BEFORE THE NATIONAL GREEN TRIBUNAL

EASTERN ZONE BENCH, KOLKATA

IA No .33. of 2026

Appeal No. 09/2024/EZ

IN THE MATTER OF:

CHITTA RANJAN MAHANTA & ORS.

…Appellants

VERSUS

UNION OF INDIA & ORS.

…Respondents

INDEX

S No	Particulars	Page
1.	Memo of Parties	836-837
2.	Interlocutory Application	838-844
3.	Annexure A Copy of the Affidavit in Reply on behalf of Respondent no. 8	845-1676
4.	Proof of Service	1677-1678

Place: Kolkata

Date: 11.03.2026

Priyanka Saha

Advocate
Priyanka Saha
Advocate
Enrolment no. WB/2273/2013
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BEFORE THE NATIONAL GREEN TRIBUNAL

EASTERN ZONE BENCH, KOLKATA

IA No …… of 2026

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IN THE MATTER OF:

CHITTA RANJAN MAHANTA & ORS.

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…Respondents

MEMO OF PARTIES

1. Chittaranjan Mahanta S/0- Mahendra Mahanta Aged about 42years
2. Samaresh Mahanta S/0-Maghanad Mahanta Aged about-43 years
3. Nirakara Sahu, S/o Dwarikanath Sahu, aged about 51 years
4. Shiba Charan Mahanta, S/o Sambaru Mahanta, aged about 52 years
5. Saheb Mahanta, S/o Jagannath Mahanta, aged about 63 years
6. Trilochan Mahanta, S/o Prana Krishna Mahanta, aged about 61 years
7. Pitambara Mahanta, S/o Sambaru Mahanta, aged about 67 years
8. Hrushikesh Mahanta, S/o Bhima Mahanta, aged about 55 years
9. Santosh Mahanta, S/o Iswara Mahanta, aged about 44 years
10. Baneswar Munda S/o pandru Munda aged about 28 yearS

All residents of At -Kapanda, Po- Bad purnapani, PSLahunipara, Dist - Sundargarh, Odisha, Pin -770040

……APPELLANTS

VERSUS

1. UNION OF INDIA Through the Secretary, Ministry of Environment, Forests and Climate Change, Indira Paryavaran Bhawan, Jorbagh, New Delhi - 110003; Email - mef@nic.in, secy-moef@nic.in

2. State of Odisha through Chief Secretary of Odisha, LokaSeva Bhawan, Bhubaneswar, 751001; Email - csori@nic.in
3. Additional Chief Secretary, Forest and Environment Department, Kharbela Bhawan, Bhubaneswar, Government of Odisha 751001; Email - fesec.or@nic.in
4. District Collector, Sundargarh, At/Po/Dist- Sundergarh, Odisha, 752001; Email - dm-sundergarh@nic.in
5. Divisional Forest Officer, Rourkela, At/Po/Ps- Rourkela, Sundergarh; Email - dforourkela@yahoo.co.in
6. Managing Director, Orissa Industrial Development Corporation (IDCO) IDCO Tower, Exhibition Ground, Bhubaneshwar, Odisha 751001; Email - dm-sundergarh@nic.in
7. Chairman, Odisha State Biodiversity Board, Bhubaneswar, PO-IRC village, Bhubaneswar-15; Email - msobb@rediffmail.com
8. M/s. K A I International Private Limited, Through it‟s director , At/Po- CCC-23, Civil Township, Rourkela; Email - info@groupkalinga.com
9. Visiontek Consultancy Services Pvt. Ltd. Represented Through it‟s Managing Director, At/Po-Plot No- M-22 & M23, Chandaka Industrial Estate, Patia, Bhubaneswar- 751024 Phone No.: 91-674- 3511721, Website- www.visiontek.org; E-mail- visiontekin@gmail.com.

...RESPONDENTS

BEFORE THE NATIONAL GREEN TRIBUNAL

EASTERN ZONE BENCH, KOLKATA
IA No .....of 2026
Appeal No. 09/2024/EZ

IN THE MATTER OF:

CHITTA RANJAN MAHANTA & ORS.



...Appellants

VERSUS

UNION OF INDIA & ORS.

...Respondents

APPLICATION FOR RECALL OF ORDER DATED 06.01.2026 AND FOR TAKING REPLY AFFIDAVIT ON RECORD ON BEHALF OF RESPONDENT NO. 8

1. The Applicant is Respondent No. 8 in the present appeal and is filing the present application seeking recall of the order dated 06.01.2026 setting the matter ex-parte against the Respondent no. 8 and leave to place its reply affidavit on record.

2. The matter was listed before this Hon'ble Tribunal on 06.01.2026, when none appeared on behalf of Respondent No. 8 and this Hon'ble Tribunal was pleased to proceed ex-parte against Respondent No. 8.

3. The non-appearance on the said date occurred due to an inadvertent communication lapse between the Applicant and the Advocate-on-Record (AOR). The reason, as informed by the AOR, was that there was a miscommunication regarding the timing at which the Hon'ble Bench was to assemble and take up the matter on the said date in hybrid mode. Owing to this misunderstanding regarding the listing time, the matter was called out and proceeded with before representation on behalf of Respondent No. 8 could be made. The absence was neither wilful nor deliberate but occurred due to the aforesaid bona fide misunderstanding.

4. It is respectfully submitted that prior to the said date the Applicant has been diligently represented before this Hon'ble Tribunal on all previous dates of hearing and not a single date was missed. The present non-appearance was therefore an isolated and inadvertent occurrence and not reflective of any lack of diligence on the part of the Applicant.

5. The Applicant states that the Advocate-on-Record is based at Kolkata, whereas the Applicant/Respondent is situated at Rourkela, Odisha, and coordination regarding preparation of the reply affidavit and filing instructions required internal approvals and communication between the offices.

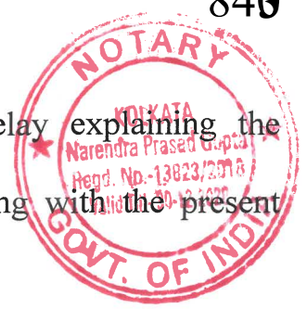
6. Due to the said communication gap and inadvertent omission in the office records of the AOR, representation could not be made on the said date of hearing.

7. Upon learning of the said order, the Applicant immediately took steps to obtain internal approval and authorisation to finalise and file the reply affidavit along with relevant project documents.

8. The Applicant was also constrained to engage the present counsel in place of the earlier Advocate-on-Record due to difficulties in coordination and lack of necessary assistance from the earlier counsel, which resulted in some additional time being consumed in obtaining the complete case records and instructions for preparation of the reply affidavit. The said change of counsel and transfer of case papers also contributed to the delay in preparation and filing of the instant application for setting aside exparte and preparation of Reply Affidavit.

9. The Applicant has since prepared a comprehensive reply affidavit along with relevant documents including Environmental Clearance, Terms of Reference, Joint Committee Report, EIA documentation and statutory permissions, which is annexed hereto marked as Annexure 'A'

NOTARY KOLKATA Narendra Prasad Gupta Regd. No. 12823/2018 Valid Till- 30-12-2026 GOVT. OF INDIA



10. The accompanying application for condonation of delay explaining the circumstances in a day-wise manner is being filed along with the present application.

11. The Applicant has substantial and bona fide defence in the present appeal and the reply affidavit would assist this Hon'ble Tribunal in proper adjudication of the matter.

12. No prejudice will be caused to the Appellants if the ex-parte order is set aside and the reply affidavit is taken on record, whereas grave prejudice would be caused to the Applicant if the opportunity to defend the proceedings is denied.

13. It is settled that matters should ordinarily be decided on merits rather than on technical defaults.

14. The Applicant respectfully submits that it is the Project Proponent in respect of the project which is the subject matter of the present appeal and the Environmental Clearance granted for the said project is under challenge in these proceedings. The presence and participation of the Applicant is therefore necessary for proper and effective adjudication of the issues raised in the appeal.

15. The reply affidavit filed by the Applicant places on record relevant factual and technical materials including statutory permissions, environmental appraisal documents and regulatory records which would assist this Hon'ble Tribunal in arriving at a just and complete decision in the matter.

16. It is respectfully submitted that the Applicant is a necessary and proper party to the present proceedings and denial of an opportunity to place its defence on record would cause serious prejudice to the Applicant.

17. It is a settled principle that matters should ordinarily be decided after giving all affected parties a fair opportunity of being heard. The principles of natural

justice require that before any order is passed which may affect the rights or interests of a party, such party should be permitted to place its facts and defence on record.

18. In the present case, the Applicant is the Project Proponent whose Environmental Clearance is under challenge and therefore any decision in the appeal would directly affect the Applicant. It is therefore necessary, in the interest of justice and fairness, that the Applicant be granted an opportunity to place its reply affidavit and participate in the proceedings.

19. It is a settled principle that matters should ordinarily be decided after giving all affected parties a fair opportunity of being heard. The principles of natural justice require that before any order is passed which may affect the rights or interests of a party, such party should be permitted to place its facts and defence on record. In the present case, the Applicant is the Project Proponent whose Environmental Clearance is under challenge and therefore any decision in the appeal would directly affect the Applicant. It is therefore necessary, in the interest of justice and fairness, that the Applicant be granted an opportunity to place its reply affidavit and participate in the proceedings.

20. It is further respectfully submitted that any inadvertent lapse or negligence on the part of the earlier Advocate-on-Record ought not to prejudice the Applicant. The Applicant has acted bona fide and with due diligence and the circumstances leading to the present application arose primarily on account of communication issues with the earlier counsel. It is a well-settled principle that a litigant should not ordinarily be made to suffer for the mistake or inadvertence of his advocate. The Applicant therefore humbly prays that this Hon'ble Tribunal may be pleased to set aside the ex-parte order and permit the reply affidavit to be taken on record in the interest of justice.

NOTARY
KOLKATA
Narendra Prasad Gupta
Regd. No.-13823/2013
Valid Till- 30-12-2028
GOVT. OF INDIA

21. In the interest of justice and fair adjudication, it is therefore appropriate that the ex-parte order dated 06.01.2026 be set aside and the reply affidavit of the Applicant be taken on record, subject to such terms as this Hon'ble Tribunal may deem fit.

PRAYER

In the above circumstances it is most respectfully prayed that this Hon'ble Tribunal may be pleased to:

a) Set aside the ex-parte order dated 06.01.2026 passed against Respondent No. 8 in Appeal No. 09/2024/EZ;

b) Leave be granted to file the reply affidavit of the Respondent No. 8 on such terms and conditions as this Hon'ble Tribunal may deem fit and proper;

c) Pass such further orders as this Hon'ble Tribunal may deem fit and proper

Place: Kolkata

Date: 11.03.2026

Priyanka Saha

Advocate
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NOTARY
KOLKATA
Narendra Prasad Gupta
Regd. No.-13923/2011
Valid Till- 30-12-2026
GOVT. OF INDIA

Sl. No. 69/26

NOTARY
KOLKATA
Narendra Prasad Gupta
Regd. No.-13823/2018
Valid Till- 30-12-2026
GOVT. OF INDIA

AFFIDAVIT

I, Suresh Agarwal, son of Late Ram Bilash Agarwal, aged about 46 years, by faith Hindu, by occupation Business, presently working as Director of K A I International Pvt. Ltd., having its registered office at CCC-23, Civil Township, Rourkela, District Sundargarh, Odisha, do hereby solemnly affirm and state as follows:

1. I am the Director and authorised representative of Respondent No. 8 in the above matter and I am well acquainted with the facts and circumstances of the case. I am competent and duly authorised to swear this affidavit on behalf of Respondent No. 8.

2. I say that the statements made in the accompanying Application for Setting Aside the Ex-Parte Order and for Taking Reply Affidavit on Record and the Application for Condonation of Delay are true and correct to my knowledge and belief and nothing material has been concealed therefrom.

3. I further state that the annexures referred to in the accompanying applications are true copies of their respective originals.

DEPONENT

Identified by me

Priyanka Saha

Advocate

WB/2273/2013

NARENDRA PRASAD GUPTA
NOTARY
GOVERNMENT OF INDIA
REGN. NO.-13823/2018
&
ADVOCATE, HIGH COURT CALCUTTA
8, Old Post Office Street (Ground Floor)
Opp. F-Gate (High Court)
Mob.-9882135090

L.T.I.(s)/Signatures(s) of the Executant/s attested by me on identification

NARENDRA PRASAD GUPTA, NOTARY
Advocate, HIGH COURT, KOLKATA
Regd. No.-13823/2018, Govt. of India

11 MAR 2026

VERIFICATION

I, Suresh Agarwal, the above-named deponent, do hereby verify that the contents of paragraphs 1 to 15 of the above affidavit are true and correct to my knowledge and belief, and the rest are my submissions before this Hon'ble Tribunal, and that nothing material has been concealed therefrom.

Verified at Kolkata on this 11th day of March 2026.

DEPONENT

Identified by me

Priyanka Saha

Advocate

NOTARY
KOLKATA
Narendra Prasad Gupta
Regd. No.-13023/2018
Valid Till- 30-12-2028
GOVT. OF INDIA

BEFORE THE NATIONAL GREEN TRIBUNAL EASTERN ZONE BENCH: KOLKATA

Appeal No 09/2024/EZ

IN THE MATTER OF:

CHITTA RANJAN MAHANTA & OTHERS - APPLICANTS

VERSUS

STATE OF ODISHA AND OTHERS ... RESPONDENTS

INDEX

S No	Particulars	Annexure	Page Nos
1.	Reply Affidavit on behalf of Respondent No. 8		1-31
2.	Environmental Clearance dated 13.05.2024 issued by MoEF & CC	R8/1	32-51
3.	Relevant Pages Terms of Reference dated 29.11.2021 issued by MoEF&CC	R8/2	51-69
4.	Relevant Minutes of the Expert Appraisal Committee recommending the project	R8/3	70-109
5.	Wildlife Conservation Plan submitted to EAC	R8/4	110-170
6.	Joint Committee Report filed in OA 94/2021/EZ	R8/5	171-189
7.	Proceedings of Public Hearing dated 24.05.2022 conducted by the State Pollution Control Board	R8/6	190-352
8.	Final EIA	R8/7	353-763
9.	Permission granted by Divisional Forest Officer for felling and transplantation of trees	R8/8	764

PLACE:

DATE-

Priyanka Saha

By Respondent no 8
Through

846
SL. No- 8
Dtd-07.3.26

BEFORE THE NATIONAL GREEN TRIBUNAL EASTERN ZONE BENCH: KOLKATA

Appeal No 09/2024/EZ

IN THE MATTER OF:
CHITTA RANJAN MAHANTA & OTHERS - APPLICANTS

VERSUS

STATE OF ODISHA AND OTHERS ... RESPONDENTS

BEFORE S. C. PATEL NOTARY

AFFIDAVIT IN REPLY ON BEHALF OF THE RESPONDENT NO. 8

I, Suresh Agarwal, son of Late Ram Bilash Agarwal, aged about 46 years, by faith Hindu, by occupation Business, presently working as Director of K A I International Pvt. Ltd., having its registered office at CCC-23, Civil Township, Rourkela, District Sundargarh, Odisha, do hereby solemnly affirm and say as follows:

1. I am the authorised representative of the answering Respondent and am fully acquainted with the facts and circumstances of the present case. I am competent and duly authorised to swear this affidavit on behalf of the answering Respondent.

2. I have read the Memorandum of Appeal filed by the Appellants and have understood the contents thereof. Save and except what are matters of record, the allegations made therein are denied unless specifically admitted herein.

3. Before dealing with the allegations contained in the Appeal, I state briefly the relevant facts for proper adjudication of the matter.

a) The Project Proponent proposed establishment of a Greenfield Project comprising an Iron Ore Beneficiation Plant of 1.5 MTPA capacity, an Iron Ore Pelletization Plant of 1.2 MTPA capacity and a Producer Gas Plant of

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

07/03/26
S. C. PATEL
NOTARY, ROURKELA
Regd. No. 7/98
GOVT OF. ODISHA
Exp. on 13.05.2026

27,000 Nm^3/hr at Village Kapanda, Tehsil Lahunipara, District Sundargarh, Odisha.

b) The proposal was submitted under the provisions of the Environment Impact Assessment Notification dated 14.09.2006 and amendment till date. The project falls under Category "A" under the schedule 3(a) Metallurgical Industries (Ferrous & Non-ferrous) and was therefore appraised at the Central level by the Expert Appraisal Committee (Industry-1) constituted by the Ministry of Environment, Forest and Climate Change.

c) The State Level Single Window Clearance Authority had, in its meeting held on 06.08.2019, approved the proposal in principle. Thereafter, application for grant of Terms of Reference was submitted to the MoEF&CC and Terms of Reference were granted.

d) The Terms of Reference clearly defined the study area as 10 kilometres radius from the project site. It was recorded that no National Park, Wildlife Sanctuary, Biosphere Reserve or Eco-Sensitive Zone exists within 10 kilometres of the project site and that the land does not fall within forest land as defined under the judgments of the Hon'ble Supreme Court in T.N. Godavarman Thirumulpad and subsequent cases.

e) Baseline environmental data was collected during the period October 2021 to December 2021 in accordance with the approved Terms of Reference by the NABL approved laboratory. The Draft EIA Report was submitted to the State Pollution Control Board on 06.04.2022.

f) Public Hearing was conducted on 24.05.2022 by the State Pollution Control Board in accordance with statutory procedure. The concerns raised therein were duly addressed and incorporated in the Final EIA Report.

g) During the pendency of earlier proceedings before this Hon'ble Tribunal in OA No. 94/2021/EZ, a Joint Committee comprising nominees of DG

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

07/03/26

S. C. PATEL NOTARY, ROURKEL/ Regd. No. 7/98 GOVT OF. ODISHA Exp. on 13.05.2026

Forest, MoEF&CC, PCCF (HoFF), Chief Wildlife Warden and the District Magistrate, Sundargarh conducted site inspections on 18.03.2023 and 28.04.2023.

h) The Joint Committee, after physical inspection and interaction with stakeholders, recorded that the project site does not form part of any National Park, Wildlife Sanctuary, Critical Wildlife Habitat, Elephant Corridor or Tiger Corridor and that there are no environmentally sensitive areas in close proximity. The Committee further recorded that the proposed project is not expected to have significant impact on wildlife or forests.

i) Thereafter, Final EIA was uploaded on the Parivesh portal on 14.11.2023. The proposal was placed before the Expert Appraisal Committee (Industry-1) and after consideration and compliance with additional queries, Environmental Clearance was granted on 13.05.2024. The process included reconsideration and scrutiny at multiple stages including ADS compliance, as reflected in the record. A copy of the Environmental Clearance dated 13.05.2024 issued by the Ministry of Environment, Forest and Climate Change is annexed hereto and marked with the letter **'Annexure R-8/1'**

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

4. The Project was placed before the committee of EAC (Industry – I) for recommendation of TOR, after detail deliberations the committee recommended the project proposal for prescribing specific ToR for undertaking detailed EIA and EMP study in accordance with Notification S.O. 751(E) dated 17.02.2020 issued under the EIA Notification, 2006. The Terms of Reference recorded, inter alia, that there were no habitations or dwelling houses within the identified project area; that no forest land as defined by the Hon'ble Supreme Court in T.N. Godavarman Thirumulpad was involved; that no waterbody existed within the project site and that the distances of nearby rivers and nalas from the site were duly recorded;

07/03/26
S. C. PATEL
NOTARY, ROURKELA
Regd. No. 7/98
GOVT OF. ODISHA
Exp. on 13.05.2026

that the distances of protected forest and reserve forest were identified; and that no National Park, Wildlife Sanctuary or Biosphere Reserve existed within a 10 kilometre radius of the proposed site. The ToR further required primary ecological and biodiversity survey during the study period, supplemented by secondary data from the Forest Department. It was also recorded that 3,972 trees existed at the project site, of which 1,500 trees were proposed to be felled and 260 trees to be transplanted, and that permission for felling of 1,500 trees had been obtained from the Divisional Forest Officer. A copy of the relevant pages of the Terms of Reference dated 29.11.2021 issued by MoEF&CC is annexed hereto and marked with the letter **'Annexure R-8/2'**

5. The Specific Terms of Reference imposed detailed conditions regarding baseline environmental monitoring, ecological assessment, air dispersion modelling, traffic impact analysis, waste management plan, water balance assessment, greenbelt development and preparation of Environmental Management Plan. Clause 15 of the ToR (page 50 of the record) prescribed inter alia detailed study of surrounding ecological features, assessment of potential impact on sensitive areas, preparation of wildlife conservation measures where required, and submission of action plans to mitigate impacts identified in the baseline study.

6. Upon appraisal of the proposal, the Ministry of Environment, Forest and Climate Change recorded its decision in the Minutes of the Expert Appraisal Committee, wherein the Committee examined the proposal under Agenda Item 3.3 and recorded detailed deliberations prior to recommendation. The EAC noted the existence of earlier litigation being OA No. 94/2021/EZ before this Hon'ble Tribunal and directed that compliance with the observations of the Joint Committee and the order of this Hon'ble Tribunal be placed on record before further consideration. The proposal was considered by the Expert Appraisal Committee and

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

07/03/26
S. C. PATEL
NOTARY, ROURKELA
Regd. No. 7/98
GOVT OF. ODISHA
Exp. on 13.05.2026

recommended for Environmental Clearance. A copy of the relevant Minutes of the Expert Appraisal Committee is annexed hereto and marked with the letter **'Annexure R-8/3'**.

7. In the 49th Meeting of the EAC held on 28th–29th November 2023, the proposal was taken up for detailed consideration. The EAC observed that the Project Proponent was required to submit detailed compliance of the Hon'ble Tribunal's order and the Joint Committee Report. The Committee further required submission of a Wildlife Conservation Plan and justification regarding sensitive areas in proximity to the site. In compliance therewith, the answering Respondent submitted a detailed reply including Wildlife Conservation Plan on 18.12.2023, which forms part of the record. A copy of the Wildlife Conservation Plan submitted before the Expert Appraisal Committee is annexed hereto and marked with the letter **'Annexure R-8/4'**

8. In terms of the order passed by this Hon'ble Tribunal in OA No. 94/2021/EZ, a Joint Committee comprising senior officials including nominee of DG Forest, Integrated Regional Office of MoEF&CC, PCCF (HoFF), Chief Wildlife Warden and the District Magistrate, Sundargarh, conducted a field inspection on 18.03.2023 and 28.04.2023 and submitted a detailed report after physical verification of the site and surrounding areas. A copy of the Joint Committee Report submitted pursuant to the orders of this Hon'ble Tribunal in OA No. 94/2021/EZ is annexed hereto and marked with the letter **'Annexure R-8/5'**.

9. Thereafter, the proposal was reconsidered by the EAC in its subsequent meeting in January 2024. The Committee recorded that typographical errors in earlier minutes were clarified and corrected. The pendency of OA No. 94/2021/EZ and the interim orders passed by this Hon'ble Tribunal were specifically taken note of during deliberations. After examining the

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

07/03/26

S. C. PATEL NOTARY, ROURKELA Regd. No. 7/98 GOVT OF. ODISHA Exp. on 13.05.2026

revised submissions and compliance documents, the EAC proceeded to consider the proposal afresh.

10. While considering the proposal, the EAC directed the Project Proponent to revisit the engineering layout plan taking into account the presence of sensitive areas such as nearby habitation and reserve forest boundary, and to submit a robust action plan aimed at minimizing the impact of project activities on such sensitive receptors. The Proponent was also required to strengthen its air pollution mitigation strategy and revise its action plan in line with the Office Memorandum dated 30.09.2020 issued by the Ministry.

11. The observations of the EAC as recorded in the Minutes included, inter alia, the following: the Committee required detailed compliance of the Hon'ble Tribunal's order and the Joint Committee report; it noted the proximity of certain habitation and Kukia Reserve Forest and required a robust mitigation plan; it observed the need for strengthening of the access road and implementation of appropriate mitigation measures in respect of raw material transportation; it directed installation of adequate pollution control equipment including Electrostatic Precipitators and appropriate chimney height considering surrounding hillocks; it required detailed air pollution modelling including assessment of incremental Ground Level Concentration and impact of stack height; it observed that the public hearing action plan required revision; and it directed submission of additional documents including Memorandum of Understanding regarding water drawal and status of Wildlife Conservation Plan approval

12. In view of the above observations and requirements, the Committee deferred the proposal and granted liberty to the Project Proponent to reappear after addressing the shortcomings enumerated in the Minutes.

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

07/03/26

S. C. PATEL NOTARY, ROURKELA Regd. No. 7/98 GOVT OF. ODISHA Exp. on 13.05.2026

This clearly demonstrates that the appraisal process was not mechanical but iterative and compliance-based.

