map and also the authenticated list of flora and fauna since the study area of the 10km radius of the buffer zone falling in the State of Andhra Pradesh and Karnataka (0.6 km).
Groundwater	
1.	The Project Proponent shall explore the possibility of reduction of specific water requirement by optimization / technology up gradation, etc. The efforts shall be delineated in the EIA/EMP.
2.	The Project Proponent shall carry out the assessment of impact due to the proposed project as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP. The project proponent shall conduct hydrological study for projects involving intersection of ground water table as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.
Railway line	
1.	The Project proponent needs to submit the map demarcating the railway line and railway boundary from the nearest working pit and the mine lease area.

Violation	
1.	The EAC asked the Ministry to close its operation and to take action against the Project Proponent under the provisions of the Environment (Protection) Act, 1986. Further, no consent to operate to be issued till the project is granted EC. The action initiated by the State Govt./State PCB, status of the same may be submitted to the Ministry.
2.	The Project Proponent shall be required to submit a bank guarantee equivalent to the amount of remediation plan and natural and community resource augmentation plan with the SPCB prior to the grant of EC. The quantum shall be recommended by the EAC and finalized by the regulatory authority. The bank guarantee shall be released after successful implementation of the EMP, followed by recommendations of the EAC and approval of the regulatory authority.
3.	Assessment of ecological damage with respect to air, water, land and other environmental attributes. The collection and analysis of data shall be done by an environmental laboratory duly notified under the Environment (Protection) Act, 1986, or an environmental laboratory accredited by NABL, or a laboratory of a Council of Scientific and Industrial Research (CSIR) institution working in the field of environment.
4.	The remediation plan and the natural and community resource augmentation plan to be prepared as an independent chapter in the EIA report by the accredited consultants.
5.	Preparation of EMP comprising remediation plan and natural and community resource augmentation plan corresponding to the ecological damage assessed and economic benefits derived due to violation.
6.	Details of benefit accrued during the violation period along with capital cost of the project needs to be submitted.
7.	The Project Proponent needs to submit the penalty provisions as per Ministry's SOP dated 07.07.2021 at the time of appraisal of EC.
Groundwater	
1.	The Project Proponent shall prepare the scheme for mandatory recycle/re-use of water as specified by the Central Ground Water Authority for different category areas seeking NoC for ground water withdrawal and the shall submit as part of EIA/EMP report.
MIscellanous	
1.	The Action Plan on the compliance of the recommendations of the CAG as per Ministry's Circular No. J-11013/71/2016-IA.II(M) dated 25.10.2017 needs to be submitted at the time of appraisal of the project and included in the EIA/EMP Report.
Socio Economic	
1.	The Project Proponent needs to carry out the Public Hearing as per provisions of EIA Notification, 2006. PP should also submit the time bound action plan on concerns of the public through a separate budget with capital expenditure with a timeline of 3 years. The Project proponent shall ensure that the activities proposed under the public hearing shall be different from the CSR activities.

3.1.6.2. Standard

1(a)	**Mining of minerals**
Project Details	
1.	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production

	after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994. The production details need to submit since inception of mine duly authenticated by Department of Mines & Geology, State Government.
2.	A copy of the document in support of rightful lessee of the mine should be submitted. In case of new mines copy of LoI granted by State Government to be submitted. PP should ensure that LoI is valid at the time of grant of ToR. PP should submit the copy of lease deed/supplementary lease deed/extension letter/transfer deed, from its initial grant to subsequent renewals/ transfer/extension of validity.
3.	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
4.	PP should submit the District Survey Report (DSR) as per S.O. 3611(E) dated 25.07.2018 in case of minor minerals.
5.	Brief of proposal to be submitted which include total excavation of the material required for the production of certain quantity of the minerals, location of the project, mining lease area, latitude longitude, seismic zone etc. In case of expansion project details of expansion viz. expansion in mining lease area or expansion in production of any particular mineral or expansion in total excavation, latest certified Compliance report (CCR) from IRO of conditions granted in existing EC needs to be submitted.
6.	The PP should submit the real-time aerial video footage & video of the mining lease area and of the transportation route.
7.	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
8.	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
9.	The PP should collect the Baseline data (BLD) in respect of initial level of the mining lease. For this permanent bench marks (BM) needs to be established at prominent location preferably close to mining leases in question and should have precisely known relationship to the level datum of the area, typically mean sea level.
10.	In case of sand mining, the entire mining lease area should be divided suitably into grids of 25 m x 25 m with the help of sections across the width of river and along the direction of flow of the river. The levels (MSL & RL) of the corner point of each grid needs to be recorded. Each Grid should be suitably numbered for identification. PP should identity grids which will be worked out and grids which will come under no mining zone i.e. safety barriers from the river bank. PP should comply with the sustainable sand mining management guidelines 2016 and enforcement and monitoring guidelines, 2020 etc.
11.	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
12.	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
13.	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.

14.	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
15.	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
16.	Compliance of the Ministry's Office Memorandum No. F: 3-50/2017-IA.III (Pt.), dated 30.05.2018 on the judgment of Hon'ble Supreme Court, dated the 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India needs to be submitted and included in the EIA/EMP Report.
Forest	
1.	PP shall submit a certificate from Chief Conservator of Forests regarding involvement of Forest Land in the mining lease area if any. In case forest land is involved i) PP should submit the proof of application made for obtaining forest clearance and ii) a map clearly showing the forest & non-forest area.
2.	Status of forestry clearance for the broken-up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
3.	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
4.	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
Court Matters	
1.	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
Land Environment	
1.	PP should submit the details of survey number [viz. survey no, area in hectare, classification of land (government, private, forest, grazing land etc.), villages] duly authenticated by State Government, falling in the mining lease area.
2.	The study area will comprise of 10km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
3.	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
4.	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
Wildlife	
1.	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
2.	A detailed biological study of the study area [core zone and buffer zone] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. PP shall submit list of Schedule-1 species present in core and buffer zone duly authenticated by CWLW. In case of any

	Scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest/Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost. Proof of its submission of conservation plan to the CWLW needs to be submitted.
3.	PP shall submit a certificate from Chief Wildlife Warden regarding distance of mining lease from the protected area falling within 10 KM of the mining lease. In case project requires clearance under Wildlife (Protection) Act, 1972 then copy of application made for the same needs to be submitted.
Baseline Environment	
1.	One season (non-monsoon) [i.e. March - May (Summer Season); October - December (post monsoon season); December - February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
2.	Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The windrose showing pre-dominant wind direction may also be indicated on the map.
3.	The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this, PP should submit the original test reports and certificates of the labs from which samples were analyzed.
Water Environment	
1.	The water requirement for the Project, its availability and source should be furnished. Quantity of surface or ground water to be used for the Project should be indicated. A detailed water balance should also be provided. Submit the year wise target for reduction in consumption of the ground/surface water by developing alternative source of water through rain water harvesting measures. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided. The capital and recurring expenditure to be incurred needs to be submitted.
2.	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
Hydro Geology	
1.	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be.
2.	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and BGL. A schematic diagram may also be provided for the same.
3.	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working bench will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished. In case of surface water is proposed to be utilized then Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.

Transportation	
1.	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
Land Acquisition and R&R	
1.	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
2.	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need-based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
Socio-Economic Environment	
1.	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
2.	Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
3.	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
4.	Activity-wise time-bound action plan on the issues raised and commitment made during public hearing to be submitted as part of the final EMP Report in compliance of the Ministry's OM F.No.22-65/2017-IA.III dated 30th September, 2020.
Environmental Monitoring and Management	
1.	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the proposed safeguard measures in each case should also be provided.
2.	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
Critically Polluted Areas, Aravali & CRZ	

1.	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.
2.	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
Risk Assessment & Disaster Management	
1.	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
2.	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
3.	A Disaster Management Plan shall be prepared and included in the EIA/EMP Report.
Miscellaneous	
1.	The general points are also to be followed: - a) All documents to be properly referenced with index and continuous page numbering. b) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated. c) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project. d) Where the documents provided are in a language other than English, an English translation should be provided. e) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted. f) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed. g) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation. h) As per the circular no. J-11011/618/2010-IA.II (I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable. i) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

3.2. Agenda Item No 2:

3.2.1. Details of the proposal

Block 1- Bicholim Mineral Block for Iron Ore by **VEDANTA LIMITED** located at **NORTH GOA,GOA**			
Proposal For		Fresh EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**

IA/GA/MIN/442593/2023	IA-J-11015/3/2023-IA-II(NCM)	01/09/2023	Mining of minerals (1(a))

3.2.2. Project Salient Features

1. The instant proposal is for mining of Iron Ore in Bicholim Mineral Block – Block 1 (Auction Block) of M/s Vedanta Limited with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA (Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located in Bicholim, Bordem, Lamgao, Mulgoa, Mayem & Sirigao Villages of Bicholim Taluka of North Goa District, Goa.

2. The details of the project as ascertained from the document submitted by the Project Proponent and as revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude: 15º34'20.518"N to 15º 36'54.018"Nand Longitude: 73º54'4.754"E to 73º57'09.51"E. The mine lease area falls under the Survey of India Toposheet No: D43B14and falls in Seismic Zone-II.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mining lease area is greater than 250ha and appraised at the Central level.

iii. Details of Terms of Reference (ToR):

Date of application	File. No/ Proposal No	Consideration	Details	Date of accord
16.03.2023	F.No: IA-J-11015/3/2023-IA-II(NCM) IA/GA/MIN/ 422323/2023	3-4 May, 2023	Terms of Reference (ToR) to M/s Vedanta Limited for mining of Iron Ore in Bicholim Mineral Block – Block 1 (Auction Block) with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA (Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located in Bicholim, Bordem, Lamgao, Mulgoa, Mayem & Sirigao Villages of Bicholim Taluka of North Goa District, Goa	16.06.2023

iv. Details of Mine Lease:

a) The Project Proponent has submitted the Letter of Intent (LoI) granted by the Government of Goa vide Lr No: DMG/25/Auction Cell/LOI-function/2023/2801 dated 13.01.2023 for grant of mining leasefor Block I - Bicholim Mineral Block for Iron Ore in Bicholim, Bordem, Lamgao, Mulgao Mayem & Sirigao villages, Bicholim Taluka, North Goa District over an area of 478.5206 Hectare for a period of 50 (fifty) years in pursuant to Rule 10(2) of the Auction Rules. This letter of intent is valid for a period of 3 (three) years from the date of its issuance.

v. Land Use/Land Cover of the Mine Lease Area:

Private land	421.1153 Ha
Government land	57.4053 Ha
Total Mining lease area (MLA)	478.5206 Ha
Private land for crusher, workshop & other infrastructure outside the MLA	Not Applicable

vi. Details of Mining Plan:

Review and Mining Plan approved by Indian Bureau of Mines, Goa	Letter No.	No. MCDR-MPC|1|2O23-GOA-IBM_ RO_ GOA
	Date	26.05.2023
	Mine Lease Area	478.5206 Ha
	Mineral	Iron Ore (Major Mineral)
Mining Parameters	Quantitative Description	
Method of Mining	Opencast mechanized mining without Drilling & Blasting	
Drilling/Blasting	Not Applicable	
Total Reserves and Resources	84.73 Million Tonnes	
Proved Mineral Reserve	36.071 Million Tonnes	
Life of mine	30 years	
Bench Height	7 m	
Bench Width	10 m	
Individual bench slope	70^0	
Overall pit slope	$<26^0$	
RoM output size	Less than 500 mm	
Crushing/Screening	Mobile Dry Crushing and Screening plant shall be available within the proposed mine to handle 4 MTPA of crude ore. The primary crusher will consist of 1 no. of Jaw crusher of capacity 120 TPH with an input feed of -500mm and shall produce output of -70 mm. It shall be followed by secondary crushers, 2 no.s of capacity 300 TPH and 200 TPH respectively. The input feed size shall be -70mm and output feed size obtained shall be -40mm. The Screening Plants of capacity -600TPH shall be installed where input the feed size shall be -70mm to obtain product of -40mm lumps & -10mm fines.	
Transportation details	ROM/Iron ore or Screened/crushed material will be transported by 10.5 Tonne trippers from Mine to Sarmanas jetty through a dedicated road. The total distance from the mine to Jetty is 5.48 km of which 0.94 km stretch is public road and remaining 4.54 km is company owned dedicated road.	
Dumpers capacity	40 tonne (within mines)	
Waste handling and Disposal	During the mining period, the waste generated by mining will be temporarily stacked within the mining lease area as surface dump and backfilled in the exhausted portion of the pits. The total waste to be generated during the plan period is about 69.85 million tonnes. An area of 6.7146 Ha shall be utilized for Dumps and Material stocking at the conceptual stage of mining.	

vii. Water requirement:

Total water requirement	664 KLD	Pit Water	628 KLD
		Ground water	36 KLD
Source	Water from Mine Pit will be used for dust suppression, Vehicle washing and Green belt. Water for domestic requirement will be met from bore well.		
Permission	The Bore wells are registered with Goa State Water Resource department. Application for using mine pit water will be submitted.		

viii. Nearest village / town/ highway/railway station / water bodies/monument:

Particulars	Particular's Name	Distance & Directions
Village	Lamgoa	Within the lease area

Town	Bicholim Town	0.5 km, East
Road	State Highway SH-1	0.65 km, East
Railway Station	Tivim Railwaystation	10.5 km, North
Water Bodies	Asnora River Mayem Lake Mandovi River	Touching lease boundary at one of the points 0.46 km 2.3 km, SW
School	Mulgao Govt. Primary School	Within the lease area
Worship places	Namuzgah/Idgah Shri Lairae Temple	Within the lease area 0.86 km
Caves/Fort	300m buffer from Lamgao caves Khorjuvem Fort: 2 km	

ix. Presence of Environmentally Sensitive areas in the study area:

Forest Land/Protected Area/Environmental Sensitivity Zone	Yes/ No	Details of Certificate/letter/Remarks
Forest Land	Yes	Mayem Forest Common Boundary with the mine lease area The following Reserve Forests are located within 10 km radius of the mine lease area such as Kharapal RF -6.7 km Kasarpal RF - 5.1 km Ambadgaon RF - 7.6 km
National Park/Wildlife Sanctuary, ESZ/ESA etc.,	No	The Project Proponent has submitted the letter from the Office of the Dy. Conservator of Forests vide Lr No: DCF(WP)/Tech/Digi/Vol-I/75/2022-23/ 968 dated 23.01.2023 stating that the proposed Bicholim Mineral Block-I is not situated within 10 km radius from the boundary of any the protected area in the State of Goa. PP also submitted the authenticated map dated 24.01.2023 showing the distance of the following Wildlife Sanctuary from the mine lease area. 1. Madei Wild life Sanctury-14.105 km, E 2. Salim Ali Bird Sanctuary -10.553 km, SW 3. Bondla Wildlife Sanctuary -20.476 km, SE The Project Proponent also submitted the letter dated 22.02.2023 obtained from the Director (Environment) & Member Secretary, Goa-SEIAA stating that the Authority on perusal of Draft Zonal Master Plan for Eco-Sensitive Zones of Goa 2022 noticed that Eco Sensitive Zones declared by the Ministry of Environment & Forest in the State of Goa covers six Talukas such as Sattari, Dharbandora, Ponda, Sanguem, Canacona and Quepem, Bicholim taluka is not inlcuded in Draft Zonal Plan and it is not part of Eco Sensitive Zones. It is also clarified that Block-I Bicholim Mineral Block of Vedanta Ltd is also not a part of any Eco Sensitive Area.
Schedule-I species	Yes	The Project Proponent has submitted the letter from the Office of the Dy. Conservator of Forests vide Lr No: 5/FCA/GEN/F&F/DCFN/TECH/2022-23 dated 04.04.2023 with regard to list of Flora and Fauna species present in core and buffer zone. The following Schedule-I species are found in the study area such as 1 Common leopard (*Felidae*)

		2 White-bellied Sea-Eagle(*Accipitridae*) 3 Indian Peafowl (*Phasianidae*) 4 Crimson rose- Butterfly (*Papilionidae*)
Status of Wildlife Conservation Plan	Yes	Wild Life Conservation Plan is prepared and submitted for approval of Chief Wildlife Warden (CWLW) on 19.06.2023. PP has submitted the copy of the acknowledgement from Chief Wildlife Warden.

x. Green belt/plantation details:

Proposed area for green belt/plantation	105.8894 ha
Budget for green plant& plantation till the end of life of mine.	Rs159.0Lakhs
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	25 ha
50 m safety zone of nallah, roads, electric lines	
Additional information (if any)	80.8894 ha (on backfilled area)

xi. Details of Baseline data:

Baseline Data (Air / Water / Noise / Soil / Ground water table/ others)	
Period of baseline data collection	March, 2023 to May, 2023
Season (Summer / Pre-monsoon / Post-monsoon / Winter)	Summer Season
Ambient Air Quality (no. of locations) and results	No. of Locations Parameters Results 9 PM10 27.0 to 56.0 mg/m^3 PM2.5 14.0 to 36.0 mg/m^3 SO2 4.0 to 13.0 mg/m^3 NO2 <4.0 to 18.0 mg/m^3
Noise level (no. of locations) and results	No. of Locations Parameters Results 09 During Day Time [Leq dB(A)] 43.1 to 61.7

	During Night Time [Leq dB(A)] 35.9 to 49.3
Water Quality (no. of locations) and results	Surface water quality No. of Locations Parameters Results 07 pH 6.35 - 7.39 TDS (mg/l) 72 - 11240 Fluoride (mg/l) <0.1 Chloride (mg/l) 18 - 5620 Fe (mg/l) <0.05 Dissolved Oxygen (as O_2), mg/l 6.2 – 6.9 Biochemical Oxygen Demand (as O_2), mg/l <3.0 Chemical Oxygen Demand (COD) mg/l 22.0 – 26.0 Groundwater Quality No. of Locations Parameters Results 10 pH 5.63 – 7.07 TDS (mg/l)

	20 – 150 Fluoride (mg/l) 0.1 Chloride (mg/l) 5.0 - 19.0
Soil Quality (no. of locations) and results	No. of Locations Parameters Results 07 pH 5.38 to 5.78 Electrical Conductivity (mohs/cm) 0.28 to 0.318 Nitrogen (kg/ha) 200 to 275 Phosphorus (kg/ha) 14.3 to 17.8 Potassium (kg/ha) 230 to 263

xii. Public Hearing (PH) Details:

Advertisement for PH with date	07.07.2023 Regional: Bhangar Bhui, Heraldo, Lokmat & Free press journal (Mumbai Edition) News papers
Date of PH	11/08/2023
Venue	Narayan Zantye Multipurpose Sports Complex, Sarvan, Bicholim, Goa
Chaired by	District Collector, North Goa
Main issues raised during PH	Pollution, impact on ponds, Support for Education, Health, Agriculture Development & Skill Development, Employment.
Budget proposed for addressing issues raised during PH	Rs 309.3 Lakhs

xiii. Rehabilitation & Resettlement:

R & R details	There is presence of habitation within ML Area at Mulgao and lamgao villages. Safety

	Buffer of 50m will be maintained from the habitations. No Rehabilitation & Resettlement Plan is proposed during life of mine.

xiv. Court case details:

Court Case	Yes
Additional information (if any)	<u>First Case (Suresh Zantye & ors. v. State of Goa & Ors.):</u> 1. WP(Civil) 2478 of 2022 (Filing number) before the High Court of Bombay at Goa 2. The said writ petition has been filed against the State Government and seeks to challenge the identification of properties bearing survey no. 90/1(part) and 96/0 as part of the recently auctioned Bicholim mine. The petition alleges violation of Rule 5 &6 of Mineral Evidence Rules and Section 10B of MMDR, Act by the State of Goa and DMG. The petitioner has prayed for quashing of auction notice to the extend it includes the property of the petitioner and grant a writ of mandamus against the Respondents. 3. Case status is pending. 4. No adverse orders have been passed. 5. As per the last order the matter has been disposed of by the HC on 17th July 2023 with a direction to the Petitioner to make a representation before the Government and the Government is to dispose of the same within four months. <u>Second Case (MSPL v. State of Goa & Ors.):</u> 1. WP 592 of 2022 2. The said writ petition seeks to challenge the constitutionality of the tender documents of Phase I auction of Goa mines. The petition alleges violation of Rule 5 & 6 of Mineral Evidence Rules by the State of Goa and DMG. The petition alleges non-disclosure of essential facts such as bore hole data, approved mining plan, production data of the previous five years and exploration data. The petitioner has prayed for quashing of auction notice to the extend it fails to include the essential facts and in the alternative to stay the auction. 3. Case status is pending 4. No adverse orders have been passed. 5. As per the last order the matter was listed on 01.09.2023. <u>Third Case (Suresh Govind Gaonkar & Ors v. Directorate of Mines and Geology & Ors):</u> 1. PIL WP 2029/2023 (F) 2. PIL has been filed challenging state's decision to go ahead with the auction of the mining block. The said PIL also challenges the order dated 13.01.2023 which issues LOI to the successful bidder. The primary grievances of the petitioners are that village settlement are included within the mining blocks auctioned. Hence this PIL was preferred under Article 226 and 21 of the Constitution. Vedanta Limited is Respondent No. 3 in the aforementioned PIL. The matter is listed for first hearing on 25.09.23.

xv. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent has submitted the Affidavit in a non-judicial stamp paper of Rs 100 bearing no: A807037 dated 24.04.2023 stating that they will comply to the directions issued by MoEF&CC vide Office Memorandum F.No.3-50/2017.IA.III (Pt) dated 30th May, 2018 in terms of directions given Hon'ble Supreme Court in judgment dated 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India & Ors.
Undertaking of Project Proponent	The Project Proponent has submitted an undertaking stating that the Environmental Impact Assessment Report of Block-1 Bicholim Mineral Block of M/s Vedanta Ltd was prepared by M/s Mineral Engineering Services, QCI/NABET Accredited EIA Consultant at Sr.No. 55 as per list of list of accredited consultant/organizations. The Project Proponent hereby undertaken that the information and data provided in the EIA report and submitted to the Ministry are factually correct and fully accountable for the same.
Consultant submitted an Undertaking vide letter dated 02.06.2023	This is to declare that the prescribed ToRs have been complied with and that the data submitted are factually correct in respect of EIA & EMP report prepared for Block-1 Bicholim Mineral Block of M/s Vedanta Ltd, Goa.

xvi. Details of the Environmental Management Plan (EMP):

Activities	Capital cost (Crores)	Recurring cost (Lakhs/annum)
Plantation	-	7.5
Environment monitoring	44	44
Air pollution control measures	20	300
Water Treatment	-	11
Erosion control /monsoon measures	-	221
Personal protective equipment	-	15
Maintenance of fire protection systems	-	1.5
Environment awareness & training	-	5
Health	8	16
Total	72	621

xvii. Details of project cost and employment:

Particulars	(Rs. In lakhs)
Project Cost	25000 Lakhs
Employment	716 no.s

3.2.3. Deliberations by the EAC in previous meetings

N/A

3.2.4. Deliberations by the EAC in current meetings

The Project Proponent and the Consultant presented the KML file to indicate the site features in the study area of 10 km radius. The Project Proponent has shown the boundary of the mine lease area and informed the EAC that there are two habitations such as Mulgao and Lumgao and schools are located within the mine lease area. Two schools are located in the Mulgao Village. One school is located at a distance of 138m from the Ultimate Pit Limit (UPL) and the other school is located at a distance of 190m from the Ultimate Pit Limit (UPL). No drilling and blasting is involved. Green barriers are maintained to prevent it from the environment hazards. Tributary of Asnora River is touching the mine lease area on the western side. It has been observed that area between river & bottom pit 5 is approximately 6m AMSL which obstructs the flow of water between them, even the high flood condition and at the place where river is touching the block boundary, it is 10.93m AMSL. Hence, even during high flood level, river will not interact with the pit water. The EAC noted that there are few temples, caves and fort are present in the vicinity of the mine lease area. There will be no surface dumping and will be backfilled concurrently and there are voids available for backfilling. Later on the Project Proponent has informed that the pits will be used as a settling ponds. The EAC noted that the Project Proponent is giving two contradictory statements. The EAC asked the Project Proponent to provide the design of the settling ponds in different pits.

The Project Proponent has informed the EAC that Block-I Bicholim block is an old mine and it was auctioned to Vedanta Ltd in the year 2022 and Letter of Intent (LoI) was granted on 13.01.2023. The EAC asked the Project Proponent that after the year 2018 whether any Environmental Clearance has been granted in the State of Goa. The Project Proponent has informed the EAC after the year 2018 there was no mining in Goa and this instant case is the first case for grant of Environmental Clearance. No forest land is involved in the mine lease area. The EAC noted that the Project Proponent has submitted that Mayem Forest common boundary is sharing with the mine lease area. The EAC was of the view that involvement of forest land within the mine lease area is not clear as there are two contradictory information given by the Project Proponent. The EAC also noted that in this regard, the Project Proponent has not submitted the letter from the Forest Dept. No National Park/Wildlife Sanctuary, ESZ/ESA etc., is located within 10km radius of the study area. An application for Groundwater withdrawal was submitted to Water Resource Department submitted on 19.06.2023. No Rehabilitation and resettlement is involved in this proposal.

The Project Proponent has informed the EAC that ROM/Iron ore or Screened/crushed material will be transported by 10.5 Tonne trippers from mine to Sarmanas jetty through a dedicated road. The total distance from the mine to Jetty is 5.48 km of which 0.94 km stretch is public road and remaining 4.54 km is company owned dedicated road. Width of the road is 7.0m. Twenty four hours continuous volume count was manually undertaken during May-2023. The EAC noted that the width of the road is not adequate. About 1205 no. of trips per day will be carried out. No. of working days will be 365. The EAC was of the view that when the rainfall is 3500 mm/year it will be difficult to carry out mining for 365 days. The Project Proponent has informed the EAC that 275 working days are considered for calculation of traffic load. The EAC asked the Project Proponent to bypass the public road and also to explore the possibility of increasing the capacity of the truck so as to reduce the no. of trips. The EAC opined that the Project Proponent needs to revisit the traffic load by considering the cycle time and waiting time. The EAC also asked the Project Proponent to strengthen the road and convert the road into concrete road.

The Project Proponent also informed the EAC that the predominant wind direction was from West to East. Wildlife Conservation Plan has been prepared and submitted to Chief Wildlife Warden (CWLW) on 19.06.2023 for approval with a budget of Rs. 50 Lakhs. At the end of conceptual stage, an area of 105 ha will be under green belt/ plantation. Eco restoration will be carried out in similar to the reclaimed activity carried out in Sanquelim mine. Public hearing was carried out on 11.08.2023 and a budget of Rs 309.3 Lakhs have been earmarked to address the concerns raised during public hearing. The EAC also noted that about 4708 written objections was submitted against the project during the public hearing. The Project Proponent has informed the EAC that the issues are same but the no. of objection letters were more in number and about 5183 no.s of letters were also received in support of the project. The EAC also noted that many complaints were received against the public hearing dated 11.08.2023. The EAC asked the Project Proponent to submit the video recording of the public hearing. There are three court cases at present regarding the auction process and one of the court case was disposed on 17.07.2023 and will abide the directions of the Hon’ble High Court. Other two cases in the matter of MSPL v. State of Goa & Ors. in WP 592 of 2022 and in the matter of Suresh Govind Gaonkar & Ors v. Directorate of Mines and Geology & Ors. in PIL WP 2029/2023 (F) are pending before the Hon’ble High Court and no adverse orders has been passed.

The Department of Mines and Geology, Goa was invited as a special invitee to discuss the present status of mining in Goa. The Deputy Director has informed that the State Govt. is looking positive to restart the mining operations in Goa. Besides 10% DMF, there is also a scheme called Goa Iron Ore permanent fund wherein 10% of the sale value of the mineral will be spent towards community based activities as per the direction of the Hon’ble Supreme Court. The State Govt. has put up a scheme for approval before the Hon’ble Supreme Court in line with Pradhan Mantri Khanij Kshetra Kalyan Yojana (PMKKKY) Scheme. This fund has to be kept for prosperity. The report with regard to illegal mining will be obtained from the SIT and will be provided to the Ministry.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC noted that the handling of waste of 25.162 MTPA will be more than the Iron Ore production capacity of 3.0 MTPA. The EAC was of the view that the pollution potential will be more in handling of waste. The EAC not convinced with plan for backfilling and with the design of settling ponds as the annual rainfall is projected as 3500 mm/year. The EAC observed that the instant mine is located in dense vegetation area. The EAC also noted that the mine lease area is located close to the proximity of the habitations, school, forest (Mayem common boundary), river, temples, caves and fort. The EAC also observed that the Project Proponent has not properly worked out the traffic load. Many litigations were received against the public hearing/project. Further, the EAC also noted that mines were not in operation in Goa from the year 2018 and this instant proposal is a first case for grant of Environmental Clearance (EC) under auction after 5 years. Thus there is a need to ascertain the present scenario and ground reality with regards to handling of waste, settling ponds, location of waste dump w.r.t habitation, school and river, other surface features as forest (Mayem common boundary), temples, caves and fort, mineral transportation route and traffic congestion. The EAC was of the view that a site visit needs to be conducted by a sub-committee comprising of EAC Members and officers from MoEF&CC. The EAC opined that the Ministry may constitute a sub-committee and submit its report to enable the committee to take a decision on the proposal. Therefore, the EAC **deferred** the proposal for want of following additional information: -

i. The site visit report of the subcommittee.

ii. The Project Proponent needs to revisit the plan for backfilling with clearly indicating the voids area and the capacity available/required for backfilling.

iii. The Project Proponent needs to submit the design of settling ponds by considering the annual rainfall, catchment area and its discharge.

iv. The Project Proponent needs to bypass the public road and also to explore the possibility of increasing the capacity of the truck so as to reduce the no. of trips. The EAC opined that the Project Proponent needs to revisit the traffic load by considering the cycle time and waiting time. The Project Proponent needs to submit the action plan for strengthening the road and for converting the unpaved road into concrete road.

v. Since the mine lease area is sharing the Mayem Forest common boundary, the Project Proponent needs to submit the letter from the State Forest Department regarding the involvement of forest land in the mine lease area.

vi. The Project Proponent needs to submit a letter from the Department of Geology and Mining, Government of Goa clarifying whether any illegal mining within the mine lease area has been carried out or not and whether the same has been carried out by M/s. Vedanta Limited or not?

vii. The Project Proponent needs to submit the video recording of the public hearing.

3.2.5. Recommendation of EAC

Deferred for ADS

4. Any Other Item(s)

N/A

5. List of Attendees

Sr. No.	Name	Designation	Email ID	Remarks
1	Mr Pankaj Verma	Scientist E	pankaj.verma@nic.in	
2	Dr Dinesh Misra	IFS (Retired)	dmisra56@gmail.com	
3	Sh Niranjan Kumar Vasu	Member (EAC)	vasuifs@gmail.com	
4	Dr Asha Rajvanshi	Member (EAC)	asharajvanshi@gmail.com	

5	Shri Avijit Gosh	Member (EAC)	avijitmining@gmail.com	
6	Shri Bandi Ramchandra Reddy	Member (EAC)	reddyramchandra8858@gmail.com	
7	Prof Pramod Kumar	Member (EAC)	nita_pramod@yahoo.com	Absent
8	Prof Devesh Walia	Member (EAC)	devesh.eac@gmail.com	Absent
9	Dr Suresh Tiwari	Member (EAC)	smbtiwari@gmail.com	Absent
10	Dr K G Asha Manjari	Member (EAC)	kimberlite2016@gmail.com	
11	Prof Dev Dutt Sharma	Member (EAC)	ddshpu@gmail.com	Absent
12	Dr Y G Kale Representative of IBM	Member (EAC)	ygkale@ibm.gov.in	
13	Shri Mohammad Niyazi	Member (EAC)	dirsnt.dgms@gmail.com	
14	Mr V K Soni Representative of IMD	Member (EAC)	vijay.soni@imd.gov.in	Absent

Minutes of 20th EAC (Non Coal Mining) meeting held during 21-22 September, 2023

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
(IMPACT ASSESSMENT DIVISION)
NON-COAL MINING SECTOR
****

SUMMARY RECORD OF 20TH MEETING OF THE COMMITTEE OF THE RE-CONSTITUTION OFEXPERT APPRAISAL COMMITTEE FOR ENVIRONMENTAL APPRAISAL OF NON-COAL MINING PROJECTS CONSTITUTED UNDER THE EIA NOTIFICATION, 2006.

The 20th meeting of the Re-constitution of Expert Appraisal Committee (EAC) for Environmental Appraisal of Mining Projects (Non-Coal) of the Ministry of Environment, Forest and Climate Change was held during 21-22 September, 2023 through video conference. The list of participants is annexed herewith. After login of the Committee Members through video conference link provided by NIC discussion on each of the Agenda Items was taken up ad-seriatim.

(1.0) Deliberation & Circulation on the Minutes of 19thEAC (Non-Coal Mining) meeting held during 24-25 August, 2023:

The minutes of the 19th EAC meeting held during 24-25 August, 2023 were placed before the members of the EAC.

Day 1: 21st September, 2023 (Thursday)

1.1 Proposal for Mining of Iron Ore in Jilling Langalotta Iron Ore Mine of M/s Odisha Mining Corporation Limited with total excavation of 17.4385 Million TPA [Saleable Iron ore- 7.7723 Million TPA, Mineral rejects-2.2276 Million TPA, Waste-7.4385 Million TPA, Topsoil: Nil] along with existing: 5 nos. with Total Capacity - 1400 TPH (Stationary Crushing Unit), 2 x 300 TPH, 2 x 200 TPH, 1 x 400 TPH, Existing: 3 nos. with Total Capacity - 150 TPH (Mobile Screening Unit), 1 x 150 TPH Mobile Screening Plant 1 x 50 TPH, Stationary Screening Plant, 1 x 100 TPH Mobile Screening Plant, New: 10 nos. with Total Capacity - 4550 TPH (Crushing Unit), 1x800 TPH, 3 x 600 TPH, 3 x 400 TPH, 1 x 300 TPH, 1 x 250 TPH, 1x 200 TPH, New: 4 nos. with Total Capacity - 1000 TPH (Portable Screening Units), 4 x 250 TPH in the mine lease area of [456.037 ha (as per DGPS)/456.100 ha (as per RoR)] located at Village(s) Jalahari, Jurudi, Banspani, Khuntapani, Bholebeda, Jajang, Baitarani Reserve Forest in Barbil Tehsil, Keonjhar District, Odisha - [Proposal No: IA/OR/MIN/440292/2023, IA-J11015/34/2021-IA-II(M), EIA Consultant: M/s. MECON Ltd] - Environmental Clearance (Auction mine)

The instant proposal is for mining of Iron Ore in Jilling Langalotta Iron Ore Mine of M/s Odisha Mining Corporation Limited with total excavation of 17.4385 Million TPA

[Saleable Iron ore- 7.7723 Million TPA, Mineral rejects-2.2276 Million TPA, Waste-7.4385 Million TPA, Topsoil: Nil] along with existing: 5 nos. with Total Capacity - 1400 TPH (Stationary Crushing Unit), 2 x 300 TPH, 2 x 200 TPH, 1 x 400 TPH, Existing: 3 nos. with Total Capacity - 150 TPH (Mobile Screening Unit), 1 x 150 TPH Mobile Screening Plant 1 x 50 TPH, Stationary Screening Plant, 1 x 100 TPH Mobile Screening Plant, New: 10 nos. with Total Capacity - 4550 TPH (Crushing Unit), 1x800 TPH, 3 x 600 TPH, 3 x 400 TPH, 1 x 300 TPH, 1 x 250 TPH, 1x 200 TPH, New: 4 nos. with Total Capacity - 1000 TPH (Portable Screening Units), 4 x 250 TPH in the mine lease area of [456.037 ha (as per DGPS)/456.100 ha (as per RoR)] located at Village(s) Jalahari, Jurudi, Banspani, Khuntapani, Bholebeda, Jajang, Baitarani Reserve Forest in Barbil Tehsil, Keonjhar District, Odisha.

2. The details of the project as ascertained from the documents submitted by the Project Proponent and as revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude 21°56'37.5297"N to 21°08'53.4185"N and Longitude: 85°25'08.8832"E to 85°26'37.1370"E. The mine lease area falls under the Survey of India Toposheet No: 73F/8 and 73G/5 and falls in Seismic Zone-II.

ii. The proposed project activity is listed at Schedule no. 1(a) Mining of Minerals of the schedule of the EIA Notification, 2006 and falls under Category "A" as the mining lease area is greater than 250ha and appraised at the Central level.

iii. The Project Proponent has submitted that the previous lessee obtained Environmental Clearance for a production capacity of 6.28 MTPA of Iron Ore vide EC letter J-11015/959/2007-IA-II (M) dated 7th June 2012.

iv. Details of Terms of Reference (ToR):

Date of application	File. No/ Proposal No	Consideration	Details	Date of accord
13.04.2021	IA-J11015/ 34/2021-IA-II(M) IA/OR/MIN/ 207724/2021	13-16 July, 2021	Terms of Reference of M/s Odisha Mining Corporation for Jilling Langalotta Iron Ore Mine [456.037 ha (as per DGPS)/456.100 ha (as per RoR)] with total excavation of 15.668 Million TPA [Saleable Iron ore- 9.239 Million TPA, Mineral rejects-0.761 Million TPA, Waste 5.668 Million TPA, Topsoil: Nil] with	04.08.2021

			proposed 1 x 2000 TPH stationary multistage crushing & screening plant along with existing 1x300 TPH Stationary Crusher Plant (In pit plant), 1x300 TPH Stationary Crusher Plant (OCU1), 1 x 200 TPH Stationary Crusher Plant (OCU-2), 1 x 300 TPH Stationary Crusher Plant (OCU-3), 1 x 200 TPH Stationary Crusher Plant (OCU-5), 1 x 400 TPH Mobile Crusher Plant, 1 x 50 TPH Stationary Screening Plant, 1 x 150 TPH Mobile Screening Plant, 1 x 100 TPH Mobile Screening Plant, 5 x 150 TPH Mobile Screening Plant at Village(s) Jalahari, Jurudi, Banspani, Khuntapani, Bholebeda, Jajang, Baitarani Reserve Forest in Barbil Tehsil, Keonjhar District, Odisha	
26.10.2022	IA-J11015/ 34/2021-IA-II(M) IA/OR/MIN/ 292822/2022	9-11 November, 2022	Amendment in Terms of Reference (ToR) dated 04.08.2021 for M/s Odisha Mining Corporation Limited for Jilling Langalotta Iron Ore Mine [456.037 ha (as per DGPS)/456.100 ha (as per RoR)] with total excavation of 17.4385 Million TPA [Saleable Iron ore- 7.7723 Million TPA, Mineral rejects-2.2276 Million TPA, Waste-7.4385 Million TPA, Topsoil: Nil] along with Existing: 5 nos. with	28.11.2022

			Total Capacity - 1400 TPH (Stationary Crushing Unit), 2 x 300 TPH, 2 x 200 TPH, 1 x 400 TPH, Existing: 3 nos. with Total Capacity - 150 TPH (Mobile Screening Unit), 1 x 150 TPH Mobile Screening Plant 1 x 50 TPH, Stationary Screening Plant, 1 x 100 TPH Mobile Screening Plant, New: 10 nos. with Total Capacity - 4550 TPH (Crushing Unit), 1×800 TPH, 3 x 600 TPH, 3 x 400 TPH, 1 x 300 TPH, 1 x 250 TPH, 1× 200 TPH, New: 4 nos. with Total Capacity – 1000 TPH (Portable Screening Units), 4 x 250 TPH, located at Village(s) Jalahari, Jurudi, Banspani, Khuntapani, Bholebeda, Jajang, Baitarani Reserve Forest in Barbil Tehsil, Keonjhar District, Odisha	

v. Details of Mine Lease:-

S. no	Grant of Pl/mine lease/ Order	Date of the grant	Name of the Mineral	Period of Grant	Granted by	Mine lease area in Ha
1	Reservation of Jilling-Langlotta Iron Ore vide No 299/ IV(AB)SM-01/ 2021/SM, Bhubansehwar	11.01.2021	Iron Ore	10 years	Govt of Odisha	456.037 ha (as per DGPS)/ 456.100 ha ha (as per RoR)
2	Letter of Intent vide 307/IV(AB) SM-01/2021/SM, Bhubansehwar	11.01.2021	Iron Ore	10 years	Govt of Odisha	456.037 ha (as per DGPS)/ 456.100 ha ha (as per RoR)
3	Order No 317/IV	11.01.2021	Iron Ore	10 years	Govt of	456.037 ha (as

	(AB) SM-01/ 2021/SM and Order is valid for a period of 2 years from the date of execution of the lease deed or till the date of getting fresh approvals, clearances, licenses, permits and the like whichever is earlier.				Odisha	per DGPS)/ 456.100 ha ha (as per RoR)
4	Grant of mining lease vide order no 338/SM	11.01.2021	Iron Ore	10 years	Govt of Odisha	456.037 ha (as per DGPS)/ 456.100 ha ha (as per RoR)

vi. Details of executed Mine leases

S.no	Date of grant of Lease execution	Period of Grant		Details
		From	To	
1	Date of entering into original lease deed.	11.01.2021	10.01.2031	Certificate No: IN-OD01560940427432T

vii. Land Use/Land Cover of the Mine Lease Area:

Private land	42.001 ha
Forest Land	392.289 ha
Non-Forest Govt. Land	21.747 ha
Total Mining lease area (MLA)	456.037 ha (as per DGPS Survey)
Private land for crusher, workshop & other infrastructure outside the MLA	All facilities within ML Area
Additional information(if any)	ML Area 456.100 ha as per RoR

viii. Details of Mining Plan: -

Modification of Mining Plan along with Progressive Mine Closure Plan approved by Indian Bureau of Mines	Letter No.	Lr No. MPM/A/15-ORI/BHU/2021-22/1241
	Date	18.11.2021
	MLA	456.037 ha (as per DGPS)/ 456.100 ha ha (as per RoR)
	Mineral	Iron Ore (Major Mineral)
	Validity	Up to 2024 - 25

Additional information (if any)	On account of correction in the waste quantity, a corrigendum to the Mining Plan Approval Letter was issued by IBM vide letter No. ORI/IRON/KJR/MCDR-93/BBS dated 11.10.2022
Mining Parameters	Quantitative Description
Method of Mining	Fully Mechanised Open Cast Mining
Drilling/Blasting	In Jilling-Langalotta, Jilling-Gangaigora and Appahatu quarries 13 m and 11 m deep boreholes respectively will be drilled using 115 - 150 mm dia DTH drills. These will be filled with explosives and blasted. The powder factor has been estimated to be 12 t/kg. The explosives consumption at the 6.28 MTPA stage ~875 t/yr which is expected to increase to 1306 t/yr at the 10 MTPA stage.
Bench Height	10 m
Bench Width	10 - 15 m
Individual bench slope	80° - 85°
Overall pit slope	45º
Life of mine	8 years incl. present plan period. May be revised on basis if reserves are updated on basis of further detailed exploration
RoM output size	10.0 MTPA
Transportation details	At least 70% of the production will be despatched by railway wagons from private siding located within ML area. Max. 30% of production will be despatched by road.
Dumpers capacity	28 nos. 60 t capacity + 40 nos. 80 t capacity
OB/Waste	About 11.59 Mm3 overburden will be generated and 1.74 Mm3 will be dumped in existing active external OB dump within ML. About 0.528 Mm3 will be dumped in 2 new external OB dump within mine lease. Balance 9.32 Mm3 will be used for backfilling exhausted quarries. All mineral rejects, generated during the residual mine life to be blended with high quality iron ore & sold. Accumulated stock of mineral rejects, presently dumped in 2 nos. external dumps to be re-handled and sold off with / without blending. Any top soil to be generated shall be concurrently used in plantation.
Additional information (if any)	One of the existing open cast quarries (out of the four) exhausted. These will be backfilled.

ix. Water requirement:

Total water requirement	1166 m^3/day	Fresh water	916 m^3/day
		Treated water	250 m^3/day
Source	Ground water and Surface water		
Permission	No Objection Certificate has been obtained from CGWA vide letter no. CGWA/NOC/MIN/REN/1/2023/7964 dated 22-06-2023 for abstraction of fresh water of 480 m^3/day and is valid up to the period 30.03.2024.		
Additional	In future, about 916 m^3/day of fresh water is required, 436 m^3/day		

information(if any)	shall be drawn from DalkoNala which flows through the ML area. OMC is submitting an application to the Department of Water Resources, Govt. of Odisha for drawal of water from DalkoNala. The balance 480 m^3/day (only for potable use) shall be drawn from bore-wells.

x. Nearest village / town/ highway/railway station / water bodies/monument:

Particulars	Particular's Name	Distance & Directions
Village	Jalahari Jurudi	Part of Village located within NW part of ML area Adjacent to M.L. area on West
Town	Joda	~2.5 km N
Highway	Expressway No. 2 NH-215	Expressway No. 2 passes through ML area NH-520: ~6.8 Km N
Interstate Boundary	Odisha-Jharkhand	~15.2 km, NE
Railway Station/line	Jalhari	~0.7 km W of ML
	SE-Rly.'s Padapahar Jn.– Banspani – Keonjhar – Jakhapura Jn. B.G. Main Line passes through ML	
Water body	DalkoNala Baitarani River	Flows from W to E through approx. Middle of ML area ~0.5 km, E
Monument	None within 15 km	

xi. Presence of Environmentally Sensitive areas in the study area:

Forest Land/Protected Area/ Environmental Sensitivity Zone	Yes/ No	Details of Certificate/letter/Remarks
Forest Land	Yes	An area of 392.289 ha of forest land lies within mine lease area. Stage II FC obtained vide Lr No F.No-8-49/98FC(pt) dated 8th October 2014 for an area of 342.602 ha of forest land. An application for diversion of balance area of 22.697 ha of forest land has been submitted vide proposal no. FP/OR/MIN/142115/2021 dated 08.05.2021. Compliance to the ADS sought by MoEFCC during scrutiny of Stage-I FC compliance is under recommendation process by State Forest Dept. Net Present Value (NPV) of the Forest amounting to Rs. 27,71,46,750/- has been paid.
National park	No	Nil within 10 km radius
Wildlife Sanctuary	No	
Eco-Sensitive Zone(ESZ)/Eco-	No	

Address: IA Division, Ministry of Environment, Forest and Climate Change,
Indira Paryavaran Bhawan, Jor Bagh New Delhi - 110003

Sensitive Area(ESA)		
Wildlife corridor, migration route etc.	No	Karo-Karampada Elephant corridor: ~18 km, NW
Schedule-I Species	Yes	Indian Elephant, Sloth-bear & Mouse Deer as per the list authenticated by DFO Keonjhar Division.
Wildlife Conservation Plan	Yes	Site-Specific Conservation Plan has been prepared and approved by the PCCF (WL) vide letter No.10895 dt.15.12.2010. Total financial out lay: Rs.412.00 lakhs .

xii. Green belt/plantation details:

Proposed area for green belt/plantation	183.718 ha at Conceptual Stage
Budget for green plant& plantation till the end of life of mine.	Rs 4,54,50,000/- (Rupees Four Crore Fifty Four Lakhs Fifty Thousand Only)
Budget for nursery	Nil as plantation will be outsourced to Odisha State Forest Development Corporation (a Govt. of Odisha entity) who has their own nurseries.
7.5 m barrier & non-mineralized zone	*83.0191 ha (40.696 ha over external dumps + 39.5539 ha mineral storage area + 2.7692 ha mineral processing area)*
50 m safety zone of nallah, roads, electric lines	Included in above
500 m safety zones of nearest habitation villages	-
Additional information (if any)	Plantations over an area of 1.91 ha of exhausted quarry benches & backfilled areas

xiii. Baseline details:

Baseline Data (Air / Water / Noise / Soil / Ground water table/ others)			
Period of baseline data collection	01-10-2021 to 31-12-2021		
Season (Summer / Pre-monsoon / Post-monsoon / Winter)	Post-Monsoon Season		
Predominant Wind direction (From)	West		
Ambient Air Quality (no. of locations) and results	No. of Location	Parameters	Results
	9	PM10	44.0 to 95.0 μg/m^3
		PM2.5	27.0 to 55.0 μg/m^3
		SO2	4.0 to 10.2 μg/m^3
		NO2	10.3 to 22.0 μg/m^3
		CO	0.087 to 1.654 mg/m^3

<table>
<tr><td>Noise level (no. of locations) and results</td><td>
<table>
<tr><td>No. of Location</td><td>Parameters</td><td>Results</td></tr>
<tr><td rowspan="2">08</td><td>During Day Time [Leq dB(A)]</td><td>38.1 to 56.4</td></tr>
<tr><td>During Night Time [Leq dB(A)]</td><td>37.1 to 45.8</td></tr>
</table>
</td></tr>
<tr><td>Water Quality (no. of locations) and results</td><td>
Ground water quality
<table>
<tr><td>No. of Location</td><td>Parameters</td><td>Results</td></tr>
<tr><td rowspan="5">06</td><td>pH</td><td>6.71 to 7.08</td></tr>
<tr><td>TDS (mg/l)</td><td>54 to 306</td></tr>
<tr><td>Fluoride (mg/l)</td><td>0.1 to 0.24</td></tr>
<tr><td>Chloride (mg/l)</td><td>13.5 to 61.7</td></tr>
<tr><td>Fe (mg/l)</td><td>0.05 to 1.96</td></tr>
</table>
Surface Water Quality
<table>
<tr><td>No. of Location</td><td>Parameters</td><td>Results</td></tr>
<tr><td rowspan="4">06</td><td>pH</td><td>6.94 to 7.26</td></tr>
<tr><td>DO (mg/l)</td><td>5.6 to 6.8</td></tr>
<tr><td>BOD (mg/l)</td><td>2.0 to 3.0</td></tr>
<tr><td>Total Coliform (MPN/100 ml)</td><td>1000 – 1700</td></tr>
</table>
</td></tr>
<tr><td>Soil Quality (no. of locations) and results</td><td>
<table>
<tr><td>No. of Location</td><td>Parameters</td><td>Results</td></tr>
<tr><td rowspan="6">06</td><td>pH</td><td>5.67 to 7.62</td></tr>
<tr><td>Electrical Conductivity (µS/cm)</td><td>49.7 to 254</td></tr>
<tr><td>Organic Matter (%)</td><td>0.84 to 5.91</td></tr>
<tr><td>Available Nitrogen (kg/ha)</td><td>50 to 188</td></tr>
<tr><td>Available Phosphorus (kg/ha)</td><td>0.2 to 3.1</td></tr>
<tr><td>Available Potassium (kg/ha)</td><td>98 to 476</td></tr>
</table>
</td></tr>
<tr><td>Traffic study (no. of locations) and results</td><td>The maximum daily traffic on this road as monitored in December, 2021 was 12697 PCUs (see Table 3.53.2 in Chapter 3). It is expected that expansion of the mine will lead to increase in vehicular traffic by ~1140 PCUs per day (1 truck = 3 PCUs). Thus the resultant vehicular traffic (~13,840 PCUs/day) will remain much below the maximum design service volume. The maximum daily traffic on this road as monitored in December, 2021 was 12697 PCUs. It is expected that expansion of the mine will lead to increase in vehicular traffic by ~1140 PCUs per day (1 truck = 3 PCUs). Thus the resultant vehicular traffic (~13,840 PCUs/day) will remain much below the maximum design service volume.</td></tr>
</table>

xiv. Public Hearing (PH) Details:

Advertisement for PH with	❖ English daily newspaper: **"**The New Indian

date	Express", Bhubaneshwar edition dated 06 April, 2023 ❖ Odiya daily newspaper: "The Pragatvadi", Bhubaneshwar edition dated 06 April, 2023
Date of PH	09th May, 2023
Venue	JalahariMouza (Khata No. 34, Plot Nos. 253, 254 &253/431), Barbil Tehsil, Keonjhar District
Chaired by	ShriJadumaniMahala, OAS, (SAG), Addl. District Magistrate (Revenue), Keonjhar
Main issues raised during PH	a) Employment b) Supply of clean drinking water c) Improvement in education facilities and infrastructure d) Improvement in health care delivery systems e) Air pollution and diseases due to air pollution f) Poor conditions of roads g) Need for support to Self Help Groups (SHGs) l) Garbage disposal
Budget proposed for addressing issues raised during PH	Rs. 1865.582 Lakhs (To be spent over 3 years)
Additional information (if any)	Meeting attended by 482 persons including 328 persons from the Core Zone Villages. 39 persons (37 from the Core Zone villages). 33 written representations also havebeen received.

xv. Details of CTE, CTO, Certified Compliance Report and Past production details:-

Consent to Establish (CTE)	Odisha State Pollution Control Board granted the Consent to Establish vide order dated 09.08.2018 in favour of M/s Essel Mining and Industries Limited.
Consent to Operate (CTO)	Odisha State Pollution Control Board granted the Consent to Operate vide order dated 31.03.2022 for production of Iron Ore (ROM) 6.28 MTPA and the consent order is valid for the period 01.04.2022 to 31.03.2023 in favour of M/s OMC Ltd.
Certified Compliance Report (CCR)	Certified Compliance report issued by the Regional Office, MoEF&CC vide F.No: 101-420/23/EPE dated 09.08.2023 for the EC dated 07.06.2012. Site visit was conducted on 07.07.2023.
Past production	Certified production details issued by the Dy. Director of Mines vide Lr.Memo No: 2265/Mines, dated 18.05.2021 for the period 1994-95 to 2022-23.

Year of Production	EC sanctioned capacity (t)	Actual Production (t)	Excess Production beyond the EC

					sanctioned capacity	
		1993-94	-	-	-	
		1994-95	-	442127	-	
		1995-96	-	555942	-	
		1996-97	-	622305	-	
		1997-98	-	922181	-	
		1998-99	-	934156	-	
		1999-00	-	819426	-	
		2000 – 01	-	1277927	-	
		2001 – 02	-	1613107	-	
		2002 – 03	-	1967094	-	
		2003 – 04	-	2054898	-	
		2004 – 05	-	3378059	-	
		2005 – 06	4200000	3856454	-	
		2006 – 07	4200000	3460258	-	
		2007 – 08	4200000	3997499	-	
		2008 – 09	4200000	4599848	399848	
		2009 – 10	4200000	4224984	24984	
		2010 - 11	4200000	*2947756*	0	
		2011 - 12	4200000	172558	0	
		2012 - 13	6280000	2306742	0	
		2013 - 14	6280000	2683497	0	
		2014 - 15	6280000	0	0	
		2015 - 16	6280000	0	0	
		2016 - 17	6280000	0	0	
		2017– 18	6280000	447629	0	
		2018– 19	6280000	6271381	0	
		2019 - 20	6280000	6268396	0	
		2020 - 21	6280000	196350	0	
		2021 - 22	6280000	5653000	0	
		2022 - 23	6280000	6280000	0	
Compliance of Hon'ble Supreme Court order dated 02.08.2017	A request letter was submitted by OMC to Jt. Director of Mines, Joda, Dept. of Steel & Mines with a request to duly authenticate the production figures since inception of mine and to provide the details of demand served to the ex-lessee, if any, for the Ores/Minerals raised in excess of the approved quantity with respect to EC for violation of EP Act, 1986 and violation of Mining Plan and CTO pertaining to Jilling-Langalotta Iron Ore Mining Project. In response to the above, Joint Director Mines, Joda, District Keonjhar vide letter dated 30.12.2021 has provided the certificate regarding					

payment towards compensation for excess production made by Ex-lessee.

Details of Demand Notices and Status-Common Cause Judgement

S.No	Details of Violation	Demand Notice	Amount
1	EC	Demand Notice No. 4040/ Mines dt.02.09.20I7	Rs.641,2432,386/-
2	FC	Demand Notice No.6375/Mines, dt. 26. I2.2017	Rs.1056,05,98,961/-
3	MP/CTO	Demand Notice No.3862/Mines, dt. 19.09.2018	Rs. 128,12,05,207/-

As per records available, M/s. Essel Mining & Industries Ltd, had deposited a total of Rs. 1825,87,36,554/- towards the compensation amount in the designated bank account as directed by the Hon'ble Supreme Court vide order W.P. (C) No. 114/2014 (Common Cause) dated 02.08.2017. Further, OMC started operating Jilling-Langalotta Mine with effect from28-02-2021. Since then, no Environment & Forest related violation has been reported in respect of Jilling-Langalotta Iron Ore Mines.

Project Proponent has submitted the Certificate from the Office of the Joint Director Mines Joda, Dist; Keonjhar vide No. 7304/Mines, dated 30.12.2021 certifying that the present lessee M/s Odisha Mining Corporation Limited is confined the mining activity within the granted and executed leasehold area.

Project Proponent also submitted the Affidavit in a non-judicial stamp paper of Rs 100 bearing no. M 054791 dated 09.07.2021 stating that the M/s OMC shall comply with all the statutory requirements and judgement of Hon'ble Supreme Court dated 02.08.2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India and Others before grant of ToR/EC pertaining to Jilling-Langalota Iron Ore mining project.

xvi. Rehabilitation & Resettlement (R&R):

R & R details	Present proposal does not involve any land acquisition. There are some patches of private land within the ML area but these will not be acquired.

	Thus the project does not involve any R & R of land oustees.

xvii. Court case details:

Court Case	The Project Proponent submitted they do not have any litigation and also not received any court notice so far in respect of Jilling-Langalotta Mines after allotment of the mine to OMC.

xviii. Affidavit/Undertaking details:

Project Proponent submitted an Undertaking vide letter dated 09.08.2023	The Project Proponent has submitted an undertaking stating that the prescribed Terms of Reference has been complied while conducting the EIA Studies. The contents (information and data) as given by the Consultant in the EIA/EMP report are factually correct with full knowledge.
Consultant submitted an Undertaking vide letter dated 10.08.2023	The EIA/EMP report has been prepared as per ToR prescribed by MoEF&CC vide ToR letter dated 04.08.2021 and amended ToR letter dated 28.11.2022 based on baseline environmental data monitored by Environmental Engineering Laboratory, MECON Limited (CPCB recognized Laboratory) during Post-Monsoon Season 2021 and ToR prescribed for above mentioned project has been complied while conducting the EIA-EMP studies and the data submitted is factually correct.

xix. Details of the Environmental Management Plan (EMP):

Activities	Recurring cost (Lakhs Rs./yr)	Capital cost (Lakhs Rs.)
Pollution control	45	423[a]
Pollution monitoring (laboratory)& CAAQMS	42[b]	400
Occupational safety	50[c]	20[d]
Green belt & plantation at safety zone	-	454.5[e]
Net Present Value(NPV) of Forest	-	2771.47
Compensatory Afforestation	-	61.995
Wildlife Conservation	6.55 [g]	346.50[f]
Socio-economic welfare measures in nearby villages (CSR budget)	57.51[h]	-
Budget for addressing Public Hearing commitments (erstwhile known as CER)	-	1865.58[i]
Total	201.06	~6343.045

Note:
a =Surface drainage (garland drains, settlement pits, retaining wall etc.) + dust suppression system.
b =Cost for EMC (Environmental monitoring work is outsourced to accreditedlabs)& AMC of CAAQMS installed

c =Cost towards routine medical examinations, training & awareness
d =Cost of safety appliances procurement
e =On Basis of costs prevailing in 2022 – 23.
f = To be deposited with Divisional Forest Officer
g = Rs. 65.5 Lakhs to be spent over 10 years
h = Budget for 2022-23. Likely to be revised every year.
i = This money will be spent over a period of three years

xx. Details of project cost and employment:

Particulars	(Rs. In Crore)
Total cost of EMP (Capital Cost of EMP)	EMP Capital Cost: Rs.44.77 Crores
Project Cost	Rs.431 Crores
Employment	488 Nos.

3. Observation and Recommendation of the EAC: -

The Project Proponent and the Consultant presented the KML file to indicate the site features in the vicinity of the mine lease area and in the study area of 10 km radius. The Project Proponent has shown the boundary of the mine lease area and also the active quarries i.e., on the north western side and other one in southern side in the mine lease area. One Quarry i.e., Khuntapani was exhausted. A private railway siding is located on the north western side to dispatch the material. Backfilling has been started in the center quarry of the mine lease area. Some part of the area in the north eastern side has been taken by the State Govt for supply of water to the Joda Town. A small township is located within the mine lease area. There is a small stream (Dalko Nallah) passing from west to east in the mine lease area which is joining the Baitarani River located at a distance of about 0.5 km on the eastern side of the mine lease area. Adequate safety zone of about 13 ha will be maintained all along the nallah. No proposal to divert Dalko Nallah. NH-520 is located about 7km from the mine lease area. Other mines such as Tata Steel Ltd is located on the northern side of the mine lease area and Rungta Mines is located on the southern side of the mine lease area.

The Project Proponent has briefed about the chronology of the auction of the mine lease area. The Transfer of EC has been obtained in the name of M/s Odisha Mining Corporation Ltd and due to technical error in Parivesh portal the same could not able to download. In the instant proposal, there is no proposal for setting up of beneficiation plant in the mine lease area. The Project Proponent has informed the EAC that the total mine lease area is 456.037 ha (as per DGPS Survey), out of which 42.001 Ha is a Pvt land, 329.289 ha is a Forest land and 392.289 ha is a non-forest land. Stage II FC has been obtained vide letter dated 8th October 2014 for diversion of forest land of 342.602 ha in the name of M/s Essel Mining & Industries Ltd. Transfer of FC is under process with the State Govt. An application for diversion of balance area of 22.697 ha of forest land has been submitted vide proposal no. FP/OR/MIN/142115/2021 dated

08.05.2021 and is under process. Life of the mine is 8 years and is likely to increase with updation of reserves by further exploration. All mineral rejects, generated during the residual life of mine will be blended with high quality iron ore & sold out. The mineral dispatch is carried out at least 70% through rail from pvt. sidings within mine lease and balance 30% by road. No R&R involved in this proposal.

The Project Proponent has informed the EAC that there is no wildlife corridor and migration route within the study area. Karo-Karampada Elephant corridor is located at a distance of about 18 km on the North Western side and there is no movement of elephants in the study area. The EAC not convinced with the statement of the Project Proponent. The Project Proponent has informed the EAC that there is only occasional movement of elephants in the study area and it is not a habitat of elephants. Site-Specific Conservation Plan has been approved by the PCCF (WL) in the year 2010. The implementation status is under process. Long term regional level elephant management plan by Wildlife Institute of India is also under process. The EAC noted that National Highway also have specific elephants crossing area in Odisha. The EAC was of the view that the linear barriers created for movement of elephants and habitat use needs to be properly addressed in terms of scientific management and a plan for movement of elephants from one forest to the other forest area shall be included in the conservation plan. The EAC asked the Project Proponent to submit the activities proposed under Wildlife Conservation Plan along with the budget.

The EAC asked the Project Proponent that whether the quality of surface water is being monitored at Baitarani River during the monsoon. The Project Proponent has informed the EAC that the quality of surface water is being monitored regularly and submitted to the State Pollution Control Board. The Project Proponent has shown the retaining wall and garland drain around OB dump. The EAC opined that the Project Proponent needs to strengthen the garland drain. The EAC asked the Project Proponent whether railway line passing through the mine lease area or not. The Padapahar Jn. – Joda – Kendujhargarh - Jakhapura Railway Line passes through the ML area occupying 34.967 ha area. This includes 26.990 ha of Forest Land. Indian Railways had taken separate permission for construction of this Railway Line. OMC's existing operations are beyond this railway corridor and the status quo shall be maintained.

The Project Proponent has informed the EAC that the Joint Director of Mines, Joda, District Keonjhar vide letter dated 30.12.2021 has provided the certificate regarding payment towards compensation for excess production made by Ex-lessee. As per records available, M/s. Essel Mining & Industries Ltd, had deposited a total of Rs. 1825,87,36,554/- towards the compensation amount in the designated bank account as directed by the Hon'ble Supreme Court vide order W.P. (C) No. 114/2014 (Common Cause) dated 02.08.2017. Project Proponent also informed the EAC that M/s OMC

started operating Jilling-Langalotta Mine with effect from 28-02-2021. Since then, no Environment & Forest related violation has been reported in respect of Jilling-Langalotta Iron Ore Mines. Further, the Project Proponent has informed the EAC that a Certificate has been obtained from the Office of the Joint Director Mines Joda, Dist; Keonjhar vide letter dated 30.12.2021 certifying that the present lessee M/s Odisha Mining Corporation Limited is confined the mining activity within the granted and executed leasehold area.

The Project Proponent has shown the Certified Compliance report issued by the Regional Office (RO), MoEF&CC vide letter dated 09.08.2023 for the EC dated 07.06.2012. Site visit was conducted on 07.07.2023. Regional Office has mentioned that the greenbelt development may be increased, reclamation of backfilled area with vegetation may be initiated and density of plantation may be increased. The EAC asked the Project Proponent whether the action taken report has been submitted to the Regional Office or not. The Project Proponent has informed the EAC that they will submit the action taken report. The EAC also asked the Project Proponent to clarify whether any court case/litigation pending against the previous lessee w.r.t temporary working permit and whether the same has been transferred to M/s Odisha Mining Corporation Ltd or not. Based on the discussions held, the EAC **deferred** the proposal for want of following additional information: -

i. The Project Proponent needs to submit the action plan for strengthening the garland drains including their dimensions along with the timeline.

ii. The EAC was of the view that the linear barriers created for movement of elephants and habitat use needs to be properly addressed in terms of scientific management and a plan for movement of elephants from one forest to the other forest area shall be included in the conservation plan. Accordingly, the Project Proponent needs to submit the activities proposed under Wildlife Conservation Plan along with the budget.

iii. The Project Proponent needs to submit the action taken report for the non-compliances identified by the Regional Office.

iv. The Project Proponent needs to submit the treatment methods to eliminate iron in groundwater so as to make it fit for drinking purpose.

v. The Project Proponent needs to clarify whether any court case/litigation pending against the previous lessee w.r.t temporary working permit and whether the same has been transferred to M/s Odisha Mining Corporation Ltd or not.

vi. The Project Proponent should submit measures taken to prevent contaminated water meeting Baitarani river.

vii. The Project Proponent needs to submit the action plan for effective dust suppression system near haul roads and crushers with a provision for installation of online dust monitoring system.

1.2 Sarah Kishnayat Ball Clay, Fire Clay, Red & Yellow Ochre Mine lease of M/s Deepak Mineral Industries for enhancement of production capacity from 20,000 TPA to 5,35,880 TPA (ROM) (Overburden: 2,35,880 TPA, Marketable mineral: 2,70,000 TPA, Mineral Waste: 30,000 TPA) in the mining lease area of 69.59 ha, located Near Village Sarah Kishnayat, Tehsil- Kolayat, District Bikaner, Rajasthan - [Proposal No: IA/RJ/MIN/435186/2023, F.No: J-11015/269/2005-IA.II(M); EIA Consultant: M/s Fulgro Environmental & Engg. Services India Pvt. Ltd.] – Terms of Reference (ToR)

The instant proposal of M/s Deepak Mineral Industries is for mining of Ball Clay, Fire Clay, Red & Yellow Ochre Mine with enhancement in production capacity of Ball Clay from 20,000 TPA to 5,35,880 TPA (ROM) (Overburden: 2,35,880 TPA, Marketable mineral: 2,70,000 TPA, Mineral Waste: 30,000 TPA) in the mining lease area of 69.59 ha, located near Village Sarah Kishnayat, Tehsil- Kolayat, District Bikaner, Rajasthan.

2. Observation and Recommendation of the EAC: -

The Project Proponent informed the EAC that the instant proposal was earlier was earlier considered in the EAC meeting held during 14-15 May, 2018 and the Ministry informed the Committee that PP had enhanced the production capacity without EC and in light of the Common Cause Judgment pronounced by the Hon'ble Supreme Court on dated 02.08.2017 this is a case of violation. The Committee, therefore, deferred the proposal noting that a separate Committee has been constituted for dealing with the projects involving violation of EPA, 1986 vide notification issued by the Ministry on 14.03.2017.

The EAC noted that the Project Proponent has submitted the fresh proposal for grant of Terms of Reference. The EAC asked the Project Proponent that whether the proposal submitted during the year 2018 and at present is same or different or whether there is a change in the scope or not? The Project Proponent has informed the EAC that during the year 2018, the proposal for Terms of Reference (ToR) was submitted for enhancement of production capacity from 20,000 TPA to 3,00,000 TPA (ROM) and now the proposal has been submitted for enhancement in production capacity of Ball Clay from 20,000 TPA to 5,35,880 TPA (ROM). The Project Proponent also informed the EAC that difference is that earlier Overburden: 2,35,880 TPA was not included in the

proposal and now the same has been included. The EAC was of the view that there is a change in the scope of the proposal and hence the instant proposal shall be treated as fresh proposal. The EAC asked that the Project Proponent to submit the proposal to the SEIAA, Rajasthan as per the provisions of EIA Notification, 2006 and its subsequent amendments.

Then, the Project Proponent vide email dated 22.09.2023 informed that as per Ministry's Notification no S.O No. 3977(E) dated 14th August 2018, the proposal was already submitted to SEIAA, Rajasthan vide online proposal no: SIA/RJ/MIN/29973/2018 dated 24th Nov 2018 and the proposal was considered in the SEAC meeting held during 1-4 July, 2019 wherein the SEAC has noted that the Project Proponent has not submitted original record of the MoEF& CC pertaining to the project. The SEAC considered the matter in its 4.15thmeeting held on 04.07.2019 and resolved to ask the PP again, to bring original report of the MoEF&CC. In this regard, the Project Proponent vide email dated 22.09.2023 requested the Ministry to transfer the old project file to SEIAA, Rajasthan. Based on the request of the Project Proponent, the EAC opined that the Ministry may transfer the old project file to SEIAA, Rajasthan as per the provisions of EIA Notification, 2006 and its subsequent amendments. Therefore, the EAC **returned the proposal in present form.**

1.3 Amendment in EC dated 31.08.2020 w.r.t specific condition no: (i) of M/s Jaykaycem Central Limited in Kakra- Panna Limestone Mine for production capacity of 4.08 MTPA of Limestone in the mine leasearea of 1594.34 ha, located at Villages Kakra, Kamtana, Judi, Devra, DevriPurohit and Saptai, in Amanganj Tehsil, District Panna, Madhya Pradesh - [F.No: J-11015/190/2016-IA.II(M), Proposal No: IA/MP/MIN/435272/2023, EIA Consultant: M/s J.M. EnviroNet Pvt. Ltd] - Amendment in EC

The instant proposal is for amendment in EC dated 31.08.2020 w.r.t specific condition no: (i) of M/s Jaykaycem Central Limited in Kakra- Panna Limestone Mine for production capacity of 4.08 MTPA of Limestone in the mine lease area of 1594.34 ha, located at Villages Kakra, Kamtana, Judi, Devra, DevriPurohit and Saptai, in Amanganj Tehsil, District Panna, Madhya Pradesh.

2. The details of the project as ascertained from the documents submitted by the Project Proponent and as revealed from the discussions held during the meeting are given as under:

i. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" of the schedule of the EIA Notification, 2006 as the mining lease area is greater than 250 ha and appraised at the Central level.

ii. Initially, the Project Proponent has obtained Environmental Clearance (EC) on 31.08.2020 for mining of Limestone in Kakra- Panna Limestone Mine for production capacity of 4.08 MTPA of Limestone in the mine lease area of 1594.34 ha, located at Villages Kakra, Kamtana, Judi, Devra, DevriPurohit and Saptai, in Amanganj Tehsil, District Panna, Madhya Pradesh. One of the specific condition (I) stipulated by EAC is that *"Mining shall be restricted to the land already acquired near Judi Village (235 ha). Meanwhile the PP may acquire the land, modify the mining sequence to avoid the void in west side of Dewra Village and approach the Ministry for re-validation or amendment in environmental clearance for permission for the entire area proposed for mining within the ML area".*

iii. Now, the Project Proponent requested to waive off the specific condition no: (I) and requested to allow the mining in the entire mine lease area of 1594.34 ha as per the approved Modified Mining Plan.

iv. The proposal was earlier considered in the 18th EAC (Non-Coal Mining) meeting held during 31st July & 1st August, 2023 wherein the EAC deferred the proposal for want of additional information. Then, the Project Proponent submitted the information on 25.08.2023 in Parivesh portal and accordingly the proposal was again reconsidered in the 20th EAC (Non Coal Mining) meeting held during 21-22 September, 2023.

Based on observation of EAC in its EAC meeting held during 31st July & 1st August, 2023 and compliance of observation of EAC made by PP are detailed below:

S. No	Observation of EAC in its meeting held during 31st July & 1st August, 2023	Reply by Project Proponent
1	The Project Proponent needs to give proper justification for amendment in EC with clear picture of sequence of mining, plan for backfilling and details of the land acquired and to be acquired in the villages for mining and location to access.	The Project Proponent has submitted that the EC was granted on 31.08.2020 with a specific condition stating that the *"Mining shall be restricted to the land already acquired near Judi Village (235 ha). Meanwhile the PP may acquire the land, modify the mining sequence to avoid the void in west side of Dewra Village and approach the Ministry for re-validation or amendment in environmental clearance for permission for the entire area proposed for mining within the ML area".* Accordingly, Mining Plan has been modified and approved on 19th June, 2023 with change of mining sequence to avoid the void in West side of Dewra Village. As

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		on date, an area of 360.66 ha of land has been purchased, Surface right has been granted for mining on Govt. land over an area of 75.754 ha, hence, total land under possession is 436.414 ha. The balance of 1157.926 ha is under purchase as per the mining activities progress. Now, the mining has to be done as per the approved Modified Mining Plan and in the Modified Mining Plan, the mining has to be done near Dewra Village so that void is avoided on West side of Dewra Village which was the requirement of EC. As per the earlier Mining Plan, the backfilling was proposed near Village Judi from the 2nd five year. Now, as per the Modified Mining Plan, the backfilling is proposed from 2nd five year in West Side of Dewra and Judi. The backfilling plan also indicates that at the conceptual stage, both sides of the Village Dewra were surrounded by water reservoir and now in modified backfilling plan, the entire surrounding of the Dewra Village has been reclaimed and covered by Greenbelt/ Plantation. In the view of the fact that the Specific Condition 1 has been complied with and mining is to be done as per the Approved Modified Mining Plan. Therefore, mining may be allowed as per the Modified Mining Plan.
2	The Project proponent needs to submit the comparison of sequence of mining in earlier mining plan and modified mining plan with detailed note and colour coding map.	The Project Proponent has submitted that initially, mining plan was approved in the year 2015 having proposed 1st five year working near village Judi and 7th, 8th, 9th& 10th five year plans on the west of Dewra village with the proposal of creating water reservoirs in the mined out area at conceptual stage. At the time of EC appraisal, 235 ha land was under Company's acquisition and mining was restricted in 235 ha (available land at the time of EC) near Judi village. However, the

		235 ha land was not in a continuous Block. As the land purchase is done in a progressive manner, as on date, the company is having total 436.414 ha⎝(360.66 ha purchased and Surface right for mining on Govt. land of 75.754 ha) land under possession. Accordingly, the mining sequence has been modified and Modified Mining Plan has been approved by IBM, Jabalpur vide letter no. E 6699 MCDR-MPC0LST/15/2023-JBP-IBM_ RO_ JBP on dated 19th June, 2023. Now, the mining is to be done as per Modified Plan. In the conceptual plan of the Modified mining plan, mining is proposed in the 1st, 2nd& 11th five-year plan in the area falling on west side of Dewra village with backfilling starting from the 2nd five-year plan period to get it reclaimed and restored at the earliest to avoid the voids. The Project Proponent also submitted the map showing the status of the land such as purchased land, restricted land and Govt. land to be applied. Further, the Project Proponent also submitted the Progressive Mine Closure Plan and Conceptual Plan submitted at the time of EC appraisal and as per the Modified Mining Plan. The Project Proponent also submitted that to substantiate the requirement of backfilling material i.e. OB Soil and Waste rock, mining is proposed at 3 locations i.e. Block-A near Judi Village, Block-B on the west of Dewra Village and mine development at Block-C on the south of Dewra village having about 27 m thickness of OB Soil and waste rock above the limestone band of 26 m thickness. With the change in mining sequence, total volume excavated in Block-B is 2.45 million cu.m for removal of OB soil (2 m) &

		Limestone (18 m) and the quantity of backfilling material available from Block - C from 2nd Five-year plan is 3.32 million cu.m which is required to be mined out to expose limestone band in Block C for ensuring scientific & systematic mining with focus on mineral conservation. With the change in mining sequence, EC specific condition 1 shall be complied at the earliest period as well as waste rock shall be effectively utilized for backfilling which will also reduce requirement of large no. of OB/waste dumps. The distance of mining area from the earlier proposed location for 1st five-year plan period is about 5.0 km from crusher located inside ML area near plant boundary. The limestone transportation may have impact on habitation at three locations of village Dewra. To ensure least impact from the start of mining activities the modified mining plan was submitted and approved by IBM, Jabalpur on 19th June, 2023 and now the majority of mining is proposed in Block-B on west of Dewra village (about 75% quantity) having lead distance of 1.5 km. This will also support cement manufacturing process with optimum blend of limestone quality and mineral conservation. Mining Plan has been modified and approved on 19th June, 2023 with change of mining sequence to avoid the void in West side of Dewra Village. Now, the mining has to be done as per the Approved Modified Mining Plan and in the Modified Mining Plan, the mining has to be done near Dewra Village so that void is avoided on West side of Dewra Village which was the concern of the EAC. In the view of the fact that the Specific Condition 1 has been complied with and mining is to be done as per the Modified Mining Plan. Therefore, mining may be allowed as per

		the Modified Mining Plan. Further, the Project Proponent also submitted the year wise development plan submitted at the time of EC appraisal and as per the Modified Mining Plan.
3	The Project Proponent needs to ensure whether the tiger corridors/dispersal routes are passing through the study area or not as per the Integrated Landscape Management Plan for Greater Panna Landscape form the Chief Wildlife Warden, MP.	The Project Proponent has submitted that the distance of mine site from buffer zone of Panna Tiger Reserve is 12.94 km. Letter regarding the same has been received from CCF, Bhopal (Madhya Pradesh) on 15.06.2020. The Project Proponent also submitted that a letter has been obtained from DFO (South Panna), Madhya Pradesh on 11.08.2023 stating that *"Currently, Integrated Landscape Management Plan Greater Panna is not notified".*
4	The Project Proponent needs to submit the compliance of the Wildlife Conservation Plan and their implementation status along with the proof of payments made to the State Forest Dept w.r.t approval of Wildlife Conservation Plan dated 13.12.2019.	The Project Proponent has submitted that the Wildlife Conservation Plan has been modified as per the recommendations to incorporate the revised financial outlay and the same has been submitted to the Forest Department. Further, the Company has deposited 100% amount; Rs. 289 Lakhs/- proposed for 10-year budget on 19th August, 2023. PP also submitted the copy of acknowledgement receipt for amount paid along with the copy of approved Wildlife Conservation Plan.
5	The EAC wanted to know the documentary proof for the required acquisition of additional land. Hence, the Project Proponent needs to submit the land possession certificate for an area of 436.414 ha.	The Project Proponent has submitted that the break-up of 436.414 ha of land, i.e., out of 436.414 ha; an area of 360.66 ha is a Private land and remaining area of 75.754 ha is a Government land. Out of 360.66 ha of Private land, an area of 288.1 ha land has been transferred in the name of M/s Jaykaycem (Central) Limited and transfer of remaining area of 72.56 ha is under in Company's name is under process.

v. The Project Proponent has submitted that the Mining Plan has been modified and approved by Indian Bureau of Mines vide Letter No: E 6699 MCDRMPC0LST/15/2023-JBP-IBM_RO_JBP dated 19.06.2023 with change of mining sequence to avoid the void in West side of Dewra Village. As on date, an

area of 360.66 ha of land has been purchased and surface right has been granted over an area of 75.754 ha of Govt. land for mining and thus total land under possession is 436.414 ha. The balance area of 1157.926 ha is under purchase as per the mining activities progress. Hence, in compliance of Specific Condition no I, the Project Proponent requested to allow the mining as per the approved Modified Mining Plan.

vi. The Project Proponent has submitted that there was no production done till 31st March, 2023. PP also submitted that there is no change in production capacity, land area, mining equipment and mining technology. All the declarations, undertakings, EIA/EMP report, Public hearing action plan submitted during detailed deliberations for earlier granted EC dated 31st August, 2020 are same as per the earlier proposal.

3. Observation and Recommendation of the EAC: -

The EAC deliberated on the additional details submitted by the Project Proponent and the EIA Consultant. The Project Proponent has informed the EAC that initially EC was granted on 31.08.2020 wherein the specific condition (i) of EC dated 31.08.2020 states that the *"Mining shall be restricted to the land already acquired near Judi Village (235 ha). Meanwhile the PP may acquire the land, modify the mining sequence to avoid the void in west side of Dewra Village and approach the Ministry for revalidation or amendment in environmental clearance for permission for the entire area proposed for mining within the ML area"*. Accordingly, Mining Plan has been modified and approved on 19.06.2023 with change of Mining sequence to avoid the void in West side of Dewra Village. As on date, an area of 360.66 ha of land has been purchased and surface right has been granted for mining on Govt. land of 75.754 ha and the total land under possession is 436.414 ha. The balance area of 1157.926 ha is under purchase as per the mining activities progress. Now, the mining activity has to be carried out as per the approved Modified Mining Plan. Accordingly mining has been proposed initially near Dewra Village so that backfilling can be started immediately in the mined-out pit to avoid any open void on the West side of Dewra Village, which was the suggestion of EAC and requirement of EC.

The Project Proponent also shown the comparison of progressive mine closure and conceptual plan as per earlier Mining Plan and Modified Mining Plan. The Project Proponent has informed the EAC that at the conceptual stage, water bodies on both the sides of the Dewra Village as per the earlier mining plan is now modified to be backfilled area/reclaimed area on both the sides of the Dewra Village in Modified Mining Plan. The additional acquired land falls in the 2nd five year working. The crusher area is located close to the Cement Plant. The Project Proponent informed the EAC that the distance of mine site from buffer zone of Panna Tiger Reserve is 12.94 km. Letter regarding the same has been received from CCF, Bhopal (Madhya Pradesh) on 15.06.2020. The

Project Proponent also informed the EAC that a letter has been obtained from DFO (South Panna), Madhya Pradesh on 11.08.2023 stating that *"Currently, Integrated Landscape Management Plan Greater Panna is not notified".* The Project Proponent has informed the EAC that the Wildlife Conservation Plan has been modified as per the recommendations to incorporate the revised financial outlay and submitted to the Forest Department. An amount of Rs 289.0 Lakhs has been deposited on 19.08.2023 and the Project Proponent has shown the Copy of acknowledgement receipt for amount paid along with approved Wildlife Conservation Plan.

The EAC noted that the Project Proponent has modified the mining sequence to avoid the void in west side of Dewra Village and accepted to waive off the specific condition no. (i). After detailed deliberations made by the Project Proponent and the Consultant, the EAC in its meeting held during 21-22 September, 2023 under the provisions of EIA Notification 2006 and its subsequent amendments, **recommended** the proposal for grant of amendment in Environmental Clearance dated 31.08.2020 to w.r.t waive off the specific condition no: (i) of M/s Jaykaycem Central Limited in Kakra-Panna Limestone Mine for production capacity of 4.08 MTPA of Limestone in the mine lease area of 1594.34 ha, located at Villages Kakra, Kamtana, Judi, Devra, DevriPurohit and Saptai, in Amanganj Tehsil, District Panna, Madhya Pradesh along with the following additional specific conditions:-

i. The Project Proponent needs to make provision for permanent water sprinklers so as to reduce the water consumption. Further, 10 nos. of fog canon/mist sprayer of atleast 40 m throw shall be installed at various locations in the mine area. Effective dust suppression system shall also be adopted at other parts of the mining lease to arrest the fugitive dust emission. Online air monitoring system should be installed near crusher and haul roads to control dust generation during mining.

ii. The Project Proponent shall explore the possibility of using atleast 20% of Electric vehicles/CNG/Solar instead of diesel operation within three years.

iii. The Project Proponent shall not transport the mineral though tiger dispersal route and it should be routed through other side without causing traffic, pollution and road kill in the tiger reserve area.

iv. Although the site is not located in any classified corridor, tigers move in the landscape randomly through the agriculture and open areas. Therefore, the Project Proponent should have site-specific assessment of tiger movement and shall ensure that there is no disturbance on the western area towards Ken River. Further, based on site assessment, local level mitigation plan shall be in place.

v. The Project Proponent needs to use modern equipment's such as Camera Traps for ensuring presence and movement of Tigers in the study area in consultation with Wildlife Wing of Forest Department. Appropriate interventions shall be taken to minimize stress conditions for Tigers and to avoid Man-Animal conflict.

vi. Biodiversity management plan, including restoration and carbon offset scheme shall be included in the mine plan and operation.

vii. The project proponent needs to submit the quarterly compliance report to the State Forest Department/NTCA/RO w.r.t monitoring of the movement of tiger in the study area and their effectiveness of implementation of mitigation plan.

viii. The Project Proponent needs to provide the apprenticeship to the local people. The data and the outcome should be maintained for the same imparted to the local people.

ix. The Project Proponent shall create awareness among the local people working within the project area as well as its surrounding area on the ban of Single Use Plastic (SUP) in order to ensure the compliance of Notification published by MoEF&CC on 12/08/2021. A report, along with photographs, on the measures taken shall also be included in the six monthly compliance report.

x. All other terms and conditions mentioned in the EC letter dated 31.08.2020 shall remain unchanged.

1.4 Majhgawan Diamond Mine, Panna of M/s NMDC Ltd. with total excavation of 13.90 LTPA [ROM Kimberlite Ore @ 8 LTPA and Overburden removal @5.90 LTPA] for production of 1.00 lakh carats of Diamonds per annum in the mine lease area of 113.332 Ha, located at village Majhgawan, Tehsil & District Panna, Madhya Pradesh -[F.No: J-11015/120/2018-IA-II(M), Proposal No:IA/MP/MIN/442288/2023, Consultant: M/s Ecomen Laboratories Ltd] - Revalidation of EC under Ministry's Notification vide S.O. (E) 1530, dated 06.04.2018 – Environmental clearance (EC)

The instant proposal is for mining of Diamond in Majhgawan Diamond Mine with total excavation of 13.90 LTPA [ROM Kimberlite ore @ 8 LTPA and Overburden removal @ 5.90 LTPA for production of 1.00 lakh carats of Diamonds per annum] in the mine lease area of 113.332 Ha (Main Lease), located at village Majhgawan, Tehsil & District Panna, Madhya Pradesh.

Minutes of 20th EAC (Non Coal Mining) meeting held during 21-22 September, 2023

2. Observation and Recommendation of the EAC: -

The Project Proponent has informed the EAC that they have changed the EIA Consultant of M/s Vimta Labs Ltd to M/s Ecomen Laboratories Ltd. The Project Proponent also informed the EAC that M/s Vimta Labs Ltd has given no objection certificate dated 15.09.2023 to M/s NMDC to appoint any other Accredited EIA Consultant for the above said project. The new EIA Consultant, M/s Ecomen Laboratories Pvt Ltd has also given an undertaking vide letter dated 16.09.2023 stating that they have gone through the content and data of Final EIA/EMP Report. The EAC noted that the new EIA Consultant has given an undertaking at an interval of one day only. The EAC was of the view that the new EIA Consultant, M/s Ecomen Laboratories Ltd has to revalidate the baseline data for one month to ascertain the facts and figures presented in the EIA report and also to ascertain the ground reality.

The EAC also noted that the mine lease area is located within the Gangau Wildlife Sanctuary of Panna Tiger Reserve. The Project Proponent has informed the EAC that the Hon'ble Supreme Court order in I.A No: 1485 and 1507 dated 13/8/2008 and I.A No: 47252 of 2021 dated 30/11/2022 in W.P (Civil) no: 202 of 1995 permitted mining operations in Diamond Mining Project, Panna in Gangau wildlife sanctuary of Panna Tiger Reserve.

The PCCF (Wildlife) / Chief Wildlife Warden, Bhopal, Madhya Pradesh vide letter no: 1608 dated 24/2/2023 has accorded approval for renewal / extension of Wildlife clearance under Wildlife (Protection) Act, 1972 over 275.963 Ha (main and supplementary mining lease area) lease falling in Gangau sanctuary under Panna Tiger reserve and for mining in an area of about 10 Ha (of which 1.5 Ha is forest area) for a period of 20 years which is valid upto 30/6/2040.

The EAC noted the recent orders of the Hon'ble Supreme Court dated 26.04.2023 and 28.04.2023 wherein it has been directed that *"any activity, which is prohibited by both the guidelines as well as the ESZ notification shall strictly be prohibited. Since the mining activity in ESZ area is a prohibited activity, there is no question of such an activity being permitted in an ESZ area even if it falls beyond the distance of one kilometer from the boundary of the protected area".*

In view of the above, the EAC opined that the Project Proponent may seek a legal opinion regarding the applicability of the aforesaid orders in this instant proposal. The EAC also opined that the Ministry may seek comments from the ESZ Division since the project is located within the Gangau wildlife sanctuary of Panna Tiger Reserve and whether the aforesaid orders dated 26.04.2023 and 28.04.2023 are applicable in the instant proposal or not. Based on the discussions held, the EAC **deferred** the proposal for want of following additional information: -

i. The Project Proponent needs to revalidate the baseline data by collecting one-month fresh baseline data by new EIA consultant to ascertain the facts and figures presented in the EIA report and also to ascertain the ground reality. The Project Proponent also needs to the submit the comparison of both baseline data.

ii. The EAC opined that the Project Proponent may seek a legal opinion regarding the applicability of the orders dated 26.04.2023 and 28.04.2023 in this instant proposal.

iii. The EAC also opined that the Ministry may seek comments from the ESZ Division since the project is located within the Gangau wildlife sanctuary of Panna Tiger Reserve and whether the aforesaid orders dated 26.04.2023 and 28.04.2023 are applicable in the instant proposal or not.

1.5 Majhgawan Diamond Mine, Panna of M/s NMDC Ltd. for 0.72 LTPA of over burden removal and Processing of Kimberley ore (8 LTPA) for production of 1.00 lakh carats of Diamond per annum with the mine lease area of 162.631 Ha (Supplementary Mine lease), located at village Majhgawan, Tehsil & District Panna, Madhya Pradesh – [F.No: IA-J-11015/121/2018-IA-II(M), Proposal no:IA/MP/MIN/442291/2023; EIA Consultant: M/s. Ecomen Laboratories Private Limited] - Revalidation of EC under Ministry's Notification vide S.O. (E) 1530 dated 06.04.2018

The instant proposal of M/s NMDC Ltd. is for mining of Diamond in Majhgawan Diamond Mine for 0.72 LTPA over burden removal and processing of Kimberlite ore of 8.0 LTPA for production of 1.00 lakh carats of Diamond per annum in the mine lease area of 162.631 Ha (Supplementary mine lease), located at Village Majhgawan, District Panna, Madhya Pradesh.

2. Observation and Recommendation of the EAC: -

The Project Proponent has informed the EAC that they have changed the EIA Consultant of M/s Vimta Labs Ltd to M/s Ecomen Laboratories Ltd. The Project Proponent also informed the EAC that M/s Vimta Labs Ltd has given no objection certificate dated 15.09.2023 to M/s NMDC to appoint any other Accredited EIA Consultant for the above said project. The new EIA Consultant, M/s Ecomen Laboratories Pvt Ltd has also given an undertaking vide letter dated 16.09.2023 stating that they have gone through the content and data of Final EIA/EMP Report. The EAC noted that the new EIA Consultant has given an undertaking at an interval of one day only. The EAC was of the view that the new EIA Consultant, M/s Ecomen Laboratories Ltd has to revalidate the baseline data for one month to ascertain the facts and figures presented in the EIA report and also to ascertain the ground reality.

The EAC also noted that the mine lease area is located within the Gangau Wildlife Sanctuary of Panna Tiger Reserve. The Project Proponent has informed the EAC that the Hon'ble Supreme Court order in I.A No: 1485 and 1507 dated 13/8/2008 and I.A No: 47252 of 2021 dated 30/11/2022 in W.P (Civil) no: 202 of 1995 permitted mining operations in Diamond Mining Project, Panna in Gangau wildlife sanctuary of Panna Tiger Reserve.

The PCCF (Wildlife) / Chief Wildlife Warden, Bhopal, Madhya Pradesh vide letter no: 1608 dated 24/2/2023 has accorded approval for renewal / extension of Wildlife clearance under Wildlife (Protection) Act, 1972 over 275.963 Ha (main and supplementary mining lease area) lease falling in Gangau sanctuary under Panna Tiger reserve and for mining in an area of about 10 Ha (of which 1.5 Ha is forest area) for a period of 20 years which is valid upto 30/6/2040.

The EAC noted the recent orders of the Hon'ble Supreme Court dated 26.04.2023 and 28.04.2023 wherein it has been directed that *"any activity, which is prohibited by both the guidelines as well as the ESZ notification shall strictly be prohibited. Since the mining activity in ESZ area is a prohibited activity, there is no question of such an activity being permitted in an ESZ area even if it falls beyond the distance of one kilometer from the boundary of the protected area".*

In view of the above, the EAC opined that the Project Proponent may seek a legal opinion regarding the applicability of the aforesaid orders in this instant proposal. The EAC also opined that the Ministry may seek comments from the ESZ Division since the project is located within the Gangau wildlife sanctuary of Panna Tiger Reserve and whether the aforesaid orders dated 26.04.2023 and 28.04.2023 are applicable in the instant proposal or not. Based on the discussions held, the EAC **deferred** the proposal for want of following additional information: -

i. The Project Proponent needs to revalidate the baseline data by collecting one-month fresh baseline data by new EIA consultant to ascertain the facts and figures presented in the EIA report and also to ascertain the ground reality. The Project Proponent also needs to the submit the comparison of both baseline data.

ii. The EAC opined that the Project Proponent may seek a legal opinion regarding the applicability of the orders dated 26.04.2023 and 28.04.2023 in this instant proposal.

iii. The EAC also opined that the Ministry may seek comments from the ESZ Division since the project is located within the Gangau wildlife sanctuary of Panna Tiger Reserve and whether the aforesaid orders dated 26.04.2023 and 28.04.2023 are applicable in the instant proposal or not.

Minutes of 20th EAC (Non Coal Mining) meeting held during 21-22 September, 2023

Day 2: 22nd September, 2023 (Friday)

2.1 Obulapuram Iron Ore Mine of M/s Sai Balaji Minerals with production capacity of Iron Ore: 99,789 Tons/Annum in the mine lease area of 4.003 ha, located at Sy.No: 370, Sy.No: 58/P Of Obulapuram Village, D-Hirehal Mandal, Anantapuram District, Andhra Pradesh – [Proposal No: IA/AP/MIN/423323/2023, File.No: IA-J-11015/5/2023-IA-II(NCM); EIA Consultant: M/s Ecomen Laboratories Pvt. Ltd] – Terms of Reference (SOP Violation dated 07.07.2021)

The instant proposal is for mining of Iron Ore in Obulapuram Iron Ore Mine of M/s Sai Balaji Minerals with production capacity of Iron Ore: 99,789 Tons/Annum in the mine lease area of 4.003 ha, located at Sy.No: 370, Sy.No: 58/P Of Obulapuram Village, D-Hirehal Mandal, Anantapuram District, Andhra Pradesh.

2. The details of the project as ascertained from the document submitted by the Project Proponent and as revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude: 15º02'56.85605"N - 15º03' 09.41610"N and Longitude: 76º51'31.93150"E - 76º51'42.96087"E and falls under the Survey of India Toposheet No: 57 A/16 and falls in Seismic Zone-II.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the instant proposal attracts the general conditions as the Interstate boundary of Andhra Pradesh and Karnataka is located at a distance of 0.6 km from the mine lease area and appraised at the Central level.

iii. Details of Mine lease:

S.no	Prospecting License/ Letter of Intent (LoI)/ Grant of Mine lease and Lr No	Date of the grant	Name of the Mineral & (Major/ Minor)	Period of Grant	Granted by	Mine lease area in Ha
1	Grant of Mine Lease vide G.O Ms.No 158	20.06.2007	Iron Ore (Major Mineral)	20 years	Government of Andhra Pradesh	4.046 Ha – as per Lease 4.003 Ha – as per DGPS (10.0 Acres)

iv. Details of execution of mine lease:

S. No	Details of grant of	Period of Grant	Name of	Mine

Address: IA Division, Ministry of Environment, Forest and Climate Change,
Indira Paryavaran Bhawan, Jor Bagh New Delhi - 110003

	Mine Lease deed execution	From	To	the Mineral	lease area in Ha
1	Proc: 3272/ML/07, Dated: 22.09.2007	22.09.2007	21.09.2027 (deemed extension upto 2057)	Iron Ore	4.046 Ha – as per Lease 4.003 Ha – as per DGPS

v. Land Use/Land Cover of the Mine Lease Area:

Private land	Nil
Government land	4.003
Forest land	Nil
Total Mining lease area (MLA), ha	4.003
Private land for crusher, workshop & other infrastructure outside the MLA	Nil

vi. Mining plan details:

Review of Mining Plan including Progressive Mine Closure Plan approved by Indian Bureau of Mines	Letter No.	AP/ANP/MP/Iron ore-12/Hyd
	Date	23.08.2022
	Mineral & (Major/Minor)	Iron Ore – Major Mineral
	Mine Lease Area, Ha	4.046 Ha – as per Lease 4.003 Ha – as per DGPS Survey
	Validity	2026-27
Mining Parameters	Quantitative Description	
Method of Mining	Opencast Mining – Mechanized	
Drilling/Blasting	Yes	
Geological Reserves	1797225 tonnes	
Mineable Reserves	1195671 tonnes	
Life of mine	6 years	
Mine Bench Height & Bench Width	6 x 6	
No. of Mine Benches	Nil	
Existing Depth, m bgl	Nil	
Ultimate Depth of Mining, m bgl	4	
Ground Water Table, m bgl	60	
Details of ground water intersection	Nil	
Individual bench slope	45^0	
Overall pit slope	60^0	
Details of existing/ proposed Crusher	Nil	
Mineral Beneficiation	Nil	

RoM output size	Boulders
Transportation details including capacity of dumper/tipper, mode of transport and distance	1. 2 Back Hoe/Excavator (0.9M^3) 2. 3 Dumpers (10tons capacity) 3. 1 Dozer (1.2 M^3)
Generation of Topsoil/OB & its Management during plan period & conceptual period	Plan Period: Overburden: 272740 tons 1255 $m^3$of topsoil will be generated
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	241145 m^3 of waste generated. 0.70 ha will used for Dumping as Approved mining plan.

vii. Water requirement:

Total water requirement	10.0 KLD	Freshwater	10KLD
		Treated water	
Source	Initially, Groundwater till 5 years and later from rain water harvested from the excavated pits.		

viii. Nearest village/town/ highway/interstate boundary/railway station/water bodies/monument/ forest

Particulars	Particular's Name	Distance & Directions
Village	Obulapuram	2.1 km towards SSW
Town	D.Hirehal	5km towards SSW
Highway	NH-150A (Rampura-Bellary)	500m towards East
Interstate Boundary	AP-Karnataka	700m towards NE as per Toposheet
Railway Station/Railway line	Railway line (Bellary Rayadurga) SW Railway Line	470m towards East
Water Bodies	Tungabhadra High level canal Allipura Reservoir	1.2 km, E 11 km towards North
Forest	Bellary R.F	1.2 km, NW

ix. Presence of Environmentally Sensitive areas in the study area

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	No	Not Applicable
National Park	No	Not Applicable
Wildlife Sanctuary	No	Not Applicable
Elephant/Tiger Reserve	No	Not Applicable
Eco-Sensitive Zone(ESZ) /Eco-	No	Not Applicable

Sensitive Area (ESA)		
Coastal Regulation Zone (CRZ)	No	Not Applicable
Schedule-I species (No.s and name of schedule-I species with authenticated letter)	No	Not Applicable
Wildlife Conservation Plan	No	Not Applicable

x. Green belt/plantation details:

Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	0.840

xi. The Project Proponent has submitted the letter from the Office of the Department of Mines and Geology vide Lr.No: 3272/ML/2007 dated 08.12.2022 with regard to permitted quantity from the 2007-08 to 2022-23 as mentioned below: -

S. No	Year	Permitted quantity in MTs
1	2007-08	510
2	2008-09	5865
3	2009-10	29410
4	2010-11	96270
5	2011-12	76500
6	2012-13	19210
7	2013-14	12988
8	2014-15	2499
9	2015-16	27515
10	2016-17	69878
11	2017-18	0
12	2018-19	0
13	2019-20	6
14	2020-21	6524
15	2021-22	19750
16	2022-23 (08.12.2022)	0
	Total	366925

xii. If violation under SOP, dated 7thJuly, 2021. Point-Wise Compliance to SoP:

<table>
<tr><th>S. No.</th><th>SOP dated 07.07.2021</th><th>Compliance</th></tr>
<tr><td>1</td><td>
<table>
<tr><th>S. No</th><th>Status of EC</th><th>Actions</th></tr>
<tr><td>1</td><td>If no prior EC has been taken</td><td>Order to close its operation</td></tr>
<tr><td>2</td><td>If prior EC is available for existing/old unit</td><td>Order to revert the activity/ production to permissible limits</td></tr>
<tr><td>3</td><td>If prior EC was not</td><td>Restrict the</td></tr>
</table>
</td><td>Order to close its operation</td></tr>
</table>

	required for earlier production level but is now required	activity/production to the extent to which prior EC was not required	
2	Action under Environment (Protection), Act 1986		The Ministry to initiate action under section 15 read with section 19 of the Environment (Protection) Act, 1986 against the Project Proponent
3	Appraisal under EIA Notification, 2006		As per Ministry's SOP dated 07.07.2021
4	Penalty Provisions for Violation Cases and applications a. For new projects: i. Where operation has not commenced: 1% of the total project cost incurred up to the date of filing of application along with EIA/EMP report; [Ex: Rs. 1 lakh for project cost of Rs 1 Cr] ii. Where operations have commenced without EC: 1% of the total project cost incurred up to the date of filing of application along with EIA/EMP report PLUS 0.25% of the total annual turnover during the period of violation. [Ex: For Rs. 100 Cr project cost and Rs.100 Cr total turnover, the penalty shall be Rs. 1 Cr + Rs 0.25 Cr = Rs 1.25 Cr]. b. For expansion projects: i. Where operation/ production with expanded capacity has not commenced: 1% of the total project cost attributable to the expansion, incurred up to the date of filing of application along with EIA/EMP report. ii. Where operation/ production with expanded capacity have commenced: 1% of the total project cost (attributable to the expansion activity), incurred up to the date of filing of application along with EIA/EMP report PLUS 0.25% of the total annual turnover (attributable to the expanded activity/capacity) involved during the period of violation.		The penalty shall be decided during the time of appraisal for EC.

xiii. The Project Proponent has submitted an Affidavit in a non-judicial stamp paper of Rs 100 dated 02.01.2023 stating that as on date, the instant mine does not have

a valid EC. The Project Proponent also undertaken to comply with all the statutory requirements and judgment of Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition (Civil) No.114 of 2014 in the matter of Common Cause versus Union of India and Ors., before grant of Terms of Reference (ToR)/ Environmental Clearance (EC).

xiv. Rehabilitation & Resettlement (R&R): No R&R is involved.

xv. Court case details: No Court cases are pending.

xvi. Details of project cost and employment:

Particulars	(Rs. In Crore)
Project Cost	50 Lakhs
Employment (No.s)	30

3. Observation and Recommendation of the EAC: -

The Project Proponent/Consultant presented the KML file to indicate the site features in the study area of 10 km radius. The instant proposal attracts the general conditions as the Interstate boundary of Andhra Pradesh and Karnataka is located at a distance of 0.6 km from the mine lease area. The Project Proponent has informed the EAC that railway line is located at a distance of around 500m on the eastern side from the mine lease area. Nearest Village is Obulapuram and it is located at a distance of about 2.0 km from the mine lease area. The Project Proponent also showed the old working pits within the mine lease area in the KML file. The balance life of the mine is 6 years. No National Park, Wildlife Sanctuary, ESZ/ESA within 10 km of the mine lease area. The mined out material will be transported by road through NH at a distance of 40km to Jindal and nearby mini steel plants and sponge iron plants. No village is passing through the transportation route.

The Project Proponent has informed the EAC that the mine lease deed was executed on 22.09.2007 and is valid upto 21.09.2027. A proposal was submitted to SEIAA, Andhra Pradesh during the year 2017. The EAC asked the Project Proponent that what is the reason for applying for ToR in the year 2023 after a gap of 6 years. The Project Proponent has informed the EAC no permits were issued by the Mining Dept., and Indian Bureau of Mines (IBM) has directed to obtain EC. The Project Proponent also informed the EAC that the State Pollution Control Board has directed to submit the copy of EC while submitting the application for renewal for consent for operation.

The mine commenced its operation in the year 2007 as no Environmental Clearance was required for mining of major minerals less than 5 Ha as per EIA Notification, 2006. The mine was in operation from the year 2007-08 to 2021-22. The Project Proponent also informed the EAC that as on date mine is not in operation. By Suo moto, the Project Proponent accepted that instant proposal is a violation case. The Project Proponent has shown the certified production details from the year 2007-08 to

2021-22. The EAC observed that the Project Proponent has exceeded the production of the base year 1993-94 i.e., 510 MT from the year 2008-09 to 2016-17 and 2020-21 to 2021-22 and also the Project Proponent has been mining without EC. Thus the EAC opined that the instant proposal attracts the judgment of Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors and violation of the EIA Notification, 2006. The EAC reiterated the Ministry's SOP dated 07.07.2021 for identification and handling of Violation cases under EIA 2006stating that *"the percentage rates shall be halved if the project proponent suo-moto reports such violations without such violations coming to the knowledge of the Government either on inquiry or complaint".* The EAC noted that as per Ministry's OM dated 07.07.2021, Clause 11: SOP for dealing with the violation cases if no prior EC has been taken then order to close its operation. In view of the above, the EAC asked the Ministry to close its operation and to take action against the Project Proponent under the provisions of the Environment (Protection) Act, 1986. The Project Proponent requested for exemption of public hearing as per Ministry's OM dated 12.11.2020. The EAC opined that the said OM does not applicable to this instant proposal.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC in its meeting held during 21-22 September 2023 under the provisions of EIA Notification, 2006 and subsequent amendments therein and as per Ministry's SOP dated 07.07.2021 for identification and handling of Violation cases under EIA 2006, **recommended** the proposal for grant of Terms of Reference (ToR) to M/s Sai Balaji Minerals for mining of Iron Ore in Obulapuram Iron Ore Mine with production capacity of Iron Ore: 99,789 Tons/Annum in the mine lease area of 4.003 ha, located at Sy.No: 370, Sy.No: 58/P Of Obulapuram Village, D-Hirehal Mandal, Anantapuram District, Andhra Pradesh for undertaking detailed EIA/EMP study subject to the following specific conditions in addition to the standard ToR conditions and applicable for non-coal mining projects:-

i. The EAC asked the Ministry to close its operation and to take action against the Project Proponent under the provisions of the Environment (Protection) Act, 1986. Further, no consent to operate to be issued till the project is granted EC. The action initiated by the State Govt./State PCB, status of the same may be submitted to the Ministry.

ii. The Project Proponent shall be required to submit a bank guarantee equivalent to the amount of remediation plan and natural and community resource augmentation plan with the SPCB prior to the grant of EC. The quantum shall be recommended by the EAC and finalized by the regulatory authority. The bank guarantee shall be released after successful implementation of the EMP,

followed by recommendations of the EAC and approval of the regulatory authority.

iii. Assessment of ecological damage with respect to air, water, land and other environmental attributes. The collection and analysis of data shall be done by an environmental laboratory duly notified under the Environment (Protection) Act, 1986, or an environmental laboratory accredited by NABL, or a laboratory of a Council of Scientific and Industrial Research (CSIR) institution working in the field of environment.

iv. Preparation of EMP comprising remediation plan and natural and community resource augmentation plan corresponding to the ecological damage assessed and economic benefits derived due to violation.

v. The remediation plan and the natural and community resource augmentation plan to be prepared as an independent chapter in the EIA report by the accredited consultants.

vi. Details of benefit accrued during the violation period along with capital cost of the project needs to be submitted.

vii. The Project Proponent needs to submit the penalty provisions as per Ministry's SOP dated 07.07.2021 at the time of appraisal of EC.

viii. The Project proponent needs to submit the map demarcating the railway line and railway boundary from the nearest working pit and the mine lease area.

ix. The Project Proponent needs to submit the letter from the State Forest Dept of Andhra Pradesh and Karnataka regarding the distance of the location of the National Park, Wildlife Sanctuary, Tiger Reserves/ Tiger Corridor etc., along with the authenticated map and also the authenticated list of flora and fauna since the study area of the 10km radius of the buffer zone falling in the State of Andhra Pradesh and Karnataka (0.6 km).

x. The Project Proponent needs to monitor the ambient air quality and noise level at the mine lease boundary, nearest village, predominant downwind direction and at other sensitive receptors. The Project Proponent should prepare the EMP considering the scenario of pollution to be generated for normative and peak total excavation for assessing air and noise pollution.

xi. The Project Proponent needs to carry out the Public Hearing as per provisions of EIA Notification, 2006. PP should also submit the time bound action plan on concerns of the public through a separate budget with capital expenditure with a timeline of 3 years. The Project proponent shall ensure that the activities proposed under the public hearing shall be different from the CSR activities.

xii. The Project Proponent shall carry out the assessment of impact due to the proposed project as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP. The project proponent shall conduct hydrological study for projects involving intersection of ground water table as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.

xiii. The Project Proponent shall explore the possibility of reduction of specific water requirement by optimization / technology up gradation, etc. The efforts shall be delineated in the EIA/EMP.

xiv. The Project Proponent shall prepare the scheme for mandatory recycle/re-use of water as specified by the Central Ground Water Authority for different category areas seeking NoC for ground water withdrawal and the shall submit as part of EIA/EMP report.

xv. The Action Plan on the compliance of the recommendations of the CAG as per Ministry's Circular No. J-11013/71/2016-IA.I(M), dated 25.10.2017 needs to be submitted at the time of appraisal of the project and included in the EIA/EMP Report.