13. Public hearing had earlier been scheduled after publication of notice in widely circulated newspapers including "The Times of India" and the vernacular daily "The Dharitri" dated 22.04.2022. The hearing was presided over by the Sub-Collector, Bonai Sub-Division, Sundargarh, and objections raised therein were duly recorded. A copy of the proceedings of the Public Hearing conducted on 24.05.2022 by the State Pollution Control Board is annexed hereto and marked with the letter **'Annexure R-8/6'**.

14. Certain objections were raised in the form of complaints which were forwarded to the answering Respondent for detailed response. The answering Respondent submitted its reply on 04.01.2021 addressing the issues raised. An additional Undertaking dated 06.11.2023 was also submitted clarifying compliance with environmental safeguards and mitigation measures. Copies of the said reply and undertaking form part of the record.

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

15. Upon submission of revised proposal, compliance documents, Wildlife Conservation Plan and revised mitigation measures, the Expert Appraisal Committee, after detailed deliberation, recommended the proposal for grant of Environmental Clearance under the EIA Notification, 2006, subject to stipulation of specific and general conditions and subject to uploading of written submissions and requisite documents on the portal. The Environmental Clearance was thereafter issued following completion of all statutory formalities.

16. The Environmental Clearance granted by the Ministry of Environment, Forest and Climate Change records specific and general conditions binding upon the Project Proponent. In particular,

07/03/26

S. C. PATEL NOTARY, ROURKELA Regd. No. 7/98 GOVT OF. ODISHA Exp. on 13.05.2026

a. clause (xi) provides that the Project Proponent shall place on its website all environment-related expenditure, expenditure related to the Action Plan on Public Hearing issues, and other commitments made in the EIA/EMP report for information in the public domain. It further mandates disclosure of any unspent funds allocated towards Environmental Management Plan and Public Hearing commitments, with such funds to be utilised within the stipulated period and the details thereof made publicly accessible

b. Clause (xii) of the Environmental Clearance categorically stipulates that no further expansion or modification in the plant shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change. This condition ensures that the Project Proponent cannot alter capacity, process configuration or plant layout in a manner that would impact environmental parameters without undergoing fresh regulatory scrutiny

c. Clause (xv) reserves to the Ministry the right to stipulate additional conditions at any stage if found necessary and mandates that the Project Proponent shall implement such conditions in a time-bound manner. This clause further empowers the regulatory authority to revoke or suspend the Environmental Clearance if compliance with stipulated conditions is found unsatisfactory

17. The above conditions demonstrate that the Environmental Clearance is not an unconditional approval but is a regulated, compliance-based permission subject to continuous monitoring, disclosure obligations and the supervisory jurisdiction of the Ministry and its Regional Office.

18. The Appellant has sought to draw comparisons between the Draft EIA and the Final EIA and has alleged discrepancies therein. Before dealing with the specific allegations in the Appeal, I respectfully address the said comparisons in detail.

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

07/03/26

S. C. PATEL NOTARY, ROURKELA Regd. No. 7/98 GOVT OF. ODISHA Exp. on 13.05.2026

19. I state that a Draft EIA is a preliminary environmental assessment document prepared on the basis of baseline data collected during the study period. It identifies potential impacts during construction, operation and decommissioning phases and proposes mitigation measures. The Final EIA incorporates responses to issues raised during public consultation, clarifications sought by regulatory authorities, additional data where required and corrections of clerical or typographical errors. Minor textual corrections between Draft and Final EIA are inherent to the appraisal process and do not ipso facto amount to falsification or suppression.

20. The same have been dealt by me hereunder:

I. *Point No 1 : Environmental Settings of the Project Site and Geographic Location data submitted in the EIA – Comparison between DRAFT EIA and FINAL EIA*

A. List of Industries in Study Area:

a) It is alleged that the direction of surrounding industries was altered between the Draft and Final EIA. In the Draft EIA, the relative location of surrounding industries was inadvertently described as North-West instead of South-East. However, the latitude and longitude coordinates and radial distances of the industries remained unchanged in both versions. Environmental modelling is undertaken on the basis of geo-coordinates and distance, not directional narration. The vicinity maps annexed to both EIAs clearly reflect the correct positioning. The correction was clerical in nature and does not alter environmental assessment.

b) With regard to Sri Hari Sponge Iron Ltd. and six other industries allegedly within 11.4 km, it is submitted that the Terms of Reference specifically prescribed a study area of 10 kilometre radius. Industries beyond this radius fall outside the mandated study boundary and were therefore not included. There was no misrepresentation.

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

07/03/26

S. C. PATEL NOTARY, ROURKELA Regd. No. 7/98 GOVT OF. ODISHA Exp. on 13.05.2026

c) Demographic data of the study area, including reference to the Bonsai cluster, was derived from Census 2011 records and duly reflected in Section 3.11.3 of the Final EIA.

B. Location of the project submitted in EIA:

With regard to the allegation concerning the location of the project as reflected in the EIA, it is respectfully submitted that both the Draft EIA and the Final EIA consistently record that National Highway 23 (renumbered as NH-143) is situated at an aerial distance of approximately 3.1 kilometres in the eastern direction from the project site. In one portion of the Final EIA, the highway is inadvertently referred to as NH-149, which is a typographical error. The correct reference to NH-143 is expressly mentioned at pages 24 and 29 of Chapter 3 of the Final EIA, as would appear from the extracts annexed hereto. The coordinates of the project site and the radial distances remain unchanged in both versions of the report. It is further submitted that, as per standard Environmental Impact Assessment methodology, distances are calculated on an aerial (radial) basis for the purpose of environmental modelling and impact assessment. Road distance, as reflected on commercial mapping platforms, is not the parameter used for air dispersion modelling or regulatory appraisal. The distances from Patasahi Railway Station and the nearest airport have been stated based on available official survey data and to the best of the knowledge and belief of the answering Respondent. Online mapping tools such as Google Maps are indicative in nature and cannot override geo-referenced data and survey-based measurements forming part of the statutory record.

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

C. Nearby Habitations data submitted in EIA:

07/03/26

S. C. PATEL NOTARY, ROURKELA Regd. No. 7/98 GOVT OF. ODISHA Exp. on 13.05.2026

a) With regard to the allegation concerning omission of nearby habitations, it is respectfully submitted that the EIA Report clearly identifies villages within the 10 kilometre study area, including Daldali Sahi, Nuagan, Kapanda, Talabahali and Tikayatpali. The study area was defined as a 10 kilometre radius from the project site in accordance with the approved Terms of Reference.

b) It is correct that Badbahal village is not specifically named in the introductory description at page 3 of Chapter 1 of the Final EIA. However, Baseline Ambient Air Quality (AAQ) monitoring was in fact conducted at Badbahal village and the results are duly reflected in Table 3.4 of the Draft EIA and Table 3.9 of the Final EIA. Therefore, the village was not omitted from environmental assessment.

c) The impact assessment was not limited to narrative listing of villages but was undertaken using a scientific grid-based air dispersion modelling methodology covering the entire 10 kilometre radius. Receptor locations were generated at every 1000 metre interval across the study area and were defined with reference to 16 radial wind directions and varying radial distances from the project site.

NOTARY
S. C. PATEL
ROURKELA
Regd. No. 7/98
Exp. on 13.05.2026
GOVT. OF ODISHA

d) Ground Level Concentration (GLC), i.e., the predicted incremental concentration of pollutants at ground level arising from project emissions, was estimated by the dispersion model at each of the 1000 metre grid points. In total, 449 receptor points were considered for modelling, including eight baseline monitoring stations strategically located within the study area.

e) Accordingly, even if a particular village such as Pattajharan, situated approximately 0.9 kilometres to the North-East of the project site, is not expressly named in a specific narrative portion of the EIA, it falls well within the 10 kilometre study radius and was inherently covered within the grid-based modelling and receptor analysis.

03/26
S. C. PATEL
NOTARY, ROURKELA
Regd. No. 7/98
GOVT OF. ODISHA
Exp. on 13.05.2026

f) The EIA methodology ensures area-wide scientific coverage rather than selective village-wise exclusion. There was therefore no omission of any habitation within the prescribed study area, and the allegation to the contrary is factually incorrect.

D. Nearby Reserve and Protected Forests data submitted in EIA:

a) With regard to the allegation concerning omission of nearby reserve and protected forests, it is respectfully submitted that Smaradari Juniani Protected Forest is specifically mentioned in both the Draft and Final EIA Reports at page 3 of Chapter 3 under the description of surrounding environmental features. The distance of the said Protected Forest from the project site has been duly recorded in the baseline environmental description.

b) The EIA methodology requires identification of protected and reserve forests within the prescribed 10 kilometre study radius and assessment of potential impact thereon. The presence of Smaradari Juniani Protected Forest was therefore acknowledged and factored into the environmental appraisal process. There has been no suppression or non-disclosure of the existence of any protected forest within the study area.

c) Furthermore, the Joint Committee constituted pursuant to the order of this Hon'ble Tribunal also physically verified the location and did not record any finding that the project site falls within or encroaches upon protected forest land. The allegation of concealment is therefore misconceived.

E. Traffic Density Data submitted in EIA:

a) With regard to the allegation concerning traffic density data, it is respectfully submitted that a detailed traffic impact study was conducted for key road networks leading to the Project Site and forms part of the

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

07/03/26

S. C. PATEL NOTARY, ROURKELA Regd. No. 7/98 GOVT OF. ODISHA Exp. on 13.05.2026

Final EIA. The specific monitoring locations are clearly identified in Figure 2.1 and Table 2.1 of the Traffic Study Report annexed to the Final EIA.

b) Traffic surveys were conducted at identified junctions and approach roads for a continuous 24-hour period commencing at 06:00 hours on normal working days. The monitoring locations included: (i) Kapanda–Fatjharan village road near the Project entry gate; (ii) intersection of Santikayatpali Road with NH-23; and (iii) Gudhiali intersection (NH-23 and NH-215).

c) The Manual Counting Method was adopted as per the approved scope of work. Traffic volume, road capacity and Level of Service (LOS) were analysed in accordance with applicable Indian Roads Congress (IRC) standards and IS Codes.

d) The distances referred to in the Traffic Study Report are stated on an aerial basis, which is standard practice in EIA documentation for impact modelling purposes.

e) The date mentioned in one portion of the Draft EIA was a typographical error and was corrected in the Final EIA. The traffic counts themselves remained unchanged.

f) The Appellant has raised concerns regarding the road connecting Jora Tola and Santikayatpali Road. It is submitted that the road connecting NH-23 to the Project entry gate via Santikayatpali Road and Jora Tola was originally established by the Panchayat Samiti in 1983. A section of approximately 2 kilometres between NH-23 and Santikayatpali Road was upgraded under the Pradhan Mantri Gram Sadak Yojana (PMGSY). Subsequent improvements included development under the Soil Road/Mitti Road scheme with construction of small culverts along the kaccha stretch.

g) The stretch from Jora Tola to the Project entry gate remains under the jurisdiction of the Panchayat Samiti and is lightly used.

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

07/03/26

S. C. PATEL NOTARY, ROURKELA Regd. No. 7/98 GOVT OF. ODISHA Exp. on 13.05.2026

h) The coordinates relied upon by the Appellant correspond to a location approximately one kilometre north-north-west of the actual monitoring junction. The actual monitoring point, as reflected in the Traffic Study Report, is located at the highway–village road intersection. The Appellant has therefore relied upon a different interior village location and has incorrectly assumed that traffic monitoring was conducted there.

i) During monitoring, traffic volume at Monitoring Location 1 near the main gate was observed to be low. Consequently, monitoring was also conducted along the same motorable route near Tikayatpali Primary School on the road connecting the Project main gate to NH-143. The traffic counts reflect actual vehicular movement on the specified date of survey. It is well recognised that traffic volume varies from day to day and season to season.

j) The Final EIA includes a comprehensive traffic mitigation plan. Road strengthening, dust suppression, widening to two lanes and traffic management measures were proposed to ensure that the Level of Service remains acceptable during project operation.

k) Any proposal for widening or strengthening of approach roads is subject to approval of the District Administration and Forest Department, where applicable. All statutory requirements including tree enumeration, compensatory afforestation and forest diversion, if required, will be undertaken strictly in accordance with prevailing guidelines.

II. *Point No. 2 – Alleged New Addition in Final EIA and Traffic Study*

a) With regard to the allegation that Annexure 21 (Traffic Study Report) constitutes a new and undisclosed addition in the Final EIA, it is respectfully submitted that the Traffic Study forms part of the environmental impact assessment process and was undertaken pursuant

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

07/03/26

S. C. PATEL NOTARY, ROURKELA Regd. No. 7/98 GOVT OF. ODISHA Exp. on 13.05.2026

to the approved Terms of Reference requiring assessment of transportation impact and connectivity.

b) The Final EIA incorporates supporting technical reports, including the detailed Traffic Study, for the purpose of regulatory appraisal. Inclusion of a detailed annexure in the Final EIA does not amount to alteration of project scope but constitutes elaboration and documentation of data already forming part of the assessment process.

c) It is submitted that the reference to 3.1 km in the Executive Summary relates to the aerial (radial) distance from the Project entrance to NH-23 (New NH-143). In contrast, the distances reflected in Table 2.1 of the Traffic Study Report represent measured road distance from the Project site to specific monitoring intersections.

d) Aerial distance and road distance are distinct parameters serving different analytical purposes. Environmental dispersion modelling uses aerial distance, whereas traffic engineering analysis necessarily uses actual road alignment distance. The two figures are therefore not contradictory but represent different measurement methodologies.

e) The distance of 4.60 km for the Gudhiali intersection reflects the road distance up to the monitoring junction identified for traffic survey purposes. Variations between Google Map estimates and engineering survey measurements are not uncommon and do not establish falsification.

f) The Traffic Surveys were conducted at three identified locations for a continuous 24-hour period from 06:00 hrs to 06:00 hrs the following day, using the Manual Counting Method as per Indian Roads Congress (IRC) guidelines. The traffic volume was thereafter converted into Passenger Car Units (PCUs) in accordance with standard IRC conversion factors.

g) The allegation that the forest road segment could not have recorded 6,840 PCUs per day is based on a misunderstanding of the monitoring location.

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

07/03/26

S. C. PATEL NOTARY, ROURKELA Regd. No. 7/98 GOVT OF. ODISHA Exp. on 13.05.2026

The traffic count was conducted at the identified monitoring junctions as reflected in Figure 2.1 and Table 2.1 of Annexure 21, and not along interior stretches of kacha forest road as assumed by the Appellant.

h) The conversion into PCUs includes all vehicle categories and reflects cumulative vehicular movement through the monitoring intersection during the survey period. PCU is a weighted engineering metric, not a literal count of passenger cars.

i) The Traffic Study Report forms part of the record examined by the Expert Appraisal Committee during appraisal. No finding of fabrication or inconsistency was recorded by the competent authority.

j) Mere assertion that a road is lightly used, without contemporaneous traffic count data to the contrary, does not displace the empirical survey conducted as per standard methodology.

k) The Final EIA discusses projected traffic growth and possible need for road strengthening or widening in accordance with IRC:108-1996 guidelines. Such projection is a standard requirement in traffic impact assessment.

l) The proposal for road improvement is conditional and subject to statutory approvals from competent authorities, including the Forest Department wherever applicable. No road widening within reserve forest can be undertaken without compliance with the Forest (Conservation) Act, 1980 and applicable environmental regulations.

m) The EIA does not authorise immediate construction of a two-lane road within forest land. It identifies mitigation planning subject to regulatory scrutiny. Any future requirement for tree cutting, forest diversion or compensatory afforestation would be assessed separately under applicable law.

n) Accordingly, the apprehension that the Final EIA authorises unchecked forest road expansion is misplaced.

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

07/03/26

S. C. PATEL
NOTARY, ROURKELA
Regd. No. 7/98
GOVT OF. ODISHA
Exp. on 13.05.2026

o) The Traffic Study was conducted using recognised engineering methodology and forms part of the appraisal record. The alleged discrepancies arise from conflation of aerial and road distance measurements and misunderstanding of PCU methodology. No evidence has been produced to demonstrate fabrication of data. The inclusion of detailed traffic analysis in the Final EIA enhances transparency and technical completeness and does not constitute concealment or substantive alteration of project scope.

III. *Point 3: Comments on Final EIA Annexure 17 Baseline Report:*

a) With regard to the allegation concerning sampling dates, it is submitted that the baseline analysis report correctly reflects sampling and analysis period. The mention of 07.01.2021 in one reporting table is a typographical error; the correct reporting date is 07.01.2022, as reflected in laboratory records.

b) Surface water and groundwater samples were collected on 11.12.2021. Laboratory analysis was conducted between 13.12.2021 and 22.12.2021. Field parameters such as temperature, pH, electrical conductivity, dissolved oxygen and colour were analysed at site by a qualified field chemist.

c) Sample preservation and transport were conducted in accordance with IS 1622:1981 and in-house Standard Operating Procedures. Samples were transported in sealed containers within insulated ice boxes.

d) Total coliform testing was carried out as per APHA 9221 B method. The site is located approximately 273 kilometres from the laboratory. Clause 3.3.5 of IS 1622:1981 permits delayed incubation up to 72 hours without significant alteration of bacterial count. The laboratory analysis was completed within 48 hours and within the permissible 72-hour window.

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

07/03/26

S. C. PATEL
NOTARY, ROURKELA
Regd. No. 7/98
GOVT OF. ODISHA
Exp. on 13.05.2026

e) The coliform values recorded for both surface water and groundwater were within permissible limits

f) PHENOLIC COMPOUNDS:

It is submitted that under IS 10500:2012 (as amended in 2015 and 2018), the acceptable and permissible limits for phenolic compounds are 0.001 mg/l and 0.002 mg/l respectively.

In the laboratory analytical report (APHA 5530-B method), the result for phenolic compounds has been recorded as "BDL" (Below Detection Limit). The mention of "0.01 & 0.02 " below BDL in the table was a typographical error during preparation of the summary report. The report preparer has acknowledged this clerical mistake in his clarification. The actual analytical result recorded by the laboratory remains "BDL." And values of 0.001 and 0.002 below the same. The laboratory analytical sheets formed part of the baseline documentation examined during appraisal. No exceedance of the prescribed standard was recorded. The discrepancy is therefore purely clerical and does not reflect any analytical non-compliance or misrepresentation.

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

c) SOIL SAMPLE:

Soil samples were collected during October 2021 and December 2021 as part of the baseline environmental monitoring programme. The moisture content of the soil was recorded in the range of 0.11% to 0.83%. It is respectfully submitted that rainfall during the said period was negligible. The low soil moisture content is consistent with the prevailing dry-season climatic conditions. The meteorological data for the relevant period, as obtained from the India Meteorological Department (IMD), is set out below for ready reference: The above meteorological data demonstrates that the sampling period corresponded with low precipitation and seasonal dry conditions. The recorded soil moisture values of 0.11% to 0.83% are therefore consistent with site-specific climatic conditions prevailing at the

07/03/26

S. C. PATEL NOTARY, ROURKELA Regd. No. 7/98 GOVT OF. ODISHA Exp. on 13.05.2026

time of sampling. Soil sampling and analysis were carried out in accordance with applicable national standards and guidelines. The values reported in the EIA reflect the true laboratory findings and do not indicate anomaly or suppression of data.

d) DISSOLVED OXYGEN (DO) IN SURFACE WATER:

With regard to the allegation concerning Dissolved Oxygen (DO) levels, it is submitted that DO was recorded at 7.8 mg/l at Katangamunda Nala near Chandiposh village and 7.6 mg/l at the confluence of the Brahmani River and Rukura Nala near Jibika village. The recorded DO values fall within a healthy range for surface water bodies and indicate good oxygenation. Elevated DO levels at confluence points are scientifically attributable to natural aeration caused by turbulence and mixing of flowing water streams. The confluence location contains stone barriers and uneven rocky surfaces, which enhance agitation and promote dissolution of atmospheric oxygen into the water column. It is further well established that dissolved oxygen levels are generally higher during winter months due to lower water temperature and increased oxygen solubility. The sampling period corresponded with the winter season, which naturally supports higher DO concentrations. Accordingly, the recorded DO values do not indicate contamination or anomaly and are consistent with natural hydrological and seasonal conditions.

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

e) BIOCHEMICAL OXYGEN DEMAND (BOD):

With regard to the allegation concerning Biochemical Oxygen Demand (BOD), it is submitted that the BOD values recorded during baseline monitoring were in the range of 2.0 mg/l to 2.9 mg/l. The analysis was conducted in accordance with IS 3025 (Part 44): 1993. In tropical and Indian climatic conditions, incubation at 27°C for three days is recognised

07/03/26 S. C. PATEL NOTARY, ROURKELA Regd. No. 7/98 GOVT OF. ODISHA Exp. on 13.05.2026

as appropriate methodology. The Indian Standard specifically acknowledges that the conventional five-day BOD test at 20°C, commonly adopted in temperate regions, is not suitable for Indian atmospheric conditions. The testing was therefore carried out at 27°C within a three-day incubation period in conformity with the prescribed Indian Standard methodology. The recorded BOD values indicate low organic load in the surface water and are consistent with the healthy Dissolved Oxygen (DO) levels observed during the same sampling period. There is no indication of abnormal organic pollution or degradation of water quality. The relevant extract of IS 3025 (Part 44): 1993 supporting the adopted methodology is produced below for ready reference.

f) DETECTION OF URANIUM, GOLD AND THORIUM:

With regard to the allegation concerning non-detection or non-testing of elements such as Uranium, Gold and Thorium, it is respectfully submitted that baseline water analysis was conducted strictly in accordance with the Terms of Reference dated 29.11.2021. The ToR specifically prescribed parameters for groundwater and surface water quality assessment with reference to IS 10500:2012 (as amended in 2015 and 2018) for groundwater and IS 2296 for surface water. The analytical parameters tested were those mandated under the said standards and as required under the approved ToR. There was no specific direction in the Terms of Reference to analyse samples for Uranium, Gold or Thorium. Environmental Impact Assessment is a parameter-driven exercise guided by the approved ToR. In the absence of any stipulation under the ToR or any site-specific geological indication necessitating such testing, non-inclusion of these elements does not constitute non-compliance. The relevant extract of the Terms of Reference specifying the prescribed parameters for water quality analysis is set out below for ready reference.

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

07/03/26

S. C. PATEL NOTARY, ROURKELA Regd. No. 7/98 GOVT OF. ODISHA Exp. on 13.05.2026

g) From the foregoing, it is respectfully submitted that the baseline environmental monitoring was conducted in accordance with the approved Terms of Reference and applicable Indian Standards. The sampling dates, analytical methods, preservation protocols and laboratory procedures were consistent with recognised national guidelines. The minor discrepancies pointed out by the Appellant, including typographical errors in reporting dates and tabular compilation, are clerical in nature and do not alter the underlying analytical findings. The laboratory results, including those relating to phenolic compounds, coliform, soil moisture, Dissolved Oxygen and Biochemical Oxygen Demand, were examined during the regulatory appraisal process on the basis of complete annexed laboratory documentation.

h) The water quality parameters recorded during the study period demonstrate normal seasonal characteristics and do not indicate abnormal contamination or degradation. The Dissolved Oxygen and BOD values are chemically consistent and reflect low organic load. Soil moisture values correspond with dry-season meteorological conditions. All analyses were undertaken within the scope prescribed under the Terms of Reference.

i) It is therefore submitted that the allegations relating to alleged suppression, misrepresentation or falsification of baseline environmental data are unfounded. The baseline study reflects actual site conditions during the study period and was duly scrutinised by the competent authorities prior to grant of Environmental Clearance.

IV. *Point 4: Alleged Significant Differences in the Final EIA*

a) With regard to the allegation that Chapter 2 of the Final EIA contains significant discrepancies relating to project description, water balance,

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

07/03/26

S. C. PATEL NOTARY, ROURKELA Regd. No. 7/98 GOVT OF. ODISHA Exp. on 13.05.2026

integrated material balance, process flow diagrams, noise monitoring data, laboratory testing data, ecological assessment and list of flora and fauna, it is respectfully submitted as follows:

b) There are no material or substantive differences between the Draft EIA and the Final EIA that alter the nature, configuration, production capacity, technology, resource requirement, waste generation profile or environmental footprint of the Project. The overall project dimensions and environmental safeguards remain unchanged.

c) The revisions incorporated in the Final EIA consist of typographical corrections, clarificatory elaborations and refinements made pursuant to observations raised during regulatory appraisal. Such modifications do not affect the baseline datasets, modelling outputs, or mitigation measures forming the basis of environmental assessment.

d) The water balance and integrated material balance were reorganised and clarified for technical presentation. However, the quantum of water requirement, recycling mechanism, process water recovery and waste generation parameters remain unaltered. The Project continues to adopt a Zero Liquid Discharge (ZLD) system, ensuring that no untreated industrial effluent is discharged outside the plant boundary and that there is no additional pollution load on soil, groundwater, surface water or ecological receptors.

e) Air quality modelling was conducted for the entire 10 kilometre study radius encompassing both core and buffer zones. Incremental Ground Level Concentrations (GLC) were assessed at multiple receptor points using approved dispersion modelling techniques. The mitigation measures recommended in Chapter 4 were derived from such modelling and remain consistent between the Draft and Final EIA.

f) Similarly, noise monitoring data, laboratory results, ecological baseline surveys and flora-fauna listings were derived from the same field

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

S. C. PATEL NOTARY, ROURKELA Regd. No. 7/98 GOVT OF. ODISHA Exp. on 13.05.2026

investigations and analytical records. Formatting adjustments or narrative refinement in the Final EIA do not modify the underlying scientific data.

g) It is further submitted that the Final EIA underwent detailed scrutiny by the Expert Appraisal Committee in multiple meetings. Clarifications were sought, compliance submissions were reviewed and revisions were examined prior to recommendation. The Environmental Clearance was granted only upon satisfaction of the competent authority that the environmental assessment and proposed safeguards are adequate.

h) In view of the above, the allegation that the Final EIA contains "significant differences" affecting environmental integrity is unfounded. The modifications between the Draft and Final EIA are clerical, explanatory and presentational in nature and do not constitute any substantive alteration of the Project or its environmental impact assessment.

Copy of the Final Environmental Impact Assessment (EIA) Report relied upon herein are annexed hereto and marked with the letter **'Annexure R-8/7'**.

21. Without prejudice to the above but wholly relying thereon I now deal with the allegations contained in the said appeal.

22. It is respectfully submitted at the outset that the present appeal is misconceived and not maintainable in its present form. The Environmental Clearance dated 13.05.2024 has been granted after detailed appraisal by the Expert Appraisal Committee constituted under the Environment Impact Assessment Notification, 2006, and after consideration of the Joint Committee report submitted pursuant to directions of this Hon'ble Tribunal in OA No. 94/2021/EZ. The appraisal process involved examination of the Draft EIA, public consultation, submission of the Final EIA, compliance with Terms of Reference, and detailed scrutiny of technical data and mitigation measures by the competent regulatory authorities. It is settled law that this Hon'ble

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

07/03/26

S. C. PATEL NOTARY, ROURKELA Regd. No. 7/98 GOVT OF. ODISHA Exp. on 13.05.2026

Tribunal does not sit as an appellate authority over scientific assessments carried out by expert statutory bodies unless there is a demonstrable violation of statutory procedure, manifest illegality, or perversity in the decision-making process. The appellants have not demonstrated any such illegality or procedural violation and have instead sought to invite this Hon'ble Tribunal to re-appreciate technical and scientific findings already examined by the Expert Appraisal Committee. The present appeal therefore deserves to be dismissed in limine.

23. With reference to paragraph 1 of the said appeal I respectfully state that in view of what has been stated in detail in forgoing paragraphs hereinabove, there exists no ground to entertain the said appeal which should be dismissed in limine with costs as the Environmental Clearance has been granted after detailed appraisal by the Expert Appraisal Committee and after compliance with the directions of this Hon'ble Tribunal in OA No. 94/2021/EZ.

24. With reference to paragraph 2 of the said appeal I say that the alleged issues raised by the villagers are not supported by any facts and figures and have been made with an attempt to stall the Project which is ready to be implemented.

25. With reference to paragraph 3 of the said appeal I deny that the establishment of the proposed plant raises significant environmental or social concerns as alleged. I further deny that there was no consultation with the Gram Sabha, or that the land constitutes a physical forest, or that the proposed site is located in close proximity to Kukia Reserve Forest or other reserve forests within a radius of 10 kilometres, or that the project would adversely affect the livelihood of local tribal communities, as alleged or at all.

26. Paragraph 4 of the said appeal are matters of record.

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

07/03/26

S. C. PATEL
NOTARY, ROURKELA
Regd. No. 7/98
GOVT OF. ODISHA
Exp. on 13.05.2026

27. With reference to paragraph 5 of the said appeal I deny that the Committee Report dated 06.04.2023 does not scientifically discuss the impact of the project or does not discuss the kind of vegetation or medicinal plants or dependency on the forest or the ecological importance or does not consider the site as a catchment area for nearby check dams or for irrigation to adjoining agricultural lands as alleged. It is denied that the report has been prepared to clear the project or generic statement has been made about pollution control which might have an adverse impact. The land earmarked for the Project is not virgin and the distance from the reserve forest is extensive. The possibility of pollution and the estimated pollution effect around the project area has been considered in the EIA Report. I deny that the height of the hillock has not been taken into account or that any remark is vague or that no serious thought have been given or that in the entire report no discussion has been made in particular to such a peculiar site or that the report is a generic one as alleged.

28. Paragraph 6 of the said appeal are matters of record.

29. Allegations made in paragraph 7 of the said appeal are denied. It is denied in particular that the MoEF&CC failed to consider any issue raised while granting Environmental Clearance. With regard to the allegation that more than 10,000 trees were felled as claimed by certain alleged eyewitnesses, I respectfully state that the said allegation is wholly exaggerated and contrary to the official records. As recorded in the Environmental Impact Assessment documentation and the site enumeration carried out prior to appraisal, the total number of trees existing within the project site was 3,972, out of which 1,500 trees were proposed to be felled and 260 trees to be transplanted after obtaining due permission from the competent Forest Authority. The remaining vegetation was retained and the project also provides for compensatory plantation and development of greenbelt in

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

07/03/26

S. C. PATEL NOTARY, ROURKELA Regd. No. 7/98 GOVT OF. ODISHA Exp. on 13.05.2026

accordance with statutory conditions. Permission for felling of trees was granted by the Divisional Forest Officer. A copy of the said permission is annexed hereto and marked with the letter **'Annexure R-8/8'**

It is further submitted that during the course of site preparation certain tree stumps were visible on portions of the land, which appear to have been relied upon by the appellants to make speculative allegations. The mere presence of such stumps does not indicate any unauthorised or large-scale felling as alleged but represents remnants of earlier vegetation clearing and authorised tree removal carried out pursuant to permissions granted by the competent authorities. The Joint Committee constituted pursuant to the orders of this Hon'ble Tribunal conducted physical inspection of the site on 18.03.2023 and 28.04.2023 in the presence of senior forest and administrative officials and did not record any finding of illegal tree felling or unauthorised activity at the project site. The Committee report further records that the project site does not form part of any notified forest or protected wildlife area and that the proposed project is not expected to have significant impact on wildlife or forests. The allegations made by the appellants are therefore speculative and unsupported by any official record. No report of illegal felling has been recorded by the Forest Department or by the Joint Committee constituted by this Hon'ble Tribunal

The appellants have instead sought to rely upon interpretations of satellite imagery obtained from Google Maps/Google Earth, which cannot substitute the findings of statutory authorities who have physically inspected the site. Such imagery-based speculation cannot override the official records and field verification carried out by the Forest Department and the Joint Committee constituted by this Hon'ble Tribunal.

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

07/03/26

S. C. PATEL
NOTARY, ROURKELA
Regd. No. 7/98
GOVT OF. ODISHA
Exp. on 13.05.2026

30. With reference to paragraph 8 of the said appeal I repeat that the appellants have chosen to solely rely on Google Map/Google Earth results without considering the facts and records maintained by the MoEF&CC and other competent authorities. Serious charges have been levied about falsification of records without any proof of the same. The Project has not only taken steps to safeguard the natural forests but also to preserve the environment and protect the interests of tribal communities.

31. With reference to paragraphs 9 to 14 of the said appeal I say that the appellants have sought to overstretch the definition of FOREST for the purpose of defeating the implementation of the Project. The authorities have duly considered the nature and character of the land as well as the flora and fauna existing thereon before grant of necessary permission. I repeat and reiterate the statements made in paragraph 5 hereinabove and deny and dispute anything contrary thereto.

32. With reference to paragraphs 15 to 21 of the said appeal I say that the Government of Odisha in consultation with IIDCO has sanctioned and granted permission for use of the land for the project of the Respondent no. 9. The respondent no. 9 did not exercise any right of choosing the said land. The Respondent no. 9 did not question the decision of the authorities for allotment of the said land.

33. With reference to paragraph 22 of the said appeal I say that the respondent was called upon to clarify certain issues as highlighted in the draft EIA. Such clarification was given by the answering respondent which was duly scrutinized by the authorities before grant of necessary permission.

34. With reference to paragraph 23 of the said appeal, I say that the appellants have chosen to question the decision of the authorities which has granted permission to the answering respondent to use this particular site. The existence of the grant of lease in respect of 117 acres of land does

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

S. C. PATEL NOTARY, ROURKELA Regd. No. 7/98 GOVT OF. ODISHA Exp. on 13.05.2026

not necessitate use of the entire land. The Project has been restricted to 47.74 acres of land only.

35. With reference to paragraphs 24 and 25 of the said appeal, I say that the queries raised about the location of the project vis a vis the Kukia Reserve has been detailed in the final plan submitted by the answering respondent which has been duly considered by the authorities concerned before grant of the final permission.

36. With reference to paragraphs 26 to 30 of the said appeal the answering Respondent is not in a position to comment thereon as the same pertains to other respondents.

37. With reference to paragraph 31 of the said appeal I say that particulars of flora and fauna have been detailed in the report submitted by the Respondent and have also been cross checked by the concerned authority before grant of necessary permits.

38. With reference to paragraphs 32 to 34 of the said appeal I repeat and reiterate the statements made in paragraph 5 hereinabove to dispute the contentions raised in the paragraphs under reply and deny and dispute anything contrary thereto.

39. With reference to paragraph 35 of the said appeal I say that the authorities concerned had taken into consideration the ground realities before issuance of necessary permits. I say that though there is vegetation on the land, the same does not fall within the category of FOREST as determined by the Hon'ble Supreme Court of India. I say that the definition of the land as sought to be relied on by the applicants would render all projects unviable in the country.

40. With reference to paragraphs 36 to 39 of the appeal, I say that the allegations primarily relate to actions of the Forest Department and other authorities. Without prejudice to the above, the answering Respondent reiterates the statements made in paragraph 29 hereinabove regarding the

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

17/03/26

S. C. PATEL NOTARY, ROURKELA Regd. No. 7/98 GOVT OF. ODISHA Exp. on 13.05.2026

number of trees, permission granted by the competent authority and the findings of the Joint Committee. Save as stated therein, the answering Respondent is not in a position to comment further on matters concerning internal actions of the Forest Department.

41. With reference to paragraph 40(i) of the said appeal I say that the pendency of the OA no. 94 of 2021 was brought to the knowledge of concerned authority immediately upon scrutiny of the ToR. I deny that there was any false submission or misleading information supplied as alleged. I say site visit and other requirements were duly complied with before sanction of permit. There has been only a solitary movement of wild life which does not mark the area as a wildlife zone. Construction of boundary has been stalled in terms of the order of this Hon'ble Tribunal dated _____.

42. With reference to paragraph 41 of the said appeal I refrain from making any comment thereon as the answering Respondent was not involved in the public hearing organized by the authorities.

43. With further reference to paragraph 41(h) of the said appeal I say that the Hon'ble High Court at Odisha had rightly dismissed the application. The Hon'ble High Court appreciated the fact that the appellants were trying to derail the project by raising frivolous grounds.

44. With reference to paragraph 42 of the said appeal I refrain from making any comment thereon.

45. Allegations made in paragraphs 43 to 45 of the said appeal are denied. I deny that there has been no change of circumstances or that there existed any shortcomings which required. The allegations raised in the said paragraphs have been dealt with in details in paragraph 5 hereinabove and I repeat and reiterate the same.

46. With reference to paragraphs 46 to 48 concerning water levels and carrying capacity, it is submitted that "carrying capacity" refers to the

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.05.2026 GOVT. OF ODISHA

07/03/26

S. C. PATEL NOTARY, ROURKELA Regd. No. 7/98 GOVT OF. ODISHA Exp. on 13.05.2026

maximum level of activity that an ecosystem can sustain without irreversible degradation. "Cumulative impact" refers to the combined environmental impact of existing and proposed projects within a defined study region. The EIA assessed baseline environmental quality within a 10 kilometre radius and modelled incremental impacts over existing background concentrations. No industrial cluster notification requiring regional carrying capacity study applies to the project area. The allegation is therefore misconceived.

47. Allegations made in paragraph 49 of the said appeal are denied. It is denied that numerous false data or information have been submitted under CAF or Part A or Part B as alleged. It is further denied that 55 documents were uploaded or that the same was false or fabricated reports or suppressed crucial facts as alleged. The appellants have placed themselves in the position of the authorities and have usurped the role of the authorities without access to actual facts and figures about the same.

48. With reference to paragraph 50 of the said appeal I deny that the EIA report was prepared in very generic manner as alleged. The allegations raised in the Tabular Statement has been dealt with extensively in paragraph 5 hereinabove.

49. With reference to paragraph 51 of the said appeal I repeat that a solitary movement of wildlife does not make an area prone to regular wildlife movement. The appellants have made bald allegations without relying on facts and figures of the same.

50. The grounds raised in the said appeal are bad in law and on facts, mala fide, vexatious, harassive, frivolous and the appellants are not entitled to any relief on the same.

51. I respectfully submit that in view of what has been stated hereinbefore the appellants are not entitled to any relief. The entire appeal stems from allegations which have not been substantiated. The issues raised in the

NOTARY S. C. PATEL ROURKELA Regd. No. 7/98 Exp. on 13.5.2026 GOVT. OF ODISHA

07/03/26

S. C. PATEL NOTARY, ROURKELA Regd. No. 7/98 GOVT OF. ODISHA Exp. on 13.05.2026

said appeal have been dealt with authorities having access to records which prove otherwise. I respectfully submit that a section of people have raised these allegations whereas the immediate local people have wholeheartedly supported the Project.

52. The statements made in paragraphs 1 to 52 hereinabove are true to my knowledge and belief and nothing material has been concealed therefrom.

DEPONENT

Identified by Me

Advocate 07/03/26.

NOTARY
S. C. PATEL
ROURKELA
Regd. No. 7/98
Exp. on 13.05.2026
GOVT. OF ODISHA

Solemnly Affirmed and Declared Before me on Identification by Advocate. 07/03/26.

S. C. Patel
NOTARY, ROURKELA
GOVT. OF ODISHA
Regn. No. 7/98

सत्यमेव जयते

File No: IA-J-11011/59/2021-IA-II(IND-I)
Government of India
Ministry of Environment, Forest and Climate Change
IA Division
***

Date **13/05/2024**

To,

M/s KAI INTERNATIONAL PRIVATE LIMITED
CCC-23,CIVIL TOWNSHIP,ROURKELA SUNDARGARH ODISHA, Kapanda, SUNDARGARH, ODISHA, , 769004
Email: info@groupkalinga.com

Subject: **Greenfield Project For Installation Of Iron Ore Beneficiation Plant- 1.5 MTPA Throughput (1.16 MTPA High Grade Ore), Iron Ore Pelletization Plant – 1.2 MTPA And Producer Gas Plant – 27,000 Nm3/hr by M/s KAI International Private Limited, located at Village - Kapanda, Tehsil – Lahunipara, District - Sundergarh, Odisha - Grant of Environmental Clearance under the provisions EIA Notification, 2006 -regarding.**

Sir/Madam,

This refers to your proposal no **IA/OR/IND1/452282/2023 dated 14.11.2023** along with copy of EIA report, Forms (Part A, B and C) seeking Environment Clearance (EC) under the provisions of the EIA Notification, 2006 for the project mentioned above. Further, the PP has uploded the information on Parivesh Poral on 15.01.2024.

2. The particulars of the proposal are as below :

(i) EC Identification No.	EC23A1006OR5113146N
(ii) File No.	IA-J-11011/59/2021-IA-II(IND-I)
(iii) Clearance Type	Fresh EC
(iv) Category	A
(v) Project/Activity Included Schedule No.	3(a) Metallurgical Industries (ferrous and non ferrous),2(b) Mineral beneficiation
(vi) Sector	Industrial Projects - 1
(vii) Name of Project	Greenfield Project For Installation Of Iron Ore Beneficiation Plant- 1.5 MTPA Throughput (1.16 MTPA High Grade Ore), Iron Ore Pelletization Plant – 1.2 MTPA And Producer Gas Plant – 27,000 Nm3/hr Located At Village - Kapanda, Tehsil – Lahunipara, Dist. - Sundergarh, Odisha By M/s KAI International Private Limited

(viii) Name of Company/Organization	KAI INTERNATIONAL PRIVATE LIMITED
(ix) Location of Project (District, State)	SUNDARGARH, ODISHA
(x) Issuing Authority	MoEF&CC
(xi) Applicability of General Conditions as per EIA Notification, 2006	No

3. As per the provisions of the Environment Impact Assessment (EIA) Notification, 2006, the above-mentioned project/activity is covered schedule S. No. 3(a) Metallurgical Industries (ferrous & non-ferrous), and 2(b) Mineral Beneficiation under Category "A" of the schedule of the EIA Notification, 2006 and appraised at Central Level.

4. The proposal was initially being considered in 49th meeting of the EAC for Industry-I sector held on 28th – 29th November, 2023. Proposal was deferred for want of additional information. Based on the additional information submitted, the proposal was again considered in the 51st meeting of the EAC for Industry-I sector held during **2nd-4th January, 2024**, wherein the Committee, after detailed deliberations, **recommended** the proposal. The minutes of the meeting and all the project documents are available on PARIVESH portal which can be accessed at https://parivesh.nic.in. As per the Joint Field verification report and DFO letter dated 12/09/2023 the project land of 47.74 Acre is non-forest land of kisam patit.

5. The details of the proposal are as per the EIA/EMP report submitted by the proponent. The salient features of the proposal as presented during the above-mentioned meetings of EAC (Industry 1 Sector) are given at **Annexure 1**, Unit configuration and capacity are given at **Annexure II** and PH action plan given at **Annexure III.**

6. The EAC, in its meeting held during **2nd to 4th January, 2024**, inter-alia, deliberated the following:

(i) The instant proposal is for setting up of a greenfield project for installation of Iron Ore Beneficiation Plant- 1.5 MTPA throughput (1.16 MTPA High Grade Ore), Iron Ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 Nm3/hr.

(ii) The EAC, constituted under the provision of the EIA Notification, 2006 comprising Expert Members/domain experts in various fields, examined the proposal submitted by the Project Proponent in desired format along with EIA/EMP reports prepared and submitted by the Consultant accredited by the QCI/ NABET on behalf of the Project Proponent.

(iii) The EAC noted that the Project Proponent has given an undertaking that the data and information given in the application and enclosures are true to the best of his knowledge and belief and no information has been suppressed in the EIA/EMP reports. If any part of data/information submitted is found to be false/ misleading at any stage, the project will be rejected and Environmental Clearance given, if any, will be revoked at the risk and cost of the project proponent.

(iv) The Committee noted that the EIA reports are in compliance of the ToR issued for the project, reflecting the present environmental status and the projected scenario for all the environmental components. The Committee deliberated on the proposed mitigation measure towards Air, Water, Noise and Soil pollutions. The Committee suggested that the storage of toxic/explosive raw materials/products shall be undertaken with utmost precautions and following the safety norms and best practices.

(v) The EAC also took into consideration the drone survey of the project site and kml file on the Google Earth presented by the project proponent along with DSS of the project site on PARIVESH and made following deliberations accordingly.

(vi) Total land required for project is 19.32 ha. (47.74 Ac) which is a IDCO Land (Industrial land) and is under the possession of the company. Land Agreement made between IDCO & KIPL as per land allotment letter no. IDCO:HO:P&A:LAE:7751/2019 dated 06.08.2021.

(vii) Village Daldali Sai is at a distance of 0.5 km in the SW of the project site along with other sensitive areas such as Samaradari Juniani PF (0.41 Km, E), Kukia R.F (0.12 Km (NW) etc. within the study area of the project site. The EAC is

of the opinion that PP shall prepare and strictly implement the environmental safeguard measures to minimise the impact on the project activities on these sensitive areas.

(viii) Brahmani River is at a distance of 1.6 km in West of the project site along with other water bodies within the study area of the project site. The EAC is of the opinion that the water bodies shall not be disturbed. Mitigation measures w.r.t. safeguarding the water bodies shall be prepared and submitted.

(ix) Water requirement is proposed as 1180 m3/day which is to be sourced from Brahmani River. The EAC deliberated on the water requirement is of the opinion that PP shall obtain necessary permission from the Competent Authority in this regard. No Ground water abstraction is permitted.

(x) The Committee has deliberated on the baseline data and incremental GLC due to the proposed project and is of the opinion that stringent mitigation measures to minimise the pollution shall be strictly implemented.

(xi) There are Schedule-I species like Elephant, Leopard, Sloth bear & Python etc. falling within the study area of the proposed site. Wildlife Conservation Plan has been prepared with a budgetary allocation of Rs. 55.871 Lakhs for 5 years and submitted to PCCF wildlife for approval vide memo no. 7846/ 4F (Misc.), dated 20.09.2022.

(xii) The PP has submitted that there are 3972 nos. of total trees available in the project site. 1500 trees have already been felled after taking permission from Divisional Forest Officer cum Wildlife Warden Rourkela Forest Division, Odisha vide letter number 5838/3F dated 20 Sep. 2021. Remaining trees available in the project site are 2472 nos. Budget earmarked for plantation of trees over an area of 8.78 Ha. are Rs.68.17 Lakhs. Against tree felling of 1500 trees, Compensatory afforestation will be done in the ratio of 1:10 i.e. 15000 number in consultation with the State Forest Department. Budget for Compensatory afforestation is Rs. 52.50 Lakhs. Hence total budget for green belt development will be Rs. 120.67 Lakhs (say 121 Lakhs) The greenbelt and plantation area will be 8.78 ha (21.7 acres) i.e. 45.4% of the total plant area of 19.32 ha. (47.74 acres). The EAC deliberated on the greenbelt layout plan along with action plan and the budget earmarked and is of the opinion that greenbelt shall be completed within a span of one year.

(xiii) The committee deliberated details of carbon foot prints and carbon sequestration study w.r.t. proposed project and found them to be satisfactory.

(xiv) The Committee also deliberated on the public hearing issues along with action plan submitted by the proponent to address the issues raised during the public hearing and found it satisfactory.

(xv) The EAC noted that a litigation bearing Original Application No. 94/2021/EZ was filed by applicant (Mr. Chittaranjan Mahanta & Others) at Honourable NGT, Interim Orders were issued by Hon'ble NGT on 08.10.2021 & on 07.02.2023 for stay of EC process. As per orders, a Field Visit was carried by Joint committee comprising of nominee of DG Forest, MoEF&CC (not below the rank of ADG), Integrated Regional Officer of MoEF&CC, Bhubaneshwar, PCCF (HoFF), Odisha, Chief Wildlife Warden, Odisha and the District Magistrate, Sundergarh on 18.03.2023 and 28.04.2023. Pursuance of the Joint committee visit report and submissions, final order was passed by Hon'ble NGT dated 22.08.2023, the above case was disposed with direction to MoEF&CC, to take a decision in the matter of grant of Environmental Clearance to the Project Proponent in accordance with law within a period of three months. In this regard, the EAC deliberated all the issues pertaining to the case and accordingly suggested various mitigation measures in this regard while deliberating the EC proposal.

(xvi) The EAC deliberated on the other ADS reply submitted by the project proponent and found it satisfactory.

(xvii) The EAC was informed about a representation received by the Ministry, raising concerns about the project. The EAC recommended that the issues raised be shared with the project proponent, who provided a detailed pointwise reply on 04.01.2021 through written submission, which was deliberated by the EAC and subsequently found to be satisfactory by the EAC.

(xviii) The EAC deliberated on the proposal with due diligence in the process as notified under the provisions of the EIA Notification, 2006, as amended from time to time and accordingly made the recommendations to the proposal. The Experts Members of the EAC found the proposal in order and recommended for grant of environmental clearance.

(xix) The environmental clearance recommended to the project/activity is strictly under the provisions of the EIA Notification 2006 and its subsequent amendments. It does not tantamount/construe to approvals/consent/permissions etc. required to be obtained or standards/conditions to be followed under any other Acts/ Rules/ Subordinate legislations, etc., as may be applicable to the project. The project proponent shall obtain necessary permission as mandated under the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981, as applicable from time to time, from the State Pollution Control Board, prior to construction & operation of the project.