2.2 Bicholim Mineral Block- Block 1 (Auction Block) of M/s Vedanta Limited for mining of Iron Ore with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA(Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located in Bicholim, Bordem, Lamgao, Mulgoa, Mayem & Sirigao Villages of Bicholim Taluka of North Goa District, Goa - [F.No: IA-J-11015/3/2023-IA-II(NCM), Proposal No: IA/GA/MIN/442593/2023, Consultant: M/s Mineral Engineering Services] – Environmental Clearance (EC)

The instant proposal is for mining of Iron Ore in Bicholim Mineral Block – Block 1 (Auction Block) of M/s Vedanta Limited with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA (Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located in

Bicholim, Bordem, Lamgao, Mulgoa, Mayem & Sirigao Villages of Bicholim Taluka of North Goa District, Goa.

2. The details of the project as ascertained from the document submitted by the Project Proponent and as revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude: 15º34'20.518"N to 15º 36'54.018"Nand Longitude: 73º54'4.754"E to 73º57'09.51"E. The mine lease area falls under the Survey of India Toposheet No: D43B14and falls in Seismic Zone-II.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mining lease area is greater than 250ha and appraised at the Central level.

iii. Details of Terms of Reference (ToR):

Date of application	File. No/ Proposal No	Consideration	Details	Date of accord
16.03.2023	F.No: IA-J-11015/3/2023-IA-II(NCM) IA/GA/MIN/ 422323/2023	3-4 May, 2023	Terms of Reference (ToR) to M/s Vedanta Limited for mining of Iron Ore in Bicholim Mineral Block – Block 1 (Auction Block) with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA (Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located in Bicholim, Bordem, Lamgao, Mulgoa, Mayem & Sirigao Villages of Bicholim Taluka of North Goa District, Goa	16.06.2023

iv. Details of Mine Lease:

a) The Project Proponent has submitted the Letter of Intent (LoI) granted by the Government of Goa vide Lr No: DMG/25/Auction Cell/LOI-function/2023/2801 dated 13.01.2023 for grant of mining leasefor Block I - Bicholim Mineral Block for Iron Ore in Bicholim, Bordem, Lamgao, Mulgao Mayem & Sirigao villages, Bicholim Taluka, North Goa District over an area of 478.5206 Hectare for a

period of 50 (fifty) years in pursuant to Rule 10(2) of the Auction Rules. This letter of intent is valid for a period of 3 (three) years from the date of its issuance.

v. Land Use/Land Cover of the Mine Lease Area:

Private land	421.1153 Ha
Government land	57.4053 Ha
Total Mining lease area (MLA)	478.5206 Ha
Private land for crusher, workshop & other infrastructure outside the MLA	Not Applicable

vi. Details of Mining Plan:

Review and Mining Plan approved by Indian Bureau of Mines, Goa	Letter No.	No. MCDR-MPC|1|2O23-GOA-IBM_ RO_ GOA
	Date	26.05.2023
	Mine Lease Area	478.5206 Ha
	Mineral	Iron Ore (Major Mineral)
Mining Parameters	Quantitative Description	
Method of Mining	Opencast mechanized mining without Drilling & Blasting	
Drilling/Blasting	Not Applicable	
Total Reserves and Resources	84.73 Million Tonnes	
Proved Mineral Reserve	36.071 Million Tonnes	
Life of mine	30 years	
Bench Height	7 m	
Bench Width	10 m	
Individual bench slope	70^0	
Overall pit slope	$<26^0$	
RoM output size	Less than 500 mm	
Crushing/Screening	Mobile Dry Crushing and Screening plant shall be available within the proposed mine to handle 4 MTPA of crude ore. The primary crusher will consist of 1 no. of Jaw crusher of capacity 120 TPH with an input feed of -500mm and shall produce output of -70 mm. It shall be followed by secondary crushers, 2 no.s of capacity 300 TPH and 200 TPH respectively. The input feed size shall be -70mm and output feed size obtained shall be -40mm. The Screening Plants of capacity -600TPH shall be installed where input the feed size shall be -70mm to obtain product of -40mm lumps & -10mm fines.	
Transportation details	ROM/Iron ore or Screened/crushed material will be transported by 10.5 Tonne trippers from Mine to Sarmanas jetty through a dedicated road. The total	

	distance from the mine to Jetty is 5.48 km of which 0.94 km stretch is public road and remaining 4.54 km is company owned dedicated road.
Dumpers capacity	40 tonne (within mines)
Waste handling and Disposal	During the mining period, the waste generated by mining will be temporarily stacked within the mining lease area as surface dump and backfilled in the exhausted portion of the pits. The total waste to be generated during the plan period is about 69.85 million tonnes. An area of 6.7146 Ha shall be utilized for Dumps and Material stocking at the conceptual stage of mining.

vii. Water requirement:

Total water requirement	664 KLD	Pit Water	628 KLD
		Ground water	36 KLD
Source	Water from Mine Pit will be used for dust suppression, Vehicle washing and Green belt. Water for domestic requirement will be met from bore well.		
Permission	The Bore wells are registered with Goa State Water Resource department. Application for using mine pit water will be submitted.		

viii. Nearest village / town/ highway/railway station / water bodies/monument:

Particulars	Particular's Name	Distance & Directions
Village	Lamgoa	Within the lease area
Town	Bicholim Town	0.5 km, East
Road	State Highway SH-1	0.65 km, East
Railway Station	Tivim Railwaystation	10.5 km, North
Water Bodies	Asnora River Mayem Lake Mandovi River	Touching lease boundary at one of the points 0.46 km 2.3 km, SW
School	Mulgao Govt. Primary School	Within the lease area
Worship places	Namuzgah/Idgah Shri Lairae Temple	Within the lease area 0.86 km
Caves/Fort	300m buffer from Lamgao caves Khorjuvem Fort: 2 km	

ix. Presence of Environmentally Sensitive areas in the study area:

Forest Land/Protected Area/Environmental Sensitivity Zone	Yes/ No	Details of Certificate/letter/Remarks
Forest Land	Yes	Mayem Forest Common Boundary with the mine lease area

Address: IA Division, Ministry of Environment, Forest and Climate Change,
Indira Paryavaran Bhawan, Jor Bagh New Delhi - 110003

		The following Reserve Forests are located within 10 km radius of the mine lease area such as Kharapal RF -6.7 km Kasarpal RF - 5.1 km Ambadgaon RF - 7.6 km
National Park/Wildlife Sanctuary, ESZ/ESA etc.,	No	The Project Proponent has submitted the letter from the Office of the Dy. Conservator of Forests vide Lr No: DCF(WP)/Tech/Digi/Vol-I/75/2022-23/ 968 dated 23.01.2023 stating that the proposed Bicholim Mineral Block-I is not situated within 10 km radius from the boundary of any the protected area in the State of Goa. PP also submitted the authenticated map dated 24.01.2023 showing the distance of the following Wildlife Sanctuary from the mine lease area. i. Madei Wild life Sanctury-14.105 km, E ii. Salim Ali Bird Sanctuary -10.553 km, SW iii. Bondla Wildlife Sanctuary -20.476 km, SE The Project Proponent also submitted the letter dated 22.02.2023 obtained from the Director (Environment) & Member Secretary, Goa-SEIAA stating that the Authority on perusal of Draft Zonal Master Plan for Eco-Sensitive Zones of Goa 2022 noticed that Eco Sensitive Zones declared by the Ministry of Environment & Forest in the State of Goa covers six Talukas such as Sattari, Dharbandora, Ponda, Sanguem, Canacona and Quepem, Bicholim taluka is not inlcuded in Draft Zonal Plan and it is not part of Eco Sensitive Zones. It is also clarified that Block-I Bicholim Mineral Block of Vedanta Ltd is also not a part of any Eco Sensitive Area.
Schedule-I species	Yes	The Project Proponent has submitted the letter from the Office of the Dy. Conservator of Forests vide Lr No: 5/FCA/GEN/F&F/DCFN/TECH/2022-23 dated 04.04.2023 with regard to list of Flora and Fauna species present in core and buffer zone. The following Schedule-I species are found in the study area such as 1 Common leopard (*Felidae*) 2 White-bellied Sea-Eagle(*Accipitridae*) 3 Indian Peafowl (*Phasianidae*) 4 Crimson rose- Butterfly (*Papilionidae*)

Status of Wildlife Conservation Plan	Yes	Wild Life Conservation Plan is prepared and submitted for approval of Chief Wildlife Warden (CWLW) on 19.06.2023. PP has submitted the copy of the acknowledgement from Chief Wildlife Warden.

x. Green belt/plantation details:

Proposed area for green belt/plantation	105.8894 ha
Budget for green plant& plantation till the end of life of mine.	Rs159.0Lakhs
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	25 ha
50 m safety zone of nallah, roads, electric lines	
Additional information (if any)	80.8894 ha (on backfilled area)

xi. Details of Baseline data:

Baseline Data (Air / Water / Noise / Soil / Ground water table/ others)			
Period of baseline data collection	March, 2023 to May, 2023		
Season (Summer / Pre-monsoon / Post-monsoon / Winter)	Summer Season		
Ambient Air Quality (no. of locations) and results	No. of Locations	Parameters	Results
	9	PM10	27.0 to 56.0 μg/m^3
		PM2.5	14.0 to 36.0 μg/m^3
		SO2	4.0 to 13.0 μg/m^3
		NO2	<4.0 to 18.0 μg/m^3
Noise level (no. of locations) and results	No. of Locations	Parameters	Results
	09	During Day Time [Leq dB(A)]	43.1 to 61.7
		During Night Time [Leq dB(A)]	35.9 to 49.3
Water Quality (no. of locations) and results	Surface water quality		
	No. of Locations	Parameters	Results
	07	pH	6.35 - 7.39
		TDS (mg/l)	72 - 11240
		Fluoride (mg/l)	<0.1
		Chloride (mg/l)	18 - 5620
		Fe (mg/l)	<0.05
		Dissolved Oxygen (as O_2), mg/l	6.2 – 6.9
		Biochemical Oxygen Demand	<3.0

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<tr><td></td><td>(as O_2), mg/l</td><td></td></tr>
<tr><td></td><td>Chemical Oxygen Demand (COD) mg/l</td><td>22.0 – 26.0</td></tr>
</table>
Groundwater Quality
<table>
<tr><th>No. of Locations</th><th>Parameters</th><th>Results</th></tr>
<tr><td rowspan="4">10</td><td>pH</td><td>5.63 – 7.07</td></tr>
<tr><td>TDS (mg/l)</td><td>20 – 150</td></tr>
<tr><td>Fluoride (mg/l)</td><td>0.1</td></tr>
<tr><td>Chloride (mg/l)</td><td>5.0 - 19.0</td></tr>
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<tr><td>Soil Quality (no. of locations) and results</td><td>
<table>
<tr><th>No. of Locations</th><th>Parameters</th><th>Results</th></tr>
<tr><td rowspan="5">07</td><td>pH</td><td>5.38 to 5.78</td></tr>
<tr><td>Electrical Conductivity (mohs/cm)</td><td>0.28 to 0.318</td></tr>
<tr><td>Nitrogen (kg/ha)</td><td>200 to 275</td></tr>
<tr><td>Phosphorus (kg/ha)</td><td>14.3 to 17.8</td></tr>
<tr><td>Potassium (kg/ha)</td><td>230 to 263</td></tr>
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xii. Public Hearing (PH) Details:

Advertisement for PH with date	07.07.2023 Regional: Bhangar Bhui, Heraldo, Lokmat & Free press journal (Mumbai Edition) News papers
Date of PH	11/08/2023
Venue	Narayan Zantye Multipurpose Sports Complex, Sarvan, Bicholim, Goa
Chaired by	District Collector, North Goa
Main issues raised during PH	Pollution, impact on ponds, Support for Education, Health, Agriculture Development & Skill Development, Employment.
Budget proposed for addressing issues raised during PH	Rs 309.3 Lakhs

xiii. Rehabilitation & Resettlement:

R & R details	There is presence of habitation within ML Area at Mulgao and lamgao villages. Safety Buffer of 50m will be maintained from the habitations. No Rehabilitation & Resettlement Plan is proposed during life of mine.

xiv. Court case details:

Court Case	Yes
Additional information (if any)	First Case (Suresh Zantye & ors. v. State of Goa & Ors.):

Address: IA Division, Ministry of Environment, Forest and Climate Change,
Indira Paryavaran Bhawan, Jor Bagh New Delhi - 110003

	1. WP(Civil) 2478 of 2022 (Filing number) before the High Court of Bombay at Goa 2. The said writ petition has been filed against the State Government and seeks to challenge the identification of properties bearing survey no. 90/1(part) and 96/0 as part of the recently auctioned Bicholim mine. The petition alleges violation of Rule 5 &6 of Mineral Evidence Rules and Section 10B of MMDR, Act by the State of Goa and DMG. The petitioner has prayed for quashing of auction notice to the extend it includes the property of the petitioner and grant a writ of mandamus against the Respondents. 3. Case status is pending. 4. No adverse orders have been passed. 5. As per the last order the matter has been disposed of by the HC on 17th July 2023 with a direction to the Petitioner to make a representation before the Government and the Government is to dispose of the same within four months. <u>Second Case (MSPL v. State of Goa & Ors.):</u> 1. WP 592 of 2022 2. The said writ petition seeks to challenge the constitutionality of the tender documents of Phase I auction of Goa mines. The petition alleges violation of Rule 5 & 6 of Mineral Evidence Rules by the State of Goa and DMG. The petition alleges non-disclosure of essential facts such as bore hole data, approved mining plan, production data of the previous five years and exploration data. The petitioner has prayed for quashing of auction notice to the extend it fails to include the essential facts and in the alternative to stay the auction. 3. Case status is pending 4. No adverse orders have been passed. 5. As per the last order the matter was listed on 01.09.2023. <u>Third Case (Suresh Govind Gaonkar & Ors v. Directorate of Mines and Geology & Ors):</u> 1. PIL WP 2029/2023 (F)

	2. PIL has been filed challenging state's decision to go ahead with the auction of the mining block. The said PIL also challenges the order dated 13.01.2023 which issues LOI to the successful bidder. The primary grievances of the petitioners are that village settlement are included within the mining blocks auctioned. Hence this PIL was preferred under Article 226 and 21 of the Constitution. Vedanta Limited is Respondent No. 3 in the aforementioned PIL. The matter is listed for first hearing on 25.09.23.

xv. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent has submitted the Affidavit in a non-judicial stamp paper of Rs 100 bearing no: A807037 dated 24.04.2023 stating that they will comply to the directions issued by MoEF&CC vide Office Memorandum F.No.3-50/2017.IA.III (Pt) dated 30th May, 2018 in terms of directions given Hon'ble Supreme Court in judgment dated 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India & Ors.
Undertaking of Project Proponent	The Project Proponent has submitted an undertaking stating that the Environmental Impact Assessment Report of Block-1 Bicholim Mineral Block of M/s Vedanta Ltd was prepared by M/s Mineral Engineering Services, QCI/NABET Accredited EIA Consultant at Sr.No. 55 as per list of list of accredited consultant/organizations. The Project Proponent hereby undertaken that the information and data provided in the EIA report and submitted to the Ministry are factually correct and fully accountable for the same.
Consultant submitted an Undertaking vide letter dated 02.06.2023	This is to declare that the prescribed ToRs have been complied with and that the data submitted are factually correct in respect of EIA & EMP report prepared for Block-1 Bicholim Mineral Block of M/s Vedanta Ltd, Goa.

xvi. Details of the Environmental Management Plan (EMP):

Activities	Capital cost (Crores)	Recurring cost (Lakhs/annum)

Plantation	-	7.5
Environment monitoring	44	44
Air pollution control measures	20	300
Water Treatment	-	11
Erosion control /monsoon measures	-	221
Personal protective equipment	-	15
Maintenance of fire protection systems	-	1.5
Environment awareness & training	-	5
Health	8	16
Total	72	621

xvii. Details of project cost and employment:

Particulars	(Rs. In lakhs)
Project Cost	25000 Lakhs
Employment	716 no.s

3. Observation and Recommendation of the EAC:-

The Project Proponent and the Consultant presented the KML file to indicate the site features in the study area of 10 km radius. The Project Proponent has shown the boundary of the mine lease area and informed the EAC that there are two habitations such as Mulgao and Lumgao and schools are located within the mine lease area. Two schools are located in the Mulgao Village. One school is located at a distance of 138m from the Ultimate Pit Limit (UPL) and the other school is located at a distance of 190m from the Ultimate Pit Limit (UPL). No drilling and blasting is involved. Green barriers are maintained to prevent it from the environment hazards. Tributary of Asnora River is touching the mine lease area on the western side. It has been observed that area between river & bottom pit 5 is approximately 6m AMSL which obstructs the flow of water between them, even the high flood condition and at the place where river is touching the block boundary, it is 10.93m AMSL. Hence, even during high flood level, river will not interact with the pit water. The EAC noted that there are few temples, caves and fort are present in the vicinity of the mine lease area. There will be no surface dumping and will be backfilled concurrently and there are voids available for backfilling. Later on the Project Proponent has informed that the pits will be used as a settling ponds. The EAC noted that the Project Proponent is giving two contradictory statements. The EAC asked the Project Proponent to provide the design of the settling ponds in different pits.

The Project Proponent has informed the EAC that Block-I Bicholim block is an old mine and it was auctioned to Vedanta Ltd in the year 2022 and Letter of Intent (LoI) was granted on 13.01.2023. The EAC asked the Project Proponent that after the year 2018 whether any Environmental Clearance has been granted in the State of Goa. The

Project Proponent has informed the EAC after the year 2018 there was no mining in Goa and this instant case is the first case for grant of Environmental Clearance. No forest land is involved in the mine lease area. The EAC noted that the Project Proponent has submitted that Mayem Forest common boundary is sharing with the mine lease area. The EAC was of the view that involvement of forest land within the mine lease area is not clear as there are two contradictory information given by the Project Proponent. The EAC also noted that in this regard, the Project Proponent has not submitted the letter from the Forest Dept. No National Park/Wildlife Sanctuary, ESZ/ESA etc., is located within 10km radius of the study area. An application for Groundwater withdrawal was submitted to Water Resource Department submitted on 19.06.2023. No Rehabilitation and resettlement is involved in this proposal.

The Project Proponent has informed the EAC that ROM/Iron ore or Screened/crushed material will be transported by 10.5 Tonne trippers from mine to Sarmanas jetty through a dedicated road. The total distance from the mine to Jetty is 5.48 km of which 0.94 km stretch is public road and remaining 4.54 km is company owned dedicated road. Width of the road is 7.0m. Twenty four hours continuous volume count was manually undertaken during May-2023. The EAC noted that the width of the road is not adequate. About 1205 no. of trips per day will be carried out. No. of working days will be 365. The EAC was of the view that when the rainfall is 3500 mm/year it will be difficult to carry out mining for 365 days. The Project Proponent has informed the EAC that 275 working days are considered for calculation of traffic load. The EAC asked the Project Proponent to bypass the public road and also to explore the possibility of increasing the capacity of the truck so as to reduce the no. of trips. The EAC opined that the Project Proponent needs to revisit the traffic load by considering the cycle time and waiting time. The EAC also asked the Project Proponent to strengthen the road and convert the road into concrete road.

The Project Proponent also informed the EAC that the predominant wind direction was from West to East. Wildlife Conservation Plan has been prepared and submitted to Chief Wildlife Warden (CWLW) on 19.06.2023 for approval with a budget of Rs. 50 Lakhs. At the end of conceptual stage, an area of 105 ha will be under green belt/ plantation. Eco restoration will be carried out in similar to the reclaimed activity carried out in Sanquelim mine. Public hearing was carried out on 11.08.2023 and a budget of Rs 309.3 Lakhs have been earmarked to address the concerns raised during public hearing. The EAC also noted that about 4708 written objections was submitted against the project during the public hearing. The Project Proponent has informed the EAC that the issues are same but the no. of objection letters were more in number and about 5183 no.s of letters were also received in support of the project. The EAC also noted that many complaints were received against the public hearing dated 11.08.2023. The EAC asked the Project Proponent to submit the video recording of the public

hearing. There are three court cases at present regarding the auction process and one of the court case was disposed on 17.07.2023 and will abide the directions of the Hon'ble High Court. Other two cases in the matter of MSPL v. State of Goa & Ors. in WP 592 of 2022 and in the matter of Suresh Govind Gaonkar & Ors v. Directorate of Mines and Geology & Ors. in PIL WP 2029/2023 (F) are pending before the Hon'ble High Court and no adverse orders has been passed.

The Department of Mines and Geology, Goa was invited as a special invitee to discuss the present status of mining in Goa. The Deputy Director has informed that the State Govt. is looking positive to restart the mining operations in Goa. Besides 10% DMF, there is also a scheme called Goa Iron Ore permanent fund wherein 10% of the sale value of the mineral will be spent towards community based activities as per the direction of the Hon'ble Supreme Court. The State Govt. has put up a scheme for approval before the Hon'ble Supreme Court in line with Pradhan Mantri Khanij Kshetra Kalyan Yojana (PMKKKY) Scheme. This fund has to be kept for prosperity. The report with regard to illegal mining will be obtained from the SIT and will be provided to the Ministry.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC noted that the handling of waste of 25.162 MTPA will be more than the Iron Ore production capacity of 3.0 MTPA. The EAC was of the view that the pollution potential will be more in handling of waste. The EAC not convinced with plan for backfilling and with the design of settling ponds as the annual rainfall is projected as 3500 mm/year. The EAC observed that the instant mine is located in dense vegetation area. The EAC also noted that the mine lease area is located close to the proximity of the habitations, school, forest (Mayem common boundary), river, temples, caves and fort. The EAC also observed that the Project Proponent has not properly worked out the traffic load. Many litigations were received against the public hearing/project. Further, the EAC also noted that mines were not in operation in Goa from the year 2018 and this instant proposal is a first case for grant of Environmental Clearance (EC) under auction after 5 years. Thus there is a need to ascertain the present scenario and ground reality with regards to handling of waste, settling ponds, location of waste dump w.r.t habitation, school and river, other surface features as forest (Mayem common boundary), temples, caves and fort, mineral transportation route and traffic congestion. The EAC was of the view that a site visit needs to be conducted by a sub-committee comprising of EAC Members and officers from MoEF&CC. The EAC opined that the Ministry may constitute a sub-committee and submit its report to enable the committee to take a decision on the proposal. Therefore, the EAC **deferred** the proposal for want of following additional information: -

i. The site visit report of the subcommittee.

ii. The Project Proponent needs to revisit the plan for backfilling with clearly indicating the voids area and the capacity available/required for backfilling.

iii. The Project Proponent needs to submit the design of settling ponds by considering the annual rainfall, catchment area and its discharge.

iv. The Project Proponent needs to bypass the public road and also to explore the possibility of increasing the capacity of the truck so as to reduce the no. of trips. The EAC opined that the Project Proponent needs to revisit the traffic load by considering the cycle time and waiting time. The Project Proponent needs to submit the action plan for strengthening the road and for converting the unpaved road into concrete road.

v. Since the mine lease area is sharing the Mayem Forest common boundary, the Project Proponent needs to submit the letter from the State Forest Department regarding the involvement of forest land in the mine lease area.

vi. The Project Proponent needs to submit a letter from the Department of Geology and Mining, Government of Goa clarifying whether any illegal mining within the mine lease area has been carried out or not and whether the same has been carried out by M/s. Vedanta Limited or not?

vii. The Project Proponent needs to submit the video recording of the public hearing.

2.3 Chettichavadi Jaghir Magnesite and Dunite Mine of M/s. Dalmia Bharat Sugar and Industries Limited for Total Excavation of 1.4 million Tonne per annum (MTPA)/ [including 0.06 million tons of Magnesite, 0.12 million tons of Dunite, Waste, O.B, Inter Burden, Top Soil etc.] in the mine lease area of 449.364 ha, located at Chettichavadi Village, Salem Taluk, Salem District, Tamil Nadu - [File No: 23-227/2018-IA.III(V), Proposal No: IA/TN/MIN/241375/2018, Consultant: Aadhi Boomi Mining & Enviro Tech (P) Ltd] - Environmental Clearance (Violation)

The instant proposal is for mining of Magnesite and Dunite in Chettichavadi Jaghir Magnesite and Dunite Mine for Total Excavation of 1.4 million Tonne per annum (MTPA)/ [including 0.06 million tons of Magnesite, 0.12 million tons of Dunite, Waste, O.B, Inter Burden, Top Soil etc.] in the mine lease area of 449.364 ha, located at Chettichavadi Village, Salem Taluk, Salem District, Tamil Nadu.

2. The details of the project as ascertained from the document submitted by the Project Proponent and as revealed from the discussions held during the meeting are given as under:

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i. The mine lease area is located between Latitude: 11°43'09.71"N to 11°44'36.233"N and Longitude: 78°07'23.268"E to 78°09'13.068" E. The mine lease area falls under the Survey of India Toposheet No: 58 I/2 and falls in Seismic Zone-III.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mine lease area is greater than 250 ha and appraised at the Central level.

iii. The Project Proponent obtained Terms of Reference (ToR) vide ToR Lr.No: 23-227/2018-IA.III(V) dated 05.02.2021 for mining of Magnesite and Dunite in Chettichavadi Jaghir Magnesite and Dunite Mine for Total Excavation of 1.4 million Tonne per annum (MTPA)/[including 0.06 million tons of Magnesite, 0.12 million tons of Dunite, Waste, O.B, Inter Burden, Top Soil etc.] in the mine lease area of 449.364 ha under Ministry's Notification dated S.O 804(E) dated 14.03.2017.

vii. The proposal was earlier considered in the 43rd EAC (Non-Coal Mining) meeting held during 14 -16 December, 2021 wherein the EAC deferred the proposal. The Project Proponent submitted the information on 11.03.2022 in Parivesh. But the Project Proponent did not comply to the observation of EAC and in view of the above additional details sought by the Ministry on 27.04.2022, 22.08.2022, 12.09.2022, 04.10.2022 and 22.11.2022 to provide the valid mine lease document and thereafter the Project Proponent submitted the information on 21.12.2022 in Parivesh. Accordingly, the proposal was reconsidered in the 9th EAC (Non-Coal Mining) meeting held during 17-18 January, 2023 wherein the EAC deferred the proposal for want of requisite information.Then, the Project Proponent submitted the information on 01.09.2023 in Parivesh portal and accordingly the proposal was again reconsidered in the 20th EAC (Non Coal Mining) meeting held during 21-22 September, 2023.

Based on observation of EAC in its EAC meeting held during 17-18 January, 2023 and compliance of observation of EAC made by PP are detailed below:

S. No	Observation of EAC in its meeting held during 17-18 January, 2023	Reply by Project Proponent
1	The project to be consider after deposit of demand raised by State authorities w.r.t Hon'ble Supreme Court common cause Judgment dated 2.08.2017. PP shall submit the proof of payment.	The Project Proponent has submitted that the State Mining Dept., Dept of Geology and Mining, Guindy while confirming the validity of the mine lease vide letter dated 09.12.2022 has directed to remit the EC violation amount of Rs 18.69 Crand Surface Right Compensation amount of Rs 79 Cr after the disposal of thefollowing cases which are pending before the Hon'ble High Court of Madras (1)W.P.No. 2517/2018-Surface Right

<table>
<tr><td></td><td></td><td>Compensation and (2) W.A.No 834&835/2020 -EC Violation.

The Project Proponent has submitted that the said demands are being contested on the grounds amongst others that it has been imposed without opportunity of hearing. However, in case of similar demands to remit EC violation amount, Madurai Bench of Madras High Court by orders dated 18th Aug 2020 In W.P. (MD) No. 24463/2018 etc. batch has taken opposite view and held that such demands cannot be enforced without opportunity of hearing. Therefore, the matter has now been referred to larger bench to decide the said issue.

The Writ Appeal before Madras High Court regarding demand of EC violation amount INR 11.44 Crore along with entire batch appeals from other ML holder on the same issue is posted for hearing on 12th Sep 2023.

Further, a Writ Petition W.P 22888/2023 has been filed before Madras High Court on 27.07.2023 praying amongst others that MOEF&CC should not insist for pre-payment of INR 11.24 Crore and 7.44 Crore for grant of EC (compensation demanded by State Mining Dept. for mining without EC in light of Supreme Court Order In Common Cause, dated 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014). The matter is pending and posted for hearing on 20th September 2023. The Project Proponentreiterate herein that they will pay the demands upon final disposal of the matter.</td></tr>
<tr><td>2</td><td>The Project Proponent needs to submit the details of all the court cases/show cause notices/ litigations in a chronological manner and its present status with the supporting court orders/ documents.</td><td>The Project Proponent has submitted the details of all pending court cases/show cause notices/litigations as on date and their present status with its supporting order/documents as given below in Table.
<table>
<tr><th>S.No</th><th>Case Reference</th><th>Facts</th><th>Current Status</th></tr>
<tr><td colspan="4">MMRD</td></tr>
<tr><td>1</td><td>W.P.25518/2006 Madras HC</td><td>Since Mines and Geology Dept. was not disposing of the application for renewal of mining lease, Writ Petition No. 25518 of</td><td>The said order dated 17th August, 2006 still continues to be in force and the said W.P. No. 25518 of 2006</td></tr>
</table></td></tr>
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				2006, filed by Project Proponent Hon'ble Court granted an interim injunction in favor of the Project Proponent to operate the said mining lease under deemed extension in terms of Rule 24 A (6) of MCR 1960. Accordingly, in light of the interim relief granted by this Hon'ble Court, the Appellant continued its mining operations without any expansion and or modification.	is also pending as on date. Now State Mining Dept. issued letter dated 9th Dec 2022 hence this writ petition is now redundant.
		2	In terms of the Supreme Court Order dated the 22nd August 2017 in Writ Petition (Civil) No. 114 of 2014, Dist. Collector Salem raised a demand vide order 18th June 2019 directing Dalmia Bharat Sugar & Industries Ltd. (DBSIL), project proponent here to pay sum of INR 11.44 crore on the quantity of Dunite mined without EC for the period 1st April 2000 to 31st March 2018.	The said demand was challenged by the DBSIL before Hon'ble Madras High Court by WP No. 889 of 2020 wherein DBSIL. The said writ petitions were dismissed by Hon'ble High Court vide orders dated 12th June 2020. The orders dated 12th June 2020 passed by Hon'ble High Court has been challenged by DBSIL vide Writ Appeal No 834 of 2020 which are yet to be	Writ Petition No.29275 of 2016 Disposed by passing judgment dated 11th January 2022 by the Hon'ble Madras High Court with direction to PP to obtain EC.

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				taken up for hearing. In the meanwhile, Hon'ble Madurai Bench of Madras High Court in a different batch of writ petitions challenging demands by other District Collectors in terms of the said Supreme Court Order dissented with the orders dated 12th June 2020 on the ground that raising of demand Without opportunity of hearing may not be proper. The Madurai Bench of Madras High Court recorded its reasons for dissent in its order dated 19th August 2020 in W.P(MD) No.24463 of 2018 and etc. batch and requested Hon'ble Chief Justice of Madras High Court to place the matter before an appropriate bench. District Collector has also issued notice date 8th July 2020 for recovery of the amount. We have	

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				requested to keep the recovery proceedings in abeyance in view of the matter being sub judice	
		3	District Collector, Salem has also raised another demand vide order dated 08.07.2020 directing project proponent to pay sum of Rs.7.24 crore on the quantity of Magnesite mined without EC for the period 01.04.2000 to 31.03.2018.	Project Proponent has sought basis of demand from District Collector. The demand is pending for disposal in view of above-mentioned development in the similar matter.	Pending.
		4	W.P.No.2517 of 2018 before Madras H.C. (District Collector's demand ofsurface compensation ofRs.79,88,39,062 from 20.08.1966till 31.10.2017)	Project Proponent has filed W.P.No.2517 of 2018 before Madras H.C. Later on, vide orders dated 28th Feb 2022, the writ had been tagged with Writ Appeal, No. 757 of 2020. The Writ Appeal also pertains to said demand U/r 72 while stay of demand has been ordered to be continued, until vacated by Court. The demand is stayed till date.	Pending, stay order is in force
		5	W.P 22888/2023 – Dalmia BharatSugar & Industries Ltd. Vs Secretary, MOEF&CC	Writ Petition filed before Madras High Court praying amongst others that MOEF&CC	Posted for hearing on 20th Sept. 2023

				should not insist for prepayment of INR 11.24 Crore and 7.44 Crore for grant of EC (compensation demanded by State Mining Dept. for mining without EC in light of Supreme Court Order in Common Cause, dated 22nd August 2017 in Writ Petition (Civil) No. 114 of 2014.	
			Environment Protection Act		
		6	Show cause vide Proceeding Letter No. SLM0006/DEE/ TNPCB/SLM/RL/2014, dated 03.06.2014 by Tamil Nadu State Pollution Control Board u/s 19 of Environment Protection Act	Notices have been issued U/s 19 of Environment Protection Act to all the directors of the Project Proponents on the alleged ground of mining without EC during the period of deemed extension while the application for second renewal of mining lease was pending. Replies have been filed stating amongst others that mining was carried out under the provisions of deemed extension read with above mentioned order dated	Pending

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				17th August 2006 of Madras HC	
		7	Show Cause vide Proceeding Letter No. FEF/TNPBC/SLM/ F/006 /20 by Tamil Nadu State Pollution Control Board U/s 19 of Environment Protection Act dated 4th May 2020	Notices have been issued U/s 19 of Environment Protection Act to the Project Proponent. On the alleged ground of mining without EC during the period of deemed extension while the application for second renewal of mining lease was pending. Replies have been filed stating amongst others that mining was carried out under the provisions of deemed extension read with above mentioned order dated 17th August 2006 of Madras HC.	Criminal Case vide CC.No.388 of 2023 has been filed in Salem Judicial Magistrate Court No-4 by TNPCB against the DBSIL represented by Shri. P.G. Kalidass, Agent and Superintendent of Mines.
		Air Act & Water Act:			
		8	Show Cause Notice dated 5th Feb 2013 under Water Act Show Cause Notice dated 5th Feb 2013 under Air Act	Mining Activity without EC on renewal of mining lease. Reply to the notices have been filed.	Pending
		9	Mr. S. Sakthivel of Environmental Protection Anti-Pollution Group, Salem filed Original Application No: 213/2021 before NGT Chennai	It was alleged in the application that that mining is being carried out without renewal of ML and without EC. In the said application PP along with MOEF and	The said Original Application is finally disposed of vide orders dated 18th May 2023 with direction to PP to obtain EC before starting ML operations. The said order

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				State Mining Dept. was arrayed as Respondents.	following observation: "the Environmental Clearance was required to be obtained from the year 1994" *(vis -à-vis mining project of the Applicant herein).* We have moved a Review Application No. 14/2023 for correction of the said observation because under 1994 Notification EC was required for new projects. The mining projects which were existing in 1994, required EC at the time of expansion or renewal of ML. In the said Review Application, we have not sought any change in the directions to PP to first seek EC from MOEF. The matter is to listed on 12th Sep 2023.
3	The Project Proponent needs to submit the status of the credible action to be initiated by the State Govt. against the Project Proponent under the section 19 of E(P)A, 1986 in reference to the Ministry's letter dated 25.11.2020.	The Project Proponent has submitted that the credible action has been initiated by the State Govt./TNPCB under the section 19 of Environmental (Protection) Act, 1986 vide case no. CC No: 388/23 at Chief Judicial Magistrate Court no. IV, Salem dated 13.04.2023.			

4	The Project Proponent needs to submit the revised letter from the Competent Authority, Forest Department clearly mentioning the type of Schedule Species in the study area of 10 km radius and accordingly the Project Proponent needs to submit the proof of submission of Wildlife Conservation Plan made to the Forest Dept with the timeline for implementation and the budget proposed.	The Project Proponent has submitted the revised letter from the Tamilnadu Forest Department vide letter no C.No. 228/2021 dated 13.02.2023 mentioning the details of flora, fauna, type of forest and list of schedule - I species in the study area. It has been also mentioned that there are 10 mammals, 6 birds and 2 reptiles are found under Schedule-I category. The Project Proponent also submitted that based on the revised letter issued by the Tamilnadu Forest Department vide letter dated 13.02.2023, Wildlife Conservation Plan has been submitted to the Tamilnadu Forest Department vide letter dated 09.03.2023 and proof of the same also submitted. The Project Proponent earmarked a budget of Rs 13.0 Lakhs towards conservation of Schedule I fauna.
5	The Project Proponent needs to submit the District Survey Report for Dunite to be approved by the SEIAA, Tamil Nadu.	The Project Proponent has submitted the letter issued by the SEIAA-Tamil Nadu vide Lr.No: SEIAA-TN/C.No.6013/2023 dated 06.06.2023 stating that SEIAA-TN is hereby endorsing the District Survey Report prepared for the mineral - Dunite by the Dept of Geology & Mining and approved by the District Administration, which establish that the mineral resource of Dunite is existing along with the magnesite in the mine lease hold area of an extent of 449.364 Ha in Chettichavadi Village. Salem District. Tamil Nadu owned by Dalmia Bharat Sugar and Industries Ltd.
6	The Project Proponent needs to submit the complete copy of the Approved Mining Plan dated 30.03.2021 in Parivesh.	The Project Proponent has submitted the copy of Review of Mining Plan including Progressive Mine Closure Plan for the period 2021-22 to 2025-26 in Parivesh portal.
7	The Project Proponent needs to submit the valid NABET Accreditation Certificate of the Consultant in Parivesh.	The Project Proponent has submitted the valid Certificate of Accreditation of the EIA Consultant Valid up to October 22, 2024.
8	The Project Proponent needs to submit the undertaking as per Ministry's OM dated 05.10.2011 and also the	The Project Proponent has submitted an undertaking vide letter dated 21.04.2023 to the effect that the conditions laid down in the Terms of Reference under violation case vide ToR letter dated 05.02.2021 for existing Magnesite and

	Consultant needs to submit the undertaking as per Ministry's OM dated 04.08.2009.	Dunite mines in S.F.No. 6, over an extent of 449.364 ha of Chettichavadi Village, Salem Taluk and District, Tamil Nadu have been complied with in the final EIA & EMP report and the data submitted and information presented there in are true and correct to the best of my knowledge. The Consultant has submitted an undertaking vide letter dated 21.04.2023 stating that the Final EIA and EMP report has been prepared in compliance with the conditions laid down in the Terms of Reference under violation case vide letter dated 05.02.2021 including Ecological damage assessment, remediation plan, natural resource augmentation plan and community resource augmentation plan for obtaining EC from MoEF&CC, New Delhi for existing Magnesite and Dunite mines in S.F.No. 6, over an extent of 449.364 ha of Chettichavadi Village, Salem Taluk and District, Tamil Nadu. The head of the accredited consultant organization also confirmed that they shall be fully accountable for mis leading information mentioned in this statement.
9	The Project Proponent needs to reupload the EIA/EMP report along with the contents of the EIA/EMP report in Parivesh.	The Project Proponent has submitted that the Final EIA/EMP report along with the contents has been re-uploaded in Parivesh along with ADS reply.

3. Observation and Recommendation of the EAC: -

The EAC deliberated on the additional details submitted by the Project Proponent and the Consultant. The Project Proponent has informed the EAC that the Dept. of Geology and Mining, Guindy while confirming the validity of the mine lease vide letter dated 09.12.2022 has directed to remit the EC violation amount of Rs 18.69 Cr and Surface Right Compensation amount of Rs 79 Cr after the disposal of the following cases which are pending before the Hon'ble High Court of Madras (1) W.P.No. 2517/2018-Surface Right Compensation and (2) W.A.No 834&835/2020 -EC Violation. The Project Proponent has informed the EAC the demand will be paid subject to the outcome of disposal of the court cases. An affidavit dated 22.04.2023 has been submitted as per Ministry's OM dated 30.05.2018. The Project Proponent also informed the EAC that a Writ Petition W.P 22888/2023 has been filed before Madras High Court on 27.07.2023 praying amongst others that MOEF&CC should not insist for pre-payment of INR 11.24 Crore and 7.44 Crore for grant of EC (compensation demanded

by State Mining Dept. for mining without EC in light of Hon'ble Supreme Court Order dated 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014) in the matter of Common Cause versus UoI and others. Further, the Project Proponent also informed the EAC that no stay order has been imposed by the Hon'ble High Court.

The Project Proponent has informed the EAC that they are ready to submit the bank guarantee. The EAC reiterated the Ministry's OM dated 30.05.2018 stating that *"the Environmental Clearance will not be operational till such time the Project Proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated the 2ndAugust 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors"*. The EAC opined that even if the Project Proponent submits the bank guarantee the purpose of granting EC will not meet the requirement as per Ministry's OM dated 30.05.2018. The matter is pending and posted for hearing on 15th October 2023.The Project Proponent has also informed the EAC that the credible action has been initiated by the State Govt./TNPCB under the section 19 of Environmental (Protection) Act, 1986 vide case no. CC No: 388/23 dated 13.04.2023at Chief Judicial Magistrate Court no. IV, Salem. The matter is listed on 11.10.2023.

The Project Proponent has informed the EAC that based on the revised letter issued by the Tamilnadu Forest Department vide letter dated 13.02.2023, Wildlife Conservation Planhas been submitted to the Tamilnadu Forest Department vide letter dated 09.03.2023 and the Project Proponent has showed the proof of the same. A budget of Rs 13.0 Lakhs has been earmarked towards conservation of Schedule I fauna.The Project Proponent has also showed the letter issued by the SEIAA-Tamil Nadu vide letter dated 06.06.2023 stating that SEIAA-TN is hereby endorsing the District Survey Report prepared for the mineral - Dunite by the Dept of Geology & Mining and approved by the District Administration, which establish that the mineral resource of Dunite is existing along with the magnesite in the mine lease hold area of an extent of 449.364 Ha in Chettichavadi Village. Salem District. Tamil Nadu owned by Dalmia Bharat Sugar and Industries Ltd.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC was of the view that even if the Project Proponent submits the bank guarantee, the Project Proponent will not able to comply to the statutory requirements and judgment of Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors" and will not able to start the mine operation. Therefore, the EAC **deferred** the proposal and asked the Project Proponent to submit the proof of payment of Rs. 18.69 crore as per Dept. of Geology and Mining, Guindy letter dated 09.12.2022 for further consideration of the instant proposal before the EAC.

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2.4 Bathiya Limestone Mine of M/s AAA Resources Private Limited for mining of Limestone with production capacity of 4.0 MTPA, Topsoil: 0.41 MTPA, Waste/reject: 4.43 MTPA (Total excavation: 8.84 MTPA) along with the crusher of 1400 TPH in the mine lease area of 266.302 ha, located at Bathiya, Barahiya, Karaundi, Chapna and TamoriaVillages, Tehsil: Maihar, District: Satna, Madhya Pradesh – [F.No: J-11015/44/2020-IA-II(M), Proposal No: IA/MP/MIN/405276/2022, EIA Consultant: M/s Pragathi Labs & Consultants Pvt Limited] - Environmental Clearance (EC)

The instant proposal is for grant of Environmental Clearance of M/s AAA Resources Private Limited for mining of Limestone in Bathiya Limestone Mine with production capacity of 4.0 MTPA, Topsoil: 0.41 MTPA, Waste/reject: 4.43 MTPA (Total excavation: 8.84 MTPA) along with the crusher of 1400 TPH in the mine lease area of 266.302 ha, located at Bathiya, Barahiya, Karaundi, Chapna and Tamoria Villages, Tehsil: Maihar, District: Satna, Madhya Pradesh.

2. The details of the project as ascertained from the documents submitted by the Project Proponent and as revealed from the discussions held during the meeting are given as under: -

i. The mine lease area located between Latitude 24°16'19.675" N - 24°18'46.795" N and Longitude 80°52’42.166" E - 80°55'18.769" E. The mine lease area falls under the Survey of India Toposheet No: 63D/15 and falls in Seismic zone-III.
ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category ‘A’ as the mine lease area is greater than 250 ha and appraised at the Central level.
iii. The proposal was earlier considered in the 11th EAC (Non-Coal Mining) meeting held during 1-2 March, 2023 wherein the EAC after detailed deliberations deferred the proposal for want of requisite information. Then, the Project Proponent submitted the information on 20.04.2023 in Parivesh portal. Accordingly, the proposal was considered in the 15thEAC (Non-Coal Mining) meeting held during 30-31 May, 2023 wherein the EAC again deferred the proposal for want of additional information. Then, the Project Proponent submitted the information on 05.09.2023 in Parivesh portal and accordingly the proposal was again considered in the 20th EAC (Non Coal Mining) meeting held during 21-22 September, 2023.

Based on observation of EAC, compliance of observation of EAC in its meeting held during 30-31 May, 2023 made by Project Proponent are detailed below:

S. No	Observation of EAC in its meeting held during 30-31 May, 2023	Reply by Project Proponent

Minutes of 20th EAC (Non Coal Mining) meeting held during 21-22 September, 2023

<table>
<tr><td>1</td><td>The Project Proponent needs to submit the certificate from the Chief Wildlife Warden regarding movement of tigers in the study area.</td><td>The Project Proponent has submitted the letter from the Office of the Principal Chief Conservator of Forest (Wildlife), Madhya Pradesh vide Letter no. Sl.Va.Pra/Machi/GEN-506/77545 Bhopal, dated 23.08.2023 stating that the proposed mining area (2.63 km) is far from Compartment No.P-471 of Banshipur beat or Forest Range Maihar. Near proposed site of the forest range, no tiger movement has been observed for the last 10 years. On the basis of reports submitted by Divisional Forest Officer, Forest Division, Satna and Chief Conservator of Forest, Rewa Division, this office is agreed and forwarding the letter for necessary action.</td></tr>
<tr><td>2</td><td>The Project Proponent needs to verify whether the instant mine lease area falls in the Greater Panna Landscape delineated by the Wildlife Institute of India (WII).</td><td>The Project Proponent has submitted the map showing the mine lease area in the Greater Panna Landscape delineated by the Wildlife Institute of India (WII).</td></tr>
<tr><td>3</td><td>The Project Proponent needs to submit the approved action plan to monitor the movement of tigers in the vicinity of the mine lease area from the Chief Wildlife Warden.</td><td>The Project Proponent has submitted the letter from the Office of the Principal Chief Conservator of Forest (Wildlife), Madhya Pradesh vide Letter no Sl.M.Pra/Machi/Mines-157/7493 Bhopal dated 17.8.2023 stating that an action Plan has been prepared by Shri Ravikant Mishra, IFS (Retired) for conservation of Flora and Fauna in the 10 kms of limestone mining lease area (266.302 ha.) of M/s AAA Resource Pvt Ltd covering Village Bathiya, Barahiya, Karaundi, Capana and Tamoriya, Tehsil Maihar, District-Satna. The Action Plan has been prepared on the basis of condition mentioned in Sl.No.1 of the decision taken in 15th meeting of Expert Appraisal Committee of Specialists. The Action Plan has been submitted along with recommendation letter of Divisional Forest Officer, Common Forest Division, Satna.

As per recommendation letter of the Divisional Forest Officer, Common Forest Division, Satna a proposal for action plan for wildlife conservation for monitoring the tigers' movement within vicinity of 10 km of mining area an amount of Rs.16.50 lacs has been estimated, bifurcation are as under:-
<table>
<tr><th>S. No</th><th>Item of Work</th><th>Amount</th></tr>
</table>
</td></tr>
</table>

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<table>
<tr><td></td><td></td><td>(Rs. In Lacs)</td></tr>
<tr><td>1</td><td>Procurement of Camera Trap (20 Nos.)</td><td>4.0</td></tr>
<tr><td>2</td><td>Procurement of Batteries Memory Cards etc for Camera Trap</td><td>0.50</td></tr>
<tr><td>3</td><td>Procurement of hand held GPS, binoculars</td><td>2.0</td></tr>
<tr><td>4</td><td>Procurement of Mobile Phone</td><td>1.0</td></tr>
<tr><td>5</td><td>Creation of pug-mark impression pads in forest road, near water holes and other places as per requirement</td><td>2.0</td></tr>
<tr><td>6</td><td>Awareness generation, workshop of mine staff, workers, JFMC members & students by forest department</td><td>5.0</td></tr>
<tr><td>7</td><td>Honorarium and wages for camera installation in field and its data collection</td><td>2.0</td></tr>
<tr><td></td><td>Total</td><td>16.50</td></tr>
</table>

In this regard, after final approval from India Government/State Government and before commencement of the mining and within time limit and according to amended action plan for wildlife management allocated fund Rs.16.50 lacs in one time is to be deposited in Saving Bank Account No.10571048460 (IFSC: SBIN0001308), Main Branch of State Bank of India, TT Nagar, of Madhya Pradesh Tiger Foundation Society.

The Project Proponent also submitted the copy of the action plan to monitor the movement of Tigers in the vicinity of the Bathia mining lease area.
</td>
</tr>
<tr>
<td>4</td>
<td>The Project Proponent needs to revisit the action plan for the purpose of local employment in a more specific manner by mentioning the skills to be imparted, physical and financial targets and timelines.</td>
<td>The Project Proponent has submitted the revised action plan for Skill development as given below in table: -
<table>
<tr><th>S.No</th><th>Skill Development program</th><th>Through</th><th>Number of Candidates</th><th>Total Course Fee for a Course</th></tr>
<tr><td>1</td><td>Stitching & Designing course/</td><td>NSDC / ITI</td><td>37</td><td>2,25,680</td></tr>
</table>
</td>
</tr>
</table>

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<table>
<tr><td></td><td></td><td>
<table>
<tr><td></td><td>Fashion Design and Technology</td><td></td><td></td><td></td></tr>
<tr><td>2</td><td>Data Feeder Consignment tracking Warehouse - Logistic</td><td>NSDC / ITI</td><td>30</td><td>1,85,360</td></tr>
<tr><td>3</td><td>COPA (Computer Operator & Programming Assistant) / CHNM (Computer Hardware and Network Maintenance)</td><td>ITI</td><td>30</td><td>1,85,360</td></tr>
<tr><td>4</td><td>MRAC (Mechanical, Refrigerator & Air Condition)/ Electrician/ Fitter etc.</td><td>ITI</td><td>25</td><td>2,94,000</td></tr>
<tr><td>5</td><td>Carpenter / Mason / Diesel Mechanic etc.</td><td>ITI</td><td>45</td><td>2,78,040</td></tr>
<tr><td>6</td><td>Heavy Vehicle Driving</td><td>Ashok Leyland Institute of Driving Training and Research, Devardha, MP</td><td>90</td><td>9,93,000</td></tr>
<tr><td></td><td></td><td></td><td>257</td><td>21,61,440</td></tr>
<tr><td colspan="4">Contingency Amount @15%</td><td>3,24,216</td></tr>
<tr><td colspan="4">Total Budget</td><td>24,85,656</td></tr>
<tr><td colspan="4">Say (Rs. Lakh)</td><td>25.00</td></tr>
</table>
</td></tr>
<tr><td>5</td><td>The Project Proponent needs to submit the map demarcating the land to be purchased and already purchased land. PP also needs to submit the phase wise plan for land acquisition.</td><td>The Project Proponent has submitted the map demarcating the purchased land and non-purchased land within the mine lease area. The land will be purchased for mining as per approved mining plan. It is planned to obtain surface rights of the land required for first five-year mining operations within three years in a phased manner. The balance land will be purchased subsequently.</td></tr>
<tr><td>6</td><td>The Project Proponent needs to submit the copy of</td><td>The Project Proponent has submitted the copy of order dated 06.07.2023 pronounced by the Hon’ble</td></tr>
</table>

	withdrawal petition filed on 09.05.2023 before the Hon'ble High Court of Madhya Pradesh at Jabalpur Bench.	High Court of Madhya Pradesh at Jabalpur Bench stating that for the reasons assigned in the application, I.A No. 6358 of 2023 seeking withdrawal of the writ petition is allowed. The writ petition is accordingly dismissed as withdrawn with liberty to file a fresh petition.
7	The Project Proponent needs to submit the undertaking as committed before the EAC towards promotion of solar energy.	The Project Proponent has submitted an undertaking vide letter dated 29.08.2023 stating that the daily average load of electrical installation including crusher at mines will be 477 kW. Further, the proposed capacity is in line with Gazette Notification no. RG-39(I) dated 22.07.2022 of Madhya Pradesh Electricity Regulatory Commission (MPERC), 2022 which permits eligible consumer to install renewable energy generating systems under the net metering arrangements upto 500 kW capacity. The Project Proponent undertakes to install solar energy with capacity of 500 kW within two financial years.

iv. Details of Terms of Reference (ToR):

Date of application	Proposal No/ File No	Consideration by EAC	Details of ToR	Date of accord
30.09.2020	IA/MP/MIN/176767/2020 J-11015/44/2020-IA-II(M)	November 23-25, 2020&9-11 and 14-15 June, 2021	Terms of Reference to M/s AAA Resources Private Limited for Bathiya Limestone mine with Total excavation: 8.84 MTPA, Limestone: 4.0 MTPA, Waste/reject: 4.43 MTPA Topsoil: 0.41 MTPA in the mine lease area of 266.302 Ha at Bathiya, Barahiya, Karaundi, Chapna and Tamoria villages, Tehsil: Maihar, District: Satna, State: Madhya Pradesh.	02.07.2021

v. Details of Mine Lease:

Minutes of 20th EAC (Non Coal Mining) meeting held during 21-22 September, 2023

S.no	Grant of Pl/mine lease/ Order	Date of the grant	Name of the Mineral	Period of Grant	Granted by	Mine lease area in Ha
1	Letter of Intent No F3-8/2011/ 12/1	03.01.2018	Limestone	50 years	Govt. of Madhya Pradesh	266.302
2	Grant of mining lease Lr No AF 3-8/ 2014/ 12/1	13.01.2021	Limestone	50 years	Govt. of Madhya Pradesh	266.302

Details of Mine Lease Deed:

S. No	Details of grant of Mine Lease deed execution	Period of Grant		Name of the Mineral	Mine lease area in Ha
		From	To		
1	Mining Lease deed executed on 28/01/2021	28/01/2021	27/01/2071	Limestone	266.302

vi. Land Use/Land Cover of the Mine Lease Area:

Private land	258.230 ha
Government land	8.072 ha
Forest land	Nil
Total Mining lease area (MLA)	266.302 ha
Private land for crusher, workshop & other infrastructure outside the MLA	Nil

vii. Details of Mining Plan:

Mining Plan including Progressive Mine Closure Plan approved by Indian Bureau of Mines	Letter No.	MP/Satna/Limestone/MPLN/G-04/2020-21
	Date	16.09.2020
	Mineral & (Major/Minor)	Limestone (Major)
	Mine Lease Area, Ha	266.302
	Production capacity	4.0 MTPA
Mining Parameters	Quantitative Description	
Method of Mining	Opencast fully mechanized	
Drilling/Blasting	Spacing: 5.0 m Burden: 3.25 m Depth of hole: 8 m (Sub grade drilling 10% =0.8m) Charge per hole: 50 – 60 kg Powder Factor (t/kg): 5 – 6	

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	Dia. of hole: 115 mm
Geological Reserves	86.46 million tonnes
Mineable Reserves	33.96 million tonnes
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Total excavation: 8.84 Million Tonnes Per Annum (MTPA) includes Topsoil: 0.41 MTPA; Waste/Reject: 4.43 MTPA; Limestone: 4.0 MTPA
Life of mine	12 years
Mine Bench Height & Bench Width	8 m and 15-30 m
No. of Mine Benches	7
Existing Depth, m bgl	Not applicable
Ultimate Depth of Mining, m bgl	55 m bgl in block-1, 30 m bgl in block 10
Ground Water Table, m bgl	Pre-monsoon 11.63 m bgl; post-monsoon 7.06 m bgl
Details of ground water intersection	Mine workings will intersect water table around 7.06 m during post-monsoon and 11.63 m during pre-monsoon.
Individual bench slope	80º
Overall pit slope	45º
Details of existing/ proposed Crusher	One crusher of 1400 TPH is proposed. The Project Proponent has submitted that the installation of crusher plant of 1400 TPH will start immediately after obtaining CTE and the installation work will be completed within 1 year.
Mineral Beneficiation	Not applicable
RoM output size	Max. 600 mm
Transportation details including capacity of dumper/tipper, mode of transport and distance	The limestone after crushing will be dispatched by tipper trucks through road to cement plant located at Bharauli for captive use. Approximate distance is 27 km. Capacity of dumper is 40 tonnes. The ROM limestone will be crushed before being dispatched to the cement plant. Further, till the installation of crusher, sized limestone will be transported to cement plant for captive use.
Generation of Topsoil/OB & its Management during plan period & conceptual period	Top soil generation during plan period - 8,90,455 m^3 and during life of mine - 5.02 million m^3. The same will be stored temporarily for future use in plantation / reclamation.
Generation of Mineral Rejects/ Waste & its Management during	During the first five years period, 27,53,100 m^3 of waste will be generated. The part quantity will be

plan period & conceptual period	used for preparing protective bund, crusher ramp etc. and remaining will be stored in temporary waste dump. Upto conceptual period 36.70 million m^3 OB will be generated. Entire quantity will be used for backfilling of mine pits.

viii. Water requirement:

Total water requirement	412 KLD	Fresh water	412 KLD
		Treated water	Nil
Source	Ground water during initial years of operation.		
Permission for withdrawal/ intersection along with details of grant and its validity	Application has been submitted to CGWA for obtaining NOC vide application no. 21-4/1658/MP/MIN/2022 on 15/11/2022 and is in under progress. Water abstraction charges are paid and application is in advance stage of processing at CGWA, HQ. Presentation before CGWA committee made on 02ndMay 2023. PP also submitted the status of application submitted to CGWA.		

ix. Nearest village / town/ highway/railway station / water bodies:

Particulars	Particular's Name	Distance & Direction
Village	Tamoriya near block 1 and Barahiya near block 10	Adjacent
Town	Amarpatan (Block-1, Block-8 and Block-10	5.8 km- E, 8.6 km-ENE and 9.0 km-W
Highway	Maihar - Amarpatan/Rewa road	0.1 km, N
Interstate Boundary	Uttar Pradesh	Approx. 67 km, N
Railway station / railway line	Maihar	11.6 km, W
Water bodies	Serainjinala Tamas/Tons river Bihar river Bakaulinala Pathananala	1.9 km, S 6.9 km, W 7.6 km, SE 8.0 km, N 9.2 km, WNW
	The Project Proponent has submitted that two small portions of the canal passing through the lease area will not be diverted. A safety barrier of 50 meters on either side of the canal will be left and plantation will be done on the safety barrier.	
Forest	Sirgo RF; Papra RF	8.2 km-NE; 9.2 km-SE

x. Presence of Environmentally Sensitive areas in the study area:

Forest Land/Protected	Yes/No	Details of Certificate/letter issued by

Area/Environmental Sensitivity Zone		the concerned Department mentioning the Lr. no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	No	PP submitted that there is no forest land within ML area. PP also submitted the letter from the Forest Dept. Satna, MP vide letter no. 2409 dated 04-03-2021 in this regard.
National Park	No	PP submitted the letter from PCCF (Wildlife and Chief Wildlife Warden, MP) vide Lrno. No./B.Pra/Ma.Chi/Mine-85/ 3211 dated 08-04-2021 stating that there is no Protected Area / Tiger Reserve / Sanctuary / Biosphere / Wildlife Corridor / Ramsar Site / Elephant Reserve / Eco Sensitive Zone within 10km radius and also submitted the authenticated map of 10km radius from the Forest Dept. in this regard.
Wildlife Sanctuary	No	
Elephant/Tiger Reserve	No	
Eco-Sensitive Zone(ESZ) /Eco-Sensitive Area (ESA)	No	
Coastal Regulation Zone (CRZ)	No	--
Schedule-I species (No. and name of schedule-I species with authenticated letter)	No	PP submitted the List of Flora and Fauna authenticated by Forest Dept., Satna.
Wildlife Conservation Plan	No	Not Applicable
Additional information (if any)	The Project Proponent has submitted the action plan prepared by Sh. Ravikant Mishra IFS, CCF(Rtd), Bhopal to monitor the movement of tigers with participation of mine staff, workers, JFMC members, students and Forest Department.	

xi. Details of Green belt/plantation:

Proposed area for green belt/plantation and no. of saplings proposed	Greenbelt:46.64 ha and 69,960 numbers Backfilled area: 134.85 ha and 2,02,275 numbers
Budget for green plant & plantation till the end of life of mine.	₹2.722 Cr.
Budget for nursery	Included in the above figure
Details of existing plantation and its survival rate	Not applicable
No. of tree cuts in the mine lease area and compensatory afforestation	Nil and compensatory afforestation is not applicable.
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	46.64
50 m safety zone of nallah, roads, electric lines	
500 m safety zones of nearest habitation	

villages	

xii. Baseline data:

Baseline Data (Air / Water / Noise / Soil / Hydro geological study/ Traffic Study/ others)	
Period of baseline data collection	December 2020 to February 2021
Season (Summer / Pre-monsoon / Post-monsoon / Winter)	Winter
Predominant Wind direction (From)	North-West
Ambient Air Quality (no. of locations) and results	10 locations Result summary: PM_{10}: 30.7 μg/m^3- 61.7 μg/m^3 $PM_{2.5}$: 18.2 μg/m^3- 36.9 μg/m^3 SO_2: 10.8 μg/m^3 - 18.1 μg/m^3 NO_2: 14.1 μg/m^3- 24.8 μg/m^3
Noise level (no. of locations) and results	10 locations Result summary: Day Time (Lday) noise level: 41.8 dB (A) - 55.6 dB (A) Night Time (Lnight) noise level: 38.4 dB (A) - 52.8 dB (A).
Water Quality (no. of locations) and results: 11 Locations (9 ground water and 2 surface water)	See nested table below
Soil Quality (no. of locations) and results: 10 locations	See nested table below

Parameters	Surface water (5 locations)	Ground water (5 locations)
pH at 25°C	6.86 - 6.94	7.01 - 7.62
Total Dissolved Solids, mg/l	-	371.5 - 960.1
Chloride as Cl-, mg/l	48.6 - 61.2	86.5 - 282.6
Total Hardness, mg/l	154.22 - 168.54	186.21 - 440.35
DO, mg/l	5.6 - 6.1	-
BOD, mg/l	less than 3 mg/l	-
Fluoride as F, mg/l	0.4-0.5	0.6 - 1.2
Sulphates as SO_4,mg/l	31.8 - 32.6	34.6 - 112.5

Parameters	Observed Values
pH	4.92 - 7.02
Texture	Sandy clay to clay
Electrical Conductivity (μS/cm)	82.4 - 302.1
Organic Carbon (%)	0.19 - 0.46

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	Available Nitrogen as N (Kg/Ha)	38.5 - 56.4
	Available Phosphorus (Kg/Ha)	38.6 - 66.9
	Potassium (Kg/Ha)	126.9 – 210.5
Hydro geological study and results	Hydrogeological investigations were carried out in the study area during 27-30 November 2020 and 22-24 April 2021. Mine workings will intersect water table around 7.06 m during post-monsoon and 11.63 m during pre-monsoon. The block is falling under safe category as per GWRA, 2020. The total rain water available from the rain water harvesting from roof top areas and open area works out to 0.017 MCM (0.007 MCM + 0.010 MCM), which can meet 14.05% of nondomestic requirements (0.122 MCM) of the project. Recharge due to settling-cum-recharge ponds works out to 0.003 MCM. An amount of 7,93,347.40 m^3 (0.793 MCM) of rainfall collected from the reservoir area will be available for recharge resulting in post mining water table recovery in the area.	
Traffic study (no. of locations) and results: 8 locations	PP submitted that about 334 trucks per day would be required for transportation of limestone from mine to the captive cement plant. The traffic contribution from mine to the road network will thus is the 'to and fro' movement of 668 vehicles per day, which is equivalent to 2004 PCU per day (taking a PCU factor of 3 per vehicle). With present level of traffic route in three locations and the predicted increase in existing traffic due to the project, adequacy of road/highway during operational phase of the mine has been estimated by comparison with the recommendations stipulated by Indian Road Congress (IRC). The total traffic load after implementation of the mining project will be well within the IRC stipulated maximum load of 35,000 PCU/day for a four lane highway with median separator (NH-7). The estimated peak traffic in terms of PCUs is compared with the stipulated standards by IRC for traffic capacity of the roads and it can be observed that the existing road network is adequate.	
Revalidation of baseline data	The Project Proponent has submitted that one-month fresh baseline data has been collected	

during 09th March 2023 to 09th April, 2023 for the purpose of revalidation. PP also submitted that the ambient air quality has carried out in 10 locations, soil sampling in 10 locations, Surface water in 02 locations, Ground water in 09 locations and Noise survey in 10 stations within the study area.

Ambient Air Quality				
S.No	Parameters	Winter 2021	Summer 2023	Standards ($\mu g/m^3$)
1	PM_{10}	55.1-61.7 $\mu g/m^3$	64.7-72.6 $\mu g/m^3$	100
2	$PM_{2.5}$	25.9-36.9 $\mu g/m^3$	34.7-46.3 $\mu g/m^3$	60
3	SO_2	12.1-18.1$\mu g/m^3$	15.9-21.3 $\mu g/m^3$	80
4	NO_2	17.8-24.8$\mu g/m^3$	21.6-28.3 $\mu g/m^3$	80

Location code	Winter 2021		Summer 2023	
	L_{day}	L_{Night}	L_{day}	L_{Night}
N1	47.6	43.8	52	40
N2	46.9	42.9	52	39
N3	50.3	47.1	56	42
N4	47.7	44.8	53	40
N5	45.3	41.9	50	38
N6	42.8	39.7	48	36
N7	55.6	52.8	61	49
N8	41.8	38.4	47	34
N9	47.2	44.1	53	39
N10	44.9	41.8	49	37
Standards Day Time dB (A):	Industrial: 75, Commercial: 65 Residential: 55, Silence: 50			
Standards Night Time dB (A):	Industrial: 70, Commercial: 55 Residential: 45, Silence: 40			

Surface Water quality			
S.No	Parameters	Winter 2021	Summer 2023
1	pH	6.86-6.94	7.10
2	EC	586.8-659.7	1310
3	DO, mg/l	5.6-6.1	4.9
4	Total Hardness, mg/l	154.2-168.5	380
5	Fluoride (mg/l)	0.4-0.5	0.9
6	Sulphate (mg/l)	31.8-32.6	74

	Ground Water quality

S. No	Parameters	Winter 2021	Summer 2023	Standards
1	pH	7.01-7.62	7.0-7.6	6.5 to 8.5
2	Fluoride (mg/l)	0.6-1.1	1.0-1.1	1-1.5
3	Sulphate (mg/l)	34.6-112.5	45-107	200-400
4	EC	590-1560	656-1480	-
5	Total Hardness, mg/l	186.21-440.35	176-420	200 – 600
6	Chlorides, mg/l	86.5-282.6	105-225	250-1000
7	Nitrates, mg/l	3.9-22.5	11-28	45
8	Iron, mg/l	0.06-0.13	0.5-1.3	0.3

Soil quality

S.No	Parameters	Winter 2021	Summer 2023
1	pH	6.76-7.96	6.7-7.8
2	Electrical Conductivity (µmhos/cm)	82.4-302.4	119-318
3	Organic Carbon	0.19-0.46	0.14-1.0
4	Nitrogen (kg/ha)	38.5-56.4	36.85-62.74
5	Phosphorus (kg/ha)	38.6-66.9	45.5-72.9
6	Potassium (kg/ha)	126.9-246.6	132.16-252.0

PP also submitted the test report for analysis of ambient air quality, noise level, water quality and soil analysis done by Pragathi Labs & Consultants Pvt. Ltd (Lab recognized by Ministry of Environment, Forests, Govt. of India).

xiii. Public Hearing (PH) Details:

Advertisement for PH with date (pl. mention name of major national daily and one regional vernacular daily newspaper)	DainikBhaskar, PatrikaSamachar, Nav Swadesh dated 28.05.2022 and 29.06.2022
Date of PH	20.07.2022
Venue	Near Gokul Gaushala, Village Bathiya, Tehsil Maihar, Dist. Satna, Madhya Pradesh.
Chaired by	Additional District Magistrate
Main issues raised during PH	Pollution control, Environment management, Blasting, Land compensation, Employment, Road transportation, beautification of ponds, drinking water, school,

Budget proposed for addressing issues raised during PH	Rs. 122.50 Lakhs for 3 years

xiv. Rehabilitation & Resettlement (R&R):

R & R details	The Project Proponent submitted that the total mine lease area is 266.302 ha, out of which 258.230 Ha is private land covering 5 villages Bathiya, Barahiya, Karaundi, Chapna and Tamoria. PP reported that there are 639 PAFs (only land losers). The land purchase for the proposed limestone project and the rehabilitation and resettlement of project affected families will be implemented under the provisions of the Central and State Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Acts, Rules & Policies. PP also submitted that willing seller and willing buyer will be adopted, where no land owner is compelled to sell their lands and whoever is ready, they will be paid adequate compensation based on mutually agreed, which would be more than the provisions suggested in the "Madhya Pradesh Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Rules, 2015". Estimated total compensation will be around Rs.66.72 Crores. PAFs will be given preference in employment as per their qualification and skill set. The Project Proponent also submitted the activities for youths, women, farmers etc. for upgrading their skill set to make them employable, self-employed and / or increase their income level. The Project Proponent has submitted that the land will be purchased for mining in phased manner. It is planned to obtain surface rights of the land required for first five year mining operations within two years of start of operation. The balance land will be purchased in phases.

xv. Court case details:

Court Case no. and its present status	The Project Proponent has submitted the copy of order dated 06.07.2023 pronounced by the Hon'ble High Court of Madhya Pradesh at Jabalpur Bench stating that for the reasons assigned in the application, I.A No. 6358 of 2023 seeking withdrawal of the writ petition is allowed. The writ petition is accordingly dismissed as withdrawn with liberty to file a fresh petition.

xvi. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	PP submitted the Affidavit in a non-judicial stamp paper of Rs 100 bearing XN 118806 that M/s AAA Resources Private Limited would comply with all the statutory requirement & judgment of Hon'ble Supreme

	Court dated 2ndAugust 2017 in writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India &Ors.
Undertaking by Project Proponent in EIA/EMP report	The Project Proponent submitted an undertaking stating that the information and data provided in the EIA report and submitted to the Ministry are factually correct & Project Proponent is fully accountable for the same.
Undertaking by Consultant in EIA/EMP report	The Consultant submitted an undertaking vide letter dated 08.02.2023 stating that "M/s Pragathi Labs & Consultants Pvt Ltd have gone through the EIA&EMP report of AAA Resources Private Limited prepared by M/s Vimta Labs Ltd and observed that it has complied with all the prescribed Terms of Reference vide ToR letter dated 02.07.2021 and thus we hereby give our undertaking owning the contents and data provided in the report. Due to some uneventful situation M/s Vimta Labs Limited is unable to present the case, we are undertaking the responsibility of presenting the Final EC meeting before Expert Appraisal Committee, MoEF&CC".

xvii. Details of the Environmental Management Plan (EMP):

Activities	Capital cost (Rs in Crores)	Recurring cost (Rs in Crores/ annum)
Air pollution control and management	2.280	0.904
Water and wastewater control and management	0.614	0.328
Noise and vibration control and management	0.110	0.010
Soil conservation and solid waste management	0.210	0.027
Plantation & Green Belt	2.722	1.960
Total	5.936	3.229

xviii. Details of project cost and employment:

Particulars	(Rs. in Crore)
Total cost of EMP (Capital Cost of EMP + capital cost of Public hearing)	7.161
Project Cost	255.72
Employment	132 persons

3. Observation and Recommendation of the EAC: -

The EAC deliberated on the additional details submitted by the Project Proponent and the Consultant. The Project Proponent has informed the EAC that the letter has been obtained from the Office of the Principal Chief Conservator of Forest (Wildlife),

Minutes of 20th EAC (Non Coal Mining) meeting held during 21-22 September, 2023

Madhya Pradesh vide letter dated 23.08.2023 stating that near the proposed site of the forest range, no tiger movement has been observed for the last 10 years. On the basis of reports submitted by Divisional Forest Officer, Forest Division, Satna and Chief Conservator of Forest, Rewa Division, this office is agreed and forwarding the letter for necessary action. The Project Proponent has showed the map of the mine lease area in the Greater Panna Landscape delineated by the Wildlife Institute of India (WII) and also the levels of different corridor level. The Project Proponent also informed the EAC that mineral transportation route is not passing through the tiger dispersal route. The EAC asked the Project Proponent whether any mines are operating in the study area. The Project Proponent informed the EAC that many mines are operating in the study area.

The Project Proponent has informed the EAC that an action Plan has been prepared by Shri Ravikant Mishra, IFS (Retired) for conservation of Flora and Fauna in the 10 km of limestone mining lease area. A budget of Rs.16.50 lacs has been earmarked to monitor the movement of tigers and the same has been approved by the Chief Wildlife Conservator & Principal Chief Forest Warden (Wild Life), M.P vide letter dated 17.08.2023. Action plan for skill development plan has been revised and a budget of Rs 25.0 Lakhs has been earmarked for the same. The land required for operation of mining for the first five years will be acquired within 2 years. The Project Proponent has informed the EAC that Hon'ble High Court of Madhya Pradesh at Jabalpur Bench vide order dated 06.07.2023 pronounced that for the reasons assigned in the application, I.A No. 6358 of 2023 seeking withdrawal of the writ petition is allowed. The writ petition was accordingly dismissed as withdrawn with liberty to file a fresh petition. The Project Proponent also informed the EAC that as on date there is no court case pending against the project. The Project Proponent also undertakes to install solar energy with capacity of 500 kW within two financial years and also informed that the same may be completed in advance depending on the acquisition of the land.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC in its meeting held during 21-22 September, 2023 under the provisions of EIA Notification 2006 and its subsequent amendments, **recommended** the proposal for grant of Environmental Clearance to Bathiya Limestone Mine of M/s AAA Resources Private Limited for mining of Limestone with production capacity of 4.0 MTPA, Topsoil: 0.41 MTPA, Waste/reject: 4.43 MTPA (Total excavation: 8.84 MTPA) along with the crusher of 1400 TPH in the mine lease area of 266.302 ha, located at Bathiya, Barahiya, Karaundi, Chapna and Tamoria Villages, Tehsil: Maihar, District: Satna, Madhya Pradesh subject to the following specific conditions in addition to the standard EC conditions applicable for non-coal mining projects: -

i. This Environmental Clearance will be valid upto the life of the mine i.e., 12 years.

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ii. The Project Proponent needs to implement the approved action plan to monitor the movement of Tigers in the study area with an earmarked budget of Rs 16.50 Lakhs.

iii. No Nallah should be disturbed or diverted at any stage of the mining operation.

iv. As committed by the Project Proponent, installation of crusher plant of 1400 TPH shall start immediately after obtaining CTE and the installation work shall be completed within 1 year.

v. The Project Proponent needs to carry out ground vibration study through reputed institute to determine maximum charge per hole and charge to be blasted per delay so that ground vibrations are minimized and kept within permissible safe limits fixed by DGMS. Necessary permission shall be obtained from DGMS for conducting blasting.

vi. The Project Proponent shall monitor the ground induced blasting regularly for every blast performed and the values of “peak particle velocity” and “Air Over Pressure” shall be maintained below the permissible values prescribed by the DGMS, from time to time. The data needs to be maintained and submitted along with the six monthly compliance report.

vii. In the mining area, adequate number of check dams, retaining walls/structures, garland drains and settling ponds should be provided to arrest the wash-off with rain water in catchment area.

viii. The Project Proponent should install the continuous ambient air quality monitoring stations (CAAQMS) as per the scientific study and in consultation with CPCB/SPCB. The real time data so generated should be displayed digitally at entry and exit gate of mine lease area for public display and shall be linked to server of CPCB/SPCB.

ix. The Project Proponent shall monitor the air quality, noise level, water quality, water level and ground vibration during drilling and blasting at the edge of the mine, near the village, crusher and at other sensitive receptors and such collected data shall be submitted quarterly to the Ministry’s Regional Office.

x. The Project Proponent shall strictly adhere to the skill development plan and implement the same with an earmarked budget of Rs 25.0 Lakhs.

xi. As committed before the EAC, the Project Proponent needs to install solar energy with capacity of 500 kW within and the same may be completed in advance depending on the acquisition of the land.

xii. The Project Proponent needs to make provision for permanent water sprinklers so as to reduce the water consumption. Further, 10 nos. of fog canon/mist sprayer of atleast 40 m throw shall be installed at various locations in the mine area. Effective dust suppression system shall also be adopted at other parts of the mining lease to arrest the fugitive dust emission.

xiii. The air pollution control equipment's like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, and other areas prone to air pollution. PP shall take necessary measures to avoid generation of fugitive dust emissions. The dense plantation shall be carried out in the vicinity of the crusher. The Stack emission monitoring of the Crusher shall be carried out at periodic intervals.

xiv. The Project Proponent needs to complete the entire 7.5 m peripheral plantation and safety barrier plantation within three years from the start of mining operations. The Project Proponent should plant quality sapling of appropriate height of native and fruit bearing species. In case of tall transplants (seedlings) the seedlings should have proper trained root stock with root biomass commensurate with seedling height to ensure good growth after out planting. Plantation shall be undertaken in consultation with the State Forest Department. The Project Proponent shall make the actual count on the saplings planted and its survival rate and in case of failure of achievement of 95% survival rate, action plan for achieving the target survival rate shall be submitted to the Ministry's Integrated Regional Office.

xv. The budget of Rs 122.50 Lakhs to address the concerns raised by the public in the public hearing to be completed within 3 years from the date of start of mining operations. PP shall comply with all action plans made for public hearing concerns and make regular maintenance and record the progressive activity outcomes. The Project proponent shall ensure that the activities proposed under the public hearing is different from the CSR activities.

xvi. The Project Proponent shall create awareness among the local people working within the project area as well as its surrounding area on the ban of Single Use Plastic (SUP) in order to ensure the compliance of Notification published by

MoEF&CC on 12/08/2021. A report, along with photographs, on the measures taken shall also be included in the six monthly compliance report.

xvii. The Project Proponent should adopt the proper mitigation measures as proposed under EMP with budgetary provision of Rs 5.936 Cr. The adoption of mitigation measures and monitoring of the same as proposed in the EMP shall be done under the supervision of the qualified environmental personnel. The implementation status of the same shall be submitted to the Ministry's Integrated Regional Office.

xviii. The Project Proponent should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground). A dedicated team to oversee environment management shall be setup at site which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis instead of engaging environment monitoring laboratories/consultants. Any non-compliance or infringement should be reported to the concerned authority.

xix. The Project Proponent shall explore the possibility of using atleast 20% of Electric vehicles/CNG/Solar instead of diesel operation within three years.

xx. NoC from the Central Ground Water Authority (CGWA)/ Concerned Local authority, as the case may be, shall be obtained before drawing the ground water for the project activities, State Pollution Control Board / Pollution Control Committees shall not issue the Consent to Operate (CTO) under Air (Prevention and Control of Pollution) Act and Water (Prevention and Control of Pollution) Act till the project proponent shall obtain such permission.

xxi. The Project Proponent shall also organize employment-based apprenticeship/ internship training program every year with appropriate stipend for the youth and other programs to enhance the skill of the local people. The data should be maintained for the training imparted to the persons and the outcome of the training, for the assessment of the training program should be analyzed periodically and improved accordingly. The preference shall be given to the local people for the purpose of employment and PP shall strictly adhere to the skill development plan for the work force.

xxii. The Project Proponent should periodically monitor and maintain the health records of the mine workers digitally prior to mining operations, at the time of

operation of mine and post mining operations. Regular surveillance on occupational health shall be carried out every year for mine workers. PP shall also organize medical camp for the benefit of the local people and also the monitor the health impacts due to mining activity.

xxiii. The mining lease holders shall, after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. The implementation report of the above said condition shall be submitted to the Ministry's Regional Office.

Additional Agenda:

2.5 Bauxite mining project of M/s Panditrao Mines and Minerals Private Limited with production capacity of 0.80 MTPA in the mine lease area of 90.0 ha, located at Village Minche Budruk, Taluka-Budhargarh, District-Kolhapur, Maharashtra - Environmental Clearance (EC)

The instant proposal is regarding review of the minutes of EAC (Non-Coal Mining) held during 3-4 May, 2023 and requistion for revocation of the abeyance order.

2. Observation and Recommendation of the EAC:

The EAC noted that earlier the Project Proponent sought deferment on consecutive two EAC meetings held during 11-12 July, 2023 and 31st July & 1st August, 2023. The EAC also noted that again the Project Proponent sought deferment vide email dated 20.09.2023 for the third time and informed that the Mr. Pandit Rao who has been authorized as Nominated owner is not feeling well and requested to defer the proposal. Based on the request of the Project Proponent vide email dated 20.09.2023 the EAC **deferred** the proposal.

2.6 Report of the field visit undertaken by EAC sub-committee during 17-19 August, 2023 at Mukam Bauxite mine of M/s Chhattisgarh Mineral Development Corporation Ltd for mining of Bauxite with Total Excavation of 802977.5 TPA [384615.4 TPA (ROM) & OB 418362.1 TPA] in the mine lease area of 110.563 Ha, located at Village: Mukam, Tehsil- Bodla, District- Kabirdham, Chhattisgarh – [File. No: IA-J-11015/37/2022-IA-II(NCM), Proposal No: IA/CG/MIN/417404/2023] – Environmental Clearance (EC)

The instant proposal is for grant of Environmental Clearance (EC) for mining of Bauxite in Mukam Bauxite mine of M/s Chhattisgarh Mineral Development Corporation Ltd with Total Excavation of 802977.5 TPA [384615.4 TPA (ROM) & OB 418362.1 TPA]

in the mine lease area of 110.563 Ha, located at Village: Mukam, Tehsil- Bodla, District-Kabirdham, Chhattisgarh.

2. The project was considered in the 12th EAC (Non-Coal Mining) meeting held during 21-22 March, 2023. During the meeting, the EAC observed that the Project Proponent/Consultant was unable to bring out the technical details before the EAC. The EAC felt that the issues related to Wildlife and measures for protection of tiger have not been properly addressed and due to sensitivity of the Phen Wildlife Sanctuary, BufferZone of Kanha National Park and Kanha-Achanakmar Tiger Corridor, it is necessary to ascertain the ground reality. The EAC was of the view that a site visit needs to be conducted by a sub- committee comprising of EAC Members, officers from MoEF&CC and representative of the National Tiger Conservation Authority (NTCA). The EAC opined that the Ministry may constitute a sub-committee and submit its report to enable the committee to take a decision on the proposal. Further M/s Chhattisgarh Mineral Development Corporation Ltd vide letter dated 20.07.2023 informed to the Ministry that validity of mine lease has been extended till 26.03.2024.

3. Accordingly, Ministry vide letter dated 31.07.2023 constituted a sub-committee comprising of the following members to ascertain the ground realities of the project.

1. Shri N K Vasu, EAC Member
2. Shri Bandi Ramchandra Reddy, EAC Member
3. Shri Pankaj Verma, Scientist E and MS, EAC (NCM), MoEF&CC
4. Dr Saurabh Upadhyay, Scientist C, MoEF&CC
5. Dr Purshottam R Sakhre, Scientist E, Representative of Regional Office at Nagpur.
6. Dr Anil Dashahre, Biologist, Representative of NTCA

The Committee members conducted a day-long field visit on 18.08.2023, visiting the mine site and proposed mining pits within the mine lease area. During the field visit, it was slightly raining. The project proponent gave a brief overview about the existing structure of the mine and the proposed course of action planned by them. The following officers from M/s Chhattisgarh Mineral Development Corporation Ltd along with consultant were present i.e Shri Upendra Kumar, DGM/ Agent Mines, Shri Deepak Gupta, Regional Officer, Bhanupratapur and Shri Sushil Kumar Chandraker, AGM Mines.

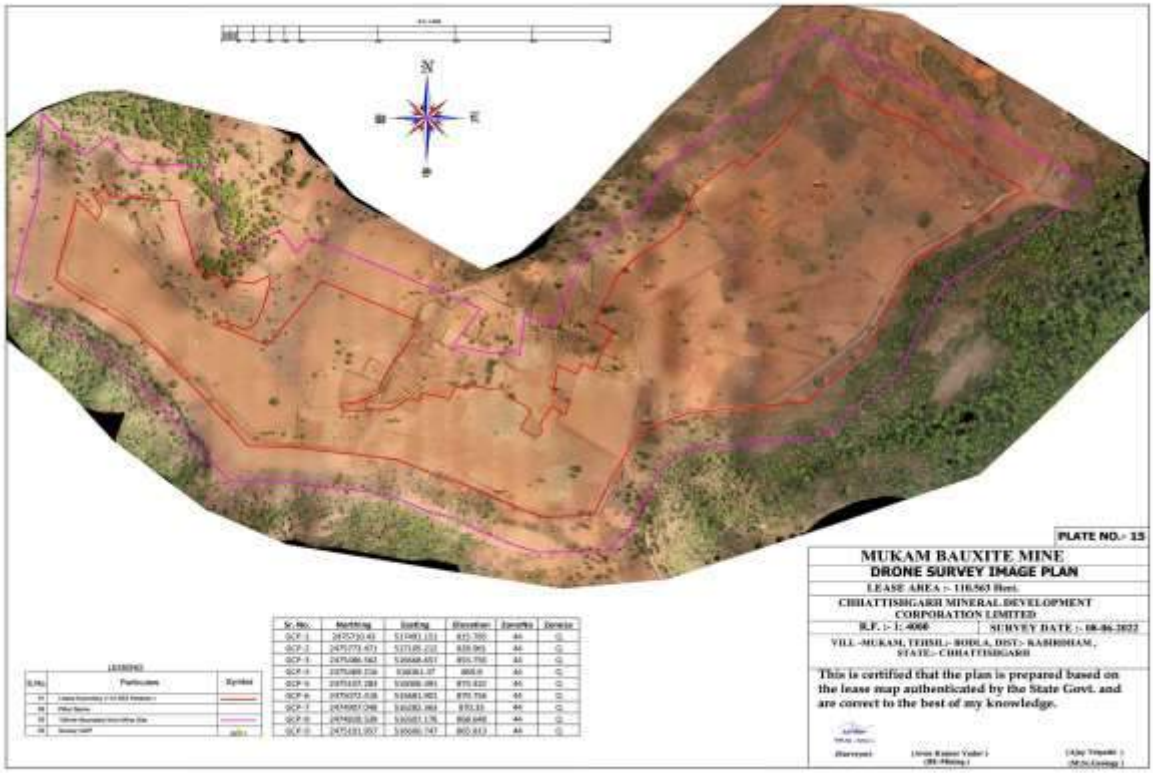
4. The sub-committee during the site visit observed the following:

Minutes of 20th EAC (Non Coal Mining) meeting held during 21-22 September, 2023

The proposed mine is located in village Mukam, Tehsil Bodla, District Kabirdham, Chhattisgarh. The village Mukam is adjacent to the site. The sub-committee found a school is situated near the mine site.

Proposed mining area with an extent of 110.0563 ha, is located at the Kawardha forest division adjoining Kanha Tiger Reserve (Phen Wildlife Sanctuary) and Bhoramdeo Wildlife Sanctuary.

The GPS coordinates were written on permanent point boundary pillars which is fixed on the ground. Team compared and verified the GPS coordinates recorded vis-à-vis coordinates mentioned on permanent points as well as GIS KML file of proposed mining area provided by user agency.



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Pilar no. 59 of project site

Village Mukam adjacent to mine site

Mine site near the the pillar number 68

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GPS Map Camera
Mukam, Chhattisgarh, India
Unnamed Road, Mukam, Chhattisgarh 491559, India
Lat 22.387724°
Long 81.171315°
18/08/23 03:23 PM GMT +05:30
Google

GPS Map Camera
Tarpongi, Chhattisgarh, India
FMMR+H63, Tarpongi, Chhattisgarh 493221, India
Lat 21.483052°
Long 81.690747°
18/08/23 01:18 PM GMT +05:30
Google

Minutes of 20th EAC (Non Coal Mining) meeting held during 21-22 September, 2023

Issues of Phen Wildlife Sanctuary, BufferZone of Kanha National Park and Kanha-Achanakmar Tiger Corridor

The Project Proponent has informed that Phen Wildlife Sanctuary, Buffer Zone of Kanha National Park and Kanha-Achanakmar Tiger Corridor lies in the proximity of 10 km radius periphery of mines lying within the State of Madhya Pradesh which is about 5kms from the site of mines. The proposed mining area is situated at an aerial distance of approx. 2.18 Km from Eco sensitive zone boundary of Kanha Tiger Reserve and approx. 22.14 Km away from the Bhoramdeo WLS proposed site is outside of Eco sensitive zone of Kanha Tiger Reserve Madhya Pradesh.

As per all India Tiger Monitoring exercise 2022 report, there is no presence of tiger, but presence of Leopard and other endangered Carnivores and herbivores is recorded in the proposed mining area.

After the GIS appraisal it has been verified that the proposed area falls with the Kanha- Achanakmar corridor (Figure-1) as per corridor/adjoining area plan of TCP of Achanakmar Tiger Reserve Chhattisgarh.

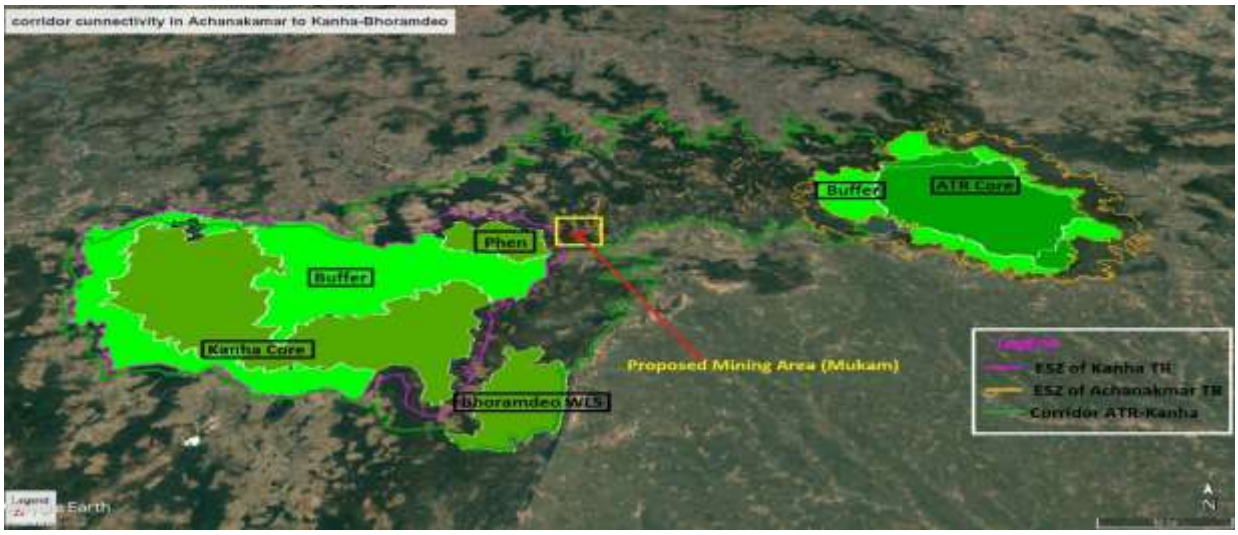

Figure-1: Map showing mining location in Achanakmar-Kanha-Bhoramdeo corridor

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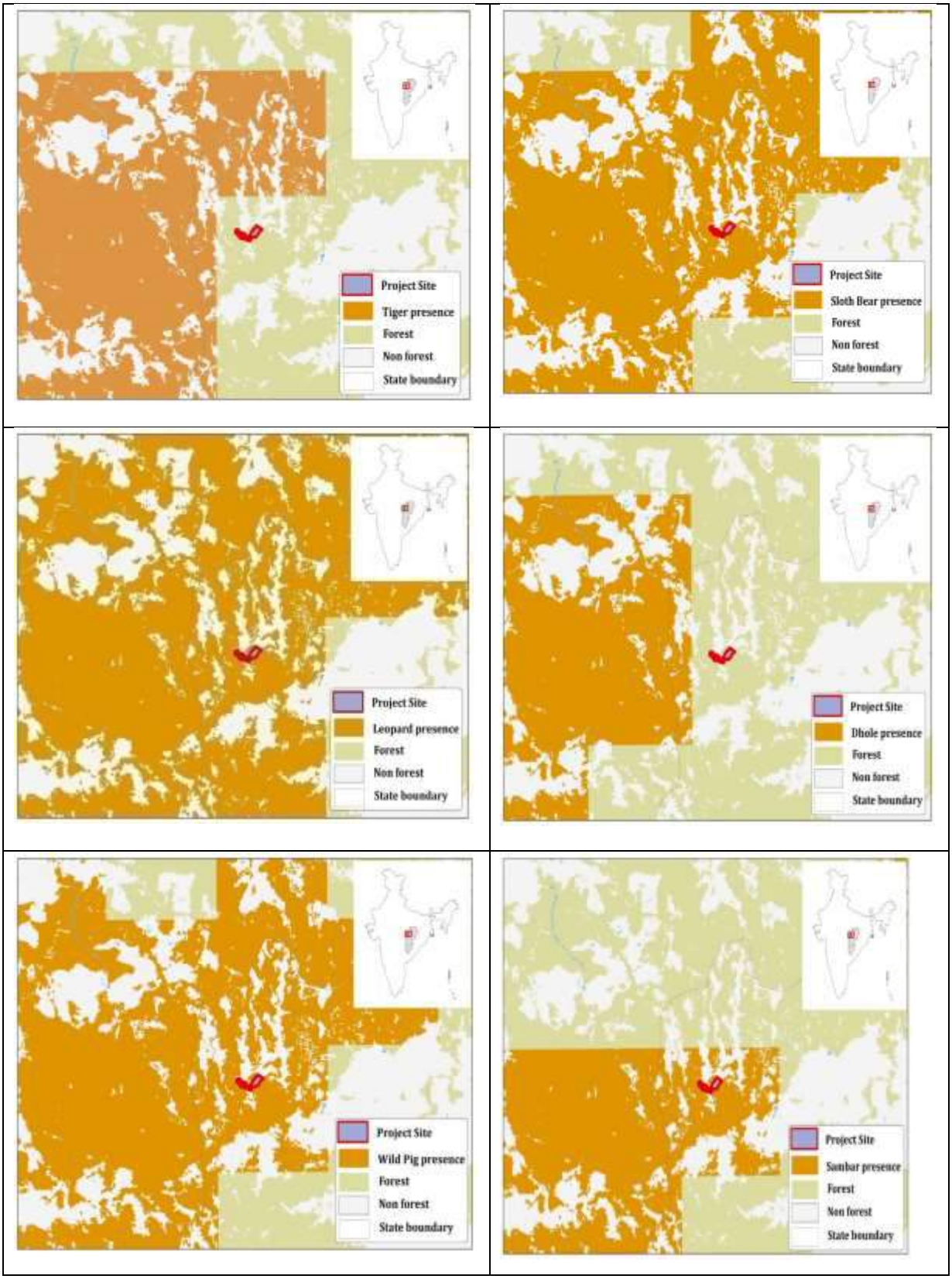

Map showing tiger and other carnivore's/ Herbivores occupied area AITE 2022

Minutes of 20th EAC (Non Coal Mining) meeting held during 21-22 September, 2023

Mining activity observed at Mine site

The sub-committee observed that the mining activity has been carried out at the mine site area. The project proponent has informed that the same has not been done by the M/s CMDC. The sub-committee suggested for seeking comments from State DMG, if any illegal mining done by project proponent.

Mining activity observed at Mine site

5. Based on its observation, the committee recommended the following: -

1. The Project Proponent shall undertake a survey to count the number of trees present in the lease area.
2. The project proponent should take permission before felling of trees and shall submit the action plan for compensatory afforestation.
3. During site visit, habitation and school are seen near the mine lease area. Project proponent should submit the precaution measures with an action plan.
4. To maintain the dust free environment, the committee was of the opinion that project proponent should include provision for permanent sprinklers for the entire mineral transportation route.
5. The Committee was of the opinion that the project proponent may explore the expand the road width and accordingly a plan needs to be submitted along with timeline and cost.
6. The Project Proponent needs to submit the sequence of mining as the mine lease area involves an area of 67.401 ha of agriculture land and shall submit the action plan for restoration of ecology.

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7. The Project Proponent needs to submit the letter from the State Forest Dept, Madhya Pradesh regarding the distance of the Tiger Corridor and ESZ along with the authenticated map and authenticated list of flora and fauna since the study area of the 10km radius of the buffer zone falling in the State of Madhya Pradesh. PP also needs to submit the letter from the State Forest Dept, Chhattisgarh regarding the list of flora and fauna by indicating the type of Schedule species found in the study area.
8. The project proponent needs to seek comments from the State DMG, if any illegal mining done by Project Proponent or not.
9. The project proponent needs to provide the exact distance of school and mukam village near the mine lease area.

6. Observation and Recommendation of the EAC: -

The EAC deliberated on the observation and recommendations of the subcommittee. After detailed deliberations, the EAC agreed to the recommendations of the subcommittee.

***

List of members of Expert Appraisal Committee participated through VC

S.No	Member Name	Member Address	Designation	21st Sept., 2023	22nd Sept., 2023
1	Dr. Dinesh Misra, IFS (Retd.)	Plot No 65, Sector 8, Gandhinagar, Gujarat, 382 008	Chairman	Yes	Yes
2	Sh. Niranjan Kumar Vasu, IFS (Retd.)	816, Shanti Nagar, Opposite Durgapur Railway Station, Jaipur-Rajasthan, 302018	Member	Yes	Yes
3	Dr. Asha Rajvanshi, Scientist 'G' (Retd.), WII	B/104/106 Rock Valley Apartments, GMSRoad, Sewla Kalan, P.O. Majra, Dehradun, Uttarakhand-248171	Member	Yes	Yes
4	Shri. Avijit Ghosh (CMD- Heavy Engineering CorporationLimited) (Retd.)	Singhee Marg, A- 604 Shahadeo Tower, P.P.Compound, Ranchi 834001, Jharkhand	Member	Yes	Yes

Minutes of 20th EAC (Non Coal Mining) meeting held during 21-22 September, 2023

5	Shri. BandiRamchandra Reddy (Former CMD-South Eastern Coalfields Limited)-(Retd.)	Flat No-503 A, Jyoti Cosmos, White Fields, Hi-Tech City, Kondapur,Hyderabad-500081	Member	Yes	Yes
6	Prof. Pramod Kumar, Professor,ShriAurobindoCollege,University of Delhi	Shri Aurobindo College, University of Delhi 1372, B-1, Vasant Kunj, New Delhi-110070	Member	No	No
7	Prof.DeveshWalia, Department of Environmental Studies	Department of Environmental Studies, NEHU,Shillong-793022 Meghalaya	Member	Yes	No
8	Dr. Suresh Tiwari Scientist-F	Indian Institute of Tropical Meteorology, Pune,New Delhi Branch, Prof. Ram NathVijMargRajinder Nagar, New Delhi - 110060	Member	No	No
9	Dr. K.G Asha Manjari, Professor, University of Mysore	10/B, "SPARSHA", 2nd Main, 2nd Cross,BhogadiIInd Stage, Mysore-570026, Karnataka	Member	Yes	Yes
10	Prof. Dev Dutt Sharma, Vice-Chancellor	Sardar Patel University,Mandi H.P. 175001	Member	No	No
11	Shri V. K. Soni, Representative of India Meteorological Department	Government of India, Ministry of Earth Sciences, India Meteorological Department, Mausam Bhawan, Lodi Road, New Delhi – 110003	Member	Yes	No
12	Shri Yogesh Kale, Representative of Indian Bureau of Mines	Controller of Mines, IBM Block D, Second Floor, Indira Bhavan, Civil Lines, Nagpur - 440001	Member	Yes	Yes
13	Shri Upendra Rapolu/Shri Niazi Mohammed	Representative of Directorate General of Mines Safety	Member	Yes	Yes
14	Shri Abhir Hede, Deputy Director	Department of Mines and Geology, Govt. of Goa	Special Invitee	-	Yes
15	Shri Pankaj Verma	3rd Floor, Vayu Block, Indira ParyawaranBhawan, MoEF&CC, Jorbagh, New Delhi- 110003.	Member Secretary	Yes	Yes

16	Dr. Saurabh Upadhyay	2nd Floor, Vayu Block, Indira ParyawaranBhawan, MoEF&CC, Jorbagh, New Delhi- 110003.	Scientist C	Yes	Yes

*****

ANNEXURE-R4-6

vedanta
transforming elements

sesa goa iron ore

Date: 01/12/2023

To,
The Member Secretary,
Ministry of Environment, Forest and Climate Change,
Govt. of India, Indira Prayavaran Bhawan,
Jorbag Road, Aliganj, New Delhi-110003

Subject: Block-I Bicholim Mineral Block (Area: 478.5206 Ha) located at Villages Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao Taluka: Bicholim, District: North Goa, State: Goa by Vedanta Ltd._ **Submission of Additional Details Sought (ADS) Reply Reg.**

Ref: **1. Proposal No. IA/GA/MIN/442593/2023 & MoEF&CC File No. IA-J-11015/3/2023-IA-II(NCM)**

2. Proposal Considered: 20th EAC meeting held during 21-22 Sept., 2023 (Agenda Item No. 2.2)

3. Minutes of Meeting of 22nd EAC held during 14-15, Nov., 2023 uploaded on Parivesh 2.0 Web Portal

Respected Sir,

With reference to the aforesaid subject and above cited reference; we would like to apprise that application of the above-mentioned proposal was submitted on Parivesh 2.0 Web Portal for obtaining Environment Clearance. Proposal for EC was present before the EAC (Non-coal Mining) in its 20th Meeting held on 22.09.2023. Minutes of 20th EAC was uploaded on Parivesh Web Portal and committee asked to submit the Reply of Additional Details. The EAC was of the view that a site visit needs to be conducted by a sub-committee comprising of EAC Members and Officers from MoEF&CC.

Accordingly, the Ministry vide letter dated 09.10.2023 constituted a sub-committee to conduct the site visit during 29th to 31st Oct., 2023. Subsequently, the committee undertook the day long field visit on 30.10.2023.

The EAC Meeting held during the 14-15th Nov., 2023 and Report of the Hon'ble sub-committee was discussed.

Now, we are herewith submitting the following documents for further consideration.

A. Reply of Additional Details Sought (ADS) raised in 20th EAC meeting held on 22.09.2023.

B. Reply of the recommendations of the Hon'ble sub-committee.

We request your good self to kindly consider our proposal in upcoming EAC for grant of Environment Clearance.

Thanking you,
Yours faithfully,
For Vedanta Limited

Dhirajkumar Jagdish
Dy Chief Executive Officer-Iron ore Goa
Authorised Signatory

Encl: As above

VEDANTA LIMITED
Sesa Goa iron ore: Sesa Ghor, 20 EDC Complex, Patto, Panjim, Goa – 403 001, India
T +91 0832 2460600 | Website: www.sesagoaironore.com

Registered Office: Vedanta Limited, 1st Floor, 'C' wing, Unit 103, Corporate Avenue, Atul Projects, Chakala, Andheri (East), Mumbai 400093, Maharashtra, India.
CIN: L13209MH1965PLC291394

Sensitivity: Public (C4)

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GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
(IMPACT ASSESSMENT DIVISION)
NON-COAL MINING SECTOR
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SUMMARY RECORD OF 20TH MEETING OF THE COMMITTEE OF THE RE-CONSTITUTION OFEXPERT APPRAISAL COMMITTEE FOR ENVIRONMENTAL APPRAISAL OF NON-COAL MINING PROJECTS CONSTITUTED UNDER THE EIA NOTIFICATION, 2006.

The 20th meeting of the Re-constitution of Expert Appraisal Committee (EAC) for Environmental Appraisal of Mining Projects (Non-Coal) of the Ministry of Environment, Forest and Climate Change was held during 21-22 September, 2023 through video conference. The list of participants is annexed herewith. After login of the Committee Members through video conference link provided by NIC discussion on each of the Agenda Items was taken up ad-seriatim.

(1.0) Deliberation & Circulation on the Minutes of 19thEAC (Non-Coal Mining) meeting held during 24-25 August, 2023:

The minutes of the 19th EAC meeting held during 24-25 August, 2023 were placed before the members of the EAC.