(xx) The EAC also reviewed the EC conditions (specific and general) pertaining to Industry-I projects and observed that some of the specific conditions stipulated so far in the previously recommended EC projects are common and applicable to most of the projects in general. In view of the same, the General Conditions (in case of EC projects) have been revised through reallocation of these common conditions from specific to General Conditions (in case of EC projects). Accordingly, the instant project is also being stipulated with the modified General conditions.

7. The EAC, in its 51st meeting of Expert Appraisal Committee (Industry-1 Sector) held during **2nd to 4th January, 2024,** based on information & clarifications provided by the project proponent and after detailed deliberations **recommended** the instant proposal for grant of Environment Clearance under the provisions of EIA Notification, 2006 subject to the stipulation of specific conditions and general conditions based on project specific requirements.

8. The MoEF&CC has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the Expert Appraisal Committee (Industry-1 Sector) hereby decided to grant **Environment Clearance** for instant proposal of **M/s KAI International Private Limited** under the provisions of EIA Notification, 2006 subject to **specific conditions and general conditions** at **Annexure IV**.

9. The Ministry reserves the right to stipulate additional conditions, if found necessary at subsequent stages and the project proponent shall implement all the said conditions in a time bound manner. The Ministry may revoke or suspend the environmental clearance, if implementation of any of the above conditions is not found satisfactory.

10. Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.

11. 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.

12. The above conditions shall 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, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.

13. This issues with approval of the competent authority.

(Dr. R. B. Lal)
Scientist 'F'/ Director
Tel: 011-20819346
Email-rb.lal@nic.in

Copy To

1. The Principal Secretary, Department of Forest and Environment, Government of Odisha, Bhubaneswar, Odisha
2. Director General of Forest, Ministry of Environment, Forest and Climate Change, New Delhi
3. Principal Chief Conservator of Forests & HoFF, Aranya Bhawan, Chandrasekharpur, Bhubaneswar - 751 023, Odisha
4. The Regional Officer, Ministry of Environment, Forest and Climate Change, Integrated Regional Office, A/3, Chandersekharpur, Bhubaneswar – 751023 Odisha
5. The Member Secretary, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi – 32
6. The Member Secretary, Central Ground Water Authority, Jamnagar House, 18/11, Man Singh Road Area, New Delhi, Delhi 110001
7. The Member Secretary, Odisha State Pollution Control Board, Paribesh Bhawan, A/118, Nilakantha Nagar, Unit - VIII, Bhubaneswar -12 Odisha.
8. Monitoring Cell, Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi.
9. District Collector, Sundergarh , Odisha.
10. Guard File/Monitoring File/ Parivesh Portal /Record File.

(Dr. R. B. Lal)
Scientist 'F'/ Director

Annexure 1

Additional EC Conditions

1. This EC is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, if any, as may be applicable to this project.
2. This EC granted to the project/ activity is strictly under the provisions of the EIA Notification, 2006 and its amendments issued from time to time. It does not tantamount/ construe to approvals/ consent/ permissions etc., required to be obtained or standards/conditions to be followed under any other Acts/Rules/Subordinate legislations, etc., as may be applicable to the project.

Annexure I

The salient features of the proposal as presented during the meetings of EAC

S. No.	Particulars	Details
a.	Terms of Reference for undertaking EIA study	29.11.2021
b.	Period of baseline data collection	October to December 2021
c.	Date of Public Consultation	24.05.2022
d.	Action plan to address the PH issues	An amount of Rs. 520 Lakhs has been earmarked for implementation of the commitments made during Public Hearing and need based activities. Detail of activities proposed attached as **Annexure III.**
e.	Location of the project	Village - Kapanda, Tehsil – Lahunipara, District - Sundergarh, Odisha
f.	Latitude and Longitude of the project site	**Pillar No.(s) / Latitude / Longitude** 1 / 21°53'28.44"N / 84°52'15.80"E 2 / 21°53'25.49"N / 84°52'16.45"E 3 / 21°53'21.00"N / 84°52'17.41"E 4 / 21°53'17.11"N / 84°52'22.04"E 5 / 21°53'11.30"N / 84°52'29.12"E 6 / 21°53'11.40"N / 84°52'35.21"E 7 / 21°53'17.15"N / 84°52'35.23"E 8 / 21°53'22.78"N / 84°52'35.20"E 9 / 21°53'23.68"N / 84°52'30.77"E 10 / 21°53'23.86"N / 84°52'26.76"E 11 / 21°53'29.01"N / 84°52'26.29"E 12 / 21°53'28.77"N / 84°52'20.69"E
g.	Total land	Total land required for project– 19.32 ha. (47.74 Ac) of IDCO Land.
h.	Land acquisition details as per MoEF&CC O.M. dated 7/10/2014	Acquired Land: 19.32 ha. (47.74 Acre) Total Land is under possession of KAI International Pvt. Ltd.
i.	Existence of habitation & involvement of R&R, if any	Project Site: There is no existence of habitants identified within the Project site. Study Area: **Habitation / Distance / Direction** Daldali Sai / 0.5 Km / SW Nuagan / 1.3 / S

<table>
<tr><th>S. No.</th><th>Particulars</th><th>Details</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>Kapanda</td><td>1.5</td><td>SW</td></tr>
<tr><td>Tikayatpali</td><td>2.8</td><td>NNE</td></tr>
<tr><td>Talabahali</td><td>2.9</td><td>E</td></tr>
</table>
</td></tr>
<tr><td>j.</td><td>Elevation of the project site</td><td>193 m to 252m AMSL</td></tr>
<tr><td>k.</td><td>Involvement of Forest land if any.</td><td>There is no forest land involved within the plant boundary.</td></tr>
<tr><td>l.</td><td>Water body exists within the project site as well as study area</td><td><u>Study Area:</u>
Brahmani River- 1.6 Km (W)
Amrurhi Nala- 3.1 Km (NNE)
Katangamunda Nala- 3.4 Km (NW)
Rukura River- 4.3 Km (S)</td></tr>
<tr><td>m.</td><td>Existence of ESZ / ESA / national park / wildlife Sanctuary / biosphere Reserve / tiger reserve / elephant reserve etc. if any within the study area</td><td>No ESZ /ESA /national park/ wildlife sanctuary within 10 km radius.
<u>Protected Forest (PF):</u>
Samaradari Juniani PF (E)- 0.41 Km
<u>Reserve Forest (RF):</u>
• Kukia R.F*- 0.12 Km (NW)
• Dhenkiam R.F- 2.6 Km (W)
• Nalghati Rajabasa R.F- 3.3 Km (SW)
• Dhenkiam Block R.F- 3.7 Km (NW)
• Bhagoth R.F- 6.6 Km (SSW)
• Dhanaghar Extension R.F- 6.9 Km (NNE)
Gurunida R.F- 7.9 Km (SW</td></tr>
<tr><td>n.</td><td>Project cost</td><td>Proposed – INR Rs 341.72 Crores</td></tr>
<tr><td>o.</td><td>EMP cost</td><td>
<table>
<tr><th>Type</th><th>Capital (Rs. in Crores)</th><th>Recurring (Rs. in Crores)</th></tr>
<tr><td>Proposed</td><td>19.46</td><td>1.41</td></tr>
</table>
</td></tr>
<tr><td>p.</td><td>Employment opportunity</td><td>500 persons</td></tr>
<tr><td>q.</td><td>Water and Power requirement</td><td>(Total)Water –1180KLD, Power –12 MW</td></tr>
</table>

Annexure II

The unit configuration and capacity of existing and proposed project is given as below:

Sl. No.	Plant Equipment/ Facility	Proposed Units	
		Configuration	**Capacity**
1	Beneficiation	1 X 1.5 MTPA	1.5 MTPA (throughput) 1.16 MTPA (High grade Ore)
2	Pelletization	2 X 0.6 MTPA	1.2 MTPA
3	Producer Gas Plant	6(5W+1S) x 4,500 Nm^3/hr	27,000 Nm^3/hr

e-KYC
CAF
DSS
e-Processing
e-Payments
e-Compliance
PARIVESH
CPC GREEN

Annexure III

Public Consultation Action plan as per MoEF&CC O.M. dated 30.09.2020

S. No.	Major activities	Description of Physical Target	Total Physical Targets	Physical Target along with CER Budget (Rs. In Lakhs)			Total Amount (Rs. In Lakhs)
				1st Year	2nd Year	3rd Year	
A	**Education**						
1	High School Transformational Project (smart class, science lab, etc.) partnering with Govt. of Odisha flagship project under Mo School Abhiyaan or Madhyamik Shikshya Abhiyan	Each School Shall be provided with the following- a) 8 nos. of Computers with Table & Chair @ Rs. 50,000/- b) 2 nos. of AC with inverters @ Rs. 60,000/- The 3 schools are- 1. Panchayat High School, Kapanda 2. Upper Graded Primary School, Kapanda 3. Upper Primary School, Tikayatpali	3 School	Rs. 5.2 (At Panchayat High School, Kapanda)	Rs. 5.2 (At Upper Graded Primary School, Kapanda)	Rs. 5.2 (Upper Primary School, Tikayatpali)	Rs.15.6
2	Retrofitting of Classrooms and Digital Classroom	Each year, 2 additional classrooms are proposed for retrofitting in Govt. Primary school with furniture's (1 nos. of Digital Classroom with Projector, digital interactive whiteboard systems, and its teaching software building blocks for digitally connected classroom and facilities @ Rs. 1,15,000/-	3 Schools	Rs. 2.3 (Panchayat High school, Kapanda)	Rs. 2.3 (At Govt. Primary School, Samardari, village-Tibupada)	Rs. 2.3 (At Gudhiali High School, Village-Rajamunda)	Rs.6.9
3	Improvement in basic amenities & teaching learning materials in Anganwadi center (AWC)	Each AWC shall be provided with – a. Abacus with Teaching Learning Material and Furniture @ Rs.40,000/ b. Painiting and infrastruture Development with Drinking Water facility or Toilet facility and Utensils @ Rs.	6 AWCs	Rs. 1.6 (AWCs in Kapanda-I & Kapanda-II)	Rs. 1.6 (AWCs in Darjing & Gaudiniposh-I)	2.5 (AWCs in Gaudiniposh- II & Thiaberna)	Rs.5.7

S. No.	Major activities	Description of Physical Target	Total Physical Targets	Physical Target along with CER Budget (Rs. In Lakhs)			Total Amount (Rs. In Lakhs)
				1st Year	2nd Year	3rd Year	
		40,000/- The List of AWCs are Kapanda-I, Kapanda-II, Darjing, Gaudiniposh-I Gaudiniposh-II & Thiaberna. c. Teaching materials @ 45,000 to each AWC in 3rd year.					
4	Appointment of Private Teachers in Schools	Teachers in 4 Schools (2 Primary & 2 High school)	2 Primary & 2 High school	Rs. 3.4 (2 Primary School in Kapanda & Tikayatpali)	Rs. 1.7 (Panchayat high school)	Rs. 1.7 (Gudhiali High school	Rs.6.8
5	School Bus	2 School Bus for Panchayat High School & Tikayatpali Primary School. However, District Education Officer shall be consulted for finalizing the School.	3 School Bus	Rs. 8.1 Gudhiali High School	Rs. 8.1 Panchayat High School	Rs. 8.1 Tikayatpali Primary School	Rs.24.3
	Sub Total (Education)			**20.6**	**18.9**	**19.8**	**Rs. 59.3**
B	**Health**						
1	Ambulance	1 Ambulance serving the peripheral villages to be positioned at KAI Plant and 2 Ambulance at Kapanda GP & Nuwagan GP respectively.	3 Nos.	Rs.20.3	Rs.20.3	Rs. 20.3	Rs.60.9
2	Health camp	2 Health Camps per year with a focus on Kapanda, Fatajharan, Tikayatpali,	6 health Camps	Rs. 2.1 2 Health Camps Under Kapanda G.P,	Rs. 2.1 2 Health Camps Under Fatajharan GP.	Rs. 2.2 2 Health Camps Under Tikayatpali G.P	Rs.6.4
3	Setting-up a Dispensary	Setting up a Dispensary serving Plant workers and local Community	3 Nos.	Rs. 29.1 Nearby Kapanda Village area	Rs. 29.1 Nearby Nuwagan Village area	Rs. 29.1 Nearby Tikayatpali Village area	Rs.87.3
	Sub Total (Health)			**51.5**	**51.5**	**51.6**	**Rs.154.6**

S. No.	Major activities	Description of Physical Target	Total Physical Targets	Physical Target along with CER Budget (Rs. In Lakhs)			Total Amount (Rs. In Lakhs)
				1st Year	2nd Year	3rd Year	
C	**Drinking Water**						
1.	Purified Drinking Water Facility at Public Places	In total 3 nos of Purified Drinking Water shall be installed at strategic public locations. Each Facility shall have a purifier machine. The locations are Kapanda Village, Fatajharan Village, Tikayatpali Village, Nuwagan & Talbahali. This location may change considering the number of floating population.	5 Nos	Rs. 8.9 (Kapanda & Fatajharan Village)	Rs. 8.9 (Tikayatpali & Nuwagan Village)	Rs. 4.5 (Talbahali Village)	Rs.22.3
2.	Installation of new Bore well & Hand Pump with sintex tank	In total 6 nos. of Hand pumps shall be installed at locations are Kapanda Village, Fatajharan Village, Tikayatpali Village, Nuwagan & Talbahali. This location may change considering the number of floating population.	5 village	Rs. 2.9 (Kapanda & Fatajharan Village,)	Rs. 2.9 (Tikayatpali & Nuwagan Village)	Rs. 1.4 (Talbahali Village)	Rs. 7.2
	Sub Total (Drinking Water)			**11.8**	**11.8**	**5.9**	**29.5**
D	**Environment**						
1	Rain Water Harvesting in Govt. Schools and Govt. Institutions	Rain Water Harvesting shall be taken-up in 30 schools/Govt Offices/Govt Institutions @ Rs. 28,000/-	30 Schools/ Institution/ Offices	Rs. 2.8 (10 Nos of schools/Govt Offices/Govt Institutions)	Rs.2.8 (10 Nos of schools/Govt Offices/Govt Institutions)	Rs. 2.8 (10 Nos of schools/ Govt Offices/ Govt Institutions)	Rs. 8.4
2	Plantation/Afforestation Drive (including sampling and protection like tree guard etc)	30 Schools or Govt. offices or Govt. Institution shall be covered within 3 years @80 trees in each school (Rs. 300/ trees)	30 Schools/ Institution/ Offices	Rs. 2.4 (10 Nos of schools/Govt Offices/Govt Institutions)	2.4 (10 Nos of schools/Govt Offices/Govt Institutions)	2.4 (10 Nos of schools/ Govt Offices/ Govt Institutions)	Rs. 7.2
3.	Garbage collection from villages and suitable disposal arrangement	Under Bharat Swachata Abhiyan 3 villages near plant locality & 3 schools	3 Villages & 3	Rs. 0.8 (4 plastic dustbin & 1	Rs. 0.8 (4 plastic dustbin & 1 dumpster	Rs. 1.0 (4 plastic dustbin & 1 dumpster	Rs. 2.6

S. No.	Major activities	Description of Physical Target	Total Physical Targets	Physical Target along with CER Budget (Rs. In Lakhs)			Total Amount (Rs. In Lakhs)
				1st Year	2nd Year	3rd Year	
		provided plastic Dustbin @ Rs. 5000/- and Steel dumpster Garbage Container @ Rs. 55,000/-	Schools	dumpster Garbage container in Kapanda Village. 1 Plastic dustbin in Primary School in Kapanda)	Garbage container in Nuwagan Village. 1 Plastic dustbin in Panchayat high school)	Garbage container in Tikayatpali Village. 1 Plastic dustbin in Tikayatpali Primary school)	
	Sub Total (Environment)			**Rs. 6.0**	**Rs. 6.0**	**Rs. 6.2**	**Rs. 18.2**
E	**Livelihood**						
1	Promotion of Income Generation Activities- Tailoring & embroidery etc. & Provision of different skills of women members of SHG along with market linkage	150 interested women beneficiaries within 10 SHG members of neighbouring GP shall be trained within 2 years i.e. 5 Group with 10 member in each group shall be trained every year	150 Women	Rs. 14.1 (50 Nos. of Under Nuwagan G.P)	Rs. 14.1 (50 Nos. of Under Kapanda G.P)	Rs. 14.1 (50 Nos. Under Tikayatpali G.P)	Rs. 42.3
2	Farmers input support for improving the yield for better return	200 interested and selective farmers shall be provided with inputs for 3 years	200 Farmers	Rs. 11.7	Rs. 11.7	Rs. 11.8	Rs. 35.2
3	Initiatives for promotion of Millet through farmers along with market support.	Creating Millet hub for collection & Marketing	3 Nos.	15 (Kapanda Village)	15 (Nuwagan Village)	15 (Fatajharan Village)	Rs. 45
	Sub Total (Livelihood)			**Rs. 17.8**	**Rs. 17.8**	**Rs. 17.9**	**Rs. 122.5**
F	**Infrastructure**						
1	Community Centre /youth club house	Amenities in Community Centre & Yoga teacher deployment in Community Centre	3 Nos.	25 (Kapanda Village)	25 (Nuwagan Village)	25 (Fatajharan Village)	Rs. 75
2	Village Solar Street Lights	Solar Streetlights at nearby villages @ 100 Street lights/ Year	300 Solar Streetlights	Rs. 20.3	Rs. 20.3	Rs. 20.3	Rs. 60.9
	Sub Total (Infrastructure)			**Rs.31.6**	**Rs.31.6**	**Rs.31.6**	**Rs. 135.9**
	GRAND TOTAL			**Rs. 139.4**	**Rs. 137.7**	**Rs. 132.8**	**Rs. 520 Lakh (Rs. 5.20 Crore)**

Annexure IV

Specific conditions and general conditions

A. <u>Specific Condition:</u>

i. This Environmental clearance is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, if any, as may be applicable to this project.

ii. The project proponent shall comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, and risk mitigation measures relating to the project shall be implemented.

iii. The project proponent shall utilize modern technologies for capturing of carbon emitted and shall also develop carbon sink/carbon sequestration resources capable of capturing more than emitted. The implementation report shall be submitted to the IRO, MoEF&CC in this regard.

iv. PP shall strictly adhere to the Joint Committee's observations and recommendations as outlined in its report in the matter of litigation bearing Original Application No. 94/2021/EZ filed at Honourable NGT.

v. Village Daldali Sai is at a distance of 0.5 km in the SW of the project site along with other sensitive areas such as Samaradari Juniani PF (0.41 Km, E), Kukia R.F (0.12 Km (NW) etc. within the study area of the project site. Proponent shall take appropriate environmental safeguard measures to minimise the impact on the habitation of the locals. PP needs to strengthen green belt all around the plant area to reduce the dust pollution. The PP shall also include some of these locations in its environmental monitoring programme.

vi. Brahmani River is at a distance of 1.6 km in West of the project site along with other water bodies within the study area of the project site. A robust and full proof Drainage Conservation scheme to protect the natural drainage and its flow parameters; along with Soil conservation scheme and multiple Erosion control measures shall be implemented.

vii. The water requirement of 1180 m^3/day which shall be sourced from Brahmani River. PP shall obtain necessary permission from the Competent Authority in this regard. No Ground water abstraction is permitted.

viii. Three tier Green Belt shall be developed in at least 33% of the project area in a period of one year all along the project site of adequate width and tree density shall not be less than 2500 per ha. Survival rate of green belt developed shall be monitored on periodic basis to ensure that damaged plants are replaced with new plants in the subsequent years. PP shall also develop greenbelt in the form of shelter belt comprising of total of 6 rows of 2x2 m plantation with tall trees & broad leaves with thick canopy along with windshield inside the plant premises to act as green barrier for air pollution & noise levels towards sensitive areas nearby project site. Compliance

status in this regard, shall be submitted to concerned Regional Office of the MoEF&CC.

ix. All the commitments made towards socio-economic development of the nearby villages shall be satisfactorily implemented. The action plan based on the social impact assessment study of the project as per the EMP in accordance to the Ministry's OM dated 30.09.2020 amounting to Rs. 5.20 Crores shall be strictly implemented and progress shall be submitted to the Regional Office of MoEF&CC.

x. PP shall undertake village adoption programme and prepare and implement the action plan to develop them into a model village.

xi. The recommendations of the approved Site-Specific Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report to the concerned Regional Office of the MoEF&CC.

xii. PP shall obtain permission from the State Forest Department for any tree felling involved in the project.

B. <u>General Conditions</u>

I. Statutory compliance:

i. The Environment Clearance (EC) granted to the project/ activity is strictly under the provisions of the EIA Notification, 2006 and its amendments issued from time to time. It does not tantamount/ construe to approvals/ consent/ permissions etc., required to be obtained or standards/conditions to be followed under any other Acts/Rules/Subordinate legislations, etc., as may be applicable to the project.

II. Air quality monitoring and preservation

i. The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission as well as 04Nos. Continuous Ambient Air Quality Station (CAAQMS) for monitoring AAQ parameters with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time. The CEMS and CAAQMS shall be connected to SPCB and CPCB online servers and calibrate these systems from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.

ii. The project proponent shall carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g. PM_{10} and $PM_{2.5}$ in reference to PM emission, and SO_2 and NOx in reference to SO_2 and NOx emissions) within and outside the plant area (at least at four locations one within and three outside the plant area at an angle of 120° each), covering upwind and downwind directions.

iii. The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through laboratories recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.

iv. Sampling facility at process stacks shall be provided as per CPCB guidelines for manual monitoring of emissions.

v. Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.

vi. The project proponent shall provide leakage detection and mechanized bag cleaning facilities for better maintenance of bags.

vii. Sufficient number of mobile or stationery vacuum cleaners shall be provided to clean plant roads, shop floors, roofs, regularly.

viii. Ensure covered transportation and conveying of raw material to prevent spillage and dust generation. The project proponent use leak proof trucks/dumpers carrying coal and other raw materials and cover them with tarpaulin.

ix. The project proponent shall provide primary and secondary fume extraction system at all heat treatment furnaces.

x. Wind shelter fence and chemical spraying shall be provided on the raw material stock piles.

xi. Design the ventilation system for adequate air changes as per prevailing norms for all tunnels, motor houses, Oil Cellars.

xii. Pollution control system in the plant shall be provided as per the CREP Guidelines of CPCB.

xiii. The project proponent shall adopt the Clean Air practices like mechanical collectors, wet scrubbers, fabric filters (bag houses), electrostatic precipitators, combustion systems (thermal oxidizers), condensers, absorbers, adsorbers, and biological degradation. Controlling emissions related to transportation shall include emission controls on vehicles as well as use of cleaner fuels. Sufficient numbers of additional truck mounted Fog/Mist water cannons shall be procured and operated regularly inside the project premises and also in the surrounding villages to arrest suspended dust in the atmosphere.

xiv. Bag filters shall be cleaned regularly and efficiency of bag filter system shall be monitored at regular intervals.

xv. Water Sprinklers/Water mist system shall be installed near raw material yards, operational units and other strategic locations to control fugitive emissions from the plant.

xvi. The particulate matter emissions from the process stacks shall be less than 30 mg/Nm^3 and measures shall be undertaken as per the submitted action plan. Efficient Air monitoring equipment shall be installed.

xvii. Following additional arrangements to control fugitive dust shall be provided:

a. Fog / Mist Sprinklers at all on bulk raw material storage area (at the transfer points) like Iron Ore, Coal and for Fly Ash and similar solid waste storage areas.
b. Proper covered vehicle shall be used while transport of materials.
c. Wheel washing mechanism shall be provided in entry and exit gates with complete recirculation system.

III. Water quality monitoring and preservation

i. The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.

ii. The project proponent shall monitor regularly ground water quality at least twice a year (pre- and post-monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognized under Environment (Protection) Act, 1986 and NABL accredited laboratories.

iii. Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off.

iv. Water meters shall be provided at the inlet to all unit processes in the plants.

v. The project proponent shall make efforts to minimise water consumption in the plant complex by segregation of used water, practicing cascade use and by recycling treated water.

vi. The proposed project shall be designed as "Zero Liquid Discharge" Plant. ETP shall be installed and there shall be no discharge of effluent from the plant. Domestic effluent shall be treated in Sewage Treatment Plant. Suitable measures shall be adopted for sewage water handling to ensure no contamination of any kind of water body.

vii. All stockyards shall have impervious flooring and shall be equipped with water spray system for dust suppression. Stock yards shall also have garland drains and catch pits to trap the run off material and shall be implemented as per the action plan submitted in EIA/EMP report.

viii. Rain water harvesting shall be implemented to recharge/harvest water as per the action plan submitted in the EIA/EMP report.

ix. Tailing management plan shall be implemented as included in EIA report.

xviii. Tailings from Iron Ore beneficiation plant shall be dewatered in filter press and no slime /tailing pond shall be permitted.

xix.