Day 1: 21st September, 2023 (Thursday)

1.1 Proposal for Mining of Iron Ore in Jilling Langalotta Iron Ore Mine of M/s Odisha Mining Corporation Limited with total excavation of 17.4385 Million TPA [Saleable Iron ore- 7.7723 Million TPA, Mineral rejects-2.2276 Million TPA, Waste-7.4385 Million TPA, Topsoil: Nil] along with existing: 5 nos. with Total Capacity - 1400 TPH (Stationary Crushing Unit), 2 x 300 TPH, 2 x 200 TPH, 1 x 400 TPH, Existing: 3 nos. with Total Capacity - 150 TPH (Mobile Screening Unit), 1 x 150 TPH Mobile Screening Plant 1 x 50 TPH, Stationary Screening Plant, 1 x 100 TPH Mobile Screening Plant, New: 10 nos. with Total Capacity - 4550 TPH (Crushing Unit), 1x800 TPH, 3 x 600 TPH, 3 x 400 TPH, 1 x 300 TPH, 1 x 250 TPH, 1x 200 TPH, New: 4 nos. with Total Capacity - 1000 TPH (Portable Screening Units), 4 x 250 TPH in the mine lease area of [456.037 ha (as per DGPS)/456.100 ha (as per RoR)] located at Village(s) Jalahari, Jurudi, Banspani, Khuntapani, Bholebeda, Jajang, Baitarani Reserve Forest in Barbil Tehsil, Keonjhar District, Odisha - [Proposal No: IA/OR/MIN/440292/2023, IA-J11015/34/2021-IA-II(M), EIA Consultant: M/s. MECON Ltd] - Environmental Clearance (Auction mine)

The instant proposal is for mining of Iron Ore in Jilling Langalotta Iron Ore Mine of M/s Odisha Mining Corporation Limited with total excavation of 17.4385 Million TPA

xi. The Project Proponent needs to carry out the Public Hearing as per provisions of EIA Notification, 2006. PP should also submit the time bound action plan on concerns of the public through a separate budget with capital expenditure with a timeline of 3 years. The Project proponent shall ensure that the activities proposed under the public hearing shall be different from the CSR activities.

xii. The Project Proponent shall carry out the assessment of impact due to the proposed project as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP. The project proponent shall conduct hydrological study for projects involving intersection of ground water table as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.

xiii. The Project Proponent shall explore the possibility of reduction of specific water requirement by optimization / technology up gradation, etc. The efforts shall be delineated in the EIA/EMP.

xiv. The Project Proponent shall prepare the scheme for mandatory recycle/re-use of water as specified by the Central Ground Water Authority for different category areas seeking NoC for ground water withdrawal and the shall submit as part of EIA/EMP report.

xv. The Action Plan on the compliance of the recommendations of the CAG as per Ministry's Circular No. J-11013/71/2016-IA.I(M), dated 25.10.2017 needs to be submitted at the time of appraisal of the project and included in the EIA/EMP Report.

2.2 Bicholim Mineral Block- Block 1 (Auction Block) of M/s Vedanta Limited for mining of Iron Ore with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA(Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located in Bicholim, Bordem, Lamgao, Mulgoa, Mayem & Sirigao Villages of Bicholim Taluka of North Goa District, Goa - [F.No: IA-J-11015/3/2023-IA-II(NCM), Proposal No: IA/GA/MIN/442593/2023, Consultant: M/s Mineral Engineering Services] – Environmental Clearance (EC)

The instant proposal is for mining of Iron Ore in Bicholim Mineral Block – Block 1 (Auction Block) of M/s Vedanta Limited with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA (Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located in

Bicholim, Bordem, Lamgao, Mulgoa, Mayem & Sirigao Villages of Bicholim Taluka of North Goa District, Goa.

2. The details of the project as ascertained from the document submitted by the Project Proponent and as revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude: 15º34'20.518"N to 15º 36'54.018"Nand Longitude: 73º54'4.754"E to 73º57'09.51"E. The mine lease area falls under the Survey of India Toposheet No: D43B14and falls in Seismic Zone-II.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mining lease area is greater than 250ha and appraised at the Central level.

iii. Details of Terms of Reference (ToR):

Date of application	File. No/ Proposal No	Consideration	Details	Date of accord
16.03.2023	F.No: IA-J-11015/3/2023-IA-II(NCM) IA/GA/MIN/ 422323/2023	3-4 May, 2023	Terms of Reference (ToR) to M/s Vedanta Limited for mining of Iron Ore in Bicholim Mineral Block – Block 1 (Auction Block) with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA (Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located in Bicholim, Bordem, Lamgao, Mulgoa, Mayem & Sirigao Villages of Bicholim Taluka of North Goa District, Goa	16.06.2023

iv. Details of Mine Lease:

a) The Project Proponent has submitted the Letter of Intent (LoI) granted by the Government of Goa vide Lr No: DMG/25/Auction Cell/LOI-function/2023/2801 dated 13.01.2023 for grant of mining leasefor Block I - Bicholim Mineral Block for Iron Ore in Bicholim, Bordem, Lamgao, Mulgao Mayem & Sirigao villages, Bicholim Taluka, North Goa District over an area of 478.5206 Hectare for a

period of 50 (fifty) years in pursuant to Rule 10(2) of the Auction Rules. This letter of intent is valid for a period of 3 (three) years from the date of its issuance.

v. Land Use/Land Cover of the Mine Lease Area:

Private land	421.1153 Ha
Government land	57.4053 Ha
Total Mining lease area (MLA)	478.5206 Ha
Private land for crusher, workshop & other infrastructure outside the MLA	Not Applicable

vi. Details of Mining Plan:

Review and Mining Plan approved by Indian Bureau of Mines, Goa	Letter No.	No. MCDR-MPC|1|2O23-GOA-IBM_ RO_ GOA
	Date	26.05.2023
	Mine Lease Area	478.5206 Ha
	Mineral	Iron Ore (Major Mineral)
Mining Parameters	Quantitative Description	
Method of Mining	Opencast mechanized mining without Drilling & Blasting	
Drilling/Blasting	Not Applicable	
Total Reserves and Resources	84.73 Million Tonnes	
Proved Mineral Reserve	36.071 Million Tonnes	
Life of mine	30 years	
Bench Height	7 m	
Bench Width	10 m	
Individual bench slope	70^0	
Overall pit slope	$<26^0$	
RoM output size	Less than 500 mm	
Crushing/Screening	Mobile Dry Crushing and Screening plant shall be available within the proposed mine to handle 4 MTPA of crude ore. The primary crusher will consist of 1 no. of Jaw crusher of capacity 120 TPH with an input feed of -500mm and shall produce output of -70 mm. It shall be followed by secondary crushers, 2 no.s of capacity 300 TPH and 200 TPH respectively. The input feed size shall be -70mm and output feed size obtained shall be -40mm. The Screening Plants of capacity -600TPH shall be installed where input the feed size shall be -70mm to obtain product of -40mm lumps & -10mm fines.	
Transportation details	ROM/Iron ore or Screened/crushed material will be transported by 10.5 Tonne trippers from Mine to Sarmanas jetty through a dedicated road. The total	

	distance from the mine to Jetty is 5.48 km of which 0.94 km stretch is public road and remaining 4.54 km is company owned dedicated road.
Dumpers capacity	40 tonne (within mines)
Waste handling and Disposal	During the mining period, the waste generated by mining will be temporarily stacked within the mining lease area as surface dump and backfilled in the exhausted portion of the pits. The total waste to be generated during the plan period is about 69.85 million tonnes. An area of 6.7146 Ha shall be utilized for Dumps and Material stocking at the conceptual stage of mining.

vii. Water requirement:

Total water requirement	664 KLD	Pit Water	628 KLD
		Ground water	36 KLD
Source	Water from Mine Pit will be used for dust suppression, Vehicle washing and Green belt. Water for domestic requirement will be met from bore well.		
Permission	The Bore wells are registered with Goa State Water Resource department. Application for using mine pit water will be submitted.		

viii. Nearest village / town/ highway/railway station / water bodies/monument:

Particulars	Particular's Name	Distance & Directions
Village	Lamgoa	Within the lease area
Town	Bicholim Town	0.5 km, East
Road	State Highway SH-1	0.65 km, East
Railway Station	Tivim Railwaystation	10.5 km, North
Water Bodies	Asnora River Mayem Lake Mandovi River	Touching lease boundary at one of the points 0.46 km 2.3 km, SW
School	Mulgao Govt. Primary School	Within the lease area
Worship places	Namuzgah/Idgah Shri Lairae Temple	Within the lease area 0.86 km
Caves/Fort	300m buffer from Lamgao caves Khorjuvem Fort: 2 km	

ix. Presence of Environmentally Sensitive areas in the study area:

Forest Land/Protected Area/Environmental Sensitivity Zone	Yes/ No	Details of Certificate/letter/Remarks
Forest Land	Yes	Mayem Forest Common Boundary with the mine lease area

		The following Reserve Forests are located within 10 km radius of the mine lease area such as Kharapal RF -6.7 km Kasarpal RF - 5.1 km Ambadgaon RF - 7.6 km
National Park/Wildlife Sanctuary, ESZ/ESA etc.,	No	The Project Proponent has submitted the letter from the Office of the Dy. Conservator of Forests vide Lr No: DCF(WP)/Tech/Digi/Vol-I/75/2022-23/ 968 dated 23.01.2023 stating that the proposed Bicholim Mineral Block-I is not situated within 10 km radius from the boundary of any the protected area in the State of Goa. PP also submitted the authenticated map dated 24.01.2023 showing the distance of the following Wildlife Sanctuary from the mine lease area. i. Madei Wild life Sanctury-14.105 km, E ii. Salim Ali Bird Sanctuary -10.553 km, SW iii. Bondla Wildlife Sanctuary -20.476 km, SE The Project Proponent also submitted the letter dated 22.02.2023 obtained from the Director (Environment) & Member Secretary, Goa-SEIAA stating that the Authority on perusal of Draft Zonal Master Plan for Eco-Sensitive Zones of Goa 2022 noticed that Eco Sensitive Zones declared by the Ministry of Environment & Forest in the State of Goa covers six Talukas such as Sattari, Dharbandora, Ponda, Sanguem, Canacona and Quepem, Bicholim taluka is not inlcuded in Draft Zonal Plan and it is not part of Eco Sensitive Zones. It is also clarified that Block-I Bicholim Mineral Block of Vedanta Ltd is also not a part of any Eco Sensitive Area.
Schedule-I species	Yes	The Project Proponent has submitted the letter from the Office of the Dy. Conservator of Forests vide Lr No: 5/FCA/GEN/F&F/DCFN/TECH/2022-23 dated 04.04.2023 with regard to list of Flora and Fauna species present in core and buffer zone. The following Schedule-I species are found in the study area such as 1 Common leopard (*Felidae*) 2 White-bellied Sea-Eagle(*Accipitridae*) 3 Indian Peafowl (*Phasianidae*) 4 Crimson rose- Butterfly (*Papilionidae*)

Status of Wildlife Conservation Plan	Yes	Wild Life Conservation Plan is prepared and submitted for approval of Chief Wildlife Warden (CWLW) on 19.06.2023. PP has submitted the copy of the acknowledgement from Chief Wildlife Warden.

x. Green belt/plantation details:

Proposed area for green belt/plantation	105.8894 ha
Budget for green plant& plantation till the end of life of mine.	Rs159.0Lakhs
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	25 ha
50 m safety zone of nallah, roads, electric lines	
Additional information (if any)	80.8894 ha (on backfilled area)

xi. Details of Baseline data:

Baseline Data (Air / Water / Noise / Soil / Ground water table/ others)			
Period of baseline data collection	March, 2023 to May, 2023		
Season (Summer / Pre-monsoon / Post-monsoon / Winter)	Summer Season		
Ambient Air Quality (no. of locations) and results	No. of Locations	Parameters	Results
	9	PM10	27.0 to 56.0 μg/m^3
		PM2.5	14.0 to 36.0 μg/m^3
		SO2	4.0 to 13.0 μg/m^3
		NO2	<4.0 to 18.0 μg/m^3
Noise level (no. of locations) and results	No. of Locations	Parameters	Results
	09	During Day Time [Leq dB(A)]	43.1 to 61.7
		During Night Time [Leq dB(A)]	35.9 to 49.3
Water Quality (no. of locations) and results	Surface water quality		
	No. of Locations	Parameters	Results
	07	pH	6.35 - 7.39
		TDS (mg/l)	72 - 11240
		Fluoride (mg/l)	<0.1
		Chloride (mg/l)	18 - 5620
		Fe (mg/l)	<0.05
		Dissolved Oxygen (as O_2), mg/l	6.2 – 6.9
		Biochemical Oxygen Demand	<3.0

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Groundwater Quality
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<tr><td>TDS (mg/l)</td><td>20 – 150</td></tr>
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<tr><td>Chloride (mg/l)</td><td>5.0 - 19.0</td></tr>
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<tr><td rowspan="5">07</td><td>pH</td><td>5.38 to 5.78</td></tr>
<tr><td>Electrical Conductivity (mohs/cm)</td><td>0.28 to 0.318</td></tr>
<tr><td>Nitrogen (kg/ha)</td><td>200 to 275</td></tr>
<tr><td>Phosphorus (kg/ha)</td><td>14.3 to 17.8</td></tr>
<tr><td>Potassium (kg/ha)</td><td>230 to 263</td></tr>
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xii. Public Hearing (PH) Details:

Advertisement for PH with date	07.07.2023 Regional: Bhangar Bhui, Heraldo, Lokmat & Free press journal (Mumbai Edition) News papers
Date of PH	11/08/2023
Venue	Narayan Zantye Multipurpose Sports Complex, Sarvan, Bicholim, Goa
Chaired by	District Collector, North Goa
Main issues raised during PH	Pollution, impact on ponds, Support for Education, Health, Agriculture Development & Skill Development, Employment.
Budget proposed for addressing issues raised during PH	Rs 309.3 Lakhs

xiii. Rehabilitation & Resettlement:

R & R details	There is presence of habitation within ML Area at Mulgao and lamgao villages. Safety Buffer of 50m will be maintained from the habitations. No Rehabilitation & Resettlement Plan is proposed during life of mine.

xiv. Court case details:

Court Case	Yes
Additional information (if any)	First Case (Suresh Zantye & ors. v. State of Goa & Ors.):

	1. WP(Civil) 2478 of 2022 (Filing number) before the High Court of Bombay at Goa 2. The said writ petition has been filed against the State Government and seeks to challenge the identification of properties bearing survey no. 90/1(part) and 96/0 as part of the recently auctioned Bicholim mine. The petition alleges violation of Rule 5 &6 of Mineral Evidence Rules and Section 10B of MMDR, Act by the State of Goa and DMG. The petitioner has prayed for quashing of auction notice to the extend it includes the property of the petitioner and grant a writ of mandamus against the Respondents. 3. Case status is pending. 4. No adverse orders have been passed. 5. As per the last order the matter has been disposed of by the HC on 17th July 2023 with a direction to the Petitioner to make a representation before the Government and the Government is to dispose of the same within four months. <u>Second Case (MSPL v. State of Goa & Ors.):</u> 1. WP 592 of 2022 2. The said writ petition seeks to challenge the constitutionality of the tender documents of Phase I auction of Goa mines. The petition alleges violation of Rule 5 & 6 of Mineral Evidence Rules by the State of Goa and DMG. The petition alleges non-disclosure of essential facts such as bore hole data, approved mining plan, production data of the previous five years and exploration data. The petitioner has prayed for quashing of auction notice to the extend it fails to include the essential facts and in the alternative to stay the auction. 3. Case status is pending 4. No adverse orders have been passed. 5. As per the last order the matter was listed on 01.09.2023. <u>Third Case (Suresh Govind Gaonkar & Ors v. Directorate of Mines and Geology & Ors):</u> 1. PIL WP 2029/2023 (F)

	2. PIL has been filed challenging state's decision to go ahead with the auction of the mining block. The said PIL also challenges the order dated 13.01.2023 which issues LOI to the successful bidder. The primary grievances of the petitioners are that village settlement are included within the mining blocks auctioned. Hence this PIL was preferred under Article 226 and 21 of the Constitution. Vedanta Limited is Respondent No. 3 in the aforementioned PIL. The matter is listed for first hearing on 25.09.23.

xv. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent has submitted the Affidavit in a non-judicial stamp paper of Rs 100 bearing no: A807037 dated 24.04.2023 stating that they will comply to the directions issued by MoEF&CC vide Office Memorandum F.No.3-50/2017.IA.III (Pt) dated 30th May, 2018 in terms of directions given Hon'ble Supreme Court in judgment dated 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India & Ors.
Undertaking of Project Proponent	The Project Proponent has submitted an undertaking stating that the Environmental Impact Assessment Report of Block-1 Bicholim Mineral Block of M/s Vedanta Ltd was prepared by M/s Mineral Engineering Services, QCI/NABET Accredited EIA Consultant at Sr.No. 55 as per list of list of accredited consultant/organizations. The Project Proponent hereby undertaken that the information and data provided in the EIA report and submitted to the Ministry are factually correct and fully accountable for the same.
Consultant submitted an Undertaking vide letter dated 02.06.2023	This is to declare that the prescribed ToRs have been complied with and that the data submitted are factually correct in respect of EIA & EMP report prepared for Block-1 Bicholim Mineral Block of M/s Vedanta Ltd, Goa.

xvi. Details of the Environmental Management Plan (EMP):

Activities	Capital cost (Crores)	Recurring cost (Lakhs/annum)

Plantation	-	7.5
Environment monitoring	44	44
Air pollution control measures	20	300
Water Treatment	-	11
Erosion control /monsoon measures	-	221
Personal protective equipment	-	15
Maintenance of fire protection systems	-	1.5
Environment awareness & training	-	5
Health	8	16
Total	72	621

xvii. Details of project cost and employment:

Particulars	(Rs. In lakhs)
Project Cost	25000 Lakhs
Employment	716 no.s

3. Observation and Recommendation of the EAC:-

The Project Proponent and the Consultant presented the KML file to indicate the site features in the study area of 10 km radius. The Project Proponent has shown the boundary of the mine lease area and informed the EAC that there are two habitations such as Mulgao and Lumgao and schools are located within the mine lease area. Two schools are located in the Mulgao Village. One school is located at a distance of 138m from the Ultimate Pit Limit (UPL) and the other school is located at a distance of 190m from the Ultimate Pit Limit (UPL). No drilling and blasting is involved. Green barriers are maintained to prevent it from the environment hazards. Tributary of Asnora River is touching the mine lease area on the western side. It has been observed that area between river & bottom pit 5 is approximately 6m AMSL which obstructs the flow of water between them, even the high flood condition and at the place where river is touching the block boundary, it is 10.93m AMSL. Hence, even during high flood level, river will not interact with the pit water. The EAC noted that there are few temples, caves and fort are present in the vicinity of the mine lease area. There will be no surface dumping and will be backfilled concurrently and there are voids available for backfilling. Later on the Project Proponent has informed that the pits will be used as a settling ponds. The EAC noted that the Project Proponent is giving two contradictory statements. The EAC asked the Project Proponent to provide the design of the settling ponds in different pits.

The Project Proponent has informed the EAC that Block-I Bicholim block is an old mine and it was auctioned to Vedanta Ltd in the year 2022 and Letter of Intent (LoI) was granted on 13.01.2023. The EAC asked the Project Proponent that after the year 2018 whether any Environmental Clearance has been granted in the State of Goa. The

Project Proponent has informed the EAC after the year 2018 there was no mining in Goa and this instant case is the first case for grant of Environmental Clearance. No forest land is involved in the mine lease area. The EAC noted that the Project Proponent has submitted that Mayem Forest common boundary is sharing with the mine lease area. The EAC was of the view that involvement of forest land within the mine lease area is not clear as there are two contradictory information given by the Project Proponent. The EAC also noted that in this regard, the Project Proponent has not submitted the letter from the Forest Dept. No National Park/Wildlife Sanctuary, ESZ/ESA etc., is located within 10km radius of the study area. An application for Groundwater withdrawal was submitted to Water Resource Department submitted on 19.06.2023. No Rehabilitation and resettlement is involved in this proposal.

The Project Proponent has informed the EAC that ROM/Iron ore or Screened/crushed material will be transported by 10.5 Tonne trippers from mine to Sarmanas jetty through a dedicated road. The total distance from the mine to Jetty is 5.48 km of which 0.94 km stretch is public road and remaining 4.54 km is company owned dedicated road. Width of the road is 7.0m. Twenty four hours continuous volume count was manually undertaken during May-2023. The EAC noted that the width of the road is not adequate. About 1205 no. of trips per day will be carried out. No. of working days will be 365. The EAC was of the view that when the rainfall is 3500 mm/year it will be difficult to carry out mining for 365 days. The Project Proponent has informed the EAC that 275 working days are considered for calculation of traffic load. The EAC asked the Project Proponent to bypass the public road and also to explore the possibility of increasing the capacity of the truck so as to reduce the no. of trips. The EAC opined that the Project Proponent needs to revisit the traffic load by considering the cycle time and waiting time. The EAC also asked the Project Proponent to strengthen the road and convert the road into concrete road.

The Project Proponent also informed the EAC that the predominant wind direction was from West to East. Wildlife Conservation Plan has been prepared and submitted to Chief Wildlife Warden (CWLW) on 19.06.2023 for approval with a budget of Rs. 50 Lakhs. At the end of conceptual stage, an area of 105 ha will be under green belt/ plantation. Eco restoration will be carried out in similar to the reclaimed activity carried out in Sanquelim mine. Public hearing was carried out on 11.08.2023 and a budget of Rs 309.3 Lakhs have been earmarked to address the concerns raised during public hearing. The EAC also noted that about 4708 written objections was submitted against the project during the public hearing. The Project Proponent has informed the EAC that the issues are same but the no. of objection letters were more in number and about 5183 no.s of letters were also received in support of the project. The EAC also noted that many complaints were received against the public hearing dated 11.08.2023. The EAC asked the Project Proponent to submit the video recording of the public

hearing. There are three court cases at present regarding the auction process and one of the court case was disposed on 17.07.2023 and will abide the directions of the Hon'ble High Court. Other two cases in the matter of MSPL v. State of Goa & Ors. in WP 592 of 2022 and in the matter of Suresh Govind Gaonkar & Ors v. Directorate of Mines and Geology & Ors. in PIL WP 2029/2023 (F) are pending before the Hon'ble High Court and no adverse orders has been passed.

The Department of Mines and Geology, Goa was invited as a special invitee to discuss the present status of mining in Goa. The Deputy Director has informed that the State Govt. is looking positive to restart the mining operations in Goa. Besides 10% DMF, there is also a scheme called Goa Iron Ore permanent fund wherein 10% of the sale value of the mineral will be spent towards community based activities as per the direction of the Hon'ble Supreme Court. The State Govt. has put up a scheme for approval before the Hon'ble Supreme Court in line with Pradhan Mantri Khanij Kshetra Kalyan Yojana (PMKKKY) Scheme. This fund has to be kept for prosperity. The report with regard to illegal mining will be obtained from the SIT and will be provided to the Ministry.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC noted that the handling of waste of 25.162 MTPA will be more than the Iron Ore production capacity of 3.0 MTPA. The EAC was of the view that the pollution potential will be more in handling of waste. The EAC not convinced with plan for backfilling and with the design of settling ponds as the annual rainfall is projected as 3500 mm/year. The EAC observed that the instant mine is located in dense vegetation area. The EAC also noted that the mine lease area is located close to the proximity of the habitations, school, forest (Mayem common boundary), river, temples, caves and fort. The EAC also observed that the Project Proponent has not properly worked out the traffic load. Many litigations were received against the public hearing/project. Further, the EAC also noted that mines were not in operation in Goa from the year 2018 and this instant proposal is a first case for grant of Environmental Clearance (EC) under auction after 5 years. Thus there is a need to ascertain the present scenario and ground reality with regards to handling of waste, settling ponds, location of waste dump w.r.t habitation, school and river, other surface features as forest (Mayem common boundary), temples, caves and fort, mineral transportation route and traffic congestion. The EAC was of the view that a site visit needs to be conducted by a sub-committee comprising of EAC Members and officers from MoEF&CC. The EAC opined that the Ministry may constitute a sub-committee and submit its report to enable the committee to take a decision on the proposal. Therefore, the EAC **deferred** the proposal for want of following additional information: -

i. The site visit report of the subcommittee.

ii. The Project Proponent needs to revisit the plan for backfilling with clearly indicating the voids area and the capacity available/required for backfilling.

iii. The Project Proponent needs to submit the design of settling ponds by considering the annual rainfall, catchment area and its discharge.

iv. The Project Proponent needs to bypass the public road and also to explore the possibility of increasing the capacity of the truck so as to reduce the no. of trips. The EAC opined that the Project Proponent needs to revisit the traffic load by considering the cycle time and waiting time. The Project Proponent needs to submit the action plan for strengthening the road and for converting the unpaved road into concrete road.

v. Since the mine lease area is sharing the Mayem Forest common boundary, the Project Proponent needs to submit the letter from the State Forest Department regarding the involvement of forest land in the mine lease area.

vi. The Project Proponent needs to submit a letter from the Department of Geology and Mining, Government of Goa clarifying whether any illegal mining within the mine lease area has been carried out or not and whether the same has been carried out by M/s. Vedanta Limited or not?

vii. The Project Proponent needs to submit the video recording of the public hearing.

2.3 Chettichavadi Jaghir Magnesite and Dunite Mine of M/s. Dalmia Bharat Sugar and Industries Limited for Total Excavation of 1.4 million Tonne per annum (MTPA)/ [including 0.06 million tons of Magnesite, 0.12 million tons of Dunite, Waste, O.B, Inter Burden, Top Soil etc.] in the mine lease area of 449.364 ha, located at Chettichavadi Village, Salem Taluk, Salem District, Tamil Nadu - [File No: 23-227/2018-IA.III(V), Proposal No: IA/TN/MIN/241375/2018, Consultant: Aadhi Boomi Mining & Enviro Tech (P) Ltd] - Environmental Clearance (Violation)

The instant proposal is for mining of Magnesite and Dunite in Chettichavadi Jaghir Magnesite and Dunite Mine for Total Excavation of 1.4 million Tonne per annum (MTPA)/ [including 0.06 million tons of Magnesite, 0.12 million tons of Dunite, Waste, O.B, Inter Burden, Top Soil etc.] in the mine lease area of 449.364 ha, located at Chettichavadi Village, Salem Taluk, Salem District, Tamil Nadu.

2. The details of the project as ascertained from the document submitted by the Project Proponent and as revealed from the discussions held during the meeting are given as under:

PART A

REPLY OF ADDITIONAL DETAILS SOUGHT RAISED IN 20TH EAC MEETING HELD ON 22.09.2023

Point wise response to Additional Details Sought w.r.t Block 1 Bicholim mineral Block

Point No. 1 The site visit report of the sub-committee.

Reply: The Ministry vide letter dated 09.10.2023 constituted a sub-committee to conduct the site visit during 29th to 31st Oct., 2023. Subsequently, the committee undertook the day long field visit on 30.10.2023. The EAC Meeting held during the 14-15th Nov., 2023 and Report of the Hon'ble sub-committee was discussed. Reply of the recommendations of the Hon'ble sub-committee has been prepared and same is enclosed as ***Part B.***

Point No. 2 The Project Proponent needs to revisit the plan for backfilling with clearly indicating the voids area and the capacity available/required for backfilling.

Reply: 05 numbers of earlier mined out pits have been identified for backfilling purpose to accommodate waste to be generated in future besides additional pits to be made available progressively with mining till conceptual period. The physical details of available pits to be converted into backfilled areas are as follows:

Existing Available Pits, Area, Depth & Volume for Backfilling (Table 1)							
S. No.	*Mine Pit Location/ ID*	*Total Area of Pit in Ha*	*Area Available for Backfilling (Ha)*	*Depth (m)*	*Top RL (m)*	*Bot RL (m)*	*Vol (m3)*
1	*1 Top*	*22.4367*	*20.9942*	*99*	*62*	*-37*	*19356183*
2	*2 Top*	*13.0803*	*9.9465*	*60*	*60*	*0*	*2968920*
3	*3 Top*	*16.0596*	*13.1650*	*70*	*110*	*40*	*2240000*
4	*¾ Bottom*	*-*	*-*	*109*	*102*	*-7*	*-*
5	*5 Top*	*37.0242*	*35.7242*	*78*	*98*	*20*	*14213124*
6	*5 Top CB*	*-*	*-*	*77*	*124*	*47*	*-*
7	*5 Bottom*	*15.4196*	*12.0840*	*92*	*87*	*-5*	*7035240*
Total		*104.0204*	*91.9139*				*45813467*

Further, the details of pits to be made available progressively with mining till conceptual period and converted into backfilled areas are as follows:

Proposed Working Pits, Area, Depth & Volume will be available for Backfilling (Table 1A)								
S. No.	*Mine Pit Location/ ID*	*Total Area of Pit in Ha*	*Area Available for Backfilling (Ha)*	*Depth (m)*	*Top RL (m)*	*Bot RL (m)*	*Vol (m3)*	*Void availability for Backfilling*
1	*2 Top*	*43.1944*	*39.2331*	*116*	*91*	*-25*	*10518996*	*In 5th year*
2	*¾ Bottom*	*39.4606*	*34.6140*	*169*	*102*	*-67*	*15412643*	*End of 3rd year*
3	*2 Top*	*68.52*	*65.6420*	*113*	*103*	*-10*	*47912000*	*In 6th year to 10th year*
4	*3 Top/ 2top Combined*	*38.2545*	*36.6500*	*118*	*108*	*-10*	*38161200*	*In 11th year to 13th year*
5	*4 Top/3 Top Combined*	*-*	*-*	*84*	*73*	*-11*	*-*	*In 11th year to 13th year*
6	*5 Top CB Pit*	*-*	*-*	*168*	*94*	*-74*	*-*	*In 11th year to 13th year*
Total		*189.4295*	*176.1391*				*112004839*	

Sensitivity: Public (C4)

As shown in the above tables, five number of earlier worked out pits will have void volume of 45.81 million m3 and during the Plan & Conceptual period progressive excavation, 112 million m3 of void volume will be available for backfilling. Therefore, a total of 157.98 million M3 of void volume will be available for backfilling in mined out pits having a cumulative area of 268.05 Ha. Additionally, 62 Ha area will be available as voids including 22 ha of water reservoir for storing rain water.

The details of proposed year-wise backfilling in these pits till conceptual period as per available space is given below in Table -2:

Table 2

Year	Waste Generation (m3)	Swelled Waste Volume (m3)	Backfilling Pit Location	Top MRL of Pit	Void Volume Utilised (m3)	Top MRL of Backfilled area	Dumped volume above TOP MRL of Pit (m3)	Remark
Year 1	1244889	1493867	5 Bot	87	1493867	45	0	
Year 1	2238957	2686749	5 Top	98	2686749	80	0	
Year 1	2238957	2686749	1 Top	100	2686749	20	0	
Year 2	732414	878897	5 Bot	87	878897	75	0	
Year 2	1810240	2172288	5 Top	98	2172288	110	0	Backfilling progressing towards 4 Top Area where Top RL is 170 Mts
Year 2	1810240	2172288	1 Top	100	2172288	40	0	
Year 3	500000	600000	5 Bot	87	600000	95	0	
Year 3	2000000	2400000	5 Top	98	2400000	170	0	Backfilling progressing towards 4 Top Area where Top RL is 170 Mts
Year 3	1502000	1802400	1 Top	100	1802400	100	0	
Year 3	1497434	1796920	3 Top	108	1796920	110	0	
Year 4	6768535	8122242	3/4 Bot	102	8122242	10	0	
Year 5	2912829	4992828	3/4 Bot	102	4992828	90	0	
	1497434							Rehandling of Waste
Year 5	8170622	9804746	2 Top	103	9804746	60	0	
From Year 6-Year 10	47750000	57300000	2 Top	103	57300000	100	0	
	5250000	6300000	5 Top	98	6300000	95	0	
From Year 11-Year 13	16075000	30140000	3 Top & 2 Top	108	30140000	73	0	
	10850000							Rehandling of Waste
	10075000	12090000	1 Top	100	11894483	100	195517	Surface Dump (1 Mts Height)
Total	124924550	147439973			147244456		195517	

It is evident from above tables that sufficient space is available to accommodate waste generated during life of mine considering swell factor of 1.2.

The conceptual availability of voids for backfilling is 157.98 (say 158) million CuM. Conceptual waste generation shall be 124.9 million Cum which will have a swelled volume of 149.90 million

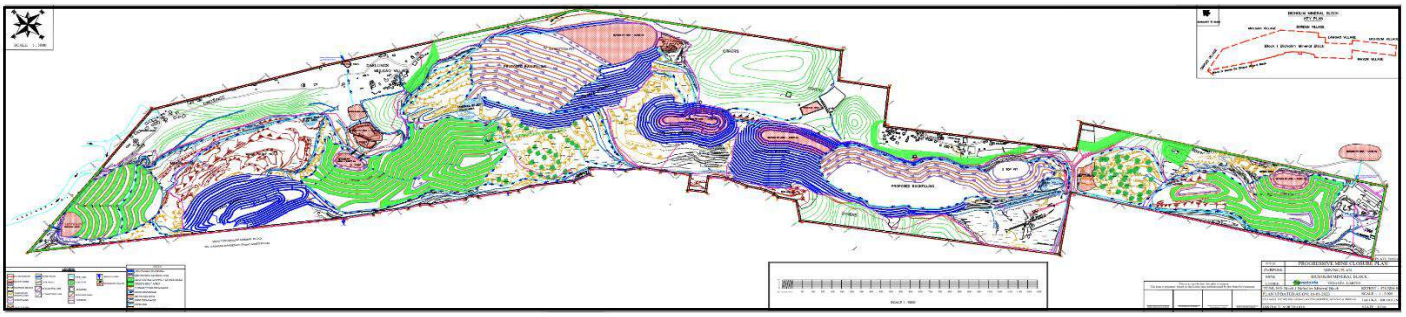
Sensitivity: Public (C4)

CuM (say 150 million CuM). The 0.2 million CuM of swelled waste will be dumped over top of backfilled pits as surface dumps as explained above in Table-2.

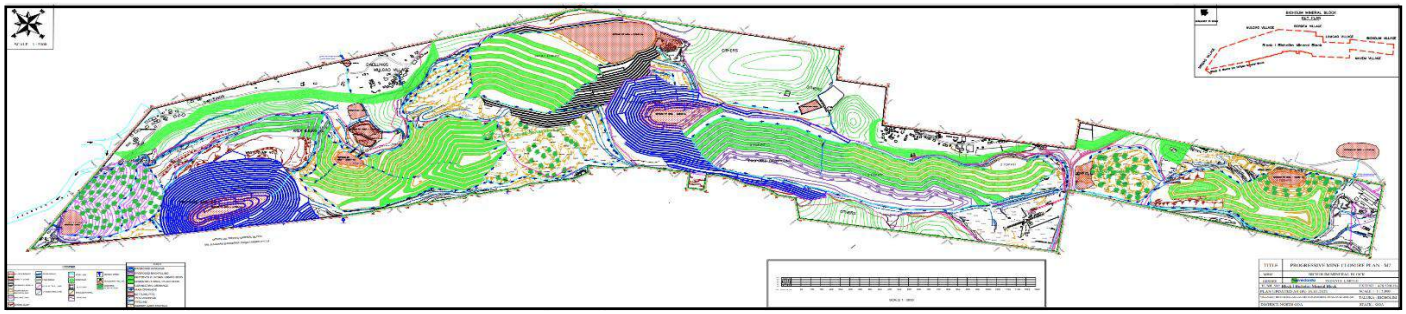
It is notable that the annual waste generation is in range of 4.35 to 12.58 million cum per year with an average of 9.61 million cum per year considering life of the mine as 13 years based on the presently available mineable reserves. It is also notable that life of the mine may reach upto 30 years if entire resources are converted to reserves by removing all encumbrances.

Drawings showing status of pits, reclaimed areas trough backfilling, green belt, siltation pits etc for five yearly block period up to conceptual stage is given below:

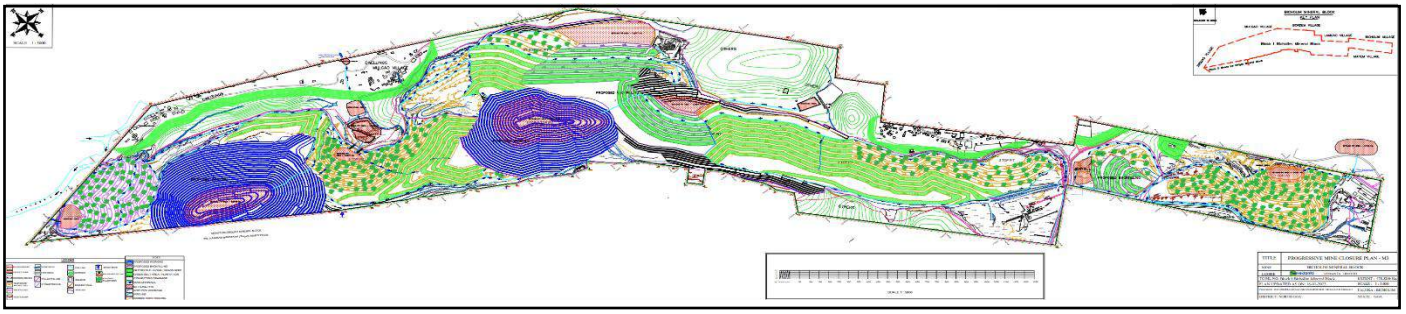
PMCP Plan showing Working Pit, Backfilling, Drainages and settling ponds at the end of Plan Period M1

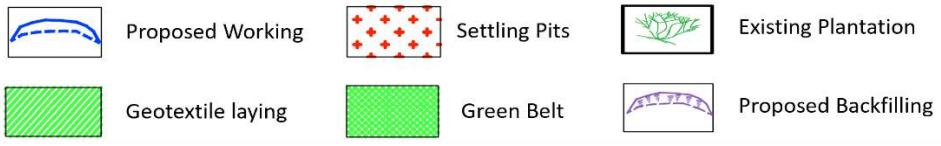


PMCP Plan showing Working Pit, Backfilling, Drainages and settling ponds at the end of Plan Period M2



FMCP Plan showing Working Pit, Backfilling, Drainages and settling ponds at the end of Plan Period M3





Sensitivity: Public (C4)

Point No. 3 The Project Proponent needs to submit the design of settling ponds by considering the annual rainfall, catchment area and its discharge.

Reply: As discussed above, this mine is old operational mine where the mining activities were ceased as per Supreme Court judgement in Goa Foundation case dated 07.02.2018 and therefore mine has adequate nos of abandoned pits and siltation ponds having arrangements of garland drains etc besides voids for backfilling.

06 numbers of earlier mined out abandoned pits and 12 nos of interlinked siltation ponds have been identified for collecting surface run off from respective catchment sub basins. The details of pits giving catchment and water holding capacity is as follows.

Table 3

Pit ID	*Area Covered by Pit (Ha)*	*Pit Dimensions (L*W*D) in mts*	*Catchment Area (In Ha)*	*Water holding Capacity. (Million m3)*	*Bottom RL (MRL)*
1 Top Pit	*13.3*	*380x350x52*	*40*	*1.46*	*-37*
2 Top Pit	*9.12*	*380x240x33*	*28*	*0.98*	*-7*
3/4 Bottom	*8.28*	*380x215x80*	*20*	*0.52*	*-7*
5 Top Pit	*12*	*400x300x95*	*40*	*1.40*	*7*
5 Top CB Pit	*6.66*	*370x180x78*	*11*	*0.39*	*64*
5 Bottom Pit	*8.75*	*350x250x40*	*21*	*0.74*	*-31*
TOTAL			*160*	*5.49*	

It is evident from the above table that six number of earlier worked out pits have been identified for collecting surface run-off as depicted in Table 3. A total of 5.49 MM3 of void volume is available for surface run-off holding in six pits having a cumulative area of 58.11 Ha which have a total catchment area of 160 Ha. Map showing pit positions is as follows:

Further, the pit-wise water holding capacities at the end of each plan period up to conceptual stage are as follows:

Sensitivity: Public (C4)

Pit ID	Water holding Capacity (Million m3)			
	Existing Pits	Plan Period M1	Plan Period M2	Plan Period M3
1 Top Pit	1.46	0.63	0.63	0.63
2 Top Pit	0.98	1.19	1.51	0.48
3 Top Pit	-	1.23	-	-
3/4 Bottom	0.52	1.25	1.25	4.31
5 Top Pit	1.4	0.23	0.23	0.23
5 Top CB Pit	0.39	0.64	1.43	1.43
5 Bottom Pit	0.74	0.44	0.44	0.44
Total	**5.49**	**5.61**	**5.49**	**7.50**

It is evident from the above table that during entire mine life water holding capacity of 5.49 or more than 5.49 million CuM will be available at any time. Further, a total 12 nos of settling ponds have been earmarked within and outside the ML Area for collecting surface run-off. The details of settling ponds are as follows

Table – 4

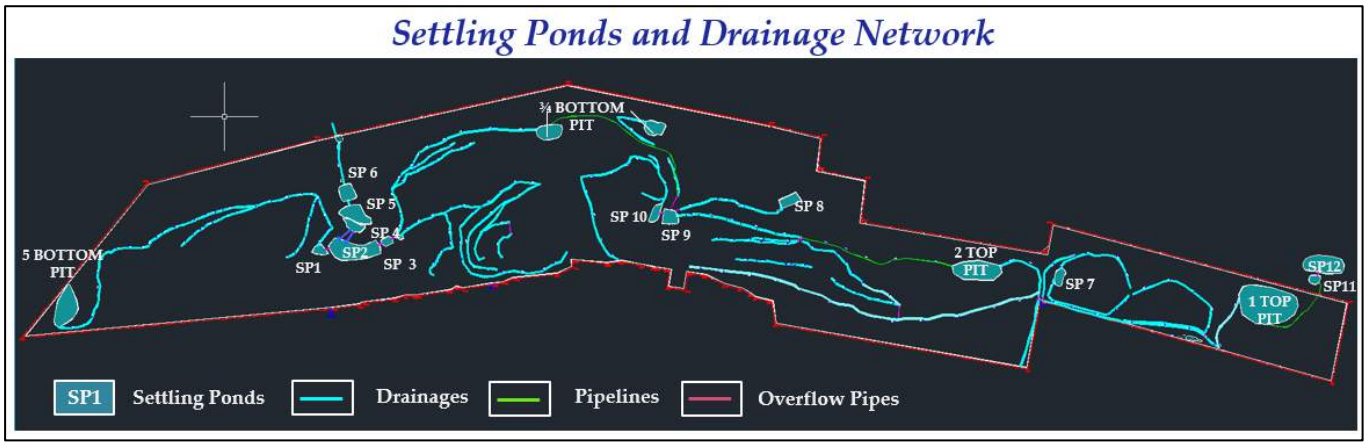
Details of Settling Ponds within & outside the ML Area

Pit ID	Area in m2	Depth in mts	Volume in m3	Location
SP1	1824	1.8	3283.2	5 Top pit Area
SP2	1667	1.8	3000.6	
SP3	27879	8	223032	
SP4	5208	2	10416	5 Top Mulgao Area
SP5	8602	2	17204	
SP6	4661	2.5	11652.5	
SP7	3896	1.5	5844	1 Top Area (Sec 43)
SP8	5831	3	17493	2 top area
SP9	3753	1.5	5629.5	3 Top Sec 22
SP10	5564	1.5	8346	
SP11	2443	3	7329	Outside lease (Above 1 Top Area)
SP12	17130	4	68520	
Total			381749.8	

It is clear from the above table that a total of 0.38 Million M3 of void volume is available for surface run-off holding in 12 nos settling ponds having a cumulative area of 8.84 Ha. Considering five fillings in a year, the gross volumes of settling ponds will be 1.90 Million M3.

Layout of settling ponds and drainage network is as follows:

Sensitivity: Public (C4)



- Catchment area of Pits = 160 ha
- Rainfall received = 160 ha x 3500 mm = 5.6 Million CuM
- Effective surface runoff to be accumulated in voids = 5.6 x 0.7 = 3.92 Million CuM
- Pits water holding capacity = 5.49 Million CuM
- Gross settling ponds capacity = 1.90 Million CuM
- Total water holding capacity of mined pits and settling ponds = 7.39 Million CuM

Since total water holding capacity in pits and settling ponds (7.39 Million CuM) is more than rainfall and surface runoff volume from catchment (3.92 Million CuM), there is sufficient space for effective surface runoff management in during extreme precipitation times.

The dimensions of the drains to be maintained will be 2m in width and 1.5 m in depth everywhere in the mine. A proper height will be maintained on the sides of the garland drain so that water does not get over-flooded from the drains. The available garland drains are 11313 m in length and daily average surface run-off is estimated as 14003 m3. The garland drains have capacity to accommodate instant volume of 33939 m3 as per above dimensions. Therefore, garland drains capacity is more than sufficient to take care of average daily surface run off during raining period. Additional drains are proposed to take care of peak run off during the plan period. Therefore, water management structures comprising of drains, settling ponds and mined out pits are available as well as planned to address the catchment area run-off for conceptual period.

The overflow discharge water will be regularly monitored so that quality of water is maintained as per the prescribed standards and always clear water from ponds / pits meet the natural system. In case required, water treatment would be done in the pits by using lime and flocculants or other organic chemicals.

Sensitivity: Public (C4)

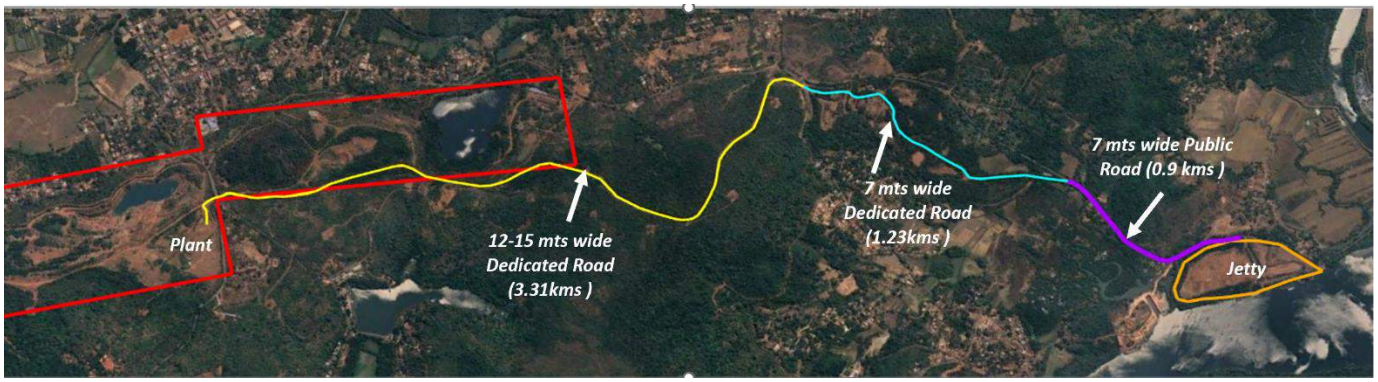
Point No. 4 **The Project Proponent needs to bypass the public road and also to explore the possibility of increasing the capacity of truck so as to reduce the no. of trips. The EAC opined that the Project Proponent needs to revisit the traffic load by considering the cycle time and waiting time. The Project Proponent needs to submit the action plan for strengthening the road and for converting the unpaved road into concrete road.**

Reply: **Traffic load and effective distance between two trucks**

S. No.	*Transportation Working Days*	*Quantity (In TPA)*	*Tonnes/Day*	*Trips per day*	*Mode of Transport*
1	*237*	*30,00,000*	*12658*	*1205*	*Road*
Total trips per day				*1205*	

The total travel distance upto Jetty is 5.48 kms (4.54 dedicated road and 0.94 km MDR-20 Public Road). The Road width details for various segments are as follows:

Dedicated Road corridor		*Public Road*
3.31 Km	*1.23 km*	*0.94 Km*
12-15 mts wide Road	*7 mts wide Road*	*7 mts wide Road*



- Capacity of truck is 10.5 tons as per directives of Deptt. of Mines & Geology, Goa
- Total Handling per day is 12658 tons /day
- Transportation timings are 6.00 am to 7.00 am, 8 :00 am to 12.45 pm and 2 :00 pm to 5.45 pm. Therefore, the effective transportation time is 9.30 hrs.
- Per Hour Handling is: 1332 tons/hour
- No. of Vehicles per Hour (One way): 127 vehicles

Sensitivity: Public (C4)

- No. of Vehicles per Hour (to and fro): 254 vehicles
- The Speed of vehicle is 25 KMPH and the lead distance is 5.48 Kms
- The time taken for 5.48 km is 13.15 mins for each truck and loading time is 1min, weighment time at both source location is 2 min, Tarpaulin tying and untying time is 2 min, unloading time 1 min and waiting time 10 min.
- Each truck length is 15'. 5" (4.58 m)
- If we consider distance from truck to truck is 5 m both side = 10 m
- Each vehicle occupies a min. distance of 14.58 m = ~ 15 m
- The length of road is 5.48 Km = 5480 m
- No. of vehicle which can travel on this road for one side= 5480 /15 = 365, However we would be plying only 127 trucks hence effective distance between two vehicles is 43 m.

Measures for transportation are given below:

- Public road is hot mixed and same will be maintained.
- Dedicated road is proposed to be hot mixed in phased manner.
- Entire Dedicated transportation route is surrounded by thick Green Belt
- Transportation vehicles shall be properly maintained to minimize the exhaust emission.
- Regular tests shall be carried out to check exhaust emission and PUC certification of transportation vehicles at prescribed interval.
- Transportation trucks will be loaded with prescribed capacity and covered with tarpaulin before leaving mines premises.
- Overloading of the material will be avoided.
- Regular monitoring of the emission levels.
- Over speeding of Vehicle will not be allowed.
- Traffic Marshals shall be provided for regulating movement of vehicles as well as for safety of persons.
- Training will be given to all drivers about safe driving.

Sensitivity: Public (C4)

- Regular water sprinkling by means five hired water tanker of 10KL capacity on haul road and Loading points will be carried out
- Used of fixed dust suppression system on haul roads
- Installation of two wheel washed system (one each at the exit of the dedicated road and jetty exit respectively
- Manual and mechanised machines for road sweeping
- Washing of mine exit points/ Junctions (Mayem, Pilgao and Jetty exit area) after transportation hours/at night with water tanker having pipe arrangements
- Underpass proposed at Mayem junction to prevent interface with public.

(N.B.-The regular mining in the state of Goa stopped since 2012 (it started for brief period in 2018 and again stopped). The truck owners who have already invested in the 10.5 T trucks are severely affected due to the stoppage of mining activity and are against procurement of new / high-capacity trucks, till their losses are covered. The company has already conducted series of meetings with the truck owner's associations for the higher capacity trucks and the truck owners are not agreeing to any changes in short term of 5 years. The MOM is attached for reference. However, the engagement with the truck owners for higher capacity truck will continue.

Company will also engage with all stake holders to explore the feasibility for installing conveyor belt system for transportation in near future, if permitted.)

(Roads: The public road which is used for transportation is only 0.94 km long and the same is a hot mix road and in well maintained condition. The dedicated road of 4.54 km has very thick green belt on both the sides. There is no habitation along the dedicated road. Nearest habitation will be more then 250m from the road. The dedicated road before joining the public road is concreted and provided with the wheel wash system. Dedicated road sweeping machine will also be deployed to maintain the public road clean. The company also undertakes to hotmix the stretch of 4.54 km of dedicated road in a phased manner in three years' time frame. The estimated cost towards hot mixing is worked out as INR 18 crores)

Point No. 5 **Since the mine lease area is sharing the Mayem Forest common boundary, the Project Proponent needs to submit the letter from the State Forest Dept. regarding the involvement of Forest land in the mine lease area.**

Reply: Total mine lease area is 478.5206 Ha, out of which 421.1153 ha is Private Land and 57.4053 ha is Govt. Land.

Letter confirming that the Bicholim Mineral Block is not falling under the Govt. Forest land and also it does not identify as Private Forest land by State Level Expert Committee headed by Sawan/Dr. Karapurkar/V.T. Thomas issued by the Dy. Conservator of Forests, North Goa Division

Sensitivity: Public (C4)

vide letter no. 5/MINES-GEN/DCFN/TECH/2023-24/56, dated 12.04.2023. Copy of Letter is enclosed as ***Annexure I***.

Point No. 6 The Project Proponent needs to submit a letter from the department of geology and mining, Govt. of Goa clarifying whether any illegal mining within the mine lease area has been carried out or not and whether the same has been carried out by M/s. Vedanta Limited or not?

Reply: **The clarification letter from Directorate of Mines and Geology has been enclosed as *Annexure II*.**

The Block-I Bicholim Mineral Block was earlier operated by Sesa Mining Corporation Ltd. (SMCL) formerly known as Dempo Mining Corporation Ltd. Pursuant to Supreme Court Judgement in Goa Foundation 2 dated 07.02.2018, all the mining leases granted by the State Govt. were cancelled. Thereafter, State Govt. in terms of the said order and as per the provisions of MMDR Act put this block for auction as a fresh lease grant.

The e-auction process was conducted in accordance with the Tender Document for said Mineral Block. Vedanta Limited emerged as the highest qualified bidder having submitted the highest final price offer and was declared as the preferred bidder under Rule 9(9) (iii) of auction Rules.

Further, upon submission of the first Installment, being 20% of the upfront payment, Government of Goa issued a Letter of Intent (LOI) vide letter no. DMG/25/Auction Cell/LOI-function/2023/2801 dated 13.01.2023 for the grant of a mining lease for Block-I Bicholim Mineral Block in Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao Villages, of Bicholim Taluka, North Goa District, Goa State over an area of 478.5206 Ha over a period of 50 years. Copy of Letter of Intent is enclosed as ***Annexure III***. Mine lease is yet to be executed and mining has not been carried out by the Vedanta Ltd.

Point No. 7 The Project Proponent needs to submit the video recording of the public hearing.

Reply: The Goa State Pollution Control Board vide their letter No. 11/15/2023-PCB/ Leg/13555 dated 22/09/2023 to the Member Secretary, EAC (Non Coal Mining) has submitted all the documents related to public hearing which also includes the public hearing video. Copy of letter enclosed as ***Annexure IV***

The project proponent will also physically share the video through pendrive to the Member Secretary, EAC (Non Coal Mining), MoEF & CC, New Delhi.

Sensitivity: Public (C4)

ANNEXURE I

371/C

GOVERNMENT OF GOA

Office of the Deputy Conservator of Forests,
North Goa Division,
Ponda – Goa, 403 401

Ph No: 0832-2312856 Fax No: 2312095 email:- dcfnorth-forest.goa@nic.in

No.5/MINES-GEN/DCFN/TECH/2023-24/56 Dated:- 12/04/2023

To,
The Conservator of Forests (Conservation)
Van Bhavan,
Panaji- Goa

Sub:- Status of land within Block -1 of Bicholim Mineral Block – reg.

Madam,

With reference to the letter No. CF(C)/General/FD/2022-23/5176 dated 17/02/2023 on the above cited subject , the detail of village wise Survey Nos. (as per the list attached as Annexure-I) within Block -1 of Bicholim Mineral Block is verified and found that the area under the above mentioned Survey Nos is not a Govt. Forest and also does not identified as Private Forest by State Level Expert Committee headed by Sawant / Dr. Karapurkar/ V. T. Thomas. The plan showing Block-1 – Bicholim Mineral Block is enclosed herewith as Annexure-II for kind information.

The Plan & Survey Nos. of Block II, III and IV were not submitted by the User agency, therefore could not be verified by this office.

Yours faithfully,

Dy. Conservator of Forests,
North Goa Division,
Ponda- Goa.

Encl:- As above.

CERTIFIED COPY UNDER RIGHT TO INFORMATION ACT, 2005

ASSTT. CONSERVATOR OF FORESTS
PONDA GOA

ANNEXURE II

Government of Goa
Directorate of Mines Geology
Institute Menezes Braganza, Panaji-Goa
Website: dmg.goa.gov.in **e-mail:dir-mine.goa@nic.in**
Phone Nos. 0832 – 2426431/2425287/2422765

File No. 03/24/2023/Major/Mines/Part/ 1489 Date 25/07/2023

To,
M/s. Vedanta Ltd.
Sesa Ghor, 20 EDC Complex,
Patto, Panaji, Goa.
403001

Sub: Clarification letter with respect to Terms of Reference granted to Vedanta Limited for Block I Bicholim Mine.

Sir,

This has reference to your letter dated 18/5/2023 on the subject cited above. With regards to the special condition no. xvii mentioned in the summary records of the 14th meeting of the Expert Appraisal Committee held on 3-4 May 2023, it is clarified that:-

(a) M/s. Vedanta has been declared as Preferred Bidder for Bicholim Mineral Block- Block I through an auction process conducted by the Government of Goa as per the Mineral Auction Rules, 2015.

(b) M/s. Vedanta Ltd., was not the erstwhile lessee of the said Block prior to auction.

(c) The matter of illegal mining in the State of Goa is under investigation by the Special Investigation Team (SIT).

Yours faithfully,

(Dr. S. Shanbhogue)
Director

ANNEXURE III

Government of Goa
Directorate of Mines & Geology
Institute Menezes Braganza, Panaji-Goa
Website: www.dmg.goa.gov.in **e-mail: auction-dmg@goa.gov.in**
No.DMG/25/Auction Cell/LOI-function/2023/7801 Date:13/01/2023

Letter of Intent for Block I - Bicholim Mineral Block

To,
Vedanta Limited
Sesa Ghor, 20 EDC Complex,
Patto, Panaji, Goa, 403001 India.

***Sub:** Letter of intent with reference to e-auction dated December 14, 2022 for grant of a mining lease for Block I - Bicholim Mineral Block for Iron Ore mineral in Bicholim, Bordem, Lamgao, Mulgao Mayem & Sirigao village, Bicholim Taluka, North Goa District on 478.5206 Hectare Area.*

1. **Background**:

1.1 Government of Goa, pursuant to the Mines and Minerals (Development and Regulation) Act, 1957 (the "**Act**") and the Mineral (Auction) Rules, 2015 as amended from time to time (the "**Auction Rules**"), issued the notice inviting tender dated September 30, 2022 to commence the auction process for grant of mining lease for **Block I - Bicholim Mineral Block** located in North Goa. The e-auction process was conducted in accordance with the tender document for the said mineral block and **Vedanta Limited** was declared as the 'Preferred Bidder' under Rule 9(9)(iii) of Auction Rules, having quoted a Final Price Offer of **63.55% (Sixty three point five five percent)**.

DIRECTORATE OF MINES & GEOLOGY GOVT. OF GOA PANAJI-GOA

1.2 As required under Rule 10(1) of the Auction Rules and the tender document for the said mineral block, **Vedanta Limited** has made payment of the first instalment, being 20% (twenty per cent) of the upfront payment of Rs. 27,16,70,301 (Rupees Twenty Seven Crore Sixteen Lakh Seventy Thousand Three Hundred One) through e-Challan (e-Challan No. 202300008550) dated January 4, 2023, which was received at Goa.

2. Grant of Letter of Intent

2.1. Accordingly, pursuant to Rule 10(2) of the Auction Rules and the terms of the Tender Document, the Government of Goa is issuing this letter of intent for grant of Mining Lease for **Block I - Bicholim Mineral Block** for Iron Ore in Bicholim, Bordem, Lamgao, Mulgao Mayem & Sirigao village, Bicholim Taluka, North Goa District on 478.5206 Hectare Area to **Vedanta Limited** for a period of 50 (fifty) years.

3. Conditions

3.1. This letter of intent and the subsequent grant of aforementioned mining lease shall be subject to the provisions of the Act and the Rules made thereunder, as amended from time to time, and the **Vedanta Limited** shall be designated as the 'Successful Bidder' and subsequently granted the mining lease only upon satisfactory completion of all the requirements under the Acts and Rules made thereunder.

DIRECTORATE OF MINES & GEOLOGY GOVT. OF GOA

The State Government may impose such other conditions in the Mine Development and Production Agreement (MDPA) and/or Mining Lease as may be considered by the State Government to be in the interest of mineral development and in public interest.

Vedanta Limited shall be bound by (i) the enactment, bringing into

effect, adoption, promulgation, amendment, modification or repeal of any Applicable Laws (including the Act and Rules) occurring at any time, including prior to or after the Bid Due Date; (ii) any amendments made by the State Government to this effect in the Tender Document, the letter of intent, the MDPA and/or the mining lease deed at any time, including prior to or after the Bid Due Date.

3.2. For reference, the requirements under the Auction Rules for designation of **Vedanta Limited** as the "successful bidder" and subsequent grant of the mining lease are reiterated below. It is clarified that the requirements mentioned below are only for reference and in the event of any change in the Act or the Rules made thereunder, the requirements under the modified Act or the Rules made thereunder, as the case may be, shall be applicable.

(a) Designation as the "Successful Bidder":

Vedanta Limited shall be considered to be the "Successful Bidder" upon:

(i) continuing to be in compliance with all the terms and conditions of eligibility;

(ii) payment of the second instalment being 20% (twenty per cent) of the upfront payment;

(iii) furnishing an irrevocable and unconditional performance security to the State Government from an Acceptable Bank and payable at Goa, pursuant to the Auction Rules;

(iv) satisfying the conditions specified in clause (b) of sub-section (2) of Section 5 of the Act with respect to a mining plan; and

DIRECTORATE OF MINES & GEOLOGY GOVT. OF GOA PANAJI-GOA

(b) Signing of the Mine Development and Production Agreement

Vedanta Limited shall sign the Mine Development and Production Agreement with the Government of Goa upon obtaining all consents, approvals, permits, no-objections and the like as may be required under applicable laws for commencement of mining operations.

(c) Grant of Mining Lease

Subsequent to signing of the Mine Development and Production Agreement, **Vedanta Limited** shall make payment of the third instalment being 60% (sixty per cent) of the upfront payment and thereafter the Government of Goa shall grant the aforementioned mining lease.

3.3. The State Government reserves the right, but not the obligation, to appropriate and dispose of (whether by way of sale, auction or such other means as the State Government may, in its sole discretion, determine) all or any part of the dumps presently located within the Mineral Block. Provided that such right shall be exercised by the State Government no later than 12 (twelve) months from the date of issuance of this Letter of Intent. It is clarified that the Successful Bidder shall, in accordance with Applicable Law, be entitled to dispose of only such part of the dumps in respect of which the State Government does not exercise the aforesaid right.

DIRECTORATE OF MINES & GEOLOGY GOVT. OF GOA

4. Validity

4.1. This Letter of Intent shall be valid only if **Vedanta Limited** ensures that the Bid Security is valid until the Performance Security is furnished to the Government of Goa failing which this letter of intent shall become invalid from the date of expiry of the Bid Security.

4.2. This letter of intent is valid for a period of 3 (three) years from the date of its issuance, within which time all the above conditions must be fulfilled and the Mining Lease deed must be executed between the **Vedanta Limited** and the Government of Goa. In case there is a delay in execution of Mining Lease Deed due to reasons beyond the control of the Preferred Bidder, then it may submit an application to Government of Goa, requesting for further extension

4.3. If the Government of Goa is satisfied that there is a delay in execution of Mining Lease Deed due to reasons beyond the control of the Preferred Bidder and a longer period is required to enable the Preferred Bidder to satisfy all or any of the above conditions, it may extend the validity of this letter of intent for such period or periods as the Government of Goa may specify. Provided that: (a) this letter of intent shall be extended for a maximum period of 2 (two) years; and (b) the total period for which this letter of intent would remain valid must not exceed 5 (five) years from the date of issuance.

Kindly return the duplicate copy of this letter of intent duly signed by authorized signatory in token of having accepted the above terms and conditions. The accepted copy of Letter of Intent along with Board resolution should be submitted latest by **January 27, 2023.**

(Dr. S. Shanbhogue)
Director

DIRECTORATE OF MINES & GEOLOGY
GOVT. OF GOA

ANNEXURE IV

GOA STATE POLLUTION CONTROL BOARD

गोंय राज्य प्रदूषण नियंत्रण मंडळ

(An ISO 9001-2015, ISO 14001:2015, ISO 45001:2018 Certified Board)

Phone Nos : 0832- 2407700,
2407701, 2407703

Email Ids:
Chairman, GSPCB: chairman-gspcb.goa@nic.in
Member Secretary, GSPCB: ms-gspcb.goa@nic.in
Office: mail.gspcb@gov.in

BY SPEED POST
MOST URGENT

No.11/15/2023-PCB/Leg/135555

Date:- 22/09/2023

To,

The Member Secretary,
EAC (Non Coal Mining),
IA Division,
Ministry of Env., Forest and Climate Change
Indira Paryavaran Bhavan, Jor Bagh, New Delhi - 110003

Sub:- Environmental Public Hearing.

Sir,

As per the Environment Impact Assessment Notification (EIA) dated 14/09/2006, issued by the Ministry of Environment, Forests and Climate Change, Government of India, the Goa State Pollution Control Board has conducted Environmental Public Hearing as per the said notification with respect to Block I Bicholim Mineral Block with area of 478.5206 Ha located in Bicholim, Bordem, Lamgao, Mulgao, Mayem and Sirigao villages of Bicholim Taluka, North Goa District, Goa for the production of 3.0 MPTA of iron ore by M/s. Vedanta Ltd.

In this regard, I am to enclose herewith the following documents for your perusal and necessary action.

1. The copy of the dully approved proceedings of the Environmental Public Hearing held on 11/8/2023 reflecting the views and concerns expressed by the public present for the hearing recorded and read out to the public out on the same day, alongwith translation of the same in the official State Language i.e. Konkani – **Annexure "A"**

2. Copy of clarification/objection to in the minutes of Public Hearing held on 11/8/2023 – **Annexure "B".**

- The serial no.3 of the Minutes of the Public hearing i.e Shri. Nilesh Dhabolkar may be read as Shri. Nilesh Karbotkar, as there was a typographical error in the minutes.
- The serial no.95 of the Minutes of the Public hearing i.e Sujay Parrikar may be read as Shri. Sujay Pethikar , as there was a typographical error in the minutes.
- The serial no. 142 of the Minutes of the Public hearing i.e Sharmila Volvoikar may be read as Sharmila Valavalkar, as there was a typographical error in the minutes.

3. Attendance Sheet – **Annexure "C"**

4. Attendance of Speakers – **Annexure "D"**

5. The recordings of the proceedings (Pendrive 1 no.)– **Annexure "E"**

6. The copy of representation/ suggestions/ objections received by the Board– **Annexure "F"**

7. The copy of the supporting received by the Board– **Annexure "G"**

8. Reply to the queries submitted by project proponent raised during the Environmental public hearing in English - **Annexure "H"**

9. The copies of the notices issued in the various newspapers/T.V. Channels - **Annexure "I"**

Kindly acknowledge the receipt of the same.

Yours faithfully,

(Member Secretary I/c)
Goa State Pollution Control Board

Encl: As above.

Copy to:-

1	**M/s. Vedanta Limited, Sesa Goa iron ore: Sesa Ghor, 20 EDC Complex, Patto, Panjim Goa 403001.**
2	Office copy
3	Guard file

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
(IMPACT ASSESSMENT DIVISION)
NON-COAL MINING SECTOR
****

SUMMARY RECORD OF 22ND MEETING OF THE COMMITTEE OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE FOR ENVIRONMENTAL APPRAISAL OF NON-COAL MINING PROJECTS CONSTITUTED UNDER THE EIA NOTIFICATION, 2006.

The 22ndmeeting of the Re-Constituted Expert Appraisal Committee (EAC) for Environmental Appraisal of Mining Projects (Non-Coal) of the Ministry of Environment, Forest and Climate Change was held during 14-15November, 2023 through video conference. The list of participants is annexed herewith. After login of the Committee Members through video conference link provided by NIC discussion on each of the Agenda Items was taken up ad-seriatim.

(1.0) Deliberation & Circulation on the Minutes of 21stEAC (Non-Coal Mining) meeting held during 18-20 October, 2023:

The minutes of the 21st EAC meeting held during 18-20 October, 2023 were placed before the members of the EAC.

Day 1: 14th November, 2023 (Tuesday)

1.1 Amendment in EC dated 17thJuly, 2018 w.r.t Condition No 22 for Guda Clay mine of M/s Harish Clays with enhancement of production capacity from 60,000 TPA to 2,50,000 TPA (ROM) of Clay in the mine lease area of 284.20 ha, located at Village-Guda, Tehsil Kolayat, District Bikaner, Rajasthan - [File No: J11015/163/2014-IA.II(M), Proposal No: IA/RJ/MIN/125957/2014, Consultant: M/s. Enviro Green Consultants (I) Pvt. Ltd] - Amendment in EC

The instant proposal is for amendment in EC dated 17th July, 2018 w.r.t Condition No 22 for Guda Clay mine of M/s Harish Clays with enhancement of production capacity from 60,000 TPA to 2,50,000 TPA (ROM) of Clay in the mine lease area of 284.20 ha, located at Village-Guda, Tehsil Kolayat, District Bikaner, Rajasthan.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. Initially, the Project Proponent has obtained Environmental Clearance (EC) vide EC letter dated 18.02.1998 for the production capacity of 60,000 TPA of clay.

10. Observation and Recommendation of the EAC: -

The EAC noted that the site visit was conducted by the subcommittee during 15-17 October 2023. The EAC deliberated on the observation and recommendations of the subcommittee. After detailed deliberations, the EAC agreed to the recommendations of the subcommittee.

2.8 Report of the field visit undertaken by EAC sub-committee during 29-31 October, 2023 at Bicholim Mineral Block- Block 1 (Auction Block) of M/s Vedanta Limited for mining of Iron Ore with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA (Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located in Bicholim, Bordem, Lamgao, Mulgoa, Mayem&Sirigao Villages of Bicholim Taluka of North Goa District, Goa - [F.No: IA-J-11015/ 3/2023-IA-II(NCM), Proposal No: IA/GA/MIN/442593/2023] - Environmental Clearance (EC)

The instant proposal is for mining of Iron Ore in Bicholim Mineral Block – Block 1 (Auction Block) of M/s Vedanta Limited with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA (Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located in Bicholim, Bordem, Lamgao, Mulgoa, Mayem&Sirigao Villages of Bicholim Taluka of North Goa District, Goa.

2. The total mine lease area is 478.5206 Ha, out of which Private land is 421.1153 Ha and Government land is 57.4053 Ha. The mine lease area is located between Latitude: 15º34’20.518”N to 15º36’54.018”Nand Longitude: 73º54’4.754”E to 73º57’09.51”E. The mine lease area falls under the Survey of India Toposheet No: D43B14and falls in Seismic Zone-II.

3. The Directorate of Mines & Geology, Govt. of Goa vide letter dated 13.01.2023 granted the Letter of Intent (LoI) for grant of mining lease for Block I - Bicholim Mineral Block for Iron Ore over an area of 478.5206 Hectare for aperiod of 50 (fifty) yearsin pursuant to Rule 10(2) of the Auction Rules. This letter of intent is valid for a period of 3 (three) years from the date of its issuance.

4. Review and Mining Plan was approved by Indian Bureau of Mines, Goa vide letter dated 26.05.2023. Method of Mining will be Opencast mechanized mining without Drilling & Blasting. ROM/Iron ore or Screened/crushed material will be transported by 10.5 Tonne trippers from Mine to Sarmanas jetty through a dedicated road. The total distance from the mine to Jetty is 5.48 km of which 0.94 km stretch is public road and remaining 4.54 km is company owned dedicated road.

5. The Project Proponent obtained Terms of Reference (ToR) vide ToR letter dated 16.06.2023. Baseline data was carried out during March-May, 2023 (Summer Season). Public hearing was conducted on 07.07.2023. About 4708 written objections were submitted against the project and about 5183 no.s of letters were also received in support of the project. Budget of Rs 309.3 Lakhs has been earmarked to address the concerns raised during public hearing.

6. There are two habitations such as Mulgao and Lumgao and schools are located within the mine lease area.Asnora River is touching the mine lease boundary at one of the points and Mayem Lake is found at a distance of 0.46km from the mine lease area. Namuzgah/Idgah is found within the mine lease area. A safety distance of 300m buffer has been left from Lamgao caves.

7. Mayem Forest Common Boundary with the mine lease area. Block-I Bicholim Mineral Block of Vedanta Ltd is not a part of any Eco Sensitive Area. The Schedule-I species such as Common leopard (*Felidae*) White-bellied Sea-Eagle(*Accipitridae*) Indian Peafowl (*Phasianidae*) and Crimson rose- Butterfly (*Papilionidae*)are found in the study area. Wild Life Conservation Plan is prepared and submitted for approval of Chief Wildlife Warden (CWLW) on 19.06.2023.

8. No Rehabilitation & Resettlement Plan is proposed during life of mine. There are three court cases pending against the project w.r.t auction. Total cost of the project is Rs 250 Cr. The Capital cost of EMP is Rs 72.0 Lakhs and about 716 no.s will get employment.

9. The instant proposal was earlier considered in the EAC (Non-Coal Mining) meeting held during 21-22 September, 2023 and the EAC after detailed deliberations opined that there is a need to ascertain the present scenario and ground reality with regards to handling of waste, settling ponds, location of waste dump w.r.t habitation, school and river, other surface features as forest (Mayem common boundary), temples, caves and fort, mineral transportation route and traffic congestion. The EAC was of the view that a site visit needs to be conducted by a sub-committee comprising of EAC Members and officers from MoEF&CC.

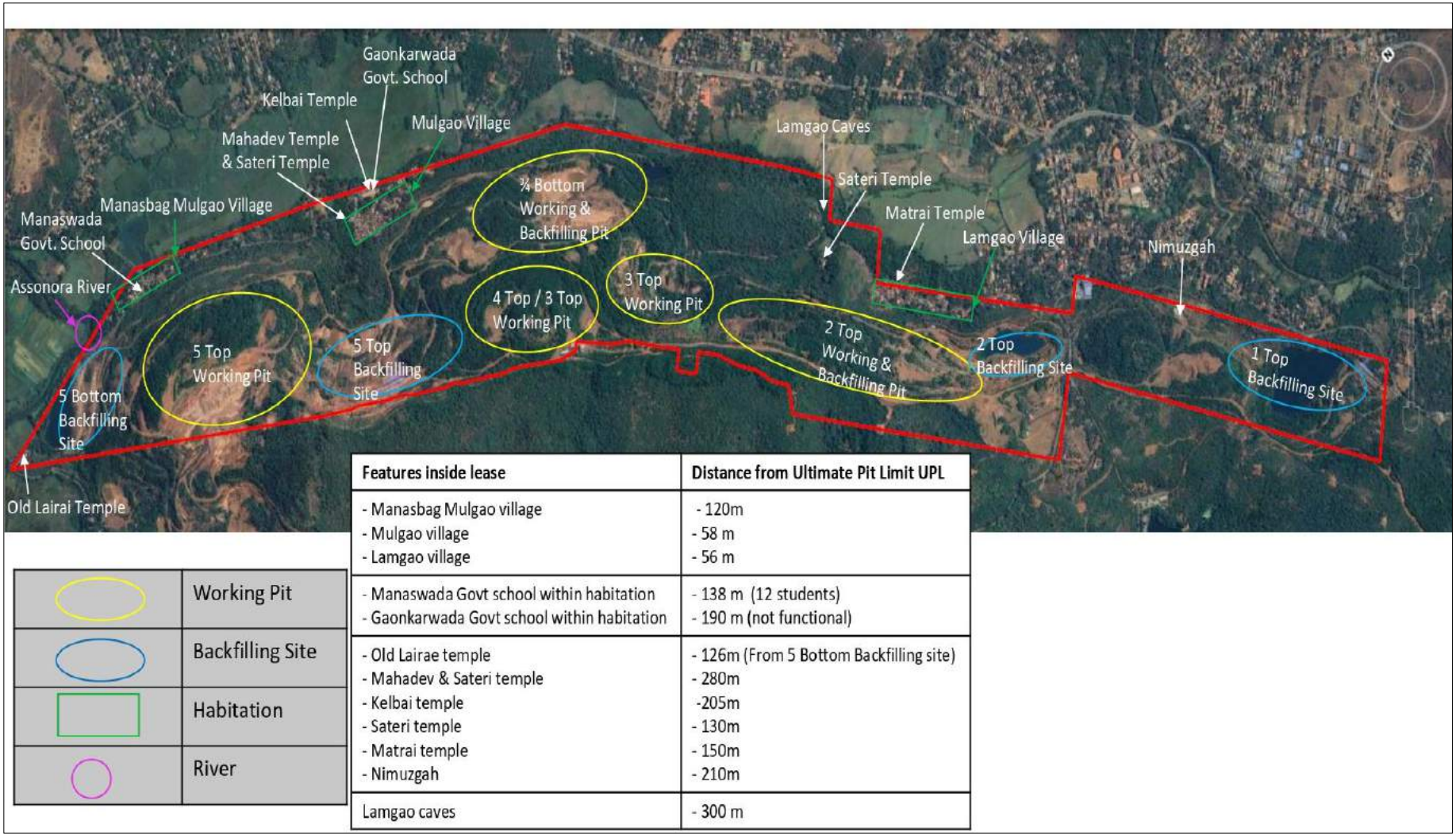
10. Accordingly, the Ministry vide letter dated 09.10.2023 constituted a sub-committee comprising of the following members to ascertain the ground realities of the project.

1. Shri Niranjan kumar Vasu, EAC (Non-Coal Mining), Member,
2. Shri. Avijit Ghosh, EAC (Non-Coal Mining), Member,
3. Shri. Pankaj Verma, Scientist E & Member Secretary EAC (NCM), MoEF&CC,
4. Shri. Saurabh Upadhyay, Scientist C, MoEF&CC,
5. Shri Suresh kumar Adapa, Scientist E, MoEF&CC, Bengaluru;

6. Shri. A. Mohankumar, Consultant, MoEF&CC

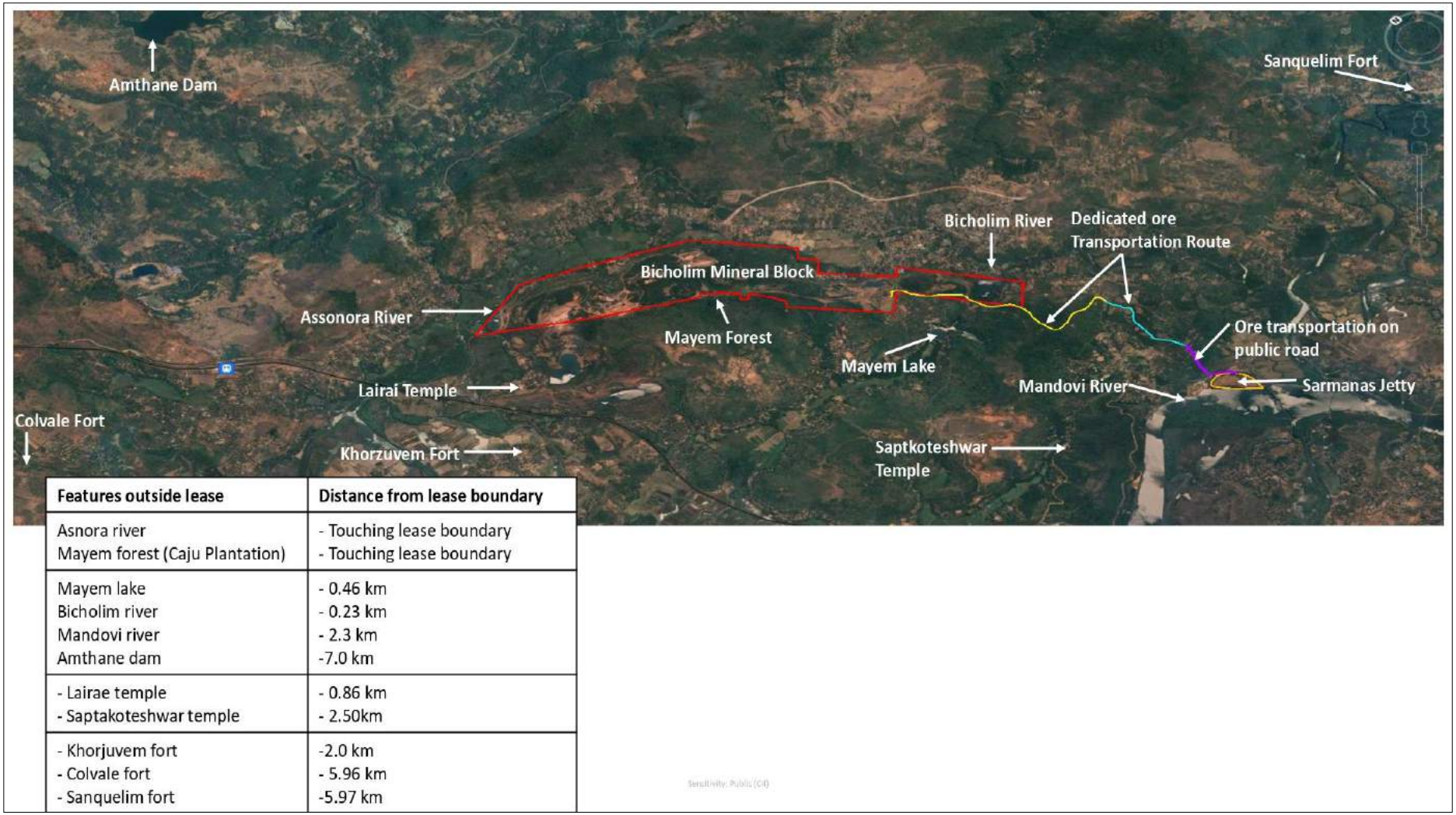
11. The aforesaid committee undertook the day-long field visit on 30th October 2023. The following officers from M/s Vedanta Ltd such as Head of the Mines, Head of the Environment, Mines Manager, Geologist and EIA Coordinator were present during the site visit. The Project Proponent gave a brief about the layout of the mine lease area. The subcommittee during the site visit observed the following: -

1. The subcommittee visited the mine lease area which extends from mines office to the bottom pit by road covering a distance of 7.0 km in the lease area. The subcommittee also observed the boundary pillars erected by the Project Proponent alongside the mine lease boundary.
2. The subcommittee observed the dense vegetation throughout the mine lease area.



Features inside lease	Distance from Ultimate Pit Limit UPL
- Manasbag Mulgao village - Mulgao village - Lamgao village	- 120m - 58 m - 56 m
- Manaswada Govt school within habitation - Gaonkarwada Govt school within habitation	- 138 m (12 students) - 190 m (not functional)
- Old Lairae temple - Mahadev & Sateri temple - Kelbai temple - Sateri temple - Matrai temple - Nimuzgah	- 126m (From 5 Bottom Backfilling site) - 280m -205m - 130m - 150m - 210m
Lamgao caves	- 300 m

Figure 1: Google Image of Bicholim Mineral Block showing working & backfilling pits and surface features in the mine lease area



Features outside lease	Distance from lease boundary
Asnora river Mayem forest (Caju Plantation)	- Touching lease boundary - Touching lease boundary
Mayem lake Bicholim river Mandovi river Amthane dam	- 0.46 km - 0.23 km - 2.3 km -7.0 km
- Lairae temple - Saptakoteshwar temple	- 0.86 km - 2.50km
- Khorjuvem fort - Colvale fort - Sanquelim fort	-2.0 km - 5.96 km -5.97 km

Figure 2: Google Image of Bicholim Mineral Block showing surface features in the buffer zone

Figure 3: Project Proponent explaining about mine layout and site features

3. The subcommittee visited the mine pit with stagnant rain water, top and bottom working pits. The Project Proponent has informed that the rain water in the mine pit is being used for dust suppression and agricultural purposes by the local farmers. The rainwater stagnant in the working pits will be pumped out and will be channelized through network of pipes and will be discharged into settling ponds. The Project Proponent also informed that the waste generated during mining will be temporarily stacked within the mining lease and will be backfilled in the exhausted portion in the working pits. The material from one pit will be used to backfill the other exhausted working pit.

Figure 4: Rainwater stagnant in the mined out pit

Figure 5: Rainwater stagnant in the working pit

4. The subcommittee has observed that the permanent water sprinklers are not in place.
5. The subcommittee has observed the temple within the mine lease area and Assonora River touching the mine lease boundary. The Project Proponent has informed that the safety distance of 50m is left on either side of the river. A dense plantation has been carried out in the safety zone.
6. The subcommittee also visited the settling pond in the mine lease area. The subcommittee noted that the settling pond is poorly maintained. The Subcommittee suggested to construct silt check dam based on the rate of inflow. Subcommittee also suggested the Project Proponent not to discharge any water outside lease area without passing it through treatment plant.

Figure 6: Settling Pond

7. The subcommittee visited the Mayem Forest boundary which is demarcated by poles with white flags from the mine lease area. The Project Proponent informed that the forest boundary is about 70-80m away from the mine lease area. The Differential Global Positioning System (DGPS) survey has been carried out by the Forest Dept but pillars are not demarcated by the Forest Dept. The Project Proponent also informed that a letter has been obtained from the Dept. of Forest stating that the forest land is not involved in the mine lease area. The subcommittee suggested that the Project Proponent should consult with the Forest Dept and should erect the pillars to differentiate the mine lease area from the forest boundary.
8. The subcommittee has visited the waste dump to see the dump height, dump slope and plantation made on waste dumps. The subcommittee noted that the plantation has been carried out using coir mats. The subcommittee suggested that the proper terracing has to be done and suitable measures to be undertaken for preventing soil erosion.

Figure 7: Near Waste Dump

9. The subcommittee observed that the villages and schools are located in the mine lease area. The Project Proponent has informed that the villages such as Manasbag Mulgao village (~120m from Ultimate Pit Limit-UPL), Mulgao Village (~58m from UPL) and Lamgao Village (~56m from UPL) are located within the mine lease area. The Project Proponent also informed that the Manaswada Govt. School is located at a distance of ~138m from UPL with 12 no. of students and Gaonkarwada Govt. School is located at a distance of ~190m from UPL which is non-operational.
10. The subcommittee has observed that the crematorium ground is located within the mine lease area. The subcommittee also visited the Idgah located within the mine lease area. The Project Proponent has informed that the mining activity will be carried out by using ripper dozer combination. There will be no activity of drilling and blasting. A buffer zone of 200m will be maintained from Idgah. The subcommittee was of the view that the mining activity shall be strictly carried out by using only ripper dozer combination.
11. The subcommittee has visited the crushing and screening units in the mine lease area. The subcommittee noted that the crushing and screening units are not maintained well. The subcommittee opined that the fabrication works has to be carried out before starting mining operations and also suggested that the crushers and screening plant should have adequate arrangement to suppress dust and also measures should be taken to control noise.

Figure 8: Crushing and Screening Units

12. The subcommittee has observed that there are four Schedule-I species reported in the study area. The subcommittee asked the Project Proponent to ensure that whether any other Schedule-I species has been added as per latest Wildlife (Protection) Amendment Act 2022.
13. The subcommittee has visited the entire mineral transportation route of 5.48 km [4.54 km company owned dedicated road + 0.94 km public road] from the mine lease area to Sarmanas Jetty. The subcommittee has observed that there at two places public road is getting intersected. The width of the road is not adequate. The Project Proponent has informed that the under passes are proposed at the intersecting points and hence the public road will not be disturbed. Traffic marshals will be deployed at the intersecting point to monitor the movement of traffic. During rainy season, no transportation will be carried out and only developmental works will be carried out. The subcommittee also visited the Sarmanas Jetty. The subcommittee opined that the maintenance works has to be carried out at Sarmanas Jetty before commencing mining operations. The subcommittee was of the view that the Over Land Belt Conveyor (OLBC) from the mine lease area to Sarmanas Jetty may be solution for eco friendly transportation and economics.

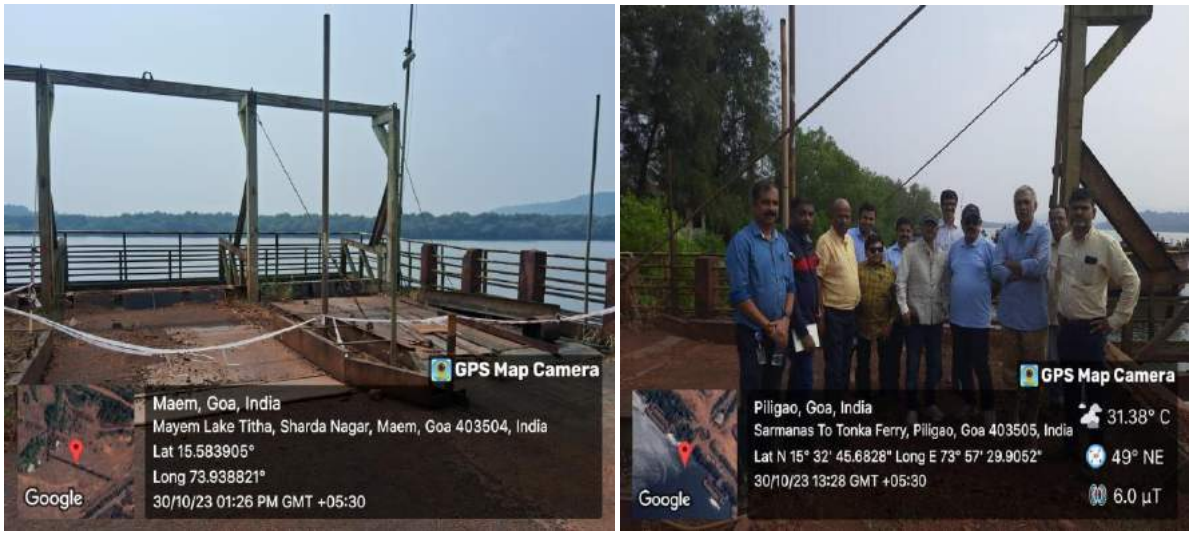


Figure 9: Sarmanas Jetty

14. The subcommittee opined that the Project Proponent needs to develop an own nursery.
15. The subcommittee also visited the nearby Sanquelim mine of Sesa Goa Ltd to see the reclamation activities carried out in the mined out area.

12. Recommendations of the Sub-committee:

1. The Project Proponent needs to submit the techno economic feasibility report for laying Over Land Belt Conveyor (OLBC) from the mine lease area to Sarmanas Jetty.

2. The subcommittee asked the Project Proponent to submit the ecology restoration plan for mined out pits for using as Water reservoir/Pisciculture.

3. The subcommittee noted that the transfer of material from one pit to other working pit will lead to transportation issues. The subcommittee asked the Project Proponent to identify the shortest lead distance and also to explore the possibility of concurrent backfilling. The Project Proponent also needs to submit the sequential stage wise mining in top and bottom working pits and their backfilling plan.

4. The Project Proponent needs to submit the action plan for strengthen the settling pond with proper stone pitching in line with the design of settling pond considering the annual rainfall, flow rate, catchment area and its discharge. The action plan for monitoring the water level and water quality before discharge needs to be submitted.

5. The design of garland drain around the waste dumps to divert the water to settling ponds and the measures to be taken to arrest the suspended solids needs to be submitted. The measures to be taken for preventing the soil erosion on slope of waste dumps needs to be submitted.

6. The Project Proponent needs to submit the action plan for installing permanent water sprinklers.

7. The Project Proponent needs to submit the action plan and timeline to modify the crushing and screening units. The Project Proponent also needs to submit the material flow sheet and material balance.

8. The Project Proponent needs to submit the action plan for developing their own nursery by mentioning the details of the area to be covered, species to be planted and budget proposed. Most of the standing vegetation in the lease area constitutes of *Acacia auriculiformis and Casuarina equisetifolia* and it is further invading the open areas through natural regeneration. The invasion may be checked through planting native species in the region.

9. The Project Proponent needs to ensure that whether any other Schedule-I species has been added as per latest Wildlife (Protection) Amendment Act 2022 or not. Accordingly, the Project Proponent shall submit the revised authenticated Schedule-I species. The Project Proponent also needs to submit the breakup of the conservation activities proposed under Wildlife Conservation Plan.

10. The Project Proponent needs to submit the map demarcating the surface features in the mine lease area and their safety distances left/maintained as per mines acts and rules.

11. The Project Proponent needs to provide proper treatment of channels and nallas flowing in the lease area for soil and water conservation. Scientifically designed and placed check dams and other engineering structures at different places can help control the erosion and loss of productive soil. Necessary study from competent institution/individuals may be done for this purpose.

13. Observation and Recommendation of the EAC: -

The EAC noted that the site visit was conducted by the subcommittee during 29-31 October 2023. The EAC deliberated on the observation and recommendations of the

subcommittee. After detailed deliberations, the EAC agreed to the recommendations of the subcommittee.

*****

List of members of Expert Appraisal Committee participated through VC

S.No	Member Name	Member Address	Designation	14th Nov., 2023	15th Nov., 2023
1	Dr. Dinesh Misra, IFS (Retd.)	Plot No 65, Sector 8, Gandhinagar, Gujarat, 382 008	Chairman	Yes	Yes
2	Sh. Niranjan Kumar Vasu,IFS (Retd.)	816, Shanti Nagar, Opposite Durgapur Railway Station, Jaipur-Rajasthan, 302018	Member	Yes	Yes
3	Dr. Asha Rajvanshi, Scientist 'G' (Retd.), WII	B/104/106 Rock Valley Apartments, GMSRoad, Sewla Kalan, P.O. Majra, Dehradun, Uttarakhand-248171.	Member	No	No
4	Shri. Avijit Ghosh (CMD- Heavy Engineering CorporationLimited) (Retd.)	Singhee Marg, A- 604 Shahadeo Tower, P.P.Compound, Ranchi 834001, Jharkhand	Member	Yes	Yes
5	Shri. BandiRamchandra Reddy (Former CMD-South Eastern Coalfields Limited)-(Retd.)	Flat No-503 A, Jyoti Cosmos, White Fields, Hi-Tech City, Kondapur,Hyderabad-500081	Member	Yes	No
6	Prof. Pramod Kumar, Professor,ShriAurobindoCollege,University of Delhi	Shri Aurobindo College, University of Delhi 1372, B-1, Vasant Kunj, New Delhi-110070	Member	Yes	No
7	Prof.DeveshWalia, Department of Environmental Studies	Department of Environmental Studies, NEHU,Shillong-793022 Meghalaya	Member	Yes	Yes
8	Dr. Suresh Tiwari Scientist-F	Indian Institute of Tropical Meteorology, Pune,New Delhi Branch, Prof. Ram NathVijMargRajinder Nagar, New Delhi – 110060	Member	No	No

PART B

REPLY OF THE RECOMMENDATIONS OF THE HON'BLE SUB-COMMITTEE

ADS Reply

Point No. 1 **The Project Proponent needs to submit the Techno-Economic feasibility report for laying Over Land Belt Conveyor (OLBC) from the mine lease area to Sarmanas Jetty.**

Reply: Transportation route from mine site to jetty currently covers a total distance of 5.48 kms (4.54 dedicated road and 0.94 km MDR-20 Public Road). Based on the present capacity of the tippers, 1205 trips are required per day and the present road network is adequate for the purpose with widening and strengthening of some patches. The preliminary Techno-Economic feasibility study has been undertaken and prima facie it does not look feasible to switchover to OLBC system considering the terrain of the likely route having mounds and low-lying areas, vegetation/forest patches and its likely degradation, accessibility, environmental impacts and safety issues, technologies available, cost of the system, implementation period via-a-vis remaining reserves in the mining lease.

The preliminary Techno-Economic feasibility issues for laying Over Land Belt Conveyor (OLBC) from the mine lease area to the Sarmanas Jetty along with cost and timeline comparison for conveyor system and dedicated road are discussed in ***Annexure I.***

Point No. 2 **The subcommittee asked the Project Proponent to submit the ecology restoration plan for mined out pits for using as water reservoir/pisciculture.**

Reply: The Ecology Restoration or Mine Reclamation activities at Block I Bicholim Mineral block will be carried out concurrently with mining operations. The company has inhouse experienced team having experience of mine land reclamation. The company also proposes to collaborate and take support of various reputed institutes and consultancy firms in ecology restoration of the area more importantly the local stake holders will be consulted in the process of ecology restoration. Detailed ecology restoration plan for mined out pits for using as water reservoir/pisciculture is enclosed as ***Annexure II.***

Point No. 3 **The subcommittee noted that the transfer of material from one pit to other working pit will lead to transportation issues. The subcommittee asked the Project Proponent to identify the shortest lead distance and also to explore the possibility of concurrent backfilling. The Project Proponent also needs to submit the sequential stage wise mining in top and bottom working pits and their backfilling plan.**

Reply: As suggested by the Hon'ble Committee detailed study of mineral transportation from one pit to another pit including sequential mining has been carried out. The company has explored the possibility of concurrent backfilling and the concurrent backfilling will be possible only from 5^{th} to 10^{th} year. Details are enclosed as ***Annexure III.***

Point No. 4 **The Project Proponent needs to submit the action plan for strengthen the settling pond with proper stone pitching in line with the design of settling pond considered the annual rainfall, flow rate, catchment area and its discharge. The action plan for monitoring the water level and water quality before discharge needs to be submitted.**

Reply: At conceptual stage, total 12 nos of settling ponds will be developed and these will be strengthened by the stone pitching. Details of settling ponds considering the annual rainfall, flow rate, catchment area and its discharge is given in ***Annexure IV.***

The entire monsoon runoff is channelized into mine pits and supernatant water flows into series of settling ponds through drains. The clear water is allowed to naturally overflow by Header arrangements or through check dams.

In case required, Lime or combination of Lime and flocculent is used in the mine pit or settling pond so that the particles settle, and clear water is discharged. The discharge water is monitored regularly so that water quality meets the prescribed limits.

The inhouse Environment management cell will undertake the regular monitoring and analysis of discharge water through Environment laboratory recognized by MoEF&CC.

The monitoring reports will be submitted to Goa State Pollution Control Board on monthly basis and MoEF&CC Regional office on six monthly basis.

Surface Water Quality Monitoring

Surface water samples shall be collected at 8 locations which include all the mine discharge points and upstream and downstream of Bicholim and Asnora river. Samples shall be collected once a month. The parameters listed in IS: 2296 shall be monitored.

During monsoon season, in addition to the monthly monitoring, all the discharge points will be regularly monitored (on all the rainy days) and the TSS levels will be checked.

Sampling locations are given below:

Table - 3
Surface Water Sampling Locations

S. No.	Sampling Location	
1	Mine Discharge	1 Top (Bicholim Dhabdabha)
2		2 Top Discharge (Lamgao)
3		5 Top Discharge (Mulgao)
4		5 Bottom Discharge (Shirgao)
5	Bicholim River	Upstream Bicholim River
6		Downstream Bicholim River
7	Asnora River	Upstream Asnora River
8		Downstream Asnora River

Designs of sampling ponds & Action Plan of water monitoring has been prepared and same is enclosed as ***Annexure IV.***

Point No. 5 **The design of garland drain around the waste dumps to divert the settling ponds and the measures to be taken to arrest the suspended solids needs to be submitted. The measures to be taken for preventing the soil erosion on slope of waste dumps needs to be submitted.**

Reply: The dimensions of the drains to be maintained will be 2m in width and 1.5 m in depth everywhere in the mine. A proper height will be maintained on the sides of the garland drain so that water does not get over-flooded from the drains. The available garland drains are 11313 m in length which covers all the dumps within the mine lease area. The same will be strengthened and maintained before the onset of monsoon. The daily

average surface run-off is estimated as 14003 m3. The garland drains have capacity to accommodate instant volume of 33939 m^3 as per above dimensions. Therefore, garland drains capacity is more than sufficient to take care of average daily surface run off during raining period. Additional drains are proposed to take care of peak run off during the plan period. Therefore, water management structures comprising of drains, settling ponds and mined out pits are available as well as planned to address the catchment area run-off for conceptual period.

The detailed design of settling ponds is given in Reply of Point No. 11.

Measures to be taken to arrest the suspended solids and for preventing the soil erosion on slopes of waste dumps for preventing the soil erosion on slope of waste dumps is given below:

MITIGATION MEASURES

- Inward slope will be provided to all the dump benches so that the water doesn't flow over the slope and erodes the dump slope surface
- Covering the finalised dump slope with lateritic material and then covering with coir geotextiles
- Use of ERW pipes between benches to channelise the surface runoff water and diverting to settling ponds.
- Boulder walls 1.5m ht and 2m wide will be provided at the toe of the dump to arrest the flow of silt.
- Garland drains around the dump is constructed 1m bottom width, 2m top width and 1m deep with a length of 6100 m to divert water to settling pond for arresting the suspended solids.
- Use of Styllo grass seeds and Glyricidia cuttings at the onset of monsoon to create green cover on the dump slopes.
- Annual Plantation of native species on waste dump.
- Safety green belt /barrier of 50 mts shall be maintained near the Assonora river from the mine pit.
- Annual de-siltation of the settling ponds, drains.
- Use of lime and flocculants in case required so as to settle the suspended solids in settling pond.

Point No. 6 **The Project Proponent needs to submit the action plan for installing permanent water sprinklers.**

Reply: Permanent water sprinklers with 3.40 km length along the haul road within the ML Area and 2.80 km length outside the ML Area on either side of the road will be installed. Sprinklers will be spaced at 12m distance covering 6m of radius at 180 degree. Estimated budget for the installation of the same is Rs. 191.60 Lakh.

Action plan for installing the permanent water sprinklers for dedicated transport route is given below.

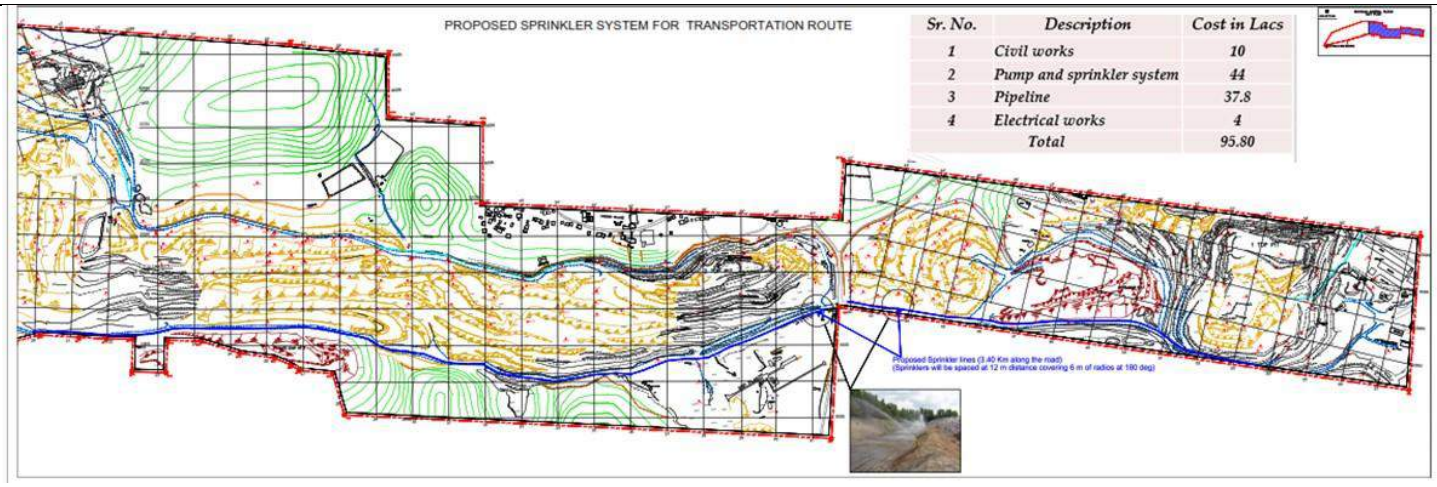


Figure 2 Layout of Proposed Water Sprinkler System within the ML Area

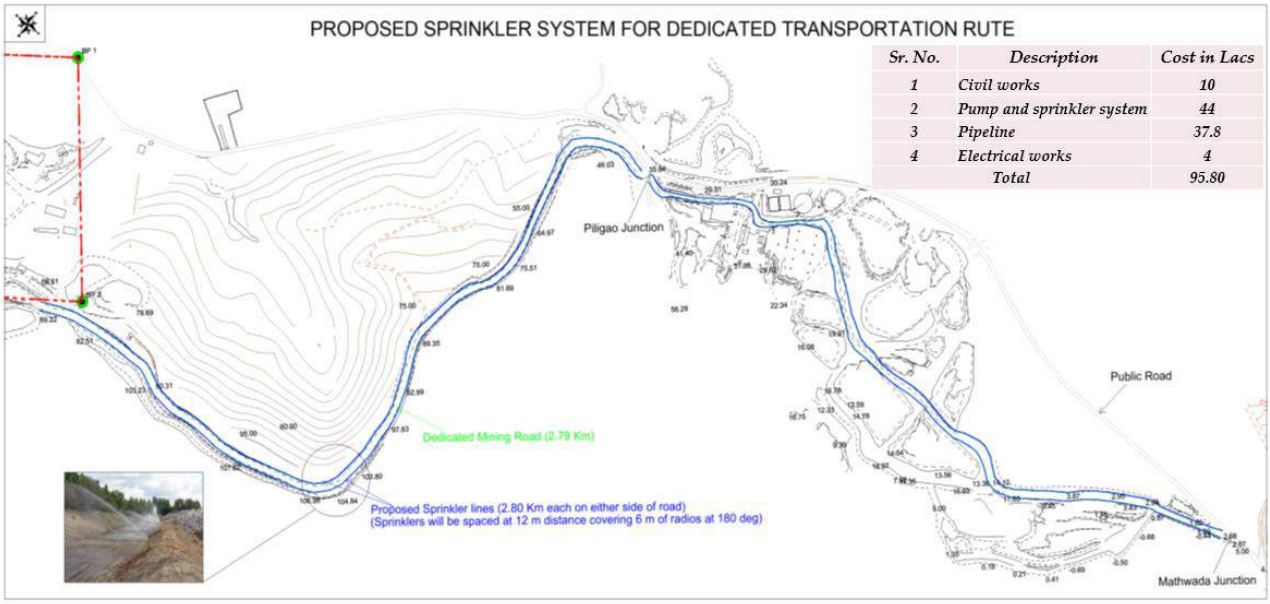


Figure 3 Layout of Proposed Water Sprinkler System for Dedicated Road

Table – 4
Estimated Budget for Proposed Water Sprinkler System

S. No.	Description	Cost (Rs. In Lakh)
1	Civil Works	**20.00**
2	Pump & Sprinkler System	88.00
3	Pipeline	75.60
4	Electrical Works	08.00
Total		**191.60**

Point No. 7. **The Project Proponent needs to submit the action plan and timeline to modify the crushing and screening units. The Project Proponent also needs to submit the material flow sheet and material balance.**

Reply: Crushing & screening will be modified within 4 months after obtaining the Clearances. Budget proposed for the same is Rs. 6.97 Crore.

A flow sheet of modify crushing & screening unit is given below:

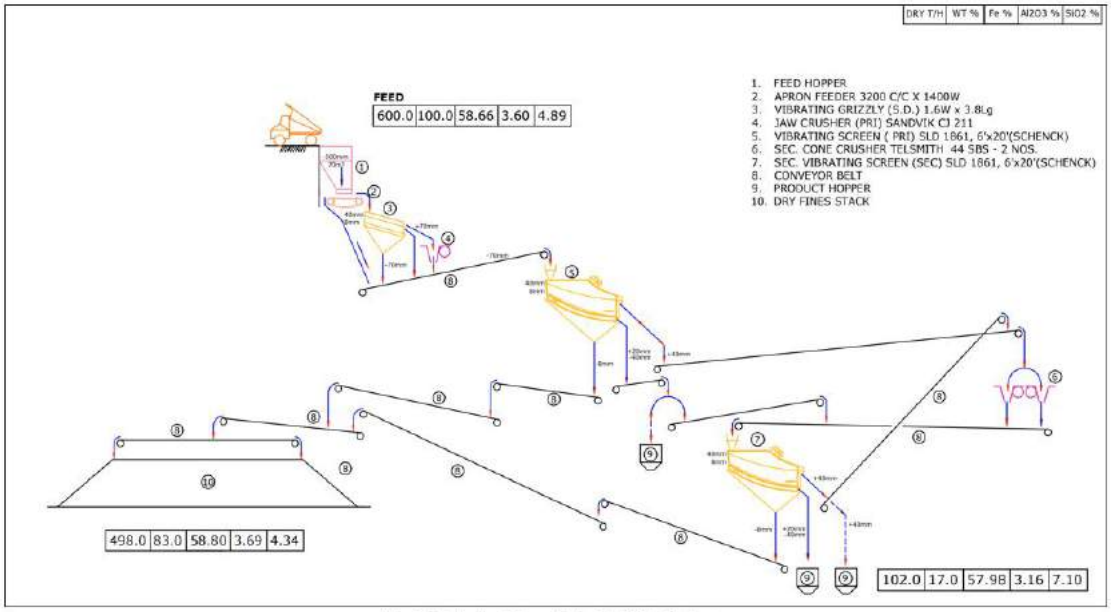


Figure 4 Flow Sheet of modify Crushing & Screening Unit

The Action plan & timeline to modify the crushing & screening units is given below:

Table – 5

Action Plan & timeline to modify the Crushing & Screening Units

Activity	No of days	3	7	7	7	7	7	7	7	7	7	7	7	7	3
CIVIL WORKS (STRENTHENING OF EXISTING STRUCTURE)	Month	DEC'23		JAN'24				FEB'24					MARCH'24		
	Week														
	EXCAVATION														
	RUBBLE SOLING														
	PCC														
	REINFORCEMENT PLACING														
	RAFT CONCRETING														
	SHUTTERING														
	FOUNDN. BOLTS FIXING														
	FOOTING CONCRETING														
MECH & ELECT. WORKS	Month														
	DISMANTLING OF CORRODED STRUCTURES														
	FAB./MODIF. OF STRUCTURES														
	ERECTION OF STRUCTURES														
	ERECTION OF EQUIPMENTS														

	GUARD FAB N FIXING														
	ALLIGNMENT OF EQUIPT														
	ELECTRICAL CONNECTIONS														
	TRIALS N COMMISSIONING														

Table – 6
Proposed Budget to modify the Crushing & Screening Units

S. No.	Description	Cost (Rs. In Crore)
1	Civil works	0.4
2	Equipment	0.74
3	Structural	4.74
4	Electrical works	1.09
Total Cost		**6.97**

Point No. 8. **The Project Proponent needs to submit the action plan for developing their own nursery by mentioning the details of the area to be covered, species to be planted and budget proposed. Most of the standing vegetation in the lease area constitutes of *Acacia auriculiformis* and *Casuarina equisetifolia* and it is further invading the open areas through natural regeneration. The invasion may be checked through planting native species in the region.**

Reply: The company undertakes to develop nursery adjacent to the mineral block (Survey no 72/4 in Bicholim Village). Around 1100 sq.m of area will be utilized for the nursery. A budget of Rs. 5 lakh is kept for the same.

The nursery will comprise of following:

1. A poly house/ nursery shed will be developed where in a root trainer nursery will be established.
2. Production area wherein various jobs like filling of root trainers/polybags will be undertaken store room wherein the nursery equipment's will be stored.

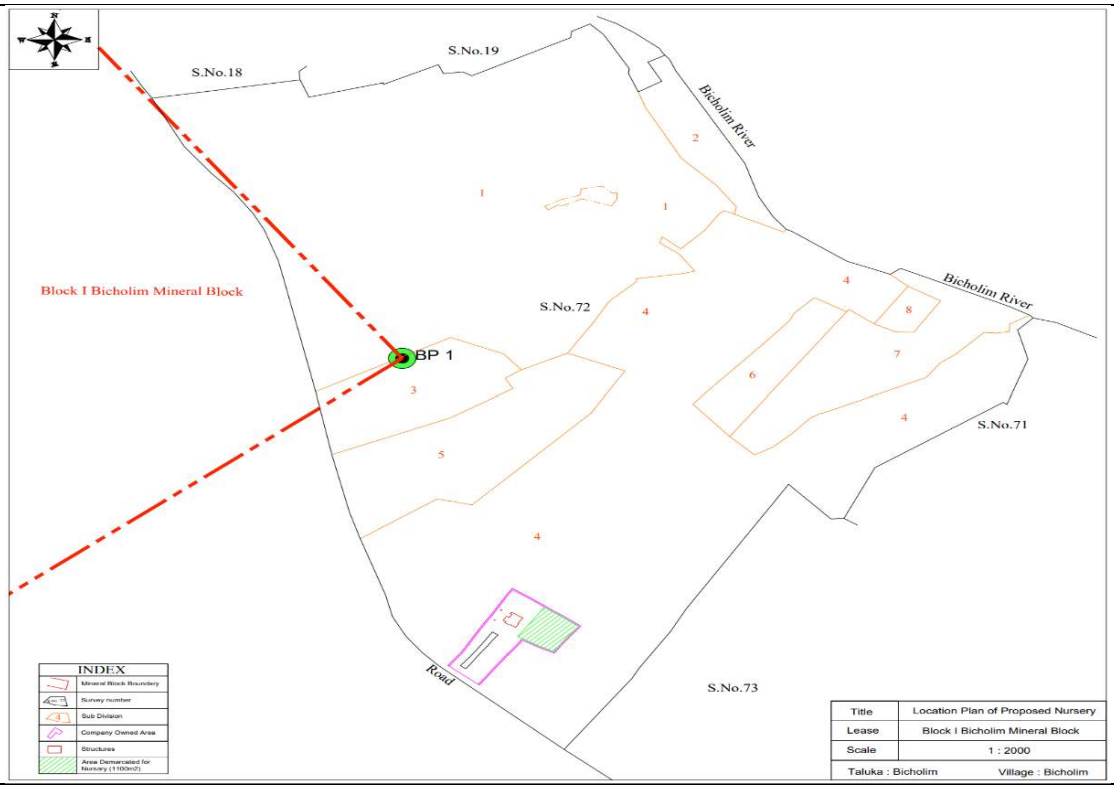


Figure 5 Location Plan of Proposed Nursery

Table – 7

Greenbelt/Plantation Plan for the Next 5 years

Year	7.5m safety, Buffer towards habitation, archaeological site, & river		Plantation on backfilled area		Total		Budget (Rs. In Lakh)
	Area (Ha)	No. of Plants	Area (Ha)	No. of Plants	Area (Ha)	No. of Plants	
1st	4.0432	10108	0	0	4.0432	10108	6
2nd	3.1319	7830	0	0	3.1319	7830	4.7

3rd	2.5537	6384	1.5383	3846	4.092	10230	6.13
4th	0	0	4.7443	11861	4.7443	11861	7.2
5th	0	0	3.1609	7902	3.1609	7902	4.8
Total	**9.7288**	**24322**	**9.4435**	**23609**	**19.1723**	**47930**	**28.83**

List of species proposed for Plantation

Only native / local species of various horticultural and forest species will be grown in inhouse nursery or sourced from forest department nursery for planting in the finalised areas within the Mineral block. Necessary technical support will be taken from state forest department. Company also carries out collaborative mine reclamation projects in association with research institutes like NEERI, Goa university etc.

Horticultural species like Mango, Cashew, Ber, Aonla, Jambul, Tamarind, Jackfruit, citrus species, etc will be grown

Forest species like various Terminalia tomentosa, Terminalia bellerica, Bauhinia species, Teak, Cassia fistula, Arjun, Assan, lagerstromia species, Shiwan, Ficus species, Pongamia pinnata, Reetha, Rain tree, Pangara, Peltoforum, Palas, Saton, Mahagony, bamboo species etc.

Point No. 9. **The Project Proponent needs to ensure that whether any other Schedule-I species has been added as per latest Wildlife (Protection) Amendment Act 2022 or not. Accordingly, the Project Proponent shall submit the revised authenticated Schedule-I species. The Project Proponent also needs to submit the breakup of the conservation activities proposed under Wildlife Conservation Plan.**

Reply: Authenticated list of Schedule I Species as per Indian Wildlife Protection Act 1972 as amended Gazette Notification of Wildlife (Protection) Amendment Act, 2022 has been obtained from the Dy. Conservator of Forests Wildlife & Eco-Tourism (North), Panji-Goa vide letter no. 1-576-WL&ET(N)/2023-2024/3312, dated 27.11.2023. According to this authenticated list 29 Schedule I Species have been recorded within 10 km study area. Copy of Authenticated list of Schedule I Species is enclosed as ***Annexure V.***

As suggested by the Hon'ble EAC the company revised the break-up of conservation activities proposed under Wildlife Conservation Plan and same is enclosed as ***Annexure VI.***

Point No. 10. **The Project Proponent needs to submit the map demarcating the surface features in the mine lease area and their safety distances left/maintained as per mines Acts and Rules.**

Reply: The surface features in the mine lease area and their safety distances left/maintained as per mines Acts and Rules has been prepared on KML file and same is given below.

Figure 6 Map demarcating Surface features and their safety distances

Details of surface features inside the mine lease area along with distance from the Ultimate Pit Limit is given in below table:

Table – 8
Surface Features Inside the ML Area along with distance from the UPL

S. No.	Features inside lease	Distance from Ultimate Pit Limit UPL	Statutory Distances as per MMR
1.	Manasbag Mulgao village	120m	45 mts
2.	Mulgao village	58 m	
3.	Lamgao village	56 m	
4.	Manaswada Govt. School within habitation	138 m (12 Students)	45 mts
5.	Gaonkarwada Govt. School within habitation	190 m (not functional)	
6.	Old Lairai Temple	126m (From 5 Bottom Backfilling site)	45 mts
7.	Mahadev & Sateri Temple	280m	
8.	Kelbai Temple	205m	
9.	Sateri Temple	130m	
10.	Matrai Temple	150m	
11.	Nimuzgah	210m	
12.	Lamgao Caves	300 m	45 mts

Point No. 11. **The Project Proponent needs to provide proper treatment of channels and nallas flowing in the lease area for soil and water conservation. Scientifically designed and placed check dams and other engineering structures at different places can help control the erosion and loss of productive soil. Necessary study from competent institution/individuals may be done for this purpose.**

Reply: Location of settling ponds and drainage network is given below.

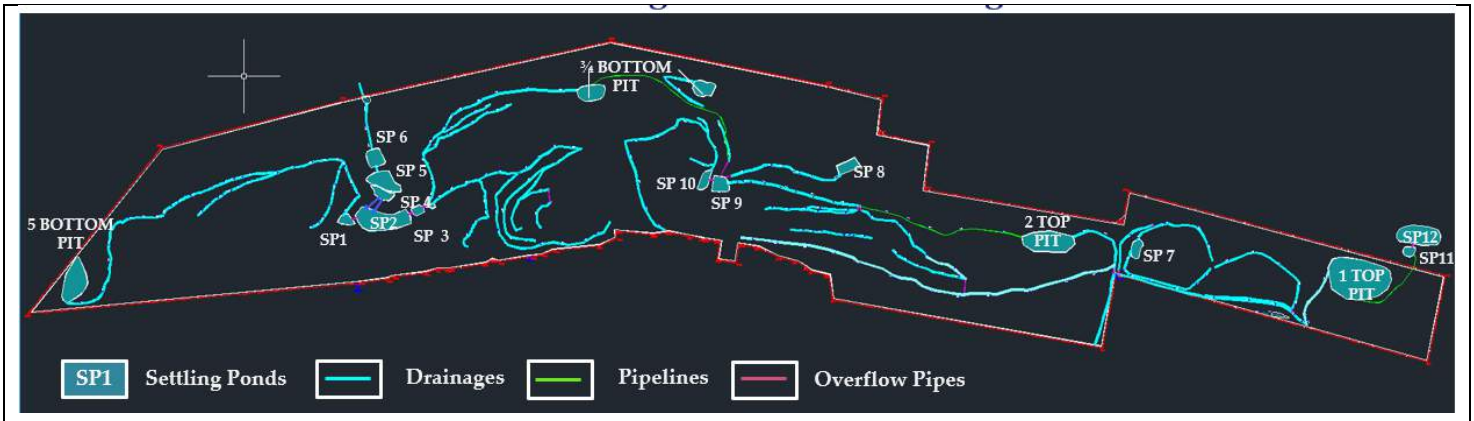


Figure 7 Settling Ponds & Drainage Network

Table – 9
Details of 12 Settling Points Inside & Outside the ML

Pit ID	Area in m^2	Depth in mts	Volume in m^3	Location
SP1	1824	1.8	3283.2	5 Top pit Area
SP2	1667	1.8	3000.6	
SP3	27879	8	223032	
SP4	5208	2	10416	5 Top Mulgao Area
SP5	8602	2	17204	
SP6	4661	2.5	11652.5	
SP7	3896	1.5	5844	1 Top Area (Sec 43)
SP8	5831	3	17493	2 top area
SP9	3753	1.5	5629.5	3 Top Sec 22
SP10	5564	1.5	8346	
SP11	2443	3	7329	Outside lease (Above 1 Top Area)
SP12	17130	4	68520	
Total			**381749.8**	

The drainage pattern is mainly dendritic to sub-dendritic in nature and sparse drainage network is seen. During monsoon, the area receives an average rainfall of about 3500mm. The surface run-off is channelized & collected through a network of drains & pipes into Pits and settling ponds. These surface run-off, as far as possible is directed in to the finalized / working Pits for harvesting the rain-water and using the same for various purposes like dust suppression, afforestation etc. Altogether, there are about 6 Pits in this lease and currently 3 Pits are such where there is retention of accumulated rainwater. In addition to this there are total 12 settling ponds (within and outside lease).

1 Top Pit (Dhabdhaba Side) - The rainwater is channelized through drains and collected in the Pit in between Section 53 to 55. The existing water storage capacity of this pit is estimated to be about 1.46 million m3. For the water management in this Pit during monsoon, 2-3 pumps of 120Hp capacity are used. The water is pumped into settling Pit (SP11, SP12) where it is allowed to settle and clear water is released into the natural drainage system.

2 Top Pit - The rainwater is channelized through drains and collected in the Pit in between Section 38 to 40. The existing water storage capacity of this pit is estimated to be about 0.98 million m3. For the water management in this Pit during monsoon, 1-2 pumps of 120Hp capacity are used. This water is pumped and released through a dedicated pipeline into the settling Pits (SP 9, SP10 and SP8) at Section 23. The water management is through

overflow arrangement which is subsequently followed by passage through a series of filter beds and coco filters ensuring release of clear water.

¾ Bottom Pit - The rainwater is channelized through drains and collected in the Pit in between Section 6 to 8. The existing water storage capacity of this pit is estimated to be about 0.52 million m3. The water management in this Pit is done through overflow pipe arrangement into Settling pits (SP9, SP8), thereby eliminating pumping of water.

5 Top Pit - The rainwater is channelized through drains and collected in the Pit in between Section 5 to 7. The existing water storage capacity of this pit is estimated to be about 1.40 million m3. The water management in this Pit is done through overflow pipe arrangement in settling pits (SP1, SP2, SP3) There are two overflow pipes (headers) installed, one at a higher level and another at a lower. As the water in the Pit rises, it overflows through the header pipes into a series of settling pits (SP4, SP5, SP6) where it is allowed to settle. Thus, pumping is eliminated by this arrangement.

5 Top CB Pit - This Pit has a common area of the adjoining Pit of Block III - Monte De Sirigao Mineral Block. The existing water storage capacity of this pit is estimated to be about 0.39 million m3 which is channelized through drains and collected in the Pit in between Section -1 to 0.. For the water management in this Pit during monsoon, 1 pump of 75Hp capacity is used. This water is pumped to 5 Top Pit in Section 5 to 7.

5 Bottom Pit - The rainwater is channelized through drains and collected in the Pit in between Section -6 to -10 The existing water storage capacity of this pit is estimated to be about 0.50 million m3 and the surplus quantum of water overflows through the channel to the settling area and eventually joining to the natural course.

Extract of Additional study of silt load calculation, de-siltation management and likelihood of seepage from Assonora river to 5 Bottom pits conducted Center for Advance studies department of geology, University of Delhi.

The garland drains are made such that from upstream to the downstream where the drains are meeting the settling ponds will show decrease in elevation, to maintain a free-flowing gradient of rainfall runoff.

The dimension of the drains is maintained to be 2m in width and 1.5m in depth at everywhere in the mine site. A proper height has been maintained on the sides of the garland drain so that water don't' get over-flooded from the drain.

Total length of the Garland drain = 11313 m
Peak rainfall = 154 mm/day
Peak runoff in a day = 110590 m3
Capacity of garland drain = 33939 m3

"All the structures made for the settling of sediments are found to be more than sufficient to accommodate sediments even during peak rainfall".

Annexure I

FEASIBILITY REPORT FOR INSTALLATION OF OVERLAND BELT CONVEYOR FOR TRANSPORTATION OF IRON ORE FROM BLOCK – I BICHOLIM MINERAL BLOCK TO SARMANAS JETTY

VEDANTA LIMITED

AT TALUKA – BICHOLIM, DISTRICT – NORTH GOA, STATE – GOA

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6	*Technical aspects of Road Transportation:*	*8*
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Introduction:

The mining industry is the backbone of Goa's Economy. It is mainly due to the Iron ore bearing geology of Goa and its huge network of rivers that helps to transport the finished product to the port. Iron ore transportation in Goa is carried out with combination of road and waterways system. Ore is transported from mines / Mining to the nearest loading jetty's by road with the help of 10.5 Tonne tipper trucks. From jetty's to port or mother vessel ore is transported with the help of Barges.

Iron ore Mining in the Goa state came to halt as on 16th March 2018 as per Supreme Court Order. Till 2018 Vedanta Limited was the major producer of iron ore in the state. Vedanta Limited was declared as the preferred bidder for Block- I Bicholim Mineral Block which was the part of states 1st phase of mineral block auction.

Bicholim Mineral Block is spread over an area of 478.5206 Ha with total iron ore Reserves & Resource of 84.743 million Tonnes. Total proposed production capacity of ROM is 3 MTPA. A dry mineral processing plant exists within the mineral block area. The nearest jetty is at Sarmanas which is at a distance of 5.48km by road out of which 4.54km is dedicated transport road and 0.94km is MDR-20 public road. Earlier leasee used to transport finished ore from lease to Sarmanas jetty by road with the help of 10.5 Tonne tipper trucks.

Description of the Project:

Vedanta believes in Environment friendly mining with zero harm culture. Therefore, it is proposed to study the feasibility of Over Land Belt Conveyor (OLBC) and Pipe Conveyor system with capacity of 3 MTPA from dry mineral processing plant (WML) to Sarmanas Jetty covering a length of 6 km (approx.). The current transportation route is selected as proposed route for OLBC. It is passing through Non-Forest Land and devoid of any habitations. Fig .1 shows the location plan of proposed OLBC and Fig.2 shows the location plan of Pipe Conveyor.

Fig.1 Location plan of proposed OLBC

Fig.2 Location plan of proposed Pipe Conveyor

Need of the Project:

Safety and efficiency are paramount in the mining industry, where the movement of extracted materials is crucial. One invention that has transformed these sectors is the conveyor belt system. Conveyor belts have revolutionized mining operations by streamlining material transportation, enhancing productivity, and improving overall safety. Overland conveyor systems are used to transport large quantities of materials over long distances, connecting mining and Plant/Jetty/Port sites. This system minimizes environmental impact, enhances safety and it is energy efficient.

Environmental Benefits: Conveyor systems reduce carbon emissions associated with truck transportation, contributing to a greener and more sustainable mining industry.

Enhanced Safety: By automating material movement, conveyor belts minimize human contact with heavy machinery, reducing the risk of accidents and injuries. They also mitigate the dangers associated with truck haulage, such as vehicle collisions and road accidents.

Increased Efficiency: Conveyor belts in mining operations significantly improve material handling efficiency, enabling higher transportation rates, and reducing downtime associated with truck transportation.

Cost Savings: Conveyor belts reduce fuel consumption by replacing material transportation by truck haulage. Additionally, they minimize product loss and damage during handling, resulting in substantial cost savings.

Technical Specifications:

Vedanta Limited has its own Project's team which consists of high potential professionals. The groundwork is conducted by our in-house team including route selection and preparation of designs for installation of OLBC and Pipe Conveyor. Fig.3 shows the layout of the proposed conveyor belt and Fig.4 shows the layout of proposed Pipe Conveyor. Flow sheets diagrams for OLBC and Pipe Conveyor are shown in Fig.5 and 6 respectively.

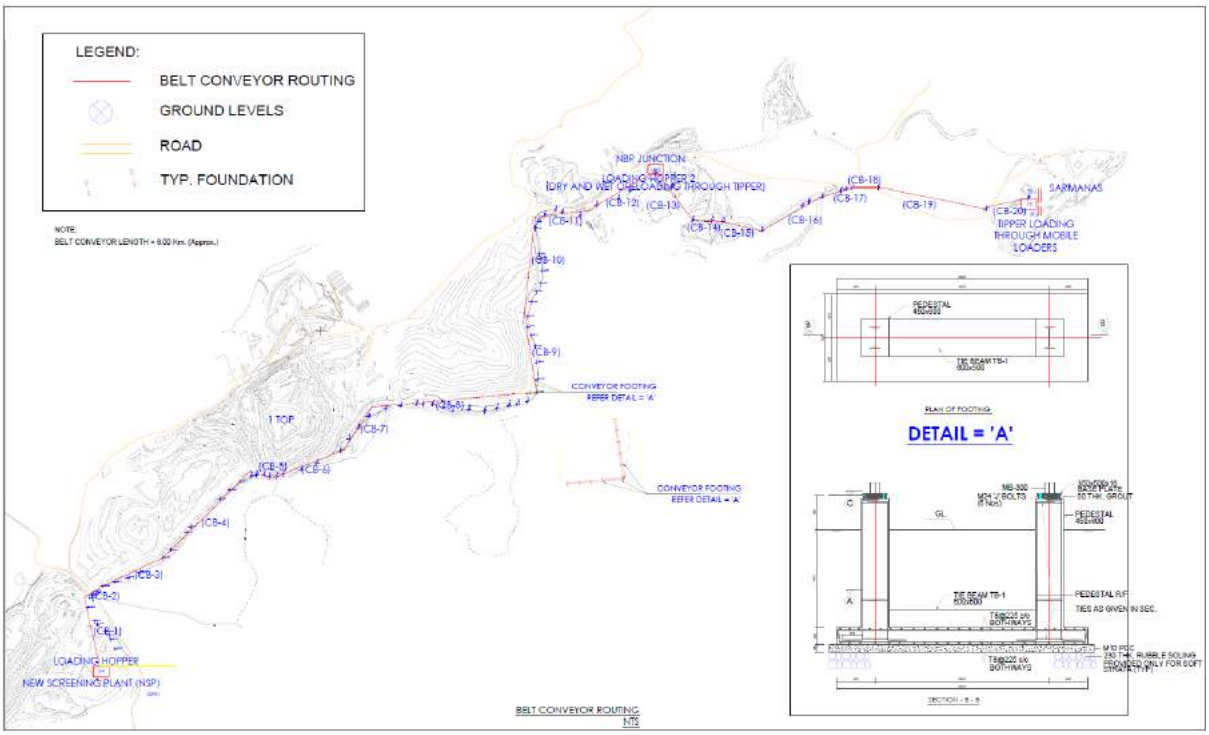


Fig.3 Layout of proposed OLBC

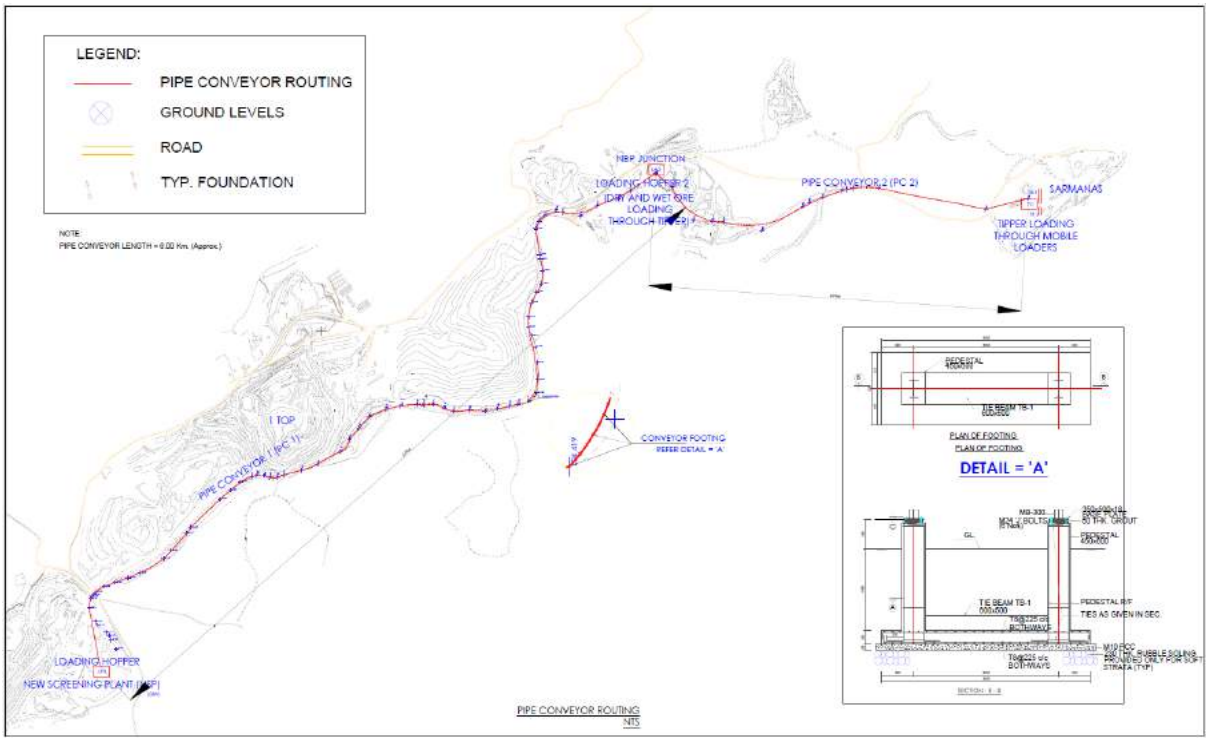


Fig.4 Layout of proposed Pipe Conveyor

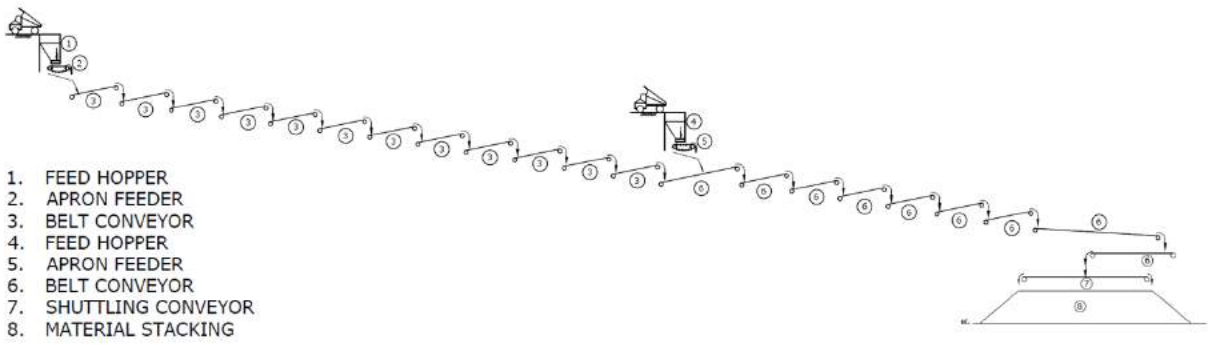


Fig.5 Flowsheet diagram of OLBC

Belt Conveyor:-After weighment, ore will be loaded with tipper trucks into the first stream feed hopper (100 Tons capcity) and same will be hauled throuh series of belt conveyor (total 12 nos of belt conveyor) up to NBP plant area. The first stream loaded material will be discharge into strem 2 belt conveyor and will hauled through series of conveyors (total 8 nos of belt conveyor). Second stream will also have feed hopper loading arrangements to accommodate product generating from NBP plant. At the end of sream 2 shuttleing conveyor will be made avaialabl for proper stacking of the material on jetty area

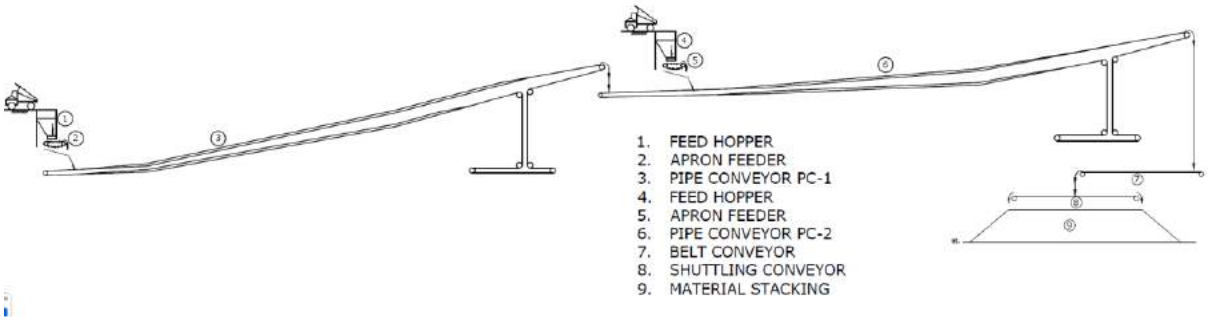


Fig.6 Flowsheet diagram of Pipe Conveyor

Pipe Conveyor:- After weighment, ore will be loaded with tipper trucks into the pipe conveyor 1 feed hopper (100 Tons capcity) and same will be hauled through pipe conveyor 1 (PC-1) up to NBP plant area. PC-1 loaded material will be discharge into pipe conveyor (PC-2). PC-2 will also have feed hopper loading arrangements to accommodate product generating from NBP plant. At the end of PC-2 shuttleing conveyor will be made avaialabl for proper stacking of the material on jetty area

The surface terrain of the selected route exhibits moderate to low relief. Reduced level at start point is 53.50 mrl and 2.5 mrl at the end point at sarmanas jetty. It passes over a small hillock with 110 mrl where excavation would be required to maintain the level of the conveyor belt. Excavation would not be required in the case of Pipe conveyor. The route selected is parallel along the existing dedicated ore transportation route which is easily motorable with gentle slopes and devoid of any habitations. The last stretch of the conveyor route where currently

ore transportation is on public road is routed through company owned area which is parallel to the existing road. Along the entire stretch of 6km (approx.) conveyor system would be crossing public road at 4 locations. This is one of the most feasible routes for the proposed conveyor system. The technical specifications of the conveyor system are shown in Table.1.

DPR study will be conducted in future on the finalized route wherein detailed technical specifications will be defined including the exact corridor route, single flight vs multiple flight overland conveyor options, structural requirements, civil requirements, electrical requirements, power optimization, upgradation provisions, etc. After the completion of DPR study alignment of conveyor system and its technical specifications may vary to some extent.

TECHNICAL DATA	BELT CONVEYOR	PIPE CONVEYOR	UOM
Horizontal conveying length	5772	5480	m
Vertical conveying height	10-12	15-20	m
Maximum inclination	9	5	degrees
Hourly capacity	1000	1500	T/Hour
Maximum lump size	10	10	mm
Bulk density	2.6-2.8	2.6-2.8	T/m3
Belt speed	1.2	2.5	m/sec
Location of drive unit	Unloading station	Unloading station	
Power required	150-200	350-400	Kw
No of Belts	20	2	no
Belt type	500/4 C.D Grade – m24 (Nylon Belt)	500/4 C.D Grade – m24 (Nylon Belt)	
Belt width	1200	1400	mm
Belt utilization width	600	700	mm
Side wall height	150-200	300-400	mm
Total number of Pillar’s	582	640	no
Loading station	2	2	no
Unloading station	1	1	no

Table.1: Technical specifications of conveyor System

Local Stakeholder engagement:

As discussed in the Introduction para, transportation of finished product from mine to jetty’s by earlier leasee was carried out by road with 10.5 Tonne tipper trucks. The local stakeholders were engaged in transportation which is their only livelihood. Across the entire Goa state transportation of ore from mines to plants/ jetty’s is carried out by using 10.5 T trucks of local stakeholders which takes care of their livelihood. Along with the transportation business there are many other local businesses which are interdependent like garages, spare retailers, hotels, shops, etc. Though the installation of conveyor system would be environmentally friendly, it will affect livelihood of the local villagers.

Technical aspects of Road Transportation:

The total road distance from dry screening plant to sarmanas jetty is 5.48km, out of which 4.54 km is dedicated road and 0.94 km is MDR-20 public road. Out of 4.54km of dedicated road, 3.31km has road width of 12-15m till Piligao junction and 1.23km from Piligao junction to Mathwada junction is with 7.0m of road width. Public road is with 7.0m of width. Fig 3 shows the ore transportation route.

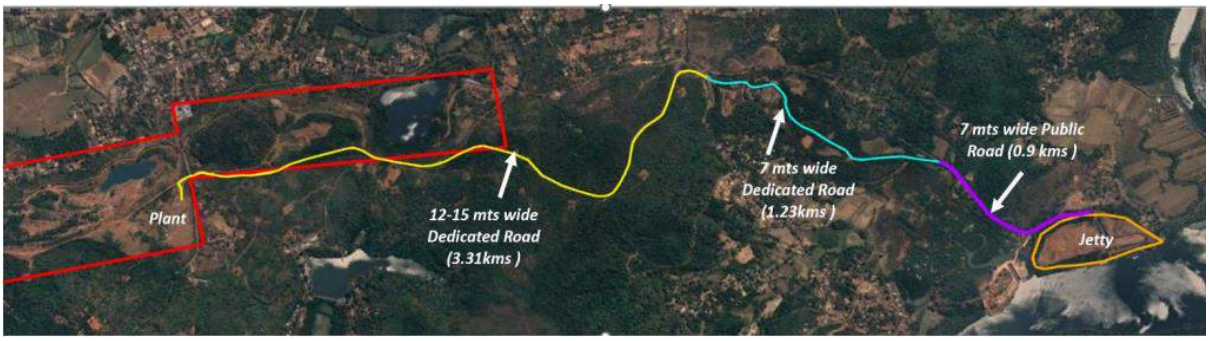


Fig -3 Ore transportation route.

Ore transportation on public road can be carried out only 237 days / year i.e excluding rainy season. There for to transport 30,00,000 Tonnes/annum Vedanta needs to transport 12658 Tonnes per day to meet the EC limit. Table.2 shows the detailed break up of ore transportation along with transportation load and effective distance between two trucks.

Sr No	Particulars	10.5 Tonne Trucks	unit
1	The total distance of Road	5.48	Km
2	Width of public road (0.94km)	7	m
3	Transportation no. of days	237	days
4	Capacity of truck	10.5	Tonnes
5	Total ROM quantity	3000000	Tonnes
6	Total Handling per day	12658	Tonnes
7	effective transportation time	9.3	Hrs
8	Per Hour Handling/ Transportation	1332	Tonnes
9	No. of Vehicles per Hour	127	Trips
10	No. of Vehicles per Hour (to and fro)	254	nos
11	The Speed of vehicle	25	KPH
12	The time taken by each trip for 5.48 km (5.48/25*60)	13.152	min
13	loading time is 1min, weighment time at both source location is 2 min, Tarpaulin tying and untying time is 2 min, unloading time 1 min and waiting time 10 min	16	min
14	Each truck length	4.58	m
15	distance from truck to truck is 5 m Both side	10	m
16	Each vehicle occupies a min. distance	15	m
17	No. of vehicle which can travel on this road for one side= 5480 /15	365	nos
18	Transportation load from Mine to Jetty = 1332/10.5	127	vehicles/hr
19	Effective distance between two vehicles per hour:	43	m

Table.2: Details of transportation load and effective distance between two trucks

Hot mixing of the 4.54km of dedicated transport road is also studied. Table – 4 shows the details of costing and timelines for completion of the work.

Summary and Conclusion:

The feasibility study conducted on the introduction of conveyor systems, specifically evaluating OLBC and pipe conveyor installations, alongside traditional road transport, presents a comprehensive view of potential advancements in ore transportation. Table.4 shows the Techno- economical comparison with timelines for completion.

COST & TIMELINE COMPARISON FOR CONVEYOR SYSTEM AND DEDICATED ROAD

Particulars	BELT CONVEYOR	PIPE CONVEYOR	DEDICATED ROAD	UOM
NO OF BELTS	20	2	NIL	Nos
BELT WIDTH	1200	1400	NIL	mm
ROAD WIDTH	NIL	NIL	12-15	mtrs
TOTAL LEANGTH	5772	5480	5480	mtrs
AREA (hot mix)	NIL	NIL	48330	sq. mtrs
NO. OF PILLARS	582	640	NIL	nos
LAND ACQUISITION	34000	NIL	NIL	sq. mtrs
EXCAVATION	3	3	NIL	million tonnes
COST SUMMARY				
MECHANICAL WORK	17	97	NIL	Cr
CIVIL/HOT MIX WORK	8	15	27	Cr
ELECTRICAL WORK	9	28	NIL	Cr
LAND ACQUISITION COST	2	NIL	NIL	Cr
EXCAVATION COST	36	NIL	NIL	Cr
TOTAL	72	140	27	Cr
TIMELINE SUMMARY				
EXCAVATION	6	NIL	NIL	months
LAND ACQUISITION	24	NIL	NIL	months
NOC FROM PANCHAYAT	15	15	NIL	months
CONSTRUCTION	24	24	NIL	months
STATUTORY BODY PERMISSIONS FOR PUBLIC ROAD CROSSING	18	15	6	months
HOT MIXING	NIL	NIL	24	months
TOTAL	87	54	30	months

Table.4 Techno- economical comparison with timelines for completion.

The comparison between OLBC, pipe conveyor and road transport in open-cast mines reveals distinct advantages for each system. Pipe conveyors offer superior material containment but require higher initial investment and specialized installation. Belt conveyors, though simpler to set up and more cost-effective initially, have slightly lower containment abilities. Both

conveyors show potential in enhancing efficiency and safety in ore transportation compared to traditional road transport, reducing traffic congestion and environmental impact while offering continuous material flow.

Despite these advantages, road transport still holds value for short-distance or intermittent needs due to engagement of local stakeholders, its flexibility and lower initial costs. Both conveyors present promising prospects for optimizing material transportation, yet a comprehensive cost-benefit analysis considering environmental impacts, initial investments, and operational costs is crucial to determine the most suitable transport mechanism.

Further detailed studies and rigorous assessments are recommended to identify the optimal system for implementation, considering specific mine conditions and long-term operational benefits.

Annexure II

ECOLOGY RESTORATION PLAN FOR BLOCK I BICHOLIM MINERAL BLOCK

The Ecology Restoration or Mine Reclamation activities at Block I Bicholim Mineral block will be carried out concurrently with mining operations. The company has inhouse experienced team having experience of mine land reclamation. The company also proposes to collaborate and take support of various reputed institutes and consultancy firms in ecology restoration of the area more importantly the local stake holders will be consulted in the process of ecology restoration.

Plantation

The plantation will comprise of saplings of native species which are generally grown in the state of Goa. Fruit Trees like Cashew, Mango, Jamun, Amla which attract lot of birds and can generate revenue to the locals in future will be given preference. The plantation would be a mix of various forest and fruit tree species technical advice would be taken from state forest and agriculture departments. The saplings will be procured from various nurseries like forest department nursery, nurseries developed by locals and also from companies inhouse root trainer nursery.

Plantation along mining lease boundary

The Block-I Bicholim Mineral Block is already having a 7.5m wide green belt all along the mine block boundary except the areas where the mine block shares a common boundary with adjoining mine block. A 50m green belt exists towards the habitation within the lease and the same would be further strengthened and maintained. A dedicated 200m green belt would be developed and maintained towards the Idgah area. A density of 2500 saplings per ha will be maintained.

Plantation around Office Building & Road

Avenue Plantation is provided around the built-up areas and in open spaces. Extensive plantation would also be done along the sides of connecting roads.

Plantation on Dump Slopes/ Backfilled areas

The waste dump slopes will be covered with laterite material and then with biodegradable geotextile mats. The geotextile mats will prevent soil erosion of the dump slopes and thus will facilitate the growth of native species. The benches on the slopes should be sloped inward. Grass seeds should be sprinkled on the dump slopes so that the same germinate during rains. Pits should be dug on the geotextile laid slopes and Native species saplings should be planted in pit in the slopes.

Table - 1

Greenbelt Planning next 5 years

Plan Period	Area (Ha)	No. of Sapling	Garland Drains (m)	Name of species
I	4.0432	10108	1600	Cashew, Mango, Jambul, Aonla etc.
II	3.1319	7830	2000	
III	4.092	10230	1700	
IV	4.7443	11861	300	
V	3.1609	7902	500	

Source: *EIA/EMP Report*

Sensitivity: Public (C4)

Annexure II

Table - 2

List of Species suggested for future Greenbelt development

S. No.	Botanical Name	Family	Common Name	Habitat	Height
1.	Citrus limon	Rutaceae	Lemon	Shrub	3m
2.	Duranta repens	Verenaceae	Golden Dew Drop	Shrub	3m
3.	Hibiscus rosa sinensis	Malvaceae	China Rose/ DasavaLa	Shrub	3m
4.	Nerium indicum	Apocynaceae	Oleander/Chandaatha	Shrub	5m
5.	Acacia nilotica	Mimoseae	Gum Arabic/ Babli	Tree	8m
6.	Bauhinia varigata	Caesalpinaceae	Kachnar/ Arisinantige	Tree	5m
7.	Annona squamosa	Annonaceae	Setha palla	Tree	6m
8.	Butea monosperma	Fabaceae	Flame of the Forest/ Muttuga	Tree	10m
9.	Gardenia jasminoides	Rubiaceae	Cape jasmine/ Suvasane Malle	Tree	5m
10.	Moringa oleifera	Moringaceae	Drumstick Tree/Guggala	Tree	10m
11.	Pithecellobium dulce	Mimosaceae	Manilla Tamarind/Seeme hunase	Tree	8m
12.	Thevetia peruviana	Apocynaceae	Mexican oleander	Shrub	6m
13.	Phyllanthus emblica	Phyllanthaceae	Ambla	Shrub	7m
14.	Aegle marmelos	Rutaceae	Maredu / Bilva	Tree	12m
15.	Albizia lebbeck	Mimoseae	Siris tree	Tree	20m
16.	Albizia procera	Mimoseae	White siris/Belari	Tree	20m
17.	Alstona scholaris	Apocynaceae	Devil Tree/ Aelele Haale	Tree	15m
18.	Azadirachta indica	Meliaceae	Neem/ Turakabevu	Tree	20m
19.	Bambusa vulgaris	Poaceae	Yellow Bamboo	Perennial grass	15m
20.	Cassia fistula	Caesalpinaceae	Golden Shower/ Kakke	Tree	12m
21.	Delonix regia	Caesalpinaceae	Flame Tree/ Kempu torai	Tree	15m
22.	Ficus benghalensis	Moraceae	Banyan tree/ Aaladamara	Tree	20m
23.	Ficus religiosa	Moraceae	Peepal/ Arali	Tree	20m
24.	Mangifera indica	Anacardiaceae	Mango/ Mavinamara	Tree	15m
25.	Polythia longifolia	Anonaceae	Ashok/Ubbina	Tree	15m
26.	Wrightia tinctoria	Apocynaceae	Alae mara	Shrub	12m
27.	Hardwickia binata	Fabaceae	Small leaves	Shrub	6m
28.	Syzygium cumini	Myrtaceae	Neredu/ Neereedu	Tree	20m
29.	Tectona grandis	Verbenaceae	Teak	Tree	20m

Source: *EIA/EMP Report*

Theme based Biodiversity gardens

The top of dump areas / levelled areas will be properly planned and developed in to theme based gardens which can be a attraction for school students, tourist etc. Company has developed similar gardens in its other mines for example the Nakshatra Van, Charak Vatika, Bamboo Setum, Bamboo Pavillion at Sanquelim mine; Biodiversity plantation developed in association with NEERI at Codli mine. The company has also developed a microbial culture namely Ectomychorhiza culture in association with Goa University which is used to inoculate the root zone of the plants which help the plants to derive nutrients on the dump soil. Such native species gardens will be protected and provided with necessary aftercare and maintained as gardens.

Sensitivity: Public (C4)

Nakshatra Van

Charakvatika

Butterfly park

Bamboo Setum

Figure 1 Theme based Biodiversity gardens

Water Reservoir/ Pisciculture

Some of the mined-out pits will partially backfilled and retained as water bodies. For instance, 1 Top pit and 5 Bottom pits will be finalized by end of first mine plan period and will be taken up for ecology restoration initiatives. The benches and slope available at 1 top and 5 bottom pits will be covered with some laterite soil, levelled and landscaped. Garland drains and other erosion control measures will be provided to channelize the rain water in the water reservoir/ pit. Local horticultural plants will be planted near the water body so that it attracts birds.

The company will collaborate with state fisheries department to develop Pisciculture in the water body developed in the mine pits. Local youth will be provided training through the fisheries department so that they manage and maintain the Pisciculture project. Company has developed such projects in past namely Pisciculture pond in sanquelim mine which consist of fresh water fish like Rohu, Katla, Common carp. The company has also developed cage fishing project in Navelim in association with the State fisheries department. The project is now in second year and the local farmers are managing the same in commercial scale.

Sensitivity: Public (C4)

Figure 2 Pisciculture pond in sanquelim mine Cage fishing project at Navelim

The mining operations will change the land use of the area and will create pits, waste dumps etc. At the conceptual stage around 355.5659 ha of area will be degraded due to pits and excavation, around 6.8 ha due to dumping and material stacking and around 6.5 ha with mining infrastructure like plants and buildings. The entire block area at the end of mine life should be restored in such a way that it compliments with the surrounding areas and nature at large Vedanta Ltd has a lot of experience in scientific mining and mine reclamation. Company has developed and implemented a systematic mine eco-restoration work in one of its mine called Sanquelim iron ore mine in the State of Goa. The said mine is considered as one of the case studies for eco-restoration of mines and appreciated all over the country and also internationally. The company will adopt following practices for carrying out scientific and systematic ecology-restoration of the mines, namely:

1. Concurrent mining and mine reclamation activities
2. Use of latest software for mine planning
3. Associating with various research institutes like NEERI, ICAR, ICFRE and consultants for mine reclamation projects
4. Associating with various technical departments of state government like Forest department, Agriculture department, Fisheries department, Water Resource department etc.
5. Identifying all the stakeholders and engaging with them in a structured manner throughout the life of the mine. This will help to identify the issues, concerns of the stake holders and satisfying them in a systematic method. It will also help to take inputs form the stakeholders in eco-restoration in the mines.
6. Regular Biodiversity Assessment and preparing and implementing of Biodiversity Management Plan which help the company to achieve a No Net Loss w.r.t biodiversity.
7. Converting of mining pits into water reservoirs, pond with other ecotourism facilities like water sports, boating, fishing etc.
8. Develop Pisciculture in mine pits and also involving the community for cage fishing to make it a commercially viable venture.
9. Developing theme-based gardens like medicinal gardens, horticulture gardens, spice gardens
10. Developing garden near the Idgah which is within the mining block area and providing proper road for access of visitors and pilgrims.

Sensitivity: Public (C4)

11. Converting the mining infrastructure like office buildings, workshops etc. into public utility infrastructure like school, training center, medical center etc.

Community Involvement and Eco-tourism Development

Engaging local communities in eco-tourism initiatives not only enhances their understanding and appreciation of the restored environment but also opens avenues for sustainable economic opportunities. By converting mined out areas into public utility structures like water bodies, roads, railways, electric lines, telephone lines, etc., for enduring impact on the local community.

Conclusion

The aim is to create an area that remains ecologically rich and economically vibrant even after the cessation of mining operations. This long-term vision aligns with the principles of sustainable development and community well-being.

The objective of the Eco restoration would be to create a positive land scape which will help the community or the mining employees to generate revenue even after the mining operations close. Develop vast tracts of scientifically developed green belts, water bodies, and other infrastructure. Develop the place in to an ecotourism area which will attract lot of tourists.

At the conceptual stage around 105 ha of land will be brought under plantation and around 20ha under water bodies.

Sensitivity: Public (C4)

Annexure III

EXISTING & PROPOSED PIT DETAILS AND SEQUENTIAL MINING & BACKFILLING PLAN

Existing Available Pits for Backfilling

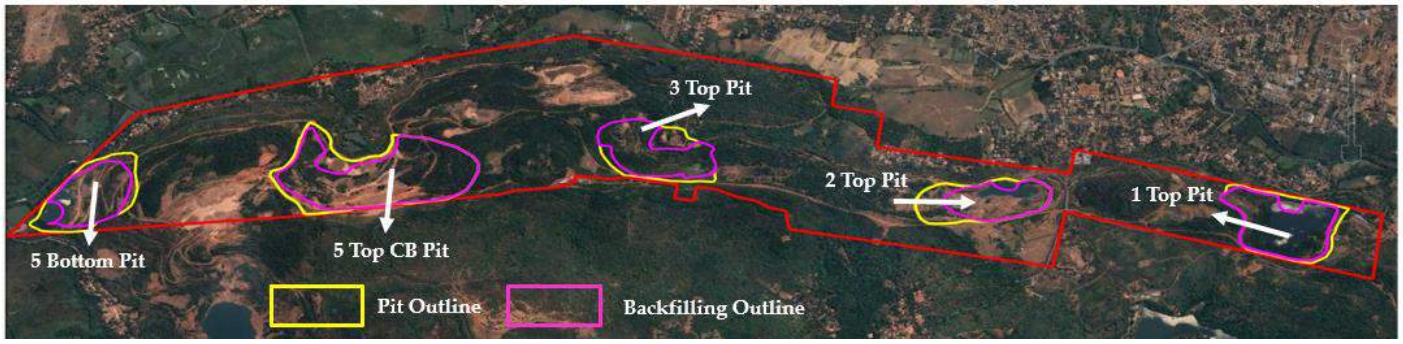
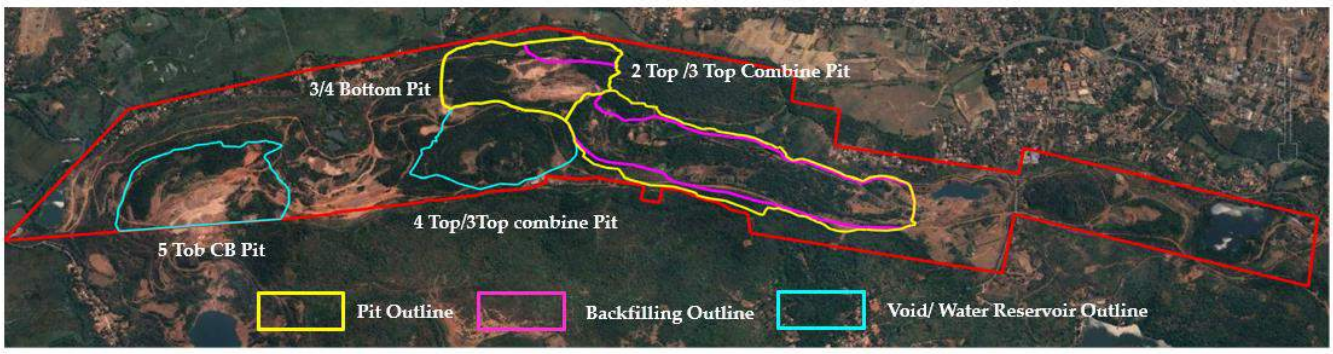


Table - 1
Existing Available Pits, Area, Depth & Volume for Backfilling

S. No.	Mine Pit Location/ ID	Total Area of Pit in Ha	Area Available for Backfilling (Ha)	Depth (m)	Top RL (m)	Bot RL (m)	Vol (m3)
1	1 Top	22.4367	20.9942	99	62	-37	19356183
2	2 Top	13.0803	9.9465	60	60	0	2968920
3	3 Top	16.0596	13.1650	70	110	40	2240000
4	¾ Bottom	-	-	109	102	-7	-
5	5 Top	37.0242	35.7242	78	98	20	14213124
6	5 Top CB	-	-	77	124	47	-
7	5 Bottom	15.4196	12.0840	92	87	-5	7035240
Total		**104.0204**	**91.9139**				**45813467**

Proposed pits for Backfilling



Annexure III

Table – 2

Proposed Working Pits, Area, Depth & Volume will be available for Backfilling

S. No.	Mine Pit Location/ ID	Total Area of Pit in Ha	Area Available for Backfilling (Ha)	Depth (m)	Top RL (m)	Bot RL (m)	Vol (m3)	Void availability for Backfilling
1	2 Top	43.1944	39.2331	116	91	-25	10518996	In 5th year
2	¾ Bottom	39.4606	34.6140	169	102	-67	15412643	End of 3rd year
3	2 Top	68.52	65.6420	113	103	-10	47912000	In 6th year to 10th year
4	3 Top/ 2Top Combined	38.2545	36.6500	118	108	-10	38161200	In 11th year to 13th year
5	4 Top/3 Top Combined	-	-	84	73	-11	-	In 11th year to 13th year
6	5 Top CB Pit	-	-	168	94	-74	-	In 11th year to 13th year
Total		**189.4295**	**176.1391**				**112004839**	

Annexure III

Table - 3
Sequential Mining & Backfilling Plan

Year	Sequence of Mining	Ore Production (In m3)	Ore Production (In Tonnes)	Waste Generation (m3)	Sequential Backfilling Pit / Location	Lead distance in Km	Capacity of Hauling equipment	Backfilling Plan
Year 1	5 Top CB	178571	500000	1244889	5 Bot	1.5	40 Tonne Articulated Dumper	Backfilling will be done in exhausted pit.
Year 1	3/4 Bottom	535714	1500000	2238957.25	5 Top	1.7	40 Tonne Articulated Dumper	Backfilling will be done in part of exhausted pit.
Year 1	3/4 Bottom			2238957.25	1 Top	5.5	25 Tonne Dumpers	Backfilling will be done in part of exhausted pit.
Year 2	5 Top CB	214286	600000	732414	5 Bot	1.5	40 Tonne Articulated Dumper	Backfilling will be done in exhausted pit.
Year 2	3/4 Bottom	500000	1400000	1810240	5 Top	1.7	40 Tonne Articulated Dumper	Backfilling will be done in part of exhausted pit.
Year 2	3/4 Bottom			1810240	1 Top	5.5	25 Tonne Dumpers	Backfilling will be done in part of exhausted pit.
Year 3	3/4 Bottom	714286	2000000	500000	5 Bot	3.75	40 Tonne Articulated Dumper	Backfilling will be done in exhausted pit.
Year 3	3/4 Bottom			2000000	5 Top	1.7	40 Tonne Articulated Dumper	Backfilling will be done in part of exhausted pit.
Year 3	3/4 Bottom			1502000	1 Top	5.5	25 Tonne Dumpers	Backfilling will be done in part of exhausted pit.
Year 3	3/4 Bottom			1497433.5	3 Top	1	40 Tonne Articulated Dumper	Temporary backfilling and will be rehandled in the succeeding years.
Year 4	2 Top	714286	2000000	6768535	3/4 Bot	3.07	40 Tonne Articulated Dumper	Backfilling will be done in exhausted pit.
Year 5	2 Top	642857	1800000	2912828.5	3/4 Bot	3.07	40 Tonne Articulated Dumper	Backfilling will be done in exhausted pit.
Year 5	2 Top			6403650.5	2Top	0.5	40 Tonne Articulated Dumper	Concurrent backfilling while advancing in opposite direction
Year 5	3 Top	428571	1200000	1497433.5	3/4 Bot	0.725	40 Tonne Articulated Dumper	Backfilling will be done in exhausted pit.

Annexure III

Year 5	3 Top			1766971	2 Top	0.75	40 Tonne Articulated Dumper	Concurrent backfilling
From Year 6-Year 10	2 Top	1500000	4200000	14840000	2 Top	0.7	40 Tonne Articulated Dumper	Concurrent backfilling while advancing in opposite direction
	5 Top CB	3857143	10800000	32910000	2 Top	4	40 & 25 Tonne Dumpers	Primary hauling will be done with 40 Tonne Articulated Dumper to transfer point at a distance of 1.5 km and then with 25 Tonne Dumper from transfer point to the backfilling site in exhausted pit.
	5 Top CB			5250000	5 Top	0.8	40 Tonne Articulated Dumper	Backfilling will be done in part of exhausted pit.
From Year 11-Year 13	5 Top CB	1553571	4350000	26640000	3 Top & 2 Top	3.6	40 & 25 Tonne Dumpers	Primary hauling will be done with 40 Tonne Articulated Dumper to transfer point at a distance of 1.5 km and then with 25 Tonne Dumper from transfer point to the backfilling site in exhausted pit.
	4 Top/3 Top Combined	1660714	4650000	285000	3 Top & 2 Top	1.5	40 Tonne Articulated Dumper	Backfilling will be done in part of exhausted pit.
	4 Top/3 Top Combined			10075000	1 Top	4	40 & 25 Tonne Dumpers	Primary hauling will be done with 40 Tonne Articulated Dumper to transfer point at a distance of 1.5 km and then with 25 Tonne Dumper from transfer point to the backfilling site in exhausted pit.

Annexure IV

DETAILS & DESIGNS OF SETTLING PONDS AND ACTION PLAN OF WATER MONITORING

06 numbers of earlier mined out abandoned pits and 12 nos of interlinked siltation ponds have been identified for collecting surface run off from respective catchment sub basins. The details of pits giving catchment and water holding capacity is as follows:

Table – 1

Details of Mine Pits within Lease Area

Pit ID	Area Covered by Pit (Ha)	Pit Dimensions (L*W*D) in mts	Catchment Area (In Ha)	Water holding Capacity (Million m3)	Bottom RL
1 Top Pit	13.3	380x350x52	40	1.46	-37RL
2 Top Pit	9.12	380x240x33	28	0.98	-7RL
3/4 Bottom	8.28	380x215x80	20	0.52	-7RL
5 Top Pit	12	400x300x95	40	1.40	7RL
5 Top CB Pit	6.66	370x180x78	11	0.39	63.78RL
5 Bottom Pit	8.75	350x250x40	21	0.74	-31RL
Total			**160 Ha Catchment Area**	**5.49 Million M^3 water holding capacity in pits**	

It is evident from the above table that six number of earlier worked out pits have been identified for collecting surface run-off as depicted in above table. A total of 5.49 MM3 of void volume is available for surface run-offf holding in six pits having a cumulative area of 58.11 Ha which have a total catchment area of 160 Ha. Map showing pit positions is as follows:

Further, the pit-wise water holding capacities at the end of each plan period up to conceptual stage is as follows:

Table – 2

Details of Mine Pits within Lease Area

Pit ID	Water Holding Capacity (Million M^3)			
	Existing Pits	Plan Period M1	Plan Period M2	Plan Period M3
1 Top Pit	1.46	0.63	0.63	0.63
2 Top Pit	0.98	1.19	1.51	0.48
3 Top pit	-	1.23	-	
3/4 Bottom	0.52	1.25	1.25	4.31
5 Top Pit	1.40	0.23	0.23	0.23
5 Top CB Pit	0.39	0.64	1.43	1.43
5 Bottom Pit	0.74	0.44	0.44	0.44
Total	**5.49**	**5.61**	**5.49**	**7.50**

It is evident from the above table that during entire mine life water holding capacity of 5.49 or more than 5.49 Million CuM will be available at any time. Further, a total 12 nos of settling ponds have been earmarked within and outside the ML Area for collecting surface run off. The details of settling ponds are as follows:

Table – 3

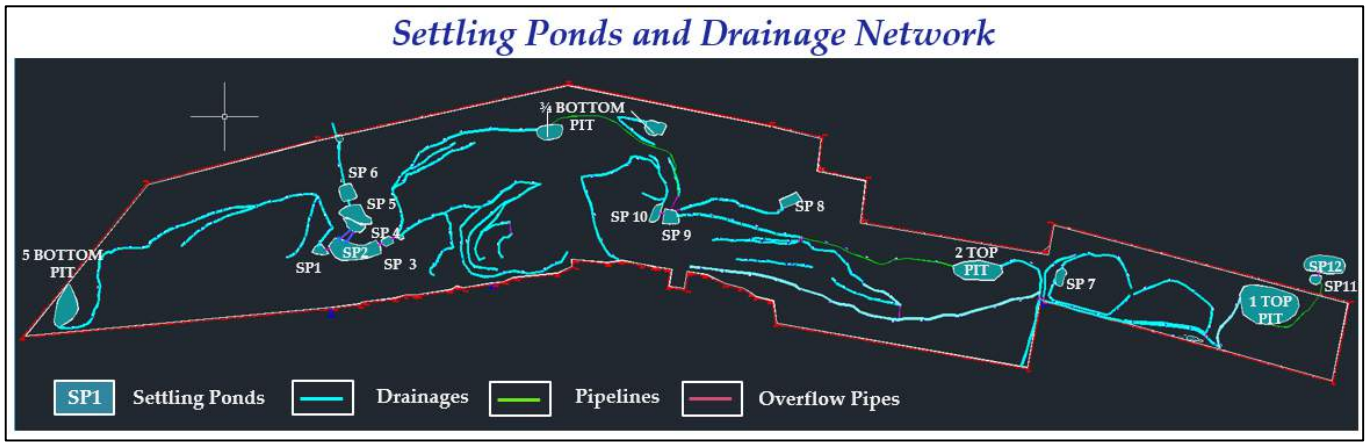
Details of Settling Ponds within & outside the ML Area

Pit ID	Area in m^2	Depth in mts	Volume in m3	Location
SP1	1824	1.8	**3283.2**	**5 Top Pit Area**
SP2	1667	1.8	**3000.6**	
SP3	27879	8	**223032**	
SP4	5208	2	**10416**	**5 Top Mulgao Area**
SP5	8602	2	**17204**	
SP6	4661	2.5	**11652.5**	
SP7	3896	1.5	**5844**	**1 Top Area (Sec 43)**
SP8	5831	3	**17493**	**2 Top Area**
SP9	3753	1.5	**5629.5**	**3 Top Sec 22**
SP10	5564	1.5	**8346**	
SP11	2443	3	**7329**	**Outside lease (Above 1 Top Area)**
SP12	17130	4	**68520**	
Total			**381749.8**	

It is clear from the above table that a total of 0.38 Million M3 of void volume is available for surface run-offf holding in 12 nos settling ponds having a cumulative area of 8.84 Ha. Considering five fillings in a year, the gross volumes of settling ponds will be 1.90 Million M3.

Annexure IV

Layout of settling ponds and drainage network is as given below:

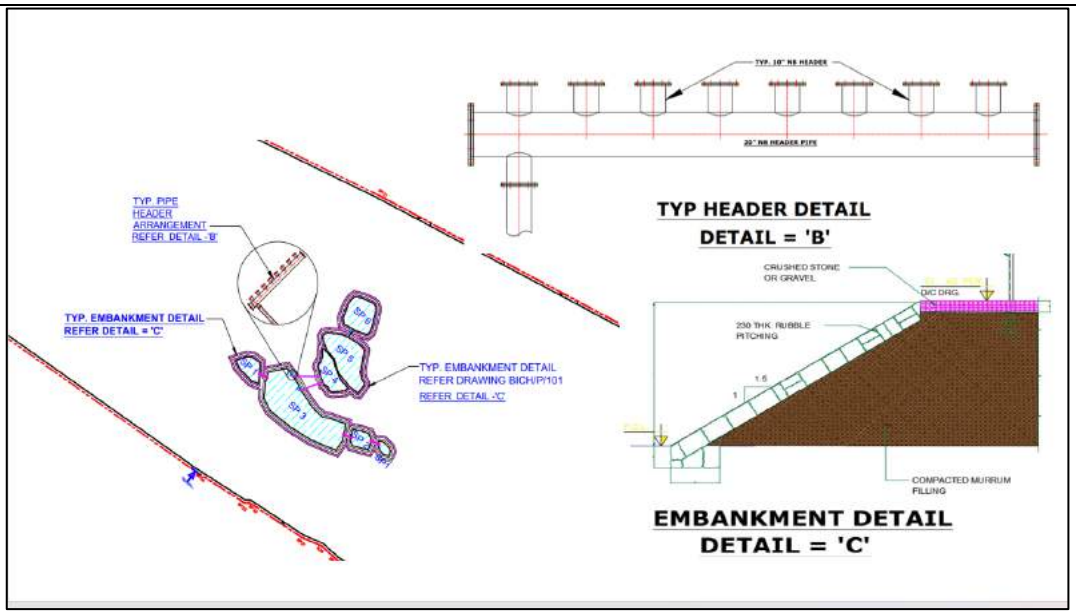


- Catchment area of Pits = 160 ha
- Rainfall received = 160 ha x 3500 mm = 5.6 Million CuM
- Pits water holding capacity = 5.49 Million CuM
- Settling ponds capacity = 0.38 Million CuM

Total = Pits + Settling Pond = 5.87 Million CuM > rainfall received of 5.6 Million CuM

Design of settling ponds is given below.

Settling Ponds Designs



Annexure IV

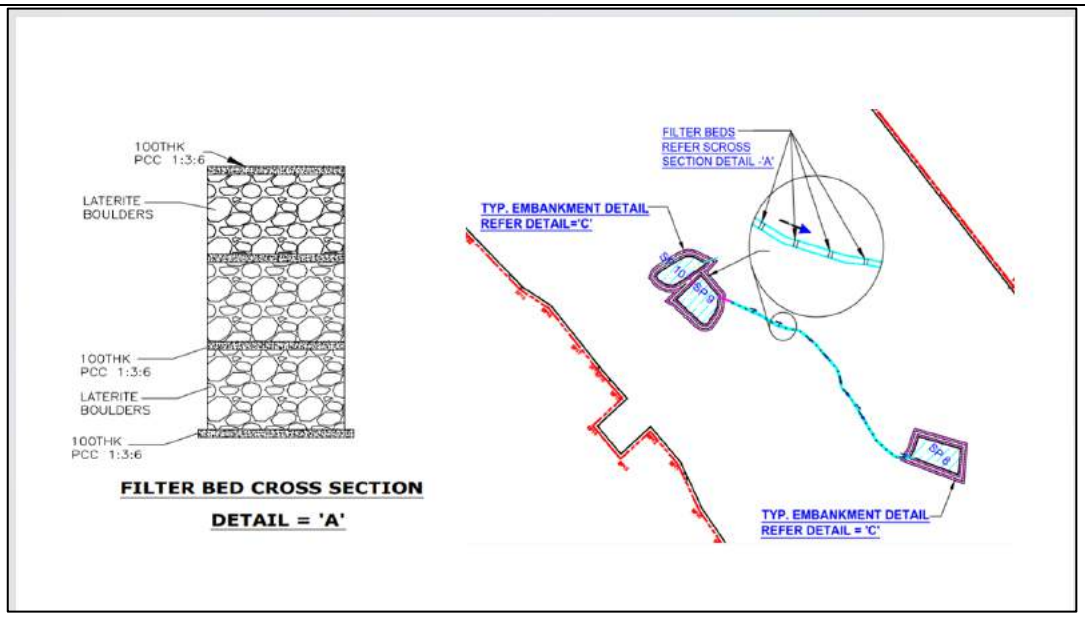


Table – 4

Action Plan for Water Monitoring

S. No.	Description	No's	Length	Width	Depth	Qty	Unit	Rate (In ₹)	Amount (In ₹)
1	P/filling of hard lateritic soil for bund construction	1	4000	3	5	54000	m^3	170	9180000
		1	4000	3	3	36000	m^3	170	6120000
2	Laterite pitching	1	4000	14		56000	m^2	719.4	40286400
3	P/fixing of RCC fencing poles	1500				1500	no	1200	1800000
4	Excavation in soil	1500	1	1	1	188	m^3	815	152873
5	Grouting of poles m10	1500	1	1	1	188	m^3	6810	1276935
6	P/fixing of barbed wire	5	4000			20000	rm	34	687800
Total									**59504008**

Annexure IV

Table – 5
Action Plan for Water Monitoring

S. No.	Description	No's	Length	Width	Depth	Qty	Unit	Rate (In ₹)	Amount (In ₹)
1	Excavation	40	3	1.5	0.45	81	m^3	815	66041
2	PCCm10	160	3	1.5	0.1	72	m^3	6810	490343
3	Boulder wall without cement	40	3	1.5	1.05	189	m^3	815	154111
		40	3	1.5	0.2	36	m^3	815	29354
		80	3	1.5	1.8	648	m^3	815	528379
Total									**1268228**

Annexure V

GOVERNMENT OF GOA
OFFICE OF THE DEPUTY CONSERVATOR OF FORESTS
WILDLIFE & ECOTOURISM (NORTH) DIVISION
1ST LIFT, 4TH FLOOR, JUNTA HOUSE,
PANAJI – 403 001 (GOA)

Phone: 0832-2229701/ Fax: 0832- 2422864 E mail: dcfwlnorth-forest.goa@nic.in

****

No. 1-576-WL&ET(N)/2023-2024/3312 Dated: - 27/11/2023
Agrahayana 06 , 1945

To,
The Head Environment,
Vedanta Limited,
Sesa Ghor, 20 EDC Complex,
Patto, Panjim-Goa.

Sub: Authentication list of the Schedule I species in study area of Block - 1 Bicholim Mineral Block of Vedanta Ltd. at Bicholim - reg...

Ref: 1. Your letter dated 21.112023.
2. Email dated 27.11.2023.

Sir,

With reference to your letter dated 21.112023 and mail dated 27.11.2023, please find enclosed here with the Authentication list of the Schedule I species in study area of Block - 1 Bicholim Mineral Block of Vedanta Ltd. at Bicholim as per the Amended Gazette Notification of Wildlife (Protection) Amendment Act, 2022.

This is for information please.

Yours faithfully,

(Anand S. Jadhav, IFS)
Dy. Conservator of Forests
Wildlife & Eco-Tourism(N)
Panaji - Goa.

AUTHENTICATED LIST OF FLORA AND FAUNA IN CORE AND BUFFER ZONE OF BLOCK I BICHOLIM MINERAL BLOCK OF VEDANTA LIMITED, BICHOLIM TALUKA, NORTH GOA

List of Scheduled I Wildlife species around 10 kms radius of Block-I Bicholim Mineral Block

Sl. No.	Common Name	Scientific name	Family	IUCN / WPA schedule
		MAMMALS		
1	Common leopard	Panthera pardus	*Felidae*	I
2	Indian grey mongoose	*Urva edwardsii*	*Herpestidae*	LC/ I
3	Indian porcupine	*Hystrix indica*	*Hystricidae*	LC/ I
4	Small Indian civet	*Viverricula indica*	*Viverridae*	LC/ I
5	Bonnet macaque	*Macaca radiate*	*Cercopithecidae*	VU/ I
		BIRDS		
6	White-bellied Sea-Eagle	Haliaeetus leucogaster	*Accipitridae*	R/ I
7	Indian Peafowl	*Pavo cristatus*	*Phasianidae*	VU / I
8	Brahminy Kite	*Haliastur indus*	*Accipitridae*	LC / I
9	Indian Vulture	*Gyps indicus*	*Accipitridae*	LC / I
10	Crested Serpent Eagle	*Spilornis cheela*	*Accipitridae*	LC / I
11	Crested Goshawk	*Accipiter trivirgatus*	*Accipitridae*	LC / I
12	Shikra	*Accipiter badius*	*Accipitridae*	LC / I
13	Grey Jungle fowl	Gallus sonneratii	*Phasianidae*	LC / I
14	Nilgiri Wood Pigeon	*Columba elphinstonii*	*Columbidae*	LC / I
15	Brown Wood Owl	*Strix leptogrammica*	*Strigidae*	LC / I
16	Crested Tree-swift	*Hemiprocne coronata*	*Hemiprocnidae*	LC / I
17	Small Minivet	*Pericrocotus cinnamomeus*	*Campephagidae*	LC / I
18	Common Hill-Myna	*Gracula religiosa*	*Sturnidae*	LC / I
19	Cinnamon Bittern	*Ixobrychus cinnamomeus*	*Ardeidae*	LC/I
20	Cotton Pygmy Goose	*Nettapus coromandelianus*	*Anatidae*	LC/I
21	Western Marsh Harrier	*Circus aeruginosus*	*Accipitridae*	R/I
22	Besra	*Accipiter virgatus*	*Accipitridae*	R/I
23	Spot-bellied Eagle-Owl	*Bubo nipalensis*	*Strigidae*	LC / I
24	Brown Wood Owl	*Strix leptogrammica*	*Strigidae*	LC / I
		REPTILES		
25	Cobra	*Genius Naja*	*Elapidae*	LC /I
26	Russell's Viper	*Daboia russelii*	*Viperidae*	LC/I
27	Bengal monitor	*Varanus bengalensis*	*Varanidae*	VU/I
28	Checkered Keelback	*Fowlea piscator*	*Colubridae*	LC/I
29	Indian rat Snake	*Ptyas muscosa*	*Colubridae*	LC/I

**** Note: As per Amended Gazette Notification of Wildlife (Protection) Amendment Act 2022***

Dy. Conservator of Forests
Wildlife & Eco-Tourism (North)
Panaji-Goa

Annexure VI

Break-up of the Conservation activities proposed under Wildlife Conservation Plan

S. No.	Plan of Operations	1st year	2nd year	3rd year	4th year	5th year
1	Enrichment of forest areas with suitable indigenous species for wild life habitat improvement	12	12	12	12	12
2	Creation/ maintenance of habitat for herbivores/ avian fauna					
3	Management interventions for facilitating water availability to the wild life in forest areas/ Improvement of soil and water regime of forest areas					
4	Financial support to the department for conducting awareness campaigns for various stakeholders					
5	Financial support to the department for celebrating events like Wildlife week and sponsoring the prizes for the competitions					
	Total	**60 lakhs**				

SWANIRBHAR BHARAT
SWAYAMPURNA GOA

Directorate of
Mines & Geology
Inward No 9980
Dated 22/12/2023
Signature

ANNEXURE-R4-7

Government of Goa
Office of The Dy. Conservator of Forests
Working Plan Division
"Goa Van Bhawan"
Altinho Panaji Goa – 403 001

No. DCF(WP)/TECH/DIGI/VOL-I/75/2023-24/962 Dated: -22/12/2023

To,
The Director,
Directorate Of Mines Geology,
Institute Menezes Braganza,
Panaji-Goa

Sub: - Request to verify the land schedules in respect of Bicholim mine Block-I auctioned during the 1st NIT in the State of Goa.

Ref: - 1. No. 03/24/2023/Major/mines/919 dated 13/06/2023.

2.No.6/86/80-FD/2023-24/Pert File/587 dated 14/09/2023.

Sir,

With reference to the above cited subject and referred letter, it is to inform you that survey numbers 84(P), 85(P), 86(P), 87(P), 89(P), 90(P), 113(P) and 114(P) of Mayem Village of Bicholim Taluka and survey number 19(P) of Lamgao Village of Bicholim Taluka of Bicholim Mineral Block-I were surveyed and verified through Directorate of Settlement and Land Records.

Accordingly, no any Forest land falls inside Bicholim Mineral Block -I at Bicholim Taluka.

This for kind information and necessary action.

Yours sincerely,

22/12/23

(Naveen Kumar P, IFS)
Dy. Conservator of Forests,
Working Plan Division,
Panaji-Goa.

Copy to,

1.The Managing Director, Goa Forest Development Corporation for information.

2.The Dy. Conservator of Forests, North Goa Division for information.

Scanned with CamScanner

Government of Goa
Directorate of Mines Geology
Institute Menezes Braganza, Panaji-Goa

ANNEXURE-R4-8

Website: dmg.goa.gov.in **e-mail:dir-mine.goa@nic.in**
Phone Nos. 0832 – 2426431/2425287/2422765

File No. 03/24/2023/Major/Mines/Part/ 1489 Date 25/07/2023

To,
M/s. Vedanta Ltd.
Sesa Ghor, 20 EDC Complex,
Patto, Panaji, Goa.
403001

Sub: Clarification letter with respect to Terms of Reference granted to Vedanta Limited for Block I Bicholim Mine.

Sir,

This has reference to your letter dated 18/5/2023 on the subject cited above. With regards to the special condition no. xvii mentioned in the summary records of the 14th meeting of the Expert Appraisal Committee held on 3-4 May 2023, it is clarified that:-

(a) M/s. Vedanta has been declared as Preferred Bidder for Bicholim Mineral Block- Block I through an auction process conducted by the Government of Goa as per the Mineral Auction Rules, 2015.

(b) M/s. Vedanta Ltd., was not the erstwhile lessee of the said Block prior to auction.

(c) The matter of illegal mining in the State of Goa is under investigation by the Special Investigation Team (SIT).

Yours faithfully,

(Dr. S. Shanbhogue)
Director

ANNEXURE-R4-9

Press Information Bureau
Government of India
Ministry of Environment, Forest and Climate Change.

19-December-2011 16:35 IST

Implementation of Green Field Projects

The Environmental Impact Assessment (EIA) Notification, 2006 provides that all developmental projects, listed in the Schedule-1 to the Notification require prior environmental clearance for establishment of new (Greenfield) projects or for expansion (Brownfield) of existing projects. For those projects involving forestland, prior approval for diversion of forestland is required; vide provisions of the Forest (Conservation) Act 1980.

A total of 3138 projects in the sectors of Thermal Power, Hydropower including Irrigation, Mining, Industry and Building & Construction has been granted environmental clearance during the past three years and the current year. This includes 141 projects of the above sectors from the State of Karnataka. A total of 2034 projects have been approved for diversion of forestland covering the sectors of Thermal and Hydropwer including Irrigation, Mining and Road infrastructure. This includes 22 cases form the State of Karnataka.

The steps taken by the Government for expedition of the process leading to grant of environmental and forestry clearance to Greenfield and Brownfield projects include the following:

i. Regular meetings of the Expert Appraisal Committee constituted for the appraisal of projects covering the various sectors for environmental clearance and of the Forest Advisory Committee for forestry clearance.

ii. Regular updation of status of projects for environmental clearance on the Ministry's website for the benefit of all stakeholders.

iii. Sector specific Manuals have been prepared and uploaded on the Ministry website to facilitate better preparation of EIA-EMP Reports by the project proponents.

iv. A number of Circulars on the EIA Notification 2006 and the process for obtaining environmental clearance have also been uploaded on the MOEF website to facilitate the project proponents in preparation of EIA-EMP reports with all relevant information.

The Minister of State for Environment and Forests (independent charge) Shrimati Jayanthi Natarajan gave this information in a written reply to a question by Shri Dhruva Narayana in Lok Sabha today.

KP

ANNEXURE-R4-10

Government of India

Ministry of Environment, Forest and Climate Change

IA Division

(Non-Coal Mining)

AGENDA FOR 14th EAC MEETING OF THE EXPERT APPRAISAL COMMITTEE (NON-COAL MINING SECTOR), SCHEDULED TO BE HELD DURING 3-4 MAY, 2023 THROUGH VIDEO CONFERENCE.

Agenda ID	EC/AGENDA/EAC/777238/4/2023
Agenda Creation Date	20/04/2023
Title of Meeting	AGENDA FOR 14th EAC MEETING OF THE EXPERT APPRAISAL COMMITTEE (NON-COAL MINING SECTOR), SCHEDULED TO BE HELD DURING 3-4 MAY, 2023 THROUGH VIDEO CONFERENCE.
Meeting Mode	Virtual
Meeting Venue	N/A
Meeting Date	**Start Date :** 03/05/2023 **End Date :** 04/05/2023

	Meeting Date	Meeting Mode	Start Time	End Time
Day 1	03/05/2023	Virtual	10:30 AM	05:30 PM
Day 2	04/05/2023	Virtual	10:30 AM	05:30 PM

List of Proposals

Sr. No.	Proposal No.	Proposal Details	Location	Meeting Date	Proponent
1	IA/RJ/MIN/426653/2023	**Project Name**	**State:**	03/05/2023	SANDEEP

		:Revalidation of EC under MoEF&CC Notification S.O 1530(E) dated 06th April, 2018 for Lakheri Limestone Mine (ML Area 1516.88 ha) with production capacity of 1.5 MTPA and waste/ topsoil 11.25 Lakhs CuM per annum (Maximum) with existing Wobbler and screening plant of 400 TPH at villages Gendoli Kala, GendoliKhurdh, Pholai, Gutha, Mahuwa, Dangaheri, Budel, Kankra, Chamavali, Uttarana, Lkaheri, Sakhoda, Nayagaon & Papadi, Tehsil: Indergarh&Kesoraipatan, District: Bundi, Rajasthan of M/s ACC Limited. **Proposal For:** Fresh EC **Activity:** 1(a) Mining of minerals **Sector:** MIN	RAJASTHAN **District:** BUNDI		KUMAR
2	IA/GA/MIN/422323/2023	**Project Name :**Block 1-Bicholim Mineral Block for Iron Ore **Proposal For:** Fresh ToR **Activity:** 1(a) Mining of minerals **Sector:** MIN	**State:** GOA **District:** NORTH GOA	03/05/2023	VEDANTA LIMITED
3	IA/MP/MIN/425852/2023	**Project Name :**Sagmania Limestones Mines(852.5 Ha) **Proposal For:** Fresh ToR **Activity:** 1(a) Mining of minerals **Sector:** MIN	**State:** MADHYA PRADESH **District:** SATNA	03/05/2023	BIRLA CORPORATION LTD.
4	IA/RJ/MIN/424348/2023	**Project Name :**Proposed expansion of Sanu-II Limestone Mining Project (M.L. No. 01/1997, Area 998.4 ha.) with Mine Material handling capacity from existing 2.73 MILLION TPA to 10.23 MILLION TPA which includes ROM SMS grade Limestone resource- 2.73 MILLION TPA, Cement Grade Limestone resource-5 MILLION TPA & recovery of mineral from Handling	**State:** RAJASTHAN **District:** JAISALMER	04/05/2023	RAJASTHAN STATE MINES & MINERALS LIMITED

		of old backfilled limestone size reject dumps (0-30 mm size)-2.5 MILLION TPA along with Crushing (1X300TPH & 1X200 TPH) & Screening plants (4X250 TPH) **Proposal For:** Fresh ToR **Activity:** 1(a) Mining of minerals **Sector:** MIN			
5	IA/RJ/MIN/424123/2023	**Project Name :**Unroi-II SMS Grade Limestone Mines, ML-06/2020, Village- Unroi, Tehsil- Sam, District- Jaisalmer, State- Rajasthan. (ML Area 998 Hectare). **Proposal For:** Fresh ToR **Activity:** 1(a) Mining of minerals **Sector:** MIN	**State:** RAJASTHAN **District:** JAISALMER	04/05/2023	RAJASTHAN STATE MINES & MINERALS LIMITED
6	IA/RJ/MIN/424677/2023	**Project Name :**Unroi-I SMS Grade Limestone Mines, ML-05/2020, LEASE AREA : 998.00 Hectares **Proposal For:** Fresh ToR **Activity:** 1(a) Mining of minerals **Sector:** MIN	**State:** RAJASTHAN **District:** JAISALMER	04/05/2023	RAJASTHAN STATE MINES & MINERALS LIMITED
7	IA/RJ/MIN/424210/2023	**Project Name :**KHUIYALA-I SMS GRADE LIMESTONE MINES (ML-01/2020) TOTAL LEASE AREA 944 Ha. **Proposal For:** Fresh ToR **Activity:** 1(a) Mining of minerals **Sector:** MIN	**State:** RAJASTHAN **District:** JAISALMER	04/05/2023	RAJASTHAN STATE MINES & MINERALS LIMITED

Any Other Item(s)

Sr. No.	Proposal No.	Proposal Details	Location

Expert Appraisal Committee Members Details

Sr. No.	Name	Designation	Email ID
1	Mr Pankaj Verma	Scientist E	pankaj.verma@nic.in
2	Dr Dinesh Misra	IFS (Retired)	dmisra56@gmail.com
3	Sh Niranjan Kumar Vasu	Member (EAC)	vasuifs@gmail.com
4	Dr Asha Rajvanshi	Member (EAC)	asharajvanshi@gmail.com
5	Shri Avijit Gosh	Member (EAC)	avijitmining@gmail.com
6	Shri Bandi Ramchandra Reddy	Member (EAC)	reddyramchandra8858@gmail.com
7	Prof Pramod Kumar	Member (EAC)	nita_pramod@yahoo.com
8	Prof Devesh Walia	Member (EAC)	wadevesh@gmail.com
9	Dr Suresh Tiwari	Member (EAC)	smbtiwari@gmail.com
10	Dr K G Asha Manjari	Member (EAC)	kimberlite2016@gmail.com
11	Prof Dev Dutt Sharma	Member (EAC)	ddshpu@gmail.com
12	Shri Mohammad Niyazi	Member (EAC)	dirsnt.dgms@gmail.com
13	Mr V K Soni Representative of IMD	Member (EAC)	vijay.soni@imd.gov.in
14	Dr Y G Kale Representative of IBM	Member (EAC)	ygkale@ibm.gov.in

Remarks	AGENDA FOR 14th EAC MEETING OF THE EXPERT APPRAISAL COMMITTEE (NON-COAL MINING SECTOR), SCHEDULED TO BE HELD DURING 3-4 MAY, 2023 THROUGH VIDEO CONFERENCE.

(NON-COAL MINING SECTOR)

***

AGENDA FOR 14th EAC MEETING OF THE EXPERT APPRAISAL COMMITTEE (NON-COAL MINING SECTOR), SCHEDULED TO BE HELD DURING 3-4 MAY, 2023 THROUGH VIDEO CONFERENCE.

Instructions: Project Proponents are requested to strictly follow the following instructions:

1. It is requested that the project proponent or his/her authorized representative should participate in EAC meeting through Video Conferencing only (preferably not more than two representatives) who can make a presentation on their behalf on the salient features of the project, the related environmental issues, proposed Environmental Management Plan, commitment made during public hearing, CER, occupational health plan, plantation plan, method of mining, beneficiation activities, transportation plan, R&R issues and also respond to the queries/suggestions of the Committee.
2. NIC, MoEF&CC will moderate the Video Conferencing meeting. The Guidelines related to connecting VC is annexed herewith. PP will be ready before 10 minutes of the slot allowed to them. If any problem faced please contact Mr. Kamal, Moderator, NIC (**Mobile No. 8800225087, email- support-ipb@nic.in**).
3. As there it a time restriction in Video Conferencing, therefore, PP is requested to submit the **requisite documents along with presentation through email to all the Committee Members and Officials of the Ministry by 24.04.2023**. There must be maximum 20 slides for ToR presentation and 30 slides for EC presentation. The Project Proponent is requested to include a separate slide for the matter of court case.
4. The presentation should reflect-
   i. Point wise ToR Compliance;
   ii. Contain information regarding total excavation from mines;
   iii. Method of mining,
   iv. Stage wise mine development preferably at 5-year interval showing the surface features such as habitations, roads, railway line, transmission line, water body, nallah, forest or other eco-sensitive zones, protection against the surface features
   v. Surface features through KML file
   vi. beneficiation, crusher,
   vii. details of mining lease its validity,
   viii. transfer,
   ix. impact of mining activities on air, water, soil, noise, flora & fauna, habitation, socio-economic issues,
   x. public hearing issues,
   xi. involvement of forest land,
   xii. requirement of clearance under Forest Conservation act, 1980,

xiii. Wildlife protection act, 1972 and CRZ Notification, 2011, authenticated map regarding distance from ESZ if any falling within 10 Km of the ML.
xiv. permission for withdrawal of ground water,
xv. intersection of ground water table, permission for surface water / CGWA,
xvi. air quality modelling,
xvii. mitigation measures to all impacts,
xviii. violation if any of any of the statutory requirement with action taken if any, In case of the expansion proposals in the flat of Annexure
xix. undertaking for compliance of various court orders and statutory requirement,
xx. time bound activity wise action plan for plantation, occupation health plan, CER, EMP,
xxi. Court case/litigation, violation if any etc.
xxii. Show the transportation route of minerals on maps during presentation.
xxiii. Certificate of compliance and compliance status in case of expansion proposals
xxiv. Point wise reply to observation made earlier by committee, if any.

5. Presentations for ToR should be brief, precise and supported by Letter of Intent/ mine lease and topo-sheet etc. All important features such as National Parks, Wildlife Sanctuary, Mangroves, Biosphere Reserves/Bio-diversity, Heritage sites, Reserve Forests, Rivers, water Bodies, Highways, Railway line, Habitations, Critically Polluted Areas (CPA), cluster situation etc. should be clearly indicated in an area of 10 km radius of the proposed site.

6. The project proponents applied their on-line application should submit the Form-2, Form-1, Pre-feasibility report, approval from concerned department/states, compliance of existing EC, Environment Impact Assessment (EIA/EMP) Report, public hearing report, approved mining plan/review of mining plan, lease deed /LoI with its validity , queries subsequently raised by the Ministry, if any, and your para-wise comments thereto etc., in accordance with Environment Impact Assessment Notification, 2006 are required to be forwarded to the Chairman/Members of the Expert Appraisal Committee (Non-Coal) including details of the court matters/Orders of the Court pertaining to the project, if any. Accordingly, I request you to forward a copy of each of these documents – Soft Copies to the Chairman/members of the Expert Appraisal Committee, at earliest before the meeting.

7. **All the brown field projects applied for EC, ToR, Amendment in ToR and EC should submit details in Annexure-III with all supporting documents** along with supporting documents which *inter-alia* include past production of mine since its inception, duly authenticated by Department of Mines & Geology, State

Government. PP and Consultant shall examine the proposal in light of S.O. 804(E) dated 14.03.2017 and Common Cause Judgment dated 02.08.2017 and specifically mentioned about the violation if any. Details of demand if any raised by concerned Department of Mining and Geology in pursuant to common cause judgment dated 02.08.2017 and details of payment, if any made to Department of Mines & Geology.

8. Copy of affidavit needs to be submitted by PP in compliance of the Ministry's OM no. 3-50/2017-IA.III (Pt.), dated 30th May, 2018.
9. In accordance with the circular no. J-11011/618/2010-IA. II (I) dated 30.5.2012, in case of expansion project, for which environment clearance was issued earlier, the project proponent shall submit a certified report of the status of compliance of the conditions stipulated in the environment clearance for the on-going / existing operations of the project by the Regional Offices of Ministry of Environment, Forest and Climate Change. The status of compliance of the conditions stipulated in the EC as highlighted in the report(s) will be discussed by the EAC during appraisal of the project. PP and Consultant shall clearly bring out the non-compliance of EC Conditions if any and further course of action for compliance of the same.
10. KML/Shape Files of the mine lease area at the time of presentation before EAC and to present on the details of mine lease online to show the present status of mine lease and also other leases in 10 km radius. PP shall ensure that KML file is correct in all respect and in case mining activities is showing outside the mining lease than a letter from concerned mining department needs to be submitted to certify that the mining activities is within the mining lease area only. The KML/Shape files should be emailed to all EAC Members & Ministry Officials by 24.04.2023.
11. PP needs to submit the documents w.r.t. validity of the mining lease (brown filed projects) and letter of intent (green filed projects) along with supporting documents. PP should submit the details of lease renewal/ transfer/surrender in chronological manner.
12. All Certificates' should be addressed to the Ministry on letter head with letter number & dispatch number.
13. Please indicate the item number of the Agenda while circulating the documents.
14. The Project Proponents shall ensure that the Certificate/NOC uploaded on the website or submitted to Ministry should have of the Name, Designation, Office Contact details and signature of the competent authority from the concern Department. In absence of this information, the certificate will be treated as invalid.
15. The PP shall submit the hard copy of the documents circulated to the EAC members, uploaded online or presented during the meeting to the Ministry as per the travel advisory issued by Govt. Of India.
16. The PP need to ascertain from the consultant that all the documents have been submitted in the Ministry as per the agenda.
17. The Consultant shall include an undertaking in the EIA report that the prescribed TOR have been complied with and that the data

submitted is factually correct and also an undertaking shall be submitted owning the contents (information and data) of the EIA report. In case any document of information found misleading at any stage then EC/TOR/Amendment granted shall be liable for rejection and action may be initiated against consultant for cancellation of accreditation.

18. The Project Proponent during the submission of application or at the stage of TOR should indicate the name of the consultant/ consultancy firm, Serial number they propose to hire for preparing EIA/EMP reports along with their complete details including their accreditation.
19. All correspondence with MoEF&CC including submission of application for TOR/EC, subsequent clarifications, as may be required from time to time, participation in the EAC meeting on behalf of the PPs shall be made by the authorized signatory only who should be a reasonably Senior Officer/Executive duly authorized in writing.
20. PP may kindly intimate the mobile numbers of the representing people in advance for communicating regarding login and logout in VC to the MS in advance.
21. Kindly send a brief write up of project/executive summary of the project (maximum three page, in word format without any table) and the name of the consultant with the Sl. No. In the QCI/NABET list in a week's time by e-mail to the following address: pankaj.verma@nic.in, munna.shah@gov.in, vidyasagar.jha@gov.in

Sd/

(**Pankaj Verma**)
Scientist 'E'

Note: The items listed for environmental clearances will be taken up for appraisal only on fulfilment of relevant instruction given above.

Annexure-I

Basic Information

Important Note: Please send the information by e-mail <u>in word format and a signed & scanned copy</u> to the Member Secretary *<u>prior to the EAC meeting.</u>* Please also provide a copy to the members of the EAC during the EAC meeting.

I. <u>PROJECT DETAILS</u>

1. Name of the project:
2. Name of the Company, Address Tele No. & E-mail Head of organization:
3. If a Joint venture, the names & addresses of the JV partners including their share
4. Latitude and Longitude of the project
5. Whether the project is in the Critically Polluted Area(CPA):
6. Cost of the project
7. Whether new or expansion project. If expansion:

   (i) from …….MT to .....MT
   (ii) What is the % of expansion

8. If for expansion, whether the application is under 7(ii) of the EIA Notification, 2006.
9. No. and Date of the ToR /and revised ToR, if any, letter issued by the MoEF (if this is a case for EC)
10. No. and Date of the EC and the revised EC letter issued by the MoEF (if this is a case for reconsideration. If so, what specific reconsideration(s) being sought by the proponent)
11. If the project was considered in EAC, Pl. give dates of the meeting(s).
12. Type of Mine: (Opencast/Underground/mixed):
13. Capacity of the mine applied for
14. Mine Lease Area
    (i) As per block allotment
    (ii) As per approved mine plan
15. Date of approval of mine plan, mine closure plan, status &date
16. Date of Board's approval:
17. Date of Ground water clearance and surface water approval.
18. Existing Ground water level in(M)
19. Date of mine closure approval
20. Any river/Nallah flowing near or adjacent to the proposed mine. If yes, please give details.

Details of mine lease: -

1. Date of entering into original lease deed. 2. Date of expiry of original lease deed	1. Date of 1st lease renewal 2. Whether renewal or deemed renewal. 3. Date of expiey of 1st lease renewal/deemed renewal	1. Date of 2nd lease Renewal 2. Whether renewal or deemed renewal 3. Date of expiry of 2nd lease renewal/deemed renewal	1. Date of lease renewal 2…… 3…… 3rd

II TECHNICALDETAILS

21. Geological Reserve:

(i) Total geological reserve
(ii) Mineable reserve
(iii) Extractable reserve
(iv) Per cent (%) of extraction
(v) Range of ground water level
(vi) Total estimated water requirement:
(vii) Details of intersecting ground water level

22. Details of Deposits:
(i) Depth of ore body
(ii) Grade of ore
(iii) Stripping ratio

23. Method of mining:
24. Life of mine
25. Whether ambient air quality seasonal data has been monitored. If so, from which season to which season and whether the results are within the prescribed limits.
26. Whether the monitoring report of earlier EC from MoEF Regional Office has been obtained, in case the proposal is for expansion.
27. Details of O.B.
(i) External OB dumps
(ii) No of OB dumps
(iii) Area of each dump
(iv) Height of each dump
(v) Quantity (in MCm) of OB in each dump
(vi) Year of backfilling
(vii) No. of OB dumps reclaimed
(viii) If garland drains and settlement facility for runoff created
(ix) Whether runoff water being utilized

28. Details of Internal Dumps
    (i) Number of internal dumps
    (ii) Area of each dump
    (iii) Height of each dump
    (iv) Quantity of wastes filled(MCm)

29. Utilization potential of wastes
    (i) Within the mines
    (ii) Outside mines
    (iii) Efforts made by proponent

30. Details of final MineVoids
    (i) Area
    (ii) Depth

31. Details ofQuarry:
    (i) Total quarry area:
    (ii) Backfilled quarry area of …..ha shall be reclaimed with plantation
    (iii) A void of ….. ha at a depth of …… m which is proposed to be converted into a waterbody
    (iv) Green belt created in ha.

32. Details of Land usage
    (i) Pre-mining
    (ii) Post-Mining
    (iii) Core area

33. Details of Forest issues
    (i) Total forest area involved (in ha) for mining lease.
    (ii) Total broken forest area.
    (iii) Status of Forest Clearance and extend of forest land diverted in ha.
    (iv) Is there any National Park, eco-sensitive Zones, within 10 km radius? If so, give the details.
    (v) Extent of forest land in the project (including safety zone and all types of forest land) (in ha)
    (vi) Total forest land for which Stage-1 FC is available (give area in ha), provide breakup of this area in following format:

Area(in ha)	Stage-1 FC issued vide letter no. & date	Validity period of earlier FC granted

    (vii) Balance forest land for which Stage-1 FC is not available (give area in ha)
    (viii) Details of wild life issues involved, if any. If so, whether WL management plan has been prepared; pl. indicates the status.

(ix) Whether schedule -I species, if yes conservation plan is approved by CWLW?

34. Costs of the project:

(i) Total capital Cost:
(ii) Cost of Production:
(iii) Sale Price:
(iv) CSR cost:
(v) R&R Cost:
(vi) No of PAFs:
(vii) Cost for implementing EMP:

35. Details of villages/habitation in mine lease area

(i) Inside the lease
(ii) Surrender by lease
(iii) Extent of cropland acquired/ being acquired in ha.

36. Details of transportation of mineral

(i) In pit:
(ii) Surface to siding:
(iii) Siding to loading:
(iv) Quantity being transported by Road/Rail/conveyer/ropeway
(v) Proposed change in transportation means it any, give details

37. Details of reclamation:

a. Afforestation shall be done covering an area of: ……. ha at the end of mining. This will include:
   (i) Reclaimed external OB dump (in ha):
   (ii) internal dump (in ha),
   (iii) Green belt (in ha)
   (iv) Density of tree plantation (in no of plants)
   (v) Void (in ha) at a depth of (in m)which is proposed to be converted into water body
   (vi) Others in ha (such as excavation area along ML boundary, along roads and infrastructure, embankment area and in township located outside the lease etc).
   (vii) Agriculture and horticulture
   (viii) Fisheries
   (ix) ECO Tourist/recreation spot

III. LEGAL ISSUES

38. Any court case pending. If so, please provide a list with details asannexure.
   (i) Environment (Protection) Act
   (ii) Air(P&CP) Act.

(iii) Water (P&CP) Act.
(iv) MMDR Act
(v) The Factories Act.
(vi) Other land R&R related cases.

39. Any violation cases pending. If so, please provide a list with details as annexure
40. Give details of actual production vis-à-vis sanctioned capacity since the inception of mine in following format or since 1993-94 as applicable:

Year	EC sanctioned capacity (MTPA)	Actual productio n (MTPA)	Excess production beyond the EC sanctioned capacity

IV. PUBLIC HEARING ISSUES

41. Date and Place of public hearing:
42. The designation of officer presided our the PH
43. Issues raised during Public Hearing and assurance given along with the financial provisions and action plan, if any, by the project proponent. (Please attach as an annexure in a tabular form.)
44. Number of representation received in writing from the district and outside of district, please give details

V. Consultant;

45. Name of the EIA consultant who prepared the EIA/EMP report.
46. Whether the consultant has been accredited by the QCI and NABET as per the MoEF OM dated 2nd December,2009.
47. Name of specialists/consultants involved in making EIA report and in collecting data.

VI. Other Information

48. One page summary for TOR and EC separately as applicable.
49. Brief Background of the Project as per table:

1.	Details of PP and Group companies (a)Financial Position (b)Group companies (c)Legal issues (d) Past and current litigations	
2.	Social, economic and environmental aspects of the project in brief.	