IV. Noise monitoring and prevention

i. Noise pollution shall be monitored as per the prescribed Noise Pollution (Regulation and Control) Rules, 2000 and amendments thereof, and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.

ii. The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.

V. Energy Conservation measures

i. Provide solar power generation on roof tops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly;

ii. Provide LED lights in their offices and residential areas.

VI. Waste management

i. Oil Collection pits shall be provided in oil cellars to collect and reuse/recycle spilled oil.

ii. Kitchen waste shall be composted or converted to biogas for further use.

iii. 100% utilization of fly ash shall be ensured. All the fly ash shall be provided to cement and brick manufacturers for further utilization and Memorandum of Understanding in this regard shall be submitted to the Ministry's Regional Office.

iv. The Plastic Waste Management Rules 2016, inter-alia, mandated banning of identified Single Use Plastic (SUP) items with effect from 01/07/2022. In this regard, CPCB has issued a direction to all the State Pollution Control Boards (SPCBs)/Pollution Control Committees (PCCs) on 30/06/2022 to ensure the compliance of Notification published by Ministry on 12/08/2021. The technical guidelines issued by the CPCB in this regard is available at https://cpcb.nic.in/technical-guidelines-3/. All the project proponents are hereby requested to sensitize and create awareness among people working within the Project area as well as its surrounding area on the ban of SUP in order to ensure the compliance of Notification published by this Ministry on 12/08/2021. A report, along with photographs, on the measures taken shall also be included in the six monthly compliance report being submitted by the project proponents.

v. A proper action plan must be implemented to dispose of the electronic waste generated in the industry.

VII. Green Belt

i. The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration by trees.

ii. Project proponent shall submit a study report on Decarbonisation program, which would essentially consist of company's carbon emissions, carbon budgeting/ balancing, carbon sequestration activities and carbon capture, use and storage and offsetting strategies. Further, the report shall also contain time bound action plan to reduce its carbon intensity of its operations and supply chains, energy transition pathway from fossil fuels to Renewable energy etc. All these activities/ assessments should be measurable and monitor able with defined time frames.

iii. Greening and Paving shall be implemented in the plant area to arrest soil erosion and dust pollution from exposed soil surface.

VIII. Public hearing and Human health issues

i. Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.

ii. The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms.

iii. Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP. Safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

iv. Occupational health surveillance of the workers shall be done on a regular basis and records maintained.

IX. Environment Management

i. The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 30/09/2020. As part of Corporate Environment Responsibility (CER) activity, company shall adopt nearby villages based on the socio-economic survey and undertake community developmental activities in consultation with the village Panchayat and the District Administration as committed.

ii. The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for 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. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.

iii. A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.

iv. Performance test shall be conducted on all pollution control systems every year and report shall be submitted to Integrated Regional Office of the MoEF&CC.

X. Miscellaneous

i. The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.

ii. 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 has to display the same for 30 days from the date of receipt.

iii. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.

iv. The project proponent shall monitor the criteria pollutants level namely; PM10, SO2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.

v. Action plan for developing connecting and internal road in terms of MSA as per IRC guidelines shall be implemented

vi. The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.

vii. The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.

viii. The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.

ix. The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.

x. The recommendations of the approved Site-Specific Wildlife Management Plan (in case of involvement of Schedule-I species) shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report to the concerned Regional Office of the MoEF&CC.

xi. The PP shall put all the environment related expenditure, expenditure related to Action Plan on the PH issues, and other commitments made in the EIA/EMP Report etc. in the company web site for the information to public/public domain. The PP shall also put the information on the left over funds allocated to EMP and PH as committed in the earlier ECs and shall be carried out and spent in next three years, in the company web site for the information to public/public domain.

xii. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).

xiii. Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.

xiv. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

xv. The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.

xvi. The Regional Office of this Ministry shall 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.

xvii. 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.

***

Signature Not Verified

Digitally Signed by : Dr R B Lal
Member Secretary, MoEFCC (EC)

Date: 13/05/2024

MoM of 48th meeting of the Re-constituted EAC (Industry-I) held on 11 – 12thNovember, 2021

Ministry of Environment, Forest and Climate Change
Impact Assessment Division
(Industry-1 Sector)

Date of zero draft MoM sent to Chairman: 16/11/2021
Approval by Chairman: 23/11/2021
Uploading on PARIVESH: 23/11/2021

Summary record of the forty eighth (48th) meeting of Re-Constituted Expert Appraisal Committee (REAC) held on 11-12thNovember, 2021 for environment appraisal of Industry-1 sector projects constituted under the provisions of Environment Impact Assessment (EIA) Notification, 2006.

The forty eighth meeting of the Expert Appraisal Committee (EAC) for Industry-1 Sector constituted as per the provisions of the EIA Notification, 2006 for Environment Appraisal of Industry-1 Sector Projects was held on **11-12th November, 2021**in the Ministry of Environment, Forest and Climate Change (MoEF&CC) through **video conferencing** in view of the ongoing Corona Virus Disease (Covid-19) pandemic. The list of EAC attendees is as follows:

S. No.	Name	Position	11/11/2021	12/11/2021
1.	Dr. Chhavi Nath Pandey	Chairman	Present	Present
2.	Dr. M.K.Gupta, Director, CPPRI.	Member	*Absent*	Present
3.	Dr. Siddharth Singh,	Member	Present	Present
4.	Dr. Jagdish Kishwan	Member	Present	Present
5.	Dr. Tejaswini Ananth Kumar	Member	*Absent*	Present
6.	Dr. G.V. Subramanyam	Member	Present	Present
7.	Shri. Ashok Upadhyaya	Member	Present	Present
8.	Shri. Rajendra Prasad Sharma	Member	Present	Present
9.	*Dr. Sanjay Deshmukh*	*Member*	*Absent*	*Absent*
10.	Prof. S.K. Singh	Member	*Absent*	Present
11.	*Dr. R. Gopichandran*	*Member*	*Absent*	*Absent*
12.	Shri Jagannadha Rao Avasarala	Member	Present	Present
13.	Shri. J.S. Kamyotra	Member	Present	Present
Officials from MoEF&CC				
14.	Shri. Sundar Ramanathan	Member Secretary	Present	Present
15.	Dr. Vipin Gupta	Scientist 'B'	Present	Present

After welcoming the Committee Members, discussion on each of the agenda items was taken up. The minutes of 47th meeting held during 28-29th October, 2021 were confirmed by the EAC as already uploaded on PARIVESH.

Observations of the Committee

48.4.13 The EAC noted the following:

i. Instant proposal is for undertaking EIA study for setting up of Integrated Cement Plant at Tilgul & Kirangi Village, Taluka & District Kalaburagi, karnataka.
ii. PP has proposed for synthetic gypsum plant with capacity of 1560 TPD with integrated cement plant.
iii. The project was proposed in the 97.52 ha area.
iv. Water for industrial purpose will be met from Bhima River and tune of 80 KLD water for domestic water will be sourced from ground water abstraction.
v. Tilgul village is 600 m away from plant boundary in NW direction.

Recommendations of the Committee

48.4.14 After deliberations, the Committee recommended the project proposal for prescribing following specific ToRs for undertaking detailed EIA and EMP study in addition to the generic ToR enclosed at Annexure-1 read with additional ToRs at Annexure-2:

i. A road is passing through the project site. Action plan for diversion of the said road shall be incorporated in EIA EMP report.
ii. Captive limestone mine is adjacent to the cement plant, for which cumulative impact assessment shall be carried and incorporated in the EIA/ EMP report.
iii. Action plan for green belt development covering 33% of the project area all along the periphery of the project site with a density of 2500 trees per hectare shall be submitted. This shall include 20-meter-wide green belt development within the project area towards Tilgul village.
iv. Action plan for co-processing of hazardous waste in the kiln shall be submitted.
v. Action plan to limit the dust emission from all the stacks below 30 mg/Nm^3 shall be furnished.
vi. Action plan for fugitive emission control in the plant premises shall be provided.
vii. Action plan for treatment of waste water generated from scrubber in synthetic gypsum unit shall be submitted.

48.5 Greenfield project for installation of Iron ore Beneficiation Plant –1.5 MTPA throughput (1.16 MTPA High Grade Ore), Iron ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 Nm^3/hr by **M/s. KAI International Private Limited** located at Village Kapanda, Tehsil Lahunipara, **District - Sundergarh, Odisha** [Online Proposal No. IA/OR/IND/235042/2021; File No.: IA-J-11011/59/2021-IAII(I)] – **Prescribing of Terms of Reference – regarding.**

48.5.1 M/s. KAI International Private Limited has made an application online vide proposal no. IA/OR/IND/235042/2021 dated 21/10/2021 along with the application in prescribed format (Form I), copy of Pre-feasibility report and proposed ToRs for undertaking detailed EIA study as per the EIA Notification, 2006 for the project mentioned above. The proposed project activity is listed at S.No.2(b) Mineral Beneficiation & 3(a) Metallurgical industries (ferrous & non-ferrous) under Category "A" of the schedule of the EIA Notification, 2006 and appraised at central level.

Details submitted by Project proponent

48.5.2 The project of M/s KAI International Private Limited located in Kapanda Village, Lahunipara Tehsil, Sundergarh District, Odisha State is for setting up for Greenfield project for installation of Iron ore Beneficiation Plant –1.5 MTPA throughput (1.16 MTPA High

Grade Ore), Iron ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 Nm^3/hr.

48.5.3 Environmental site settings:

SNo	Particulars	Details	Remarks
i.	Total land	Total Land: 19.3 ha. (47.74 Acres)	Land use: Industrial.
ii.	Existence of habitation &involvement of R&R, ifany.	R&R – Not Applicable. No habitants or houses within the identified project area.	
iii.	Latitude and Longitude of the project site	**Latitude:** 21°53' 11.30"N to 21°53'29.01"N **Longitude:** 84°52'15.80"E to 84°52'35.23"E	
iv.	Elevation of the projectsite	193 to 252 m AMSL	
v.	Involvement of Forest land ifany.	**Forest Land:** No forest Land Involved.	
vi.	Waterbody exists within the project site as well as the study area	**Project site:** Nil **Study area:** BrahmaniRiver (1.65 km, West) Amrurhi Nala (3.1 km, NNE) Katangamunda Nala (3.4km NW) Rukura River (4.35 km S)	
vii.	Existence of ESZ/ ESA/ national park/ wildlife sanctuary/ biosphere reserve/ tiger reserve/elephant reserve etc. if any within the study Area.	**Protected Forest:** SamaradariJuniani PF (E) 0.41 km **Reserve Forest:** Kukia RF (NW) 0.15 km Dhenkiam RF (W) 2.6 km NalghatiRajabasa RF (SW)3.3 km Dhenkiam Block RF (NW) 3.74 km Bhagoth RF (SSW) 6.68 km Dhanaghar Extension RF (NNE) 6.9 km GurundiaRF (SW) 7.92 km No National Parks, Wildlife Sanctuaries, Biosphere Reserves within 10 Km radius of the proposed site	

48.5.4 The unit configuration and capacity of proposed project is given as below:

S No	Plant Facilities	Configuration	Production Capacity (TPA)
1	Iron ore Beneficiation	(1x1.5 MTPA) throughput	15,00,000 TPA throughput (11,60,000 TPA high grade ore)
2	Pellet	(2x0.6 MTPA)	12,00,000 TPA
3	Producer Gas Plant	6x4500 Nm^3/hr	27,000 Nm^3/hr

48.5.5 The details of the raw material requirement for the proposed project along with its source and mode of transportation is given as below:

S No	Raw Material Required	Quantity in Tons per Annum	Source	Distance from site (Kms)	Mode of Transportation
1	Iron Ore Fines	15,00,000	Barbil, Koida mine, Joda mine	55 km, 12 km, 58 km	Road/ Rail (Railway Siding: Chandiposh 15.8 km NNW)
2	Process return fines & ESP Dust	45,927	In- house Generation	0.1 km	Pneumatically
3	High grade Iron ore Fines	1,40,000	Domestic Market	58 km	Road
4	Coal	95,513	Mahanadi Coal field	106 km	Rail/ Road
5	Bentonite	13,063	Rourkela	41 km	Road
6	Lime Stone	13,063	Khatkurbahal limestone mine	64 km	Rail/ Road
7	Coke	3,575	Rourkela	41 km	Road
8	LDO	2,400	Domestic Market	40 km	Road

48.5.6 The water requirement for the project is estimated as 665KLD (make-up). The source of water will be Brahmani river (permission for the same will be obtained). The pickup point is estimated to be approximately 1.65 km aerial distance from the plant boundary. The length of the water pipeline will be approximately 4 km.

48.5.7 The power requirement for the project is estimated as 12 MW which will be sourced from the nearest grid at Purunapani substation which is 3.70 km distance in ESE direction.

48.5.8 The capital cost of the project is Rs.341.72 Crores, and the capital cost for Environmental protection measures is proposed as Rs.18.72 Crores (Capital), Rs 123.86 Lakhs/yr (Recurring cost). The employment generation from the proposed project will be around 500, including direct (280) and indirect (220) employment.

48.5.9 Proposed Terms of Reference (**Baseline data collection period: October 2021 to December, 2021**):

Environmental Aspect	Frequency/ Parameters / Locations
Micro Meteorology	**Frequency:** Continuous recording of hourly micro-meteorological parameters for 3 months **Parameters:** Temperature, Relative Humidity, Rainfall, Wind speed, Wind direction, Cloud cover, **Location:** At/Near Project Site
Ambient Air Quality	**Frequency:** Twice a week on 24 hrs basis for 12 weeks **Parameters:** PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, NH_3, O_3, BaP& Fe

Environmental Aspect	Frequency/ Parameters / Locations
	Locations:8 locations within the study area covering core zone, upwind directions, downwind directions, crosswind directions and nearby habitations based on the predominant windrose as presented above.
Ambient Noise Levels	**Frequency:** Continuous monitoring for 24 hours (Day & Night) at each location, once in a month for 3 months **Parameters:** Leq Day Time, Leq Night Time **Locations:** 8 locations within the study area covering core zone, various land uses and nearby habitations.
Surface Water Quality	**Frequency:** Once during the study period (Three Month) **Parameters:** Colour, pH, Dissolved Oxygen (min), Conductivity, Total Hardness, Turbidity, Chlorine (Cl^-),Total Dissolved Solids, Oil & Grease (max), BOD (3) days at 27°C (max), Chemical Oxygen Demand (COD), Arsenic (As), Lead (Pb), Cadmium (Cd) (max), Hexa Chromium as Cr^{+6}, Copper (Cu) (max), Zinc (Zn) (max), Selenium (Se) (max), Cyanide (CN) (max), Fluoride (F), Sulphates ($SO4^-$), Calcium (Ca), Magnesium (Mg), Manganese (Mn), Boron (B), Mercury (Hg), Phenolic Compounds as C_6H_5OH (max), Iron (Fe) (max), Nitrate (NO_3), Anionic Detergents (max), Total Coliform. **Locations:**11 locations within the study area covering major surface water bodies.
Ground Water Quality	**Frequency:** Once during the study period (Three Month) **Parameters:** Color, Odour, Taste, Turbidity, pH, Total Hardness (as $CaCO_3$), Iron (Fe) , Chloride (Cl^-), Residual Free Chlorine, Total Dissolved Solids as TDS, Calcium (Ca), Magnesium (Mg), Copper (Cu), Manganese (Mn), Sulphate (SO_4^-), Nitrate (NO_3), Fluoride (F), Phenolic Compounds as C_6H_5OH, Mercury (Hg), Cadmium (Cd), Selenium (Se), Arsenic (As), Cyanide (CN), Lead (Pb), Zinc (Zn), Total Chromium as Cr, Mineral Oil, Alkalinity, Aluminium (Al), Boron (B), Total Coliform as TC, Amonia Total, Barium (Ba), Molybdenum (Mo), Nickel (Ni), PAH & Pesticide. **Locations:**8 locations within the study area.
Soil Quality	**Frequency:** Once during the study period (Three Month) **Parameters:** Conductivity, Water Holding Capacity, Infiltration Rate, pH, Texture, Sand, Silt, Clay, Bulk Density, Exchangeable Calcium, Exchangeable Sodium, Exchangeable Magnesium, Available Potassium, Available Phosphorus, Available Nitrogen, Organic Matter, Organic Carbon, Water Soluble Chloride, Water Soluble Sulphate, Sodium Absorption Residue, Aluminium, Iron, Manganese, Boron, Zinc, Chromium, Hexavalent Chromium, Nickel, Copper, Cadmium, Iron, Silica, Lead, Available Phosphorus. **Locations:**6 locations within the study area covering different land uses such as agriculture land, park, waste land, etc.

Environmental Aspect	Frequency/ Parameters / Locations
Hydrogeology	**Frequency:** During Winter &post-monsoon season **Parameters:** Drainage pattern, Ground water table depth, ground water quality, ground water yield, etc. **Locations:** villages within 10 km radius study area
Land use land cover	Satellite imagery-based land use study and preparation of land use land cover maps based on latest LULC classifications & Ground truthing. **Parameters**: Agricultural area, Water bodies, Industrial land, Barren land, Built-up land, Forest area.
Ecology & Biodiversity	**Frequency:** Primary survey during study period. Secondary data collection from Forest department **Parameters:** Terrestrial Flora & Fauna, Aquatic flora & fauna, Forests, etc. **Location:** 10 km radius study area
Socio-economy	**Frequency:** Primary survey during study period. Secondary data collection from Govt. offices, Village Panchayats, Census of India records **Parameters:** Demographic pattern, economic pattern, social amenities availability **Location:** 10 km radius study area

48.5.10 It has been reported by PP that, there is no violation under EIA Notification, 2006/court case/show cause/direction related to the project under consideration.

48.5.11 Name of the EIA consultant: M/s. Visiontek Consultant Servise Private Limited [S. No.98, List of ACOs with their Certificate no. NABET/EIA/2023/RA 0209, valid up to 16/12/2023, Rev. 15, October 11, 2021].

48.5.12 During the meeting, project proponent submitted written submission on the following points

- PP submitted the revised plant layout including 20 m. wide greenbelt along the periphery and shifted the plant facilities to avoid cutting of trees at plant site. After revise the layout plan, the plantation area reduced from 8.7 ha to 6.27 ha and construction area is increased from 10.60 ha to 13.03 ha from the total project area of 19.3 ha.

- PP submitted the action plan for tailing management from beneficiation plant and as per the action plan Tailing Generation per Annum is 3,40,000 TPA with storage of 60 days. The considering the density as 2.60 T/m^3 of iron ore tailing volume will be 23,776 m^3 and height is considered 2 m. thus, the total area for tailing pond will be 1.2 Ha.

Observations of the Committee

48.5.13 The EAC noted the following:

i. Instant proposal is for setting up for Greenfield project for installation of Iron ore Beneficiation Plant –1.5 MTPA throughput (1.16 MTPA High Grade Ore), Iron ore

Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 Nm^3/hr at Kapanda Village, Lahunipara Tehsil, Sundergarh District, Odisha.

ii. Total project area is 19.3 ha out of which 6.27 ha area is occupied with dense trees and remaining 13.03 ha is proposed for installing the plant facilities.

iii. Out of 3972 trees present at project site 1500 trees will be felled down and 260 no of trees will be transplanted. The requisite permission to fell down 1500 trees has been obtained by the proponent from DFO.

Recommendations of the Committee

48.5.14 After deliberations, the Committee recommended the project proposal for prescribing following specific ToRs for undertaking detailed EIA and EMP study in addition to the generic ToR enclosed at Annexure-1 read with additional ToRs at Annexure-2:

i. 665 KLD water shall be drawn from Brahmani river. No ground water abstraction is permitted.

ii. Total 3972 trees are present at project site out of which the PP has received permission from local Forest authorities for felling of 1500 trees. Further, 260 trees are proposed to be transplanted. Compensatory plantation for the felled down trees shall be raised as per the State Govt norms and detail shall be furnished in the EIA report.

iii. Conservation plan duly approved by the State Forest department for the protection of Forest patches situated adjacent to the project site shall be submitted.

iv. Action plan to limit the dust emission from all the stacks below 30 mg/Nm^3 shall be furnished.

v. Action plan for fugitive emission control in the plant premises shall be provided.

vi. Action plan for green belt development covering 33% of the project area all along the periphery of the project site with a density of 2500 trees per hectare shall be submitted.

vii. Action plan for 100 % solid waste utilization shall be submitted.

viii. Action plan for rain water harvesting shall be submitted.

ix. Action plan for the stock piles with impervious floor, provision of garland drains and catch pits to trap run off material shall be submitted.

x. Action plan for treatment, storage and utilization of tailings shall be submitted.

48.6 Installation of New Line -II (Clinker 3.3 MTPA, Cement -2.0 MTPA and WHRB-15.5 MW) at existing cement plant site, taking total capacity to 4.09 MTPA Clinker, 2.99 MTPA Cement with 20.17 MW Waste Heat Recovery Power Plant by **M/s. Star Cement Limited** located at Village Lumshnong, Tehsil Khliehriat, **District East Jaintia Hills, Meghalaya.** [Online Proposal No. IA/ML/IND/235801/2021; File No.:IA-J-11011/277/2021-IA-II(I)] – **Prescribing of Terms of Reference – regarding**

48.6.1 M/s. Star Cement Limited has made an application online vide proposal no. IA/ML/IND235801/2021 dated 26.10.2021 along with the application in prescribed format (Form-I), copy of pre-feasibility report and proposed ToRs for undertaking detailed EIA study as per the EIA Notification, 2006 for the project mentioned above. The proposed project activity is listed at S. No. 3(b) under Category "A" of the schedule of the EIA Notification, 2006 and attracts general condition due to Narpuh Wildlife Sanctuary (ESZ boundary at 2.52 km from project location), and was appraised at Central Level.

ANNEXURE –1

GENERIC TERMS OF REFERENCE (ToR) IN RESPECT OF INDUSTRY SECTOR

1. **Executive Summary**
2. **Introduction**
   - i. Details of the EIA Consultant including NABET accreditation
   - ii. Information about the project proponent
   - iii. Importance and benefits of the project
3. **Project Description**
   - i. Cost of project and time of completion.
   - ii. Products with capacities for the proposed project.
   - iii. If expansion project, details of existing products with capacities and whether adequate land is available for expansion, reference of earlier EC if any.
   - iv. List of raw materials required and their source along with mode of transportation.
   - v. Other chemicals and materials required with quantities and storage capacities
   - vi. Details of Emission, effluents, hazardous waste generation and their management.
   - vii. Requirement of water, power, with source of supply, status of approval, water balance diagram, man-power requirement (regular and contract)
   - viii. The project proponent shall furnish the requisite documents from the competent authority in support of drawl of ground water and surface water and supply of electricity.
   - ix. Process description along with major equipment and machineries, process flow sheet (Quantitative) from raw material to products to be provided
   - x. Hazard identification and details of proposed safety systems.
   - xi. Expansion/modernization proposals:
     - a. Copy of <u>all</u> the Environmental Clearance(s) including Amendments thereto obtained for the project from MoEF&CC/SEIAA shall be attached as an Annexure. A certified copy of the latest Monitoring Report of the Regional Office of the Ministry of Environment, Forest and Climate Change as per circular dated 30th May, 2012 on the status of compliance of conditions stipulated in <u>all</u> the existing environmental clearances including Amendments shall be provided. In addition, status of compliance of Consent to Operate for the ongoing /existing operation of the project from SPCB/PCC shall be attached with the EIA-EMP report.
     - b. In case the existing project has not obtained environmental clearance, reasons for not taking EC under the provisions of the EIA Notification 1994 and/or EIA Notification 2006 shall be provided. Copies of Consent to Establish/No Objection Certificate and Consent to Operate (in case of units operating prior to EIA Notification 2006, CTE and CTO of FY 2005-2006) obtained from the SPCB shall be submitted. Further, compliance report to the conditions of consents from the SPCB shall be submitted.
4. **Site Details**
   - i. Location of the project site covering village, Taluka/Tehsil, District and State, Justification for selecting the site, whether other sites were considered.

ii. A toposheet of the study area of radius of 10km and site location on 1:50,000/1:25,000 scale on an A3/A2 sheet. (including all eco-sensitive areas and environmentally sensitive places)
iii. Co-ordinates (lat-long) of all four corners of the site.
iv. Google map-Earth downloaded of the project site.
v. Layout maps indicating existing unit as well as proposed unit indicating storage area, plant area, greenbelt area, utilities etc. If located within an Industrial area/Estate/Complex, layout of Industrial Area indicating location of unit within the Industrial area/Estate.
vi. Photographs of the proposed and existing (if applicable) plant site. If existing, show photographs of plantation/greenbelt, in particular.
vii. Landuse break-up of total land of the project site (identified and acquired), government/private - agricultural, forest, wasteland, water bodies, settlements, etc shall be included. (not required for industrial area)
viii. A list of major industries with name and type within study area (10km radius) shall be incorporated. Land use details of the study area
ix. Geological features and Geo-hydrological status of the study area shall be included.
x. Details of Drainage of the project upto 5km radius of study area. If the site is within 1 km radius of any major river, peak and lean season river discharge as well as flood occurrence frequency based on peak rainfall data of the past 30 years. Details of Flood Level of the project site and maximum Flood Level of the river shall also be provided. (mega green field projects)
xi. Status of acquisition of land. If acquisition is not complete, stage of the acquisition process and expected time of complete possession of the land.
xii. R&R details in respect of land in line with state Government policy.