Annexure-II

Compliance of MoEFCC's Office Memorandum No. 22-8/2018-IA. III, dated 20th April 2018 for submission of FORM 2 for EC Proposals

Form-2

APPLICATION FOR PRIOR ENVIRONMENTAL CLEARANCE

[Non-coal Mining Projects]

1	**Details of Project**			
	a.	Name of the Project (s)	:	
	b.	Name of the Company / Organization	:	
	c.	Registered Address	:	
	d.	Legal Status of the Company	:	
	e.	Joint Venture (Yes/No)	:	
		If Yes,		
		(i) No. of JV Partners(***Multiple Entries Allowed***)	:	

Name of the JV Partner	Share of the JV Partner	Address of the JV Partner	Email Id of JV Partner	Mobile No. of JV Partner

2	**Address for the correspondence**			
	a	Name of the applicant	:	
	b	Designation (Owner / Partner / CEO)	:	
	c.	Address		
	d	Pin code		
	e	e-mail		
	f.	Telephone No.		
	g.	Fax No.		
3	**Category of the Project/Activity as per Schedule of EIA Notification,2006**			
	a.	Project / Activity [1(a)(i)/1(a)(ii)/1(b)/1(c)/1(d)/1(e)/2(a)/2(b)/3(a)/ 3(b) / 4(a) / 4(b)(i)/ 4(b) (ii) / 4(c) / 4(d) / 4(e) / 4(f) / 5(a) /5(b) /5(c)/5(d)/5(e)/5(f)/5(g)/5(h)/5(i)/5(j)/6(a)/6(b)/ 7(a) / 7(b)/ 7 (c) / 7 (d) / 7 (da) / 7 (e) / 7 (f) / 7 (g) / 7 (h) / 7(i) / 8 (a) / 8 (b)		
	b.	Category (A/B1/B2)	:	
		If B1 or B2		
		Reason for application at Central Level / State level (in case of B2 projects)	:	
		If Others		
	c.	Please Specify	:	

	d.	EAC concerned (for category A Projects only) (Coal Mining / Non-coal Mining / Thermal / River Valley & Hydro / Industry-I / Industry-II / Infrastructure-I / Infrastructure-II / Nuclear &Defence / CRZ	:	
	e.	New/Expansion/Modernization/OneTimeCapacityexpansion (only for Coal Mining) / Expansion under Para 7(ii) / Modernization under Para 7(ii) / Change of Product Mix under Para 7(ii))	:	
4	**Location of the Project**			
	a.	Plot / Survey / Khasra No.	:	
	b.	Village	:	
	c.	Tehsil	:	
	d.	District		
	e.	State		
	f.	Pin Code		
	g.	Bounded Latitudes (North)		
		From	:	
		To	:	
	h.	Bounded Longitudes(East)		
		From	:	
		To	:	
	i.	Survey of India Topo Sheet No.	:	
	j.	Upload Topo Sheet File (*Upload pdf only*)	:	
	k.	Maximum Elevation Above Means Sea Level(AMSL)	:	
	l.	Upload (kml) File (*Upload kml only*)	:	
	m.	Distance of Nearest HFL from the project boundary within the study area	:	
	n.	Seismic Zone (Zone: 1 / 2 / 3 / 4 / 5)	:	
5	**Whether project is executed in multiple States (Yes / No)?**			
	If Yes			
	a.	Number of States in which Project will be Executed (e.g. *1,2,3,4,5,6*)		
	b.	Main State of the Project		
	c.	Other State (*Multiple Entries Allowed*) (If the project to be executed, does not belong to any state, then state category could be selected as 'Other')		

State	District	Tehsil	Village

6	**Details of Terms of Reference (ToR)**			
	a.	Whether ToR is mandatory for submitting application (Yes / No)?		
		If Yes		
	b.	Date of issue of ToR / Standard ToR		

	c.	MoEF&CC / SEIAA File No.		
	d.	Upload ToR letter (PDF only)		
7	**Details of Public Consultation**			
	a.	Whether the Project Exempted from Public Hearing (Yes/No)?		
		If yes,		
		Reason		
	b.	Supporting Document (*upload pdf only*)		
	c.	Whether details of Public Hearing available (Yes/No)?	:	
		If No,		
	d.	Reason thereof		
		Supporting Document (*upload pdf only*)		
		If Yes,		
	e.	Date of Advertisement of Public Hearing		
	f.	Copy of advertisement in English (Upload PDF only)	:	
	g.	Whether Public hearing was presided over by an officer of the rank of Additional District Magistrate or above(Yes/No)?	:	
		If yes		
	h.	Designation of Presiding Officer (District Magistrate / District Collector / Deputy Commissioner / others - please specify)		
	i.	Copy of duly signed Proceedings of Public Hearing in English (*Upload pdfonly*)	:	
	j.	Date of Public Hearing	:	
	k.	Venue of Public Hearing:	:	
		Village		
		Tehsil		
		District		
		State		
	l.	Distance of Public Hearing Venue from the Proposed Project (km)	:	
	m.	No. of people attended	:	
	n.	If the multiple public hearings conducted		
		Pl give the details of each PH as per (e) to (o) above		
8	**Details of Project Configuration / Product (*Multiple Entries Allowed*)**			
	a.	Whether the project is New (Yes/No?)		
		If yes,		
	b.	Project Configuration		

Plant / Equipment / Facility	Configuration	Remarks if any

	c.	Product	:	

Product / Activity (Capacit	Quantity	Unit	Mode of Transport / Transmission of

	y / Area)			Product	

- Unit:- (Tons per Annum(TPA), Mega Watt(MW), Hectares(ha), Kilo Litreper Day(KLD), Tons Crushed per Day(TCD), Cubic Meter per Day, Kilometers(Km), Million Liters per Day(MLD),Others)
- Mode of Transport/Transmission of Product (Road, Rail, Conveyor Belt,Pipe Conveyor, Arial Ropeway, combination of two or three modes, Others)

9	**If Expansion / Modernisation / One Time Capacity expansion (only for Coal Mining) / Expansion under Clause 7(ii) / Modernisation under Clause 7(ii) / Change of Product Mix under Clause 7(ii)))**				
	a.	Details of environmental clearance granted earlier			
		(i)	Date of issue of environmental clearance	:	
		(ii)	MoEFCC / SEIAA File Number		
		(iii)	Upload EC Letter		
	b.	Details ofcertifiedreportoncomplianceofearlierenvironmental clearance conditions			
		(i)	Details of Regional OfficeofMoEFCC / Zonal Office of CPCB / SPCB / UTPCC from which certified reporton compliance of earlier environmental clearance conditions obtained	:	
		(ii)	Letter No	:	
		(iii)	Status of Compliance	:	
		(iv)	Certified reporton compliance of earlier environmental clearance conditions (Including Monitoring Report) (*Upload pdf only*)	:	
		(v)	Date of site visit	:	
	c.	**Details of Consent to Operate**			
		(i)	Whether Consent to operate obtained (Yes/No)?		
			If yes,		
		(ii)	Upload Copies of all Consent to operate obtained since inception (*Upload pdf only*)		
		(iii)	Date of issue		
		(iv)	Valid up to		
		(v)	File No.		
		(vi)	Application No.		
		(vii)	Upload Copy of Consent to operate valid as on date (*Upload pdf only*)		
	d.	Details of Capacity Expansion (*Multiple Entries Allowed*)			

Product/Activity(Capacity/Area)	Quantity From	Quantity To	Unit	Mode of Transport/Transmission of Product

- Unit:- (Tons per Annum(TPA), Mega Watt(MW), Hectares(ha), KiloLitre per Day(KLD), Tons Crushed per Day(TCD), Cubic Meter per Day, Kilometers(Km), Million Liters per Day(MLD),Others)
- Mode of Transport/Transmission of Product (Road, Rail, Conveyor Belt, Pipe Conveyor, Arial Ropeway,combination of two or threemodes, Others)

e. Details of Configuration (*Multiple Entries Allowed*)

Plant / Equipment/Facility	Existing Configuration	Proposed Configuration	Final configuration After expansion	Remarks if any

10	**Project Cost**			
	a.	Total Cost of the Project at current price level (in Lakhs)	:	
	b.	Funds Allocated for Environment Management (Capital) (in Lakhs)	:	
	c.	Funds Allocated Towards ESC (Entrepreneur Social Responsibility) (in Lakhs)	:	
	d.	Funds Allocated for Environment Management Plan (EMP) (Recurring per Annum) (in Lakhs)	:	
11	**Whether project attracts the General Condition specified in the Schedule of EIA Notification (Yes/No)? [provide name of WL/CPA/ESA/Inter-state boundary / International boundary and distance from the project**		:	
		If Yes		
	a.	Protected Area Notified Under the Wild Life(Protection) Act,1972	:	
	b.	Critically Polluted Areas as identified by the Central Pollution Control Board from Time to Time	:	
	c.	Notified Eco-Sensitive Areas	:	
	d.	Inter-State Boundaries and International Boundaries	:	
12	**Whether projects attract the Specific Condition specified in the**		:	

	Schedule of EIA Notification (Yes/No)?			
	If Yes			
	a.	If any Industrial Estate/Complex / Export processing Zones /Special Economic Zones/Biotech Parks / Leather Complex with homogeneous type of industries such as Items 4(d), 4(f), 5(e), 5(f), or those Industrial estates with pre-defined set of activities (not necessarily homogeneous, obtains prior environmental clearance, individual industries including proposed industrial housing within such estates /complexes will not be required to take prior environmental clearance, so long as the Terms and Conditions for the industrial estate/complex are complied with (Such estates/complexes must have a clearly identified management with the legal responsibility of ensuring adherence to the Terms and Conditions of prior environmental clearance, who may be held responsible for violation of the same throughout the life of the complex/estate		
13	**Raw Material / Fuel Requirement (*Multiple Entries Allowed*)**			
	a.	Details of Raw Material / Fuel Requirement		

Raw Material / Fuel	Quantity per Annum	Unit	Source(in case of Import, please specify country and Name of the port from which Raw Material / Fuel is received)	Mode of Transport	Distance of Source from Project Site (in Kilo meters) (In case of import, distance from the port from which the raw material / fuel is received	Type of Linkage (Linkage / Fuel Supply Agreement / e-auction / MoU / LOA / Captive / Open market / Others)

	In case of expansion proposals, total requirement of raw material / fuel shall be given - Unit:- (Tons per Annum(TPA), Mega Watt(MW), Hectares(ha), Kilo Litre per Day(KLD), Tons Crushed per Day(TCD), Cubic Meter per Day, Kilometers(Km), Million Liters per Day(MLD),Others) - Mode of Transport/Transmission of Product (Road, Rail, Conveyor Belt,Pipe Conveyor, Arial Ropeway,combination of two or three modes, Others)							
	b.	Upload copy of Linkage / Fuel Supply Agreement / e-auction / Memorandum of Understanding / Letter of Allocation / Captive source / others.					:	
14	**Baseline Data (Air / Water / Noise / Soil / Ground water table/ Others)**							
	a.	Period of Base Line Data Collection						
		From (DD/MM/YYYY)					:	
		To (DD/MM/YYYY)					:	
	b.	Season (Summer / Pre-monsoon / Post-monsoon / Winter)					:	
	c.	No. of Ambient Air Quality (AAQ) Monitoring Locations					:	
	d.	Details of AAQ Monitoring (*Multiple Entries Allowed*)						

Criteria Pollutants	Unit	Maximum Value	Minimum Value	98 Percentile Value	Prescribed Standard

- Criteria Pollutants: - (PM10, PM2.5, SO2,NOx, Others parameters specific to sector)
- Unit: - (Micro Gram per Meter Cube,Nano Gram per Meter Cube,Mili Gramper Meter Cube, NA)

	e.	No. of Ground Water Monitoring Locations (*Multiple Entries Allowed*)					:	
	f.	Details of Ground Water Monitoring						

Criteria Pollutants	Unit	Maximum Value	Minimum Value	98 Percentile Value	Prescribed Standard

Criteria Pollutants: - (pH, TSS, TDS, Total Hardness, Chlorides, Fluoride, Heavy Metals, other parameters specific to the sector)
- Unit :- (mg/l,NA)

g.	No. of Surface Water Monitoring Locations	:	
h.	Details of Ground Water Monitoring (*Multiple Entries Allowed*)		

Criteria Pollutants	Unit	Maximum Value	Minimum Value	98 Percentile Value	Prescribed Standard

- Parameter :- (pH, DO, BOD, COD, Others parameters specific to thesector)
- Unit :- (mg/l,NA)

i.	No. of Ambient Noise Monitoring Locations	:	
j.	Details of Noise Monitoring (*Multiple Entries Allowed*)		

Parameter	Unit	Maximum Value	Minimum Value	98 Percentile Value	Prescribed Standard

- Parameter:-(Leq(Day),Leq(Night))
- Unit :- (A-weighteddecibels(dB(A))

k.	No. of Soil Monitoring Locations (*Multiple Entries Allowed*)	:	

Parameter	Unit	Maximum Value	Minimum Value	98 Percentile Value

- Parameter :- (pH, N(Nitrogen), P(Phosphorus), K(Potassium),Electric Conductivity)
- Unit :- (Millisiemens per Centimeter, Milligram per Litre, Percent, Centimeter per Second,Milliequivalents per 100 Gram, Milligram per Kilogram,Parts per Million, Kilogram per hectare, Others)

l	**Ground Water Table**		
i	Range of Water Table Pre-Monsoon Season (Meters Below Ground Level (m bgl)):		
	From	:	
	To	:	

	ii	Range of Water Table Post-Monsoon Season (Meters Below Ground Level (m bgl)):		
		From	:	
		To	:	
	iii	Whether Ground Water Intersection will be there (Yes / No)?	:	
		If Yes,		
		(i) Upload Copy of Central Ground Water Authority Letter (*Upload pdf only*)	:	
		(ii) Letter No.	:	
		(iii) Date of issue	:	
15	**Details of Water Requirement (During Operation)**(*Multiple Entries Allowed*)			
	a.	Details		

Source	Quantity in KLD	Method of water withdrawal	Distance from Source	Mode of Transport

- Source: Surface /Ground Water /Sea/Others
- Modeof Transportation**:** Pipeline /Canal/Others
- Method of water withdrawal: Barrage / Weir / Intake well / Jackwell / Tube well / Open well /Others

	b.	Upload Copy of Permission from Competent Authority (*Upload pdf only*)		
	c.	Letter No.	:	
	d.	Date of issue	:	
	e.	Permitted quantity	:	
	f.	Whether Desalination is proposed (Yes/ No)	:	
		If Yes,		
		(i) Desalination capacity (KLD)	:	
		(ii) Quality of Brine (KLD)	:	
		(iii) Mode of Disposal of brine	:	
16	**Waste Water Management (During Operation)**			

Type / Source	Quantity of Waste Water Generated (Kilo Litre per Day)	Treatment Capacity (Kilo Litre per Day)	Treatment Method	Mode of Disposal	Quantity of Treated Water Used in Recycling / Reuse (Kilo Litre perDay)	Quantity of Discharged W ter (Kilo Litre per Day)

	a.	Total Waste Water Generation	:	
	b.	Total Discharged Water	:	
	c.	Total Reused Water	:	

17 Solid Waste Generation Management(*Multiple Entries Allowed*)

Item	Quantity per Annum	Unit	Distance from Site	Mode of Transport	Mode of Disposal

- Item:- (Industrialwaste,MunicipalSolidwaste,Flyash,Bottom Ash, Hazardous Waste (as per Hazardous and Other Waste Management Rules 2016),E Waste,Bio-Medical waste,Construction&Demolitionwaste,PlasticWaste,Others)
- Unit:-(Tons,Kiloliter)
- Mode of Disposal**:-** **(**Treatment, Storage and Disposal Facility(TSDF),AuthorizedRe-cyclers,Landfills,SanitaryLandfills,Others**)**

18 Air Quality Impact Prediction (*Multiple Entries Allowed*)

Criteria Pollutants	Unit	Baseline Concentration	Minimum Value	Incremental Concentration	Total GLC	Prescribed Standard

- Parameter:- (PM10, PM, SO2,NOx, Others parameters specific to thesector)
- Unit :- (Microgram per Meter Cube,NA)

19 Power Requirement

	a.	Quantity (Kilo Volt Amps (KVA))	:	
	b.	Source	:	
	c.	Upload Copy of Agreement (*Upload pdf only*)	:	
	d.	Standby Arrangement (Details of DG Sets)	:	
	e.	Stack Height (in m)	:	

20 Land Ownership Pattern (Prior to the project proposal) in Ha

	a.	Forest land	:	
	b.	Private Land	:	
	c.	Government Land	:	
	d.	Revenue Land	:	

	e.	Other Land	:	
		Total land		
21	**Present Land Use breakup in Ha**			
	a.	Agriculture Area	:	
	b.	Waste/Barren Area	:	
	c.	Grazing/ Community Area	:	
	d.	Surface Water bodies	:	
	e.	Settlements		
	f.	Industrial		
	g.	Forest	:	
	h.	Mangroves		
	i.	Marine area		
	j.	Others (Specify)	:	
		Total	:	
22	**Land requirement for various activities (Multiple entries allowed) in Ha**		:	

Description of Activity / Facility / Plant / Others	Land requirement	Remarks
Green belt		
Total		

- Activity / Facility / Plant / Others include: Main Plant, Township, Greenbelt, Ash pond, Quarry area, OB dump Area, Safety zone, Tailing pond, Landfill, Water reservoir, De-salination plant, Area for solid waste management,Built-up area, others

23	**Ecological and Environmental Sensitivity (Within 10 Km):-<u>WLS-Wild LifeSpecies; NPA-Notified Protected Area; ESAs-Eco Sensitive Areas;ESZs- Eco Sensitive Zones)</u>**			
	a.	Details of Ecological Sensitivity		

Details of Ecological Sensitivity	Name	Distance from the Project (Km)	Remarks

- Details of Ecological Sensitivity**: - (**Critically Polluted Area, WLS,NPA, ESAs, ESZs, Corridors, Wildlife Corridors**)**

	b.	Whether NBWL recommendation is required (Yes/No)?		
		If yes		
		Upload NBWL recommendation in PDF		
	c.	Details of Environmental Sensitivity		

Details of Environmental Sensitivity	Name	Distance from the Project (Km)	Remarks

- Details ofEnvironmentalSensitivity**:-(**Forest, ArchaeologicalSites,Defence Installations, Others**)**

	d.	Whether NoC / Permission from the competent authority is required (Yes/No)?		
		If yes		
		Upload NoC / Permission from the competent authority in PDF		
24	**Forest Land**			
	1	Whether any Forest Land involved(Yes/No)?		
		If Yes		
	a.	Forests Clearance Status (In-Principle(Stage-I) Approval Obtained / Final (Stage-II) Approval Obtained / Forest Clearance Under Process(Stage-I) / Forest Clearance Under Process(Stage-II) / Application for Forest Clearance yet to be Submitted)	:	
		If In-Principle (Stage-I) Approval Obtained,		
		(i) MoEFCC file number	:	
		(ii) Date of InPrinciple (Stage-I) approval	:	
		(iii) Area diverted	:	
		(iv) Upload FC Letter (Upload pdf only and attach it as Annexure-FC letter)	:	
		If Final (Stage-II) Approval Obtained,		
		(i) MoEFCC file number	:	
		(ii) Date of Final Approval	:	
		(iii) Date of In-Principle Approval	:	
		(iv) Area diverted	:	
		(v) Upload FC Letter*(Upload pdf only and attach it as Annexure-FC letter)*		
		If Forest Clearance under process (Stage-I),		
		(i) MoEFCC file number	:	
		(ii) Area applied	:	
		If Forest Clearance under process (Stage-II),		

		(i) MoEFCC file number	:	
		(ii) Area applied	:	
	b.	Legal Status of Forest Land (Reserved, Protected, Private, Village, Others)		
		If Others,		
		Please Specify Others	:	
25	**Tree Cutting, if any**			
	a.	No. of Trees Cut for the Project (if Forestland not involved)	:	
	b.	Details of Tree Cutting and Planting of Trees (*Upload pdf Only*)	:	
26	**Land Acquisition Status**			
	a.	Acquired Land		
	b.	Land yet to be acquired		
	c.	Status of Land acquisition if not acquired		
27	**Rehabilitation and Resettlement (R&R)**			
	a.	No. of Villages		
	b.	No. of Households		
	c.	No. of PDFs (Project Displaced Families)		
	d.	No. of PAFs (Project Affected Families)		
	e.	Funds Allocated for R&R		
	f.	Status of R&R (Completed / In-progress / Yet to start)		
28	**Whether there is Presence of Schedule-I Species (Yes/No)?**		:	
		If yes,		
	a.	Details of Schedule-I Species	:	
	b.	Whether conservation plan for Schedule-I Species has been prepared (Yes/ No)?	:	
		If Yes,		
		(i) Upload conservation plan (Upload onlyPDF)		
		(ii) Fund Provisionmade		
		(iii) Period ofImplementation		
	c.	Whether conservation plan for Schedule-I Species has been approved by competent authority (Yes/ No)?		
		(i) Upload copy of approval (Upload PDFOnly)	:	
		(ii) LetterNo.	:	
		(iii) Date ofissue	:	
		(iv) Recommendations ifany	:	
29	**Whether there is Presence of Water Bodies in Core Area(Yes/No)?**		:	
		If yes,		
	a.	Details of Water Bodies in Core Area	:	
	b.	Whether there is Diversion required (Yes/No)?		
		If yes,		
	c.	Details of diversion required		

	d.	Details of study conducted		
	e.	Whether permission has been obtained from competent authority (Yes/No)?		
		(i) Upload copy of permission (Upload PDF Only)		
		(ii) Letter No.		
		(iii) Date of issue		
		(iv) Recommendations if any		
30	**Whether there is Presence of Water Bodies in Buffer Area(Yes/No)?**		:	
		If Yes		
	a.	Details of Water Bodies in Buffer Area	:	
	b.	Direction of Water Bodies in Buffer Area (North / South / East / West / North East / North West / South East / South West)	:	
	c.	Distance of Water Bodies in Buffer Area (kilo meters)		
31	**Manpower Requirement**			
	a.	Permanent employment during construction	:	
	b.	Permanent employment during operation	:	
	c.	Temporary employment during construction	:	
	d.	Temporary employment during operation	:	
	e.	No. of working days	:	
	f.	Total manpower	:	
32	**Green Belt in Ha**			
	a.	In case of new projects	:	
	i.	Total Area of Green Belt		
	ii.	Percentage of Total Project Area	:	
	iii.	No. of Plants to be Planted	:	
	iv.	Funds Allocated for Plantation	:	
	v	Upload Green Belt Plan (Upload PDF Only)		
	b.	Incase of expansion / modernization / change in product mix etc.		

	i.	Description	Existing	Proposed	Total
		Total Area of Green Belt			
		Percentage of Total Project Area			
		No. of Plants			
		Funds Allocated			

	ii.	Upload Green Belt Plan (Upload PDF Only)		
33	**Project Benefit (*Multiple entry allowed*)**			

Type of Project Benefits	Details of Project Benefit

(Project benefits shall include environmental, social and others)

34	**Whether the Project / Activity attracts the provisions of CRZ (Yes/No)?**					
	If yes,					
	1	**Project Details**				
		a.	CRZ Classification: (CRZ I (A), CRZ I(B), CRZ II, CRZ III, CRZ IV (A), CRZ IV(B))			
		b.	Location type: (Non-Eroding Coast, Low and Medium Eroding Coast, High Eroding Coast)			
		c.	Details of Mangroves Land Involved, if Any			
		d.	Area of Mangroves Land (hectare)			
		e.	EIA (Terrestrial) Studies: (Carried Out, Not Carried Out)			
			If Carried Out,			
			1)	Summary Details of EIA (Terrestrial) Studies		
			2)	Upload Recommendation made in EIAs (Upload pdf only)		
			3)	Period of Study from (EIA Terrestrial)		
			4)	Period of Study to (EIA Terrestrial)		
			If Not Carried out			
				Give Reason		
		f.	EIA (Marine) Studies: (Carried Out, Not Carried Out)			
			If carried out			
			1)	Summary Details of EIA (Marine) Studies		
			2)	Upload Recommendation made in EIAs		
			3)	Period of Study from (EIA Marine)		
			4)	Period of Study to (EIA Marine)		
			If Not Carried out,			
			Give Reason			
		g.	Disaster Management Plan/National Oil Spill Disaster Contingency Plan (if Applicable)			
	2.	**<u>Description of the Project Under Consideration</u>**				
		a.	Type of Project: (Resort/Buildings/civic amenities, Coastal Roads/Roads on Stilt, Pipelines from Thermal power Blow Down, Marine Disposal of Treated Effluent, Facility for Storage of Goods/Chemicals, Offshore structures, Desalination Plant, Mining of Rare Earth/Atomic Minerals, Sewage Treatment Plants, Lighthouse, Wind Mills, Others)			
			If Resort/Buildings/civic amenities,			
			1)	Agency Name for Preparing CRZ Maps		
			2)	Total Area/Built-up Area (hectare)		
			3)	Height of Structure		
			4)	FSI Ratio		

			5)	The governing Town Planning Rules/Regulations		
			6)	Details of Provision of Car Parking Area		
			If Coastal Roads/Roads on stilt,			
			1)	Agency Name for Preparing CRZ Maps		
			2)	Area of Land Reclamation		
			3)	Estimated Quantity of Muck/Earth for Reclamation		
			4)	Carrying Capacity of Traffic		
			If Pipelines from Thermal Power Blow Down,			
			1)	Agency Name for Preparing CRZ Maps		
			2)	Length of Pipeline		
			3)	Length Traversing CRZ Area		
			4)	Depth of Excavation		
			5)	Width of Excavation		
			6)	Length of Pipeline from Seashore to Deep Sea		
			7)	Depth of Outfall Point from Surface of Sea Water		
			8)	Temperature of effluent above Ambient at Disposal Point		
			If Marine Disposal of Treated Effluent,			
			1)	Agency Name for Preparing CRZ Maps		
			2)	Location of Intake/Outfall		
			3)	Depth of Outfall Point		
			4)	Length of Pipeline		
			5)	Length Traversing CRZ Area		
			6)	Depth of Excavation		
			7)	Width of Excavation		
			8)	Length of Pipeline from Seashore to Deep Sea/Creek		
			9)	Depth of Outfall Point from Surface of Sea Water		
			10)	Depth of Water at Disposal Point		
			11)	Type of Disposal		
			If Facility for Storage of Goods/Chemicals,			
			1)	Agency Name for Preparing CRZ Maps		
			2)	Name and Type of Chemical		
			3)	End use of the Chemical		
			4)	No. of Tanks for Storage		
			5)	Capacity of tanks		
			If offshore structures,			
			1)	Agency Name for Preparing CRZ Maps		
			2)	Exploration or Development		
			3)	Depth of Sea Bed		
			4)	No. of Rigs/Platform		

			5)	Details of Group Gathering Stations		
			If Desalination Plant,			
			1)	Agency Name for Preparing CRZ Maps		
			2)	Capacity of Desalination		
			3)	Total Brine Generation		
			4)	Temperature of Effluent above Ambient at Disposal Point		
			5)	Ambient Salinity		
			6)	Disposal Point		
			If Mining of Rare Earth/Atomic Minerals,			
			1)	Agency Name for Preparing CRZ Maps		
			2)	Capacity of Mining		
			3)	Volume/Area to be mined		
			4)	Type of Mineral to be Extracted		
			5)	End use of the Mineral		
			If Sewage Treatment Plants,			
			1)	Agency Name for Preparing CRZ Maps		
			2)	Capacity		
			3)	Total Area of Construction		
			4)	Compliance of effluent parameters as laid down by CPCB/SPCB/other authorized agency		
			5)	Whether discharge is in sea water/creek? If yes,		
				Distance of Marine Outfall Point from Shore/from the tidal river bank		
				Depth of Outfall Point from Sea Water Surface		
				Depth of Sea at Outfall Point		
			If Lighthouse,			
			1)	Agency Name for Preparing CRZ Maps		
			2)	Total Area of Construction		
			3)	Height of the Structure		
			If Wind Mills,			
			1)	Agency Name for Preparing CRZ Maps		
			2)	Capacity (MW)		
			3)	Transmission Lines: (Overhead, Underground)		
			4)	Diameter of Windmill		
			5)	Length of Blade		
			6)	Speed of Rotation		
			7)	Height of the Structure		
			If Others,			
			1)	Agency Name for Preparing CRZ Maps		
			2)	Please Specify with salient features		

			3)	Upload relevant Document (*Upload pdf only*)		
	3.	**Distance of Project (In Meters) from LTL/HTL to be Stated**				
		a.	Clause of CRZ Notification Under which the Project is a Permissible/Regulated Activity			
		b.	Whether CRZ Map Indicating HTL, LTL Demarcation in 1:4000 Scales Prepared? (Yes/No)			
			If Yes,			
			1)	Distance of Project (in meters) from HTL to be Stated		
			2)	Upload Maps(*kml File*)		
			3)	Distance of Project(in meters) from LTL to be Stated		
			4)	Upload Maps (*kml File*)		
		c.	Whether Project Layout Superimposed on CRZ Map 1:4000 Scales?: (Yes/No)			
			If Yes,			
			1)	Upload Maps (*kml File*)		
		d.	Whether CRZ Map 1:25000 Covering 7 km Radius Around Project Site Prepared? (Yes/No)			
			If Yes,			
			1)	Upload Maps (*kml File*)		
		e.	Whether CRZ Map Indicating CRZ-I,II,III and IV Including Other Notified ESAs Prepared?: (Yes/No)			
			If Yes,			
			1)	Upload Maps (*kml File*)		
		f.	NOC from State Pollution Control Boards Obtained: (Yes/No)			
			If Yes			
			1)	Upload Copy of NOC (*Upload pdf only*)		
		g.	Details of Rain Water Harvesting System			
	4.	**Recommendation of State Coastal Zone Management Authority**				
		a.	Upload Copy of CZMA (*Upload pdf Only*)			
		b.	State the Conditions Imposed			
		c.	Social and Environmental Issues and Mitigations Measures Suggested Including but not Limited to R&R, Water, Air, Hazardous Wastes, Ecological aspects, etc. (Brief Details to be Provided)			
35	**Sector Specific Details**					
I	**Whetherthepropos alisminingofminerals(coal/non-coal) project (Yes/No)?**					
		If yes,				
	1	No. of Mineral to be Mined (Multiple Entries Allowed)			:	

			Minerals To be Mined	Major or Minor Mineral	
	2	Mine Capacity in ROM (Run of Mine)			
	3	Upload 500 meters Cluster Certificate from State Mines and Geology in case of minor minerals (Upload pdf Only)			
	4	**Mining Plan**			
		a.	Approval Letter No.		
		b.	Date of Approval		
		c.	Upload Approved Letter (*Upload pdf only*)		
		d.	Approved by State Mines & Geology Department / Indian Bureau of Mines / Ministry of Coal /Ministry of Mines /State Government /Atomic Mineral Directorate / Others)		
		e.	If Others,		
			Please specify		
		f.	Approved Mining Lease Area		
		g.	Approved Capacity		
	5	**Technical Details**			
		a.	Total Geological Reserves (Million Ton)		
		b.	Mineable Reserves (Million Ton)		
		c.	Extractable Reserves(Million Ton)		
		d.	Percent of Extraction(%)		
		e.	Grade of Coal /Ore /Mineral		
		f.	Stripping Ratio		
		g.	Category of Gaseousness (Only for Coal Mining, Others may write Not applicable)		
		h.	Average Gradient(Degree)		
		i.	Maximum Thickness of Seams(meters) (Only for Coal Mining, Others may write Not applicable)		
		j.	Mining Method (Opencast / Underground /Mixed(Opencast + Underground) /Adit		
		k.	Life of Mine (Years)		
	6	**Details of beneficiation (including crushing / screening/others)**			
		a.	Whether it is proposed to install crusher within the mining lease area (Yes/No)?		
			If yes,		
		b.	No. of crushers		
		c.	Details of crusher (Multiple entries allowed)		

			Crusher ID	Capacity (in TPH)	Remarks	

		d.	Whether it is proposed to install beneficiation plant / Coal washery within the mining lease area (Yes/No)?			
			If yes,			
		e.	Beneficiation / washing Technology			
		f.	Capacity			
	7	**Details of Seams if applicable**				
		a.	No. of seams			
		b.	Thickness of seams to be worked on			
		c.	Maximum Thickness of Seams(meters) (if not Applicable, may Write NA)			
	8	**Details of Mining Lease**				
		a.	Details of Mining Lease			
		b.	Upload Letter of Intent (Upload pdf only)			
		c.	Date of Execution of Mining Lease with Reference Number			
		d.	Validity of Mining Lease			
		e.	Upload Copy of Executed Lease deed valid as on Date (Upload pdf only)			
		f.	Earlier Renewals (Multiple Entries Allowed)			

Uploaded Copy of Earlier Lease	Date of Renewal

	9	**OB (Over Burden) Management (Only if Mining Method: Opencast)**				
		a.	**Details of External Dumps**			
			i) No. of OB Dumps			
			ii) Total Area (in Hectare)			
			iii) Height (in meter)			
			iv) Quantity (in Million Cubic meter)			
			v) No. of year back fill up			
		b.	**Details of Internal Dump**			
			i) No. of Internal Dumps			
			ii) Total Area (in Hectare)			
			iii) Height (in meter)			
			iv) Quantity (in Million Cubic meter)			
	10	**Details of Topsoil Management**				
		a.	Quantity of Topsoil excavated during the entire life of the mine (in Million Cubic meter)			
		b.	Quantity of Topsoil proposed for utilization for reclamation			

			during the entire life of the mine (in Million Cubic meter)		
		c.	Quantity of Topsoil proposed for utilization for other activities during the entire life of the mine (in Million Cubic meter)		
	11	**Detail of Final Mine Void(Only if Mining Method: Opencast)**			
		a.	Area (in Hectare)		
		b.	Depth (in meter)		
		c.	Volume (in Million Cubic meter)		
	12	**Details of Quarry(Only if Mining Method: Opencast)**			
		a.	Final Void of (hectare)		
		b.	At a Depth of (meter which is proposed to be converted into a Water Body.)		
		c.	Total Quarry Area (ha)		
	13	**Details of Transportation**			
		a.	In Pit/Underground to Surface		
		b.	Surface to Siding/Loading		
		c.	Transportation / Conveyor Details		
	14	**Details of Land Usage (Pre-Mining)**			

Land Use	Within ML Area (Hectare)	Outside ML Area (Hectare)	Total
Agriculture Land			
Forest Land			
Waste Land			
Grazing Land			
Surface Water Bodies			
Settlements			
Others(Specify)			

	15	**Details of Transportation**			
		a.	In Pit/Underground to Surface		
		b.	Surface to Siding/Loading		
		c.	Transportation / Conveyor Details		
	16	**Details of Land Usage (Pre-Mining)**			

Land Use	Within ML Area (Hectare)	Outside ML Area (Hectare)	Total
Agriculture Land			
Forest Land			
Waste Land			

		Grazing Land					
		Surface Water Bodies					
		Settlements					
		Others(Specify)					
		Others					
	17	**Details of Land Usage (Post-Mining)**					
		Land Use	Plantation	Water Body	Public Use	Others	
		Excavation / quarry					
		Top Soil Storage					
		External OB dumps					
		Internal OB dumps					
		Roads					
		Built Up Area (Colony/Office)					
		Green Belt					
		Virgin Area					
		Other					
		Total					
	18	**Details ofReclamation(Only if Mining Method: Opencast)Total Afforestation Plan shall be Implemented Covering of Mining. This will include:**					
		a.	External OB Dump(in hectare)				
		b.	Internal Dump(in hectare)				
		c.	Quarry(in hectare)				
		d.	Safety Zone(in hectare)			:	
		e.	Final Void of (hectare)			:	
		f.	At a Depth of (*meter which is proposed to be converted into a Water Body.*)			:	
		g.	Density of Tree Plantation per ha (in no.)			:	
		h.	Others in ha (such as Excavation Area along ML Boundary, along Roads and Infrastructure, Embankment Area and in Township Located outside the Lease etc.)				
		i.	Total afforestation plant (in hectare)				

	19	**Status of Progressive Mining Closure Plan (For Expansion Projects only)**			
		a.	Implementation of Various Activities as per Approved Progressive Mine Closure Plan (in Bar Chart) (pdf) (*Upload pdf only*)		
		b.	Any Deviation from the Approved Progressive Mine Closure Plan		
		c.	Total Area Excavated(in hectare)		
		d.	Total Area Backfilled after Excavation(in hectare)		
		e.	Total Area Reclaimed (in hectare)		
	20	**Actual Coal/Ore Production vis-à-vis sanctioned capacity Since inception (*Multiple Entries Allowed*)**			

Financial Year	Sanctioned Capacity as per EC (MTPA)	Sanctioned capacity as per CTO	Sanctioned capacity as per approved Mining Plan	Actual Production	Excess Productuion Beyond the EC/CTO/Mining Plan Sanctioned Capacity (MTPA)

36	**Details of Court Cases if any**			
	a.	Whether there is any Court Cases pending against the project and/or land in which the project is proposed to be set up (Yes/No)?		
		If Yes,		
	b.	Name of the Court (Districts *Court / High Court / NGT / Tribunals /* *Supreme Court of India*)		
		If name of Court: (Districts Court, High Court, NGT, Tribunals)		
	c.	Name of the Sub-court		
	d.	Case No.		
	e.	Orders/Directions of the court,if any and its relevance with the proposed project		
	f.	Case Details		
	g.	Upload Court Order if any (*Upload pdf Only*)		
37	**Details of direction issuedunder Environment (Protection) Act / Air (Prevention & Control of Pollution)) Act / Water (Prevention & Control of Pollution) Act**			

	a.	Whether any direction issued under Environment (Protection) Act/Air (Prevention & Control of Pollution)) Act/Water (Prevention& Control of Pollution) Act(Yes/No)?		
		If yes,		
	b.	Details of directions issued under Environment (Protection) Act/Air (Prevention & Control of Pollution)) Act/Water (Prevention & Control of Pollution) Act		
	c.	Upload copy of directions issued under Environment (Protection) Act/Air (Prevention & Control of Pollution)) Act/Water (Prevention& Control of Pollution) Act		
	d.	Compliance status of the directions		
38	**Details of EIA Consultant**			
	a.	Have you hired Consultant for preparing document(Yes/No)?	:	
		If No,		
		(i) Reason for not engaging the Consultant	:	
		If Yes,		
		(i) Accreditation No.	:	
		(ii) Name of the EIA Consultant	:	
		(iii) Address		
		(iv) Mobile No.	:	
		(v) Landline No.	:	
		(vi) E-mail Id	:	
		(vii) Category of Accreditation (Eligible for Category A / Eligible for Category B)	:	
		(viii) Sector of Accreditation	:	
		(ix) Validity of Accreditation	:	
		(x) Upload Certificate of Accreditation certified by QCI/NABET (*Upload pdf Only*)	:	
39	**Documents to be attached**			
I	***If Project Type is New / Expansion / Modernization / one-time capacity expansion for coal mining:***			
	a.	Upload Copy of EIA/EMP Report		
	b.	Upload Copy of Risk Assessment Report		
	c.	Upload Copy of Feasibility Report/ Detailed Project Report(DPR) /Detailed Engineering Report /Detailed Conceptual Plan / Approved Mining Plan (in case of Mining proposals) (*Upload pdf only*)		

	d.	Upload Copy of Final Layout Plan (*Upload pdf only*)		
	e.	Upload Cover Letter *(Upload pdf only and attach it as Annexure-document of Cover letter)*		
	f.	Upload a copy of documents in support of the competence/authority of the person making this application to make application on behalf of the User *Agency (Upload pdf only and attach It as Annexure-authorization)*		
	g.	Upload copy of District Survey Report (for mining of minor minerals only)		
		Upload copy of Replenishment Study Report & Baseline Survey data (for river sand mining proposals only)		
	g.	Upload Additional File, if any (*Upload pdf only*)		
II	***If Project Type is other than New / Expansion / Modernization / one-time capacity expansion for coal mining: -***			
	a.	Upload Copy of Feasibility Report/ Detailed Project Report(DPR)/Detailed Engineering Report /Detailed Conceptual Plan (*Upload pdf only*)		
	b.	Upload Copy of Final Layout Plan (*Upload pdf only*)		
	c.	Upload Cover Letter*(Upload pdf only and attach it as Annexure-document of Cover letter)*		
	d.	Upload a copy of documents in support of the competence/authority of the person making this application to make application on behalf of the User Agency *(Upload pdf only and attachitasAnnexure-authorization)*		
	e.	Upload Additional File, if any*(Upload pdf only)*		
	f.	Upload Updated Form1*(Upload pdf only)*		
40	**Undertaking**			
	a.	I hereby give undertaking that the data and information given in the application and enclosures are true to be best of my knowledge and belief and I am aware that if any part of the data and information found to be false or misleading at any stage the project will be rejected and clearance given, if any to the project will be revoked at our risk and cost. In addition to above, I hereby give undertaking that no activity / construction / expansion has since been taken up		
	b.	Name	:	
	c.	Designation	:	
	d.	Company	:	
	e.	Address	:	

*****

Financial Year	Mining Lease Detail (Initial, Renewal, Transfer) with dateand Validity	EC Capacity (Tonne), date, Letter No, amendment etc.	Details of FC	CTE	CTO under Air act (Date, validity, Capacity)	CTO under Water Act (Date, validity, Capacity)	Mining Plan /M Scheme	
							Proposed production (Tonne)	Ach Prod (To
1993-94								
1994-95								
1995-96								
1996-97								
1997-98								
1998-99								
1999-00								
2000-01								
2001-02								
2002-03								
2003-04								
2004-05								
2005-06								
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2007-								

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2008-09								
2009-10								
2010-11								
2011-12								
2012-13								
2013-14								
2014-15								
2015-16								
2016-17								
2017-18								
2018-19								
2019-20								
2020-21								
2021-22								
	Note: - The Data filled above should be supported by relevant document							

ANNEXURE-R4-11

No. J-11015/200/2008-IA.II(M)
Government of India
Ministry of Environment & Forests

Paryavaran Bhavan,
C.G.O. Complex, Lodi Road,
New Delhi-110003.
Telefax: 24362434

Dated the 31st March, 2011

Office Memorandum

Sub: Consideration of projects for grant of environmental clearance under EIA Notification, 2006 which involve forestland – Procedure to be followed – Regarding.

Ref: Office Memorandum no. J-11013/41/2006-IA.II(I) dated 2nd December, 2009 regarding Procedure for consideration of proposals for grant of environmental clearance under EIA Noti9fication, 2006, which involve forestland and or wildlife habitat.

The issue regarding consideration of proposals especially mining project for grant of environmental clearance under EIA Notification, 2006, which also involve diversion of forestland has been under consideration for quite some time and circulars / guidelines have been issued in the past in this regard from time to time. In this regard, reference is also invited to para 8 (v) of the EIA Notification, 2006 reads as follows:

"Clearances from other regulatory bodies or authorities shall not be required prior to receipt of applications for prior environmental clearance of projects or activities, or screening, or scoping, or appraisal, or decision by the regulatory authority concerned, unless any of these is sequentially dependent on such clearance either due to a requirement of law, or for necessary technical reasons."

According to the above provision, the environmental clearance under EIA Notification, 2006 is independent of other clearances and submission of clearances under other relevant Acts and Rules as may be applicable to a project is not a pre-requisite for obtaining environmental clearance except in specific cases where it is sequentially dependent on such clearance either due to requirement of law or for necessary technical reason. This aspect was earlier discussed and deliberated and the office memorandum dated 2nd December, 2009 referred to above was an outcome of the same.

However, in view of the complexity of the issues involved, the matter has been considered further in the Ministry and in supersession of the earlier instructions, it has now been decided to adopt the following procedure for consideration of such projects.

I. Projects in Pipeline:

(A) Projects received for TORs and yet to be considered by EAC:

In case of the proposals which have been received for prescribing TORs and involve forestland, in part or in full, and are yet to be considered by the EAC, during consideration of such proposals, clarifications will be obtained from the project proponent regarding feasibility of undertaking the project only in non forestland. In case, the project proponent confirms to undertake the project in non forest area only, the proponent may be advised to submit the revised proposal by deleting the forestland involved in the project. In case, it is not possible to undertake the project without involving diversion of forestland, the project proponent will be asked to first apply for stage-I forestry clearance for the forestland involved in the project and thereafter submit the proposal for obtaining terms of reference as per the procedure prescribed under EIA Notification, 2006.

(B) Projects for which TORs have already been prescribed but the proposal for environmental clearance is yet to be submitted:

In case of the proposals, which involve forestland, in part or in full, and for which TORS have already been prescribed, the project proponents are advised to ensure that the requisite stage-I forestry clearance has been granted and its copy is submitted along with their application / proposal for environment clearance. Alternatively, the proponent should delete from their land requirement, the forestland involved in the project and the proposal so amended without any forestland may be submitted for appraisal by the EAC.

In case of projects where forest diversion (Stage I Clearance) has been approved for part of the total forestland involved in the project, the proposal will be considered only for the land for which forest diversion has been approved and the non forestland, if any. For the purpose, the onus of demonstrating that the project activities will be limited to that much area only would lie with the project proponent and necessary supporting documents will be submitted in this regard.

(C) Projects submitted for environmental clearance based on the TORs prescribed by EAC:

The proposals already submitted for environmental clearance will be appraised by the EAC on their merit and in case of involvement of forestland, the proponent will be asked either to delete the forestland and submit the revised proposal or approach the EAC after the stage-I forestry clearance for

the forestland involved in the project has been granted, till which time the proposal will stand delisted.

In case of projects for which diversion of forestland has been granted for part of the forestland, the proposal will be appraised taking into account that much of land only (land for which FC granted + Non forestland) for the project activities and the proponent should demonstrate the viability of the project with requisite supporting documents.

(D) Projects already considered by EAC and recommended for grant of environmental clearance:

In accordance with the recommendations of EAC, such projects will be processed on file for obtaining approval of the MEF for grant of environment clearance. After MEF has approved, a communication will be sent to the project proponent informing that the Competent Authority has approved the project; however, the formal environmental clearance will be issued only after the stage-I forestry clearance for the forestland involved in the project has been obtained and submitted. For the purpose, a maximum time limit of one year will be provided to the proponent during which time the proposal will be kept in abeyance. In case, the formal forestry clearance is not submitted within this time frame, the proposal will stand rejected and the process for obtaining environmental clearance will have to be initiated, de-novo, as per the procedure prescribed under EIA Notification, 2006.

II. Expansion Projects:

(i) Mining Projects involving enhancement of production by increasing the depth and or number of shifts, without any increase in lease area and having already obtained the forestry clearance for the forestland involved in the mine lease, shall be considered on merit and decision taken.

(ii) The Expansion projects involving horizontal spread with additional land requirement will be dealt with as green field projects, if additional forestland is to be diverted.

III. Greenfield Projects:

(i) If any green field project does not envisage any diversion of forest land, it would be considered as per the provisions of EIA Notification, 2006.

(iii) In case of any green field project, which involves diversion of forest land, the project proponents are advised to re-examine the requirement of forestland and submit the proposal without forestland for consideration of the EAC. Otherwise, the proponent should submit the proposal for TORs under the EIA Notification, 2006 only after

applying the stage-I forestry clearance for the forestland involved in the project.

(iii) All cases of grant / renewal of EC for any abandoned mine or sick project under revival etc. would be considered as a green field project for appraisal under EIA Notification, 2006 and the procedure mentioned above will be followed.

This issues with the approval of the Competent Authority.

(Dr. S.K. Aggarwal)
Director

To

1. All the Officers of IA Division
2. Chairpersons / Member Secretaries of all the SEIAAs/SEACs

Copy to:-

1. PS to MEF
2. PPS to Secretary (E&F)
3. PPS to SS(JMM)
4. Advisor (NB)
5. Website, MoEF
6. Guard File

ANNEXURE-R4-12

ADDITIONAL STUDY OF SILT LOAD CALCULATION, DESILTATION MANAGEMENT AND LIKELIHOOD OF SEEPAGE FROM ASSONORA RIVER TO 5 BOTTOM PIT

Prepared Under the Supervision of:
Prof C.S Dubey
Vice Chancellor, K.R. Mangalam University, Gurgaon, Haryana
Former Director, Institute of Lifelong Learning, Delhi University
Former Director, Campus of Open Learning, Delhi University
Retired Professor, HOD, Centre for Advanced Studies, Department of Geology, University of Delhi, Delhi-110007
Former Member Expert, Environmental Appraisal Committee (EAC), Ministry of Environment and Forests, GOI, Industries

Field Study and Documentation by:
Dr Prem Kumar, PhD, Centre for Advanced Studies, Department of Geology, University of Delhi, Delhi-110007

Prepared For
VEDANTA LIMITED
(BLOCK -I BICHOLIM MINERAL BLOCK- (MLA 478.5206 ha.))

At

BICHOLIM, BORDEM, LAMGAO, MULGAO, MAYEM & SIRIGAO VILLAGES, BICHOLIM TALUKA, NORTH GOA DISTRICT, GOA

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1. Introduction

Sediment management represents a key point to promote sustainable water resources development and it is strictly connected with the proper management of land use change, especially in the areas devoted to mining activities.

Water management plays a key role for determining strategies to reduce these impacts, e.g. necessity of restoring natural drainage patterns, implementing flood control measures and restoring hydrological natural behavior. Fundamental aspects are certainly represented by the runoff variation, and the proper sediment management that influences both the quality of water bodies and the functionality of existing hydraulic structures.

Different framework have been applied to evaluate the soil erosion / sedimentation processes and to analyze the effect of land use changes on hydrological processes.

The objectives of this study are given below:

1) To design garland drain, settling tank & check dams and its efficacy and find out the per day silt load, settling velocity of the silt, retention time required based on the annual rainfall with a provision to monitor the water quality.
2) To explore the likelihood of river water entering into the mine pit below the RL of the HFL and the measures that are required to be taken for prevention of seepage.

2. Study Area

The Block I – Bicholim Mineral Block is situated in North Goa district and extends between Coordinates: Latitude: 15034'20.518 N to 15036'54.018 N & Longitude: 73054'4.754 E to 73057'09.51 E. The block area is on a hill range running in a NW-SE direction. The highest and lowest elevations are 169.14 m (amsl) in the North-Eastern area and -37.24 m (amsl) in the South Eastern area respectively. The hill is gently sloping on the SE and SW parts located at BICHOLIM, BORDEM, LAMGAO, MULGAO, MAYEM & SIRIGAO VILLAGES, BICHOLIM TALUKA, NORTH GOA DISTRICT, GOA. The location map of study area is given in Figure 1.

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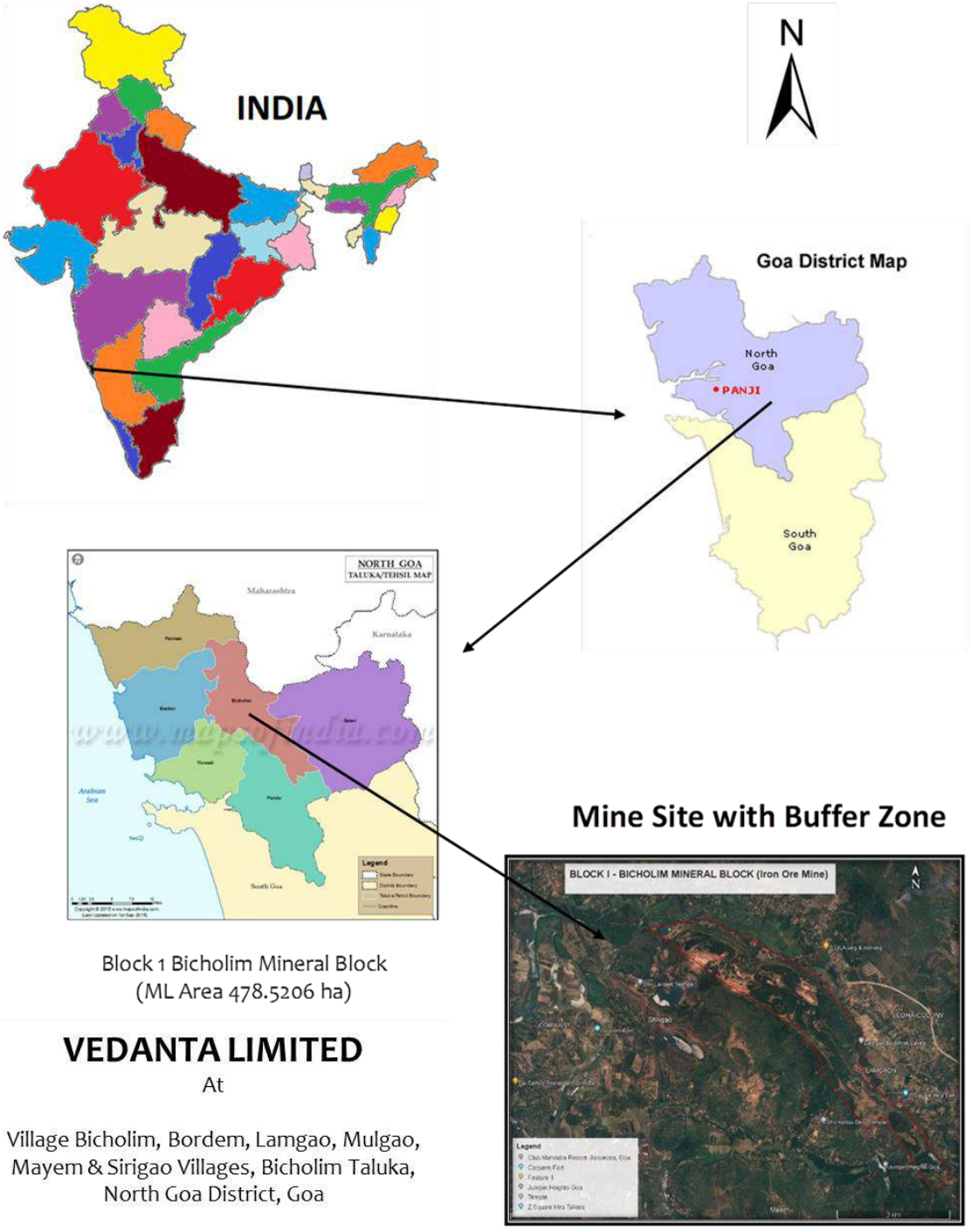

Figure 1: Location Map of the study area

2.1 CLIMATE & RAINFALL

The State has a tropical-maritime monsoonal type climate with distinct aerographic influence. The climate is equable and humid throughout the year. Due to the maritime climate the diurnal variation in temperature is not much. The months of January and February are dry with clear skies and generally pleasant. May is the hottest month with temperature around 30°C and January the coolest month with temp 25°C. Rain occurs during the monsoon period from June to September. Over 90 percent of annual rainfall occurs during monsoon period. The balance of 10 percent occurs during the non-monsoon season. However, the rainy period extends from May to November. The analysis of Rainfall data from January 2018 to December 2022 from IMD GRID data over the North Goa district indicates that the maximum rainfall received in the district is during July month. The average annual rainfall of the district from 2018 to 2022 is 3918 mm.

Table 1: Monthly Cumulative Rainfall information from Jan-2018 to Dec-2022 (Source – IMD)

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
2018	0	1.63	3.32	13.34	123.33	986.42	1177.28	747.19	113.75	130.98	12.38	1.64	3311.26
2019	0	0	1.97	4.79	2.2	631.17	1477.71	1396.07	779.79	508.25	50.35	0.19	4852.49
2020	0.05	0	6.49	20.48	22.59	934.62	748.26	1368.11	640.71	266.83	0.46	20.23	4028.83
2021	16.31	10.25	0.64	10.26	346.07	971.99	1038.61	401.84	606.93	240.19	192.86	76.55	3912.5
2022	0.75	0	10.39	42.18	121.64	728.32	1249.01	652.56	465.73	197.96	8.1	7.09	3483.73
										Average			**3917.76**

2.2 DEM/TOPOGRAPHY

As per the USGS SRTM data, the 10km study area from the mineral block boundary consists of undulation topography. The elevation within the buffer zone of the study area ranges from 241 m to -2 m amsl. The highest elevation is towards the south eastern region while the minimum elevation is towards the south western portion of the study area. The digital elevation model of the study area is shown in figure 2. The Highest and lowest elevation of the mineral block area as per the USGS SRTM data ranges from 150m to -5m amsl (figure 3).

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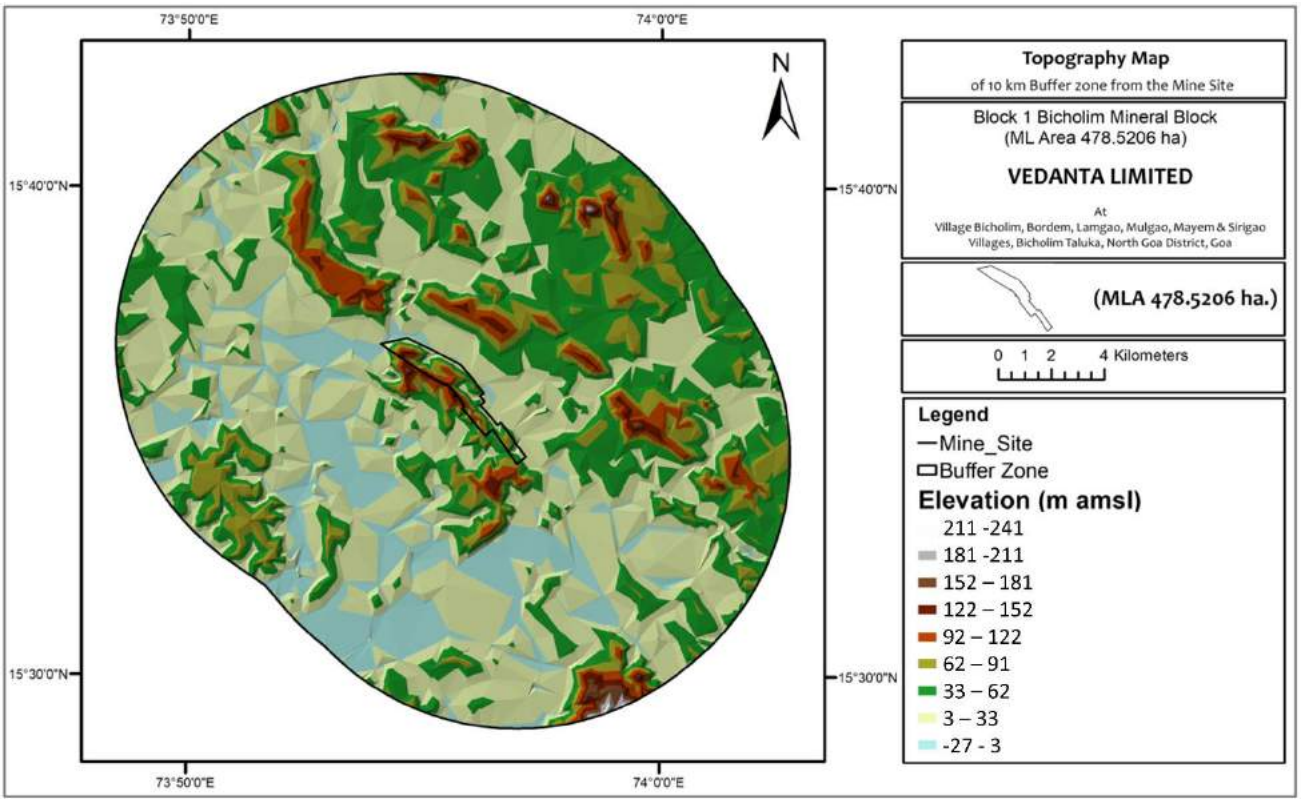

Figure 2: **Map Showing Digital Elevation Model in and around 10Km Buffer Area of Block 1 Bicholim Mineral Block (MLA: 478.5206 ha) (Source: USGS)**

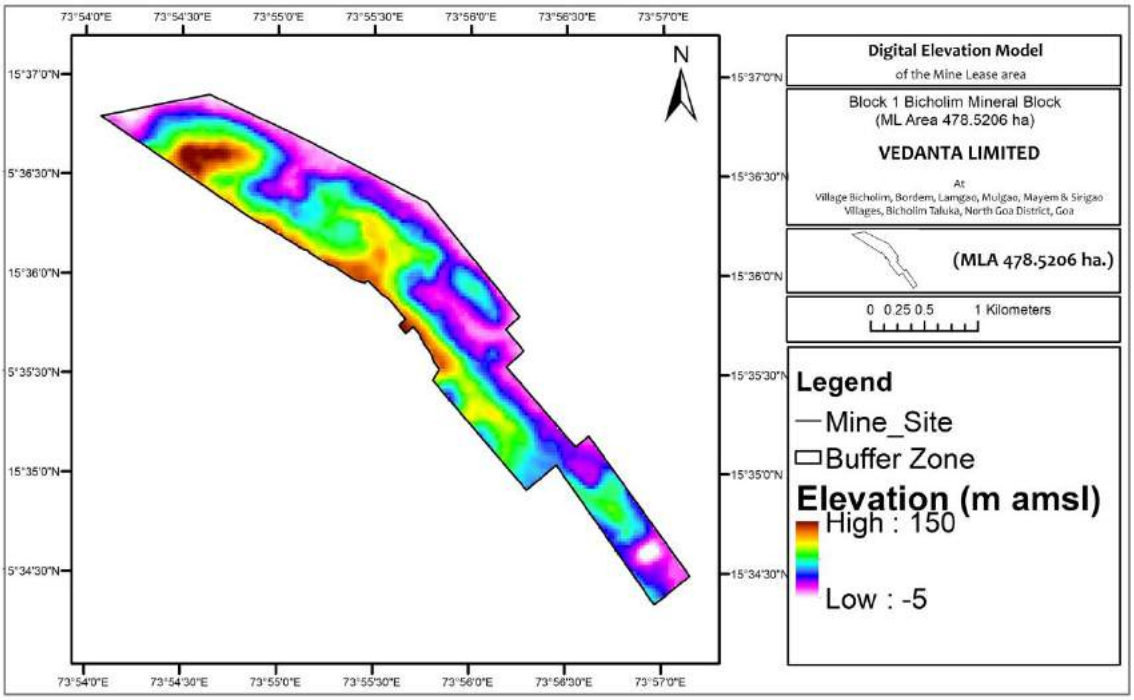

Figure 3: **Digital Elevation Model of the Mineral block area (Source: USGS)**

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2.3 GEOMORPHOLOGY OF NORTH GOA DISTRICT

Goa State forms part of coastal tract of the west coast of India. Physiographically, the Goa State is divided into four morphological units namely,

1. Coastal plains with dominant Marine land forms on the west, followed successively towards the east
2. Vast etch plain.
3. Low dissected denudation hills and table land and
4. Deeply dissected high Western Ghats

The denudational hills occurring all along the eastern part of Goa rising to a maximum of 832m above MSL. The Alluvial landforms are limited in aerial extent.

2.4 Geomorphology of the study area (10 km buffer area)

The 10 km buffer area mainly comprises of pediment pediplain complex. The major area in south western region comprises of younger coastal plain while the south eastern region is majorly covered with low dissected structural hills and valley (figure 4). The north eastern and eastern region of the 10km buffer area has moderately dissected denudational hills & valleys and moderately dissected structural upper plateau. Other geomorphological features within the study area includes abandoned quarry, active flood plain, active quarry, low to dissected denudational hills and valleys, low to moderately dissected structural lower plateau, mine dump, moderately dissected structural hills and valleys, older coastal plain, older flood plain, younger coastal plain, river, dam and reservoir along with different waterbodies such as lakes, ponds and stream/nallah.

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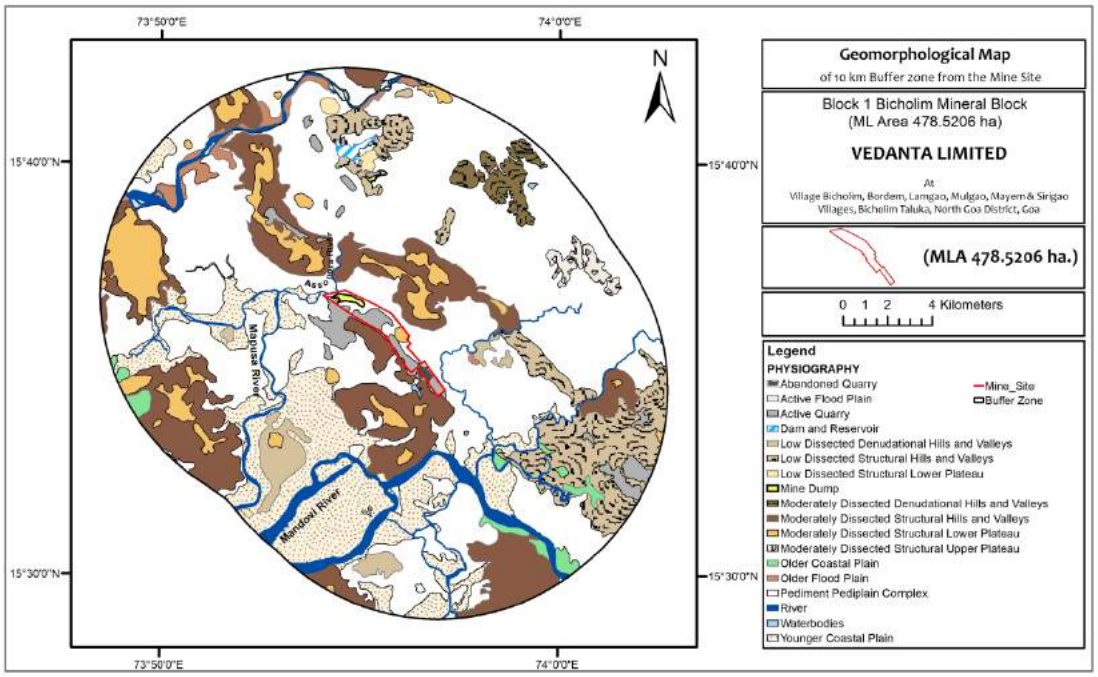

Figure 4: Map Showing Geomorphology in and around 10Km Buffer Area of Block 1 Bicholim Mineral Block (MLA: 478.5206 ha) (Source: BHUKOSH)

2.5 GEOLOGICAL SETUPS

The Stratigraphic sequence of the North Goa is as given below (Table.2). The potential iron ore bodies are available within the Bicholim Formation of the Goa Group. Mineral concentration is confined largely to the limbs, while the hinge portions are generally not mineralized. The deposits of North and South Goa have been formed under different geological conditions and hence the deposits are of entirely different nature. The deposit in South Goa occurs as discrete synclinal basins with top laterite cover often enriched with iron ore in isolated pockets. The ore body Groundwater conditions in Bicholim Mine, North Goa intercalated with phyllite, limonitic and mangniferrous clay is mineralogically a mixture of hematite and limonite - goethite and minor quantities of martite. Decomposed quartzite forms the footwall. There are some intrusions in the form of dolerite dykes. The top laterite is usually followed by lumpy ore zone followed by friable ore and powdery ore. The ore bearing intercalations consists of several horizons mainly manganiferous and phylitic clay. The footwall is generally decomposed B.H.Q with silica. The pit shows exposures of the various horizons of ore. The iron ore deposits consist essentially haematite and partially of magnetite, limonite and goethite. They occur as lensoid bodies on the crests and slopes of hills. The deposits were formed as residual

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concentration and enrichment process called lateritization of the banded ferruginous quartzite and phyllite of the Goa group of metasediments.

Table 2: Regional Stratigraphy

Eon/Era/Epoch	Supersuite/Suite/Group	Formation	Litho assemblage
Quaternary			Beach sands and River alluvium
Pliocene to Pleistocene			Laterite and aluminous laterite
Late Cretaceous to Palaeocene	Deccan Trap		Continental flood basalts-mainly tholeiitic type with dykes
Palaeo Proterozoic to Meso-Proterozoic	Closepet Granite	Chandranath Granite, Dudsagar Granite, Canacona Granite	Alkaline granites mainly; also variants from monzo granite to granodiorite
	Mafic –ultramafic Layerd Complex		Peridotite-cromitite, dunite-Gabro-Norite, Pyroxinite
Archaean to Palaeo Proterozoic	Goa Group = Chitradurga Group of Dharwar Super Group	Vageri	Carbonite-quartz-chlorite Schist/greywacke
		Bicholim	Dolomite limestone
			Quartz-sericite -schist
			Banded Iron Formation
			Quartz-chlorite-biotite-schist inter-layered with chert, iron and Mn Oxides, carbonates, metabasalt and meta-gabbro
		Sanvordem	Quartzite/greywcke with conglomerate
		Barcem	Quartz-chlorite-schist
			Meta-acid volcanic (meta-rhyodacite), quartz Porphyry, tuff
			Meta basalt meta-gabbro and meta-anorthositic Gabbro, quartzite
Archaean	Peninsular Gneiss-II	Ankola Gneiss,Anmod Ghat Gneiss	Migmatite and granites(s.1) tonolite-trondjhmite-granodiorite

2.6 GEOLOGY OF THE STUDY AREA

The Entire study area (10km Buffer Zone) is composed of clayey sand (active floodplain), gabbro (basic intrusive), meta-gabbro, argillite, banded iron formation, chlorite schist, banded iron formation, meta-basalt, argillite, banded iron formation, argillite, banded iron formation, chlorite schist, banded iron formation, graywacke, banded iron formation and argillite. Chlorite schist comprises the major portion of the study area, clayey sand is

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found along the active floodplain area in south western portion of the buffer zone. North western and eastern portion is composed of argillite and the central region has banded iron formation. The stratigraphic sequence of the study area is shown in table 3.

Different tectonic lineaments area also observed within the study area such as Dyke, Fault, Joints/Fractures and drainage parallels. The gabbro within the study area occurs as basic intrusive on the eastern corner of the 10 km buffer zone. The geological map of the study area showing the major lithology and lineaments is given in figure 5.

Table 3: Local Stratigraphy of study area

SUPERGROUP	GROUP_NAME	FORMATION	LITHOLOGIC	AGE
-	ACTIVE FLUVIAL DEPOSIT	MANDOVI	CLAYEY SAND (ACTIVE FLOODPLAIN)	MEGHALAYAN
	LAYERED ULTRAMAFIC COMPLEX	USGAON	GABBRO (BASIC INTRUSIVE)	ARCHAEAN
			META-GABBRO	
DHARWAR	GOA (=CHITRADURGA)	VAGERI	ARGILLITE	ARCHAEAN
		BICHOLIM	BANDED IRON FORMATION	
			CHLORITE SCHIST	
			BANDED IRON FORMATION	
		BARCEM	META-BASALT	
		SANVORDEM	ARGILLITE	
		BICHOLIM	BANDED IRON FORMATION	
			ARGILLITE	
			BANDED IRON FORMATION	
			CHLORITE SCHIST	
			BANDED IRON FORMATION	
			GRAYWACKE	
			BANDED IRON FORMATION	
		SANVORDEM	ARGILLITE	
		BICHOLIM	CHLORITE SCHIST	

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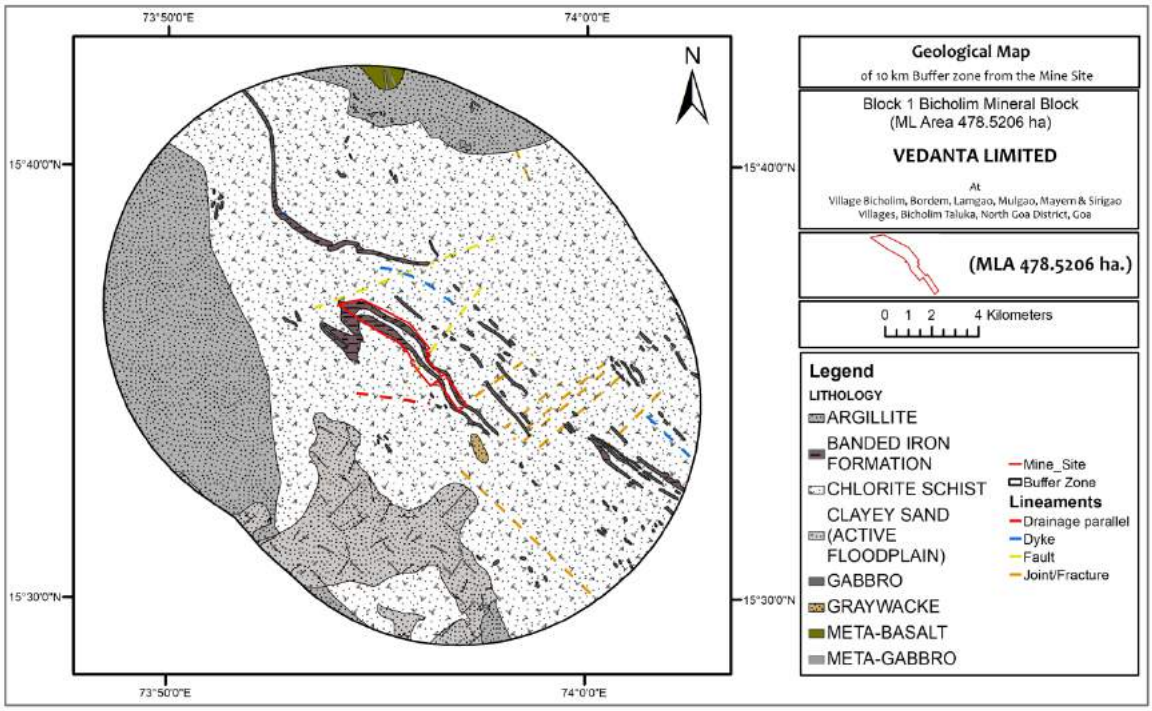

Figure 5: Map Showing Geology & Lineament in and around 10Km Buffer Area of Block 1 Bicholim Mineral Block (MLA: 478.5206 ha) (Source: USGS and BHUKOSH)

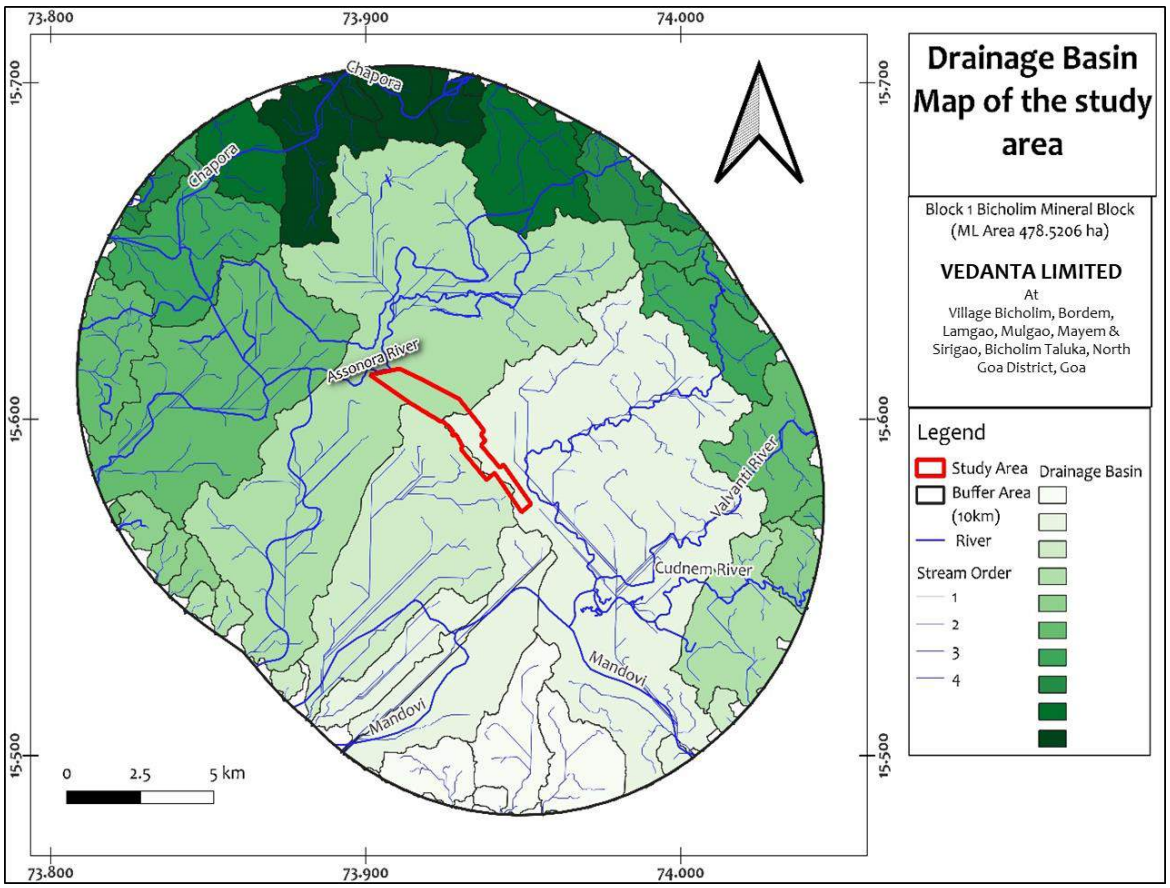

Figure 6: Drainage Basin Map of the Study Area

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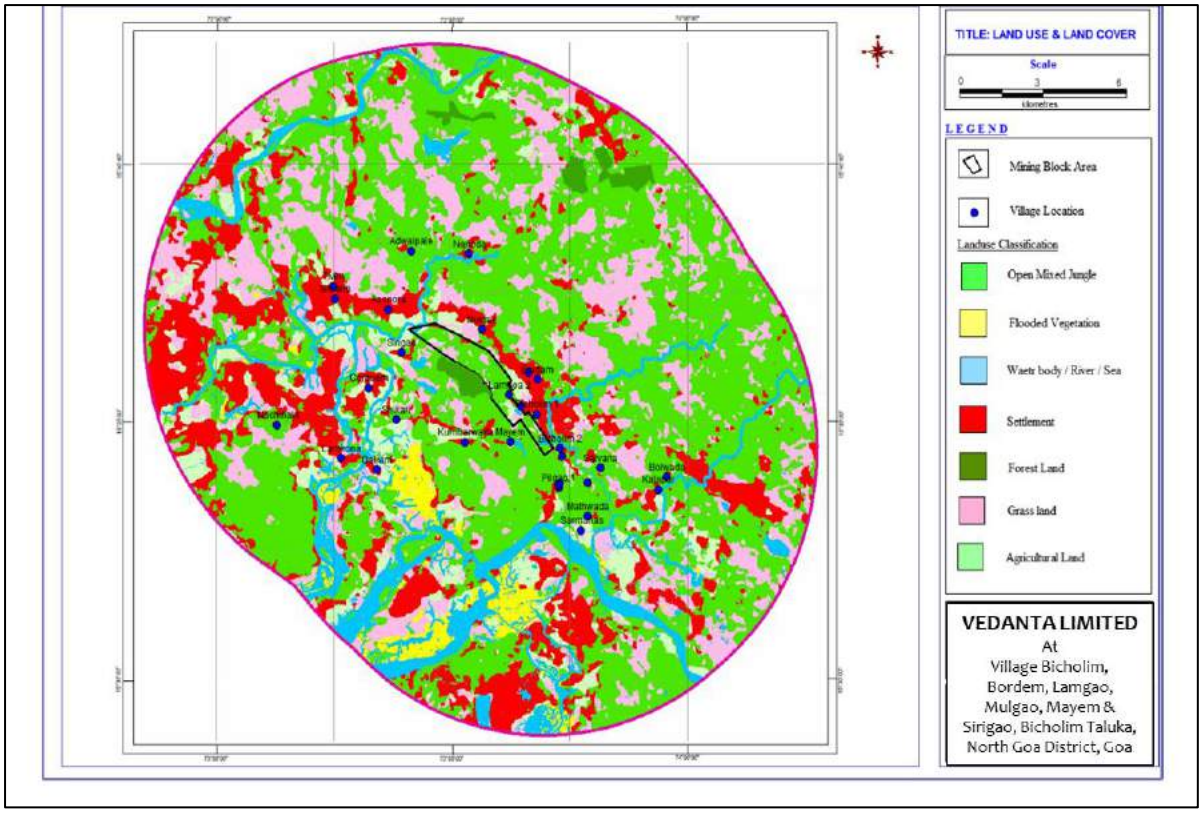

Figure 7: Land use Land cover map of the study area

3. Methodology

In this study, different approaches and methodologies have been adopted to achieve the objectives. A detailed field work has been conducted in the study area to understand the present condition of the mine and the working of different structures like garland drain, settling pits, etc. The study during the field also includes the efficacy of the structures between the river & mine area, soil of the study area and measures taken for retention of silt. The orientation of the beds and its lithology in the study area, with the cross sections of mining plan was verified. The drainage basin map and landuse landcover map (Figure 6& 7) prepared around the buffer zone of the study area to understand the surface runoff ad to plan the garland drains & settling ponds. The Assonora River which is near to mineral block was visited during field work. The data of the High Flood Level (HFL) and depth of the river has been obtained from the WATER RESOURCES DEPARTMENT SARVAN, BICHOLIM - GOA for our study. The daily rainfall has been measured through the rain gauge station present inside the mineral block area. The daily suspended sediment load has been obtained from the monthly surface water analysis report. The water sample analyzed has been taken from 2 top and 5 top in the study area to obtain

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the overall condition of the study area and measures to be taken to reduce the soil erosion.

4. Results and Discussion

4.1 Design of Garland Drain, Settling Pits, Check Dams and their importance

The detailed study of the mine site area has been conducted. Remote sensing based data of Digital elevation model has been used for topographic study, which has been cross verified by ground truthing in field survey. As this mine was earlier worked garland drains, settling ponds with check dams are already present at different locations in the mine site (figure 8, 9). Based on the topographical study in the field and through elevation map, it has been observed that all the runoff generated from the rainfall will be collected through these drains and will eventually flow through the series of settling ponds. It has been observed that the gradient of the garland drains is properly maintained and only regular cleaning of the drain is needed to avoid the blockages. The garland drains are made such that from upstream to the downstream where the drains are meeting the settling ponds will show decrease in elevation, to maintain a free flowing gradient of rainfall runoff. The dimension of the drains is maintained to be about 2m in width and 1.5m in depth. A proper height has been maintained in the form of bund on the sides of the garland drain so that there is no spillage of storm water from the drains.

Total length of the Garland drain = 11313 m

Peak rainfall = 154 mm/day

Peak runoff in a day = 110591 m^3 (calculated by peak rainfall for the year in a day)

Capacity of garland drain = 33939 m^3

Some of the runoff will directly go into the settling pits through the natural slope of the Mineral Block area and remaining will be drained to the pits through the garland drains. Some more drains of same dimensions needs to be constructed in the Mineral Block area at base of the hills to accommodate all the surface runoff during peak rainfall events.

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Figure 8: Series of settling pits and header system

Figure 9: Settling pits, garland drains and channelization of water

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Figure 10: Desiltation is in progress before monsoon season from settling pond

The drains are connected to the series of settling ponds of dimensions as given below:

Table 4: Dimension & capacity of settling ponds with abandoned pits converted into settling ponds (location is provided in the surface mining plan)

Pit ID	Area in m^2	Depth in m	Volume in m^3	Location
Pit 1	1824	1.8	3283.2	5top mining pit
Pit 2	1667	1.8	3000.6	
Pit 3	27879	8	223032	
Pit 4	5208	2	10416	5top mulgao area
Pit 5	8602	2	17204	
Pit 6	4661	2.5	11652.5	
1top sec 43	3896	1.5	5844	1 top
pit1 sec 22	3753	1.5	5629.5	3 top
pit 2 sec 22	5564	1.5	8346	
3/4 bot mining pit	6728	5	33640	3/4 bottom
5 bottom mining pit	22556	20	451120	5 bottom

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4.2 Silt load, settling velocity of silt and retention time based on annual rainfall

The surface water analysis had been carried out on monthly basis from 2015 in the mine site. In the surface water analysis surface runoff sample has been collected at different locations in the mine site so that the sample gives the idea of whole catchment. The average suspended sediment concentration calculated to be 53.82 mg/l. The rain gauge stations are installed in the mine site area, daily average rainfall has been calculated based on rain gauge stations and IMD stations founds to be 19.5 mm/day. The average rainy days in a year is found to be 185 days.

Area of Mineral block = 4785206 m^2

Total yearly rainfall = 3.594 m

Daily rainfall = 0.0195 m

Total surface runoff generated through lease area = Area of Mineral block * Total yearly rainfall* Runoff Coefficient (yearly rainfall calculated from 10 years average)

Total surface runoff generated through lease area (in a year) = 4785206 m^2* 3.594 m * 0.15

= 2579705 m^3

Total surface runoff generated through lease area (in a day) = 4785206 m^2* 0.0195 m * 0.15

=13997 m^3

Total suspended sediment load per day (in tons) = Total surface runoff generated through lease area (in a day) (in liters) * Average suspended sediment concentration (mg/l) * 10^{-9}

= 13996727 *53.82*10^{-9}

=0.75 tons

Total suspended sediment load per year (in tons) = Total surface runoff generated through lease area (in a year) (in liters) * Average suspended sediment concentration (mg/l) * 10^{-9}

=2579704555 *53.82*10^{-9}

=139 tons

Capacity of the settling pits in the mineral block area as given above in the table 4 needs to be be de-silted time to time before the monsoon season, to accommodate maximum amount of silt load eroded during the monsoon period (figure 10). The capacities of the

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settling ponds are enough to accommodate sediments. An experiment has been conducted to find out the settling time of the sediment in one litre of water containing 53.82 mg of sediment, which is found to be 4 hours 30 mins (figure 8). As there are sufficient number of settling ponds, so most of the sediments will be settled in the settling ponds before discharged out of the mineral block area. In each pond, the runoff will get enough time for the settling of the sediments. For the over flow of water from one settling ponds to another settling pond, header system is used. As the water level increases in the pond, the water discharge increases by increase in the discharge rate with the help of header system. Multiple remedial techniques have been implemented to reduce the erosion of sediments which are as follows:

1) Plantation of trees
2) Use of geotextile
3) Check dams
4) Settlings ponds
5) Pre-monsoon De-siltation of Settling Ponds

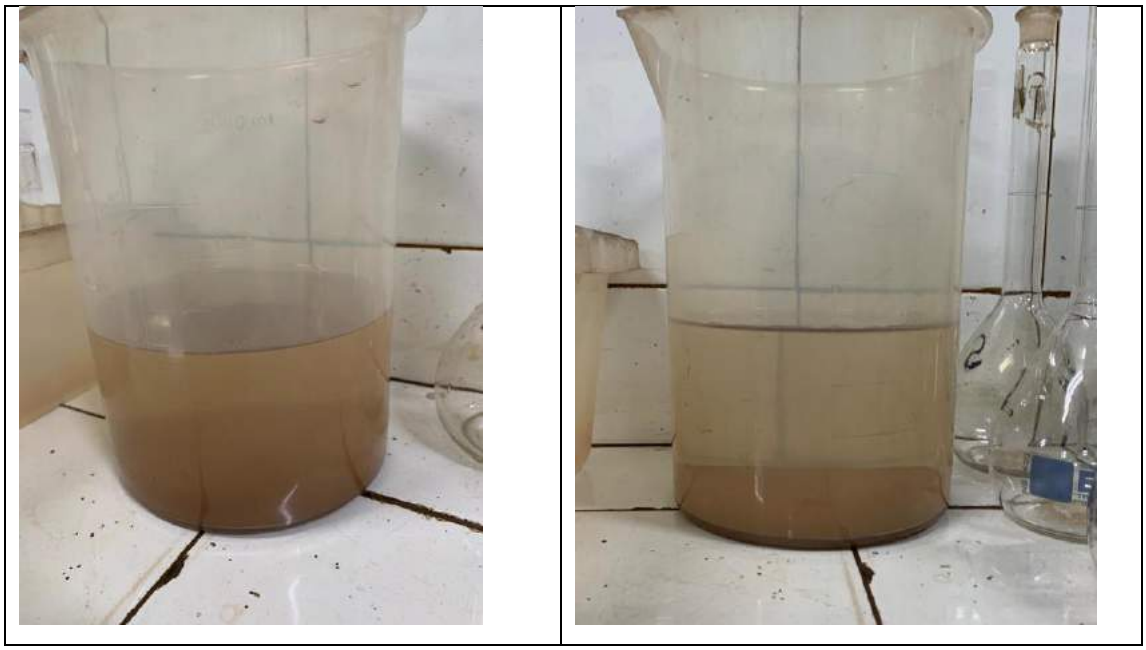

Figure 11: Figure showing the settling of sediments with time

4.3 Likelihood of seepage within the 5 bottom pit due to Assonora River

A detailed field study has been conducted to understand the likelihood of seepage of water from Assonora River to 5-Bottom Pit (5-Bottom Pit dimension given in Table 4). The Assonora River flows 50 meters away from the 5 bottom pit, at the north east part of the Mineral Block area (figure 12). The HFL of the Assonora River recorded by the Water

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Resources Department, Sarvan, Bicholim, Goa found to be 3.5 meters above mean sea level near Assonora River bridge. In the field, it is observed that the area between the river and 5 Bottom Pit is approximately 6 meters above mean sea level which obstructs the flow of water between them, even in high flood condition (Figure 12) and at the place where river is touching the block boundary, it is 10.93 meters above mean sea level. So even during high flood level, river water will not interact with the pit water. The 5 Bottom Pit is filled with rain water, which is found to be above ground water level in that area. Further no mining has to be done from the 5 bottom pit. The 5 bottom pit is also getting backfilled from the sediments collected from the series of settling ponds. The garland drains are also present around the 5-bottom pit to collect the surface runoff generated during rainfall. The historic data provides that no overflow has been observed from the 5 bottom pit even during peak rainy days. But if this scenario appears in the future dewatering setup of water from 5 bottom pit has been already in plan. The report of NGRI, field study and bore hole data suggests that ore which has been excavated from the 5 Bottom Pit is encapsulated by impervious phyllitic and manganiferous clays. These clay beds are dipping towards North East (i.e. towards the River) (figure 13). Thus, the impervious bedding lithology between 5 Bottom Pit and River forms a favorable condition for no seepage of water from the river into the 5 Bottom Pit. The depth of the river is only 2.5 meters and the considerable thickness of about 15m of impervious lithology acts as a favourable condition that prevents the seepage of water from river in to the pit.

Sensitivity: Public (C4)

Figure 12: Area between the 5 bottom pit and Assonora River is shown by red arrow on the right side.

Figure 13: Surface Plan Bicholim Mineral Block showing location of 5 bottom pit and Assonora River flowing nearby to pit, with the cross-sections made around that area with the help of borehole logs data. (more details will be provided in annexure attached of surface mining plan and cross-sections)

Sensitivity: Public (C4)

5. Conclusion and Recommendations

The study reveals that the garland drains, settling pits and check dams are made properly in the Mineral Block area and being maintained for the proper flow of rainfall runoff generated during the year. The de-siltation work is also being monitored and done before the monsoon season. The flow of storm water through series of settling ponds which have been provided with natural slope and enough time is maintained for the proper settling of sediments. The daily silt load calculated is found to be 53.82 mg/l. All the structures which are made in the Mineral Block area to avoid erosion and settling of sediments are maintained and checked before monsoon season. All the structures made for the settling of sediments are found to be more than sufficient to accommodate sediments even during peak rainfall, which has been given in Table 4.

The likelihood of seepage from Assonora River in the 5 bottom pit is studied very carefully and in detailed manner. Further no mining has to be done from the 5 bottom pit. The 5 bottom pit is also getting backfilled from the sediments collected from the series of settling ponds. The garland drains are also made around the 5-bottom pit to collect the surface runoff generated during rainfall. The historic data provides that no overflow has been observed from the 5 bottom pit even during peak rainy days. But if this scenario appears in the future dewatering setup of water from 5 bottom pit has been already in plan. The lithology of the beds nearby the river and pit is observed through borehole logs and cross-section which clearly depicts that the dip of the bedding plane and the impervious clay rich lithology prevents the seepage of water from the river in to the 5 Bottom Pit. The depth of the river nearby pit is only 2.5 meter and underlain by 15 m impervious thick clay rich lithology, so there is no seepage of Assonora River water inside the 5 Bottom Mine Pit.

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ANNEXURE-R4-13

HYDROGEOLOGY AND IMPACT ASSESSMENT OF GROUND WATER IN RESPECT OF BLOCK -I BICHOLIM MINERAL BLOCK LOCATED IN BICHOLIM, BORDEM, LAMGAO, MULGAO, MAYEM & SIRIGAO VILLAGES OF BICHOLIM TALUKA, NORTH GOA DISTRICT, GOA OF VEDANTA LIMITED, (GOA)

Submitted to

Water resources department of Goa

Prepared By

M.C. REDDY
Consultant
Former Regional Director,
Central Ground Water Board
Ministry of Water Resources, Govt.of India
NABET & CGWA Accredited

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HYDROGEOLOGY IN AND AROUND BLOCK -I BICHOLIM IRON ORE MINE OF VEDANTA LIMITED, BICHOLIM, BORDEM, LAMGAO, MULGAO, MAYEM & SIRIGAO VILLAGES, BICHOLIM TALUKA, NORTH GOA DISTRICT, GOA

1. INTRODUCTION

The Bicholim mine is situated in North Goa district and extends between (Coordinates: Latitude :15^{0}34'20.518 N to 15^{0}36'54.018 N & Longitude :73^{0}54'4.754 E to 73^{0}57'09.51 E). The leases are on a hill range running in a NW-SE direction. The highest and lowest elevations are 169.14 m (amsl) in the South western corner and -37.24 m (amsl) in the North East respectively. The hill is gently sloping on the SE and SW parts located at **BICHOLIM, BORDEM, LAMGAO, MULGAO, MAYEM & SIRIGAO VILLAGES, BICHOLIM TALUKA, NORTH GOA DISTRICT, GOA.** Detailed hydrogeological assessment including field investigations were carried out to report on the movement of ground water in and around the Block-I Bicholim Mineral Block. The main lease comprises parts of villages at the foot of the hill to the north, and the buffer zone consists of 6 villages. The Mayem Lake (in Mayem village) is situated about 500m from the lease boundary towards the SW side. The mining method is mechanized **Open Cast.**

1.1 Location Details

The Mining Lease falls in Survey no, List Vide Annexure-1 of 6 Villages, Bicholim Taluka, North Goa District. As per DGPS plan of the Mining Lease duly certified by the Directorate of Mines and Geology, Government of Goa, the extent of Mining Lease is 478.5206 Ha and the entire Mining Lease falls under non forest area. The Mining lease is connected to the major district road SH-1 by an approach road having an area. Location map of the project core and buffer area is shown in **Plate-1**. Mining Lease Boundary superimposed on toposheet of 1:50,000 scale, is enclosed as Key Plan in **Plate-2,** Site Plan as **Plate-3** and Google Plan of the project area as **Plate-4.**

PREPARED BY: M. C. Reddy, Former Regional Director, Central Ground Water Board,
Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

1.2 Mining Lease Boundary

DGPS Co-ordinates of the Mining Lease boundary pillars is shown below in **Table-1**.

Table-1. Mining Lease Boundary coordinates of the Project

S. No.	PILLAR ID	LATITUDE			LONGITUDE		
		D	M	S	D	M	S
1	BP1	15°	34'	29.237"	73°	57'	9.051"
2	BP2	15°	34'	20.518"	73°	56'	58.049"
3	BP3	15°	35'	2.564"	73°	56'	27.305"
4	BP4	15°	34'	55.008"	73°	56'	18.070"
5	BP5	15°	35'	28.029"	73°	55'	48.621"
6	BP6	15°	35'	31.312"	73°	55'	50.638"
7	BP7	15°	35'	33.692"	73°	55'	48.745"
8	BP8	15°	35'	34.581"	73°	55'	48.564"
9	BP9	15°	35'	36.045"	73°	55'	48.005"
10	BP10	15°	35'	38.606"	73°	55'	46.104"
11	BP11	15°	35'	41.836"	73°	55'	44.458"
12	BP12	15°	35'	44.097"	73°	55'	42.365"
13	BP13	15°	35'	42.180"	73°	55'	40.104"
14	BP14	15°	35'	44.493"	73°	55'	37.981"
15	BP15	15°	35'	46.421"	73°	55'	40.230"
16	BP16	15°	35'	48.165"	73°	55'	38.543"
17	BP17	15°	35'	50.029"	73°	55'	36.922"
18	BP18	15°	35'	52.695"	73°	55'	34.603"
19	BP19	15°	35'	53.998"	73°	55'	32.418"
20	BP20	15°	35'	58.110"	73°	55'	28.071"
21	BP21	15°	35'	57.193"	73°	55'	27.361"
22	BP22	15°	35'	57.996"	73°	55'	24.414"
23	BP23	15°	36'	2.083"	73°	55'	18.076"

S. No.	PILLAR ID	LATITUDE			LONGITUDE		
		D	M	S	D	M	S
24	BP24	15°	36'	2.770"	73°	55'	16.018"
25	BP25	15°	36'	3.697"	73°	55'	14.536"
26	BP26	15°	36'	6.268"	73°	55'	10.016"
27	BP27	15°	36'	7.134"	73°	55'	9.341"
28	BP28	15°	36'	7.279"	73°	55'	8.237"
29	BP29	15°	36'	10.371"	73°	55'	2.799"
30	BP30	15°	36'	11.513"	73°	55'	1.441"
31	BP31	15°	36'	12.228"	73°	54'	59.636"
32	BP32	15°	36'	15.130"	73°	54'	54.917"
33	BP33	15°	36'	15.199"	73°	54'	54.305"
34	BP34	15°	36'	17.857"	73°	54'	49.835"
35	BP35	15°	36'	47.359"	73°	54'	4.754"
36	BP36	15°	36'	54.018"	73°	54'	38.669"
37	BP37	15°	36'	41.460"	73°	55'	6.583"
38	BP38	15°	36'	21.653"	73°	55'	46.776"
39	BP39	15°	35'	54.379"	73°	56'	9.956"
40	BP40	15°	35'	47.351"	73°	56'	15.530"
41	BP41	15°	35'	43.500"	73°	56'	11.400"
42	BP42	15°	35'	37.025"	73°	56'	16.952"
43	BP43	15°	35'	32.102"	73°	56'	11.580"
44	BP44	15°	35'	8.063"	73°	56'	33.322"
45	BP45	15°	35'	11.339"	73°	56'	37.395"

1.3 Details of the Project

Bicholim Mineral Block, having an area of 478.5206 Ha. is situated located in Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao Villages of Bicholim Taluka of North Goa District, Goa Coordinates : Latitude :15^{0}34'20.518 N to 15^{0}36'54.018 N & Longitude : 73^{0}54'4.754 E to 73^{0}57'09.51 E, is granted to Vedanta Limited for a period of 50 years for Iron Ore.

PREPARED BY: M. C. Reddy, Former Regional Director, Central Ground Water Board,
Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

1.4 Lessee / Project Proponent Details

Name: Vedanta Limited (Mine Owner)

Status: Limited

Represented by Dhirajkumar Jagdish.

Address: Sesa Ghor, 20 EDC Complex, Patto, Panajim, Goa

Mobile: 9823993664

Email: dhirajkumar.jagdish@vedanta.co.in

1.5 Type of the Project

Mining Lease was granted for mining of Iron Ore. The total Mineral Reserves and Resources of Iron Ore in the Mining Lease is about 84.61 Million Metric Tonnes as on 01/04/2023. Presently, the total area put to use for mining and allied activities is 327.3611 Ha. The proposed production and dispatch capacity of this mine is 3.0 Million Tonnes Per Annum (MTPA) of Iron Ore.

1.6 Mining Method

Opencast Mining Method will be practiced using Heavy Earth Moving Machinery such as Ripper & dozers, excavators, wheel Loaders, dumpers, etc. Hard material will be broken using Ripper Dozer. Excavators with bucket capacity of 4.10 cum will be deployed in the mines for digging / excavation. Tippers /dumpers will be engaged for transporting the excavated material within the mine. Wheel-loaders with bucket capacity of 2.70 to 3.60 cum. will be used for loading /dozing and other miscellaneous works. Hydraulic rock breakers will be used for secondary breaking of hard material. Water tankers with capacities of 8000-10,000 liters will be used for dust suppression on the haul roads within the mining lease. Mine will be worked under the supervision of technically qualified professionals like Mines Manager, Asst. Mines Managers, Mining Engineers, Geologists, Mechanical Engineers, Environmental Engineer, Surveyor, Plant Engineer, Civil engineer, CSR Officer etc., having relevant qualification and vast experience in their respective fields.

In general, mining and mine development related activities are being carried out since early 1950s in the State of Goa. Natural resources in the area need to continuously monitored for the dynamic changes in the water and land environment caused by mining activities in Goa.

1.7 Layout of Mine Workings

Iron Ore deposit within the Mining Lease is found at a maximum depth of 100m (hence the maximum depth of the pit will be maintained at 100 m) The height of the mine benches will be 7 m and the width of the bench will be more than the height of the bench. The haul road gradient will be maintained at 1:16. Overall pit slope will be maintained at <26 degrees. The width of the haulage road will be maintained as required under statutes. Safety bunds will be maintained along the main haulage roads.

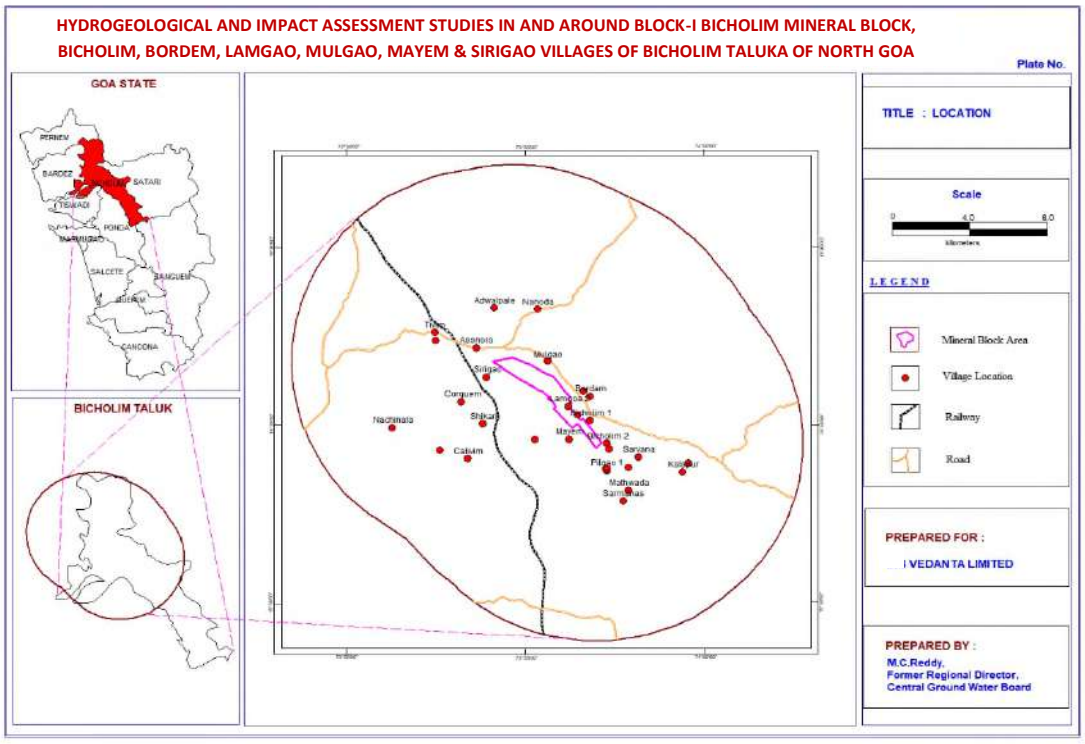


Plate-1 Location of Bicholim Mineral Block-I, Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao, Bicholim Taluk, North Goa, Goa

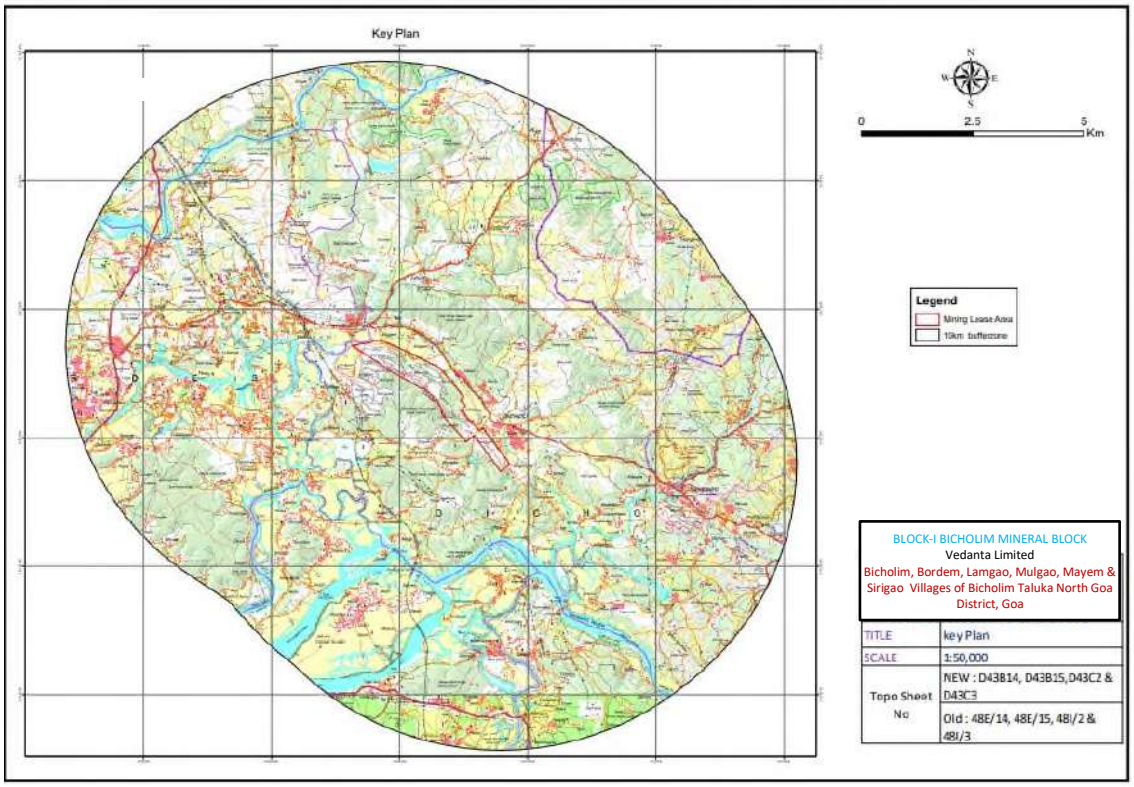


Plate-2 Topo map of the Block-I Bicholim Mineral Block

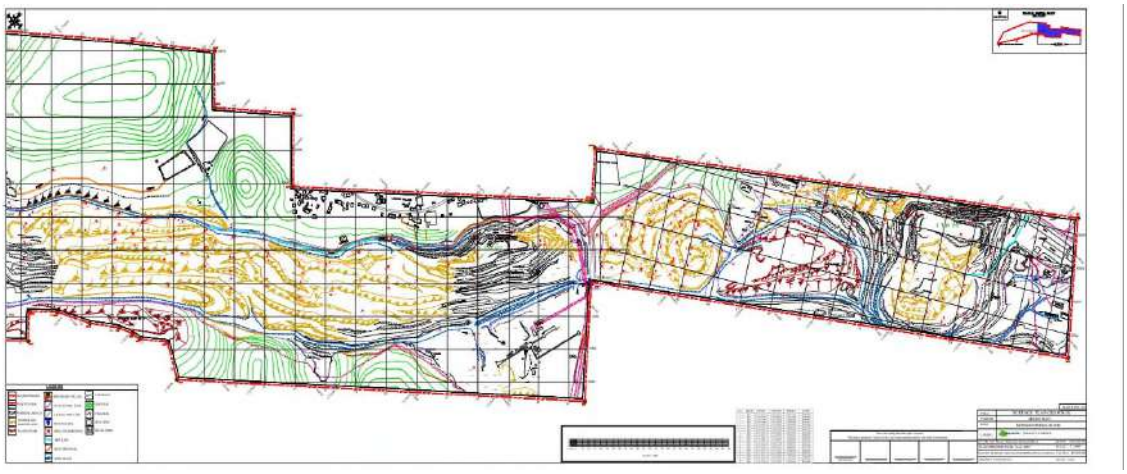
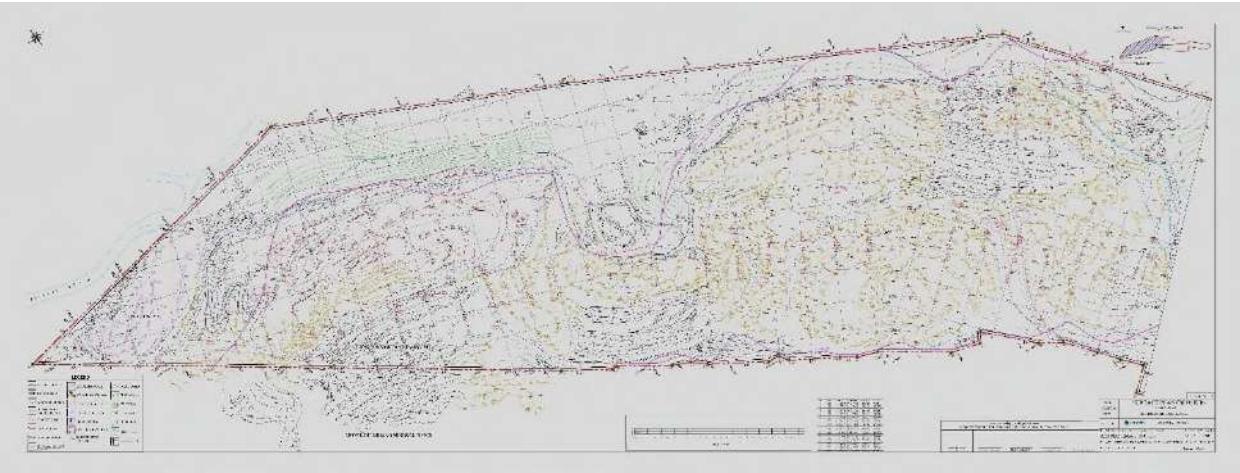


Plate-3A Site Plan of the Block-I Bicholim Mineral Block

PREPARED BY: M. C. Reddy, Former Regional Director, Central Ground Water Board,
Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

Plate-3B Site Plan of the Block I Bicholim Mineral Block



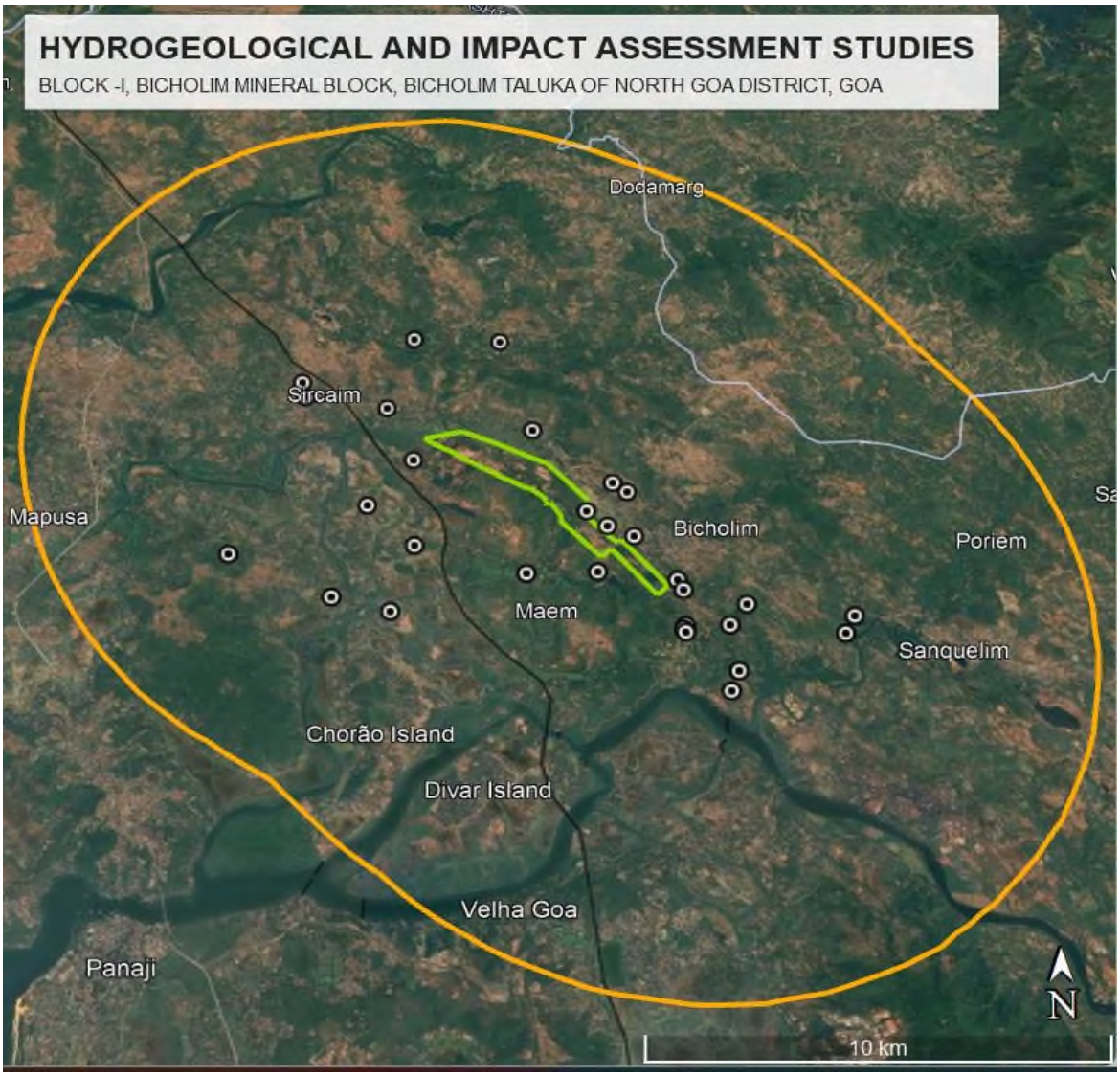


Plate-4 Google Plan of the project area

2 OBJECTIVE OF THE STUDY

The objective of the study is to fulfill the requirements of conditions stipulated in Standard Terms of Reference approved by the MoEFCC Authority vide their TOR identification No. .TO23A0000GA5700309N. Subsequent to site visit and after several discussions with the management, review of pertinent reports and maps of the mine area, various ground water and surface water sources, the following objectives were summed up for detailed study to fulfill the stipulated requirements.

i. Based on actual monitored data, it should be established whether working will intersect ground water. Necessary data and documentation in this regard may be provided.
ii. In case the working will intersect ground water table, a detailed hydrogeological study should be undertaken and report furnished. The report inter-alia shall include aquifers presence and impact of mining activities on these aquifers.
iii. Information on site elevation, working depth and ground water table should be provided both in AMSL and bgl (below ground level). A schematic diagram may also be provided for the same.
iv. The water requirements of the project, its availability and source should be provided. A detailed water balance should also be provided. Fresh water requirements of the project should be prepared.
v. Carry out monitoring of ground water levels and quality in and around the buffer and core zone of the mine to study the impact of project on the ground water regime – Depth to water level, Water table elevation with reference to the Above Mean Sea Level (A MSL) and Ground Level (GL), water quality study for various constituencies including Fluoride, Iron, Nitrate etc.,
vi. Conduct an aquifer performance test to understand the occurrence and movement of ground water.
vii. Study of the long-term National Hydrograph Stations water level data for the trend analysis (rise and fall of water levels)

viii. Monitor the ground water conditions in the mining area to ensure the accumulated rainwater in the pit and seepage ground water into the storage pit is effectively put to use.

ix. Implement suitable conservation measures to augment Ground Water resources in the area

x. Establishing a network of existing wells and constructing dedicated bore hole for new piezometers during the mining operations for monitoring water levels and quality. The monitoring should be carried out 4 times in a year vis-a-vis Pre-monsoon (April-May), Monsoon (August), Post-monsoon (November) and Winter (January) and the data thus collected may be analyzed and suitable drawings and maps are to be prepared.