5. **Forest and wildlife related issues (if applicable):**

i. Permission and approval for the use of forest land (forestry clearance), if any, and recommendations of the State Forest Department. (if applicable).
ii. Land use map based on High resolution satellite imagery (GPS) of the proposed site delineating the forestland (*in case of projects involving forest land more than 40 ha).*
iii. Status of Application submitted for obtaining the stage I forestry clearance along with latest status shall be submitted.
iv. The projects to be located within 10 km of the National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild Animals, the project proponent shall submit the map duly authenticated by Chief Wildlife Warden showing these features vis-à-vis the project location and the recommendations or comments of the Chief Wildlife Warden-thereon.
v. Wildlife Conservation Plan duly authenticated by the Chief Wildlife Warden of the State Government for conservation of Schedule I fauna, if any exists in the study area.
vi. Copy of application submitted for clearance under the Wildlife (Protection) Act, 1972, to the Standing Committee of the National Board for Wildlife.

6. **Environmental Status**

i. Determination of atmospheric inversion level at the project site and site-specific micro-meteorological data using temperature, relative humidity, hourly wind speed and direction and rainfall.

ii. AAQ data (except monsoon) at 8 locations for PM_{10}, $PM_{2.5}$, SO_2, NO_X, CO and other parameters relevant to the project shall be collected. The monitoring stations shall be based CPCB guidelines and take into account the pre-dominant wind direction, population zone and sensitive receptors including reserved forests.

iii. Raw data of all AAQ measurement for 12 weeks of all stations as per frequency given in the NAQQM Notification of Nov. 2009 along with – min., max., average and 98% values for each of the AAQ parameters from data of all AAQ stations should be provided as an annexure to the EIA Report.

iv. Surface water quality of nearby River (60m upstream and downstream) and other surface drains at eight locations as per CPCB/MoEF&CC guidelines.

v. Whether the site falls near to polluted stretch of river identified by the CPCB/MoEF&CC.

vi. Ground water monitoring at minimum at 8 locations shall be included.

vii. Noise levels monitoring at 8 locations within the study area.

viii. Soil Characteristic as per CPCB guidelines.

ix. Traffic study of the area, type of vehicles, frequency of vehicles for transportation of materials, additional traffic due to proposed project, parking arrangement etc.

x. Detailed description of flora and fauna (terrestrial and aquatic) existing in the study area shall be given with special reference to rare, endemic and endangered species. If Schedule-I fauna are found within the study area, a Wildlife Conservation Plan shall be prepared and furnished.

xi. Socio-economic status of the study area.

7. **Impact Assessment and Environment Management Plan**

i. Assessment of ground level concentration of pollutants from the stack emission based on site-specific meteorological features. In case the project is located on a hilly terrain, the AQIP Modelling shall be done using inputs of the specific terrain characteristics for determining the potential impacts of the project on the AAQ. Cumulative impact of all sources of emissions (including transportation) on the AAQ of the area shall be well assessed. Details of the model used and the input data used for modelling shall also be provided. The air quality contours shall be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any.

ii. Water Quality modelling – in case, if the effluent is proposed to be discharged in to the local drain, then Water Quality Modelling study should be conducted for the drain water taking into consideration the upstream and downstream quality of water of the drain.

iii. Impact of the transport of the raw materials and end products on the surrounding environment shall be assessed and provided. In this regard, options for transport of raw materials and finished products and wastes (large quantities) by rail or rail-cum road transport or conveyor-cum-rail transport shall be examined.

iv. A note on treatment of wastewater from different plant operations, extent recycled and reused for different purposes shall be included. Complete scheme of effluent treatment. Characteristics of untreated and treated effluent to meet the prescribed standards of discharge under E(P) Rules.

v. Details of stack emission and action plan for control of emissions to meet standards.

vi. Measures for fugitive emission control

vii. Details of hazardous waste generation and their storage, utilization and disposal. Copies of MOU regarding utilization of solid and hazardous waste shall also be included. EMP shall include the concept of waste-minimization, recycle/reuse/recover techniques, Energy conservation, and natural resource conservation.

viii. Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 2009. A detailed plan of action shall be provided.

ix. Action plan for the green belt development plan in 33 % area i.e. land with not less than 1,500 trees per ha. Giving details of species, width of plantation, planning schedule etc. shall be included. The green belt shall be around the project boundary and a scheme for greening of the roads used for the project shall also be incorporated.

x. Action plan for rainwater harvesting measures at plant site shall be submitted to harvest rainwater from the roof tops and storm water drains to recharge the ground water and also to use for the various activities at the project site to conserve fresh water and reduce the water requirement from other sources.

xi. Total capital cost and recurring cost/annum for environmental pollution control measures shall be included.

xii. Action plan for post-project environmental monitoring shall be submitted.

xiii. Onsite and Offsite Disaster (natural and Man-made) Preparedness and Emergency Management Plan including Risk Assessment and damage control. Disaster management plan should be linked with District Disaster Management Plan.

8. **Occupational health**

i. Details of existing Occupational & Safety Hazards. What are the exposure levels of above mentioned hazards and whether they are within Permissible Exposure level (PEL). If these are not within PEL, what measures the company has adopted to keep them within PEL so that health of the workers can be preserved,

ii. Details of exposure specific health status evaluation of worker. If the workers' health is being evaluated by pre-designed format, chest x rays, Audiometry, Spirometry, Vision testing (Far & Near vision, colour vision and any other ocular defect) ECG, during pre-placement and periodical examinations give the details of the same. Details regarding last month analysed data of abovementioned parameters as per age, sex, duration of exposure and department wise.

iii. Annual report of health status of workers with special reference to Occupational Health and Safety.

iv. Plan and fund allocation to ensure the occupational health & safety of all contract and casual workers.

9. **Corporate Environment Policy**

i. Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.

ii. Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA.

iii. What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions? Details of this system may be given.

iv. Does the company have 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? This reporting mechanism shall be detailed in the EIA report

10. Details regarding infrastructure facilities such as sanitation, fuel, restroom etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase.
11. To address the Public Hearing issues, provisions contained under Ministry's Office Memorandum vide F.No. 22-65/2017-IA.III dated 30/09/2020 shall be complied.
12. Any litigation pending against the project and/or any direction/order passed by any Court of Law against the project, if so, details thereof shall also be included. Has the unit received any notice under the Section 5 of Environment (Protection) Act, 1986 or relevant Sections of Air and Water Acts? If so, details thereof and compliance/ATR to the notice(s) and present status of the case.
13. A tabular chart with index for point wise compliance of above ToRs.
14. The ToRs prescribed shall be valid for a period of three years for submission of the EIA-EMP reports along with Public Hearing Proceedings (wherever stipulated).

<u>The following general points shall be noted:</u>

i. All documents shall be properly indexed, page numbered.
ii. Period/date of data collection shall be clearly indicated.
iii. Authenticated English translation of all material in Regional languages shall be provided.
iv. The letter/application for environmental clearance shall quote the MOEF&CC file No. and also attach a copy of the letter.
v. The copy of the letter received from the Ministry shall be also attached as an annexure to the final EIA-EMP Report.
vi. The index of the final EIA-EMP report must indicate the specific chapter and page no. of the EIA-EMP Report
vii. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MOEF&CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry shall also be followed.
viii. The consultants involved in the preparation of EIA-EMP report after accreditation with Quality Council of India (QCl)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA-EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. Name of the Consultant and the Accreditation

details shall be posted on the EIA-EMP Report as well as on the cover of the Hard Copy of the Presentation material for EC presentation.

ix. ToRs' prescribed by the Expert Appraisal Committee (Industry) shall be considered for preparation of EIA-EMP report for the project in addition to all the relevant information as per the 'Generic Structure of EIA' given in Appendix III and IIIA in the EIA Notification, 2006. Where the documents provided are in a language other than English, an English translation shall be provided. The draft EIA-EMP report shall be submitted to the State Pollution Control Board of the concerned State for conduct of Public Hearing. The SPCB shall conduct the Public Hearing/public consultation, district-wise, as per the provisions of EIA notification, 2006. The Public Hearing shall be chaired by an Officer not below the rank of Additional District Magistrate. The issues raised in the Public Hearing and during the consultation process and the commitments made by the project proponent on the same shall be included separately in EIA-EMP Report in a separate chapter and summarized in a tabular chart with financial budget (capital and revenue) along with time-schedule of implementation for complying with the commitments made. The final EIA report shall be submitted to the Ministry for obtaining environmental clearance.

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ANNEXURE-2

ADDITIONAL ToRS FOR INTEGRATED STEEL PLANT

1. Iron ore/coal linkage documents along with the status of environmental clearance of iron ore and coal mines
2. Quantum of production of coal and iron ore from coal & iron ore mines and the projects they cater to. Mode of transportation to the plant and its impact
3. For Large ISPs, a 3-D view i.e. DEM (Digital Elevation Model) for the area in 10 km radius from the proposal site. MRL details of project site and RL of nearby sources of water shall be indicated.
4. Recent land-use map based on satellite imagery. High-resolution satellite image data having 1m-5m spatial resolution like quickbird, Ikonos, IRS P-6 pan sharpened etc. for the 10 Km radius area from proposed site. The same shall be used for land used/land-cover mapping of the area.
5. PM (PM_{10} and $P_{2.5}$) present in the ambient air must be analysed for source analysis – natural dust/RSPM generated from plant operations (trace elements) of PM_{10} to be carried over.
6. All stock piles will have to be on top of a stable liner to avoid leaching of materials to ground water.
7. Plan for the implementation of the recommendations made for the steel plants in the CREP guidelines.
8. Plan for slag utilization
9. Plan for utilization of energy in off gases (coke oven, blast furnace)
10. System of coke quenching adopted with justification.
11. Trace metals Mercury, arsenic and fluoride emissions in the raw material.
12. Trace metals in waste material especially slag.
13. Trace metals in water
14. Details of proposed layout clearly demarcating various units within the plant.
15. Complete process flow diagram describing each unit, its processes and operations, along with material and energy inputs and outputs (material and energy balance).
16. Details on design and manufacturing process for all the units.
17. Details on environmentally sound technologies for recycling of hazardous materials, as per CPCB Guidelines, may be mentioned in case of handling scrap and other recycled materials.
18. Details on requirement of energy and water along with its source and authorization from the concerned department. Location of water intake and outfall points (with coordinates).
19. Details on toxic metal content in the waste material and its composition and end use (particularly of slag).
20. Details on toxic content (TCLP), composition and end use of slag.

ADDITIONAL ToRs FOR PELLET PLANT

1. Iron ore/coal linkage documents along with the status of environmental clearance of iron ore and coal mines
2. Quantum of production of coal and iron ore from coal & iron ore mines and the projects they cater to. Mode of transportation to the plant and its impact
3. Recent land-use map based on satellite imagery. High-resolution satellite image data having 1m-5m spatial resolution like quickbird, Ikonos, IRS P-6 pan sharpened etc. for the 10 Km radius area from proposed site. The same shall be used for land used/land-cover mapping of the area.
4. PM(PM_{10} and $P_{2.5}$) present in the ambient air must be analysed for source analysis – natural dust/RSPM generated from plant operations (trace elements) of PM_{10} to be carried over.
5. All stock piles will have to be on top of a stable liner to avoid leaching of materials to ground water.
6. Plan for the implementation of the recommendations made for the steel plants in the CREP guidelines.
7. Plan for slag utilization
8. Plan for utilization of energy in off gases (coke oven, blast furnace)
9. System of coke quenching adopted with justification.
10. Trace metals Mercury, arsenic and fluoride emissions in the raw material.
11. Trace metals in waste material especially slag.
12. Trace metals in water

ADDITIONAL ToRs FOR CEMENT INDUSTRY

1. Limestone and coal linkage documents along with the status of environmental clearance of limestone and coal mines
2. Quantum of production of coal and limestone from coal & limestone mines and the projects they cater to;
3. Present land use shall be prepared based on satellite imagery. High-resolution satellite image data having 1m-5m spatial resolution like quickbird, Ikonos, IRS P-6 pan sharpened etc. for the 10 Km radius area from proposed site. The same shall be used for land used/land-cover mapping of the area.
4. If the raw materials used have trace elements, an environment management plan shall also be included.
5. Plan for the implementation of the recommendations made for the cement plants in the CREP guidelines must be prepared.
6. Energy consumption per ton of clinker and cement grinding
7. Provision of waste heat recovery boiler
8. Arrangement for co-processing of hazardous waste in cement plant.
9. Trace metals in waste material especially slag.

ADDITIONAL ToRs FOR PULP AND PAPER INDUSTRY

i. A note on pulp washing system capable of handling wood pulp shall be included.
ii. Manufacturing process details for the existing and proposed plant shall be included. Chapter on Pulping & Bleaching shall include: no black liquor spillage in the area of pulp mill; no use of elemental chlorine for bleaching in mill; installation of hypo preparation plant; no use of potcher washing and use of counter current or horizontal belt washers. Chapter on Chemical Recovery shall include: no spillage of foam in chemical recovery plant, no discharge of foul condensate generated from MEE directly to ETP; control of suspended particulate matter emissions from the stack of fluidized bed recovery boiler and ESP in lime kiln
iii. Studies shall be conducted and a chapter shall be included to show that Soda pulping process can be employed for *Eucalyptus/Casuarina* to produce low kappa (bleachable) grade of pulp.
iv. Commitment that only elemental Chlorine-free technology will be used for the manufacture of paper and existing plant without chemical recovery plant will be closed within 2 years of issue of environment clearance.
v. A commitment that no extra chlorine base bleaching chemicals (more than being used now) will be employed and AOx will remain within limits as per CREP for used based mills. Plan for reduction of water consumption.

ADDITIONAL ToRs FOR LEATHER/SKIN/HIDE PROCESSING INDUSTRY

1. Justification for engaging a particular type of process (raw hide/skin into semi finishing or finished leather, semi-finished leather to finished leather, dry finishing operations, chrome/vegetable tanning, *etc.).*
2. Details regarding complete leather/ skin/ hide processing including the usage of sulphides, nitrogen compounds, chromium or other tanning agents, post-tanning chemicals, biocides, *etc.,* along with the material balance shall be provided.
3. In case of chrome tanning, details of the chrome recovery plant, management of shavings/solid waste including safe disposal.
4. Details on reuse of soak liquor / saline stream from membrane system, if applicable, to the extent possible in pickling activity after required treatment. Also, mention the salt recovery measures.

ADDITIONAL ToRs FOR COKE OVEN PLANT

1. Justification for selecting recovery/non-recovery (beehive) type batteries with the proposed unit size.
2. Details of proposed layout clearly demarcating various facilities such as coal storages, coke making, by-product recovery area,*etc* within the plant.
3. Details of coke oven plant (recovery/non-recovery type) including coal handling, coke oven battery operations, coke handling and preparation.
4. Scheme for coal changing, charging emission centre, Coke quenching technology, pushing emission control.
5. Scheme for coke oven effluent treatment plant details including scheme for meeting cyanide standard.

ADDITIONAL ToRs FOR ASBESTOS MILLING AND ASBESTOS BASED PRODUCTS

1. Type of the project – new/expansion/modernization
2. Type of fibres used (Asbestos and others) and preference of selection from techno-environmental angle should be furnished
3. As asbestos is used in several products and as the level of precautions differ from milling to usage in cement products, friction products gasketing, textiles and also differ with the process used, it is necessary to give process description and reasons for the choice for selection of process
4. Technology adopted, flow chart, process description and layout marking areas of potential environmental impacts
5. National standards and codes of practice in the use of asbestos particular to the industry should be furnished
6. In case of newly introduced technology, it should include the consequences of any failure of equipment/ technology and the product on environmental status.
7. In case of expansion project asbestos fibre to be measured at slack emission and work zone area, besides base line air quality.
8. In case of green field project asbestos fibre to be measured at ambient air.

ADDITIONAL ToRs FOR METALLURGICAL INDUSTRY (FERROUS AND NON-FERROUS)

1. Complete process flow diagram describing each unit, its processes and operations, along with material and energy inputs & outputs (material and energy balance).
2. Emission from sulphuric acid plant and sulphur muck management.
3. Details on installation of Continuous Emission Monitoring System with recording with proper calibration system
4. Details on toxic metals including fluoride emissions
5. Details on stack height.
6. Details on ash disposal and management
7. Complete process flow diagram describing process of lead/zinc/copper/ aluminium, *etc.*
8. Details on smelting, thermal refining, melting, slag fuming, and Waelz kiln operation
9. Details on Holding and de-gassing of molten metal from primary and secondary aluminium, materials pre-treatment, and from melting and smelting of secondary aluminium
10. Details on toxic metal content in the waste material and its composition and end use (particularly of slag).
11. Trace metals in waste material especially slag.
12. Plan for trace metal recovery
13. Trace metals in water

Executive Summary

Executive summary of the report in about 8-10 pages incorporating the following:

i. Project name and location (Village, Dist, State, Industrial Estate (if applicable)
ii. Products and capacities. If expansion proposal, then existing products with capacities and reference to earlier EC.
iii. Requirement of land, raw material, water, power, fuel, with source of supply (Quantitative)
iv. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes. Materials balance shall be presented.
v. Measures for mitigating the impact on the environment and mode of discharge or disposal.
vi. Capital cost of the project, estimated time of completion
vii. Site selected for the project – Nature of land – Agricultural (single/double crop), barren, Govt/private land, status of is acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest, eco-sensitive zones, accessibility, (note – in case of industrial estate this information may not be necessary)
viii. Baseline environmental data – air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
ix. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
x. Likely impact of the project on air, water, land, flora-fauna and nearby population
xi. Emergency preparedness plan in case of natural or in plant emergencies
xii. Issues raised during public hearing (if applicable) and response given
xiii. CSR plan with proposed expenditure.
xiv. Occupational Health Measures
xv. Post project monitoring plan

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Government of India
Ministry of Environment, Forest and Climate Change
IA Division
(Industrial Projects - 1)
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Minutes of AGENDA FOR 51st EXPERT APPRAISAL COMMITTEE (INDUSTRY-1 SECTOR) MEETING TO BE HELD DURING JANUARY 2nd - 4th , 2024 meeting Industrial Projects - 1 held from 02/01/2024 to 04/01/2024

Date: 13/01/2024

MoM ID:	EC/MOM/EAC/818679/12/2023
Agenda ID:	EC/AGENDA/EAC/818679/12/2023
Meeting Venue:	N/A
Meeting Mode:	Virtual
Date & Time:	

04/01/2024	10:30 AM	06:30 PM
02/01/2024	10:30 AM	06:30 PM
03/01/2024	10:30 AM	06:30 PM

1. Opening remarks

(i) Opening Remarks by the Chairman, EAC Shri. Rajive Kumar, Chairman EAC welcomed the Committee members and opened the EAC meeting for further deliberations. Shri Rajive Kumar also appreciated the efforts of the Ministry's Team (Industry 1 Sector) for preparation and uploading the agenda of the EAC meetings and draft record of discussion very scientifically, systematically and timely on Parivesh Portal. The EAC has also appreciated various decision tools available in Parivesh Portal. . --------- ----------*****---------- Note - Due to Editor issue, Final Approved Minutes of the EAC is enclosed herewith in PDF as a ANNEXURE]. Please refer this document and Treat as approved Minutes of the EAC [Industry 1 Sector].

2. Confirmation of the minutes of previous meeting

Confirmation of the Minutes of the50th meeting of the EAC for Industry-I sector held on 13th – 15thDecember, 2023at MoEF&CC through Video Conferencing. The EAC, having taken note that final minutes were issued after incorporating comments offered by the EAC (Industry-1 Sector) members on the minutes of its 50th meeting of the EAC for Industry-I sector held on 13th – 15th December, 2023conducted through Video Conferencing Mode, and noted that there is nomodifications/factual correction reported by the PP, in the minutes of the 49thEAC meeting for the project/activities.

3. Details of proposals considered by the committee

Day 1 -02/01/2024

3.1. Agenda Item No 1:

1.	Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet the prescribed standards.
1.	The project proponent shall monitor regularly ground water quality at least twice a year (pre- and post-monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognized under Environment (Protection) Act, 1986 and NABL accredited laboratories.
1.	Rain water harvesting shall be implemented to recharge/harvest water as per the action plan submitted in the EIA/EMP report.
1.	All stockyards shall have impervious flooring and shall be equipped with water spray system for dust suppression. Stock yards shall also have garland drains and catch pits to trap the run off material and shall be implemented as per the action plan submitted in EIA/EMP report.
1.	The proposed project shall be designed as Zero Liquid Discharge Plant. ETP shall be installed and there shall be no discharge of effluent from the plant. Domestic effluent shall be treated in Sewage Treatment Plant. Suitable measures shall be adopted for sewage water handling to ensure no contamination of any kind of water body.
1.	The project proponent shall make efforts to minimise water consumption in the steel plant complex by segregation of used water, practicing cascade use and by recycling treated water.
1.	Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off.
1.	Tyre washing facilities shall be provided at the entrance of the plant gates.
Water Quality Monitoring and Preservation in case of Alluminium Shelter	
1.	Reduce water consumption in bauxite beneficiation and alumina refinery by concentrating the solids in the tailings.
Water Quality Monitoring and Preservation in case of Rolling Mills	
1.	The project proponent shall provide the ETP for effluents of rolling mills to meet the standards prescribed in G.S.R 277 (E) 31st March 2012 (applicable to IF/EAF) as amended from time to time. (in case of rolling mills)
1.	Cold Rolling Mill (CRM), color coating and galvanizing plants shall have CETP to treat and recycle the treated water from CRM complex. Sludge generated at CRM ETP shall be sent to TSDF. (in case of cold rolling mills)

3.7. Agenda Item No 7:

3.7.1. Details of the proposal

Greenfield Project For Installation Of Iron Ore Beneficiation Plant- 1.5 MTPA Throughput (1.16 MTPA High Grade Ore), Iron Ore Pelletization Plant – 1.2 MTPA And Producer Gas Plant – 27,000 Nm3/hr Located At Village - Kapanda, Tehsil – Lahunipara, Dist. - Sundergarh, Odisha By M/s KAI International Private Limited by **KAI INTERNATIONAL PRIVATE LIMITED** located at **SUNDARGARH,ODISHA**			
Proposal For		Fresh EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/OR/IND1/452282/2023	IA-J-11011/59/2021-IA-II(IND-I)	14/11/2023	Metallurgical Industries (ferrous and non ferrous) (3(a))

3.7.2. Project Salient Features

[Proposal No. IA/OR/IND1/452282/2023; File No. IA-J-11011/59/2021-IA-II(IND-I)]
[Consultant: Visiontek Consultancy Services Pvt. Ltd.; Valid upto 16.12.2023]

1.
2. M/s. KAI International Private Limited has made an online application vide proposal no. IA/OR/IND1/452282/2023 dated 14.11.2023 along with copy of EIA/EMP report, Forms (Part A, B and C) seeking Environment Clearance (EC) under the provisions of the EIA Notification, 2006 for the project mentioned above. The proposed project activity is listed at S. No. 3(a) Metallurgical Industries (ferrous & non-ferrous), and 2(b) Mineral Beneficiation under Category "A" of the schedule of the EIA Notification, 2006 and appraised at Central Level.

1. Name of the EIA consultant: M/s. Visiontek Consultancy Services Pvt Ltd. [List of ACOs with their Certificate / Extension Letter no. NABET/EIA/21-24/SA 0215; valid upto 16.12.2024, as on January 3, 2024].

Details submitted by Project proponent

1. The details of the ToR are furnished as below:

Date of Application	Consideration	Details	Date of Accord	ToR Validity
21.10.2021	48th meeting of REAC held on 11-12th November, 2021	Terms of Reference	29.11.2021	28.11.2025

1. The project of M/s KAI International Private Limited, located at Village - Kapanda, Tehsil – Lahunipara, District Sundergarh, Odisha is for setting up of a greenfield project for installation of Iron Ore Beneficiation Plant- 1.5 MTPA throughput (1.16 MTPA High Grade Ore), Iron Ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 Nm3/hr.