2.1 Scope of the study

The studies are concentrated within the study area comprising of the mining lease (Core area) and an area of 10 km radius from the mine lease boundary (Buffer area) on the following aspects:

i. Collection, preparation and presentation of the historical data on ground water available from different agencies.

ii. Monitoring of ground water levels and quality from selected wells in Core and Buffer area.

iii. Conducting aquifer test to evaluate the aquifer conditions in the area.

iv. Preparation of ground water level and quality regime maps for the area – depth to water level (with reference to GL), water table elevation (with reference to AMSL), water quality with reference to Bureau of Indian Standards (BIS)

a) Study on change of ground water level and quality over space

b) Impact assessment of mining activities on ground water quantity and quality.

v. Plan for Augmentation of Recharge to Ground Water through various conservation measures. Implementing Rainwater Harvesting through Rainfall Run-off management and Roof Top Rainwater Harvesting.

vi. Preparation of water budget for the project

2.2 Methodology

Historical real time data and pertinent reports on groundwater available with Central and state agencies connected with Ground Water development and management were collected and discussions held with the representatives of the Lessee, forms the base for the study. To prepare a mitigation plan it becomes essential to evaluate the exact hydro-geological conditions and aquifer parameters. To achieve the aims, geology of the area and surface conditions has to be interpreted based on the exploratory data and geological studies made by different agencies.

Intensive well inventory represented by phreatic aquifers of the area have to be undertaken to measure the status of the water level and impact of ground water development in the study area. The water samples are to be collected and analyzed to establish the water quality regime. The seasonal fluctuation of water level in response to groundwater recharge due to rainfall have to be estimated based on local information, field observations and secondary data.

To evaluate the aquifer characteristics, aquifer performance test on the existing dug well in the project study area is to be conducted at constant pumping rate. The data will be analyzed using standard analytical technique suited to field conditions of testing site.

The groundwater resources of the study area estimated based on the norms of the Ground Water Estimation Committee, Govt. of Goa and Govt. of India, will be the guiding factor for development of resources. The ground water flow regime estimated using network and Piezometer data, will be an indicator for the impact of ground water development in the area, vis-à-vis to decipher ”SAFE“, “SEMI CRITICAL“, “CRITICAL“, “OVER-EXPLOITED” and “WATER LOGGED” based on stage of development and long-term water level trend. The detailed explanation of the above categorization and remedial measures are as below:

Status (state wise) of ground water development of the area as defined by the Central Ground Water Authority.

PREPARED BY: M. C. Reddy, Former Regional Director, Central Ground Water Board,
Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

a. Safe (Stage of development < 70 %)

a. Areas where stage of ground water development is less than 70 % and there is no significant long-term decline of pre-monsoon or post-monsoon water level trend. Such areas have potential for ground water development.

b. To be brought under the purview if quantity of abstraction exceeds 10000 m^3/ day in hard rock areas and 2000 m^3/ day in alluvial areas. RWH (Rain Water Harvesting) to be adopted.

b. Semi Critical (Stage of development 70 - 90 %)

Areas where stage of ground water development is 70 – 90 % and water table during either pre or post-monsoon shows a significant long term declining water level trend. Caution may be exercised in future ground water development in such areas and if necessary, the density of network monitoring in such areas are to be increased to have better data based on the long-term behavior of water table.

i. Efficient utilization of recycle and reuse of water should be mandatory; Water audit to be adopted.

ii. Withdrawal may be permitted subject to undertaking of recharge measures at least 50 % recharge compared to withdrawal quantity may be made mandatory.

c. Critical (Stage of development 90 - 100 %)

i. Areas where stage of ground water development is more than 90 % and long-term water level trend during pre-monsoon or post-monsoon shows a falling trend.

ii. Areas where stage of ground water development is less than or equal to 100% and water table trend during pre-monsoon or post-monsoon shows a significant long term falling trend. There is very marginal scope for future ground water development in critical areas.

Following measures are to be adopted in these areas:

- Density of observation wells for monitoring may be increased
- Water conservation measures may be adopted
- Micro level ground water studies may be carried out to reassess ground water resources more precisely.

PREPARED BY: M. C. Reddy, Former Regional Director, Central Ground Water Board,
Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

iii. Efficient utilization of recycle and reuse of water should be mandatory Water audit to be adopted.

Withdrawal may be permitted subject to quantum of recharge should be equal or more than the proposed withdrawal.

d. Over-Exploited (Stage of development 100 – 200 % & 200 – 300 %)

i. Areas where stage of ground water development is more than 100 % and long term water table trend during pre-monsoon or post-monsoon show a significant declining trend and categorized as over exploited areas. There is no scope for future ground water development in over exploited areas indicates alarming situations. All three measures as suggested in case of critical areas may be adopted in over exploited areas also.

ii. Efficient utilization of recycle and reuse of water should be mandatory. Water audit to be adopted, withdrawal may be permitted up to 60% of proposed recharge.

e. Water Logged areas

Where water levels are shallow i.e. 2 m. from ground level in post – monsoon period and 3 m. from ground level in pre – monsoon period resulting in salinization and fertile land is lost. In such cases extraction of ground water is encouraged by recommending change of cropping pattern so that water level will be lowered and prevent salinization of fertile land. This phenomenon is commonly seen near canal command areas.

Surface run-off management in respect of the monsoon period forms the source water for augmentation of recharge to ground water body and various conservation structures are to be designed for the project area taking into consideration the rainfall and site conditions.

3 GEOMORPHOLOGY, LAND USE LAND COVER, PHYSIOGRAPHY & DRAINAGE

3.1 Geomorphology of Study Area (10 Km),

Geomorphologically, the state is divided into four morphological units namely;

1. The coastal plains with dominant marine land forms on the west,
2. Vast etch plain,
3. Low dissected denudational hills with valleys
4. Deeply dissected high Western Ghats with denudational hills rising to a maximum of 832m amsl and occurring all along the eastern part of the state. Geomorphology of the area is shown in **Plate-5.**

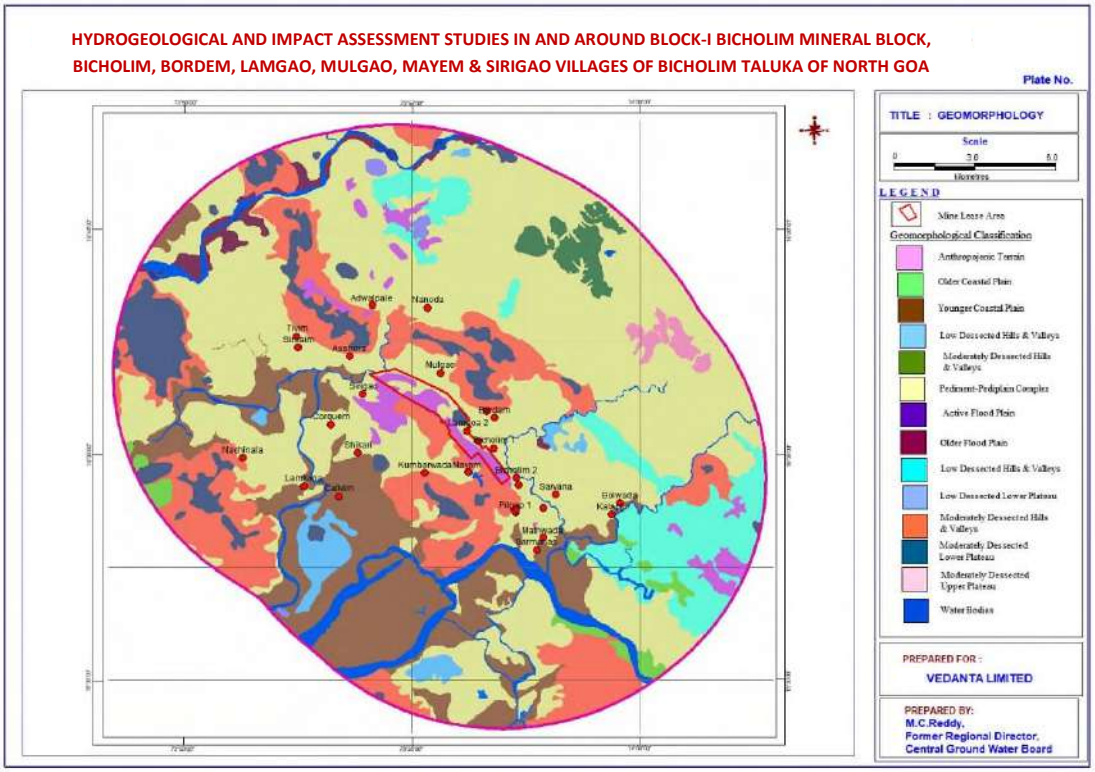


Plate-5 Geomorphology of the Block-I Bicholim Mineral Block Study area

3.2 Land Use Land Cover (LULC)

Land Use Land Cover of the core and buffer area is presented in Plate-6. Study area is essentially falling in the open mixed jungle constituting 50 % of the study area. The project area falls under low dissected hills and valleys. Water body is occurring in the study area as minor nalla course. Major water bodies are concentrated in the South and South western part of the study area. The remaining 50% of the land constitutes plantation, built-up area, etc. The LULC map is presented as **Plate-6.**

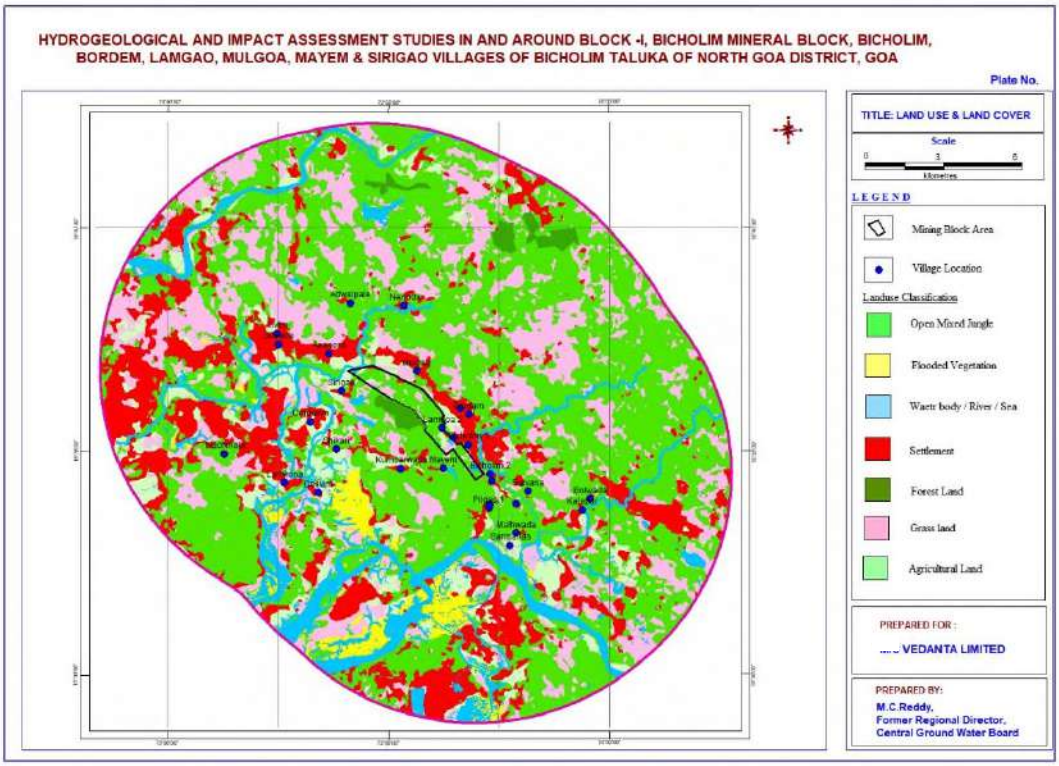


Plate-6. LULC of the Block-I Bicholim Mineral Block

Sl. No	*Current Land Use*	*Area in Ha*
1	*Settlements*	*32.4047*
2	*Degraded by Pits & Excavation*	*306.8497*
3	*Degraded by Dumps & Material Staking*	*41.6116*
4	*Covered under Mine Infrastructure (plants, shades,*	*6.4707*
5	*Land under Public Infrastructure / Utilities*	*1.021*

6	*Barren / Waste land with small bushes & shrubs*	*90.1629*
Total		*478.5206*

Sl. No	*CONCEPTUAL MINING Land Use*	*Area in Ha*
1	*Settlements*	*32.4047*
2	*Degraded by Pits & Excavation*	*355.5659*
3	*Covered under Mine Infrastructure (plants, shades,*	*6.4707*
4	*Barren / Waste land with small bushes & shrubs*	*76.3437*
5	*Degraded by Dumps & Material Staking*	*6.7146*
6	*Land under Public Infrastructure / Utilities*	*1.021*
Total		*478.5206*

Land use details for buffer area :

Sl. No	*Current Land Use*	*Area in Ha*
1	Water Bodies	3092.1
2	Open mixed forest	22008.0
3	Flooded Vegetation	1328.0
4	Agricultural Land	2917.5
5	Settlements	7210.2
6	Scrub Land	9811.9
7	Forest Area	429.5
Total		46797

PREPARED BY: M. C. Reddy, Former Regional Director, Central Ground Water Board,
Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

3.3 Physiography

The topography is undulating low hill terrain extending all along the mining lease in the North west and South East direction. Physiographically, the Mining Lease is located on a hilly undulating terrain Mine does not have any forest land within the lease.

Physiographically Goa, though famous for its beaches, is essentially a rugged hilly and mountainous tract with narrow valleys and sandy linear plains along the coast. The Western Ghats run in a general north-south direction from Salginim to Surla ghat along the eastern margin of the territory. This segment of Sahyadri ranges are clad with evergreen forests with altitude ranging from 600 m to over 800 m. The highest peak Sosogad is 1022m m height. In the western margin of the territory, there are long and narrow strips of sandy plains and low flat topped laterite hills ranging in altitude from 50 m to 100 m. having a hillock in the center of the mining lease and sloping in all directions. There are no surface water bodies within the Mining Lease area. The average annual rainfall in the region is about 3881 mm per year since 2008 till date. Due to the hilly topography, all the rain water flow along the first order drains observed flowing from the hill top downwards along the natural course forming a dendritic drainage pattern. The highest elevation within the mining lease area is more than 169.14m above MSL and lowest is about -37.24 m above MSL.

3.4Drainage

As the area is located on the foot hills of Western Ghats belt and receives heavy rainfall during monsoon season and the average annual rainfall is about 3500 to 4000mm. Dendritic to sub dendritic type of drainage is observed in study area Water is accumulated in these mine pits during monsoon rainfall and seepage from the ore body. The accumulated water is being used for dust suppression purposes. Some of the finest sea beaches of the country are located in Goa. The terrain is undulating with alternate chain of hills and long, narrow valleys. The maximum altitude of the hills is 250 m Amsl. The Vageri hill near Valpoi, is located much to the west of the Western Ghats and is connected by a narrow link with the Surla ghat. The state receives an annual average rainfall of about 3500 to 4000 mm, from southwest monsoon and is drained by several

west flowing rivers. The eastern border of the state generally marks the water divide between easterly and westerly flowing rivers. Drainage of the study area is shown in Plate-7.

3.5Soil Characteristics

Soils of the district can be classified into 4 types namely (i) Laterite soil (ii) Saline soil and (iii) Marshy soil and (iv) Alluvial soil.

The soil types observed within the buffer area are as follows:

(i) Lateritic soil is the major soil type in the district. It is highly porous & permeable, slightly acidic with low pH values, low in organic matter, Calcium and Phosphorus.

(ii) Saline soil in the district occurs in the flood plains of Bardze taluka. The dominant soil type observed in the mining lease is of lateritic type.

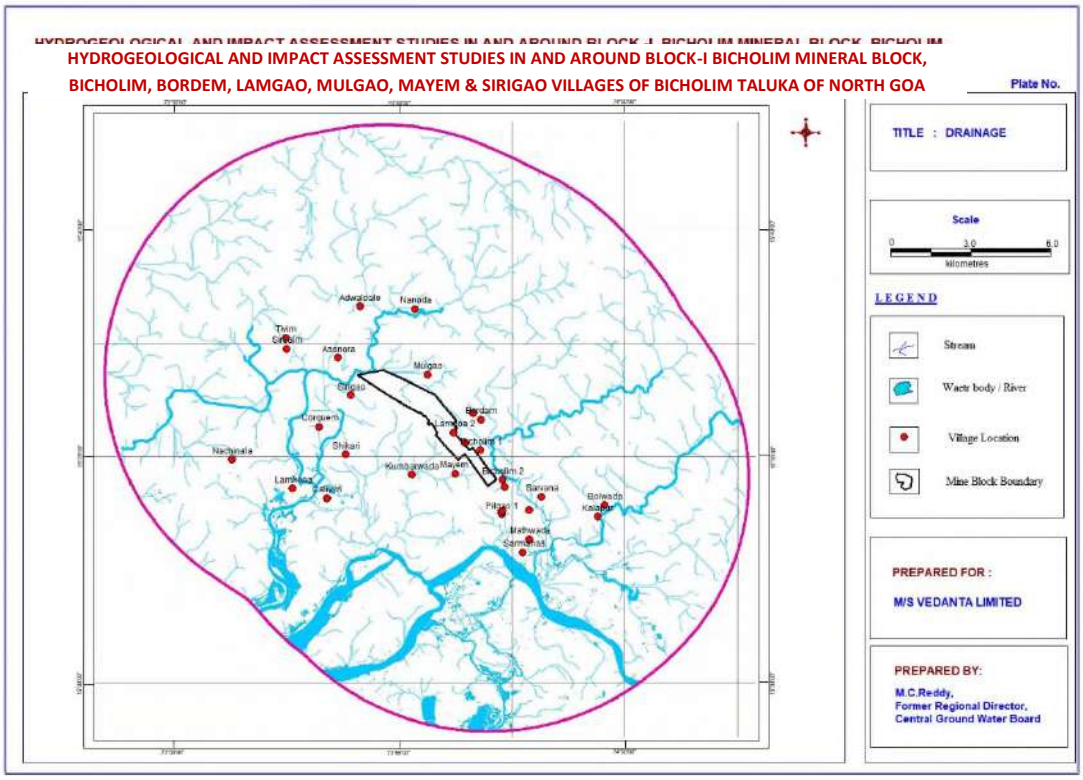


Plate-7. Drainage of the Block-I Bicholim Mineral Block

4 HYDROMETEOROLOGY

4.1 Climate

The study area experiences hot summer and mild winter climate with well-defined three seasons, namely winters followed by summer and rainy season. The weather parameters recorded in the observatory at the Panjim are considered as representative of the meteorological conditions for the study area. The various mean climatological parameters for the period 1968-2010 are presented in Table-2.

4.2. Temperature

Mean maximum temperature is around 33 °C during April -May. It falls to around 29°C during monsoon period i.e. during July and August. The mean minimum temperature is around 26°C during April – May, which decreases to around 15°C during January - February period. Graph showing monthly minimum maximum temperature is given in Fig.1.

Table-2. Climate & Temperature

Month	Mean Temperature °C		Mean Total Rainfall (mm)	Mean Number of Rainy Days	Mean Number of days with			
	Daily Minimum	Daily Maximum			HAIL	THUNDER	FOG	SQUALL
Jan	19.6	31.6	0.2	0	0	0	0.4	0
Feb	20.5	31.5	0.1	0	0	0	0.6	0
Mar	23.2	32	1.2	0.1	0	0.4	0.5	0
Apr	25.6	33	11.8	0.8	0	1.8	0	0

May	26.3	33	112.7	4.2	0	3.3	0	0
Jun	24.7	30.3	868.2	21.9	0	4.8	0	0.1
Jul	24.1	28.9	994.8	27.2	0.1	0.9	0.1	0.2
Aug	24	28.8	518.7	23.3	0	0.4	0.1	0
Sep	23.8	29.5	251.9	13.5	0	2.5	2.2	0.1
Oct	23.8	31.6	124.8	6.2	0	4.7	3.9	0
Nov	22.3	32.8	30.9	2.5	0	2.6	0.8	0
Dec	20.6	32.4	16.7	0.4	0	0.1	0.2	0
Annual	23.2	31.3	2932	100.1	0.1	21.5	8.8	0.4

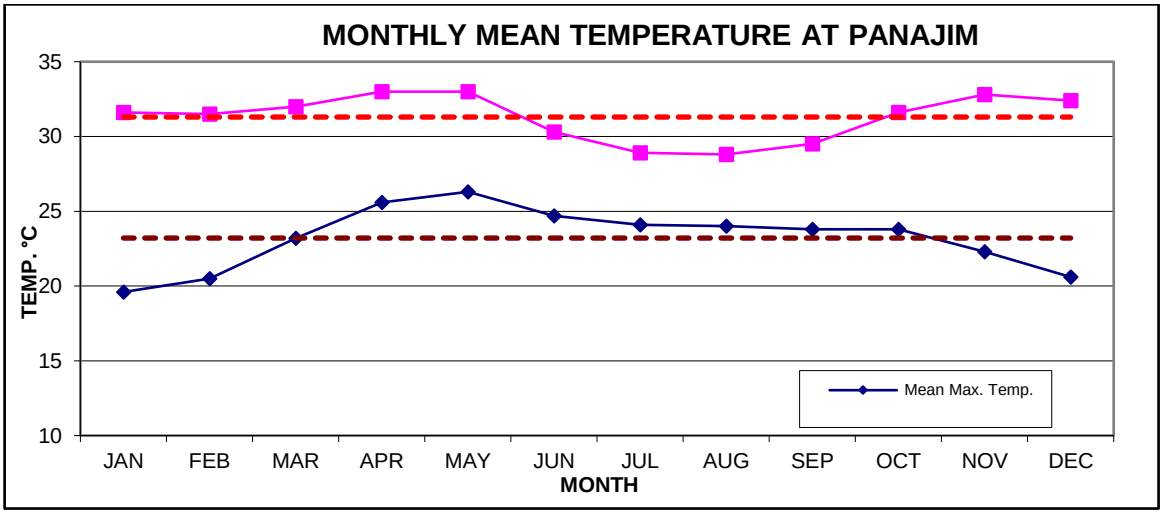
4.3 Rainfall

Rainfall is the primary source of ground water recharge. Other sources are seepage from surface water bodies. An attempt has been made to study rainfall, its distribution, and periodicity etc., based on statistical approach.

4.4 Rainfall normal

Normal are essentially averages pertaining to a period of sufficiently long duration. There are two rain gauge stations in and around the study area. These two rain gauge stations having consistence rainfall data for longer period. The monthly and annual normal rainfall and seasonal percentages stations are given in table-2.

Fig.1



PREPARED BY: M. C. Reddy, Former Regional Director, Central Ground Water Board,
Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

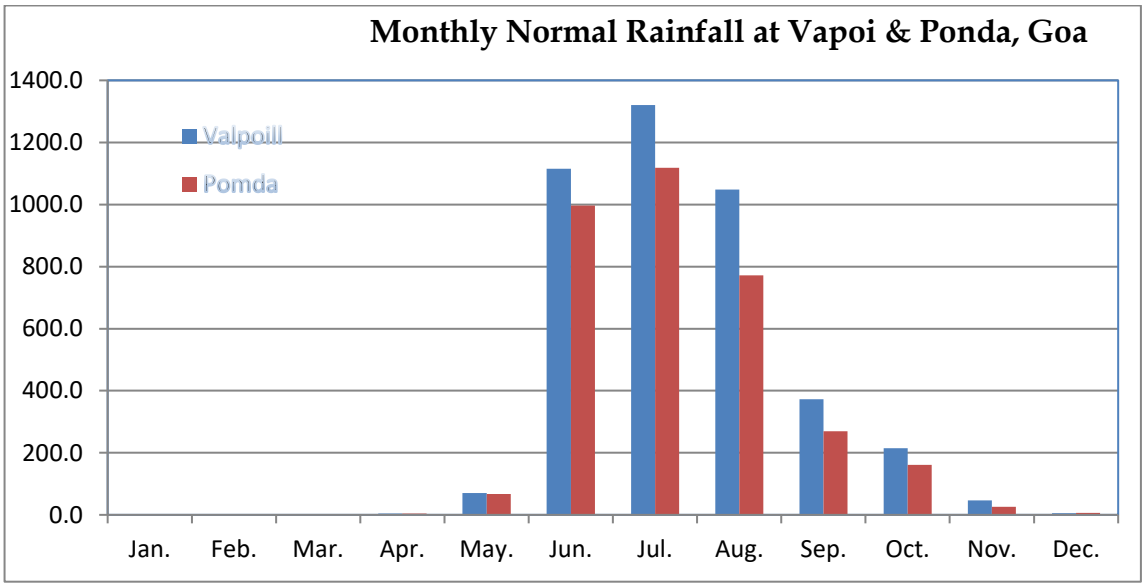
4..5 Rainfall analysis

The monthly normal rainfall in Ponda station ranges from almost nil rainfall during February and March to 1117mm during August. The station annual average works out to 3948mm, the monthly normal rainfall in Valpoi station ranges from nil rainfall during February to 1320mm during August. The station annual average works out to 3948 mm (Table.3) and the graph is shown in Fig.2

Table-3. Normal of Monthly and annual Rainfall

Normal of monthly and annual Rainfall, Goa state for the period 1971-2000 based on data obtained from IMD, Poona													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Augt	Sep	Oct	Nov	Dec	Annual
Ponda	0.6	0.0	0.0	4.0	66.8	997.1	1117.9	771.6	269.7	161.2	25.9	6.4	3237.4
Valpoi	0.3	0.0	1.3	3.9	70.4	1115.7	1320.3	1048.7	372.1	214.6	46.9	5.5	3948.3

Fig.2



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Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

5 GROUND WATER CONDITIONS & QUALITY

5.1 Brief Geology of the Area

The rock formations in the area are classified as Precambrian Dharwar Super Group (Dharwar Schist Belts) of rocks. In Goa these are locally called as Goa Group of formations and subdivided in to 4 formations viz., Barcem, Sanvordem, Bicholim and Vageri formations (Table 1). Most of the Iron and Manganese ore bearing deposits in Goa fall under Bicholim formations. Ore deposit occurring in the local mine area is located in Bicholim-Sirigao local sub deposit. Formations have general characteristic strike of Dharwar formations NNW – SSE about 40^0 and varying dip of beddings 45^0 to 75^0 . Ore Mineral concentration is confined to largely to the limbs of the folds due to deep weathering of Banded ferruginous quartzite and super-gene enrichment processes. Entire area was originally covered with 15 to 20 m thick Laterite capping (Mascarenhas and Kalampara, 2009). The rocks of the Bicholim Mineral Block area have been classified under the Goa Group of the Dharwar Super Group.

5.2 Geology of the Study area

The Stratigraphic sequence of the North Goa is as given in **Table- 4.** Geology of the area is shown in **Plate-8.** The potential iron ore bodies are available within the Bicholim Formation of the Goa Group. Mineral concentration is confined largely to the limbs, while the apical portions are generally non-mineralized. The deposits of North and South Goa have been formed under different geological conditions and hence are of entirely different nature. The deposit in South Goa occurs as discrete synclinal basins with top laterite cover often enriched with iron ore in isolated pockets. The ore body Groundwater conditions in Bicholim Mineral Block, North Goa intercalated with phyllite, limonitic and manganiferous clay is mineralogically a mixture of hematite and limonite - goethite and minor quantities of martite. Decomposed quartzite forms the footwall. There are some intrusions in the form of altered dolerite dykes & sills. The top laterite is usually followed by lumpy ore zone followed by friable ore and powdery ore. The ore bearing intercalations consists of several horizons mainly manganiferous and phyllitic clay. The footwall is generally decomposed B.H.Q with silica. The existing mine pit shows exposures of the various horizons of ore. The iron ore deposits consist essentially haematite and partially of magnetite, limonite and

PREPARED BY: M. C. Reddy, Former Regional Director, Central Ground Water Board,
Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

goethite. They occur as lensoid bodies on the crests and slopes of hills. The deposits were formed as residual concentration and enrichment process called lateritization of the banded ferruginous quartzite and phyllite of the Goa Group of metasediments.

Table-4 Stratigraphic sequence of North Goa district, Goa

Eon/Era/Epoch	Supersuite/Suite/Group	Formation	Litho assemblage
Quaternary			Beach sands and River alluvium
Pliocene to Pleistocene			Laterite and aluminous laterite
Late Cretaceous to Palaeocene	Deccan Trap		Continental flood basalts-mainly tholeiitic type with dykes
Palaeo Proterozoic to Meso-Proterozoic	Closepet Granite	Chandranath Granite, Dudsagar Granite, Canacona Granite	Alkaline granites mainly; also variants from monzo granite to granodiorite
	Mafic –ultramafic Layerd Complex		Peridotite-cromitite, dunite-Gabro-Norite, Pyroxinite
Archaean to Palaeo Proterozoic	Goa Group = Chitradurga Group of Dharwar Super Group	Vageri	Carbonite-quartz-chlorite Schist/greywacke
		Bicholim	Dolomite limestone
			Quartz-sericite -schist
			Banded Iron Formation
			Quartz-chlorite-biotite-schist inter-layered with chert, iron and Mn Oxides, carbonates, metabasalt and meta-gabbro
		Sanvordem	Quartzite/greywcke with conglomerate
		Barcem	Quartz-chlorite-schist
			Meta-acid volcanic (meta-rhyodacite), quartz Porphyry, tuff
			Meta basalt meta-gabbro and meta-anorthositic Gabbro, quartzite
Archaean	Peninsular Gneiss-II	Ankola Gneiss,Anmod Ghat Gneiss	Migmatite and granites(s.1) tonolite-trondjhmite-granodiorite

This is the best deposit in the entire territory of Goa and is situated between Bicholim in the southeast and Sirigao in the northwest. The deposit consists of two ore bodies, southwestern one is larger and the northeastern one smaller. The southwestern ore body is in the shape of "S" and it occurs on the overturned southwestern limb of the anticlinal

fold and also on the refolded nose portion of the fold. The northeastern ore body occurs on the other limb of the fold. Both the ore bodies are present along the dip slope. The southwestern ore body extends from Bicholim-Piligao road via Sirigao hill up to Sirigao nala for a length of about 6.25 km and the width varies from 20 – 50 m and true thickness may vary from 20-40 m. The greater true thickness of about 40-50 m and best concentration of iron ore are seen between Lamgao and Sirigao hill. The thickness of ore gradually decreases to about 25 m in the south eastern part. The thickness again reduces to 20 - 35m on the northern and western slopes of the Sirigao hill. The thickness varies from 20 – 40 m and the grade of the ore is comparatively low in the conical portion between Sirigao and Poira Village. The northern ore body is about 1.75 km long and the width varies from 20 m - 35 m.

Lateralization has played an important role in the concentration of Iron in the lease area, giving rise to rich accumulation of Iron Ore. The laterite is basically brownish pink to pinkish in colour, hard to medium in nature with concentration of Alumina. At places it is concentrated with Iron Ore. Laterite analyses about 30-35% Fe with 15-20% Al_2O_3 and 20-25% SiO_2.

The Phyllites are pale pinkish and soft in nature with fine to medium grain size. The phyllites are having about 25-30% Fe with 18-22% Al_2O_3 and 15-20% SiO_2. The Iron ore of this area is grayish blue in colour and is fine to medium grained size. The main mineral is haematite followed by limonite and goethite. The iron ore generally analyses about 55-58% Fe with 3.5-8% Al_2O_3 and 1.5-3.5% SiO_2. The Bicholim mine lease and continuous occurrence of Phyllitic clay formation was observed within the mine lease. Extension of the phyllitic clay layers is a significant feature in the Bicholim Mineral Block. At most places encapsulating nature of phyllitic clay surrounding the iron ore formations could be seen from the exposed mine cut sections. The impervious nature of phyllitic clays with regard to groundwater movement resulting in very insignificant impact on groundwater regime due to the groundwater pumping from the open pits from the lease hold areas. Good groundwater potential zones have been identified at shallow depths in the villages adjacent to the mine lease. The ongoing groundwater pumping in the Bicholim Mineral

Block has not shown significant change in water table configuration during past few years. Most of the monsoon rainfall emerges as surface runoff flowing in the garland canals leading to the mine pits and thereby replenishing the shallow water table aquifer. Hence, dewatering conditions could not be identified outside the mine lease area in the adjoining villages of the Bicholim mine lease area. Groundwater conditions in Bicholim Mineral Block, North Goa. GPR investigations in the Bicholim mine lease established that there is no hydrological connection between the open mine pit water in the mine lease and the groundwater regime in the surrounding villages. The resistivity of the formations confirms presence of laterite underlain with all pervading phyllitic clay formations in the Bicholim Mineral Block area. The resistivity estimated from the VES investigations found that proposed deep iron ore mining in the Lamgao and Mulgao regions in future may not pose significant impact on the groundwater regime due to the presence of thick laterite layer underlain with large thickness of phyllitic clay layer encapsulating the iron ore formations in the area. The groundwater levels indicate shallow water table condition in the entire watershed and there is no regional groundwater flow pattern in the mine lease area within the micro-watershed. In situ infiltration rate was found minimum of 1.58 cm/hr on the old dump whereas it was about 6.79 cm/hr on an active dump. In general the infiltration rates are found quite low on the OB dumps due to compaction of overburden material enriched with clay formations. Surface water flows in the irrigation canal established saturated condition resulting in shallow water table conditions particularly in the Mulgao village.

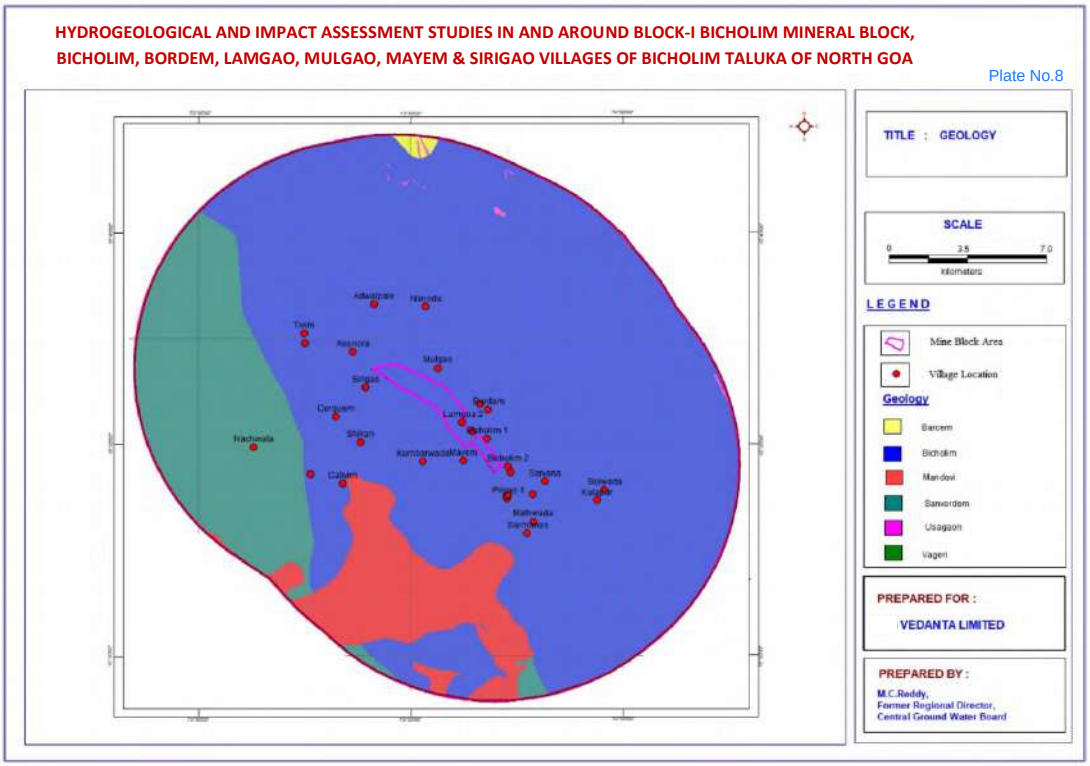

Plate-8. Geology of the area

5.3 Hydrogeology

Hydrogeological conditions based on the monitoring of water levels in core and buffer area is presented in **Plate-9** and the details of the ground water structures are given in Table-5. Water levels in the study area in general is represented by Phreatic aquifers. Deep aquifers represented by bore wells are not common in the area especially for irrigation. Very sparsely seen bore wells are located for domestic use. Depth to water level in the area varies from less than 2 m below ground level (bgl) to to about 15 m bgl. Most of the wells are in the range of 5-7 m bgl water levels.

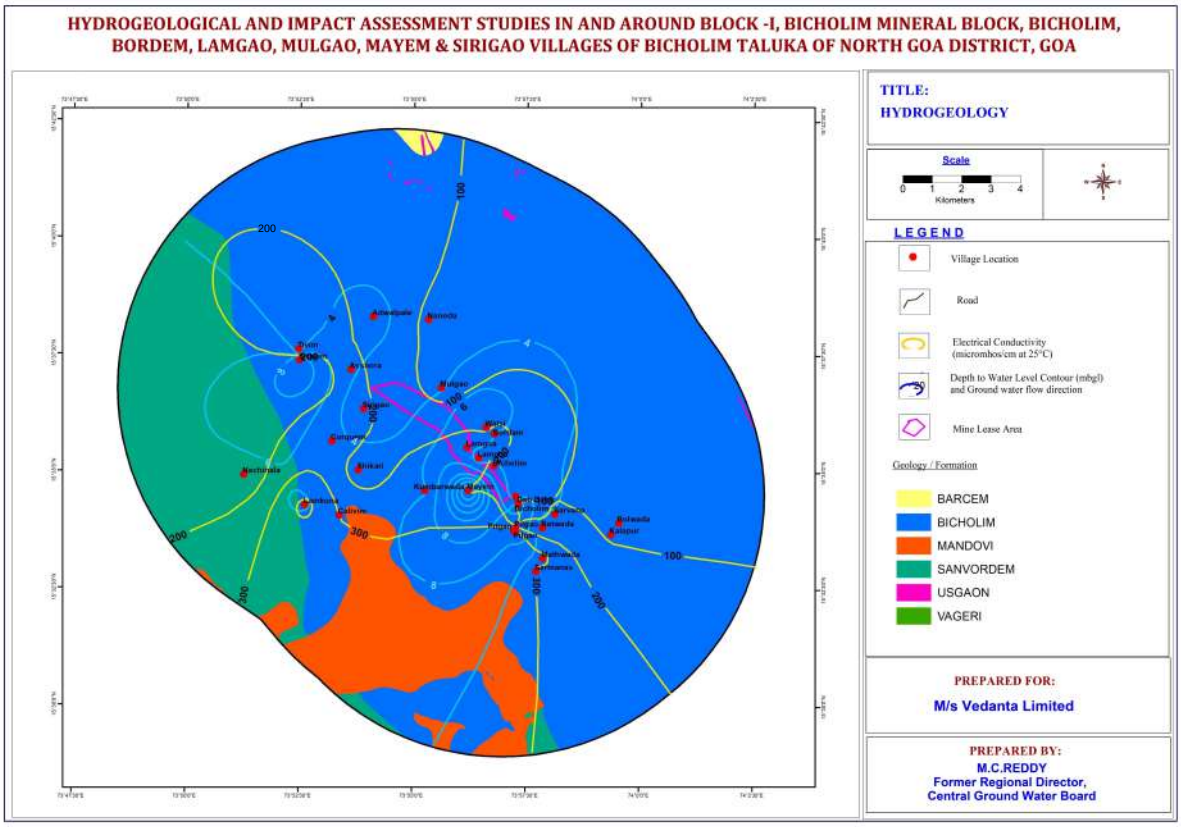

Plate-9. Hydrogeology of the area

5.4 Aquifer description

Hydrogeological surveys carried out in parts of Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao Villages of Bicholim Taluka of North Goa District, Goa show rise in water level in Phreatic aquifer over a period of more than 10 years. The fluctuations are less near the drainage system and topographic lows and higher in the topographic highs and hilly areas. Change in ground water scenario over a decade shows rise in water level in respect of two wells and decline in water levels in one well located in North Goa.

5.5 Aquifer Performance Test

Aquifer performance test was conducted on one bore well located at **Lamgao** Village of Bicholim Taluk. The discharge of the bore well is 5. 5 m^3/hour sustaining pumping for 47 minutes. The draw down recorded in the bore well is 0.8 m. The Transmissivity estimated to be 53.75 m^2 / day. The details of the test are given in **Table 6** and the plots are given in Fig. 3A & 3B .

Table-6 Well Details of Lamgao Village Bore Well

Location : Lamgao Village	
Taluk : Bicholim District : North Goa State : Goa	Owner: Panchayat bore well
Dia. : 0.0508 m	Dia of Bore Well: 153 mm
Pump : 1 HP Centrifugal Pump	
Discharge : 5.5m^3 / hour	SWL: 3.66 m. bgl.
Measuring Point : 0.65 m	

Table 6

Time in hrs	Time in minutes since pump started	Time in minutes since pump stopped	Pumping water level m. bgl	Draw Down m. / Residual Draw Down	Remarks
12:03	0	-	3.66	-	Pump started
12:05	2	-	4.14	0.48	
12:07	4	-	4.18	0.52	
12:09	6	-	4.21	0.61	
12:11	8	-	4.23	0.63	
12:13	10	-	4.26	0.66	
12:15	12	-	4.28	0.68	
12:20	17	-	4.31	0.71	
12:25	22	-	4.33	0.73	
12:30	27	-	4.35	0.75	
12:35	32	-	4.36	0.76	
12:40	37	-	4.38	0.78	

12:50	47	-	4.46	0.80	Pump Stopped
12:52	-	2	3.75	0.09	
12:54	-	4	3.73	0.07	
12:56	-	6	3.71	0.05	
12:58	-	8	3.70	0.04	
13:00	-	10	3.70	0.04	
13:02	-	12	3.69	0.03	
13:07	-	17	3.68	0.02	
13:22	-	22	3.675	0.015	
13:27	-	27	3.67	0.01	
13:37	-	37	3.665	0.005	
13:47	-	47	3.665	0.005	
13:57	-	57	3.66	0.00	

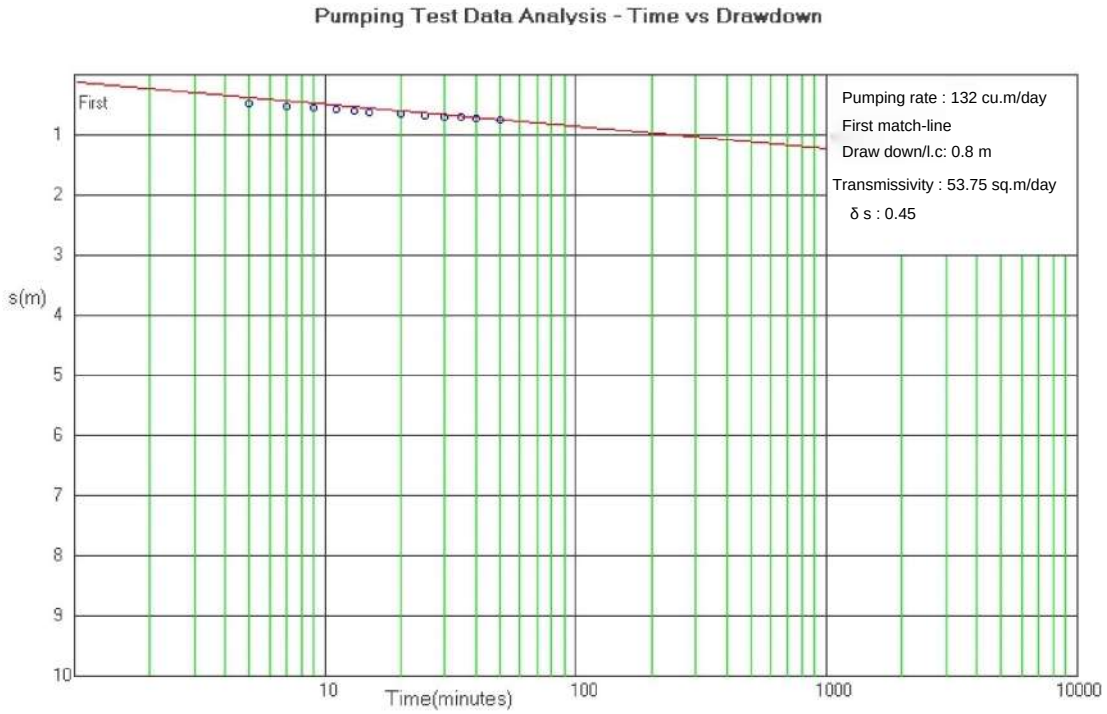

Fig 3A: Plot of time Vs Draw Down at bore well at Lamgao village of Bicholim Taluka, in the Bicholim mine study area

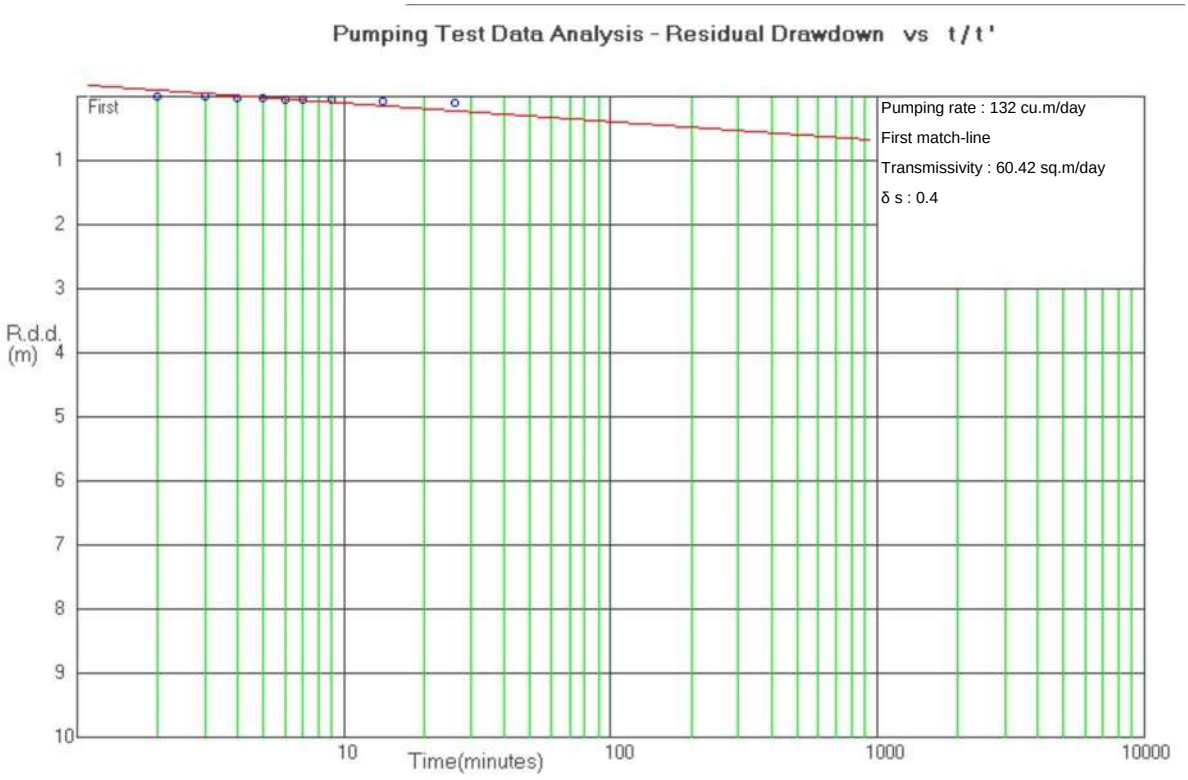

Fig.3B: Plot of time Vs Residual Draw Down Vs time at bore well at Lamgao of Bicholim mine study area

PREPARED BY: M. C. Reddy, Former Regional Director, Central Ground Water Board,
Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

5.6 Ground water flow and aquifer interaction

Hydrogeological surveys were carried out in Mining Lease Area (core area) and in the area falling within 10 Km from Block-I Bicholim Mineral BlockMining Lease boundary (buffer area) during November 2022 to evaluate the groundwater regime. The core and buffer area forms a part of Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao Villages of Bicholim Taluka of North Goa District, Goa. Water levels were monitored in 30 villages tapping shallow aquifers to delineate the ground water regime in the study area. The location and details of the abstraction structures in the core and buffer area in parts of Bicholim Taluka of North Goa District are shown in **Plate-1**. The location details, coordinates, elevation and water levels of the abstraction structures in core and buffer area is given in **Table-7.** The abstraction structures inventoried are essentially open wells tapping phreatic aquifers. Well density with respect to the unit area as an index to assess the ground water development, vis-à-vis the potential of the area show the density of the wells as observed during the present hydrogeological surveys indicate the area falls in the range 3-4 wells / km. Water samples were collected from 30 shallow aquifer wells in buffer area. The details of the water quality analysis carried in NABL Accredited Laboratory is given in **Table-8** and the lab results are presented as **Annexure-2.**

Table-7: Details of open wells inventoried for water level in study area of Block-I Bicholim Mineral Block

Code No.	Locations	latitude			longitude			Elevation m (Amsl)	Water Levels m (Bgl)
		D	M	S	D	M	S		
GW1	Bicholim	15	35	8.00	73	56	47.6	29	6.30
GW2	Bicholim	15	34	28.6	73	57	16.7	28	4.40
GW3	Pilgao	15	33	42.7	73	57	15.9	35	7.65
GW4	Pilgao	15	33	45.2	73	57	14.7	36	3.10
GW5	Pilgao	15	33	48.2	73	57	16.6	40	7.73
GW6	Mathwada	15	33	9.4	73	57	52.5	31	3.30
GW7	Sarmanas	15	32	52.7	73	57	43.7	17	2.50
GW8	Batwada	15	33	48.7	73	57	52.2	21	1.80
GW9	DabDaba	15	34	19.6	73	57	20	31	9.00
GW10	Mayem	15	34	36.4	73	56	13.6	30	14.70
GW11	Lamgao	15	35	17.6	73	56	27.3	29	5.00
GW12	Lamgao	15	35	31.1	73	56	12	32	6.60
GW13	Bordem	15	35	48.8	73	56	48.1	32	5.70
GW14	Walsi	15	35	57.2	73	56	37.3	35	9.70
GW15	Mulgao	15	36	47.8	73	55	37.6	29	3.77
GW16	Sirigao	15	36	20.6	73	53	55.1	22	1.90
GW17	Tivim	15	37	36.8	73	52	28.6	27	3.06
GW18	Sirsaim	15	37	22.4	73	52	30	33	10.70

GW19	Assnora	15	37	10.6	73	53	37.9	31	4.40
GW20	Adwalpale	15	38	18.5	73	54	7.5	38	5.00
GW21	Karapur	15	33	40.4	73	59	22.7	22	3.60
GW22	Bolwada	15	33	55.3	73	59	32.8	32	2.96
GW23	Sarvana	15	34	6.5	73	58	8.6	27	3.78
GW24	Corjuem	15	35	39	73	53	13.3	28	4.58
GW25	Sikeri	15	35	2	73	53	48.4	24	5.80
GW26	Kumbarwada	15	34	35.7	73	55	16	33	5.75
GW27	Calvim	15	34	3.9	73	53	23.4	22	4.70
GW28	Lamgao	15	34	17.1	73	52	37.5	27	6.15
GW29	Nachinola	15	34	55.8	73	51	16.9	28	5.50
GW30	Nanoda	15	38	15.1	73	55	20.5	33	2.15

Table-8: Details of open wells inventoried for water Quality in study area

Sl. No.	Parameters	Desirable Limits	Permissible Limits	Result																												
				GW1	GW2	GW3	GW4	GW5	GW6	GW7	GW8	GW9	GW10	GW11	GW12	GW13	GW14	GW15	GW16	GW17	GW18	GW19	GW20	GW21	GW22	GW23	GW24	GW25	GW26	GW27	GW28	GW29	GW30
i	Colour (Hazen Units), Max	5	15	1.0	<1	2.0	4.0	1.0	1.0	1.0	<1	<1	<1	2.0	1.0	<1	<1	<1	1.0	1.0	<1	<1	<1	<1	<1	1.0	1.0	<1	1.0	<1	<1	<1	<1
ii	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
iii	pH	6.5 to 8.5	6.5 - 8.5	6.55	7.95	7.37	7.80	8.40	7.50	7.05	5.88	8.95	8.10	8.16	7.01	6.62	5.85	5.53	7.50	7.80	5.92	7.70	8.20	6.07	5.96	7.82	7.85	5.73	7.46	7.83	7.55	8.12	8.85
iv	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
v	Turbidity,NTU, Max	1	5	2.5	3.60	1.5	2.5	1.8	4.0	3.8	3.7	4.5	3.1	2.8	4.1	3.5	4.7	3.0	1.2	4.6	2.7	5.0	4.2	2.7	1.8	3.2	4.0	2.1	1.2	0.7	4.0	2.8	4.0
vi	Total Dissolved Solids,mg/l, Max	500	2000	98	118	236	225	76	194	172	72	50	118	152	195	150	108	34	130	178	54	134	98	50	46	66	172	84	162	178	260	66	54
vii	Aluminium (as Al) mg/l, Max	0.03	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
viii	Ammonia (as total Ammonia -N),mg/l, Max	0.5	0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
ix	Anionic Detergents (as MBAS),mg/l, Max	0.2	1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
x	Barium (as Ba), mg/l, Max	0.7	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
xi	Boron (as B), mg/l, Max	0.5	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
xii	Calcium (as Ca),mg/l, Max	75	200	24.0	27.2	52.1	54.5	12.0	41.6	24.0	5.6	8.0	24.1	20.0	23.2	26.4	11.2	4.8	17.5	38.4	7.2	32.0	20.0	6.4	5.6	8.0	32.0	8.8	36.8	32.0	48.9	9.6	8.0
xiii	Chloramines (as Cl_2), mg/l, Max	4.0	4.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
xiv	Chloride as Cl (mg/l),mg/l, Max	250	1000	12.0	13.0	25.0	26.0	13.0	18.0	34.0	24.0	12.0	16.0	20.0	30.0	22.0	30.0	12.0	16.0	22.0	14.0	20.0	14.0	14.0	12.0	14.0	20.0	28.0	22.0	30.0	68.0	12.0	10.0
xv	Copper (as Cu),mg/l, Max	0.05	1.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
xvi	Fluoride (as F),mg/l, Max	1	1.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.12	0.20	0.15	<0.1	<0.1	<0.1	<0.1	<0.1	0.11	0.22	0.24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
xvii	Residual, Free Chlorine,mg/l, Max	0.2	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
xviii	Iron (as Fe),mg/l, Max	1.0	1.0	0.18	<0.05	<0.05	<0.05	<0.05	0.18	0.15	0.11	0.12	0.05	0.08	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
xix	Magnesium (as Mg),mg/l, Max	30	100	4.9	5.3	7.3	5.3	4.9	9.2	6.8	2.4	2.9	5.3	16.5	5.8	7.3	3.0	1.0	7.3	7.3	2.0	5.4	5.8	2.9	2.4	2.9	12.6	2.4	6.8	9.7	8.7	4.8	2.9
xx	Manganese (as Mn),mg/l, Max	0.1	0.3	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
xxi	Mineral Oil,mg/l, Max	0.5	0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
xxii	Nitrates (as NO_3),mg/l, Max	45	45	3.7	2.8	12.0	2.0	1.6	1.7	10.7	1.5	1.4	2.3	6.2	30.2	7.0	24.8	<0.1	1.4	4.6	4.0	2.0	1.8	4.5	1.5	1.2	4.2	5.6	1.3	18.2	1.1	1.5	1.0
xxiii	Phenolics (as C_6H_5OH),mg/l, Max	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
xxiv	Selenium (as Se),mg/l, Max	0.01	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
xxv	Silver (as Ag), mg/l, Max	0.1	0.1	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
xxvi	Sulphates (as SO_4),mg/l, Max	200	400	6.0	7.2	22.0	20.0	8.0	26.0	30.0	16.0	11.0	20.0	22.0	26.0	28.0	20.0	4.0	10.0	20.0	8.0	24.0	8.0	8.0	5.0	16.0	14.0	8.0	10.0	25.0	22.4	6.2	4.4
xxvii	Sulphide (as H_2S) , mg/l, Max	0.05	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
xxviii	Alkalinity (as $CaCO_3$) mg/l, Max	200	600	76	90	164	180	52	140	80	20	20	78	110	50	86	20	8	100	130	20	98	74	12	24	26	132	26	122	100	130	40	30
xxix	Total Hardness (as $CaCO_3$),mg/l, Max	200	600	80	90	160	162	50	142	86	24	32	82	118	82	96	40	16	74	126	26	102	74	28	24	32	132	32	120	120	158	44	32
xxx	Zinc (as Zn),mg/l, Max	5	15	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
xxxi	Cadmium (as Cd),mg/l, Max	0.003	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
xxxii	Cyanide (as CN),mg/l, Max	0.05	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
xxxiii	Lead (as Pb),mg/l, Max	0.01	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
xxxiv	Molybdenum (as Mo), mg/l, Max	0.07	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
xxxv	Mercury (as Hg),mg/l, Max	0.001	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
xxxvi	Nickel (as Ni),mg/l, Max	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
xxxvii	Pesticides,mg/l, Max	Absent	0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
xxxviii	Polychlorinated biphenyls mg/l, Max	0.0005	0.0005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
xxix	Polynuclear Aromatic Hydrocarbons (as PAH),mg/l, Max	0.0001	0.0001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XL	Arsenic (as As),mg/l, Max	0.01	0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
XLi	Chromium (as Cr^{+6}),mg/l, Max	0.05	0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
XLii	Trihalomathanes,mg/l, Max	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XLiii	Radioactive materials,Bq/l,mg/l	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
XLiv	Total Coliform (per 100ml)	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
XLv	E-Coli (per 100ml)	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
XLvi	Water levels in well from surface (m)	--	--	6.30	4.40	7.65	3.10	7.73	3.30	2.50	1.80	9.00	14.70	5.00	6.60	5.70	9.70	3.77	1.90	3.05	10.70	4.40	5.00	3.60	2.96	3.78	4.58	5.80	5.75	4.70	6.15	5.50	2.15

The details area given in the annexure-3

5.7 Depth to water level

Water levels based on the abstraction structures inventoried in the study area is shown in depth to water level map prepared for the shallow aquifers in **Plate-10**. Depth to water level varied from less than 2 m below ground level (bgl) to more than 7 m bgl. Shallow water levels of less than 2 m bgl is found to occur in and around Sirigao and Batwada;2-5 m bgl in and around Adwalpale, Nanoda, Calivim, Corjuem, Sarvana, Bolwada, Kalapur, Assnora, Mulgao, Lamgao, Sarmanas, Tivim, Bicholim, Mathwada and Pilgao; between 5 and 7 m bgl in and around Nachinala, Lamgao , Kumbarwada, Shikari, Bordam, Pilgao, Lamgao and Bicholim. Water levels of more than 7 m bgl is found to occur in and around Walsi, Sirsaim, Mayem, Pilgao and Dabdaba.

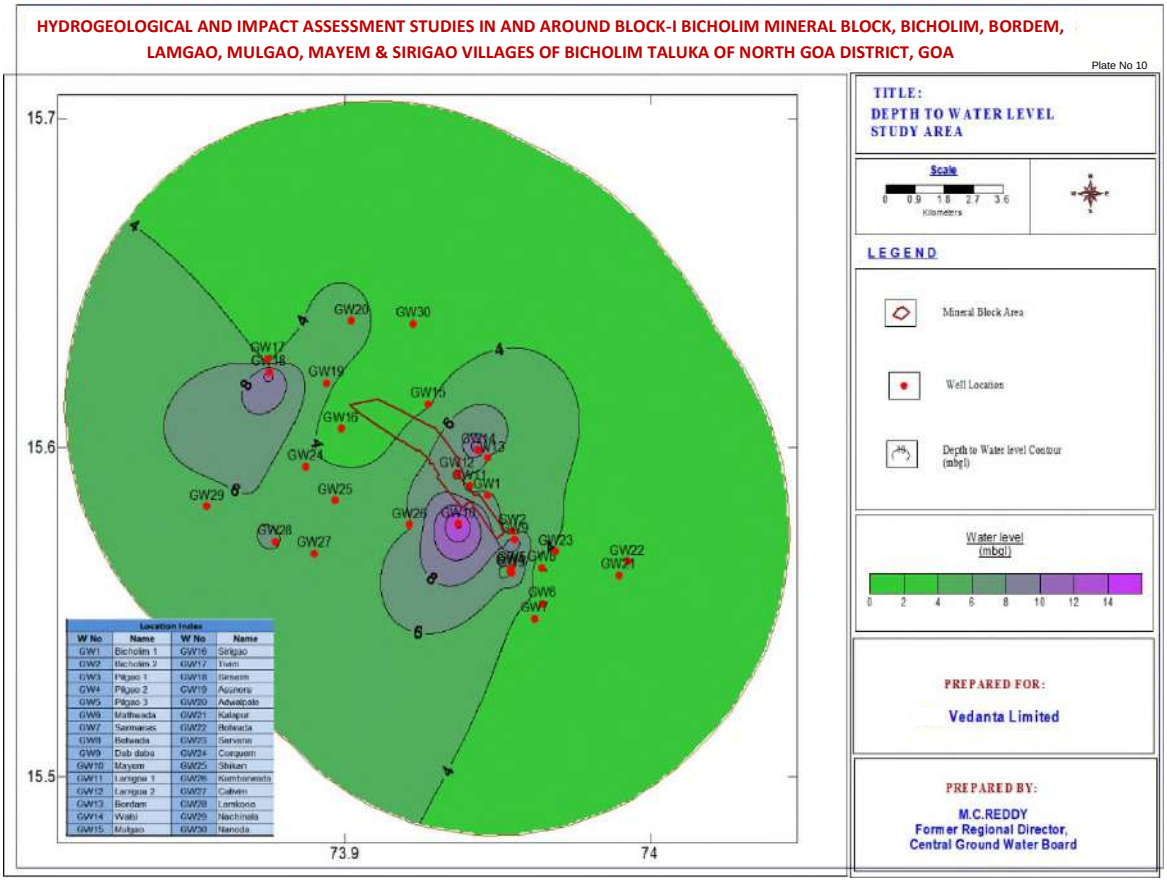

Plate-10. Depth to Water Level in Bicholim study area

5.8 Water Table Elevation

Water table elevation for the study area tapping shallow aquifer is shown in **Plate-11**. Water table elevation is in the range of less than 20 m. above mean sea level (amsl) to more than 35 m amsl. The water table elevation is less than 20 m amsl in and around Calivim, Sarmanas and Lamkona; between 20 and 25 m amsl in and around Batwada, Dabdaba, Mayem, Mulgao, Kalapur, Shikari, Sirigao, Sarvana, Bicholim, Lamgao, Tivim and Sirsaim; Water table elevation is between 25 and 30 m amsl in and around Corquem, Mathwada, Kumbarwada, Nanoda, Bolwada, Nachinala, Bicholim, Pilgao, Pilgao, Lamgoa, Bordam, Walsi, Pilgao; Water table elevation is between 30 and 35 m amsl in and around Assnora and Adwalpale. Ground water flow direction is following the topography.

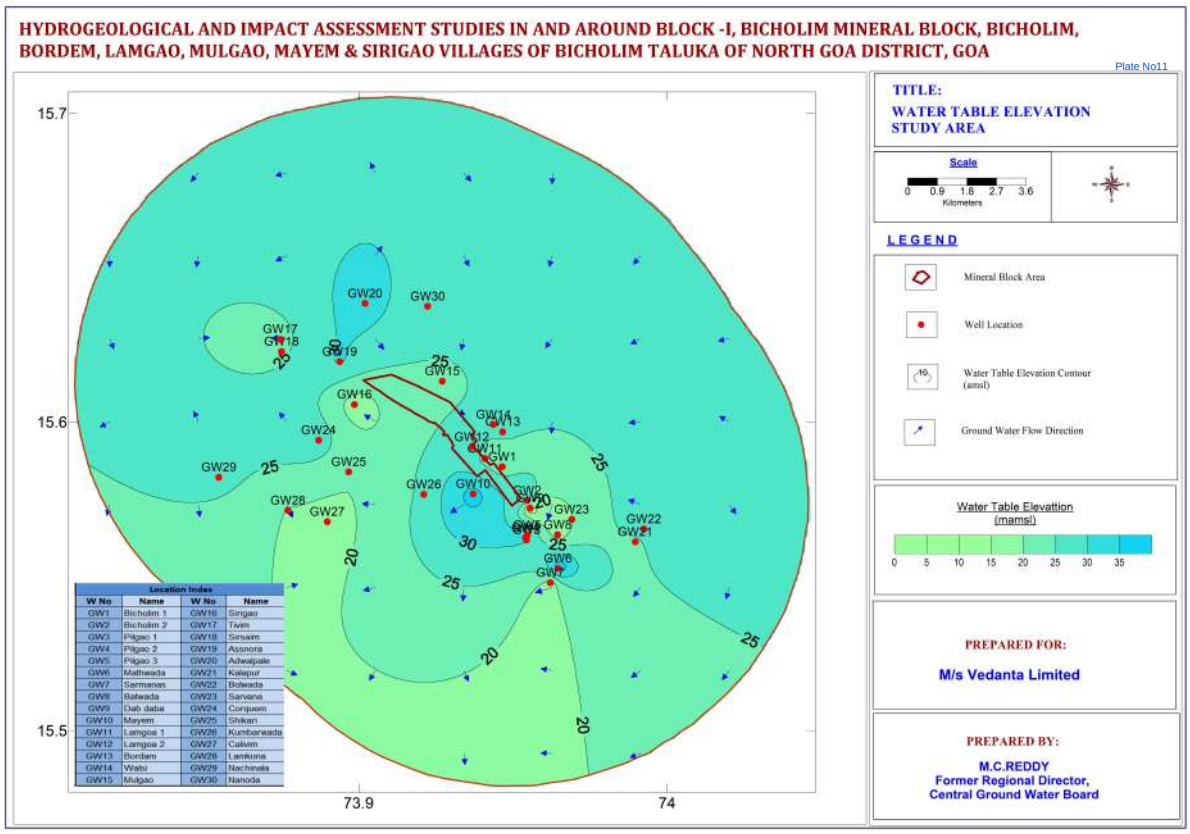

Plate-11. Water Table Elevation in Bicholim study area

5.9 Yield of bore wells

Bore wells are not common in the study area. Based on the information gathered during the hydrogeological survey bore wells are mostly confined to a few villages and that too

are fitted with hand pumps for domestic use. 3 existings bore wells are located in the in the core area. The Lessee proposed to have one ground water structures for domestic uses for the mine staff. However, a Piezometer will be established in the core area for monitoring of water levels on a monthly basis and water quality once in a year. The piezometer will be installed with a Telemetry system of monitoring.

5.10 Ground water level trend analysis

In all 3 National Hydrograph stations maintained by Central Ground Water Board is considered for the analysis. Long term trends for Pre-monsoon, Post monsoon and all seasons were attempted. Rise in water level is recorded at two hydrograph stations and Fall in water levels were recorded at three hydrograph stations. Details of water levels for trend analysis attempted for the 10 years period is given in **Table-9-11** and the2hydrographs are presented in **Fig 4 – Fig 12**.

Ground water trend analysis attempted for the 10 years period Water level data of national network of hydrograph stations of CGWB at Adavapal, Mulgao Shivalkherwad and Sal, Bicholim Taluk, Goa State

Table-9. Water Level Data for the 10 years period of national network of hydrograph stations of CGWB

Water level data of national network of hydrograph station at Adavapal, Bicholim Taluk, Goa				
Year	Jan	May	Aug	Nov
2011	-	-	-	-
2012	-	-	-	-
2013	-	6.4	4.3	4.09
2014	-	5.64	4.41	-
2015	-	-	5.1	5.51
2016	5.57	5.78	4.51	5.46
2017	5.39	5.99	4.29	3.39
2018	5.55	5.46	4.53	4.45
2019	5.53	5.25	4.29	3.67
2020	3.79	-	-	5.08
2021	4.89			
Source: https://indiawris.gov.in/				

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Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

Table-10. Water Level Data for the 10 years period of national network of hydrograph stations of CGWB

Water Level Data of National network of hydrograph station at Mulgao Shivalherwad, Bicholim Taluk Goa.,				
Year	Jan	May	Aug	Nov
2011	3.29	3.74	1.08	2.21
2012	4.3	2.66	-	3.89
2013	4.12	2.93	0.93	2.98
2014	1.91	0.8	0.21	2.22
2015	3.48	3.13	2.53	2.8
2016	-	2.89	2.36	2.95
2017	-	2.62	-	2.93
2018	3.36	3.1	1.97	-
2019	3.55	3.64	-	2.55
2020	2.74	-	-	2.82
2021	2.82			

Table-11. Water Level Data for the 10 years period of national network of hydrograph stations of CGWB

Water level data of national network of hydrograph station at Sal, Bicholim Taluk, Goa				
Year	Jan	May	Aug	Nov
2011	3.07	3.4	1.03	2.86
2012	2.9	3.21	-	3.17
2013	2.86	3.31	0.96	2.7
2014	2.75	2.82	1.86	1.72
2015	2.72	3.17	2.25	2.41
2016	-	2.86	2.08	2.71
2017	2.91	2.63	1.41	2.91
2018	2.68	2.74	1.58	-
2019	2.56	2.57	2.11	2.29
2020	2.65	-	-	-
2021	2.53			

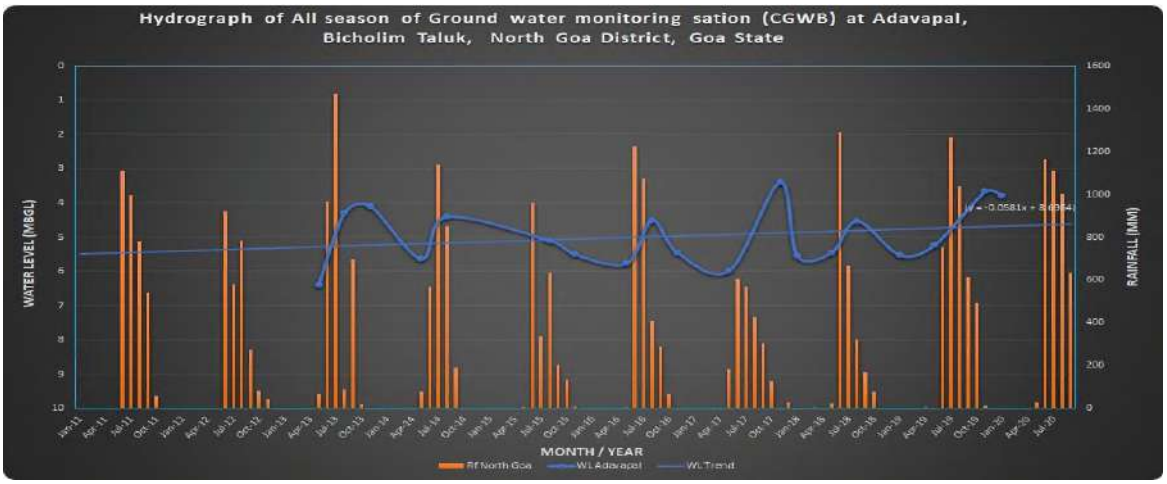

Fig. 4

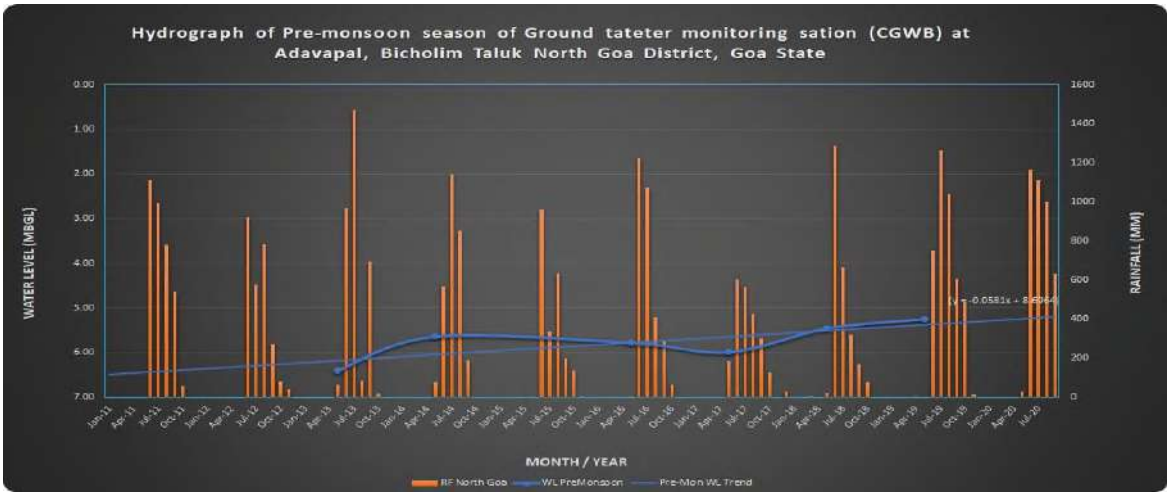

Fig. 5

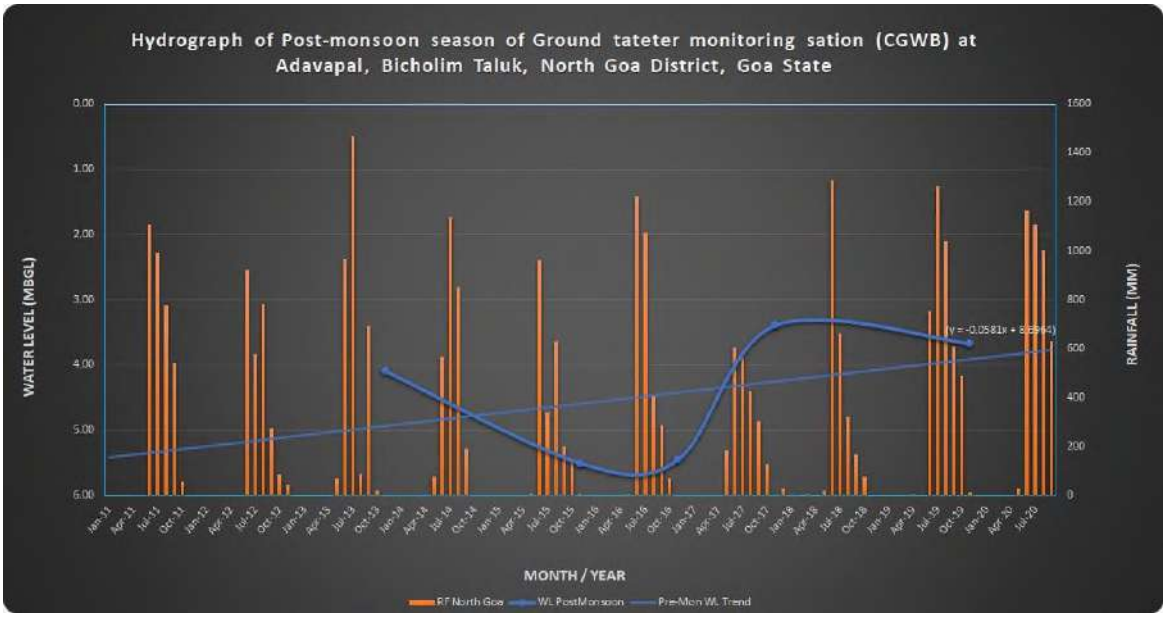

Fig. 6

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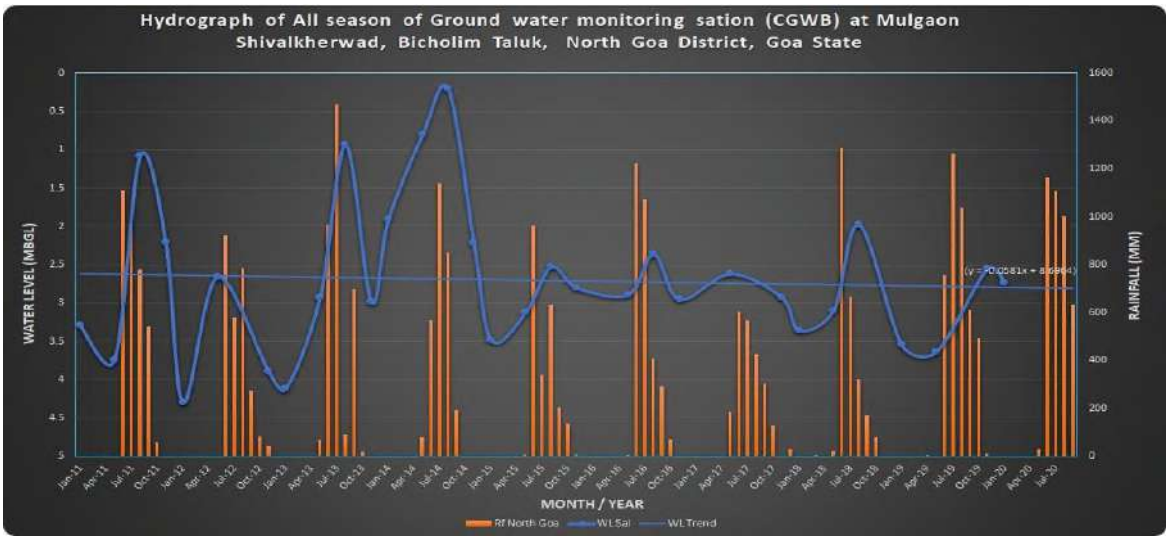
Hydrograph of All season of Ground water monitoring sation (CGWB) at Mulgaon
Shivalkherwad, Bicholim Taluk, North Goa District, Goa State
WATER LEVEL (MBGL)
RAINFALL (MM)
MONTH / YEAR
RF North Goa
WL Sal
WL Trend

Fig. 7

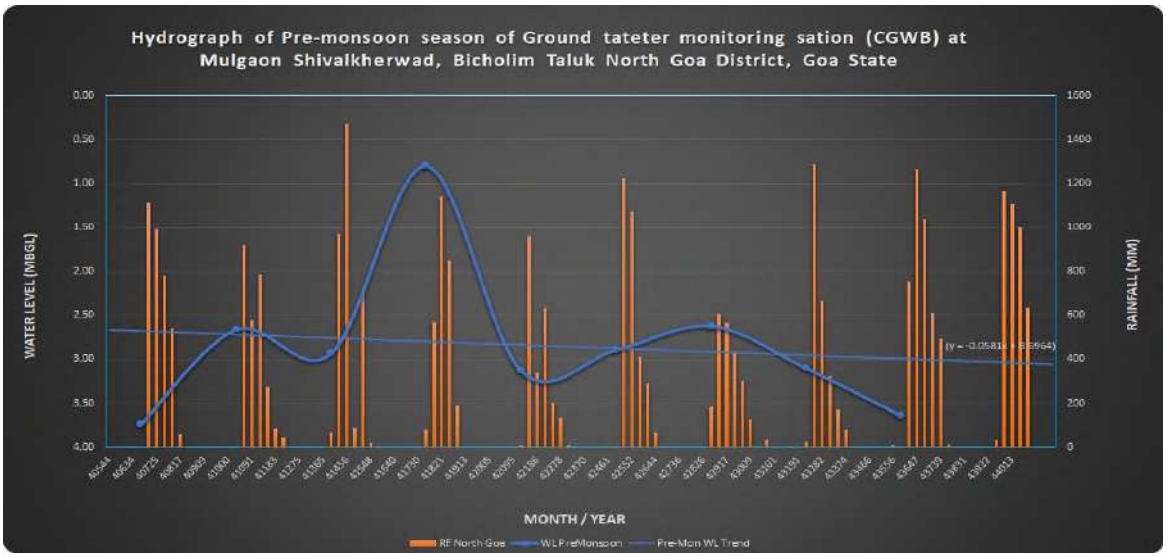
Hydrograph of Pre-monsoon season of Ground tateter monitoring sation (CGWB) at
Mulgaon Shivalkherwad, Bicholim Taluk North Goa District, Goa State
WATER LEVEL (MBGL)
RAINFALL (MM)
MONTH / YEAR
RF North Goa
WL PreMonsoon
Pre-Mon WL Trend

Fig. 8

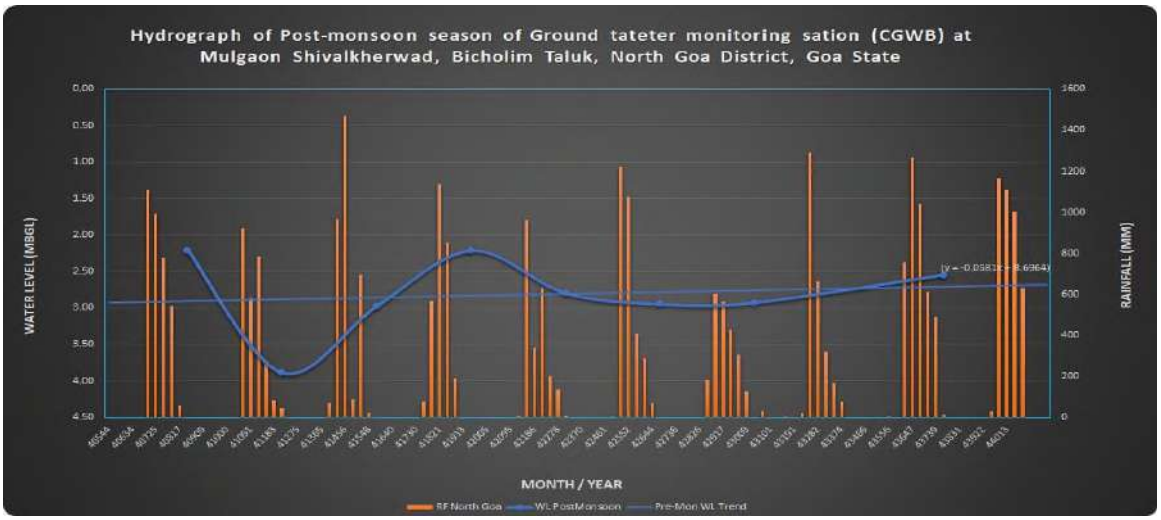
Hydrograph of Post-monsoon season of Ground tateter monitoring sation (CGWB) at
Mulgaon Shivalkherwad, Bicholim Taluk, North Goa District, Goa State
WATER LEVEL (MBGL)
RAINFALL (MM)
MONTH / YEAR
RF North Goa
WL PostMonsoon
Pre-Mon WL Trend

Fig. 9

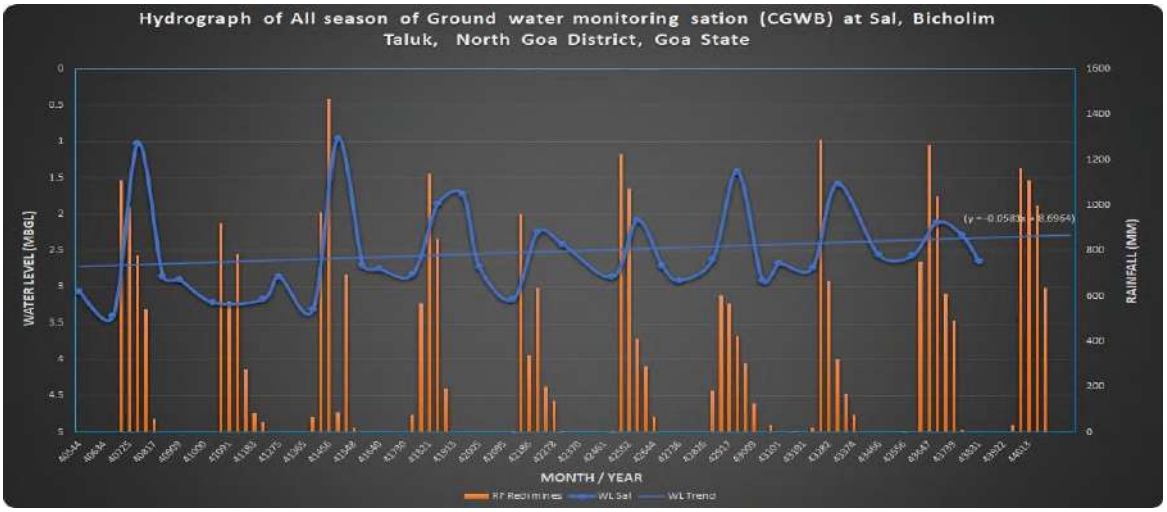

Fig. 10

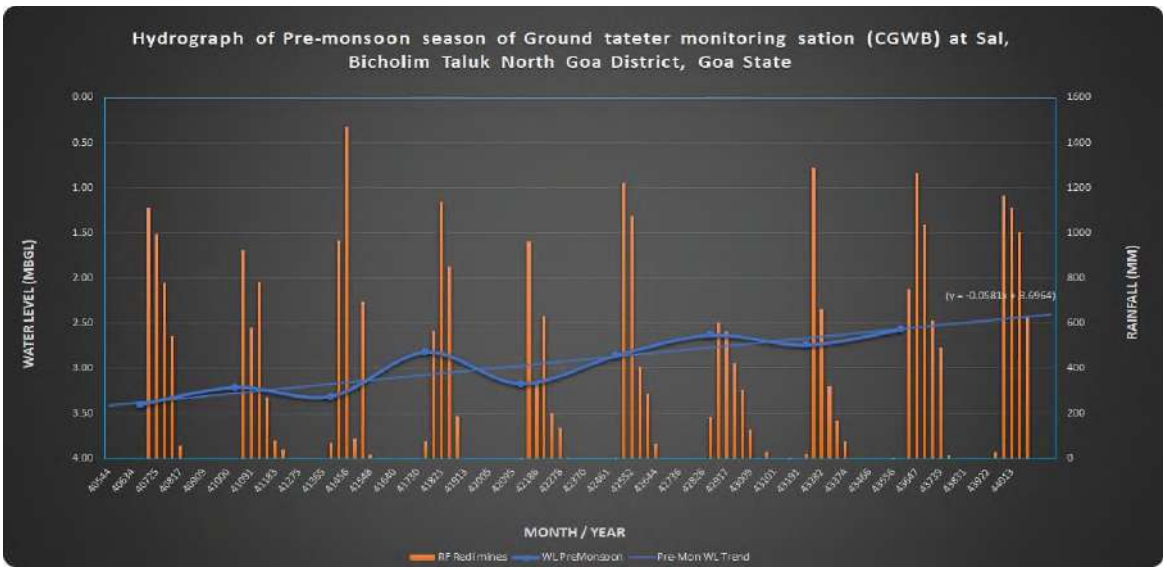

Fig. 11

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Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

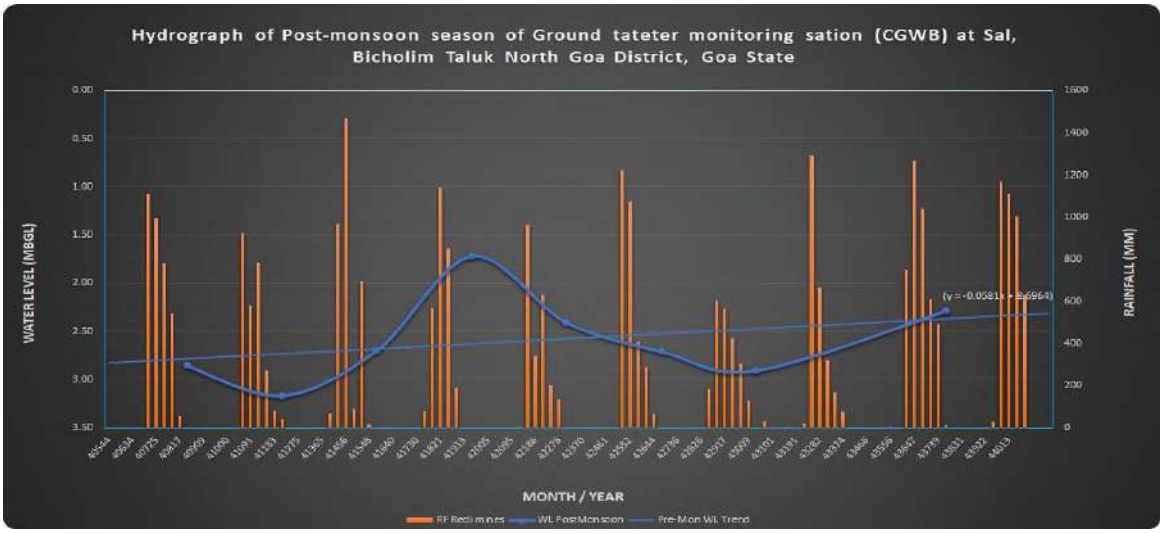

Fig. 12

5.11 Hydrograph for 5 years and Predicted Water Levels

Water level trend analysis carried out on data collected from 3 Ground water monitoring stations of Central Ground Water Board (CGWB). The data available with these observation wells is from 2011 to 2020 i.e., for 10 years and considered to be long enough to carry out trend analysis. All the Three wells are monitoring the shallow aquifers of Bicholim taluk, which are considered to extrapolate the trend analysis results to the study area. Trend analysis is calculated for pre-monsoon and post-monsoon water level using 'linear regression' method is applied using 'Microsoft Excel trend analysis tool'. Based on current water level trend, the ground water regime is also projected for after five years and presented in Table -12 and upon which, following observations are also made:

Table-12. Water level trend analysis and 5 years projected water level

Stationwise Ground water level Trend Analysis (2011- 2021) of CGWB Stations in Bicholim Taluk, North Goa district, Goa				
Station	Ground water level Trend (m/ Year)		Projected DTW after 5 years based on present trend	
	Pre-Monsoon	Post-monsoon	Pre-Monsoon	Post-monsoon
Adavapa	0.13	0.18	4.55	2.80
Mulgaon Shivalkher	-0.04	0.03	3.25	2.58
Sal	0.11	0.06	1.88	1.98

1. The Pre-monsoon Water level trend in two stations are rising, except for the station Mulgaon Shivalkherwad where it showing declining trend of 0.04 m/year. The two stations which are showing positive trend in the range of 0.13 to 0.11 m/year in Adavapal and Sal respectively.

2. During post-monsoon season all three stations are showing rising water level trend in the range of 0.03 to 0.18 m/year.

3. The declining water level trend during pre-monsoon at Mulgaon Shivalkherwad station indicates the ground water abstraction is more, which may attribute to more irrigation practices in the region.

4. The water level trend of these three wells is projected for five years based on the present water level trend and following observations are made.

a. The water level in Adavapal and Sal monitoring continue to rise in both the seasons, indicating the ground water development in non-monsoon and monsoon seasons is less and the regime in this area is undisturbed.

b. The pre-monsoon projected water level observed around five meters in Adavapal and around two meters in Sal. The declining trend station Mulgaon Shivalkherwad the projected water levels is 3.25m and which is not so alarming.

c. The post-monsoon projected water level is around two to three meters in all the stations indicating the expected *waterlogging* conditions in these areas may be after few years.

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Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

6. GROUND WATER RESOURCES

Water Resources Department, Government of Goa in association with Central Ground Water Board has been making all efforts to assess the quality of ground water estimation since last ten years. Of late, the ground water has gained more importance due to scarcity of surface water and frequent fluctuations in supply of water to the various consumers. Keeping this in view, the Government of Goa has enacted Goa Ground Water Regulation Act 2002; wherein various measures have been adapted to keep the control over extraction of ground water. At present the entire commercial establishment throughout Goa has been covered by computerized metering and billing.

The attempt has been made by the Department of Water Resources, Government of Goa and Central Ground Water Board, South Western Region, Bangalore to assess the resources of State of Goa as per the Ground Water Estimation Methodology 2015 on administrative unit basis. The Annual Extractable Ground Water Resources as on March 2020 in the state of Goa is 32169.66 HAM and stage of ground water extractions is 23.48%.

The average stage of ground water development in North Goa district is 24.26% with Bicholim taluk recording the lowest stage of development of 13.01%, while Bardez taluk recording the highest stage of development of 32.81%.

In respect of south Goa district, the average stage of development is 21.49% with Cancona taluk recording the lowest stage of development of 8%, while Marmagao taluk has recorded the highest stage of development of 40.07%. The overall stage of ground water development in the state of Goa is 23.48% and all the taluks are falling under safe category

The salient features of the groundwater resources of the state during 2020 as compared to that in 2017 is presented below: Table -12

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Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

Table -12

Particulars	As on 2017	As on 2020
Annual Extractable Ground Water Resources (HAM)	16033	32169.66
Existing Ground water Extraction for Irrigation (HAM)	2058	2425.14
Existing Ground water Extraction for domestic and Industrial water supply (HAM)	3314	5129.58
Existing Ground water Extraction for all uses (HAM)	5371	7554.75
Provision for domestic and industrial requirement supply for 2025	3669	5168.79
Net annual ground water availability for future irrigation development (HAM)	6993	24190.33
Stage of Ground water Extraction (%)	34	23.48
Category	Safe	Safe

Since the methodology is also dynamic with provision for improvement and refinements based on field data, the same has been applied in respect of Goa State. The major refinements are in the assessment of net groundwater availability, Groundwater draft and in the provision for domestic and industrial requirements as explained in the preceding chapters. The stage of development has changed from 34 to 23.48%. During 2020 assessment all the 12 taluks categorized under Safe Category.

6.1 Ground Water Fluctuations

Water Level Fluctuation (May 2019 with November 2019)

Amongst the 68 analysed, 64 wells (94%) have a recorded rise in water level and 4 wells (6%) have fall in water level during November 2019 as compared to May 2019. Rise of water level in the range 0 to 2 m is observed in 37 wells accounting for 54% of the analysed wells. Rise in water level in the range of 2 to 4 m and >4m is recorded in 15 wells (22%) and 12 wells (18%) respectively. Fall in water level of 0 to 2 m is noticed in 3 wells and fall in water level in the range of more than 4m is recorded in 1 well (accounting for 4% of wells analysed.

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The water level rise in the range of 0 to 2 m is general in the Goa State. Rise in water level of 2 to 4 m is observed in almost all the taluks and more than 4 m is observed in parts of Bardez, Ponda, Salcete, Satari and Sanguem taluks. Fall in water level in the range of 0 to 2 m is observed in parts of Perne taluk. Fall in water level in the range of more than 4 m is observed as isolated patch in Sanguem taluk.

6.2 Ground water table at Bicholim

Detailed study on ground water conditions in the watershed covering Bicholim mines by the NGRI team of scientists indicated the safe ground water conditions prevailing for mining in Bicholim area. The Mayem lake situated about 500 m from the Bicholim mine lease boundary presents pleasant surprise for tourist's eye with clean lake Water. The greenery and paddy fields along the irrigation canal adjacent to the Face 5 of the Block I Bicholim Mineral Block in the Mulgao also indicate unaffected still nature of the Bicholim mine surroundings. Sesa Mining Corporation Limited has initiated implementing overburden dump stabilization program using geotextile on Pit 2 top and in the backfilling area since 2010. The clay benches on the foot wall side have been protected from erosion through use of silpaulin sheets in the mine. Presence of phyllitic clay layers dominate the mine lease area at depths varying from 8-22m and the extension of the phyllitic clay layers is a predominant feature in the mine lease. Encapsulating nature of phyllitic clays around the iron ore formations could be noticed along the exposed mine cut sections. As the phyllitic clay layers are impervious with regard to groundwater movement, mining and dewatering operations from the lease hold areas may not show significant impact on the surrounding groundwater regime.

Good groundwater potential zones have been identified in the villages adjacent to the mine lease and in spite of the ongoing mine pit water pumping in the Bicholim mines, there is no significant change noticed in the water table configuration during the past. Most of the monsoon rainfall emerges as surface water runoff flowing into the streams and thereby replenishing the shallow water table aquifer. Hence dewatering conditions could not be found in the adjoining villages to the Bicholim mine lease.

The significant finding from the GPR investigations in the Bicholim mine lease established that there is no significant hydrologic connection between the open mine pits in the mine lease and groundwater regime in the surrounding villages.

There is no necessity of creation of water harvesting structures in the mine lease area as most of the overburden and underlying formations are found enriched with clay formations, which does not possess good infiltration characteristics. Partially backfilled mine pits with over burden material from mines are holding water throughout the year because of this reason.

6.3 Water quality

Water samples were collected from thirty abstraction structures representing the shallow aquifers (Open wells) in buffer area. The water samples collected were analyzed at Accredited Laboratory. The details of the various constituents prevailing in the area are given in **Table-8**. Water quality in general is safe and potable in all the sites and is within the maximum permissible limits of the Bureau of Indian Standards (BIS). Fluoride, Nitrate, Total dissolved solids, Chloride and Iron are within the maximum permissible limits as per Bureau of Indian Standards (BIS). pH is less than desirable limit varying from 5.73 to 6.07 at Kalapur, Bolwada and Shikar villages. pH is more than the permissible limits of 8.95 at Dabdaba village. **Electrical conductivity, Chlorides** distribution, Nitrate and Fluoride concentration in the study area is shown in **Plate-12** , **Plate-13, Plate-14 and Plate-15.**

i. **Electrical conductivity (EC)**

Distribution of Electrical Conductivity in the core and buffer area ranges from less than 250 to more than 350 micro mhos / cm are within the fresh water standards and is potable in all the sites. Electrical Conductance from distribution is shown in **Plate-12.**

ii. Chlorides

Chloride distribution in the study area and ranges from 10 ppm to 18 ppm and is within the permissible limits prescribed by BIS Standards for drinking water. Chlorides in the Project area and 10 kms radius is shown in **Plate-13.**

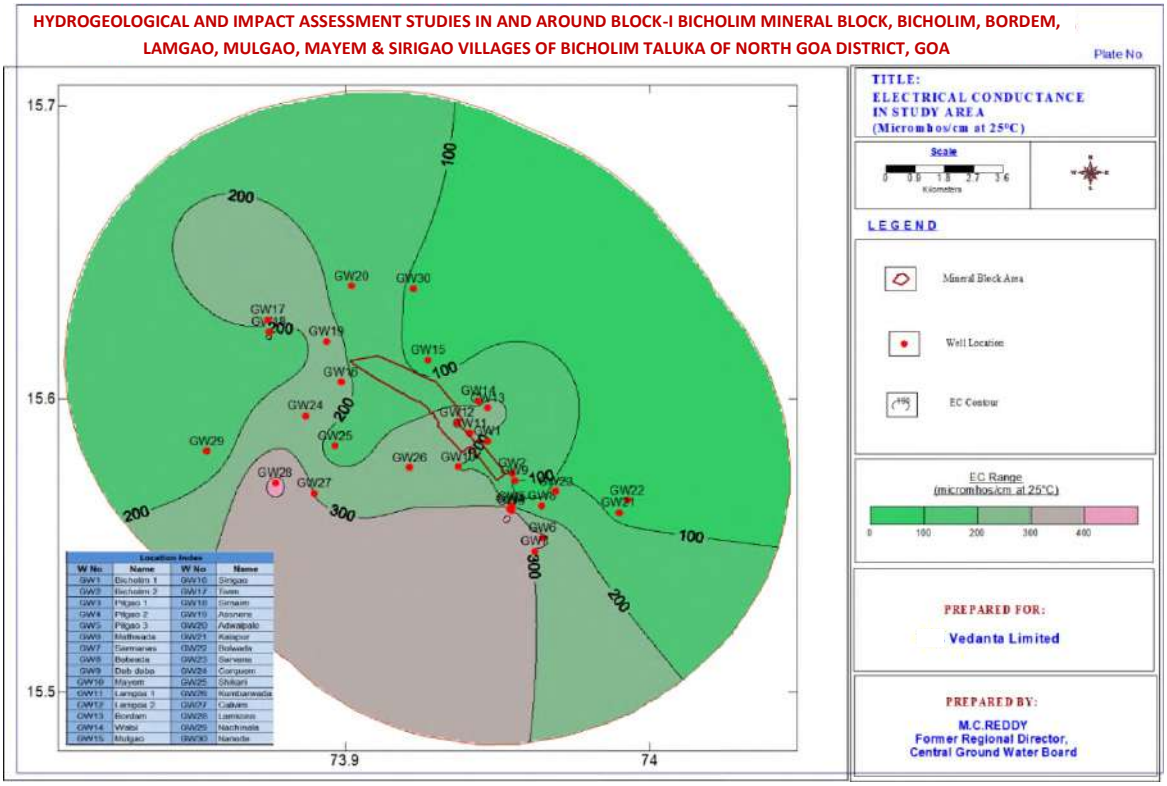

Plate-12. EC distribution in Bicholim Study area

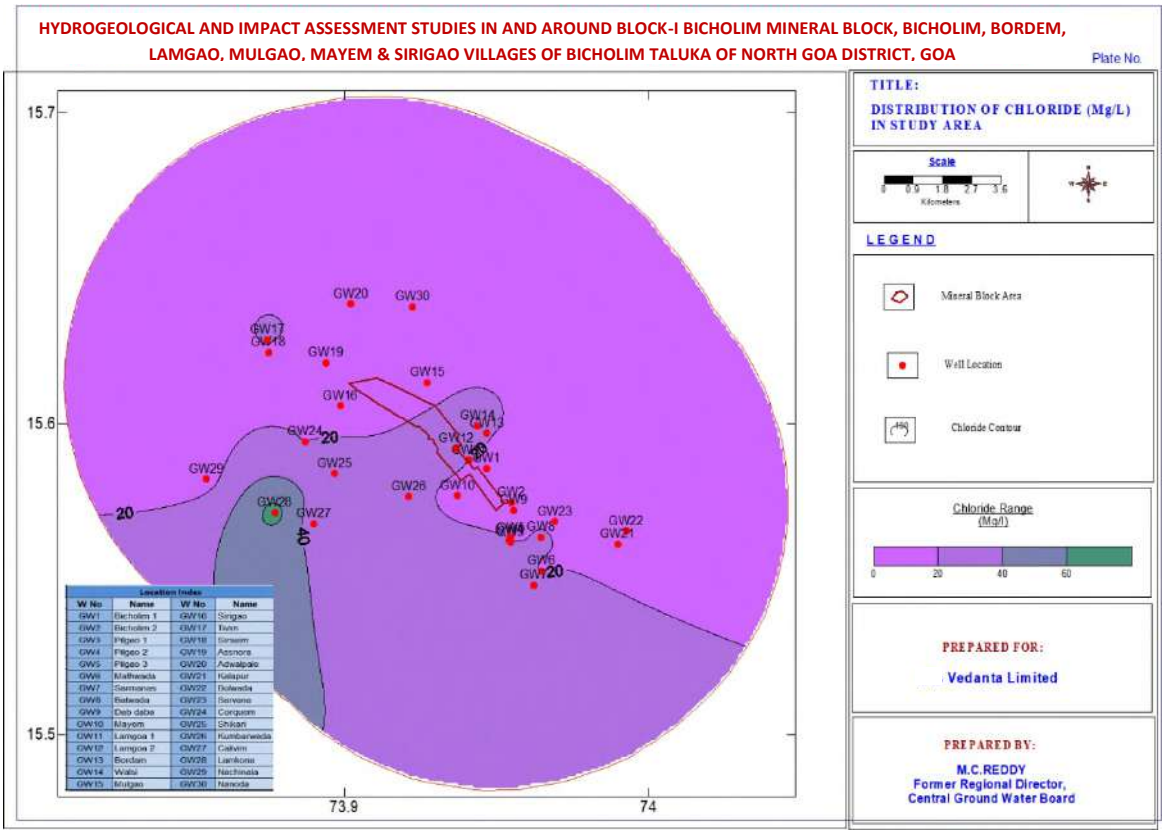

Plate-13. Chloride distribution in Bicholim Study area

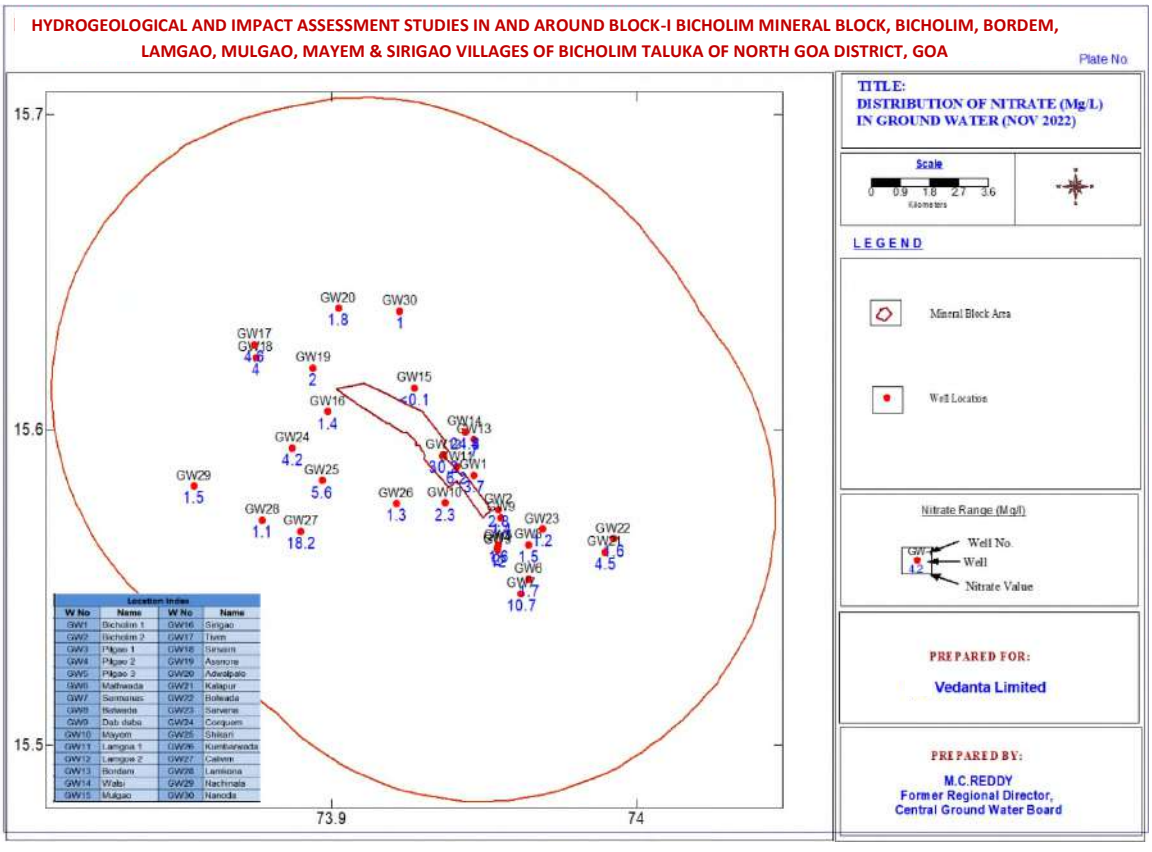

Plate-14. Nitrate concentration in Bicholim Study Area

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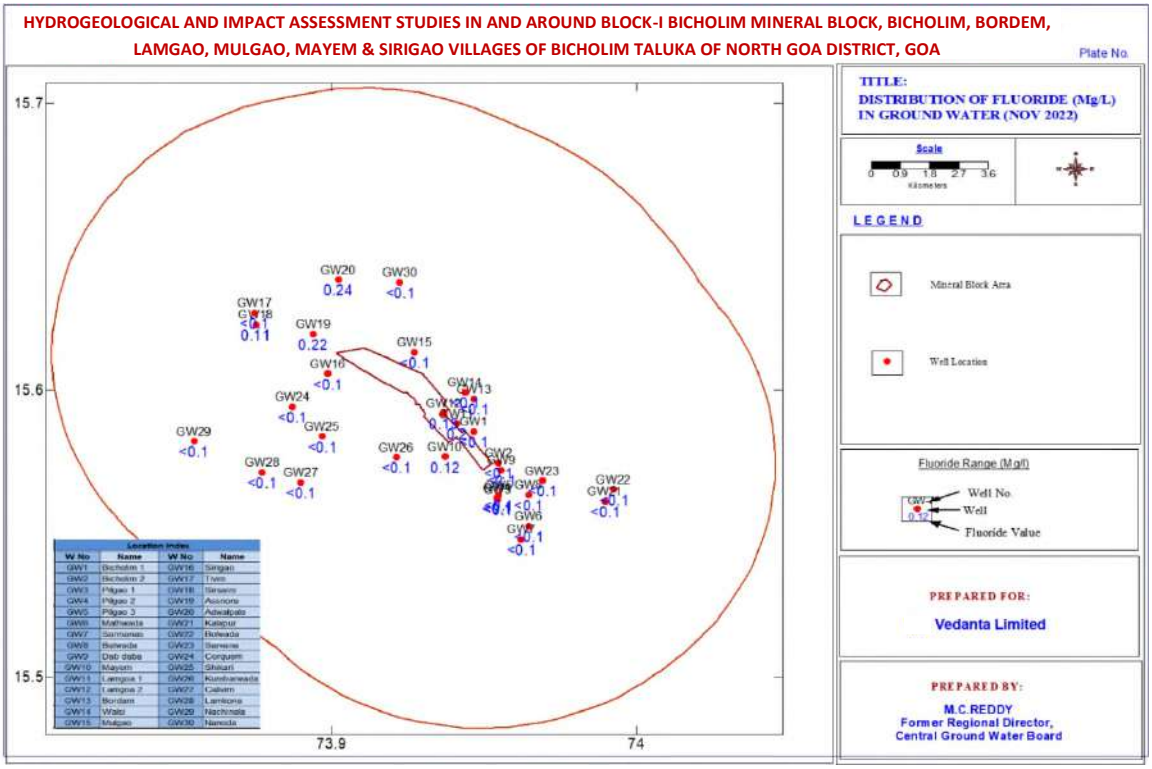

Plate-15. Fluoride concentration in Bicholim Study Area

6.4 BIS Standards

The suitability of water with reference to the BIS standards vis-à-vis desirable limits and maximum permissible limits in respect of phreatic and deep aquifers are shown in **Fig. 13 – Fig** 23

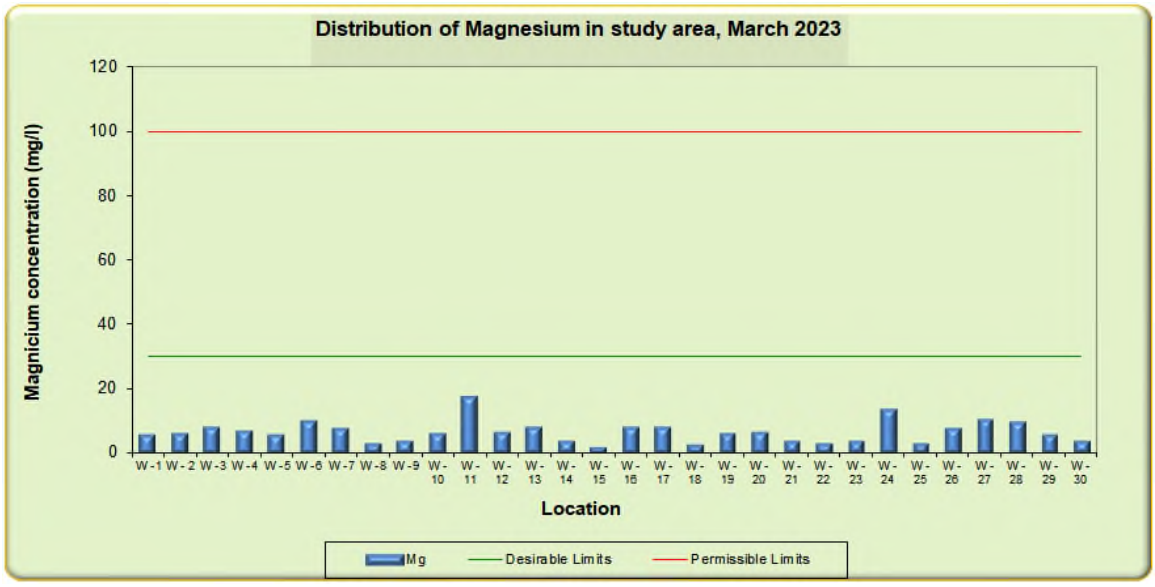

Fig.13

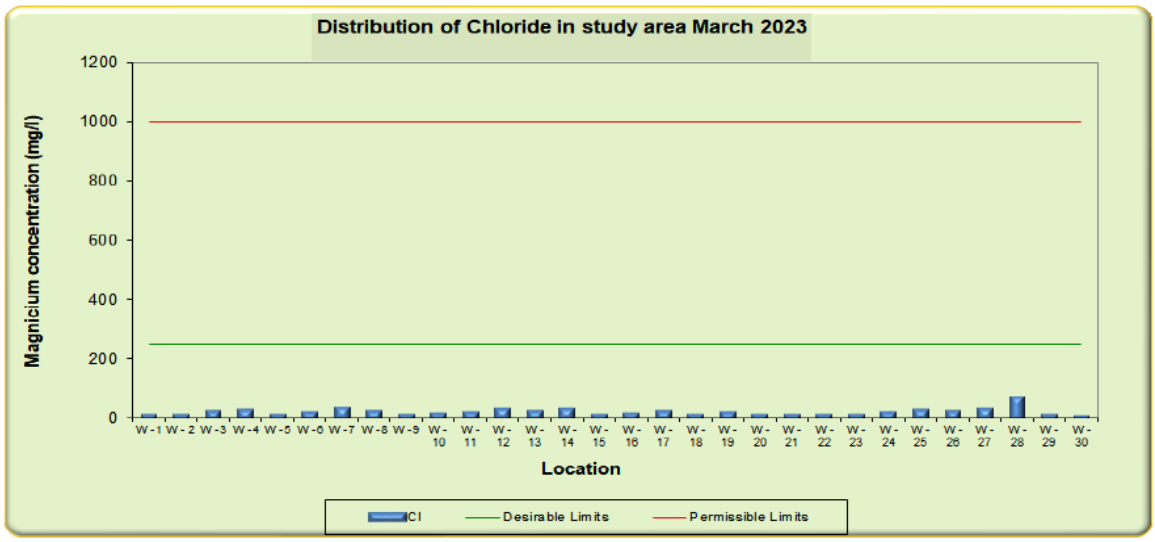

Fig.14

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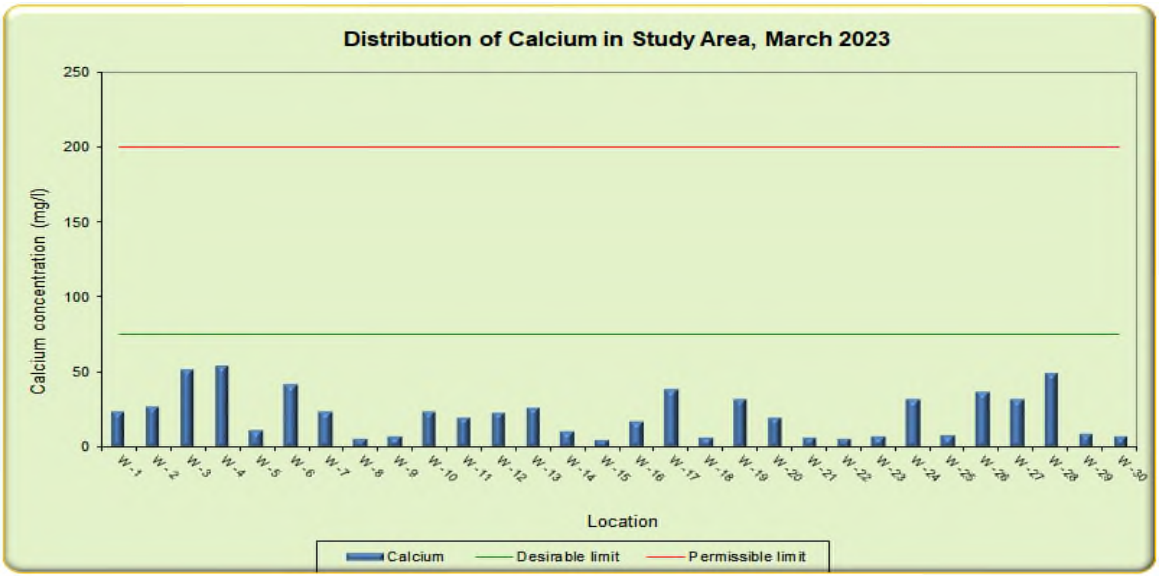

Fig.15

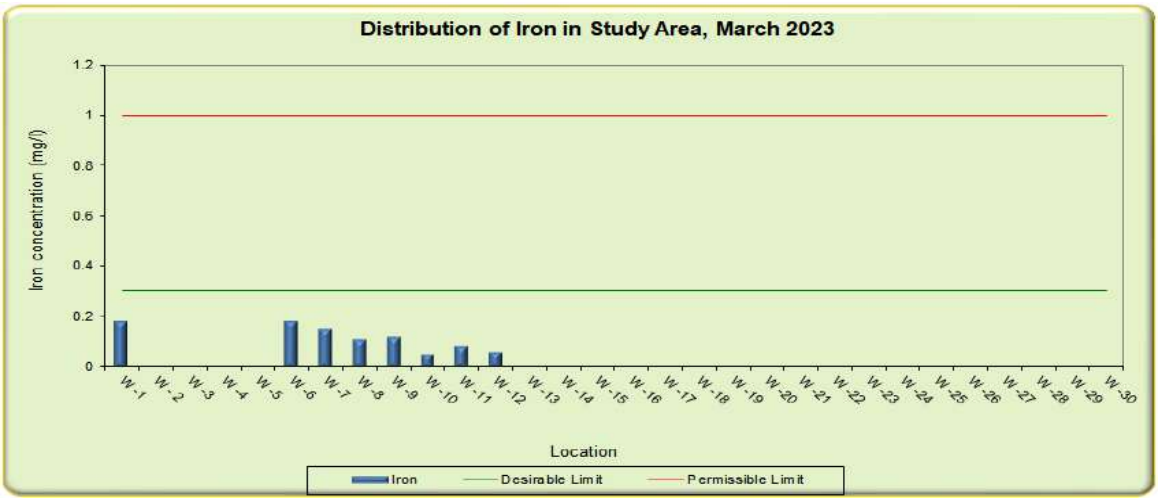

Fig.16

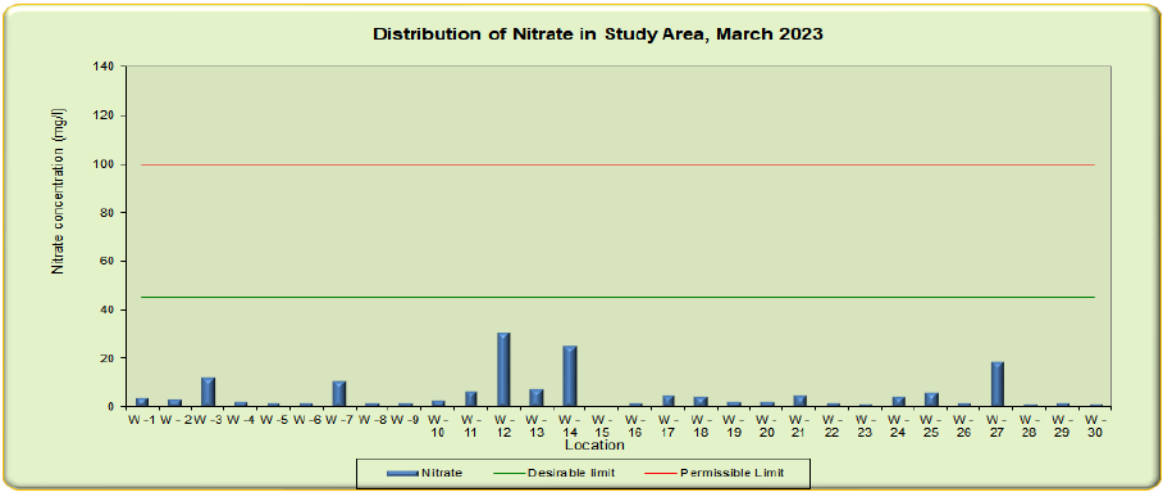

Fig.17

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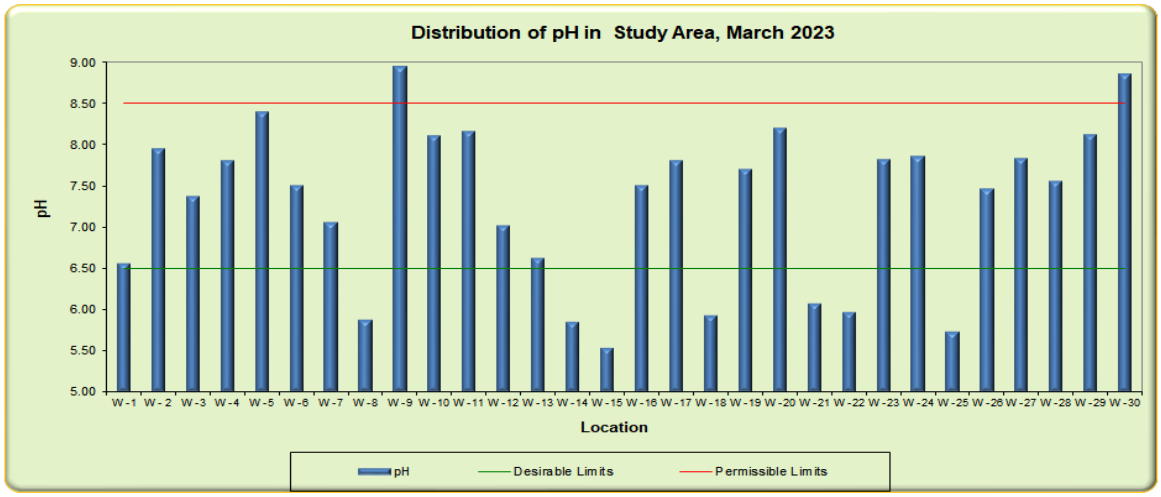

Fig.18

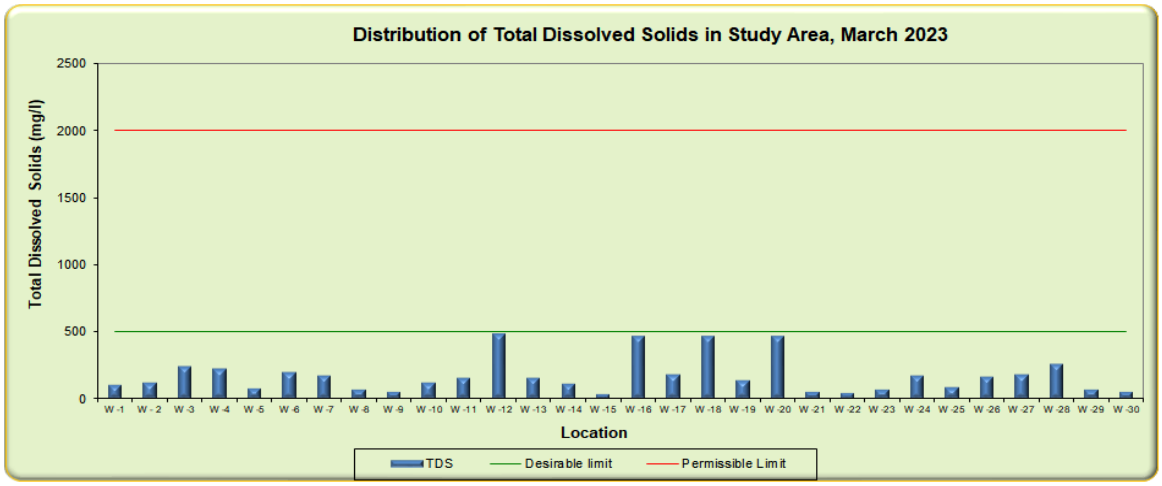

Fig.19

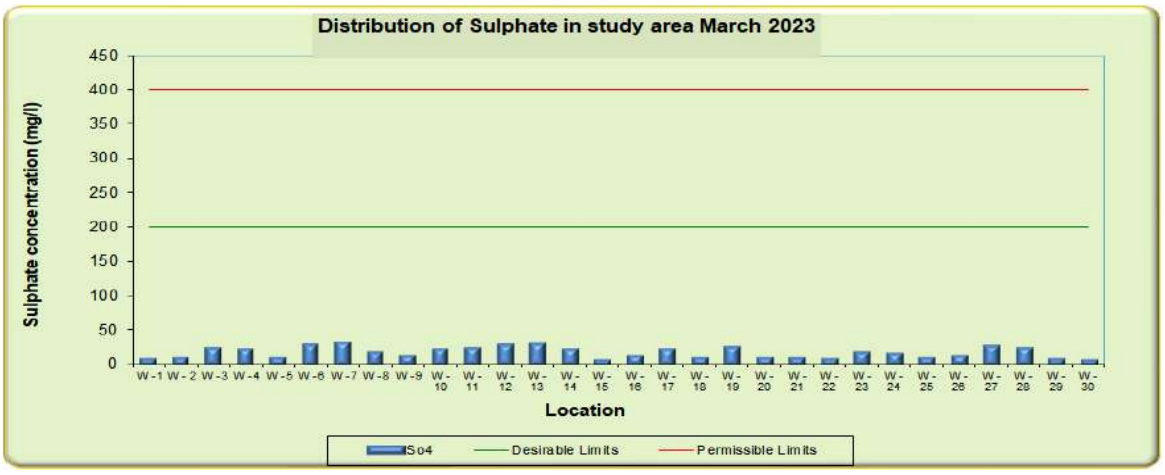

Fig.20

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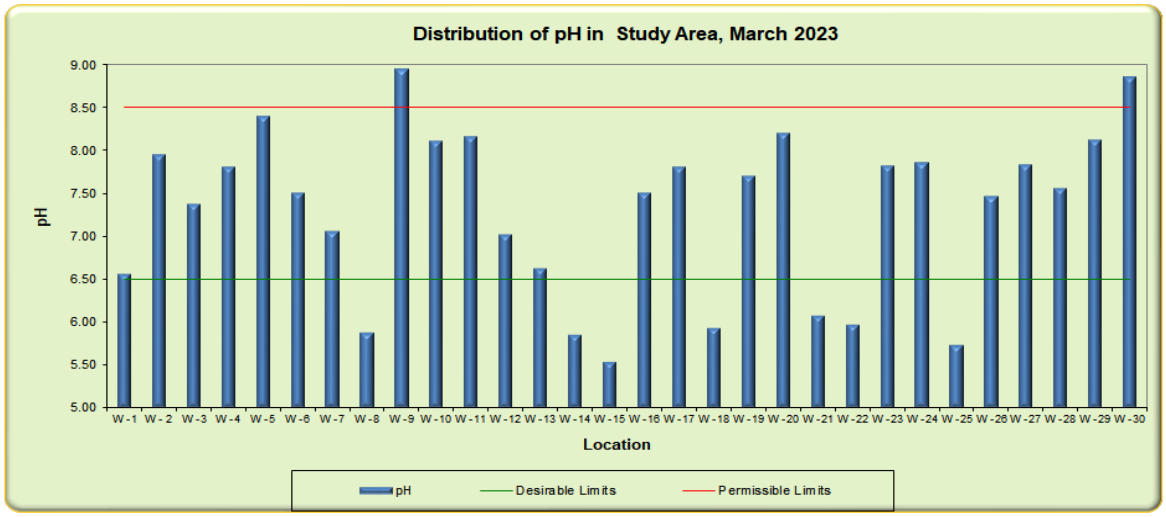

Fig.21

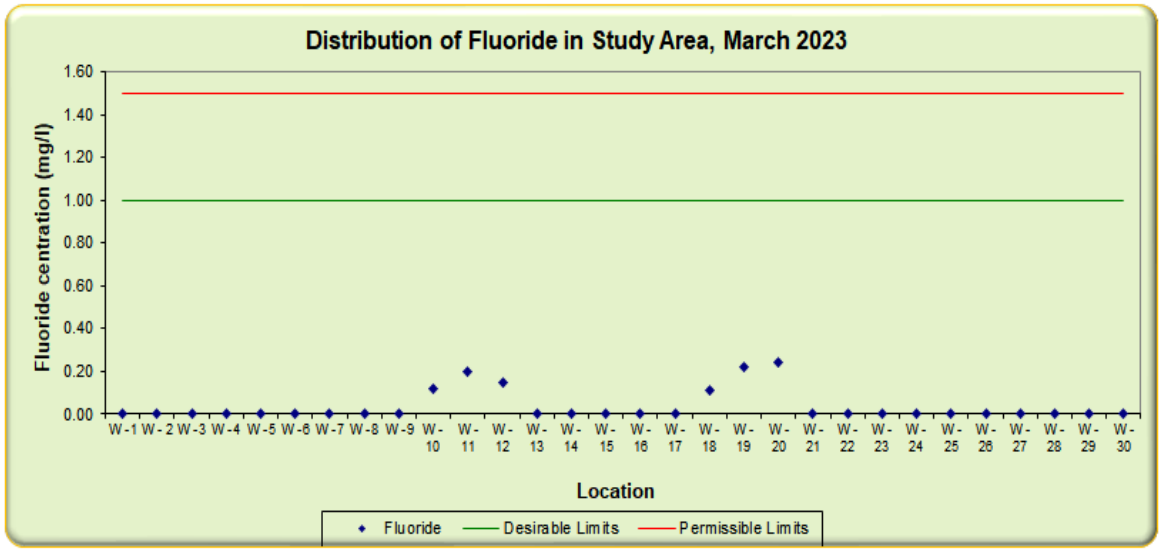

Fig.22

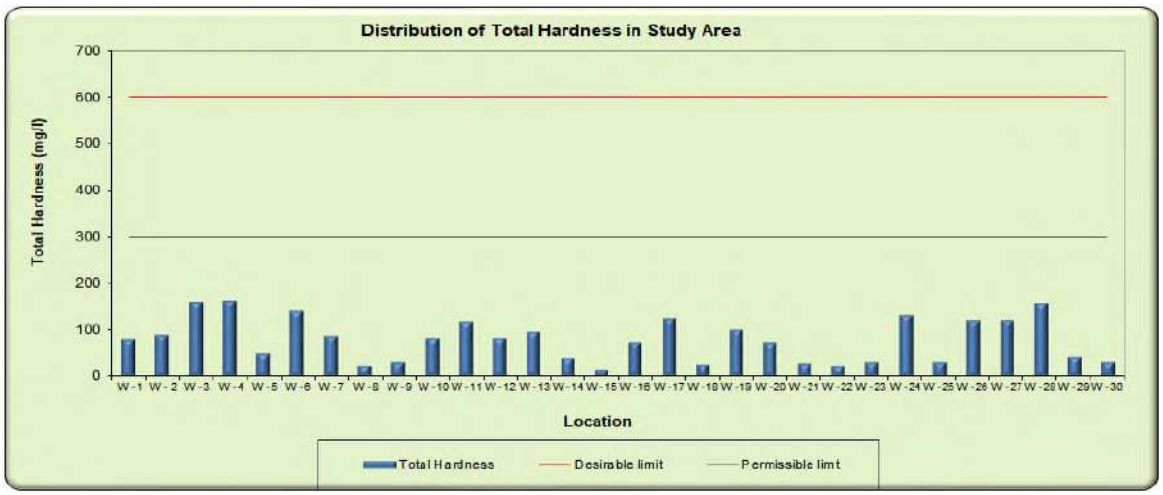

Fig.23

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6.5 Observation Wells for monitoring ground water levels in the study area

Based on the inventory of abstraction structures, established nine network of existing open wells in buffer area for monitoring water levels on monthly basis and water quality monitoring once in a year, during Pre-monsoon,(first week of May). Details of the well location are given in **Table-13.** Data is to be submitted to the Water Resources Department, Goa and Regional Director, Central Ground Water Board, South Western Region, Bangalore.

Table-13: Established Network of existing wells in and around Block-I Bicholim Mineral Block for monitoring Water Levels and Water Quality

Code No.	Locations	latitude			longitude		
		D	M	S	D	M	S
GW1	Bicholim	15	35	8	73	56	47.6
GW7	Sarmanas	15	32	52.7	73	57	43.7
GW11	Lamgao	15	35	17.6	73	56	27.3
GW17	Tivim	15	37	36.8	73	52	28.6
GW21	Karapur	15	33	40.4	73	59	22.7
GW24	Corquem	15	35	39	73	53	13.3
GW27	Calivim	15	34	3.9	73	53	23.4
GW29	Nachinola	15	34	55.8	73	51	16.9
GW30	Nanoda	15	38	15.1	73	55	20.5

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Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

6.6 Details of Piezometer proposed to be constructed for monitoring Water Levels and Water Quality.

6.6.1Piezometer

One piezometer has been proposed to be constructed up to a depth of 100 m. within the core area. The location coordinates of the Piezometer proposed is NE corner of the mine lease area. The piezometer is to be fitted with Telemetry system for monitoring water levels monthly and water quality once in a year i.e., pre-monsoon period (April / May) of ever year. The data collected is to be submitted to the Water Resources Department, Goa and Regional Director, Central Ground Water Board, South Western Region, Bangalore.

6.6.2Water Budget

The water requirement for Block-I Bicholim Mineral Block is 628 m^3 / day, intends to collect from the rainwater harvesting pits within the mine lease area through local contractors. The water requirements are essentially for various activities such as green belt, dust suppression and mine maintenance. The Lessee plans to conserve rain water through Roof Top Rainwater harvesting and Rainfall Run-off management for the water requirements of the mine and recharge to ground water body by constructing various conservation structures. As per Ground Estimation Committee (GEC) norms of year 2020, Ground Water Department, Government of Goa and Central Ground Water Board, Government of India has categorized Bicholim Iron mine Block-I area, Bicholim Taluk, N Goa is categorized as “SAFE” category in ground water development. The details of the water requirements and utilization plan are given below.

6.7 Projected Water Requirements and utilization plan

I. Water Requirement:

Groundwater: For Domestic use: 36 m^3 / day

Surface water through rainwater harvesting: 628 m^3 / day

Sr. No.	Particulars	Source	Quantity (m3/day)
1	Dust suppression, green belt and other mining activities	Rain and storm water harvested in mine pit	628
	Total		**628**

II. Rainfall Run-off Management (Proposed)

Total Mining Lease area : 4785206 sq m 478.5206

Vegetated / Green area) : 966336sq m

Open area : 3068497sq m

Dumps area : 416116 sq m

Avg. rainfall of the study area : 3,881 mm

RWH (Green area) : 56255.25 m^3 / annum

RWH (Open area & Dumps) : 270475 m^3 / annum

Total available water (A) : 895.15 m^3/day

III. Use of Water

i. Domestic Use : 36 m^3 / day

ii. Greenbelt development : 20 m^3 / day

iii. Other (wheel washing) : 8 m^3 / day

iv. Dust Suppression : 600 m^3 / day

Total (B) : 664**m^3 / day**

IV. Recharge to groundwater (A-B) : 231.15 m^3 / day

PREPARED BY: M. C. Reddy, Former Regional Director, Central Ground Water Board,
Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

V. Total Recharge to Ground Water

i. Return flow from applied greenbelt : 10 m ^{3} / day

ii. Return flow from dust suppression : 300 m ^{3} / day

iii. Water available for recharge to ground water body : 310 m ^{3} / day

Total: : 541.15 m^3/day

VI. Proposed to withdraw ground water **:** 36 m ^{3} / day

There are three existing bore wells with in ML block for abstraction of ground water over an extent of 36 m ^{3} / day for domestic use for staff. Rainwater harvesting and recharge to the ground water body through conservation structures like Check dams, Gulley plugs, Toe wall, Garland drains, Trenches, and Percolation tanks is proposed for the area is a continuous process. Every year the conservation structures will be well maintained. Withdrawal of accumulated rainwater in the mine pit of Bicholim Block-I Iron Ore Mine, situated at Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao Villages of Bicholim Taluka of North Goa District, Goa will not create any impact on Ground Water body in the core and buffer area. .

7. DE-WATERING

7.1 Dewatering Project Details

Accumulated rainwater in the mine pit will be used for requirement of mine for dust suppression, greenbelt and Wheel washing systems.

7.1. Approved Dewatering Plan

Not Applicable as the area is not falling in De-watering zone

7.2. Proposed usage of pumped water in case of Dewatering Project

Not applicable as the area is not falling in De-watering zone

8. COMPREHENSIVE ASSESSMENT OF THE IMPACT ON GROUND WATER, RISKS, AND MANAGEMENT STRATEGY.

Impact on ground water sources

The ground water extraction in the Mining Lease area is 36 KLD for domestic purpose and hence no adverse impact is created due to the mining activities. The project area and Bicholim Taluk, North Goa District, Goa is categorised as SAFE in Ground Water extraction point of view. The stage of Ground Water Development is 23.48% in the year 2020.

8.1.1. Impact on Ground Water

The ground water extraction in the project area is 36 KLD for domestic purpose and hence no adverse impact is created due to the mining activities in the core area as well as in the surrounding 10 kms radius buffer area. The Lessee proposes to actively implement rainwater harvesting activities to recharge the ground water body through the percolation tanks and other conservation structures. There are no major rivers/streams in the project site. No adverse impact on the groundwater will be observed due to drawl of harvested rainwater from the Mine pit in the core area. The core and buffer area of Block-I Bicholim Mineral Block is categorized as **SAFE** in respect of ground water development and management. The water Quality Analysis from the accredited laboratory has shown all the parameters are well within the maximum permissible limits of the BIS for drinking water.

8.1.2. Likely Impacts – because of any past Ground water abstraction

The ground water extraction in the project area is negligible and hence no adverse impact is likely to be created. The proponent monitors established observation wells for water level and water quality. The data will be regularly sent to the Goa Ground Water Department and Central Ground Water Board, Bangalore. The proponent undertakes to take immediate remedial measures if any adverse effects are noticed

8.2 Dependency on source of water

The Buffer area consists of many lower order streams & nallahs. Villages located in the buffer area are dependent on availability of surface water through tanks located locally for the household chores and Ground water from community open wells or rural water supply schemes. The agriculture is dependent on monsoon for the seasonal crops like Rice & etc.

8.3 Ground water users

Ground water in the buffer area is mainly used for domestic purpose and to a lesser extent for irrigation through bore wells.

PREPARED BY: M. C. Reddy, Former Regional Director, Central Ground Water Board,
Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

9. PROPOSED MEASURES FOR DISPOSAL OF WASTE WATER BY INDUSTRIES DRAWING SALINE WATER

The Mining project is not extracting any saline water and hence no measures are in practice.

PREPARED BY: M. C. Reddy, Former Regional Director, Central Ground Water Board,
Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

10. MEASURES TO BE ADOPTED FOR WATER CONSERVATION

Existing Ground Water Recharge Measures

The proposed project is planning to implement various conservation measures to recharge to ground water body and to meet the water requirement The proposal to implement rainwater conservation in Block-I Bicholim Mineral Block area is as follows:

1. The surface rainwater within mining lease (broken up area) is proposed to be collected in mining pit through a network of trenches. The collected water in the mine pit will act as water harvesting measure thereby recharging the groundwater table through percolation.

2. The overburden dumps will be terraced and the rain water shall be channelized through garland drains and trenches into the mine pit.

LAYING OF PIPELINE ERW pipes are installed on the benches for channelization of water from the dump to the settling ponds

BOULDERWALL The laterite boulder wall is constructed at the toe of the dump to control erosion in monsoon.

PREPARED BY: M. C. Reddy, Former Regional Director, Central Ground Water Board,
Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

SETTLING POND

Water in monsoon is channelized into the settling ponds. In our Bicholim iron ore mine we have total 32 settling ponds including mining pit which acts as settling pond in monsoon. These settling 13 ponds are desilted every year and capacity of each settling pond is surveyed prior to monsoon.

OVERFLOW ARRANGEMENTS TO SETTLING PONDS

Water is allowed to settle in the settling pond and only clear overflow then enters next settling pond through overflow arrangements. Proper overflow arrangements are provided to all the settling ponds

PREPARED BY: M. C. Reddy, Former Regional Director, Central Ground Water Board,
Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

FILTER-BEDS

The series of filter-beds are provided to the settling pond and drainage to further filter out in case of any turbidity

SURFACE WATER QUALITY/MINES DISCHARGE POINT Water is properly treated within mining lease area and only clear water is discharged out

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Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

Channelization of water into pit

Channelization of water using erw pipes

Sedimentation pits are made and are desilted before monsoon every year

PREPARED BY: M. C. Reddy, Former Regional Director, Central Ground Water Board,
Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

- Truck speed is controlled and administered by Director of Mines & Geology.
- Wheel wash system is installed at all mine exits to reduce the dust emission due to truck movement.
- Road Sweeping machines are used to collect the dust from the transport roads which further control the emissions..
- After transportation hours manual washing of junctions is practiced.
- Erection of green fencing at habitation areas of transport route.

Road tarring

Green fencing

PREPARED BY: M. C. Reddy, Former Regional Director, Central Ground Water Board,
Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

Road Washing

Wheel wash

PREPARED BY: M. C. Reddy, Former Regional Director, Central Ground Water Board,
Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

11. PROPOSED GROUND WATER RECHARGING MEASURES / ARTIFICIAL RECHARGE OF GROUND WATER.

Rainwater harvesting in the Mining Lease area is one of the main conservations of water for direct use / recharge to the ground water body. The structures planned for the project are given below:

A. Recharge Pits

To strengthen the recharge to ground water body, the best practiced conservation method is construction a recharge pits. The surface runoff water will be diverted in the mining pit and settling ponds through trenches and garland drains. Synoptic view of recharge pit is shown below.

B. Recharge Trenches

Based on the survey 2 m contour data for the mine lease area land, separation of steep slope areas will be demarcated to locate the sites for Recharge trench sites. Initially about 5 trenches are planned to construct in the first phase. Recharge trenches are simple and effective ground water recharge structures over a wide area. These trenches may be constructed across the slope of the ground surface. These trenches help in slowing down and retaining the sheet-flow of rain water and enhance recharge. The trenches can be continuous or discontinuous. Recharge trenches of dimensions 20m (L) x 1m (W) x 1m (D) will be dug and filled with 40 mm gravel, 20mm gravel and coarse sand so as to arrest the flow of run-off rainwater and capture for recharge to the ground water body. The design is as follows:

PREPARED BY: M. C. Reddy, Former Regional Director, Central Ground Water Board,
Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

Synoptic view of Recharge Trenches

These trenches are effective structures

- in conserving sheet-flow of rain water falling in the project premises
- in enhancing the process of recharging ground water
- conserving soil profile
- avoid formation of new gullies and protect the existing ground surface profile

It is an effective long term environment protective measure and simultaneously enhancing the natural resource. The entire stretch of the trenches become a wide spatial rechargezone.

PREPARED BY: M. C. Reddy, Former Regional Director, Central Ground Water Board,
Accredited for NABET for Geology & Hydrogeology and CGWA. mcreddycgwb@yahoo.co.in

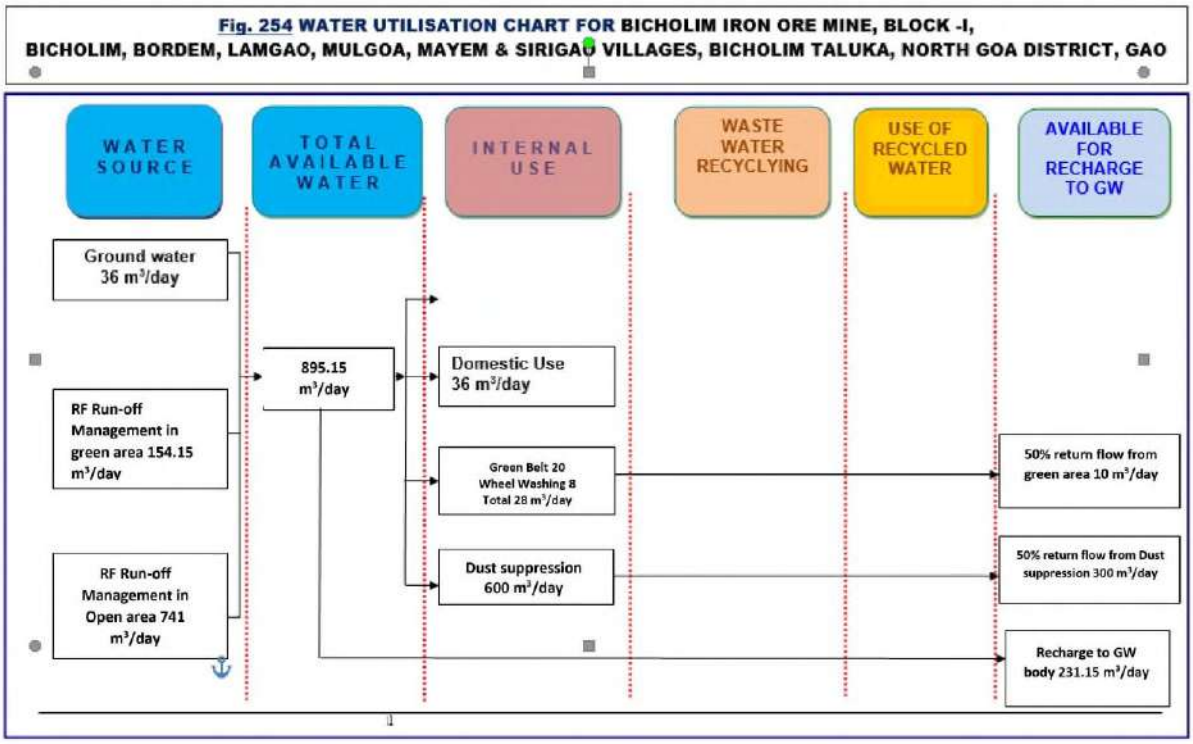

Fig.24 Flow Chart showing water Utilization

12 CONCLUSION

1. The core and buffer area of the Mining Lease is declared as SAFE in respect of ground water development and management.
2. The groundwater extraction in the Mining Lease is negligible and hence there is no adverse impact is created due to mining & allied activities in the surrounding 10 Km radius of buffer area
3. No adverse impact is observed on the environment because of any past groundwater abstraction in the area.
4. The iron ore strata seen between impervious hanging wall and foot wall strata containing impervious layer. Therefore there will not be any chance of seepage of ground water into the mining workings.
5. Block-I Bicholim Mineral Block is situated on a hilly region at an elevation of about 169.14m amsl and does not have any surface water bodies. It was observed from the studies carried out on the open wells that water levels in Phreatic aquifer is mostly shallow where the ground water abstraction structures are located at an elevation of 15m to 125m (a msl). Borewells are located at an average elevation of 35 m amsl having drilling depths of 30 m (bgl) indicate the presence of shallow aquifers in the buffer area.
6. Water quality tested for various parameters in the monitored open wells were found to be within the permissible limits prescribed by the Bureau of Indian Standards and thereby considered safe and potable.

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2. S Goa District at a glance, Government of Maharashtra
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4. Piezometer Data from Resources of Goa
5. Directorate of Economic and Statistics, Planning Program Monitoring and Statistics Department
6. National Hydrographs from Central Ground Water Board.
7. Central Ground Water Board, "Water Year"
8. Karanth, K.R., Ground Water Assessment, Development and Management
9. Central Ground Water Board, 1994 "Manual on Artificial Recharge of Ground Water".
10. Groundwater Conditions in the watershed covering Bicholim Mines, Sesa Mining Corporation Limited, Bicholim Taluka, North Goa District, Goa V.V.S. Gurunadha Rao etc. all

LOCATION MAP

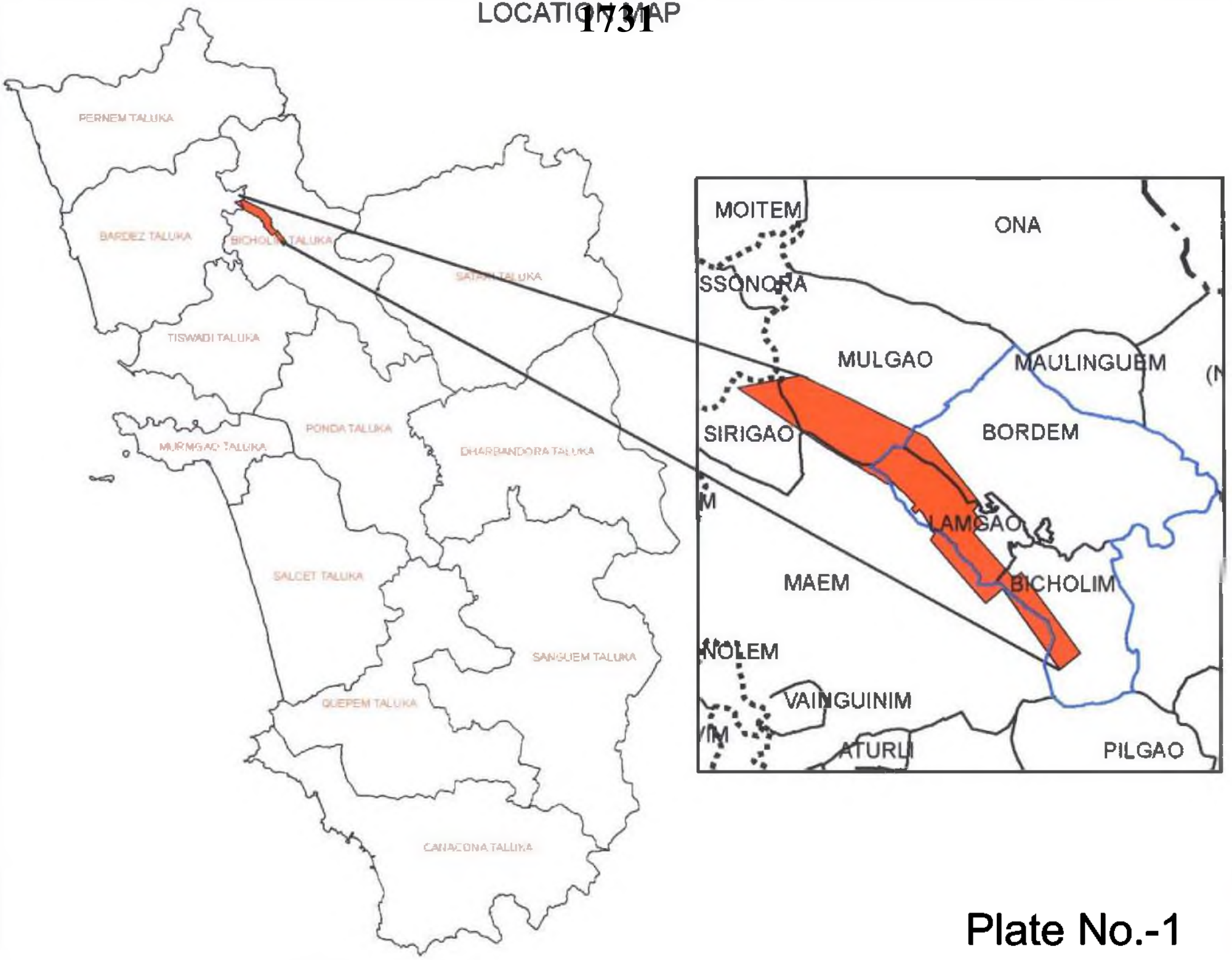
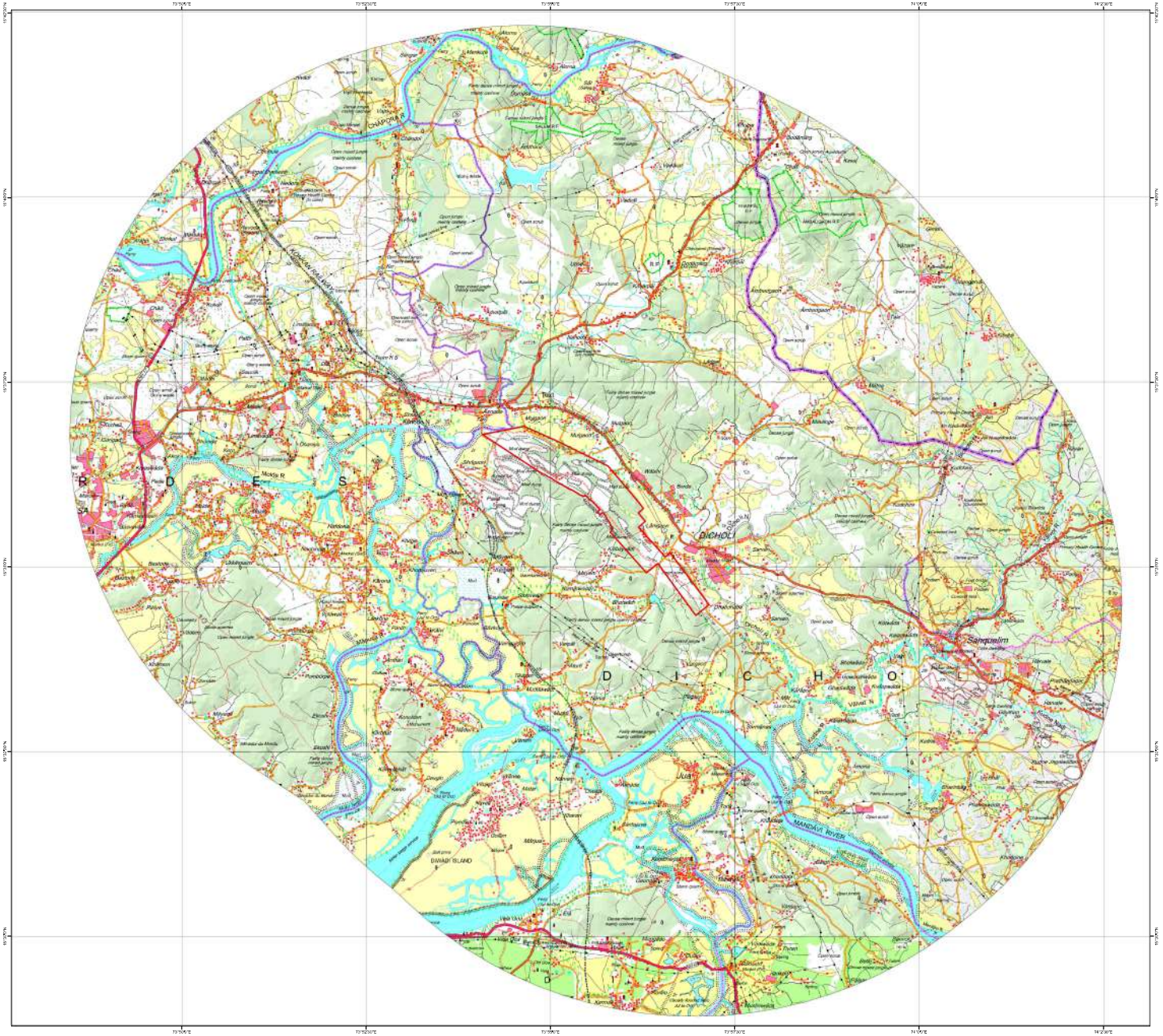


Plate No.-1

Key Plan



N
W E
S

0 2.5 5 Km

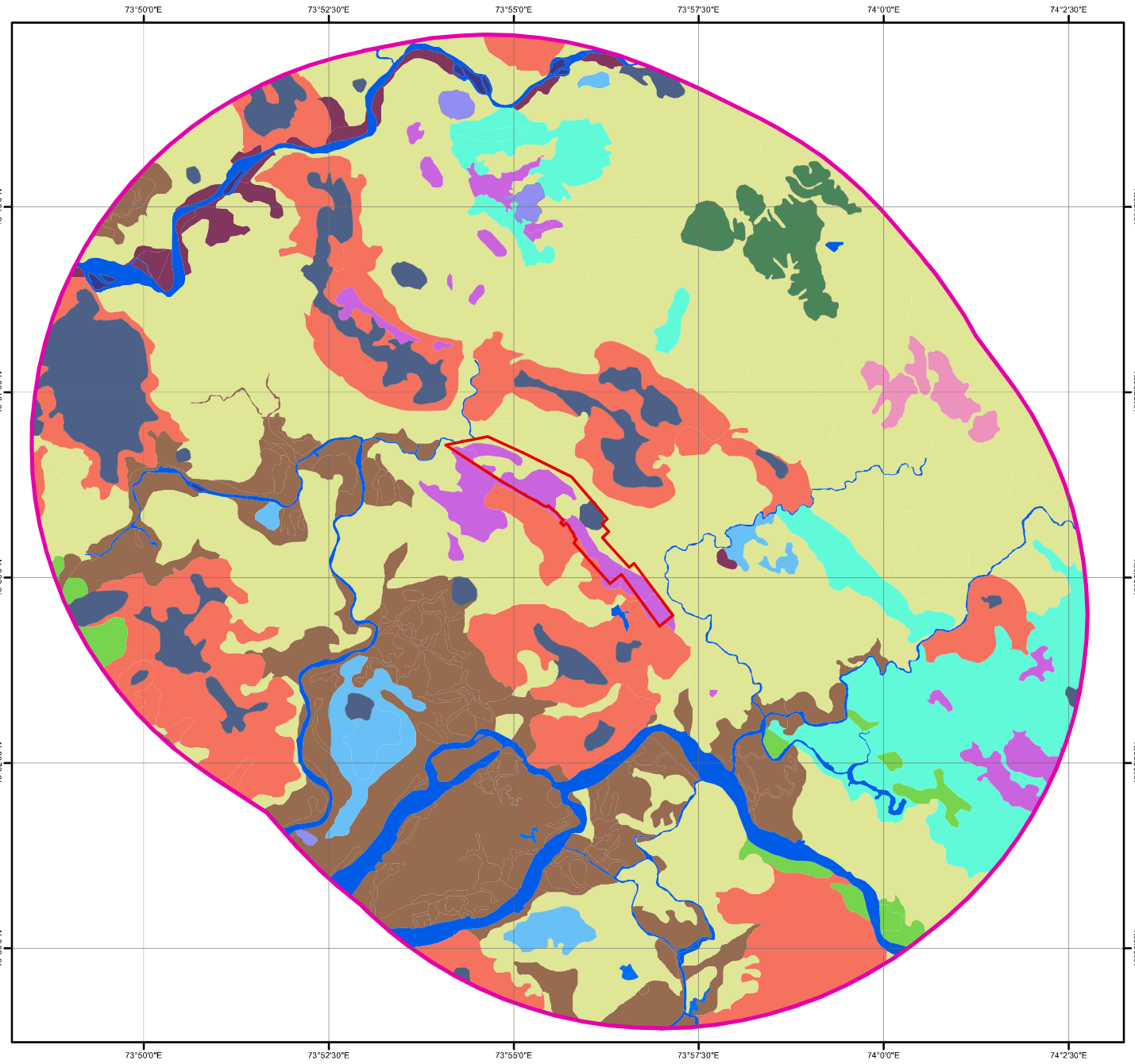
Legend

- Mining Lease Area
- 10km bufferzone

Plate. - 2

BLOCK-I BICHOLIM MINERAL BLOCK Vedanta Limited Bicholim, Lamgao, Bordem, MulgaoMayem & Sirigao Villages, Bicholim Taluka District : North Goa State :Goa	
TITLE	key Plan
SCALE	1:50,000
Topo Sheet No	NEW : D43B14, D43B15,D43C2 & D43C3
	Old : 48E/14, 48E/15, 48I/2 & 48I/3

GEOMORPHOLOGY MAP



Scale 1:100,000

0 5 10 Km

Legend

- Mining Lease Area
- 10km bufferzone

GEOMORPHOLOGY

- Anthropogenic Terrain
- Older Coastal Plain
- Younger Coastal Plain
- Low Dissected Hills and Valleys
- Moderately Dissected Hills and Valleys
- Pediment-Pediplain Complex
- Active Flood plain
- Older Flood plain
- Low Dissected Hills and Valleys
- Low Dissected Lower Plateau
- Moderately Dissected Hills and Valleys
- Moderately Dissected Lower Plateau
- Moderately Dissected Upper Plateau
- Water Bodies

Plate No.- 5

BLOCK-I BICHOLIM MINERAL BLOCK

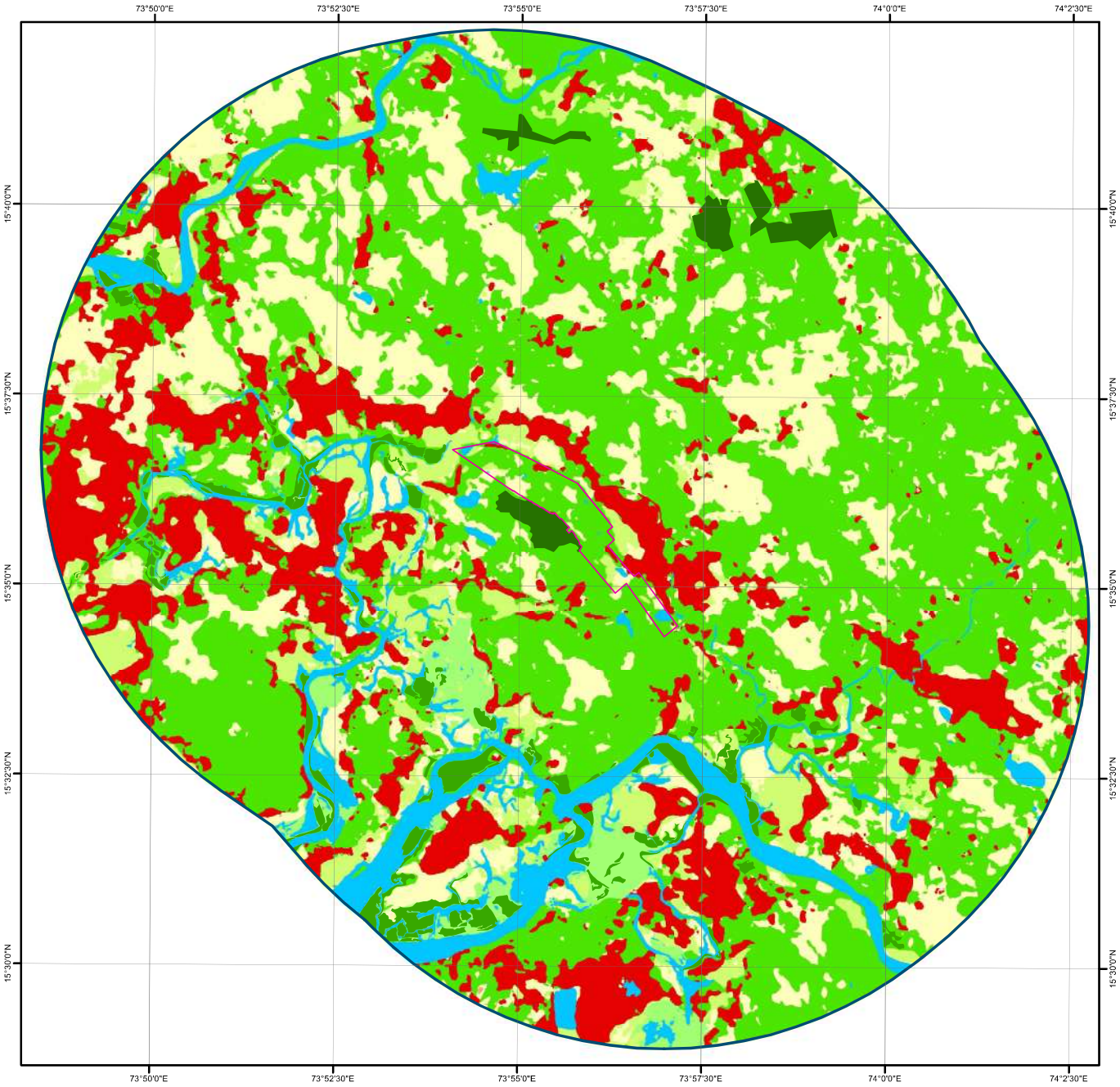
Vedanta Limited

BICHOLIM,LAMGAO,BORDEM, MAYEM ,MULGAO & SIRIGAO

DISTRICT: NORTH GOA STATE : GOA

TITLE	GEOMORPHOLOGY
SCALE	1:1,00,000

Land Use and Land Cover



Scale 1:100,000

0 2.5 5 Km

Legend

- Mining Lease Area
- 10km bufferzone
- Forest Area
- mangroves
- Water
- Open Mixed Jungle/Cashew Plantation
- Flooded Vegetation
- Agricultural land
- Settlements
- Baren ground
- Grass land

Sl. no	Particulars	Area_Ha	%
1	Forest Area	429.5	0.92
2	Mangroves	991.0	2.12
3	Water Bodies	3092.1	6.61
4	Open mixed forest/Cashew Plantation	21017.0	44.91
5	Flooded Vegetation	1328.0	2.84
6	Agricultural Land	2917.5	6.23
7	Settlements	7210.2	15.41
8	Scrub Land	9811.9	20.97
	Total Area	46797	100.00

BLOCK-I BICHOLIM MINERAL BLOCK

Vedanta Limited

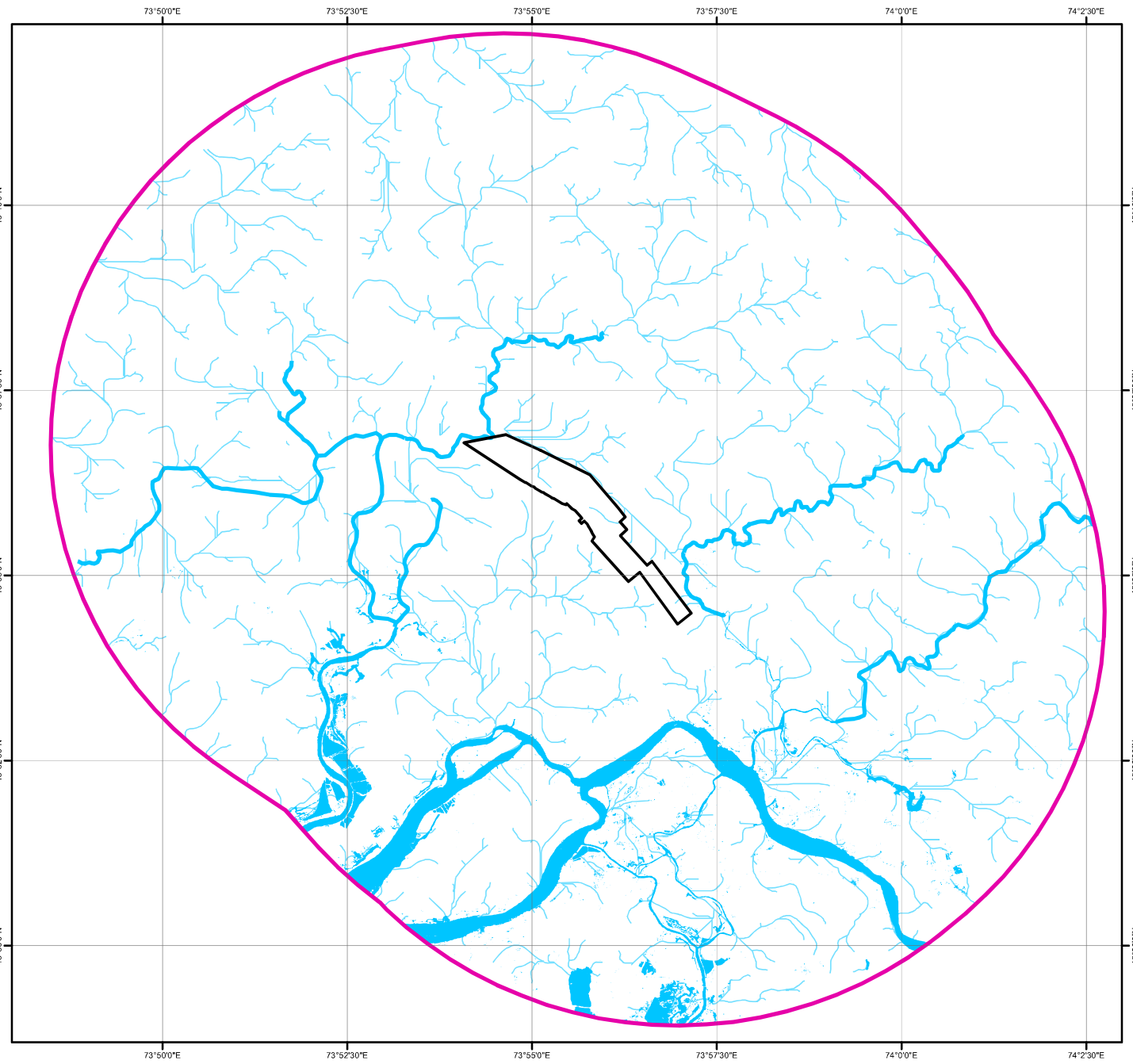
BICHOLIM,LAMGAO,BORDEM, MAYEM ,MULGAO & SIRIGAO

DISTRICT: NORTH GOA STATE : GOA

TITLE	Land Use Land Cover
SCALE	1:1,00,000

Plate No.-6

Drainage Map



Scale 1:100,000

0 5 10 Km

Legend

- Mining Lease Area
- 10km bufferzone
- River
- Drainage Pattern

Plate No.-7

BLOCK-I BICHOLIM MINERAL BLOCK Vedanta Limited BICHOLIM,LAMGAO,BORDEM, MAYEM ,MULGAO & SIRIGAO DISTRICT: NORTH GOA STATE : GOA	
TITLE	Drianage Map
SCALE	1:1,00,000

Geoloical Formation

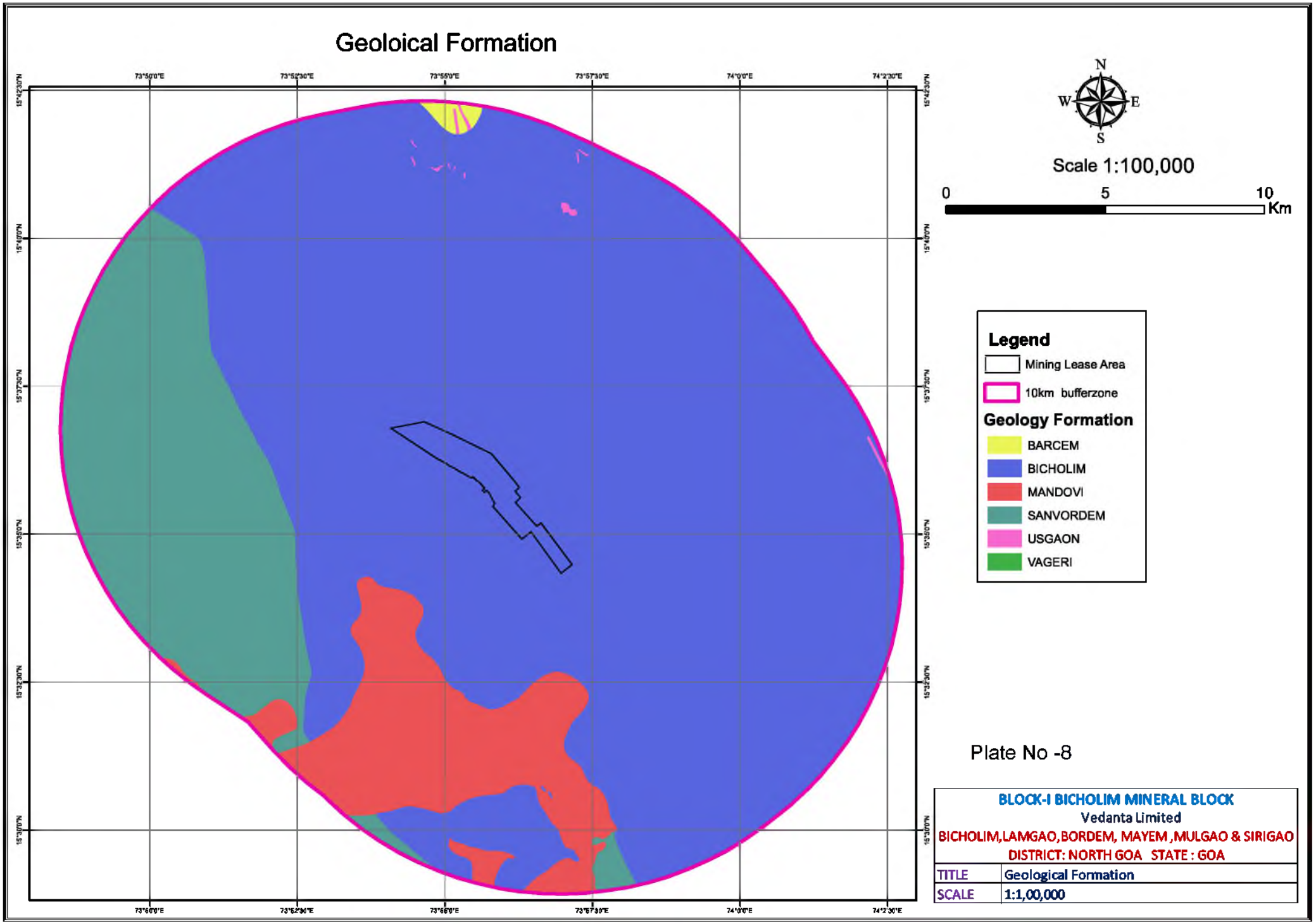
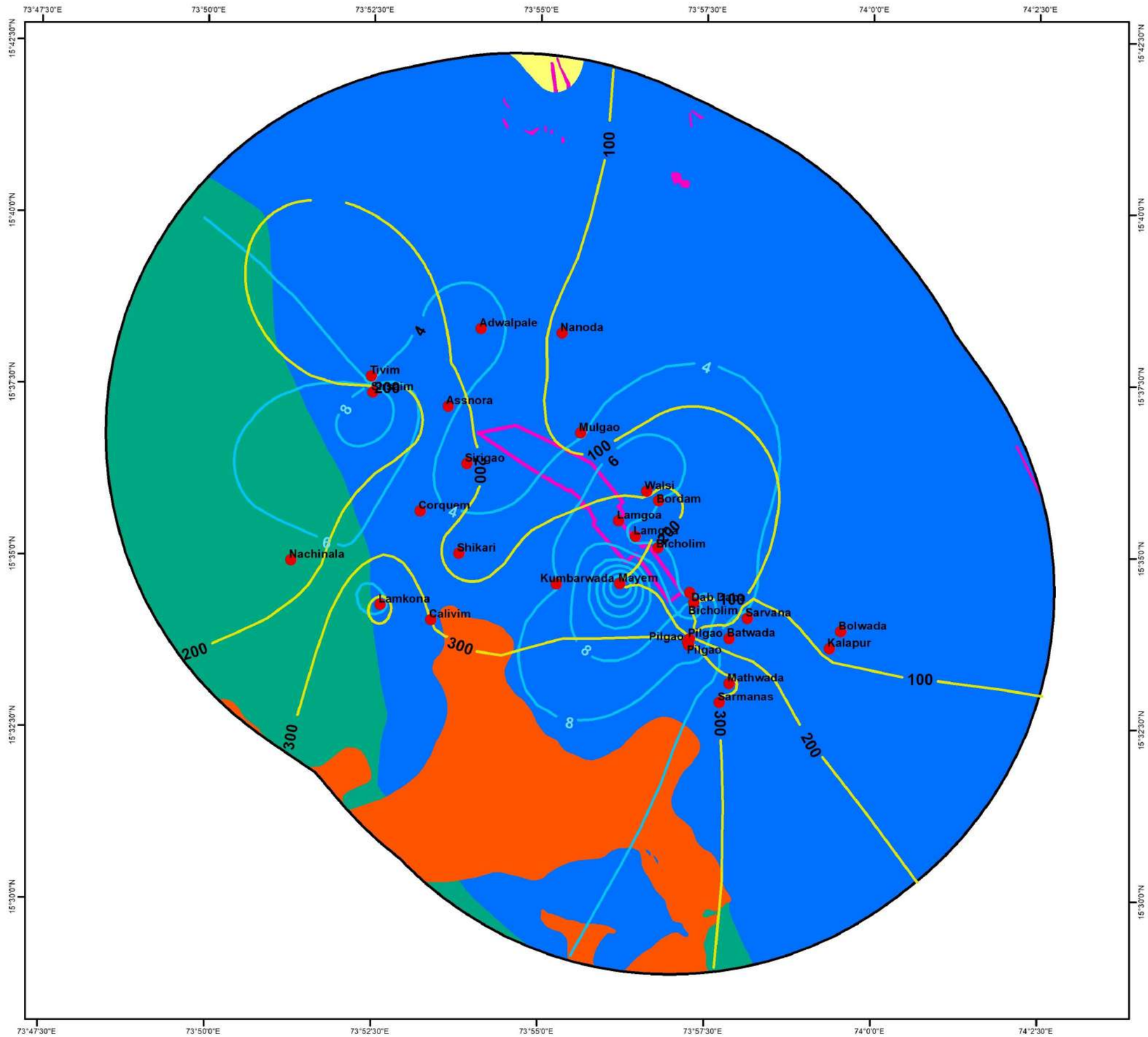


Plate No -8

BLOCK-I BICHOLIM MINERAL BLOCK Vedanta Limited BICHOLIM,LAMGAO,BORDEM, MAYEM ,MULGAO & SIRIGAO DISTRICT: NORTH GOA STATE : GOA	
TITLE	Geological Formation
SCALE	1:1,00,000

HYDROGEOLOGICAL AND IMPACT ASSESSMENT STUDIES IN AND AROUND BLOCK -I, BICHOLIM MINERAL BLOCK, BICHOLIM, BORDEM, LAMGAO, MULGAO, MAYEM & SIRIGAO VILLAGES OF BICHOLIM TALUKA OF NORTH GOA DISTRICT, GOA

Plate No. 9



TITLE:

HYDROGEOLOGY

Scale

0 1 2 3 4
Kilometers

N
W E
S

LEGEND

- Village Location
- Road
- Electrical Conductivity (micromhos/cm at 25°C)
- 20 Depth to Water Level Contour (mbgl) and Ground water flow direction
- Mine Lease Area

Geology / Formation

- BARCEM
- BICHOLIM
- MANDOVI
- SANVORDEM
- USGAON
- VAGERI

PREPARED FOR:

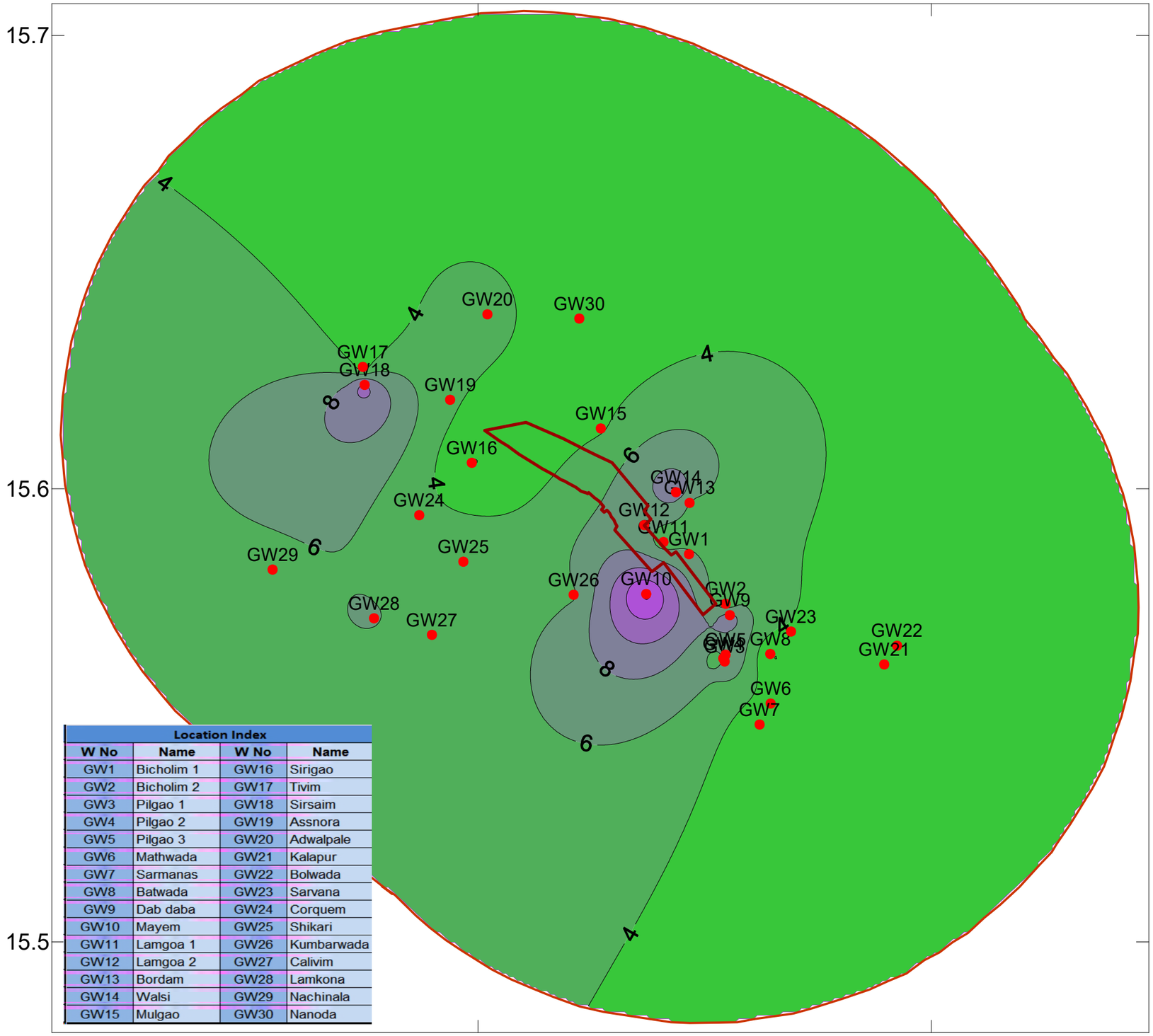
M/s Vedanta Limited

PREPARED BY:

M.C.REDDY
Former Regional Director,
Central Ground Water Board

HYDROGEOLOGICAL AND IMPACT ASSESSMENT STUDIES IN AND AROUND BLOCK -I, BICHOLIM MINERAL BLOCK, BICHOLIM, BORDEM, LAMGAO, MULGAO, MAYEM & SIRIGAO VILLAGES OF BICHOLIM TALUKA OF NORTH GOA DISTRICT, GOA

Plate No.10



Location Index			
W No	Name	W No	Name
GW1	Bicholim 1	GW16	Sirigao
GW2	Bicholim 2	GW17	Tivim
GW3	Pilgao 1	GW18	Sirsaim
GW4	Pilgao 2	GW19	Assnora
GW5	Pilgao 3	GW20	Adwalpale
GW6	Mathwada	GW21	Kalapur
GW7	Sarmanas	GW22	Bolwada
GW8	Batwada	GW23	Sarvana
GW9	Dab daba	GW24	Corquem
GW10	Mayem	GW25	Shikari
GW11	Lamgoa 1	GW26	Kumbarwada
GW12	Lamgoa 2	GW27	Calivim
GW13	Bordam	GW28	Lamkona
GW14	Walsi	GW29	Nachinala
GW15	Mulgao	GW30	Nanoda

TITLE:

DEPTH TO WATER LEVEL STUDY AREA

Scale

0 0.9 1.8 2.7 3.6

Kilometers

N W E S

LEGEND

Mineral Block Area

Well Location

10 Depth to Water level Contour (mbgl)

Water level (mbgl)

0 2 4 6 8 10 12 14

PREPARED FOR:

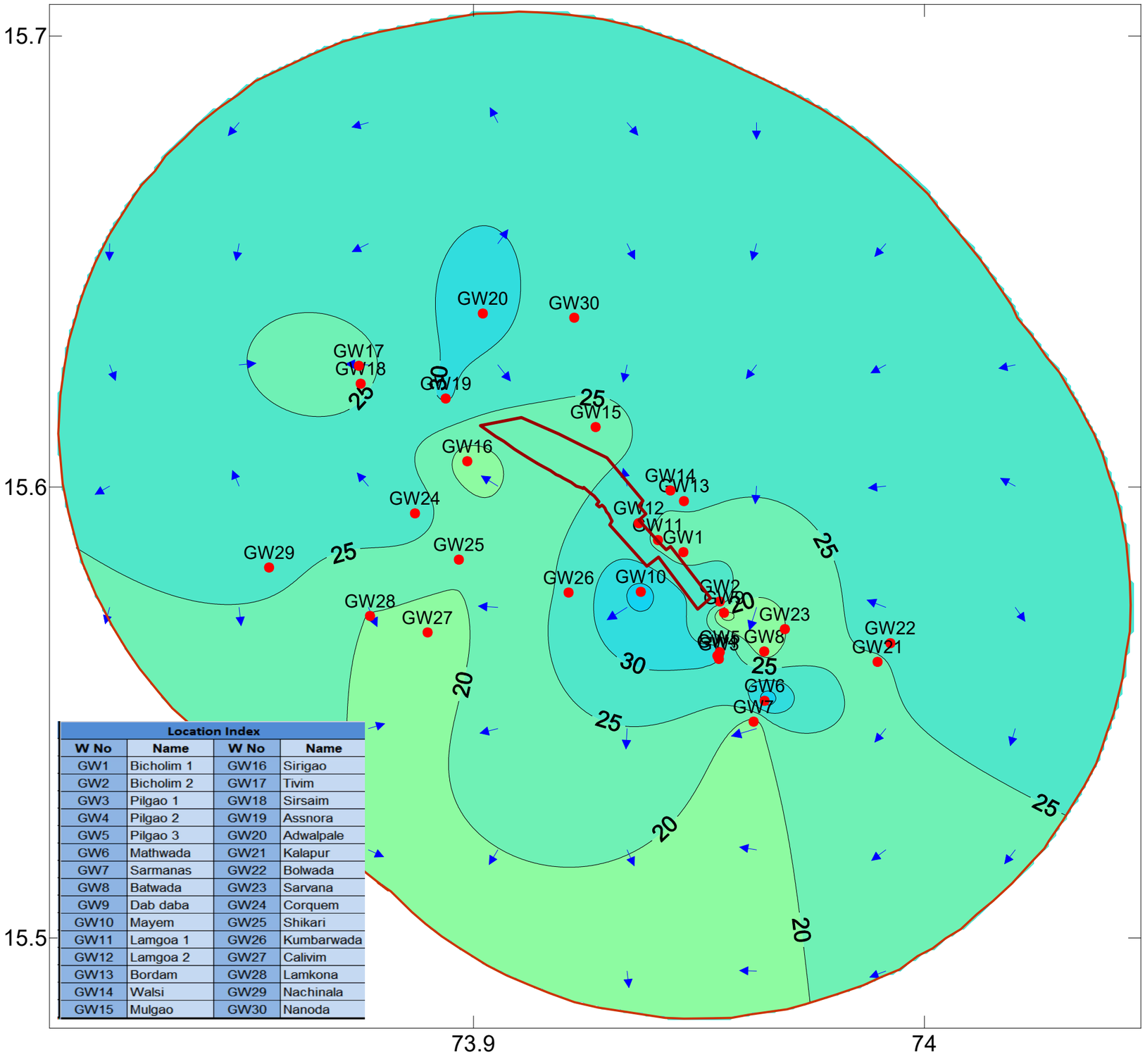
M/s Vedanta Limited

PREPARED BY:

M.C.REDDY
Former Regional Director,
Central Ground Water Board

HYDROGEOLOGICAL AND IMPACT ASSESSMENT STUDIES IN AND AROUND BLOCK -I, BICHOLIM MINERAL BLOCK, BICHOLIM, BORDEM, LAMGAO, MULGAO, MAYEM & SIRIGAO VILLAGES OF BICHOLIM TALUKA OF NORTH GOA DISTRICT, GOA

Plate No.11



Location Index			
W No	Name	W No	Name
GW1	Bicholim 1	GW16	Sirigao
GW2	Bicholim 2	GW17	Tivim
GW3	Pilgao 1	GW18	Sirsaim
GW4	Pilgao 2	GW19	Assnora
GW5	Pilgao 3	GW20	Adwalpale
GW6	Mathwada	GW21	Kalapur
GW7	Sarmanas	GW22	Bolwada
GW8	Batwada	GW23	Sarvana
GW9	Dab daba	GW24	Corquem
GW10	Mayem	GW25	Shikari
GW11	Lamgoa 1	GW26	Kumbarwada
GW12	Lamgoa 2	GW27	Calivim
GW13	Bordam	GW28	Lamkona
GW14	Walsi	GW29	Nachinala
GW15	Mulgao	GW30	Nanoda

TITLE:

WATER TABLE ELEVATION STUDY AREA

Scale

0 0.9 1.8 2.7 3.6
Kilometers

N W E S

LEGEND

- Mineral Block Area
- Well Location
- 10 — Water Table Elevation Contour (amsl)
- Ground Water Flow Direction

Water Table Elevattion (mamsl)

0 5 10 15 20 25 30 35

PREPARED FOR:

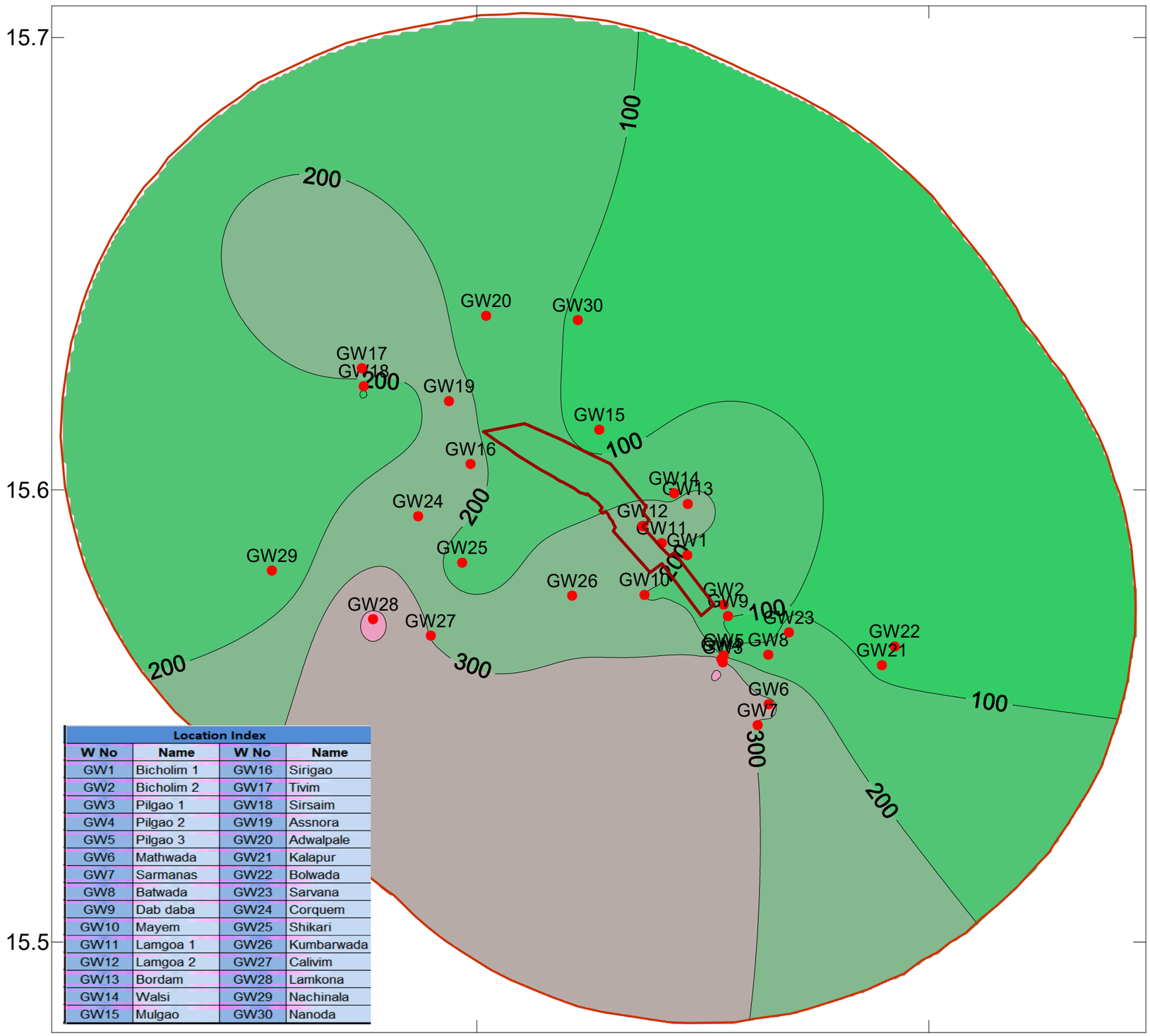
M/s Vedanta Limited

PREPARED BY:

M.C.REDDY
Former Regional Director,
Central Ground Water Board

HYDROGEOLOGICAL AND IMPACT ASSESSMENT STUDIES IN AND AROUND BLOCK -I, BICHOLIM MINERAL BLOCK, BICHOLIM, BORDEM, LAMGAO, MULGAO, MAYEM & SIRIGAO VILLAGES OF BICHOLIM TALUKA OF NORTH GOA DISTRICT, GOA

Plate No.12



Location Index			
W No	Name	W No	Name
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GW6	Mathwada	GW21	Kalapur
GW7	Sarmanas	GW22	Bolwada
GW8	Batwada	GW23	Sarvana
GW9	Dab daba	GW24	Corquem
GW10	Mayem	GW25	Shikari
GW11	Lamgoa 1	GW26	Kumbarwada
GW12	Lamgoa 2	GW27	Calivim
GW13	Bordam	GW28	Lamkona
GW14	Walsi	GW29	Nachinala
GW15	Mulgao	GW30	Nanoda

TITLE:
ELECTRICAL CONDUCTANCE IN STUDY AREA (Micromhos/cm at 25°C)

Scale

0 0.9 1.8 2.7 3.6
Kilometers

N W E S

LEGEND

Mineral Block Area

Well Location

100 EC Contour

EC Range (micromhos/cm at 25°C)

0 100 200 300 400

PREPARED FOR:

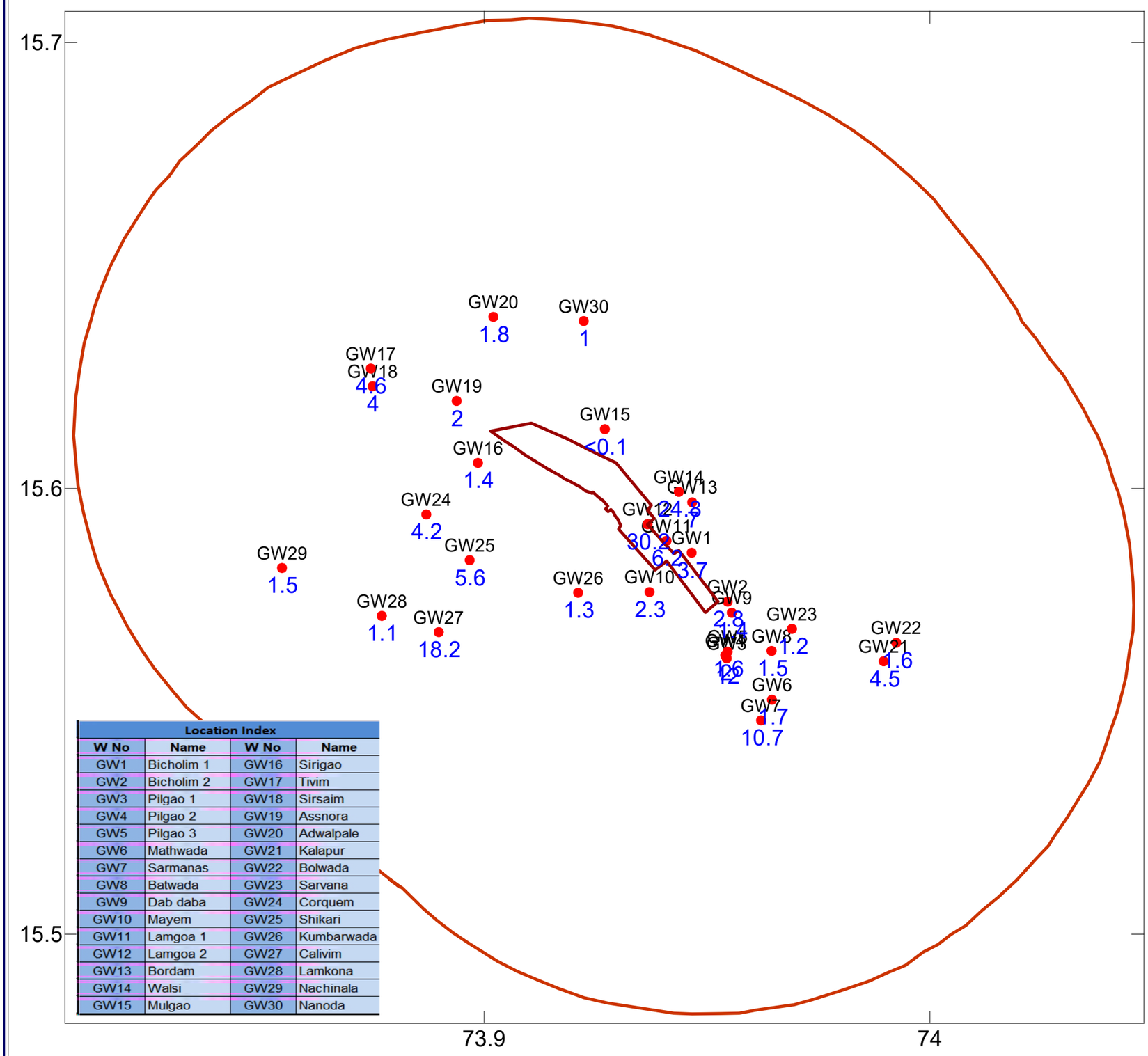
M/s Vedanta Limited

PREPARED BY:

M.C.REDDY
Former Regional Director,
Central Ground Water Board

HYDROGEOLOGICAL AND IMPACT ASSESSMENT STUDIES IN AND AROUND BLOCK -I, BICHOLIM MINERAL BLOCK, BICHOLIM, BORDEM, LAMGAO, MULGAO, MAYEM & SIRIGAO VILLAGES OF BICHOLIM TALUKA OF NORTH GOA DISTRICT, GOA

Plate No.14



Location Index			
W No	Name	W No	Name
GW1	Bicholim 1	GW16	Sirigao
GW2	Bicholim 2	GW17	Tivim
GW3	Pilgao 1	GW18	Sirsaim
GW4	Pilgao 2	GW19	Assnora
GW5	Pilgao 3	GW20	Adwalpale
GW6	Mathwada	GW21	Kalapur
GW7	Sarmanas	GW22	Bolwada
GW8	Batwada	GW23	Sarvana
GW9	Dab daba	GW24	Corquem
GW10	Mayem	GW25	Shikari
GW11	Lamgoa 1	GW26	Kumbarwada
GW12	Lamgoa 2	GW27	Calivim
GW13	Bordam	GW28	Lamkona
GW14	Walsi	GW29	Nachinala
GW15	Mulgao	GW30	Nanoda

TITLE:
DISTRIBUTION OF NITRATE (Mg/L) IN GROUND WATER (NOV 2022)

Scale

0 0.9 1.8 2.7 3.6
Kilometers

N W E S

LEGEND

Mineral Block Area

Well Location

Nitrate Range (Mg/l)

GW-7
4.2
Well No.
Well
Nitrate Value

PREPARED FOR:

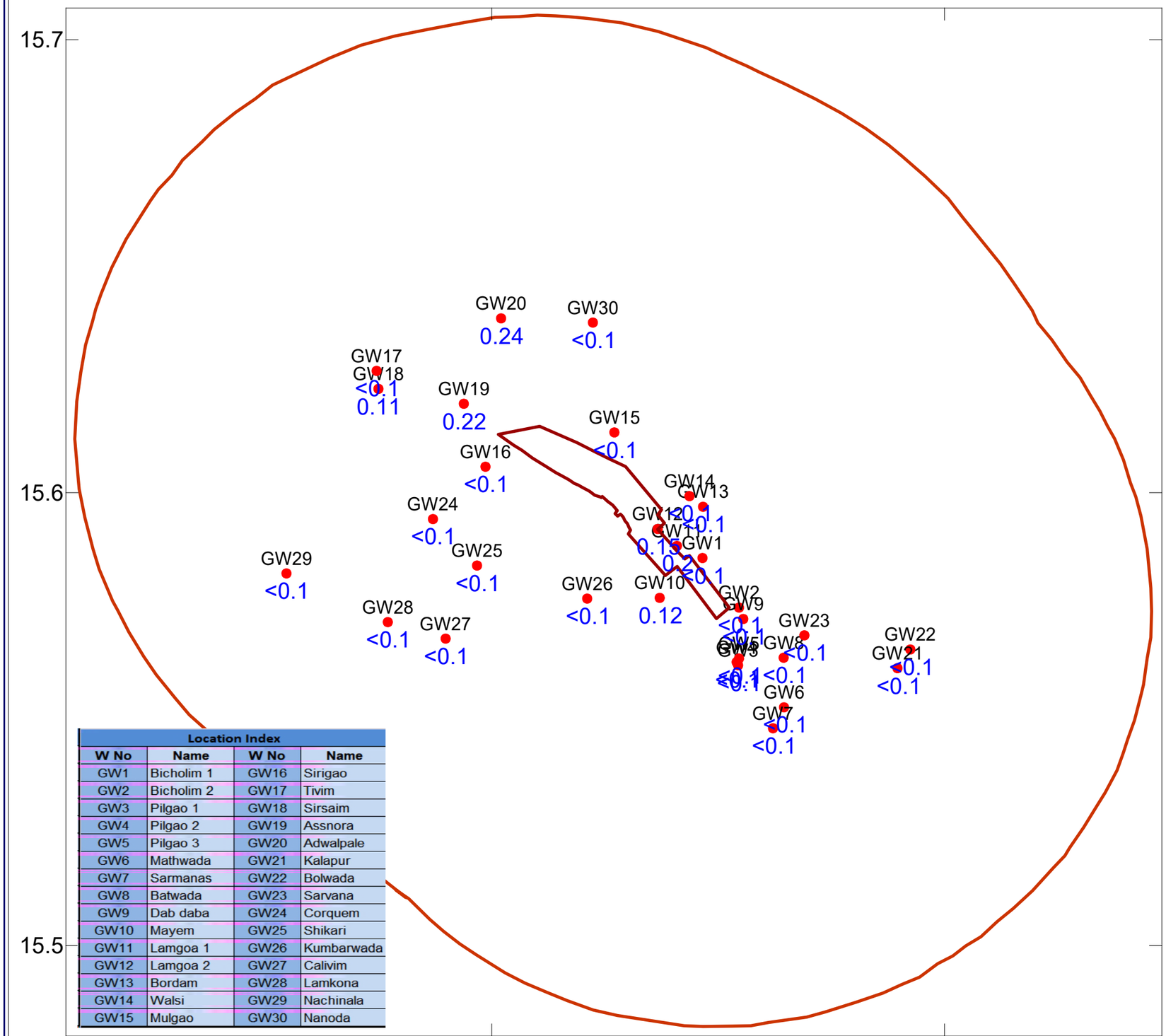
M/s Vedanta Limited

PREPARED BY:

M.C.REDDY
Former Regional Director,
Central Ground Water Board

HYDROGEOLOGICAL AND IMPACT ASSESSMENT STUDIES IN AND AROUND BLOCK -I, BICHOLIM MINERAL BLOCK, BICHOLIM, BORDEM, LAMGAO, MULGAO, MAYEM & SIRIGAO VILLAGES OF BICHOLIM TALUKA OF NORTH GOA DISTRICT, GOA

Plate No.15



Location Index			
W No	Name	W No	Name
GW1	Bicholim 1	GW16	Sirigao
GW2	Bicholim 2	GW17	Tivim
GW3	Pilgao 1	GW18	Sirsaim
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GW5	Pilgao 3	GW20	Adwalpale
GW6	Mathwada	GW21	Kalapur
GW7	Sarmanas	GW22	Bolwada
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GW9	Dab daba	GW24	Corquem
GW10	Mayem	GW25	Shikari
GW11	Lamgoa 1	GW26	Kumbarwada
GW12	Lamgoa 2	GW27	Calivim
GW13	Bordam	GW28	Lamkona
GW14	Walsi	GW29	Nachinala
GW15	Mulgao	GW30	Nanoda

TITLE:

DISTRIBUTION OF FLUORIDE (Mg/L) IN GROUND WATER (NOV 2022)

Scale

0 0.9 1.8 2.7 3.6

Kilometers

N W E S

LEGEND

Mineral Block Area

Well Location

Fluoride Range (Mg/l)

GW-7 0.12

Well No.

Well

Fluoride Value

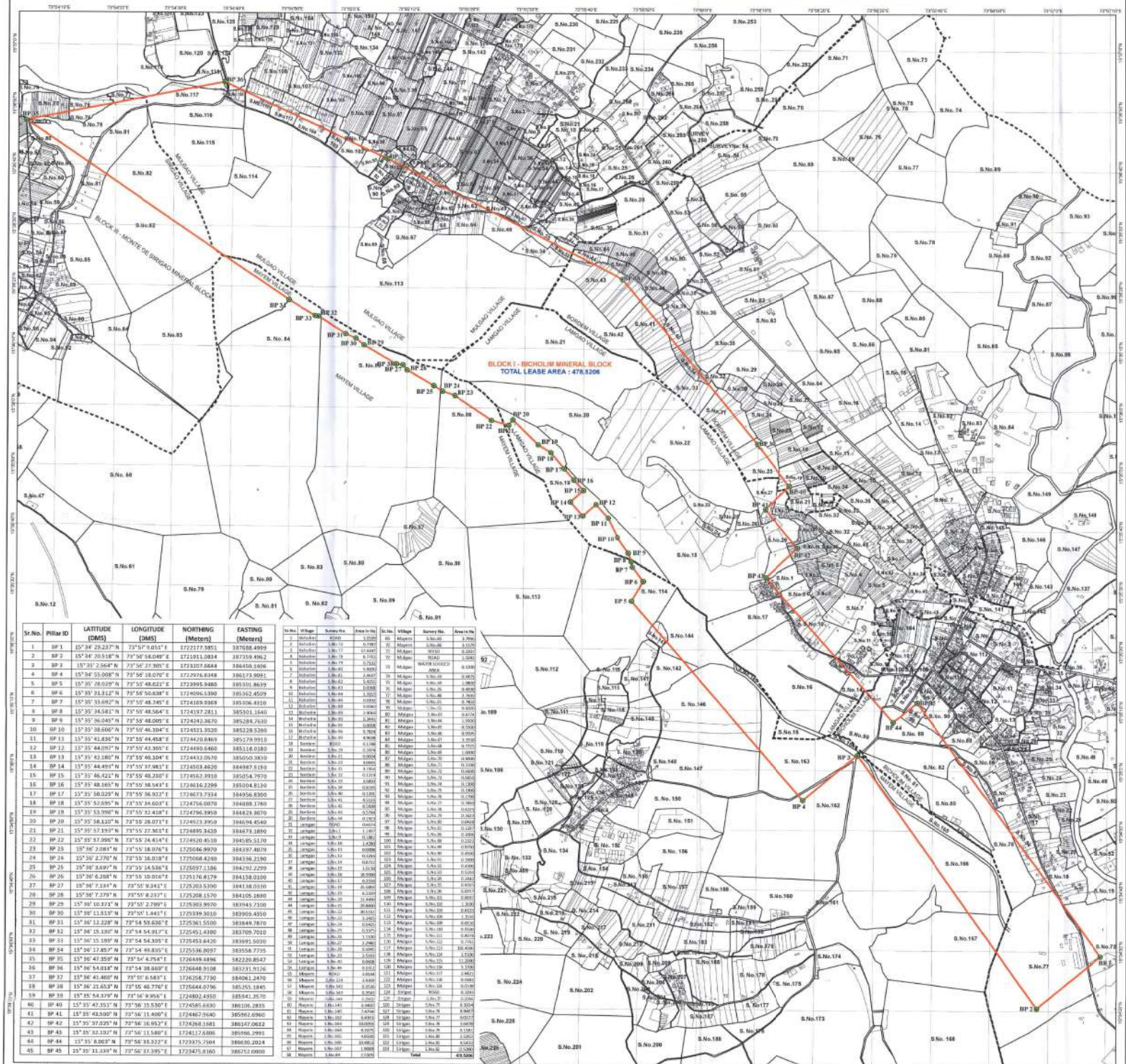
PREPARED FOR:

M/s Vedanta Limited

PREPARED BY:

M.C.REDDY
Former Regional Director,
Central Ground Water Board

Plan Showing Mining Lease Boundary of BLOCK I - BICHOLIM MINERAL BLOCK on Geo-Referenced and Vectorised Cadastral Map
Situated at Lamgao, Bicholim, Mayem, Mulgao, Bordem & Sirigao Villages of Bicholim Taluka of North Goa District, Goa



Sr.No.	Pillar ID	LATITUDE (DMS)	LONGITUDE (DMS)	NORTHING (Meters)	EASTING (Meters)
1	BP 1	15° 34' 29.237" N	73° 57' 9.051" E	1722177.3851	387688.4999
2	BP 2	15° 34' 20.516" N	73° 56' 58.049" E	1721911.0834	387359.4962
3	BP 3	15° 35' 2.564" N	73° 56' 27.305" E	1723207.6644	386450.1606
4	BP 4	15° 34' 55.008" N	73° 56' 18.070" E	1722976.8348	386173.9091
5	BP 5	15° 35' 28.029" N	73° 55' 48.621" E	1723995.9480	385301.8639
6	BP 6	15° 35' 23.212" N	73° 55' 50.638" E	1724096.5390	385362.4509
7	BP 7	15° 35' 33.692" N	73° 55' 48.745" E	1724169.9369	385306.4310
8	BP 8	15° 35' 34.581" N	73° 55' 48.564" E	1724197.2811	385301.1640
9	BP 9	15° 35' 36.045" N	73° 55' 48.005" E	1724242.3670	385284.7630
10	BP 10	15° 35' 38.606" N	73° 55' 46.104" E	1724321.3520	385228.5200
11	BP 11	15° 35' 41.836" N	73° 55' 44.458" E	1724420.8469	385179.9910
12	BP 12	15° 35' 44.097" N	73° 55' 42.365" E	1724490.6460	385118.0180
13	BP 13	15° 35' 42.180" N	73° 55' 40.104" E	1724432.0570	385050.3830
14	BP 14	15° 35' 44.491" N	73° 55' 37.983" E	1724503.4620	384987.5150
15	BP 15	15° 35' 46.421" N	73° 55' 40.230" E	1724562.3910	385054.7970
16	BP 16	15° 35' 48.185" N	73° 55' 38.543" E	1724616.2299	385004.8130
17	BP 17	15° 35' 50.029" N	73° 55' 36.922" E	1724673.7334	384956.8300
18	BP 18	15° 35' 52.695" N	73° 55' 34.603" E	1724756.0070	384888.1760
19	BP 19	15° 35' 53.996" N	73° 55' 32.418" E	1724796.3950	384823.8070
20	BP 20	15° 35' 58.110" N	73° 55' 28.073" E	1724923.3950	384694.4540
21	BP 21	15° 35' 57.393" N	73° 55' 27.361" E	1724895.3420	384673.1890
22	BP 22	15° 35' 57.995" N	73° 55' 26.614" E	1724920.4510	384585.5170
23	BP 23	15° 56' 2.081" N	73° 55' 18.076" E	1725046.9920	384397.4079
24	BP 24	15° 36' 2.770" N	73° 55' 16.018" E	1725068.4240	384336.2190
25	BP 25	15° 36' 3.697" N	73° 55' 14.536" E	1725097.1186	384292.2299
26	BP 26	15° 36' 6.268" N	73° 55' 10.016" E	1725176.8179	384158.0100
27	BP 27	15° 36' 7.334" N	73° 55' 9.241" E	1725203.5590	384138.0330
28	BP 28	15° 36' 7.279" N	73° 55' 8.237" E	1725208.1570	384105.1880
29	BP 29	15° 36' 10.371" N	73° 55' 2.799" E	1725303.9970	383943.7100
30	BP 30	15° 36' 11.515" N	73° 55' 1.441" E	1725339.3010	383903.4350
31	BP 31	15° 36' 12.228" N	73° 54' 59.636" E	1725361.5500	383849.7870
32	BP 32	15° 36' 15.190" N	73° 54' 54.917" E	1725451.4380	383709.7010
33	BP 33	15° 36' 15.199" N	73° 54' 54.305" E	1725453.6420	383691.5030
34	BP 34	15° 36' 17.857" N	73° 54' 49.835" E	1725536.0097	383558.7735
35	BP 35	15° 36' 47.359" N	73° 54' 4.754" E	1726449.4896	382220.8547
36	BP 36	15° 36' 54.018" N	73° 54' 38.669" E	1726648.9108	383231.9126
37	BP 37	15° 36' 41.460" N	73° 55' 6.583" E	1726256.7730	384061.2470
38	BP 38	15° 36' 21.653" N	73° 55' 40.776" E	1725644.0796	385255.1845
39	BP 39	15° 35' 54.379" N	73° 56' 9.956" E	1724802.4950	385941.3570
40	BP 40	15° 35' 47.351" N	73° 56' 15.530" E	1724585.6430	386105.2835
41	BP 41	15° 35' 43.590" N	73° 56' 11.480" E	1724467.9640	385982.6960
42	BP 42	15° 35' 37.025" N	73° 56' 16.952" E	1724268.1681	386147.0632
43	BP 43	15° 35' 32.192" N	73° 56' 11.580" E	1724117.6806	385986.2991
44	BP 44	15° 35' 8.063" N	73° 56' 33.322" E	1723375.7504	386630.2024
45	BP 45	15° 35' 11.339" N	73° 56' 37.395" E	1723475.8160	386752.0860

SCALE 1:8,000

0 100 200 400 600 800 1,000 Meters

GEO-REFERENCED & VECTORISED MAP OF
LEASE NAME: BLOCK I - BICHOLIM MINERAL BLOCK

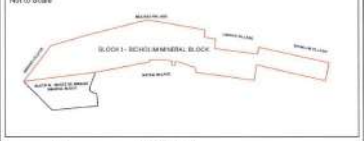
LESSEE: Vedanta Limited

LOCATION: LAMGAO, BICHOLIM, MAYEM, MULGAO, BORDEM & SIRIGAO VILLAGES OF BICHOLIM TALUKA, NORTH GOA DISTRICT, GOA

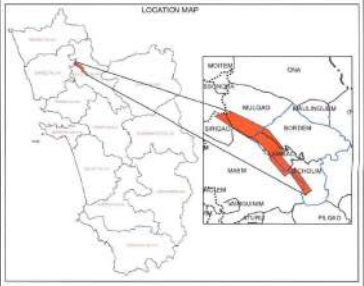
MINING LEASE AREA AS PER DGPS SURVEY: 478.5206Ha

KEY PLAN

Not to Scale



LOCATION MAP



Legend

- DGPS POINT OF LEASE BOUNDARY
- LEASE BOUNDARY AS PER DGPS SURVEY
- ADJACENT LEASE BOUNDARY
- SURVEY No BOUNDARY
- SUB-DIVISION OF THE SURVEY No
- TALUKABOUNDARY
- VILLAGE BOUNDARY

Annexure-1

DATUM : WGS 84 | PROJECTION : UTM Zone 43N

Prepared by:
RSI REMOTE SENSING INSTRUMENTS
Plot #7, INDUSTRIAL ESTATE, KUNJATHALU, HYDERABAD-500 037

Cross-verified by:
Directorate of Mines and Geology, Govt of GOA, PANJIM
Vide order no. D1/5/2010-mines/203 Dated: 05/04/2013

CERTIFICATE

This is to certify that the Mining Lease Boundary Pillars have been Surveyed by using DGPS (Differential Global Positioning System). The Survey was conducted earlier to comply with IBM Circular No. 2/2010 dated 06.04.2010.