1. Environmental Site Settings:

Sr. No.	Particulars	Details	Remarks
1.	Total land	Total land required for project– 19.32 ha. (47.74 Ac) of IDCO Land.	Land for proposed project 19.32 Ha. (47.74 Acre) out of total allotted land of 47.348 Ha (117 Acres). Land use: Industrial Land allotted by IDCO
2.	Land acquisition details as per MoEF&CC O.M. dated 7/10/2014	Acquired Land: 19.32 ha. (47.74 Acre) Total Land is under possession of KAI International Pvt. Ltd.	Land Agreement made between IDCO & KIPL as per land allotment letter no. IDCO:HO:P&A:LAE:7751/2019 dtd. 06.08.2021.
3.	Existence of habitation & involvement of R&R, if any.	Project Site: There is no existence of habitants identified within the Project site. Study Area:	R&R is not applicable.

Sr. No.	Particulars	Details	Remarks
		Habitation / **Distance** / **Direction** Daldali Sai / 0.5 Km / SW Nuagan / 1.3 / S Kapanda / 1.5 / SW Tikayatpali / 2.8 / NNE Talabahali / 2.9 / E	
4.	Latitude and Longitude of the project site	**Pillar No.(s)** / **Latitude** / **Longitude** 1 / 21° 53'28.44"N / 84° 52'15.80"E 2 / 21° 53'25.49"N / 84° 52'16.45"E 3 / 21° 53'21.00"N / 84° 52'17.41"E 4 / 21° 53'17.11"N / 84° 52'22.04"E	-

Sr. No.	Particulars	Details	Remarks
		5 | 21° 53'11.30"N | 84° 52'29.12"E 6 | 21° 53'11.40"N | 84° 52'35.21"E 7 | 21° 53'17.15"N | 84° 52'35.23"E 8 | 21° 53'22.78"N | 84° 52'35.20"E 9 | 21° 53'23.68"N | 84° 52'30.77"E 10 | 21° 53'23.86"N | 84° 52'26.76"E 11 | 21° 53'29.01"N | 84° 52'26.29"E 12 | 21° 53'28.77"N | 84° 52'20.69"E	
5.	Elevation of the project site	193 m to 252m AMSL	HFL of Brahmani River is 147.660 m AMSL certified from Central Water Commission Mahanadi & Eastern River Organization, Bhubaneswar vide letter no. TD/905/CE/VI/202/257(H), dated 03.02.22
6.	Involvement of Forest land if any	There is no forest land involved within the plant boundary.	As per joint field verification conducted on 08.02.2023 by Forest and revenue dept. officials, along with DFO letter vide Memo No. 8447/4F (Misc.) (PC-1), dtd. 12.09.2023, entire land is non-f

Sr. No.	Particulars	Details	Remarks
			orest land of kissam patit.
7.	Water body exists within the project site as well as study area	**Study Area:** Brahmani River- 1.6 Km (W) Amrurhi Nala- 3.1 Km (NNE) Katangamunda Nala- 3.4 Km (NW) Rukura River- 4.3 Km (S)	-
8.	Existence of ESZ /ESA /national park/ wildlife sanctuary / biosphere reserve/ tiger/ elephant reserve etc. if any within the study area	No ESZ /ESA /national park/ wildlife sanctuary within 10 km radius. **Protected Forest (PF):** Samaradari Juniani PF (E)- 0.41 Km **Reserve Forest (RF):** • Kukia R.F*- 0.12 Km (NW) • Dhenkiam R.F- 2.6 Km (W) • Nalghati Rajabasa R.F- 3.3 Km (SW) • Dhenkiam Block R.F- 3.7 Km (NW) • Bhagoth R.F- 6.6 Km (SSW) • Dhanaghar Extension R.F- 6.9 Km (NNE) • Gurunida R.F- 7.9 Km (SW)	-

1. The unit configuration and capacity of proposed project is given as below:

Sl.No.	Plant Equipment/ Facility	Proposed Units		
		Configuration	Capacity	
1	Beneficiation	1 X 1.5 MTPA	1.5 MTPA (throughput) 1.16 MTPA (High grade Ore)	
2	Pelletization	2 X 0.6 MTPA	1.2 MTPA	
3	Producer Gas Plant	6(5W+1S) x 4,500 Nm3/hr	27,000 Nm3/hr	

1. The details of the raw material requirement for the proposed project along with its source and mode of transportation is given as below:

Sr. No	Raw material	Quantity required	Source	Distance from site	Mode of Transportation
1.	Iron Ore Fines	15,00,000 TPA	KJS Ahluwalia, Guali/ Seven Hills Minerals, Barbil/ GM Iron & Sttel Company Ltd, Mayurbhanj (Iron Ore Trader)	12 to 58 km	By Road
2.	High grade	11,60,000 TPA	From In-house Beneficiation Plant	In-hous	Conve

Sr. No	Raw material	Quantity required	Source	Distance from site	Mode of Transportation
	Iron ore Fines			e	yor belts
3.	High grade Iron ore Fines	1,40,000 TPA	JSW Steel Ltd., Barbil/ M/s. T. P. Mohanty/ Indrani Patnaik, Rourkela	58 km	By Road
4.	Bentonite	13,063 TPA	Rourkela	41 km	By Road
5.	Lime Stone	13,063 TPA	Khatkurbahal limestone mine & other mines by E-auction	64 km	By Road
6.	Coke	3,575 TPA	Rourkela	41 km	By Road
7.	LDO	2,400 KLA	Domestic Market	40 km	By Road
8.	Coal	95,513 TPA (PGP Coal- 70713 TPA & PCI Coal- 24800 TPA)	Open Auction MCL, Odisha & ECL/ Agarwal Coal Corporation Pvt. Ltd. (Coal Trader)	106 km	By Road

1. Proposed Water requirement is 1180 m3/day, to be sourced from Brahmani River and allocation for drawl of 0.50 Cusec (1223.287 m3/day) surface water is obtained from Department of Water Resources vide Lt. No. WS-IWS-781/22-2024 dated 21.01.2023. No Ground water will be used for this project.

1. Proposed Power requirement of 12.0 MW will be met from Western Electricity Supply Company of Orissa (WESCO) GRID at Purunapani Substation. Permission for 12 MW will be taken during CTE period. Further DG set of 1 Nos. X 750 KVA will be kept to meet the emergency power requirement.

1. Baseline Environmental Studies:

Period	October to December 2021
AAQ parameters at 8 locations (min. & Max.)	• PM10= 32.4 to 81.3 µg/m3 • PM2.5= 17.8 to 44.2 µg/m3 • SO2= BDL (<4) to 14.2 µg/m3 • NOx= 9.0 to 25.2 µg/m3 • CO= 0.12 to 0.51 mg/m3
Incremental GLC level	• PM10= Max. GLC- 2.17 µg/m3 from stack 800 m (N) • PM2.5= Max. GLC- 1.46 µg/m3 from stack 810 m (N) • SO2= Max. GLC- 3.72 µg/m3 from stack 750 m (N) • NOx= Max. GLC- 2.07 µg/m3 from stack 758 m (N)

<table>
<tr><td></td><td>

- CO= Max. GLC- 0.73 mg/m3 from stack 810 m (N)

</td></tr>
<tr><td>Ground Water quality at 8 locations</td><td>pH: 6.6 to 7.85; Total Hardness: 73 to 325 mg/l; Chlorides: 11 to 179 mg/l; Fluoride: 0.01 to 0.28 mg/l; Heavy metals such as Lead, Arsenic etc. are BDL at all the locations.</td></tr>
<tr><td>Surface water quality at 8 locations</td><td>pH: 7.25 to 8.07; DO: 4.6 to 7.8 mg/l and BOD: 2.0 to 2.9 mg/l; COD from 6.1 to 8.4 mg/l</td></tr>
<tr><td>Noise levels Leq (Day & Night) at 8 locations</td><td>Ambient noise reaches 41.6 to 56.9 dB(A) during day time and 36.8 to 46.9 dB(A) during night time.</td></tr>
<tr><td>Traffic assessment study findings</td><td>Traffic study has been conducted at 3 locations Kapanda-Fatjharan village road (Near Entry gate of project site), near intersection of Santikayatpali Road to NH-23 and at Gudhiali (Intesection of NH-23 & NH 215).
Transportation of raw material, fuel & finished product will be done by road & rail.
Existing PCU details is given below-
<table>
<tr><th>Sl No.</th><th>Study Location</th><th>Details</th><th>Volume (PCU/hr)</th><th>*Capacity (PCU/hr)</th><th>Existing V/C ratio</th><th>**Level of Service (LOS)</th></tr>
<tr><td rowspan="2">1.</td><td rowspan="2">Kapanda – Fatjharan village road (near Entry Gate of Project Site)</td><td>Average Hour Load</td><td>294</td><td>1400</td><td>0.21</td><td>B</td></tr>
<tr><td>Peak Hourly Load</td><td>310</td><td>1400</td><td>0.22</td><td>B</td></tr>
<tr><td rowspan="2">2.</td><td rowspan="2">Near intersection of Santikayatpali Road to NH-23</td><td>Average Hour Load</td><td>1642</td><td>5400</td><td>0.30</td><td>B</td></tr>
<tr><td>Peak Hourly Load</td><td>1820</td><td>5400</td><td>0.33</td><td>B</td></tr>
<tr><td>3</td><td>Gudihali (Intersection of NH-23 & NH-215)</td><td>Average Hour Load</td><td>1794</td><td>5400</td><td>0.33</td><td>B</td></tr>
</table>
</td></tr>
</table>

		Peak Hourly Load	2187	5400	0.40	C

IRC 106:1990
Additional PCU load after proposed project will be 40 PCU/hr.

Sl No.	Study Location	#Volume after Proposed project (PCU/hr)	*Capacity (PCU/hr)	V/C ratio after Proposed project	**Level of Service (LOS)
1	Kapanda – Fatjharan village road (near Entry Gate of Project Site)	350	1400	0.25	B
2	Near intersection of Santikayatpali Road to NH-23	1860	5400	0.34	B
3	Gudihali (Intersection of NH-23 & NH-215)	2227	5400	0.41	C

Considering peak hour traffic at the three locations.
Conclusion: The level of service will remain same even after including additional traffic due to proposed project.

Flora & Fauna	Wildlife Conservation Plan has been prepared for the Schedule-I fauna like Elephant, Leopard, Sloth bear & Python etc. with a budgetary allocation of Rs. 55.871 Lakhs for 5 years and submitted to PCCF wildlife for approval vide memo no. 7846/ 4F (Misc.), dated 20.09.2022.

1. The details of solid waste generation along with its mode of treatment/disposal is furnished as below:

Sl. No.	Facility	Type of Waste	Quantity generated (TPA)	Mode of Treatment	Disposal	Remark
	Solid Waste					
1.	Beneficiation Plant	Tailing/ Slime	3,40,000	Storage/ disposed	Dewatered and stored in slime/tailing storage area, then disposed to construction contractors for road & construction filings. And the collected water will be recycled in process. MoU has been signed with Brahmani Developers Pvt. Ltd.	-
1.	PelletPlant	ESP Dust & Pellet Fines	45,927	Recycled	Will be recycled in pellet plant	-

Sl. No.	Facility	Type of Waste	Quantity generated (TPA)	Mode of Treatment	Disposal	Remark
2.	PGP Plant	Tar	2828	Reused/ disposed	Will be reused as fuel in the pellet plant/ Sold to Authorized Coal tar processing units MoU has been signed with UITC (India)Pvt. Ltd.	-
3.		Ash	28,286 (70713 TPA Coal X 40% ash)	-	To road construction contractors / ash blocks manufacturing MoU has been signed with Sudhir Kumar Harichandan, manufacturer of Maa Brand Fly Ash Bricks.	-
	Hazardous Waste					
4.	Used oil	Schedule- I Cat. 5.1	1.5 KLPA	Recycling/Re-processes sing	Stored and disposed to Authorized recyclers as per MoU has been signed with UITC (India) Pvt. Ltd.	-
5.	Oily Sludge	Cat. 4.1	0.25 KLPA	Re-processes sing/ Incineration	Stored and disposed to Authorized recyclers/CHWTSDF as per norms.	-
6.	The residue of the oil Storage tank	Cat. 5.2		Re-processes sing/ Incineration		-
7.	Phenolic Water from PGP	Cat. 19.1	6.42 TPA	Recycling/Re-processes sing	Dedicated system will be provided to reuse waste water in PGP and sprinkling in Pellet plant cooler section.	-

1. Public Consultation:

Details of advertisement given	Newspapers– The Dharitri (Local Odiya newspaper) and The Times of India on 22.04.2022.
Date of public consultation	24.05.2022
Venue	Village Bad-Purnapani, Football Playground Block- Lahunipada, Sundargarh District,Odisha
Presiding Officer	Sub-Collector, Bonai Sub Division, Sundargarh
Major issues raised	Employment, Health & Ambulance, Plantation, Peripheral Development, Road Construction

Action plan as per MoEF&CC O.M. dated 30/09/2020

S. No.	Major activities	Description of Physical Target	Total Physical Targets	Physical Target along with CER Budget (Rs. In Lakhs)			Total Amount (Rs. In Lakhs)
				1st Year	2nd Year	3rd Year	
A	**Education**						
1	High School Transformational Project (smart class, science lab, etc.) partnering with Govt. of Odisha flagship project under Mo School Abhiyaan or Madhyamik Shikshya Abhiyan	Each School Shall be provided with the following- 1. 8 nos. of Computers with Table & Chair @ Rs. 50,000/- 2. 2 nos. of AC with inverters @ Rs. 60,000/- The 3 schools are- 1. Panchayat High School, Kapanda 2. Upper Graded Primary School, Kapanda 3. Upper Primary School, Tikayatpali	3 School	Rs. 5.2 (At Panchayat High School, Kapanda)	Rs. 5.2 (At Upper Graded Primary School, Kapanda)	Rs. 5.2 (Upper Primary School, Tikayatpali)	Rs. 15.6
2	Retrofitting of Classrooms and Digital Classroom	Each year, 2 additional classrooms are proposed for retrofitting in Govt. Primary school with furniture's (1 nos. of Digital Classroom with Projector, digital interactive whiteboard systems, and its teaching software building blocks for digitally connected classroom and facilities @ Rs. 1,15,000/-	3 Schools	Rs. 2.3 (Panchayat High school, Kapanda)	Rs. 2.3 (At Govt. Primary School, Samardari, village-Tibupada)	Rs. 2.3 (At Gudhiali High School, Village- Rajamunda)	Rs. 6.9
3	Improvement in basic amenities & teaching learning materials in Anganwadi center (AWC)	Each AWC shall be provided with – 1. Abacus with Teaching Learning Material and Furniture @ Rs.40,000/ 2. Painiting and infrastruture Development with Drinking Water facility or Toilet facility and Utensils @ Rs. 40,000/- The List of AWCs are Kapanda-I, Kapanda-II, Darjing, Gaudiniposh-I Gaudiniposh-II & Thiaberna. 3. Teaching materials @ 45,000 to each AWC in 3rd year.	6 AWCs	Rs. 1.6 (AWCs in Kapanda- I & Kapanda- II)	Rs. 1.6 (AWCs in Darjing & Gaudiniposh- I)	2.5 (AWCs in Gaudiniposh- II & Thiaberna)	Rs. 5.7
4	Appointment of Private Teach	Teachers in 4 Schools (2 Primary & 2 High school)	2 Prima	Rs. 3.4 (2 Primary	Rs. 1.7 (Panchay	Rs. 1.7 (Gudhiali	Rs. 6.8

S. No.	Major activities	Description of Physical Target	Total Physical Targets	Physical Target along with CER Budget (Rs. In Lakhs)			Total Amount (Rs. In Lakhs)
				1st Year	2nd Year	3rd Year	
	ers in Schools		ry & 2 High school	School in Kapanda & Tikayatpali)	at high school)	High school	
5	School Bus	2 School Bus for Panchayat High School & Tikayatpali Primary School. However, District Education Officer shall be consulted for finalizing the School.	3 School Bus	Rs. 8.1 Gudhiali High School	Rs. 8.1 Panchayat High School	Rs. 8.1 Tikayatpali Primary School	Rs. 24.3
	Sub Total (Education)			**20.6**	**18.9**	**19.8**	**Rs. 59.3**
B	**Health**						
1	Ambulance	1 Ambulance serving the peripheral villages to be positioned at KAI Plant and 2 Ambulance at Kapanda GP & Nuwagan GP respectively.	3 Nos.	Rs.20.3	Rs.20.3	Rs. 20.3	Rs. 60.9
2	Health camp	2 Health Camps per year with a focus on Kapanda, Fatajharan, Tikayatpali,	6 health Camps	Rs. 2.1 2 Health Camps Under Kapanda G.P,	Rs. 2.1 2 Health Camps Under Fatajharan GP.	Rs. 2.2 2 Health Camps Under Tikayatpali G.P	Rs. 6.4
3	Setting-up a Dispensary	Setting up a Dispensary serving Plant workers and local Community	3 Nos.	Rs. 29.1 Nearby Kapanda Village area	Rs. 29.1 Nearby Nuwagan Village area	Rs. 29.1 Nearby Tikayatpali Village area	Rs. 87.3
	Sub Total (Health)			**51.5**	**51.5**	**51.6**	**Rs. 154.6**
C	**Drinking Water**						
1.	Purified Drinking Water Facility at Public Places	In total 3 nos of Purified Drinking Water shall be installed at strategic public locations. Each Facility shall have a purifier machine. The locations are Kapanda Village, Fatajharan Village, Tikayatpali Village, Nuwagan & Talbahali. This location may change considering the number o	5 Nos	Rs. 8.9 (Kapanda & Fatajharan Village)	Rs. 8.9 (Tikayatpali & Nuwagan Village)	Rs. 4.5 (Talbahali Village)	Rs. 22.3

S. No.	Major activities	Description of Physical Target	Total Physical Targets	Physical Target along with CER Budget (Rs. In Lakhs)			Total Amount (Rs. In Lakhs)
				1st Year	2nd Year	3rd Year	
		f floating population.					
2.	Installation of new Bore well & Hand Pump with sintex tank	In total 6 nos. of Hand pumps shall be installed at locations are Kapanda Village, Fatajharan Village, Tikayatpali Village, Nuwagan & Talbahali. This location may change considering the number of floating population.	5 villlage	Rs. 2.9 (Kapanda & Fatajharan Village,)	Rs. 2.9 (Tikayatpali & Nuwagan Village)	Rs. 1.4 (Talbahali Village)	Rs. 7.2
	Sub Total (Drinking Water)			**11.8**	**11.8**	**5.9**	**29.5**
D	**Environment**						
1	Rain Water Harvesting in Govt. Schools and Govt. Institutions	Rain Water Harvesting shall be taken-up in 30 schools/Govt Offices/Govt Institutions @ Rs. 28,000/-	30 School s/ Institution/ Offices	Rs. 2.8 (10 Nos of schools/Govt Offices/ Govt Institutions)	Rs.2.8 (10 Nos of schools/Govt Offices/Govt Institutions)	Rs. 2.8 (10 Nos of schools/Govt Offices/ Govt Institutions)	Rs. 8.4
2	Plantation/Afforestation Drive (including sampling and protection like tree guard etc)	30 Schools or Govt. offices or Govt. Institution shall be covered within 3 years @80 trees in each school (Rs. 300/ trees)	30 School s/ Institution/ Offices	Rs. 2.4 (10 Nos of schools/Govt Offices/ Govt Institutions)	2.4 (10 Nos of schools/Govt Offices/Govt Institutions)	2.4 (10 Nos of schools/Govt Offices/ Govt Institutions)	Rs. 7.2
3.	Garbage collection from villages and suitable disposal arrangement	Under Bharat Swachata Abhiyan 3 villages near plant locality & 3 schools provided plastic Dustbin @ Rs. 5000/- and Steel dumpster Garbage Container @ Rs. 55,000/-	3 Villages & 3 Schools	Rs. 0.8 (4 plastic dustbin & 1 dumpster Garbage container in Kapanda Village. 1 Plastic dustbin in Primary School in Kapanda)	Rs. 0.8 (4 plastic dustbin & 1 dumpster Garbage container in Nuwagan Village. 1 Plastic dustbin in Panchayat high school)	Rs. 1.0 (4 plastic dustbin & 1 dumpster Garbage container in Tikayatpali Village. 1 Plastic dustbin in Tikayatpali Primary school)	Rs. 2.6
	Sub Total (Environment)			**Rs. 6.0**	**Rs. 6.0**	**Rs. 6.2**	**Rs. 18.2**

S. No.	Major activities	Description of Physical Target	Total Physical Targets	Physical Target along with CER Budget (Rs. In Lakhs)			Total Amount (Rs. In Lakhs)
				1st Year	2nd Year	3rd Year	
E	**Livelihood**						
1	Promotion of Income Generation Activities-Tailoring & embroidery etc. & Provision of different skills of women members of SHG along with market linkage	150 interested women beneficiaries within 10 SHG members of neighbouring GP shall be trained within 2 years i.e. 5 Group with 10 member in each group shall be trained every year	150 Women	Rs. 14.1 (50 Nos. of Under Nuwagan G. P)	Rs. 14.1 (50 Nos. of Under Kapanda G. P)	Rs. 14.1 (50 Nos. Under Tikayatpali G.P)	Rs. 42.3
2	Farmers input support for improving the yield for better return	200 interested and selective farmers shall be provided with inputs for 3 years	200 Farmers	Rs. 11.7	Rs. 11.7	Rs. 11.8	Rs. 35.2
3	Initiatives for promotion of Millet through farmers along with market support.	Creating Millet hub for collection & Marketing	3 Nos.	15 (Kapanda Village)	15 (Nuwagan Village)	15 (Fatajharan Village)	Rs. 45
	Sub Total (Livelihood)			**Rs. 17.8**	**Rs. 17.8**	**Rs. 17.9**	**Rs. 122.5**
F	**Infrastructure**						
1	Community Centre /youth club house	Amenities in Community Centre & Yoga teacher deployment in Community Centre	3 Nos.	25 (Kapanda Village)	25 (Nuwagan Village)	25 (Fatajharan Village)	Rs. 75
2	Village Solar Street Lights	Solar Streetlights at nearby villages @ 100 Street lights/ Year	300 Solar Streetlights	Rs. 20.3	Rs. 20.3	Rs. 20.3	Rs. 60.9
	Sub Total (Infrastructure)			**Rs.31.6**	**Rs.31.6**	**Rs.31.6**	**Rs. 135.9**
	GRAND TOTAL			**Rs. 139.4**	**Rs. 137.7**	**Rs. 132.8**	**Rs. 520 Lakh (Rs.**

S. No.	Major activities	Description of Physical Target	Total Physical Targets	Physical Target along with CER Budget (Rs. In Lakhs)			Total Amount (Rs. In Lakhs)
				1st Year	2nd Year	3rd Year	
							5.20 Crore)

1. Proposed capital cost of project is Rs. 341.72 Crores. The capital cost for environmental protection measures for Physical components (air, water, noise, occupational health, Greenbelt, Environment monitoring & Risk management) is proposed as Rs. 19.46 Crores. The annual recurring cost towards the environmental protection measures for Physical components is proposed as Rs. 1.41 Crore/ year. However, total cost for overall environment protection measures is proposed as 25.47 Crore [Physical Component 19.46 Crore, PH compliance 5.20 Crore, Wildlife Conservation measures 0.55871 Crores (say 0.56 Crore) & Forest Patch Conservation measures 0.2525184 Crore (0.25 Crore)]. The employment generation from the proposed project is 500 (Direct: 280 Nos. & contractual: 220 Nos.; Preference will be given to local Public). The details of cost for environmental protection measures is as follows:

S. No	Unit	Detail	Capital Cost (Rs. In Crore)	Operating Cost (Rs. In Crore)	Maintenance Cost (Rs. In Crore)	Total Recurring Cost (Rs. In Crore)
1.	Waste Water Management	ETP + STP and maintenance	2.9	0.09	0.01	0.1
2.	Air Pollution Management	2 Nos. of ESP, 9 Nos. of Bag filters, Dry Fog system & Water sprinklers and its maintenance	10.65	0.25	0.15	0.4
3.	Noise Pollution Management	Acoustic Enclosure for DG Set, maintenance for instruments & provision of PPE to Employees etc.	1.2	0.06	0.04	0.1
4.	Env. Monitoring	AAQ, Stacks, Water, Noise, Soil	0.70	0.36	0.21	0.57
5.	EMS & Disaster Management	Fire Extinguishers & Hydrant, DMP, Safety Measures	1.3	0.06	0.04	0.10
6.	Green Belt Development	Plantation & Its Maintenance	1.21	0.03	0.01	0.04
7.	Occupational Health	Medical Health checkup, PPE, Treatment facilities	1.5	0.07	0.03	0.1
	Total EMP Budget		**19.46**	**0.92**	**0.49**	**1.41**
8.	Addressal of Pubic Consultation Concerns	5.20 Crore (For Three Years)				

9.	Wildlife Conservation Measures	0.56 Crore (For Five Years)
10.	Forest Patch Conservation Measures	0.25 Crore (For Five Years)
	Grand Total	**25.47 Crore**
	Details of adoption of villages if any	Peripheral development as above (Kapanda & Tikayatpali)

1. There are 3972 nos. of total trees available in the project site. 1500 trees have already been felled after taking permission from Divisional Forest Officer cum Wildlife Warden Rourkela Forest Division, Odisha vide letter number 5838/3F dated 20 Sep. 2021. Remaining trees available in the project site are 2472 nos. Budget earmarked for plantation of trees over an area of 8.78 Ha. are Rs.68.17 Lakhs. Against tree felling of 1500 trees, Compensatory afforestation will be done in the ratio of 1:10 i.e. 15000 number in consultation with the State Forest Department. Budget for Compensatory afforestation is Rs. 52.50 Lakhs. Hence total budget for green belt development will be Rs. 120.67 Lakhs (say 121 Lakhs) The greenbelt and plantation area will be 8.78 ha (21.7 acres) i.e. 45.4% of the total plant area of 19.32 ha. (47.74 acres). Local species like Neem, Kusum, Karanja, Mango, Palas etc. will be preferred for plantation.