VEDANTA LIMITED SESA IRON ORE

Dhirajkumar Jagdish
(Authorised Signatory)

CERTIFICATE

This is to certify that the Mining Lease Boundary Pillars have been Surveyed by using DGPS (Differential Global Positioning System). The Survey was conducted earlier and this plan is as per requirement of IBM Circular No. 2/2010 dated 06.04.2010.

For Remote Sensing Instruments

Smt. B. V. Pushpa Kumar
(General Manager)

Directorate of Mines and Geology, Panaji - Goa
Checked & Certified by

Assistant Geologist
Directorate of Mines & Geology
Government of Goa
Panaji-Goa

Assistant Geologist
Directorate of Mines & Geology
Government of Goa
Panaji-Goa

Director of Mines & Geology
Government of Goa
Panaji - Goa

Annexure-2

सत्यमेव जयते

File No: IA-J-11015/3/2023-IA-II(NCM)
Government of India
Ministry of Environment, Forest and Climate Change
IA Division
***

Dated **16/06/2023**

To,

Krishna Reddy
VEDANTA LIMITED
Sesa Ghor, 20 EDC Complex, Patto, Panjim, NORTH GOA, GOA, 403001
MK.Reddy@vedanta.co.in

Subject: Grant of Terms of Reference (ToR) under the provision of the EIA Notification 2006-regarding.

Sir/Madam,

This is in reference to your application for Grant of Terms of Reference (EC) under the provision of the EIA Notification 2006-regarding in respect of project Block 1- Bicholim Mineral Block for Iron Ore submitted to Ministry vide proposal number IA/GA/MIN/422323/2023 dated 09/06/2023.

2. The particulars of the proposal are as below :

(i) ToR Identification No.	TO23A0000GA5700309N
(ii) File No.	IA-J-11015/3/2023-IA-II(NCM)
(iii) Clearance Type	Fresh ToR
(iv) Category	A
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vi) Sector	Non-Coal Mining
(vii) Name of Project	Block 1- Bicholim Mineral Block for Iron Ore
(viii) Name of Company/Organization	VEDANTA LIMITED
(ix) Location of Project (District, State)	NORTH GOA, GOA
(x) Issuing Authority	MoEF&CC
(xi) ToR Date	16/06/2023
(xii) Applicability of General Conditions	no
(xiii) Applicability of Specific Conditions	yes

This has reference to the online proposal no. IA/GA/MIN/422323/2023 dated 16.03.2023 for grant of terms of reference (ToR) for mining of Iron Ore in Bicholim Mineral Block – Block 1 (Auction Block) of M/s Vedanta Limited with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA (Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located in Bicholim, Bordem, Lamgao, Mulgoa, Mayem & Sirigao Villages of Bicholim Taluka of North Goa

District, Goa.

The details of the project and the recommendations of the EAC is at Annexure-I

Details of Products & By-products

Name of the product /By-product	Product / By-product	Quantity	Unit	Mode of Transport / Transmission	Remarks (eg. CAS number)
Iron Ore	Iron Ore	3000000	Tons per Annum (TPA)	Combination of two or three modes	mine to Iron Ore loading jetty by road and from jetty to port by water way (Through Barges)

Specific Terms of Reference

Specific Terms of Reference Mining of minerals

1. Waste Management

Sr. No	Specific Terms of Reference
1.1	The Project Proponent needs to submit the action plan for year wise backfilling

2. Land Environment

Sr. No	Specific Terms of Reference
2.1	The Project Proponent needs to submit the plan for ecology restoration

3. Water Environment

Sr. No	Specific Terms of Reference
3.1	The Project Proponent shall prepare the scheme for mandatory recycle/reuse of water as specified by the Central Ground Water Authority for different category areas seeking NoC for ground water withdrawal and the shall submit as part of EIA/EMP report.
3.2	The Project Proponent shall explore the possibility of reduction of specific water requirement by optimization / technology up gradation, etc. The efforts shall be delineated in the EIA/EMP.
3.3	The Project Proponent shall carry out the assessment of impact due to the proposed project as per

Sr. No	Specific Terms of Reference
	the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP. The project proponent shall conduct hydrological study for projects involving intersection of ground water table as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.
3.4	The Project Proponent needs to explore the likelihood of river water entering into the mine pit below the RL of the HFL and the measures that are required to be taken for prevention of seepage and in the event of seepage to drain out the water through settling tank.
3.5	The EAC noted that the mine lease area is in close proximity to the Assnora River (flowing adjacent to the mine lease boundary on the north western side). The Project Proponent needs to submit the detailed report on the engineering design for garland drain, settling tank and check dams and its efficacy through recognized institution. The study should also include the per day silt load, settling velocity of the silt, retention time required based on the annual rainfall with a provision to monitor the water quality

4. Miscellaneous

Sr. No	Specific Terms of Reference
4.1	The Project Proponent shall ensure the validity of the baseline data and public hearing are valid as per Ministry's OM dated 08.06.2022 at the time of submission of proposal for EC.
4.2	The Project Proponent needs to submit the action plan for shifting the School within the mine lease area. PP should also provide the details of the nearest school present within the mine lease area and in the vicinity of the mine lease area by mentioning the distance and direction of the school from the mine lease area, strength of the school, working time of school, blasting time and the measures to be taken for control of ground vibration and fly rock.
4.3	The Project Proponent shall conduct drone survey of the mine lease area and buffer area and submit during the appraisal for EC.
4.4	The Project Proponent needs to submit the detailed site specific protection measures for the surface features such as habitations, water bodies, school, temple, road in and around the vicinity of the mine lease area.
4.5	The instant ToR is subject to the outcome of the two said court cases i.e., WP(Civil) 2478 of 2022 (Filing Number) before the High Court of Bombay at Goa and WP 592 of 2022 before the High Court of Bombay at Goa.
4.6	During the meeting, the EAC noted that old excavated pits exist within the mine lease area. Hence, the Project Proponent needs to submit a letter from the Department of Geology and Mining, Government of Goa clarifying whether any illegal mining within the mine lease area has been carried out or not and whether the same has been carried out by M/s. Vedanta Limited or not?

5. Greenbelt

Sr. No	Specific Terms of Reference
5.1	The Project Proponent needs to submit the greenbelt/afforestation development plan for undertaking plantation in the periphery of the mine lease boundary, safety zone etc., The details of the no. of saplings proposed, type of species, spacing and the area to be covered including the cost and timeline for completion of plantation needs to be provided in the EIA report

6. Socio Economic

Sr. No	Specific Terms of Reference
6.1	The Project Proponent needs to submit employment based skill development plan for the local people and thrust should be to provide employment to local people after imparting training
6.2	The Project Proponent needs to carry out the Public Hearing as per provisions of EIA Notification, 2006. PP should also submit the time bound action plan on concerns of the public through a separate budget with capital expenditure with a timeline of 3 years. The Project proponent shall ensure that the activities proposed under the public hearing shall be different from the CSR activities.

7. Transportation

Sr. No	Specific Terms of Reference
7.1	The Project Proponent needs to submit the map showing the transport route of the mineral from the mine lease area to the destination, impact of details of habitation at a distance of 100m from the centre on both sides of road, details of no. of trips/day to and fro, capacity of the dumper/tipper to be deployed and the dimensions of the road and the carrying capacity of the road. The Project Proponent shall ensure that the transportation route shall not pass through any village road.

8. Environment Monitoring

Sr. No	Specific Terms of Reference
8.1	The Project Proponent should prepare the EMP considering the scenario of pollution to be generated for normative and peak total excavation for assessing air and noise pollution
8.2	The Project Proponent needs to monitor the ambient air quality and noise level at the mine lease boundary, nearest village, crusher, predominant downwind direction and at other sensitive receptors. Accordingly, Project Proponent shall propose to install Continuous Ambient Air Quality Monitoring Station within certain timeline

Standard Terms of Reference for 1(a) Mining of minerals

Activity: Mining of minerals

Standard Terms of Reference Mining of minerals

1. Project Details

Sr. No	Standard Terms of Reference
1.1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994. The production details need to submit since inception of mine duly authenticated by Department of Mines & Geology, State Government.
1.2	A copy of the document in support of rightful lessee of the mine should be submitted. In case of new mines copy of LoI granted by State Government to be submitted. PP should ensure that LoI is valid at the time of grant of ToR. PP should submit the copy of lease deed/supplementary lease deed/extension letter/transfer deed, from its initial grant to subsequent renewals/ transfer/extension of validity.
1.3	PP should submit the District Survey Report (DSR) as per S.O. 3611(E) dated 25.07.2018 in case of minor minerals.
1.4	Brief of proposal to be submitted which include total excavation of the material required for the production of certain quantity of the minerals, location of the project, mining lease area, latitude longitude, seismic zone etc. In case of expansion project details of expansion viz. expansion in mining lease area or expansion in production of any particular mineral or expansion in total excavation, latest certified Compliance report (CCR) from IRO of conditions granted in existing EC needs to be submitted.
1.5	The PP should submit the real-time aerial video footage & video of the mining lease area and of the transportation route.
1.6	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
1.7	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
1.8	The PP should collect the Baseline data (BLD) in respect of initial level of the mining lease. For this permanent bench marks (BM) needs to be established at prominent location preferably close to mining leases in question and should have precisely known relationship to the level datum of the area, typically mean sea level.
1.9	In case of sand mining, the entire mining lease area should be divided suitably into grids of 25 m x 25 m with the help of sections across the width of river and along the direction of flow of the river. The levels (MSL & RL) of the corner point of each grid needs to be recorded. Each Grid should be suitably numbered for identification. PP should identity grids which will be worked out and grids which will come under no mining zone i.e. safety barriers from the river bank. PP should comply with the sustainable sand mining management guidelines 2016 and enforcement and monitoring guidelines, 2020 etc.
1.10	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project.

Sr. No	Standard Terms of Reference
	Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
1.11	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
1.12	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
1.13	Compliance of the Ministry's Office Memorandum No. F: 3-50/2017-IA.III (Pt.), dated 30.05.2018 on the judgment of Hon'ble Supreme Court, dated the 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India needs to be submitted and included in the EIA/EMP Report.

2. Forest

Sr. No	Standard Terms of Reference
2.1	PP shall submit a certificate from Chief Conservator of Forests regarding involvement of Forest Land in the mining lease area if any. In case forest land is involved i) PP should submit the proof of application made for obtaining forest clearance and ii) a map clearly showing the forest & non-forest area.
2.2	Status of forestry clearance for the broken-up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.

3. Land Environment

Sr. No	Standard Terms of Reference
3.1	PP should submit the details of survey number [viz. survey no, area in hectare, classification of land (government, private, forest, grazing land etc.), villages] duly authenticated by State Government, falling in the mining lease area.
3.2	The study area will comprise of 10km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
3.3	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
3.4	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.

4. Wildlife

Sr. No	Standard Terms of Reference
4.1	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
4.2	A detailed biological study of the study area [core zone and buffer zone] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. PP shall submit list of Schedule-1 species present in core and buffer zone duly authenticated by CWLW. In case of any Scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest/Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost. Proof of its submission of conservation plan to the CWLW needs to be submitted.
4.3	PP shall submit a certificate from Chief Wildlife Warden regarding distance of mining lease from the protected area falling within 10 KM of the mining lease. In case project requires clearance under Wildlife (Protection) Act, 1972 then copy of application made for the same needs to be submitted.

5. Baseline Environment

Sr. No	Standard Terms of Reference
5.1	One season (non-monsoon) [i.e. March - May (Summer Season); October - December (post monsoon season); December - February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
5.2	Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The windrose showing pre-dominant wind direction may also be indicated on the map.
5.3	The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this, PP should submit the original test reports and certificates of the labs from which samples were analyzed.

6. Water Environment

Sr. No	Standard Terms of Reference
6.1	The water requirement for the Project, its availability and source should be furnished. Quantity of surface or ground water to be used for the Project should be indicated. A detailed water balance should also be provided. Submit the year wise target for reduction in consumption of the ground/surface water by developing alternative source of water through rain water harvesting measures. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided. The capital and recurring expenditure to be incurred needs to be submitted.
6.2	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.

7. Hydro Geology

Sr. No	Standard Terms of Reference
7.1	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be.
7.2	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and BGL. A schematic diagram may also be provided for the same.
7.3	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working bench will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished. In case of surface water is proposed to be utilized then Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.

8. Transportation

Sr. No	Standard Terms of Reference
8.1	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.

9. Land Acquisition and R&R

Sr. No	Standard Terms of Reference
9.1	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval

Sr. No	Standard Terms of Reference
	from State land use board or the concerned authority.
9.2	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need-based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.

10. Socio-Economic Environment

Sr. No	Standard Terms of Reference
10.1	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
10.2	Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
10.3	Activity-wise time-bound action plan on the issues raised and commitment made during public hearing to be submitted as part of the final EMP Report in compliance of the Ministry's OM F.No.22-65/2017-IA.III dated 30th September, 2020.

11. Environmental Monitoring and Management

Sr. No	Standard Terms of Reference
11.1	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the proposed safeguard measures in each case should also be provided.

12. Critically Polluted Areas, Aravali & CRZ

Sr. No	Standard Terms of Reference
12.1	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or

Sr. No	Standard Terms of Reference
	State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.

13. Risk Assessment & Disaster Management

Sr. No	Standard Terms of Reference
13.1	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
13.2	A Disaster Management Plan shall be prepared and included in the EIA/EMP Report.

14. Miscellaneous

Sr. No	Standard Terms of Reference
14.1	The general points are also to be followed: - a) All documents to be properly referenced with index and continuous page numbering. b) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated. c) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project. d) Where the documents provided are in a language other than English, an English translation should be provided. e) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted. f) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed. g) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation. h) As per the circular no. J-11011/618/2010-IA.II (I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable. i) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

Additional Terms of Reference

1.The prescribed TOR would be valid for a period of four years for submission of the EIA/EMP report, as per the notification S.O 751 (E) dated 17.02.2020. The instant TOR is valid up to four years from the date of issuance of TOR.

2.The Project Proponent should submit the EIA/EMP report as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006 after incorporating the details of public hearing conducted and covering the above-mentioned issues, to take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed

under the EIA Notification, 2006.

Copy To

1. **The Secretary,** Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. **The Secretary,** Department of Mines and Geology, Ground Floor of Institute Menezes Braganza, Government of Goa.
3. **The Director,** Department of Environment and Climate Change (DoE and CC), Government of Goa.
4. **The Secretary,** Department of Forests, Government of Goa, Goa Van Bhavan, Goa.
5. **The Chief Wildlife Warden**, Goa Van Bhavan, Forest Department, Altinho, Panaji Goa. 403001.
6. **The Deputy Director General of Forests (C),** Ministry of Env., Forest and Climate Change, Integrated Regional Office, Kendriya Sadan, 4th Floor, E&F Wings, 17th Main Road, Koramangala II Block, Bangalore - 560034.
7. **The Member Secretary,** Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
8. **The Member Secretary,** Central Ground Water Authority, 18/11, Jam Nagar House, Man Singh Road, New Delhi-110011.
9. **The Member Secretary,** Goa State Pollution Control Board, Nr. Pilerne Industrial Estate, Opp. Saligao Seminary, Saligao, Goa 403511.
10. **The Controller General,** Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur- 440 001.
11. **The District Collector,** North Goa District, Government of Goa.
12. **Guard File.**
13. **PARIVESH Portal.**

Annexure I

The details of the project as ascertained from the documents submitted by the Project Proponent and as revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude: 15°34'20.518"N to 15° 36'54.018"Nand Longitude: 73°54'4.754"E to 73°57'09.51"E. The mine lease area falls under the Survey of India Toposheet No: D43B14and falls in Seismic Zone-II.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mining lease area is greater than 250ha and appraised at the Central level.

iii. Details of Mine Lease:

a) The Project Proponent has submitted the Letter of Intent (LoI) granted by the Government of Goa vide Lr No: DMG/25/Auction Cell/LOI-function/2023/2801 dated 13.01.2023 for grant of mining lease for Block I - Bicholim Mineral Block for Iron Ore in Bicholim, Bordem, Lamgao, Mulgao Mayem & Sirigao villages, Bicholim Taluka, North Goa District over an area of 478.5206 Hectare for a period of 50 (fifty) years in pursuant to Rule 10(2) of the Auction Rules. This letter of intent is valid for a period of 3 (three) years from the date of its issuance.

iv. Land Use/Land Cover of the Mine Lease Area:

Private land	421.1153 Ha
Government land	57.4053 Ha
Total Mining lease area (MLA)	478.5206 Ha
Private land for crusher, workshop & other infrastructure outside the MLA	Not Applicable

v. Details of Mining Plan:

a) The Project Proponent has submitted that the Mining Plan is submitted to Indian Bureau of Mines (IBM), Goa for approval and is under process.

b) The method of mining will be opencast mechanized without drilling and blasting. Total Mineral Reserves & Resources estimated as 84.743 million tonnes. Life of the mine will be 30 years @ 3.0 MTPA.

c) The proposed bench height and width will be 7m and 10-12 m respectively. The individual bench slope will be 70° and overall pit slope will be 27°.

d) The ore will be transported from Mine to Sarmanas jetty through dedicated road with only 0.9km stretch of public road in use.

vi. Water requirement:

Total water requirement	664 KLD	Pit Water	628 KLD

		Ground water	36 KLD
Source	Water from Mine Pit will be used for dust suppression, Vehicle washing and Green belt. Water for domestic requirement will be met from bore well.		
Permission	The Bore wells are registered with Goa State Water Resource department. Application for using mine pit water will be submitted.		

vii. Nearest village / town/ highway/railway station / water bodies/monument

Particulars	Particular's Name	Distance & Directions
Village	Lamgoa	Within the lease area
Town	Bicholim Town	0.5 km, East
Road	State Highway SH-1	0.65 km, East
Railway Station	Tivim Railwaystation	10.5 km, North
Water Bodies	Asnora River Mandovi River	Touching lease boundary at one of the points 2.3 km, SW
School	Mulgao Govt. Primary School	Within the lease area
Worship places	Namuzgah/Idgah Shri Lairae Temple	Within the lease area 0.86 km

viii. Presence of Environmentally Sensitive areas in the study area:

Forest Land/Protected Area/Environmental Sensitivity Zone	Yes/ No	Details of Certificate/letter/Remarks
Forest Land	No	No Forest land is involved in the mine lease area. The following Reserve Forests are located within 10 km radius of the mine lease area such as Kharapal RF -6.7 Km Ambadgaon RF - 7.4 Km
National park	No	The Project Proponent has submitted the letter from the Office of the Dy. Conservator of Forests vide Lr No: DCF(WP)/Tech/Digi/Vol-I/75/2022-23/ 968 dated 23.01.2023 stating that the proposed Bicholim Mineral Block-I is not situated within 10 km radius from the boundary of any the protected area in the State of Goa. PP also submitted the authenticated map dated 24.01.2023 showing the distance of the following Wildlife Sanctuary from the mine lease area. i. Madei Wild life Sanctury-14.105 km, E ii. Salim Ali Bird Sanctuary -10.553 km, SW iii. Bondla Wild life Sanctuary -20.476 km, SE
Wildlife Sanctuary	No	
Eco-Sensitive Zone(ESZ)/Eco-Sensitive Area(ESA)	No	

ix. Green belt/plantation details:

Proposed area for green belt/plantation	105.8894 ha
Budget for green plant & plantation till the end of life of mine.	Rs159.0Lakhs
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	25 ha
50 m safety zone of nallah, roads, electric lines	
Additional information (if any)	80.8894 ha (on backfilled area)

x. Rehabilitation & Resettlement:

R & R details	Not Applicable, as no resettlement is proposed during life of mine.

xi. Details of Court Cases:

Court Case	Yes
Additional information (if any)	First Case: 1. WP(Civil) 2478 of 2022 (Filling number) before the High Court of Bombay at Goa 2. The said writ petition has been filed against the State Government and seeks to challenge the identification of properties bearing survey no. 90/1(part) and 96/0 as part of the recently auctioned Bicholim mine. The petition alleges violation of Rule 5 &6 of Mineral Evidence Rules and Section 10B of MMDR, Act by the State of Goa and DMG. The petitioner has prayed for quashing of auction notice to the extend it includes the property of the petitioner and grant a writ of mandamus against the Respondents. 3. Case status is pending. 4. No adverse orders have been passed. 5. As per the last order Vedanta limited was added as a party to the petition as it has won the mine in auction. Second Case: 1. WP 592 of 2022 before the High Court of Bombay at Goa 2. The said writ petition seeks to challenge the constitutionality of the tender documents of Phase I auction of Goa mines. The petition alleges violation of Rule 5 & 6 of Mineral Evidence Rules by the State of Goa and DMG. The petition alleges non-disclosure of essential facts such as bore hole data, approved mining plan, production data of the previous five years and exploration data. The petitioner has prayed for quashing of auction notice to extend it fails to include the essential facts and in the alternative to stay the auction. 3. Case status is pending 4. No adverse orders have been passed.

	5. As per the last order Vedanta limited was added as a party to the petition as it has won the mine in auction

xii. The Project Proponent submitted the Affidavit in a non-judicial stamp paper of Rs 100 bearing no: A807037 dated 24.04.2023 stating that they will directions issued by MoEF&CC vide Office Memorandum F.No.3-50/2017.IA.III (Pt) dated 30th May, 2018 in terms of directions given Hon'ble Supreme Court in judgment dated 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India &Ors.

xiii. The total project cost estimated as Rs 250.0 Cr. The employment potential of direct employment will be 433 no.s and indirect employment will be 195 no.s.

2. The proposal was considered by the EAC of Non Coal Mining projects in its 14th meeting held on 3-4 May, 2023. Wherein the Project Proponent informed the EAC that the instant mine lease was obtained through auction and the Government of Goa granted the Letter of Intent (LoI) dated 13.01.2023 for grant of mining lease for Block I - Bicholim Mineral Block for Iron Ore in Bicholim, Bordem, Lamgao, MulgaoMayem & Sirigao villages, Bicholim Taluka, North Goa District over an area of 478.5206 Ha for a period of 50 (fifty) years in pursuant to Rule 10(2) of the Auction Rules. This letter of intent is valid for a period of 3 (three) years from the date of its issuance. Then, the Project Proponent presented the KML file to indicate the site features in the vicinity of the mine lease area and in the study area of 10km radius. The EAC asked the Project Proponent to show the locations of the village, school and road in and around the mine lease area. The Project Proponent informed the EAC that the Assnora River is flowing adjacent to the mine lease boundary on the north western side. Few habitations, a temple and a primary school exists within the mine lease area. Habitations will not be disturbed. No forest land is involved in the mine lease area. Only acacia plantations exist within the mine lease area. The Project Proponent also informed the settling ponds are under construction. The EAC on viewing the KML file noted that old excavated pits exist within the mine lease area and Assnora River is located close to the proximity of the mine lease area. The Project Proponent informed the EAC that the ore will be transported from Mine to Sarmanas jetty through dedicated road with only 0.9km stretch of public road in use.

The EAC asked the Project Proponent whether there is any ban on mining activity in Goa. The Project Proponent informed the EAC that mining activity was not stopped because of CRZ and it may relate to sand mining only. The Project Proponent informed the EAC that the instant mine is a first auction mine in Goa. The Project Proponent also informed the EAC that there will be no activity of drilling and blasting. Mining Plan has been submitted to Indian Bureau of Mines (IBM) for approval. Nearest Village of ESA of Western Ghats is Bayalvada Village - 11.84 km. Waste will be dumped and backfilled within the mine lease area. The Project Proponent informed the EAC that there are two court cases filed against the State Govt. regarding auction procedure and the Project Proponent has been added as a party. There is no stay order or any adverse orders and the court case is in preliminary stage. The EAC was of the view that the instant ToR is subject to the outcome of the two said court cases i.e., WP(Civil) 2478 of 2022 (Filing Number) before the High Court of Bombay at Goa and WP 592 of 2022 before the High Court of Bombay at Goa. The EAC asked the

Project Proponent to inform about the present status of the mining in Goa w.r.t Hon'ble Supreme Court order dated 07.02.2018. The Project Proponent informed the EAC that as per Hon'ble Supreme Court order dated 07.02.2018 in Special Leave to Appeal (Civil) No. 32138 of 2015 in the matter of the Goa Foundation vs M/s Sesa Sterlite Ltd. And Ors it was stated the State of Goa was not under any constitutional obligation to grant fresh mining leases through the process of competitive bidding or auction and the Ministry of Environment and Forest was obliged to grant fresh environmental clearances in respect of fresh grant of mining leases in accordance with law.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC in its EAC (Non-Coal Mining) meeting held during 3-4 May, 2023, the EAC under the provisions of EIA Notification 2006 and its subsequent amendments, the EAC **recommended** the proposal for grant of Terms of Reference (ToR) to M/s Vedanta Limited for mining of Iron Ore in Bicholim Mineral Block – Block 1 (Auction Block) with proposed production capacity of 3.0 MTPA, Waste: 25.162 MTPA (Total Excavation: 28.162 MTPA) along with crushing and screening plant capacity of 4.0 MTPA in the mine lease area of 478.5206 ha, located in Bicholim, Bordem, Lamgao, Mulgoa, Mayem & Sirigao Villages of Bicholim Taluka of North Goa District, Goa for undertaking detailed EIA/EMP study subject to the specific conditions in addition to the standard ToR conditions applicable for non-coal mining projects.

Validity unknown

Digitally Signed by : Mr Pankaj Verma
Member Secretary, MoEFCC (EC)

Date: 16/06/2023

MINERAL ENGINEERING SERVICES

Recognised by GOI, MOEF&CC Under E(P)A 1986 Vide Gazette Notification No. S.O. 857(E) dated 26.02.2018. Recognition Valid Upto 25.02.2023

NABET ORG000756

ISO 9001:2015
ISO 45001:2018

Table No. 1

WATER ANALYSIS REPORT

MES/W/TR/11/00

Name of the Project : **Block I - Bicholim Mineral Block**
Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Name of the Client : **M/s. Vedanta Limited**
Date of sampling : **29.01.2023**
Date of Report : **10.02.2023**
Report No. : **MES/WS/WRN/64**
Ref : IS:10500-2012 Norms (Drinking Water Standards)

Sl. No.	Parameters	Method of Testing	Desirable Limts	Permissible Limts	Result		
					GW1	GW2	GW3
1	Colour (Hazen Units), Max	IS:3025 (Part-4)	5	15	1.0	<1	2.0
2	Odour	IS:3025 (Part-5)	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	pH	IS:3025 (Part-11)	6.5 to 8.5	6.5 - 8.5	6.55	7.95	7.37
4	Taste	IS:3025 (Part- 8)	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity,NTU, Max	IS:3025 (Part-10)	1	5	2.5	3.60	1.5
6	Electrical Conductvity (µmhos/cm)	IS 3025 (P-14)	-	-	169	203	407
7	Total Dissolved Solids,mg/l, Max	IS:3025 (Part-16)	500	2000	98	118	236
8	Aluminium (as Al) mg/l, Max	IS:3025 (Part-55)	0.03	0.2	<0.01	<0.01	<0.01
9	Ammonia (as total Ammonia -N),mg/l, Max	IS:3025 (Part-34)	0.5	0.5	<0.1	<0.1	<0.1
10	Anionic Detergents (as MBAS),mg/l , Max	Annex K of Is:13428	0.2	1.0	<0.1	<0.1	<0.1
11	Barium (as Ba), mg/l, Max	IS:15302 & APHA 21st	0.7	0.7	<0.5	<0.5	<0.5
12	Boron (as B), mg/l, Max	IS:3025 (Part-57)	0.5	1	<0.1	<0.1	<0.1
13	Calcium (as Ca),mg/l, Max	IS:3025 (Part-40)	75	200	24.0	27.2	52.1
14	Chloramines (as Cl_2), mg/l. Max	APHA 21st	4.0	4.0	NA	NA	NA
15	Chloride as Cl (mg/l),mg/l, Max	IS:3025 (Part-32)	250	1000	12.0	13.0	25.0
16	Copper (as Cu),mg/l, Max	IS:3025 (Part-42)	0.05	1.5	<0.01	<0.01	<0.01
17	Fluoride (as F),mg/l, Max	IS:3025 (Part-60)	1	1.5	<0.1	<0.1	<0.1
18	Residual, Free Chlorine,mg/l, Max	IS:3025 (Part-26)	0.2	1	<0.1	<0.1	<0.1
19	Iron (as Fe),mg/l, Max	IS:3025 (Part-53)	1.0	1.0	0.18	<0.05	<0.05
20	Magnesium (as Mg)mg/l, Max	IS:3025 (Part-46)	30	100	4.9	5.3	7.3
21	Manganese (as Mn),mg/l, Max	IS:3025 (Part-59)	0.1	0.3	<0.03	<0.03	<0.03
22	Mineral Oil,mg/l, Max	Clause 6 of IS 3025 (part -39)	0.5	0.5	<0.01	<0.01	<0.01
23	Nitrates (as NO_3),mg/l, Max	IS:3025 (Part-34)	45	45	3.7	2.8	12.0
24	Phenolics (as C_6H_5OH),mg/l, Max	IS:3025 (Part-43)	0.001	0.002	<0.001	<0.001	<0.001
25	Selenium (as Se),mg/l, Max	IS:3025 (Part-56)	0.01	0.01	<0.005	<0.005	<0.005
26	Silver (as Ag), mg/l. Max	Annex J of Is:13428	0.1	0.1	<0.002	<0.002	<0.002
27	Sulphates (as SO_4),mg/l, Max	IS:3025 (Part-24)	200	400	6.0	7.2	22.0
28	Sulphide (as H_2S) , mg/l, Max	IS:3025 (Part-29)	0.05	0.05	<0.01	<0.01	<0.01
29	Alkalinity (as $CaCO_3$) mg/l, Max	IS:3025 (Part-23)	200	600	76	90	164
30	Total Hardness (as $CaCO_3$),mg/l, Max	IS:3025 (Part-21)	200	600	80	90	160
31	Zinc (as Zn),mg/l, Max	IS:3025 (Part-49)	5	15	<0.005	<0.005	<0.005
32	Cadmium (as Cd),mg/l, Max	IS:3025 (Part-41)	0.003	0.003	<0.002	<0.002	<0.002
33	Cyanide (as CN),mg/l, Max	IS:3025 (Part-27)	0.05	0.05	<0.01	<0.01	<0.01
34	Lead (as Pb),mg/l, Max	IS:3025 (Part-47)	0.01	0.01	<0.005	<0.005	<0.005
35	Molybdenum (as Mo), mg/l, Max	APHA 21st	0.07	0.07	NA	NA	NA
36	Mercury (as Hg),mg/l, Max	IS:3025 (Part-48)	0.001	0.001	<0.0005	<0.0005	<0.0005
37	Nickel (as Ni),mg/l, Max	IS:3025 (Part-54)	0.02	0.02	<0.01	<0.01	<0.01
38	Pesticides,mg/l, Max	APHA 21st	Absent	0.001	NA	NA	NA
39	Polychlorinated biphenyls mg/l, Max	APHA 21st Edition	0.0005	0.0005	NA	NA	NA
40	Polynuclear Aromatic Hydrocarbons (as PAH),mg/l, Max	APHA 21st Edition	0.0001	0.0001	NA	NA	NA
41	Arsenic (as As),mg/l, Max	IS:3025 (Part-37)	0.01	0.01	<0.002	<0.002	<0.002
42	Chromium (as Cr^{+6}),mg/l, Max	IS:3025 (Part-52)	0.05	0.05	<0.03	<0.03	<0.03
43	Trihalomethanes,mg/l, Max	APHA 21st	--	--	NA	NA	NA
44	Radioactive materials,Bq/l,mg/l	APHA 21st	--	--	NA	NA	NA
45	Total Coliform (per 100ml)	IS:1622	Absent	Absent	Absent	Absent	Absent
46	E-Coli (per 100ml)	IS:1622	Absent	Absent	Absent	Absent	Absent
47	Water levels in well from surface (m)	--	--	--	6.30	4.40	7.65

SAMPLE TYPE : GW1 - Open Well water-1 Bicholim , GW2 - Open Well water-2 Bicholim , GW3 - Open Well-1 water Pilgao
Samples Collected & Analysed by Mineral Engineering Services, Ballari NA - Not Analysed

(M.R. DURGA PRASAD)
GOVT. ANALYST

(M.S.RAJU)
HEAD OF LABORATORY

MINERAL ENGINEERING SERVICES

Recognised by GOI, MOEF&CC Under E(P)A 1986 Vide Gazette Notification No. S.O. 857(E) dated 26.02.2018. Recognition Valid Upto 25.02.2023

NABET ORG000756

ISO 9001:2015
ISO 45001:2018

Table No. 2

WATER ANALYSIS REPORT

MES/W/TR/11/00

Name of the Project : Block I - Bicholim Mineral Block
Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Name of the Client : M/s. Vedanta Limited
Date of sampling : 29.01.2023
Date of Report : 10.02.2023
Report No. : MES/WS/WRN/65
Ref : IS:10500-2012 Norms (Drinking Water Standards)

Sl. No.	Parameters	Method of Testing	Desirable Limts	Permissible Limts	Result		
					GW4	GW5	GW6
1	Colour (Hazen Units), Max	IS:3025 (Part-4)	5	15	4.0	1.0	1.0
2	Odour	IS:3025 (Part-5)	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	pH	IS:3025 (Part-11)	6.5 to 8.5	6.5 - 8.5	7.80	8.40	7.50
4	Taste	IS:3025 (Part- 8)	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity,NTU, Max	IS:3025 (Part-10)	1	5	2.5	1.8	4.0
6	Electrical Conductvity (µmhos/cm)	IS 3025 (P-14)	-	-	390	131	334
7	Total Dissolved Solids,mg/l, Max	IS:3025 (Part-16)	500	2000	226	76	194
8	Aluminium (as Al) mg/l, Max	IS:3025 (Part-55)	0.03	0.2	<0.01	<0.01	<0.01
9	Ammonia (as total Ammonia -N),mg/l, Max	IS:3025 (Part-34)	0.5	0.5	<0.1	<0.1	<0.1
10	Anionic Detergents (as MBAS),mg/l , Max	Annex K of Is:13428	0.2	1.0	<0.1	<0.1	<0.1
11	Barium (as Ba), mg/l, Max	IS:15302 & APHA 21st	0.7	0.7	<0.5	<0.5	<0.5
12	Boron (as B), mg/l, Max	IS:3025 (Part-57)	0.5	1	<0.1	<0.1	<0.1
13	Calcium (as Ca),mg/l, Max	IS:3025 (Part-40)	75	200	54.5	12.0	41.6
14	Chloramines (as Cl_2), mg/l. Max	APHA 21st	4.0	4.0	NA	NA	NA
15	Chloride as Cl (mg/l),mg/l, Max	IS:3025 (Part-32)	250	1000	26.0	13.0	18.0
16	Copper (as Cu),mg/l, Max	IS:3025 (Part-42)	0.05	1.5	<0.01	<0.01	<0.01
17	Fluoride (as F),mg/l, Max	IS:3025 (Part-60)	1	1.5	<0.1	<0.1	<0.1
18	Residual, Free Chlorine,mg/l, Max	IS:3025 (Part-26)	0.2	1	<0.1	<0.1	<0.1
19	Iron (as Fe),mg/l, Max	IS:3025 (Part-53)	1.0	1.0	<0.05	<0.05	0.18
20	Magnesium (as Mg)mg/l, Max	IS:3025 (Part-46)	30	100	6.3	4.9	9.2
21	Manganese (as Mn),mg/l, Max	IS:3025 (Part-59)	0.1	0.3	<0.03	<0.03	<0.03
22	Mineral Oil,mg/l, Max	Clause 6 of IS 3025 (part -39)	0.5	0.5	<0.01	<0.01	<0.01
23	Nitrates (as NO_3),mg/l, Max	IS:3025 (Part-34)	45	45	2.0	1.6	1.7
24	Phenolics (as C_6H_5OH),mg/l, Max	IS:3025 (Part-43)	0.001	0.002	<0.001	<0.001	<0.001
25	Selenium (as Se),mg/l, Max	IS:3025 (Part-56)	0.01	0.01	<0.005	<0.005	<0.005
26	Silver (as Ag), mg/l. Max	Annex J of Is:13428	0.1	0.1	<0.002	<0.002	<0.002
27	Sulphates (as SO_4),mg/l, Max	IS:3025 (Part-24)	200	400	20.0	8.0	26.0
28	Sulphide (as H_2S) , mg/l, Max	IS:3025 (Part-29)	0.05	0.05	<0.01	<0.01	<0.01
29	Alkalinity (as $CaCO_3$) mg/l, Max	IS:3025 (Part-23)	200	600	180	52	140
30	Total Hardness (as $CaCO_3$),mg/l, Max	IS:3025 (Part-21)	200	600	162	50	142
31	Zinc (as Zn),mg/l, Max	IS:3025 (Part-49)	5	15	<0.005	<0.005	<0.005
32	Cadmium (as Cd),mg/l, Max	IS:3025 (Part-41)	0.003	0.003	<0.002	<0.002	<0.002
33	Cyanide (as CN),mg/l, Max	IS:3025 (Part-27)	0.05	0.05	<0.01	<0.01	<0.01
34	Lead (as Pb),mg/l, Max	IS:3025 (Part-47)	0.01	0.01	<0.005	<0.005	<0.005
35	Molybdenum (as Mo), mg/l, Max	APHA 21st	0.07	0.07	NA	NA	NA
36	Mercury (as Hg),mg/l, Max	IS:3025 (Part-48)	0.001	0.001	<0.0005	<0.0005	<0.0005
37	Nickel (as Ni),mg/l, Max	IS:3025 (Part-54)	0.02	0.02	<0.01	<0.01	<0.01
38	Pesticides,mg/l, Max	APHA 21st	Absent	0.001	NA	NA	NA
39	Polychlorinated biphenyls mg/l, Max	APHA 21st Edition	0.0005	0.0005	NA	NA	NA
40	Polynuclear Aromatic Hydrocarbons (as PAH),mg/l, Max	APHA 21st Edition	0.0001	0.0001	NA	NA	NA
41	Arsenic (as As),mg/l, Max	IS:3025 (Part-37)	0.01	0.01	<0.002	<0.002	<0.002
42	Chromium (as Cr^{+6}),mg/l, Max	IS:3025 (Part-52)	0.05	0.05	<0.03	<0.03	<0.03
43	Trihalomethanes,mg/l, Max	APHA 21st	--	--	NA	NA	NA
44	Radioactive materials,Bq/l,mg/l	APHA 21st	--	--	NA	NA	NA
45	Total Coliform (per 100ml)	IS:1622	Absent	Absent	Absent	Absent	Absent
46	E-Coli (per 100ml)	IS:1622	Absent	Absent	Absent	Absent	Absent
47	Water levels in well from surface (m)	--	--	--	3.10	7.73	3.30

SAMPLE TYPE : GW4 - Open Well-2 water Pilgao, GW5 - Open Well-3 water Pilgao, GW6 - Open Well water Mathwada
Samples Collected & Analysed by Mineral Engineering Services, Ballari NA - Not Analysed

(M.R. DURGA PRASAD)
GOVT. ANALYST

(M.S.RAJU)
HEAD OF LABORATORY

25/XXV, Club Road, Ballari-583 103, Karnataka. Landline No. :08392-267421
E-mail : mes_msraju@yahoo.co.uk / mesbly25@gmail.com Website : www.envtest.in

MINERAL ENGINEERING SERVICES

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ISO 9001:2015
ISO 45001:2018

Table No. 3

WATER ANALYSIS REPORT

MES/W/TR/11/00

Name of the Project : **Block I - Bicholim Mineral Block**
Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Name of the Client : **M/s. Vedanta Limited**
Date of sampling : **29.01.2023**
Date of Report : **10.02.2023**
Report No. : **MES/WS/WRN/66**
Ref : IS:10500-2012 Norms (Drinking Water Standards)

Sl. No.	Parameters	Method of Testing	Desirable Limts	Permissible Limts	Result		
					GW7	GW8	GW9
1	Colour (Hazen Units), Max	IS:3025 (Part-4)	5	15	1.0	<1	<1
2	Odour	IS:3025 (Part-5)	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	pH	IS:3025 (Part-11)	6.5 to 8.5	6.5 - 8.5	7.05	5.88	8.95
4	Taste	IS:3025 (Part- 8)	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity,NTU, Max	IS:3025 (Part-10)	1	5	3.8	3.7	4.5
6	Electrical Conductvity (µmhos/cm)	IS 3025 (P-14)	-	-	297	124	86
7	Total Dissolved Solids,mg/l, Max	IS:3025 (Part-16)	500	2000	172	72	50
8	Aluminium (as Al) mg/l, Max	IS:3025 (Part-55)	0.03	0.2	<0.01	<0.01	<0.01
9	Ammonia (as total Ammonia -N),mg/l, Max	IS:3025 (Part-34)	0.5	0.5	<0.1	<0.1	<0.1
10	Anionic Detergents (as MBAS),mg/l , Max	Annex K of Is:13428	0.2	1.0	<0.1	<0.1	<0.1
11	Barium (as Ba), mg/l, Max	IS:15302 & APHA 21st	0.7	0.7	<0.5	<0.5	<0.5
12	Boron (as B), mg/l, Max	IS:3025 (Part-57)	0.5	1	<0.1	<0.1	<0.1
13	Calcium (as Ca),mg/l, Max	IS:3025 (Part-40)	75	200	24.0	5.6	8.0
14	Chloramines (as Cl_2), mg/l. Max	APHA 21st	4.0	4.0	NA	NA	NA
15	Chloride as Cl (mg/l),mg/l, Max	IS:3025 (Part-32)	250	1000	34.0	24.0	12.0
16	Copper (as Cu),mg/l, Max	IS:3025 (Part-42)	0.05	1.5	<0.01	<0.01	<0.01
17	Fluoride (as F),mg/l, Max	IS:3025 (Part-60)	1	1.5	<0.1	<0.1	<0.1
18	Residual, Free Chlorine,mg/l, Max	IS:3025 (Part-26)	0.2	1	<0.1	<0.1	<0.1
19	Iron (as Fe),mg/l, Max	IS:3025 (Part-53)	1.0	1.0	0.15	0.11	0.12
20	Magnesium (as Mg)mg/l, Max	IS:3025 (Part-46)	30	100	6.8	2.4	2.9
21	Manganese (as Mn),mg/l, Max	IS:3025 (Part-59)	0.1	0.3	<0.03	<0.03	<0.03
22	Mineral Oil,mg/l, Max	Clause 6 of IS 3025 (part -39)	0.5	0.5	<0.01	<0.01	<0.01
23	Nitrates (as NO_3),mg/l, Max	IS:3025 (Part-34)	45	45	10.7	1.5	1.4
24	Phenolics (as C_6H_5OH),mg/l, Max	IS:3025 (Part-43)	0.001	0.002	<0.001	<0.001	<0.001
25	Selenium (as Se),mg/l, Max	IS:3025 (Part-56)	0.01	0.01	<0.005	<0.005	<0.005
26	Silver (as Ag), mg/l. Max	Annex J of Is:13428	0.1	0.1	<0.002	<0.002	<0.002
27	Sulphates (as SO_4),mg/l, Max	IS:3025 (Part-24)	200	400	30.0	16.0	11.0
28	Sulphide (as H_2S) , mg/l, Max	IS:3025 (Part-29)	0.05	0.05	<0.01	<0.01	<0.01
29	Alkalinity (as $CaCO_3$) mg/l, Max	IS:3025 (Part-23)	200	600	80	20	20
30	Total Hardness (as $CaCO_3$),mg/l, Max	IS:3025 (Part-21)	200	600	88	24	32
31	Zinc (as Zn),mg/l, Max	IS:3025 (Part-49)	5	15	<0.005	<0.005	<0.005
32	Cadmium (as Cd),mg/l, Max	IS:3025 (Part-41)	0.003	0.003	<0.002	<0.002	<0.002
33	Cyanide (as CN),mg/l, Max	IS:3025 (Part-27)	0.05	0.05	<0.01	<0.01	<0.01
34	Lead (as Pb),mg/l, Max	IS:3025 (Part-47)	0.01	0.01	<0.005	<0.005	<0.005
35	Molybdenum (as Mo), mg/l, Max	APHA 21st	0.07	0.07	NA	NA	NA
36	Mercury (as Hg),mg/l, Max	IS:3025 (Part-48)	0.001	0.001	<0.0005	<0.0005	<0.0005
37	Nickel (as Ni),mg/l, Max	IS:3025 (Part-54)	0.02	0.02	<0.01	<0.01	<0.01
38	Pesticides,mg/l, Max	APHA 21st	Absent	0.001	NA	NA	NA
39	Polychlorinated biphenyls mg/l, Max	APHA 21st Edition	0.0005	0.0005	NA	NA	NA
40	Polynuclear Aromatic Hydrocarbons (as PAH),mg/l, Max	APHA 21st Edition	0.0001	0.0001	NA	NA	NA
41	Arsenic (as As),mg/l, Max	IS:3025 (Part-37)	0.01	0.01	<0.002	<0.002	<0.002
42	Chromium (as Cr^{+6}),mg/l, Max	IS:3025 (Part-52)	0.05	0.05	<0.03	<0.03	<0.03
43	Trihalomethanes,mg/l, Max	APHA 21st	--	--	NA	NA	NA
44	Radioactive materials,Bq/l,mg/l	APHA 21st	--	--	NA	NA	NA
45	Total Coliform (per 100ml)	IS:1622	Absent	Absent	Absent	Absent	Absent
46	E-Coli (per 100ml)	IS:1622	Absent	Absent	Absent	Absent	Absent
47	Water levels in well from surface (m)	--	--	--	2.50	1.80	9.00

SAMPLE TYPE : GW7 - Open Well water Sarmanas, GW8 - Open Well water Batwada , GW9 - Open Well water Dab Daba
Samples Collected & Analysed by Mineral Engineering Services, Ballari NA - Not Analysed

(M.R. DURGA PRASAD)
GOVT. ANALYST

(M.S.RAJU)
HEAD OF LABORATORY

25/XXV, Club Road, Ballari-583 103, Karnataka. Landline No. :08392-267421
E-mail : mes_msraju@yahoo.co.uk / mesbly25@gmail.com Website : www.envtest.in

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ISO 9001:2015
ISO 45001:2018

Table No. 4

WATER ANALYSIS REPORT

MES/W/TR/11/00

Name of the Project	**: Block I - Bicholim Mineral Block**
	Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Name of the Client	**: M/s. Vedanta Limited**
Date of sampling	**: 29.01.2023**
Date of Report	**: 10.02.2023**
Report No.	**: MES/WS/WRN/67**

Ref : IS:10500-2012 Norms (Drinking Water Standards)

Sl. No.	Parameters	Method of Testing	Desirable Limts	Permissible Limts	Result		
					GW10	GW11	GW12
1	Colour (Hazen Units), Max	IS:3025 (Part-4)	5	15	<1	2.0	1.0
2	Odour	IS:3025 (Part-5)	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	pH	IS:3025 (Part-11)	6.5 to 8.5	6.5 - 8.5	8.10	8.16	7.01
4	Taste	IS:3025 (Part- 8)	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity,NTU, Max	IS:3025 (Part-10)	1	5	3.1	2.8	4.1
6	Electrical Conductvity (µmhos/cm)	IS 3025 (P-14)	-	-	203	262	269
7	Total Dissolved Solids,mg/l, Max	IS:3025 (Part-16)	500	2000	118	152	156
8	Aluminium (as Al) mg/l, Max	IS:3025 (Part-55)	0.03	0.2	<0.01	<0.01	<0.01
9	Ammonia (as total Ammonia -N),mg/l, Max	IS:3025 (Part-34)	0.5	0.5	<0.1	<0.1	<0.1
10	Anionic Detergents (as MBAS),mg/l , Max	Annex K of Is:13428	0.2	1.0	<0.1	<0.1	<0.1
11	Barium (as Ba), mg/l, Max	IS:15302 & APHA 21st	0.7	0.7	<0.5	<0.5	<0.5
12	Boron (as B), mg/l, Max	IS:3025 (Part-57)	0.5	1	<0.1	<0.1	<0.1
13	Calcium (as Ca),mg/l, Max	IS:3025 (Part-40)	75	200	24.1	20.0	23.2
14	Chloramines (as Cl_2), mg/l. Max	APHA 21st	4.0	4.0	NA	NA	NA
15	Chloride as Cl (mg/l),mg/l, Max	IS:3025 (Part-32)	250	1000	16.0	20.0	30.0
16	Copper (as Cu),mg/l, Max	IS:3025 (Part-42)	0.05	1.5	<0.01	<0.01	<0.01
17	Fluoride (as F),mg/l, Max	IS:3025 (Part-60)	1	1.5	0.12	0.20	0.15
18	Residual, Free Chlorine,mg/l, Max	IS:3025 (Part-26)	0.2	1	<0.1	<0.1	<0.1
19	Iron (as Fe),mg/l, Max	IS:3025 (Part-53)	1.0	1.0	0.05	0.08	0.06
20	Magnesium (as Mg)mg/l, Max	IS:3025 (Part-46)	30	100	5.3	16.5	5.8
21	Manganese (as Mn),mg/l, Max	IS:3025 (Part-59)	0.1	0.3	<0.03	<0.03	<0.03
22	Mineral Oil,mg/l, Max	Clause 6 of IS 3025 (part -39)	0.5	0.5	<0.01	<0.01	<0.01
23	Nitrates (as NO_3),mg/l, Max	IS:3025 (Part-34)	45	45	2.3	6.2	30.2
24	Phenolics (as C_6H_5OH),mg/l, Max	IS:3025 (Part-43)	0.001	0.002	<0.001	<0.001	<0.001
25	Selenium (as Se),mg/l, Max	IS:3025 (Part-56)	0.01	0.01	<0.005	<0.005	<0.005
26	Silver (as Ag), mg/l. Max	Annex J of Is:13428	0.1	0.1	<0.002	<0.002	<0.002
27	Sulphates (as SO_4),mg/l, Max	IS:3025 (Part-24)	200	400	20.0	22.0	26.0
28	Sulphide (as H_2S) , mg/l, Max	IS:3025 (Part-29)	0.05	0.05	<0.01	<0.01	<0.01
29	Alkalinity (as $CaCO_3$) mg/l, Max	IS:3025 (Part-23)	200	600	78	110	60
30	Total Hardness (as $CaCO_3$),mg/l, Max	IS:3025 (Part-21)	200	600	82	118	82
31	Zinc (as Zn),mg/l, Max	IS:3025 (Part-49)	5	15	<0.005	<0.005	<0.005
32	Cadmium (as Cd),mg/l, Max	IS:3025 (Part-41)	0.003	0.003	<0.002	<0.002	<0.002
33	Cyanide (as CN),mg/l, Max	IS:3025 (Part-27)	0.05	0.05	<0.01	<0.01	<0.01
34	Lead (as Pb),mg/l, Max	IS:3025 (Part-47)	0.01	0.01	<0.005	<0.005	<0.005
35	Molybdenum (as Mo), mg/l, Max	APHA 21st	0.07	0.07	NA	NA	NA
36	Mercury (as Hg),mg/l, Max	IS:3025 (Part-48)	0.001	0.001	<0.0005	<0.0005	<0.0005
37	Nickel (as Ni),mg/l, Max	IS:3025 (Part-54)	0.02	0.02	<0.01	<0.01	<0.01
38	Pesticides,mg/l, Max	APHA 21st	Absent	0.001	NA	NA	NA
39	Polychlorinated biphenyls mg/l, Max	APHA 21st Edition	0.0005	0.0005	NA	NA	NA
40	Polynuclear Aromatic Hydrocarbons (as PAH),mg/l, Max	APHA 21st Edition	0.0001	0.0001	NA	NA	NA
41	Arsenic (as As),mg/l, Max	IS:3025 (Part-37)	0.01	0.01	<0.002	<0.002	<0.002
42	Chromium (as Cr^{+6}),mg/l, Max	IS:3025 (Part-52)	0.05	0.05	<0.03	<0.03	<0.03
43	Trihalomethanes,mg/l, Max	APHA 21st	--	--	NA	NA	NA
44	Radioactive materials,Bq/l,mg/l	APHA 21st	--	--	NA	NA	NA
45	Total Coliform (per 100ml)	IS:1622	Absent	Absent	Absent	Absent	Absent
46	E-Coli (per 100ml)	IS:1622	Absent	Absent	Absent	Absent	Absent
47	Water levels in well from surface (m)	--	--	--	14.70	5.00	6.60

SAMPLE TYPE : GW10 - Open Well water Mayem, GW11 - Open Well water-1 Lamgoa, GW12 - Open Well water-2 Lamgoa
Samples Collected & Analysed by Mineral Engineering Services, Ballari NA - Not Analysed

(M.R. DURGA PRASAD)
GOVT. ANALYST

(M.S.RAJU)
HEAD OF LABORATORY

25/XXV, Club Road, Ballari-583 103, Karnataka. Landline No. :08392-267421
E-mail : mes_msraju@yahoo.co.uk / mesbly25@gmail.com Website : www.envtest.in

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Table No. 5

WATER ANALYSIS REPORT

MES/W/TR/11/00

Name of the Project : **Block I - Bicholim Mineral Block**
Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Name of the Client : **M/s. Vedanta Limited**
Date of sampling : **29.01.2023**
Date of Report : **10.02.2023**
Report No. : **MES/WS/WRN/68**
Ref : IS:10500-2012 Norms (Drinking Water Standards)

Sl. No.	Parameters	Method of Testing	Desirable Limts	Permissible Limts	Result		
					GW13	GW14	GW15
1	Colour (Hazen Units), Max	IS:3025 (Part-4)	5	15	<1	<1	<1
2	Odour	IS:3025 (Part-5)	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	pH	IS:3025 (Part-11)	6.5 to 8.5	6.5 - 8.5	6.62	5.85	5.53
4	Taste	IS:3025 (Part- 8)	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity,NTU, Max	IS:3025 (Part-10)	1	5	3.5	4.7	3.0
6	Electrical Conductvity (µmhos/cm)	IS 3025 (P-14)	-	-	259	186	59
7	Total Dissolved Solids,mg/l, Max	IS:3025 (Part-16)	500	2000	150	108	34
8	Aluminium (as Al) mg/l, Max	IS:3025 (Part-55)	0.03	0.2	<0.01	<0.01	<0.01
9	Ammonia (as total Ammonia -N),mg/l, Max	IS:3025 (Part-34)	0.5	0.5	<0.1	<0.1	<0.1
10	Anionic Detergents (as MBAS),mg/l , Max	Annex K of Is:13428	0.2	1.0	<0.1	<0.1	<0.1
11	Barium (as Ba), mg/l, Max	IS:15302 & APHA 21st	0.7	0.7	<0.5	<0.5	<0.5
12	Boron (as B), mg/l, Max	IS:3025 (Part-57)	0.5	1	<0.1	<0.1	<0.1
13	Calcium (as Ca),mg/l, Max	IS:3025 (Part-40)	75	200	26.4	11.2	4.8
14	Chloramines (as Cl_2), mg/l. Max	APHA 21st	4.0	4.0	NA	NA	NA
15	Chloride as Cl (mg/l),mg/l, Max	IS:3025 (Part-32)	250	1000	22.0	30.0	12.0
16	Copper (as Cu),mg/l, Max	IS:3025 (Part-42)	0.05	1.5	<0.01	<0.01	<0.01
17	Fluoride (as F),mg/l, Max	IS:3025 (Part-60)	1	1.5	<0.1	<0.1	<0.1
18	Residual, Free Chlorine,mg/l, Max	IS:3025 (Part-26)	0.2	1	<0.1	<0.1	<0.1
19	Iron (as Fe),mg/l, Max	IS:3025 (Part-53)	1.0	1.0	<0.05	<0.05	<0.05
20	Magnesium (as Mg)mg/l, Max	IS:3025 (Part-46)	30	100	7.3	3.0	1.0
21	Manganese (as Mn),mg/l, Max	IS:3025 (Part-59)	0.1	0.3	<0.03	<0.03	<0.03
22	Mineral Oil,mg/l, Max	Clause 6 of IS 3025 (part -39)	0.5	0.5	<0.01	<0.01	<0.01
23	Nitrates (as NO_3),mg/l, Max	IS:3025 (Part-34)	45	45	7.0	24.8	<0.1
24	Phenolics (as C_6H_5OH),mg/l, Max	IS:3025 (Part-43)	0.001	0.002	<0.001	<0.001	<0.001
25	Selenium (as Se),mg/l, Max	IS:3025 (Part-56)	0.01	0.01	<0.005	<0.005	<0.005
26	Silver (as Ag), mg/l. Max	Annex J of Is:13428	0.1	0.1	<0.002	<0.002	<0.002
27	Sulphates (as SO_4),mg/l, Max	IS:3025 (Part-24)	200	400	28.0	20.0	4.0
28	Sulphide (as H_2S) , mg/l, Max	IS:3025 (Part-29)	0.05	0.05	<0.01	<0.01	<0.01
29	Alkalinity (as $CaCO_3$) mg/l, Max	IS:3025 (Part-23)	200	600	86	20	8
30	Total Hardness (as $CaCO_3$),mg/l, Max	IS:3025 (Part-21)	200	600	96	40	16
31	Zinc (as Zn),mg/l, Max	IS:3025 (Part-49)	5	15	<0.005	<0.005	<0.005
32	Cadmium (as Cd),mg/l, Max	IS:3025 (Part-41)	0.003	0.003	<0.002	<0.002	<0.002
33	Cyanide (as CN),mg/l, Max	IS:3025 (Part-27)	0.05	0.05	<0.01	<0.01	<0.01
34	Lead (as Pb),mg/l, Max	IS:3025 (Part-47)	0.01	0.01	<0.005	<0.005	<0.005
35	Molybdenum (as Mo), mg/l, Max	APHA 21st	0.07	0.07	NA	NA	NA
36	Mercury (as Hg),mg/l, Max	IS:3025 (Part-48)	0.001	0.001	<0.0005	<0.0005	<0.0005
37	Nickel (as Ni),mg/l, Max	IS:3025 (Part-54)	0.02	0.02	<0.01	<0.01	<0.01
38	Pesticides,mg/l, Max	APHA 21st	Absent	0.001	NA	NA	NA
39	Polychlorinated biphenyls mg/l, Max	APHA 21st Edition	0.0005	0.0005	NA	NA	NA
40	Polynuclear Aromatic Hydrocarbons (as PAH),mg/l, Max	APHA 21st Edition	0.0001	0.0001	NA	NA	NA
41	Arsenic (as As),mg/l, Max	IS:3025 (Part-37)	0.01	0.01	<0.002	<0.002	<0.002
42	Chromium (as Cr^{+6}),mg/l, Max	IS:3025 (Part-52)	0.05	0.05	<0.03	<0.03	<0.03
43	Trihalomethanes,mg/l, Max	APHA 21st	--	--	NA	NA	NA
44	Radioactive materials,Bq/l,mg/l	APHA 21st	--	--	NA	NA	NA
45	Total Coliform (per 100ml)	IS:1622	Absent	Absent	Absent	Absent	Absent
46	E-Coli (per 100ml)	IS:1622	Absent	Absent	Absent	Absent	Absent
47	Water levels in well from surface (m)	--	--	--	5.70	9.70	3.77

SAMPLE TYPE : GW13 - Open Well water Bordam, GW14 - Open Well water Walsi, GW15 - Open Well water Mulgao
Samples Collected & Analysed by Mineral Engineering Services, Ballari NA - Not Analysed

(M.R. DURGA PRASAD)
GOVT. ANALYST

(M.S.RAJU)
HEAD OF LABORATORY

25/XXV, Club Road, Ballari-583 103, Karnataka. Landline No. :08392-267421
E-mail : mes_msraju@yahoo.co.uk / mesbly25@gmail.com Website : www.envtest.in

MINERAL ENGINEERING SERVICES

Recognised by GOI, MOEF&CC Under E(P)A 1986 Vide Gazette Notification
No. S.O. 857(E) dated 26.02.2018. Recognition Valid Upto 25.02.2023

NABET ORG000756
ISO 9001:2015
ISO 45001:2018

Table No. 6

WATER ANALYSIS REPORT

MES/W/TR/11/00

Name of the Project : **Block I - Bicholim Mineral Block**
Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Name of the Client : **M/s. Vedanta Limited**
Date of sampling : **29.01.2023**
Date of Report : **10.02.2023**
Report No. : **MES/WS/WRN/69**
Ref : IS:10500-2012 Norms (Drinking Water Standards)

Sl. No.	Parameters	Method of Testing	Desirable Limts	Permissible Limts	Result		
					GW16	GW17	GW18
1	Colour (Hazen Units), Max	IS:3025 (Part-4)	5	15	1.0	1.0	<1
2	Odour	IS:3025 (Part-5)	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	pH	IS:3025 (Part-11)	6.5 to 8.5	6.5 - 8.5	7.50	7.80	5.92
4	Taste	IS:3025 (Part- 8)	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity,NTU, Max	IS:3025 (Part-10)	1	5	1.2	4.6	2.7
6	Electrical Conductvity (µmhos/cm)	IS 3025 (P-14)	-	-	224	307	93
7	Total Dissolved Solids,mg/l, Max	IS:3025 (Part-16)	500	2000	130	178	54
8	Aluminium (as Al) mg/l, Max	IS:3025 (Part-55)	0.03	0.2	<0.01	<0.01	<0.01
9	Ammonia (as total Ammonia -N),mg/l, Max	IS:3025 (Part-34)	0.5	0.5	<0.1	<0.1	<0.1
10	Anionic Detergents (as MBAS),mg/l , Max	Annex K of Is:13428	0.2	1.0	<0.1	<0.1	<0.1
11	Barium (as Ba), mg/l, Max	IS:15302 & APHA 21st	0.7	0.7	<0.5	<0.5	<0.5
12	Boron (as B), mg/l, Max	IS:3025 (Part-57)	0.5	1	<0.1	<0.1	<0.1
13	Calcium (as Ca),mg/l, Max	IS:3025 (Part-40)	75	200	17.6	38.4	7.2
14	Chloramines (as Cl_2), mg/l. Max	APHA 21st	4.0	4.0	NA	NA	NA
15	Chloride as Cl (mg/l),mg/l, Max	IS:3025 (Part-32)	250	1000	16.0	22.0	14.0
16	Copper (as Cu),mg/l, Max	IS:3025 (Part-42)	0.05	1.5	<0.01	<0.01	<0.01
17	Fluoride (as F),mg/l, Max	IS:3025 (Part-60)	1	1.5	<0.1	<0.1	0.11
18	Residual, Free Chlorine,mg/l, Max	IS:3025 (Part-26)	0.2	1	<0.1	<0.1	<0.1
19	Iron (as Fe),mg/l, Max	IS:3025 (Part-53)	1.0	1.0	<0.05	<0.05	<0.05
20	Magnesium (as Mg)mg/l, Max	IS:3025 (Part-46)	30	100	7.3	7.3	2.0
21	Manganese (as Mn),mg/l, Max	IS:3025 (Part-59)	0.1	0.3	<0.03	<0.03	<0.03
22	Mineral Oil,mg/l, Max	Clause 6 of IS 3025 (part -39)	0.5	0.5	<0.01	<0.01	<0.01
23	Nitrates (as NO_3),mg/l, Max	IS:3025 (Part-34)	45	45	1.4	4.6	4.0
24	Phenolics (as C_6H_5OH),mg/l, Max	IS:3025 (Part-43)	0.001	0.002	<0.001	<0.001	<0.001
25	Selenium (as Se),mg/l, Max	IS:3025 (Part-56)	0.01	0.01	<0.005	<0.005	<0.005
26	Silver (as Ag), mg/l. Max	Annex J of Is:13428	0.1	0.1	<0.002	<0.002	<0.002
27	Sulphates (as SO_4),mg/l, Max	IS:3025 (Part-24)	200	400	10.0	20.0	8.0
28	Sulphide (as H_2S) , mg/l, Max	IS:3025 (Part-29)	0.05	0.05	<0.01	<0.01	<0.01
29	Alkalinity (as $CaCO_3$) mg/l, Max	IS:3025 (Part-23)	200	600	100	130	20
30	Total Hardness (as $CaCO_3$),mg/l, Max	IS:3025 (Part-21)	200	600	74	126	26
31	Zinc (as Zn),mg/l, Max	IS:3025 (Part-49)	5	15	<0.005	<0.005	<0.005
32	Cadmium (as Cd),mg/l, Max	IS:3025 (Part-41)	0.003	0.003	<0.002	<0.002	<0.002
33	Cyanide (as CN),mg/l, Max	IS:3025 (Part-27)	0.05	0.05	<0.01	<0.01	<0.01
34	Lead (as Pb),mg/l, Max	IS:3025 (Part-47)	0.01	0.01	<0.005	<0.005	<0.005
35	Molybdenum (as Mo), mg/l, Max	APHA 21st	0.07	0.07	NA	NA	NA
36	Mercury (as Hg),mg/l, Max	IS:3025 (Part-48)	0.001	0.001	<0.0005	<0.0005	<0.0005
37	Nickel (as Ni),mg/l, Max	IS:3025 (Part-54)	0.02	0.02	<0.01	<0.01	<0.01
38	Pesticides,mg/l, Max	APHA 21st	Absent	0.001	NA	NA	NA
39	Polychlorinated biphenyls mg/l, Max	APHA 21st Edition	0.0005	0.0005	NA	NA	NA
40	Polynuclear Aromatic Hydrocarbons (as PAH),mg/l, Max	APHA 21st Edition	0.0001	0.0001	NA	NA	NA
41	Arsenic (as As),mg/l, Max	IS:3025 (Part-37)	0.01	0.01	<0.002	<0.002	<0.002
42	Chromium (as Cr^{+6}),mg/l, Max	IS:3025 (Part-52)	0.05	0.05	<0.03	<0.03	<0.03
43	Trihalomethanes,mg/l, Max	APHA 21st	--	--	NA	NA	NA
44	Radioactive materials,Bq/l,mg/l	APHA 21st	--	--	NA	NA	NA
45	Total Coliform (per 100ml)	IS:1622	Absent	Absent	Absent	Absent	Absent
46	E-Coli (per 100ml)	IS:1622	Absent	Absent	Absent	Absent	Absent
47	Water levels in well from surface (m)	--	--	--	1.90	3.06	10.70

SAMPLE TYPE : GW16 - Open Well water Sirigao, GW17 - Open Well water Tivim, GW18 - Open Well water Sirsaim
Samples Collected & Analysed by Mineral Engineering Services, Ballari NA - Not Analysed

(M.R. DURGA PRASAD)
GOVT. ANALYST

(M.S.RAJU)
HEAD OF LABORATORY

25/XXV, Club Road, Ballari-583 103, Karnataka. Landline No. :08392-267421
E-mail : mes_msraju@yahoo.co.uk / mesbly25@gmail.com Website : www.envtest.in

MINERAL ENGINEERING SERVICES

Recognised by GOI, MOEF&CC Under E(P)A 1986 Vide Gazette Notification
No. S.O. 857(E) dated 26.02.2018. Recognition Valid Upto 25.02.2023

NABET ORG000756
ISO 9001:2015
ISO 45001:2018

Table No. 7

WATER ANALYSIS REPORT

MES/W/TR/11/00

Name of the Project : **Block I - Bicholim Mineral Block**
Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Name of the Client : **M/s. Vedanta Limited**
Date of sampling : **29.01.2023**
Date of Report : **10.02.2023**
Report No. : **MES/WS/WRN/70**
Ref : IS:10500-2012 Norms (Drinking Water Standards)

Sl. No.	Parameters	Method of Testing	Desirable Limts	Permissible Limts	Result		
					GW19	GW20	GW21
1	Colour (Hazen Units), Max	IS:3025 (Part-4)	5	15	<1	<1	<1
2	Odour	IS:3025 (Part-5)	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	pH	IS:3025 (Part-11)	6.5 to 8.5	6.5 - 8.5	7.70	8.20	6.07
4	Taste	IS:3025 (Part- 8)	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity,NTU, Max	IS:3025 (Part-10)	1	5	5.0	4.2	2.7
6	Electrical Conductvity (µmhos/cm)	IS 3025 (P-14)	-	-	231	169	86
7	Total Dissolved Solids,mg/l, Max	IS:3025 (Part-16)	500	2000	134	98	50
8	Aluminium (as Al) mg/l, Max	IS:3025 (Part-55)	0.03	0.2	<0.01	<0.01	<0.01
9	Ammonia (as total Ammonia -N),mg/l, Max	IS:3025 (Part-34)	0.5	0.5	<0.1	<0.1	<0.1
10	Anionic Detergents (as MBAS),mg/l , Max	Annex K of Is:13428	0.2	1.0	<0.1	<0.1	<0.1
11	Barium (as Ba), mg/l, Max	IS:15302 & APHA 21st	0.7	0.7	<0.5	<0.5	<0.5
12	Boron (as B), mg/l, Max	IS:3025 (Part-57)	0.5	1	<0.1	<0.1	<0.1
13	Calcium (as Ca),mg/l, Max	IS:3025 (Part-40)	75	200	32.0	20.0	6.4
14	Chloramines (as Cl_2), mg/l. Max	APHA 21st	4.0	4.0	NA	NA	NA
15	Chloride as Cl (mg/l),mg/l, Max	IS:3025 (Part-32)	250	1000	20.0	14.0	14.0
16	Copper (as Cu),mg/l, Max	IS:3025 (Part-42)	0.05	1.5	<0.01	<0.01	<0.01
17	Fluoride (as F),mg/l, Max	IS:3025 (Part-60)	1	1.5	0.22	0.24	<0.1
18	Residual, Free Chlorine,mg/l, Max	IS:3025 (Part-26)	0.2	1	<0.1	<0.1	<0.1
19	Iron (as Fe),mg/l, Max	IS:3025 (Part-53)	1.0	1.0	<0.05	<0.05	<0.05
20	Magnesium (as Mg)mg/l, Max	IS:3025 (Part-46)	30	100	5.4	5.8	2.9
21	Manganese (as Mn),mg/l, Max	IS:3025 (Part-59)	0.1	0.3	<0.03	<0.03	<0.03
22	Mineral Oil,mg/l, Max	Clause 6 of IS 3025 (part -39)	0.5	0.5	<0.01	<0.01	<0.01
23	Nitrates (as NO_3),mg/l, Max	IS:3025 (Part-34)	45	45	2.0	1.8	4.5
24	Phenolics (as C_6H_5OH),mg/l, Max	IS:3025 (Part-43)	0.001	0.002	<0.001	<0.001	<0.001
25	Selenium (as Se),mg/l, Max	IS:3025 (Part-56)	0.01	0.01	<0.005	<0.005	<0.005
26	Silver (as Ag), mg/l. Max	Annex J of Is:13428	0.1	0.1	<0.002	<0.002	<0.002
27	Sulphates (as SO_4),mg/l, Max	IS:3025 (Part-24)	200	400	24.0	8.0	8.0
28	Sulphide (as H_2S) , mg/l, Max	IS:3025 (Part-29)	0.05	0.05	<0.01	<0.01	<0.01
29	Alkalinity (as $CaCO_3$) mg/l, Max	IS:3025 (Part-23)	200	600	98	74	12
30	Total Hardness (as $CaCO_3$),mg/l, Max	IS:3025 (Part-21)	200	600	102	74	28
31	Zinc (as Zn),mg/l, Max	IS:3025 (Part-49)	5	15	<0.005	<0.005	<0.005
32	Cadmium (as Cd),mg/l, Max	IS:3025 (Part-41)	0.003	0.003	<0.002	<0.002	<0.002
33	Cyanide (as CN),mg/l, Max	IS:3025 (Part-27)	0.05	0.05	<0.01	<0.01	<0.01
34	Lead (as Pb),mg/l, Max	IS:3025 (Part-47)	0.01	0.01	<0.005	<0.005	<0.005
35	Molybdenum (as Mo), mg/l, Max	APHA 21st	0.07	0.07	NA	NA	NA
36	Mercury (as Hg),mg/l, Max	IS:3025 (Part-48)	0.001	0.001	<0.0005	<0.0005	<0.0005
37	Nickel (as Ni),mg/l, Max	IS:3025 (Part-54)	0.02	0.02	<0.01	<0.01	<0.01
38	Pesticides,mg/l, Max	APHA 21st	Absent	0.001	NA	NA	NA
39	Polychlorinated biphenyls mg/l, Max	APHA 21st Edition	0.0005	0.0005	NA	NA	NA
40	Polynuclear Aromatic Hydrocarbons (as PAH),mg/l, Max	APHA 21st Edition	0.0001	0.0001	NA	NA	NA
41	Arsenic (as As),mg/l, Max	IS:3025 (Part-37)	0.01	0.01	<0.002	<0.002	<0.002
42	Chromium (as Cr^{+6}),mg/l, Max	IS:3025 (Part-52)	0.05	0.05	<0.03	<0.03	<0.03
43	Trihalomethanes,mg/l, Max	APHA 21st	--	--	NA	NA	NA
44	Radioactive materials,Bq/l,mg/l	APHA 21st	--	--	NA	NA	NA
45	Total Coliform (per 100ml)	IS:1622	Absent	Absent	Absent	Absent	Absent
46	E-Coli (per 100ml)	IS:1622	Absent	Absent	Absent	Absent	Absent
47	Water levels in well from surface (m)	--	--	--	4.40	5.00	3.60

SAMPLE TYPE : GW19 - Open Well water Assnora, GW20 - Open Well water Adwalpale, GW21 - Open Well water Kalapur
Samples Collected & Analysed by Mineral Engineering Services, Ballari **NA - Not Analysed**

(M.R. DURGA PRASAD)
GOVT. ANALYST

(M.S.RAJU)
HEAD OF LABORATORY

MINERAL ENGINEERING SERVICES

Recognised by GOI, MOEF&CC Under E(P)A 1986 Vide Gazette Notification
No. S.O. 857(E) dated 26.02.2018. Recognition Valid Upto 25.02.2023

NABET ORG000756
ISO 9001:2015
ISO 45001:2018

Table No. 8

WATER ANALYSIS REPORT

MES/W/TR/11/00

Name of the Project : **Block I - Bicholim Mineral Block**
Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Name of the Client : **M/s. Vedanta Limited**
Date of sampling : **29.01.2023**
Date of Report : **10.02.2023**
Report No. : **MES/WS/WRN/71**
Ref : IS:10500-2012 Norms (Drinking Water Standards)

Sl. No.	Parameters	Method of Testing	Desirable Limts	Permissible Limts	Result		
					GW22	GW23	GW24
1	Colour (Hazen Units), Max	IS:3025 (Part-4)	5	15	<1	1.0	1.0
2	Odour	IS:3025 (Part-5)	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	pH	IS:3025 (Part-11)	6.5 to 8.5	6.5 - 8.5	5.96	7.82	7.85
4	Taste	IS:3025 (Part- 8)	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity,NTU, Max	IS:3025 (Part-10)	1	5	1.8	3.2	4.0
6	Electrical Conductvity (µmhos/cm)	IS 3025 (P-14)	-	-	79	114	297
7	Total Dissolved Solids,mg/l, Max	IS:3025 (Part-16)	500	2000	46	66	172
8	Aluminium (as Al) mg/l, Max	IS:3025 (Part-55)	0.03	0.2	<0.01	<0.01	<0.01
9	Ammonia (as total Ammonia -N),mg/l, Max	IS:3025 (Part-34)	0.5	0.5	<0.1	<0.1	<0.1
10	Anionic Detergents (as MBAS),mg/l , Max	Annex K of Is:13428	0.2	1.0	<0.1	<0.1	<0.1
11	Barium (as Ba), mg/l, Max	IS:15302 & APHA 21st	0.7	0.7	<0.5	<0.5	<0.5
12	Boron (as B), mg/l, Max	IS:3025 (Part-57)	0.5	1	<0.1	<0.1	<0.1
13	Calcium (as Ca),mg/l, Max	IS:3025 (Part-40)	75	200	5.6	8.0	32.0
14	Chloramines (as Cl_2), mg/l. Max	APHA 21st	4.0	4.0	NA	NA	NA
15	Chloride as Cl (mg/l),mg/l, Max	IS:3025 (Part-32)	250	1000	12.0	14.0	20.0
16	Copper (as Cu),mg/l, Max	IS:3025 (Part-42)	0.05	1.5	<0.01	<0.01	<0.01
17	Fluoride (as F),mg/l, Max	IS:3025 (Part-60)	1	1.5	<0.1	<0.1	<0.1
18	Residual, Free Chlorine,mg/l, Max	IS:3025 (Part-26)	0.2	1	<0.1	<0.1	<0.1
19	Iron (as Fe),mg/l, Max	IS:3025 (Part-53)	1.0	1.0	<0.05	<0.05	<0.05
20	Magnesium (as Mg)mg/l, Max	IS:3025 (Part-46)	30	100	2.4	2.9	12.6
21	Manganese (as Mn),mg/l, Max	IS:3025 (Part-59)	0.1	0.3	<0.03	<0.03	<0.03
22	Mineral Oil,mg/l, Max	Clause 6 of IS 3025 (part -39)	0.5	0.5	<0.01	<0.01	<0.01
23	Nitrates (as NO_3),mg/l, Max	IS:3025 (Part-34)	45	45	1.6	1.2	4.2
24	Phenolics (as C_6H_5OH),mg/l, Max	IS:3025 (Part-43)	0.001	0.002	<0.001	<0.001	<0.001
25	Selenium (as Se),mg/l, Max	IS:3025 (Part-56)	0.01	0.01	<0.005	<0.005	<0.005
26	Silver (as Ag), mg/l. Max	Annex J of Is:13428	0.1	0.1	<0.002	<0.002	<0.002
27	Sulphates (as SO_4),mg/l, Max	IS:3025 (Part-24)	200	400	5.0	16.0	14.0
28	Sulphide (as H_2S) , mg/l, Max	IS:3025 (Part-29)	0.05	0.05	<0.01	<0.01	<0.01
29	Alkalinity (as $CaCO_3$) mg/l, Max	IS:3025 (Part-23)	200	600	24	26	132
30	Total Hardness (as $CaCO_3$),mg/l, Max	IS:3025 (Part-21)	200	600	24	32	132
31	Zinc (as Zn),mg/l, Max	IS:3025 (Part-49)	5	15	<0.005	<0.005	<0.005
32	Cadmium (as Cd),mg/l, Max	IS:3025 (Part-41)	0.003	0.003	<0.002	<0.002	<0.002
33	Cyanide (as CN),mg/l, Max	IS:3025 (Part-27)	0.05	0.05	<0.01	<0.01	<0.01
34	Lead (as Pb),mg/l, Max	IS:3025 (Part-47)	0.01	0.01	<0.005	<0.005	<0.005
35	Molybdenum (as Mo), mg/l, Max	APHA 21st	0.07	0.07	NA	NA	NA
36	Mercury (as Hg),mg/l, Max	IS:3025 (Part-48)	0.001	0.001	<0.0005	<0.0005	<0.0005
37	Nickel (as Ni),mg/l, Max	IS:3025 (Part-54)	0.02	0.02	<0.01	<0.01	<0.01
38	Pesticides,mg/l, Max	APHA 21st	Absent	0.001	NA	NA	NA
39	Polychlorinated biphenyls mg/l, Max	APHA 21st Edition	0.0005	0.0005	NA	NA	NA
40	Polynuclear Aromatic Hydrocarbons (as PAH),mg/l, Max	APHA 21st Edition	0.0001	0.0001	NA	NA	NA
41	Arsenic (as As),mg/l, Max	IS:3025 (Part-37)	0.01	0.01	<0.002	<0.002	<0.002
42	Chromium (as Cr^{+6}),mg/l, Max	IS:3025 (Part-52)	0.05	0.05	<0.03	<0.03	<0.03
43	Trihalomethanes,mg/l, Max	APHA 21st	--	--	NA	NA	NA
44	Radioactive materials,Bq/l,mg/l	APHA 21st	--	--	NA	NA	NA
45	Total Coliform (per 100ml)	IS:1622	Absent	Absent	Absent	Absent	Absent
46	E-Coli (per 100ml)	IS:1622	Absent	Absent	Absent	Absent	Absent
47	Water levels in well from surface (m)	--	--	--	2.96	3.78	4.58

SAMPLE TYPE : GW22 - Open Well water Bolwada, GW23 - Open Well water Sarvana, GW24 - Open Well water Corquem
Samples Collected & Analysed by Mineral Engineering Services, Ballari NA - Not Analysed

(M.R. DURGA PRASAD)
GOVT. ANALYST

(M.S.RAJU)
HEAD OF LABORATORY

25/XXV, Club Road, Ballari-583 103, Karnataka. Landline No. :08392-267421
E-mail : mes_msraju@yahoo.co.uk / mesbly25@gmail.com Website : www.envtest.in

MINERAL ENGINEERING SERVICES

Recognised by GOI, MOEF&CC Under E(P)A 1986 Vide Gazette Notification
No. S.O. 857(E) dated 26.02.2018. Recognition Valid Upto 25.02.2023

NABET ORG000756
MTIC INTERCERT ISO 9001:2015 ISO 45001:2018

Table No. 9

WATER ANALYSIS REPORT

MES/W/TR/11/00

Name of the Project	: **Block I - Bicholim Mineral Block**
	Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Name of the Client	: **M/s. Vedanta Limited**
Date of sampling	: **29.01.2023**
Date of Report	: **10.02.2023**
Report No.	: **MES/WS/WRN/72**

Ref : IS:10500-2012 Norms (Drinking Water Standards)

Sl. No.	Parameters	Method of Testing	Desirable Limts	Permissible Limts	Result		
					GW25	GW26	GW27
1	Colour (Hazen Units), Max	IS:3025 (Part-4)	5	15	<1	1.0	<1
2	Odour	IS:3025 (Part-5)	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	pH	IS:3025 (Part-11)	6.5 to 8.5	6.5 - 8.5	5.73	7.46	7.83
4	Taste	IS:3025 (Part- 8)	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity,NTU, Max	IS:3025 (Part-10)	1	5	2.1	1.2	0.7
6	Electrical Conductvity (µmhos/cm)	IS 3025 (P-14)	-	-	145	279	307
7	Total Dissolved Solids,mg/l, Max	IS:3025 (Part-16)	500	2000	84	162	178
8	Aluminium (as Al) mg/l, Max	IS:3025 (Part-55)	0.03	0.2	<0.01	<0.01	<0.01
9	Ammonia (as total Ammonia -N),mg/l, Max	IS:3025 (Part-34)	0.5	0.5	<0.1	<0.1	<0.1
10	Anionic Detergents (as MBAS),mg/l , Max	Annex K of Is:13428	0.2	1.0	<0.1	<0.1	<0.1
11	Barium (as Ba), mg/l, Max	IS:15302 & APHA 21st	0.7	0.7	<0.5	<0.5	<0.5
12	Boron (as B), mg/l, Max	IS:3025 (Part-57)	0.5	1	<0.1	<0.1	<0.1
13	Calcium (as Ca),mg/l, Max	IS:3025 (Part-40)	75	200	8.8	36.8	32.0
14	Chloramines (as Cl_2), mg/l. Max	APHA 21st	4.0	4.0	NA	NA	NA
15	Chloride as Cl (mg/l),mg/l, Max	IS:3025 (Part-32)	250	1000	28.0	22.0	30.0
16	Copper (as Cu),mg/l, Max	IS:3025 (Part-42)	0.05	1.5	<0.01	<0.01	<0.01
17	Fluoride (as F),mg/l, Max	IS:3025 (Part-60)	1	1.5	<0.1	<0.1	<0.1
18	Residual, Free Chlorine,mg/l, Max	IS:3025 (Part-26)	0.2	1	<0.1	<0.1	<0.1
19	Iron (as Fe),mg/l, Max	IS:3025 (Part-53)	1.0	1.0	<0.05	<0.05	<0.05
20	Magnesium (as Mg)mg/l, Max	IS:3025 (Part-46)	30	100	2.4	6.8	9.7
21	Manganese (as Mn),mg/l, Max	IS:3025 (Part-59)	0.1	0.3	<0.03	<0.03	<0.03
22	Mineral Oil,mg/l, Max	Clause 6 of IS 3025 (part -39)	0.5	0.5	<0.01	<0.01	<0.01
23	Nitrates (as NO_3),mg/l, Max	IS:3025 (Part-34)	45	45	5.6	1.3	18.2
24	Phenolics (as C_6H_5OH),mg/l, Max	IS:3025 (Part-43)	0.001	0.002	<0.001	<0.001	<0.001
25	Selenium (as Se),mg/l, Max	IS:3025 (Part-56)	0.01	0.01	<0.005	<0.005	<0.005
26	Silver (as Ag), mg/l. Max	Annex J of Is:13428	0.1	0.1	<0.002	<0.002	<0.002
27	Sulphates (as SO_4),mg/l, Max	IS:3025 (Part-24)	200	400	8.0	10.0	25.0
28	Sulphide (as H_2S) , mg/l, Max	IS:3025 (Part-29)	0.05	0.05	<0.01	<0.01	<0.01
29	Alkalinity (as $CaCO_3$) mg/l, Max	IS:3025 (Part-23)	200	600	26	122	100
30	Total Hardness (as $CaCO_3$),mg/l, Max	IS:3025 (Part-21)	200	600	32	120	120
31	Zinc (as Zn),mg/l, Max	IS:3025 (Part-49)	5	15	<0.005	<0.005	<0.005
32	Cadmium (as Cd),mg/l, Max	IS:3025 (Part-41)	0.003	0.003	<0.002	<0.002	<0.002
33	Cyanide (as CN),mg/l, Max	IS:3025 (Part-27)	0.05	0.05	<0.01	<0.01	<0.01
34	Lead (as Pb),mg/l, Max	IS:3025 (Part-47)	0.01	0.01	<0.005	<0.005	<0.005
35	Molybdenum (as Mo), mg/l, Max	APHA 21st	0.07	0.07	NA	NA	NA
36	Mercury (as Hg),mg/l, Max	IS:3025 (Part-48)	0.001	0.001	<0.0005	<0.0005	<0.0005
37	Nickel (as Ni),mg/l, Max	IS:3025 (Part-54)	0.02	0.02	<0.01	<0.01	<0.01
38	Pesticides,mg/l, Max	APHA 21st	Absent	0.001	NA	NA	NA
39	Polychlorinated biphenyls mg/l, Max	APHA 21st Edition	0.0005	0.0005	NA	NA	NA
40	Polynuclear Aromatic Hydrocarbons (as PAH),mg/l, Max	APHA 21st Edition	0.0001	0.0001	NA	NA	NA
41	Arsenic (as As),mg/l, Max	IS:3025 (Part-37)	0.01	0.01	<0.002	<0.002	<0.002
42	Chromium (as Cr^{+6}),mg/l, Max	IS:3025 (Part-52)	0.05	0.05	<0.03	<0.03	<0.03
43	Trihalomethanes,mg/l, Max	APHA 21st	--	--	NA	NA	NA
44	Radioactive materials,Bq/l,mg/l	APHA 21st	--	--	NA	NA	NA
45	Total Coliform (per 100ml)	IS:1622	Absent	Absent	Absent	Absent	Absent
46	E-Coli (per 100ml)	IS:1622	Absent	Absent	Absent	Absent	Absent
47	Water levels in well from surface (m)	--	--	--	5.80	5.75	4.70

SAMPLE TYPE : GW25 - Open Well water Shikari , GW26 - Open Well water Kumbarwada, GW27 - Open Well water Calivim
Samples Collected & Analysed by Mineral Engineering Services, Ballari NA - Not Analysed

(M.R. DURGA PRASAD)
GOVT. ANALYST

(M.S.RAJU)
HEAD OF LABORATORY

25/XXV, Club Road, Ballari-583 103, Karnataka. Landline No. :08392-267421
E-mail : mes_msraju@yahoo.co.uk / mesbly25@gmail.com Website : www.envtest.in

MINERAL ENGINEERING SERVICES

Recognised by GOI, MOEF&CC Under E(P)A 1986 Vide Gazette Notification No. S.O. 857(E) dated 26.02.2018. Recognition Valid Upto 25.02.2023

NABET ORG000756

ISO 9001:2015
ISO 45001:2018

Table No. 10

WATER ANALYSIS REPORT

MES/W/TR/11/00

Name of the Project : Block I - Bicholim Mineral Block
Bicholim, Bordem, Lamgao, Mulgao, Mayem & Sirigao villages, Bicholim Taluka, North Goa
Name of the Client : M/s. Vedanta Limited
Date of sampling : 29.01.2023
Date of Report : 10.02.2023
Report No. : MES/WS/WRN/73
Ref : IS:10500-2012 Norms (Drinking Water Standards)

Sl. No.	Parameters	Method of Testing	Desirable Limts	Permissible Limts	Result		
					GW28	GW29	GW30
1	Colour (Hazen Units), Max	IS:3025 (Part-4)	5	15	<1	<1	<1
2	Odour	IS:3025 (Part-5)	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	pH	IS:3025 (Part-11)	6.5 to 8.5	6.5 - 8.5	7.56	8.12	8.85
4	Taste	IS:3025 (Part- 8)	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity,NTU, Max	IS:3025 (Part-10)	1	5	4.0	2.8	4.0
6	Electrical Conductvity (µmhos/cm)	IS 3025 (P-14)	-	-	448	114	93
7	Total Dissolved Solids,mg/l, Max	IS:3025 (Part-16)	500	2000	260	66	54
8	Aluminium (as Al) mg/l, Max	IS:3025 (Part-55)	0.03	0.2	<0.01	<0.01	<0.01
9	Ammonia (as total Ammonia -N),mg/l, Max	IS:3025 (Part-34)	0.5	0.5	<0.1	<0.1	<0.1
10	Anionic Detergents (as MBAS),mg/l , Max	Annex K of Is:13428	0.2	1.0	<0.1	<0.1	<0.1
11	Barium (as Ba), mg/l, Max	IS:15302 & APHA 21st	0.7	0.7	<0.5	<0.5	<0.5
12	Boron (as B), mg/l, Max	IS:3025 (Part-57)	0.5	1	<0.1	<0.1	<0.1
13	Calcium (as Ca),mg/l, Max	IS:3025 (Part-40)	75	200	48.9	9.6	8.0
14	Chloramines (as Cl_2), mg/l. Max	APHA 21st	4.0	4.0	NA	NA	NA
15	Chloride as Cl (mg/l),mg/l, Max	IS:3025 (Part-32)	250	1000	68.0	12.0	10.0
16	Copper (as Cu),mg/l, Max	IS:3025 (Part-42)	0.05	1.5	<0.01	<0.01	<0.01
17	Fluoride (as F),mg/l, Max	IS:3025 (Part-60)	1	1.5	<0.1	<0.1	<0.1
18	Residual, Free Chlorine,mg/l, Max	IS:3025 (Part-26)	0.2	1	<0.1	<0.1	<0.1
19	Iron (as Fe),mg/l, Max	IS:3025 (Part-53)	1.0	1.0	<0.05	<0.05	<0.05
20	Magnesium (as Mg)mg/l, Max	IS:3025 (Part-46)	30	100	8.7	4.8	2.9
21	Manganese (as Mn),mg/l, Max	IS:3025 (Part-59)	0.1	0.3	<0.03	<0.03	<0.03
22	Mineral Oil,mg/l, Max	Clause 6 of IS 3025 (part -39)	0.5	0.5	<0.01	<0.01	<0.01
23	Nitrates (as NO_3),mg/l, Max	IS:3025 (Part-34)	45	45	1.1	1.5	1.0
24	Phenolics (as C_6H_5OH),mg/l, Max	IS:3025 (Part-43)	0.001	0.002	<0.001	<0.001	<0.001
25	Selenium (as Se),mg/l, Max	IS:3025 (Part-56)	0.01	0.01	<0.005	<0.005	<0.005
26	Silver (as Ag), mg/l. Max	Annex J of Is:13428	0.1	0.1	<0.002	<0.002	<0.002
27	Sulphates (as SO_4),mg/l, Max	IS:3025 (Part-24)	200	400	22.4	6.2	4.4
28	Sulphide (as H_2S) , mg/l, Max	IS:3025 (Part-29)	0.05	0.05	<0.01	<0.01	<0.01
29	Alkalinity (as $CaCO_3$) mg/l, Max	IS:3025 (Part-23)	200	600	130	40	30
30	Total Hardness (as $CaCO_3$),mg/l, Max	IS:3025 (Part-21)	200	600	158	44	32
31	Zinc (as Zn),mg/l, Max	IS:3025 (Part-49)	5	15	<0.005	<0.005	<0.005
32	Cadmium (as Cd),mg/l, Max	IS:3025 (Part-41)	0.003	0.003	<0.002	<0.002	<0.002
33	Cyanide (as CN),mg/l, Max	IS:3025 (Part-27)	0.05	0.05	<0.01	<0.01	<0.01
34	Lead (as Pb),mg/l, Max	IS:3025 (Part-47)	0.01	0.01	<0.005	<0.005	<0.005
35	Molybdenum (as Mo), mg/l, Max	APHA 21st	0.07	0.07	NA	NA	NA
36	Mercury (as Hg),mg/l, Max	IS:3025 (Part-48)	0.001	0.001	<0.0005	<0.0005	<0.0005
37	Nickel (as Ni),mg/l, Max	IS:3025 (Part-54)	0.02	0.02	<0.01	<0.01	<0.01
38	Pesticides,mg/l, Max	APHA 21st	Absent	0.001	NA	NA	NA
39	Polychlorinated biphenyls mg/l, Max	APHA 21st Edition	0.0005	0.0005	NA	NA	NA
40	Polynuclear Aromatic Hydrocarbons (as PAH),mg/l, Max	APHA 21st Edition	0.0001	0.0001	NA	NA	NA
41	Arsenic (as As),mg/l, Max	IS:3025 (Part-37)	0.01	0.01	<0.002	<0.002	<0.002
42	Chromium (as Cr^{+6}),mg/l, Max	IS:3025 (Part-52)	0.05	0.05	<0.03	<0.03	<0.03
43	Trihalomethanes,mg/l, Max	APHA 21st	--	--	NA	NA	NA
44	Radioactive materials,Bq/l,mg/l	APHA 21st	--	--	NA	NA	NA
45	Total Coliform (per 100ml)	IS:1622	Absent	Absent	Absent	Absent	Absent
46	E-Coli (per 100ml)	IS:1622	Absent	Absent	Absent	Absent	Absent
47	Water levels in well from surface (m)	--	--	--	6.15	5.50	2.15

SAMPLE TYPE : GW28 - Open Well water Lamkona , GW29 - Open Well water Nachinala, GW30 - Open Well water Nanoda
Samples Collected & Analysed by Mineral Engineering Services, Ballari **NA - Not Analysed**

(M.R. DURGA PRASAD)
GOVT. ANALYST

(M.S.RAJU)
HEAD OF LABORATORY

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ANNEXURE-R4-14

Government of Goa
Directorate of Mines & Geology
Institute Menezes Braganza, Panaji-Goa
Website: www.dmg.goa.gov.in **e-mail: auction-dmg@goa.gov.in**
No.DMG/25/Auction Cell/LOI-function/2023/7801 Date:13/01/2023

Letter of Intent for Block I - Bicholim Mineral Block

To,
Vedanta Limited
Sesa Ghor, 20 EDC Complex,
Patto, Panaji, Goa, 403001 India.

***Sub:** Letter of intent with reference to e-auction dated December 14, 2022 for grant of a mining lease for Block I - Bicholim Mineral Block for Iron Ore mineral in Bicholim, Bordem, Lamgao, Mulgao Mayem & Sirigao village, Bicholim Taluka, North Goa District on 478.5206 Hectare Area.*

1. **Background**:

1.1 Government of Goa, pursuant to the Mines and Minerals (Development and Regulation) Act, 1957 (the "**Act**") and the Mineral (Auction) Rules, 2015 as amended from time to time (the "**Auction Rules**"), issued the notice inviting tender dated September 30, 2022 to commence the auction process for grant of mining lease for **Block I - Bicholim Mineral Block** located in North Goa. The e-auction process was conducted in accordance with the tender document for the said mineral block and **Vedanta Limited** was declared as the 'Preferred Bidder' under Rule 9(9)(iii) of Auction Rules, having quoted a Final Price Offer of **63.55% (Sixty three point five five percent)**.

DIRECTORATE OF MINES & GEOLOGY GOVT. OF GOA PANAJI-GOA

1.2 As required under Rule 10(1) of the Auction Rules and the tender document for the said mineral block, **Vedanta Limited** has made payment of the first instalment, being 20% (twenty per cent) of the upfront payment of Rs. 27,16,70,301 (Rupees Twenty Seven Crore Sixteen Lakh Seventy Thousand Three Hundred One) through e-Challan (e-Challan No. 202300008550) dated January 4, 2023, which was received at Goa.

2. Grant of Letter of Intent

2.1. Accordingly, pursuant to Rule 10(2) of the Auction Rules and the terms of the Tender Document, the Government of Goa is issuing this letter of intent for grant of Mining Lease for **Block I - Bicholim Mineral Block** for Iron Ore in Bicholim, Bordem, Lamgao, Mulgao Mayem & Sirigao village, Bicholim Taluka, North Goa District on 478.5206 Hectare Area to **Vedanta Limited** for a period of 50 (fifty) years.

3. Conditions

3.1. This letter of intent and the subsequent grant of aforementioned mining lease shall be subject to the provisions of the Act and the Rules made thereunder, as amended from time to time, and the **Vedanta Limited** shall be designated as the 'Successful Bidder' and subsequently granted the mining lease only upon satisfactory completion of all the requirements under the Acts and Rules made thereunder.

DIRECTORATE OF MINES & GEOLOGY GOVT. OF GOA

The State Government may impose such other conditions in the Mine Development and Production Agreement (MDPA) and/or Mining Lease as may be considered by the State Government to be in the interest of mineral development and in public interest.

Vedanta Limited shall be bound by (i) the enactment, bringing into

effect, adoption, promulgation, amendment, modification or repeal of any Applicable Laws (including the Act and Rules) occurring at any time, including prior to or after the Bid Due Date; (ii) any amendments made by the State Government to this effect in the Tender Document, the letter of intent, the MDPA and/or the mining lease deed at any time, including prior to or after the Bid Due Date.

3.2. For reference, the requirements under the Auction Rules for designation of **Vedanta Limited** as the "successful bidder" and subsequent grant of the mining lease are reiterated below. It is clarified that the requirements mentioned below are only for reference and in the event of any change in the Act or the Rules made thereunder, the requirements under the modified Act or the Rules made thereunder, as the case may be, shall be applicable.

(a) Designation as the "Successful Bidder":

Vedanta Limited shall be considered to be the "Successful Bidder" upon:

(i) continuing to be in compliance with all the terms and conditions of eligibility;

(ii) payment of the second instalment being 20% (twenty per cent) of the upfront payment;

(iii) furnishing an irrevocable and unconditional performance security to the State Government from an Acceptable Bank and payable at Goa, pursuant to the Auction Rules;

(iv) satisfying the conditions specified in clause (b) of sub-section (2) of Section 5 of the Act with respect to a mining plan; and

DIRECTORATE OF MINES & GEOLOGY GOVT. OF GOA PANAJI-GOA

(b) Signing of the Mine Development and Production Agreement

Vedanta Limited shall sign the Mine Development and Production Agreement with the Government of Goa upon obtaining all consents, approvals, permits, no-objections and the like as may be required under applicable laws for commencement of mining operations.

(c) Grant of Mining Lease

Subsequent to signing of the Mine Development and Production Agreement, **Vedanta Limited** shall make payment of the third instalment being 60% (sixty per cent) of the upfront payment and thereafter the Government of Goa shall grant the aforementioned mining lease.

3.3. The State Government reserves the right, but not the obligation, to appropriate and dispose of (whether by way of sale, auction or such other means as the State Government may, in its sole discretion, determine) all or any part of the dumps presently located within the Mineral Block. Provided that such right shall be exercised by the State Government no later than 12 (twelve) months from the date of issuance of this Letter of Intent. It is clarified that the Successful Bidder shall, in accordance with Applicable Law, be entitled to dispose of only such part of the dumps in respect of which the State Government does not exercise the aforesaid right.

DIRECTORATE OF MINES & GEOLOGY GOVT. OF GOA

4. Validity

4.1. This Letter of Intent shall be valid only if **Vedanta Limited** ensures that the Bid Security is valid until the Performance Security is furnished to the Government of Goa failing which this letter of intent shall become invalid from the date of expiry of the Bid Security.

4.2. This letter of intent is valid for a period of 3 (three) years from the date of its issuance, within which time all the above conditions must be fulfilled and the Mining Lease deed must be executed between the **Vedanta Limited** and the Government of Goa. In case there is a delay in execution of Mining Lease Deed due to reasons beyond the control of the Preferred Bidder, then it may submit an application to Government of Goa, requesting for further extension

4.3. If the Government of Goa is satisfied that there is a delay in execution of Mining Lease Deed due to reasons beyond the control of the Preferred Bidder and a longer period is required to enable the Preferred Bidder to satisfy all or any of the above conditions, it may extend the validity of this letter of intent for such period or periods as the Government of Goa may specify. Provided that: (a) this letter of intent shall be extended for a maximum period of 2 (two) years; and (b) the total period for which this letter of intent would remain valid must not exceed 5 (five) years from the date of issuance.

Kindly return the duplicate copy of this letter of intent duly signed by authorized signatory in token of having accepted the above terms and conditions. The accepted copy of Letter of Intent along with Board resolution should be submitted latest by **January 27, 2023.**

(Dr. S. Shanbhogue)
Director

DIRECTORATE OF MINES & GEOLOGY
GOVT. OF GOA

ANNEXURE-R4-15

GOVERNMENT OF GOA
OFFICE OF THE EXECUTIVE ENGINEER
& GROUND WATER OFFICER,
WORKS DIVISION I
WATER RESOURCES DEPARTMENT
PORVORIM GOA

To,
Vedanta Limited,
Sesa Ghar, 20EDC Complex,
Patto, Panaji,
Goa 403001.

Sub: Issue NOC reg.... Registration of existing mining pit in the location identified between Latitude 15°34'20.518" N to 15°36'54.018" N and Longitude 73°54'4.754"E to 73°57"09.51"E, in Bicholim Talukas, State of Goa.

Sir,

The application submitted vide letter dated. 19/06/2023 along with Hydrogeological and impact assessment of Ground Water, prepared by Shri. M.C. Reddy Consultant with NABET & CGWA accreditation and former Regional Director, CGWB is examined by the Ground Water Cell during its 127th meeting held on 18/09/2023.

The NOC/Registration is hereby issued as below with conditions.

FORM – III
[See Rule 3(6)(2)]

Certificate of Registration of an existing well/mine and permission for it's continuous use in the Scheduled area under 5(4) of the Goa Ground Water Regulation Act, 2002 (Goa Act 1 of 2002).

*** Well be read as Mine**

Registration Certificate

No. **3634** Date: **21/09/ 2023**

1. Register Number of well/mine: **Block I-Bicholim Mineral Block of Vedanta Limited.**

Location of well/Mining Pits,
a)Survey Number:
i) Bordem Parts of Survey No. 19, 21, 23, 31, 32, 33, 34, 40, 41, 42, 43, 44.
ii) Bicholim : Survey No. 80, 81 & Parts of Survey No. 72,77,78,79, 82, 83, 84, 86, 88, 89, 90, 95, 96 & 99.
iii) Lamgao Survey No: 20, 24, 25, 26 & Parts of Survey No. 1, 9, 10, 11 13, 14, 15, 16, 17, 18, 19, 21, 22, 23, 27, 28, 29, 30 & 46.
iv) Maem: Survey No: 145, 164, 165 & Parts of Survey No. 84, 85, 86, 114, 142, 143, 144, 146, 162, 163, 166, & 167.
v) Mulgao: Survey No. 34,62, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 89, 91, 110, 114, 115, 116 & Parts of Survey No. 33, 35, 48, 61, 63, 79, 80, 81, 86, 88, 90, 92, 93, 94, 95, 96, 101, 102, 103, 104, 109, 111, 112, 113, 117, 118 & 124.
vi) Sirigao: Parts of Survey No. 70, 75, 76, 77, 78, 79, 80, 81, & 82.
b) Name of land: ____-____
c) Revenue Village Panchayat: **Bordem, Bicholim, Lamgao, Maem, Mulgao & Sirigao.**
d) Taluka: **Bicholim**

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e) District: **North -Goa**

Type of well/tank: **Mining Pit**

Details of well/mine
a) Diameter size of well/mining pits: } **As per submitted mining plan.**
b) Depth of well/tank/mining pits: }
c) Year of construction: **Existing Mining Pits.**
d) Year of commissioning: -
Name of occupant and address: - **Block I-Bicholim Mineral Block of Vedanta Limited, Sesa Ghor, 20 EDC Complex, Patto, Panaji – Goa 403001**

The device used for lifting the ground water Pump
Details of power supply
(a) Type of pump: } **Centrifugal**
(b) Horse power - } **6 pumps of 120 HP and two standby pumps of 75Hp & 120 Hp**
(c) Pump capacity - } **as per pit planning for mining operation.**
(d) E.D. Power supply connection number-

8. (a)Number of hours of pumping allowed per day As required for scientific operation of mine
(b)The quantity of drawal of ground water allowed per day As required for scientific operation of mine
(c)The total period of use permissible in each year Full year

9. Validity period of registration: 2 (Two) year from date of issue **(21/09/2023 to 20/09/2025)**

This is subject to the following conditions

1. The certificate holder should not deviate in any way from specification regarding well, pump etc. mentioned above without approval of Ground Water Officer.

2. The drawal of ground water under this license should not interfere with the normal activities of the locality nor should it cause any traffic hazard.

3. The Ground Water Officer or any person duly authorized by him shall have the right to inspect the place with such assistance as may be necessary to satisfy itself or himself whether the condition of restrictions specified as complied.

4. Installation of Peizometers: The applicant should install Peizometers of type (One DWLR and One DWLR with Telemetry System) for monitoring the Ground Water levels within the core area of mining lease for observation & monitoring.

5. Monitoring the Ground Water level in the buffer zone the established network of existing wells in the buffer zone (as per table 15 of the report), needs to be monitored on monthly basis and submitted to Ground Water Officer (WRD) and CGWB.

6. The project proponent needs to monitor the water quality of the mines seepage and mine discharge through NABL accredited/ Government approved laboratory on monthly basis to WRD and CGWB, Bangalore.

7. The applicant needs to ensure that the water available from the dewatering operations needs to be properly treated and quantity utilised for supply to irrigation/dust suppression/mining process.

8. The applicant needs to install digital water meter for measurement of the quantity of water abstraction, which will be chargeable as per the notification of Ground Water Act 2002.

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9. Once the mining activities commence, year wise mine planning including excavation depth, area and mine seepage are to be submitted to WRD/CGWB every year.

10. All activities committed in the report on ground water recharge and rain water harvesting is to be implemented satisfactorily.

Place : **Porvorim**

Date : **21/09/2023**

21/9/23

Signature of the Ground Water Officer

Works Division I, Water Resources Department
बांधकाम विभाग I, उदका साधन खाते
पर्वरी-गोवा
Porvorim-Goa

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