1. A litigation bearing Original Application No. 94/2021/EZ was filed by applicant (Mr. Chittaranjan Mahanta & Others) at Honourable NGT, Interim Orders were issued by Hon'ble NGT on 08.10.2021 & on 07.02.2023 for stay of EC process. As per orders, a Field Visit was carried by Joint committee comprising of nominee of DG Forest, MoEF&CC (not below the rank of ADG), Integrated Regional Officer of MoEF&CC, Bhubaneshwar,PCCF (HoFF), Odisha,Chief Wildlife Warden,Odisha and the District Magistrate, Sundergarh on 18.03.2023 and 28.04.2023. Pursuance of the Joint committee visit report and submissions, final order was passed by Hon'ble NGT dated 22.08.2023, the above case was disposed with direction to MoEF&CC, to take a decision in the matter of grant of Environmental Clearance to the Project Proponent in accordance with law within a period of three months.

1. **Details of EDS submission by the project proponent:**

Sl. No.	Details of EDS	Reply to PP
1.	On perusal of the kml file, it is observed that some part of the proposed project land is falling under the forest land. However, PP has furnished that there is no involvement of forest land. PP shall submit the NOC from the State Forest Department that the proposed project site (all the coordinate points of the project site shall be mentioned) do not involve any forest land. Hiding the information is not a good practice from the PP/Consultant.	We have provided all requisite details along with forests present nearby. There is no involvement of forest land in the project site evidenced in land document and affidavit filed on NGT by Mr Jashabanta Sethi (DFO, Rourkela Forest Division) mentioning no involvement of forest land (in page no 6 last para & in page no 7 first para. We are taking due care providing the facts, without hiding the information.
2.	PP has reported that there is a litigation pending before Hon'ble NGT. PP shall submit the summary	A litigation bearing Original Application No. 94/2021/EZ was filed by applicant (Mr. Chittaranjan Mahanta & Others) at Honourable NGT, Interim Orders wa

Sl. No.	Details of EDS	Reply to PP
		s issued by NGT on 08.10.2021 & on 07.02.2023 for stay of EC process. Then Filed Visit was carried by Joint committee comprising of nominee of DG Forest, MoEF&CC (not below the rank of ADG), Integrated Regional Officer of MoEF&CC, Bhubaneshwar,PCCF (HoFF), Odisha,Chief Wildlife Warden,Odisha and the District Magistrate, Sundergarh on 18.03.2023 and 28.04.2023. Pursuance of the Joint committee visit report and as per the final NGT order dated 22.08.2023, the above case was disposed and it has been directed to MoEF&CC, to take a decision in the matter of grant of Environmental Clearance to the Project Proponent in accordance with law within a period of three months.
3.	Uploaded copy of ToR is not in readable condition. Kindly upload legible copy of the ToR in the form.	The legible copy of ToR is furnished and also the same copy is uploaded in respective section of the Parivesh Portal as well.
4.	The maximum value of PM10 and PM2.5 are recorded high in the buffer zone. PP shall submit the reason along with the mitigation measures.	At few locations the PM2.5& PM10 are observed to be high; for which reasons/justifications for the reported values along with the mitigation measures are elaborated and provided.
5.	Uploaded copy of Wildlife Conservation Plan is not in readable condition. Kindly upload legible copy of the Wildlife Conservation Plan in the form.	The legible copy of Wildlife Conservation Plan is attached and also the same copy is uploaded in respective section of the Parivesh Portal as well. Wildlife Conservation Plan has been prepared with a budget of Rs. 55.871 lakhs to be implemented in 5 years and the plan submitted to PCCF (Wildlife) vide memo no. no. 7846/4 F (Misc.), dated 20.09.2022 for approval.
6.	PP shall upload complete legible copy of entire PH proceedings inter-alia including advertisements given for PH, SPCB cover letter, actual proceedings, attendance sheet, written representations, & the response submitted by PP, authenticated English translation of the PH proceedings if any. Action plan to address the PH issues as per MoEF&CC OM dated 30.09.2020 with timelines and year wise targets shall also be submitted.	The legible copy of entire PH proceedings inter-alia including advertisements given for PH, SPCB cover letter, actual proceedings, attendance sheet, written representations, & the response submitted by PP, authenticated English translation of the PH proceedings and also the same copy is uploaded in respective section of the Parivesh Portal as well.
7.	PP has not uploaded any of the additional documents pertaining to the project such as Toposheet, Project Presentation etc. PP shall revise the complete application in conformity to Ministry's requirement and resubmit the application.	Additional Documents such as Toposheet, Project Presentation etc. are uploaded in respective section of the Parivesh Portal.

Sl. No.	Details of EDS	Reply to PP
8.	Details of Land, its possession and land conversion need to be submitted along with documentary proof.	Details of Land, its possession and land conversion are attached & also the same copy is uploaded in respective section of the Parivesh Portal as well.
9.	It is mentioned that the processing of EC proposal, in the ministry, is through Parivesh Portal Only, therefore providing the requisite information/documents shall be in compliance as per Form & accordingly the PP/Consultant are kindly requested to revise the application in the form along with EIA/EMP report and resubmit the same. The EIA/EMP report shall match with the information as filled in form for further appraisal by the EAC. It is also mentioned that after acceptance the proposal EIA/EMP report/Form cannot be revise. Therefore, PP/Consultant is requested to kindly do needful.	The requisite information has been updated in the concerned sections of the Parivesh portal. Also, the revised EIA/EMP report incorporating the details of Hon'ble NGT orders and its compliance has been uploaded on the parivesh portal.

1. The proposal was initially considered in 49th meeting of the EAC for Industry-I sector held on 28th – 29th November, 2023. Proposal was deferred for want of additional information. The deliberations and recommendation is given as below:

Deliberations by the Committee (EAC during 28th – 29th November, 2023)

The Committee noted the following:

1. It is reported that there is a litigation bearing Original Application No. 94/2021/EZ was filed at Honourable NGT wherein Interim Orders were issued by Hon'ble NGT on 08.10.2021 & on 07.02.2023 for stay of EC process. As per orders, a Field Visit was carried by Joint committee comprising of nominee of DG Forest, MoEF&CC (not below the rank of ADG), Integrated Regional Officer of MoEF&CC, Bhubaneshwar,PCCF (HoFF), Odisha, Chief Wildlife Warden, Odisha and the District Magistrate, Sundergarh on 18.03.2023 and 28.04.2023. Pursuance of the Joint committee visit report and submissions, final order was passed by Hon'ble NGT dated 22.08.2023, the above case was disposed with direction to MoEF&CC, to take a decision in the matter of grant of Environmental Clearance to the Project Proponent in accordance with law within a period of three months. In this context, the EAC discussed the ruling of Hon'ble NGT and believes that the PP should provide an update on the extent of adherence to the Joint Committee's observations and recommendations as outlined in its report. This update should include a justification and action plan for any conditions that have not been fulfilled i.e. PP needs to submit the detailed compliances of Hon'ble NGT order and Joint Committee report.
2. The EAC took into consideration kml file on the Google Earth presented by the project proponent along with DSS of the project site shown on PARIVESH and observed that there is a habitation namely Village Daldali Sai at a distance of 0.5 km in SW and also Kukia RF is at a distance of 0.12 km from the project site. PP is required to submit a robust action plan aimed at minimizing the impact of project activities on these sensitive areas. Additionally, the PP must revisit the engineering layout plan, taking into account the presence of these sensitive areas.
3. The EAC noted that the Joint Committee in its report mentioned the possible high impact of raw material transport to the site, the existing road that connects to the National Highway (NH) needs to be strengthened and mitigate measures to be taken up. It is further noted that since the proposed Plant is surrounded by hillocks, (Electrostatic Precipitators) ESPs have to be installed and the chimney has to be designed of appropriate height and green belt plantation around the site must be taken up to mitigate air pollution. PP need to give special emphasis on these points and detailed Air pollution modelling study to understand the impact of surrounding hills on pollution dispersion. Further effect of stack height on incremental GLC needs to be established using the model. In this context, the PP needs to submit the detailed mitigation measures and plans for this issue.
4. The Committee deliberated on the public hearing issues along with action plan submitted by the proponent to address the issues raised during the public hearing and is of the view that the submitted action is not sufficient to address all the issues. The EAC advised PP to revise the action plan as per Ministry's O.M. dated 30.09.2020.
5. The Committee has deliberated on the baseline data and incremental GLC due to the proposed project and observed that PM2.5 and PM10 values are recorded already too high. PP/Consultant shall submit a stringent plan to minimise the levels of PM2.5 and PM10.
6. The PP has reported that proposed water requirement is 1180 m3/day, which is to be sourced from Brahmani

River and allocation for drawl of 0.50 Cusec (1223.287 m3/day) surface water is obtained from Department of Water Resources. It is observed that the approval granted exceeds the stipulated quantity. The PP is required to provide a copy of the Memorandum of Understanding (MOU) or agreement executed with the Department of Water Resources.

7. The PP has reported that there are 3972 nos. of total trees available in the project site. 1500 trees have already been felled after taking permission from Divisional Forest Officer cum Wildlife Warden Rourkela Forest Division, Odisha vide letter number 5838/3F dated 20 Sep. 2021. Further, remaining trees available in the project site are 2472 nos. PP shall submit the permission letter obtained from the State Forest Department in this regard.
8. The PP reported that Wildlife Conservation Plan has been prepared with a budget of Rs. 55.871 lakhs to be implemented in 5 years and the plan submitted to PCCF (Wildlife) vide memo no. no. 7846/4 F (Misc.), dated 20.09.2022 for approval. PP shall submit the status of the approval with supporting documents.
9. The EAC advised PP/Consultant to represent the case again with revised proposal presentation. In view of the same, the EAC opined that PP needs to submit the report for consideration of the proposal.
10. The EAC agreed to the request of PP/Consultant and allowed them to reappear after the revision of the application incorporating the desired information.

Recommendations of the Committee (EAC during 28th – 29th November, 2023)

In view of the foregoing and after detailed deliberations, the committee recommended to defer the proposal to address the shortcomings enumerated at para above. The proposal may be considered after submission of the requisite information.

1. The proponent submitted the ADS reply on dated 18.12.2023 and was uploaded on PARIVESH on 18.12.2023. Point- wise reply of ADS is given as below:

Sl. No.	ADS points	Reply/ Response of PP
1.	It is reported that there is a litigation bearing Original Application No. 94/2021/EZ was filed at Honourable NGT wherein Interim Orders were issued by Hon'ble NGT on 08.10.2021 & on 07.02.2023 for stay of EC process. As per orders, a Field Visit was carried by Joint committee comprising of nominee of DG Forest, MoEF&CC (not below the rank of ADG), Integrated Regional Officer of MoEF&CC, Bhubaneswar, PCCF (HoFF), Odisha, Chief Wildlife Warden, Odisha and the District Magistrate, Sundergarh on 18.03.2023 and 28.04.2023. Pursuance of the Joint committee visit report and submissions, final order was passed by Hon'ble NGT dated 22.08.2023, the above case was disposed with direction to MoEF&CC, to take a decision in the matter of grant of Environmental Clearance to the Project Proponent in accordance with law within a period of three months. In this context, the EAC discussed the ruling of Hon'ble NGT and believes that the PP should provide an update on the extent of adherence to the Joint Committee's observations and recommendations as outlined in its report. This update should include a justification and action plan for any conditions that have not been fulfilled i.e. PP needs to submit the detailed compliances of Hon'ble NGT order and Joint Committee report.	Compliance of Hon'ble NGT order (Interim & Final) was submitted. The highlights include: • No further activities at site after the first interim order dtd. 08.10.2021. • M/s. KAI International Pvt. Ltd. has filed the counter affidavit dtd. 01.12.2021 and also exchanged with the complainant within the specified time. • Site visit by joint committee on dtd. 18.03.2023 and 28.04.2023 and compliance of its observations. • Re-submission of EC application with Final EIA and other relevant documents for consideration of grant of EC by MoEFCC. Compliance of observations of the Joint Committee visit report was submitted. The highlights

Sl. No.	ADS points	Reply/ Response of PP
		include: • Preparation and submission for approval of wild life conservation plan and forest patch conservation. • Provision of STP, ETP, Garland drain, Water reservoir etc. to maintain ZLD. • Storage and reuse of rain water to conserve use of fresh water. • Providing high efficiency APCDs such as ESP, Bag filters with stack height of 65m and 30 m respectively. • Development of greenbelt and plantation about 45.4% of the total plant area. • Preparation of Eco-restoration Plan in terms of Forest Patch Conservation Plan & its approval. • Providing employment, medical/health facilities to locals
2.	The EAC took into consideration kml file on the Google Earth presented by the project proponent along with DSS of the project site shown on PARIVESH and observed that there is a habitation namely Village Daldali Sai at a distance of 0.5 km in SW and also Kukia RF is at a distance of 0.12 km from the project site. PP is required to submit a robust action plan aimed at minimizing the impact of project activities on these sensitive areas. Additionally, the PP must revisit the engineering layout plan, taking into account the presence of these sensitive areas.	The width of Greenbelt proposed in Northern, Eastern & Southern part of project site are 30 m each. Width of existing greenery in western part is of 150 m width. Action Plan to minimize impact of plant on surrounding sensitive area by providing further a thick green barrier of at least 100 m around the project site has been prepared and detailed. Engineering Plant layout has been prepared considering the sensitive areas present in the surroundings. Three tier greenbelt and plantation will be developed all along the boundary of the proposed plant with 19,478 nos. of trees/Saplings. The total greenbelt and plantation area will be 8.78 ha (i.e. 45.4% of the total plant area of 19.32 ha.) Against tree felling of 1500 tre

Sl. No.	ADS points	Reply/ Response of PP
		es, additional compensatory afforestation will be done in the ratio of 1:10 i.e. 15000 number in consultation with the State Forest Department. For this additional budget has been proposed of Rs. 52.50 Lakhs Hence total budget for green belt development is Rs. 120.67 Lakhs. Further a green barrier of around 100 m will also be developed between the plant site and surrounding forests with tall and high canopy trees. Also, for conservation of surrounding forests, an Eco-restoration Plan in terms of Forest Patch Conservation Plan is also prepared with estimated budget of Rs. 25 lakhs and submitted to Office of PCCF (Wildlife) vide memo no. no. 7843/4 F (Misc.), dated 20.09.2022 for approval.
3.	The EAC noted that the Joint Committee in its report mentioned the possible high impact of raw material transport to the site, the existing road that connects to the National Highway (NH) needs to be strengthened and mitigate measures to be taken up. It is further noted that since the proposed Plant is surrounded by hillocks, (Electrostatic Precipitators) ESPs have to be installed and the chimney has to be designed of appropriate height and green belt plantation around the site must be taken up to mitigate air pollution. PP need to give special emphasis on these points and detailed Air pollution modelling study to understand the impact of surrounding hills on pollution dispersion. Further effect of stack height on incremental GLC needs to be established using the model. In this context, the PP needs to submit the detailed mitigation measures and plans for this issue.	Dispersion modelling has been carried out considering complex terrain features due to surrounding hilly areas including line and point sources. Outcome of modelling and its impact with mitigation measures were submitted. The highlights include: • Under controlled condition the resultant GLC will be within the NAAQS limits. • Mitigative measures like ESP, Bag filters, dust suppression system, water sprinkling and fogging will be implemented. • Pucca roads and covered transportation with vehicles having valid PUC will be done. • BS-VI standard vehicles shall be used in construction to reduce emissions. • Low sulphur coal & Fuel oil will be used to reduce SO2 content in the flue gas.

Sl. No.	ADS points	Reply/ Response of PP
		• Efficiency of air pollution controls devices will be monitored periodically to control the emissions. • Tall & high canopy trees will be planted inside & outside project boundary with due permission from district administration & Forest Dept.
4.	The Committee deliberated on the public hearing issues along with action plan submitted by the proponent to address the issues raised during the public hearing and is of the view that the submitted action is not sufficient to address all the issues. The EAC advised PP to revise the action plan as per Ministry's O.M. dated 30.09.2020.	Revised Budgetary action plan as per observations of EAC for the Public Hearing issues are prepared and enclosed. Additional activities like "Promotion of Income Generation Activities, Initiatives for promotion of Millet through farmers along with market support, Amenities in Community Centre & Yoga teacher deployment in Community Centre etc." have been incorporated and budget increased from Rs 409.9 Lakhs (1.2 % of project cost) to Rs. 520 Lakhs (1.5 % of project cost).
5.	The Committee has deliberated on the baseline data and incremental GLC due to the proposed project and observed that PM2.5 and PM10 values are recorded already too high. PP/Consultant shall submit a stringent plan to minimize the levels of PM2.5 and PM10.	The highest value observed near to Rajamunda Village (AAQ-8) which is close to Rajamunda Chowk. Due to heavy transportation activities & presence of Industrial cluster in the area PM 2.5 and PM10 was recorded slightly high in this region. This location is 4.6 Km (ESE) from project site. Justification and plan to minimize the levels of PM2.5 and PM 10 were submitted. • Mitigative measures like ESP, Bag filters, dust suppression system, water sprinkling and fogging will be implemented. • Pucca roads and covered transportation with vehicles having valid PUC will be done. • Washed coal will be used to reduce the ash cont

Sl. No.	ADS points	Reply/ Response of PP
		ent in the Coal, so that the emitted flue gas will contain less particulate matters. • Water sprinkling will be carried out very frequently at all the internal roads & adjoining roads of the plant site. • Wind breaking wall will be provided near crushing & grinding sections to control spreading of dust to outside.
6.	The PP has reported that proposed water requirement is 1180 m3/day, which is to be sourced from Brahmani River and allocation for drawl of 0.50 Cusec (1223.287 m3/day) Surface water is obtained from Department of Water Resources. It is observed that the approval granted exceeds the stipulated quantity. The PP is required to provide a copy of the Memorandum of Understanding (MOU) or agreement executed with the Department of Water Resources.	Proposed water requirement is 1180 m3/day. For which, allocation for drawl of 0.50 Cusec (1223.287 m3/day) surface water from Department of Water Resources has been obtained vide letter No. WS-IWS-781/22- 2024 dated 21.01.2023. As per the State Govt. procedure, agreement with the Water Resource Dept. will be undertaken during processing of Consent to Establish & Consent to Operate from State Pollution Control Board prior to commissioning of project. In no case the water withdrawal will exceed the quantity of 1180 m3/day.
7.	The PP has reported that there are 3972 nos. of total trees available in the project site. 1500 trees have already been felled after taking permission from Divisional Forest Officer cum Wildlife Warden Rourkela Forest Division, Odisha vide letter number 5838/3F dated 20 Sep. 2021. Further, remaining trees available in the project site are 2472 nos. PP shall submit the permission letter obtained from the State Forest Department in this regard.	1500 trees have been felled after obtaining necessary permission from DFO cum Wildlife Warden, Rourkela Forest Division, Sundargarh, Odisha vide letter no. 5838/3F(Lease), dated 20.09.2021. Copy of the letter is enclosed. Compensatory plantation of 15000 tree/ saplings will be done against the tree felling done by the company. A budget of Rs. 0.25 Crore has been planned for the same.
8.	The PP reported that Wildlife Conservation Plan has been prepared with a budget of Rs. 55.871 lakhs to be implemented in 5 years and the plan submitted to PCCF (Wildlife) vide memo no. no. 7846/4 F (Misc.), dated 20.09.2022 for approval. PP shall submit the status of the approval with supporting documents.	Wildlife Conservation Plan was submitted to PCCF (Wildlife) vide memo no. no. 7846/4 F (Misc.), dated 20.09.2022 for approval. Copy of letter was submitted. As per the present status, approval of the same is under consid

Sl. No.	ADS points	Reply/ Response of PP
		eration at the office of PCCF and an undertaking has been submitted by KIPL to submit the copy of approval letter of Conservation Plan to MoEF&CC.
9.	The EAC advised PP/Consultant to represent the case again with revised proposal presentation. In view of the same, the EAC opined that PP needs to submit the report for consideration of the proposal.	Agreed and it is resubmitted for presentation of the same.
10.	The EAC agreed to the request of PP/Consultant and allowed them to reappear after the revision of the application incorporating the desired information.	Application is resubmitted incorporating the desired information for presentation of the same.

1. Based on the above submission of PP, the proposal is re-considered during 51st meeting of the EAC for Industry-I sector held on 2nd – 4th January, 2024. The deliberations and recommendations of EAC are as follows:

Written submission by the PP:

1. During the meeting, based on the deliberations made by the EAC, the project proponent vide letter dated 04.01.2024 through email dated 04.01.2024 submitted the reply to the complaint received by the Ministry related to the project as follows:

Sl. No.	Raised Points	Compliance
Para-1	We, the local residents of Pattajharan and Badbahal, recently noticed that, the project proponent has deliberately omitted our village in various submissions such as PFR, Form 1, TOR application, and all documentation in the PARIBESH website submitted under CAF, Part A, and Part B, all aimed at obtaining environmental clearance (EC). Due to their false submission, The EAC took into consideration kml file on the Google Earth presented by the project proponent along with DSS of the project site shown on PARIVESH and observed that there is a habitation namely Village Daldali Sai at a distance of 0.5 km in SW. These communities have been residing in the area since ancient times.	Village Daldali Sai is mentioned in EIA report **Chapter- 1, Table No. 1.1, Page No. 3** and same was uploaded on the Parivesh Portal for EC application. 3 tribal villages as mentioned in para no. 2 Fatajharan and two hamlets Badbahal and Daldali Sai are located within the Kapanda revenue village. Kapanda village is also mentioned in **Chapter- 1, Table No. 1.1, Page No. 3,** and these villages are also mentioned in brief summary at **Page No. 3** under Para- 5, which was circulated to EAC and also presented before the committee on 29.11.2023 and 04.01.2024. Copy of Brief writeup is submitted.
Para-2	The three tribal villages, namely Fatajharan, and the two hamlets (Badbahal and Daldali) within the Kapanda Revenue village, are situated in close proximity to the project site, with aerial distances ranging from 200 meters to less than 1 km. This distance data has been extracted from Google Earth images, a widely recognized software, and can be readily verified by any relevant authorities. These three villages, primarily inhabited by tribal communities, particularly Schedule Tribes, collectively house an estimated population of 398. We have compiled evide	In the budgetary action plan against the public hearing issues various developmental activities (viz. Education, Health, Drinking Water facilities, Environment, Livelihood, and Infrastructure) are planned to be undertaken by KIPL in village Fatajharan and Kapanda mentioned at **Chapter- 7, Section No. 7.1.1, Table No. 7.1, Page No. 6- 10.** PH action plan is submitted. The land for the proposed plant has been allotted by IDCO Govt. of Odisha and no private land is involved i

<table>
<tr><th>Sl. No.</th><th>Raised Points</th><th>Compliance</th></tr>
<tr><td></td><td>nce confirming the legitimate residency status of individuals located at the intended site, areas designated for displacement, and those likely to be affected within distances of 1 km from the project site. Geotagged pictures of each individual house have been meticulously documented.</td><td>n this total land of 47.348 Ha. The deed copy is submitted which confirms that there is neither any residency status of the aforesaid villagers in the project site nor any displacement has been necessitated during acquisition of land.

The total land is a Govt. land as per letter issued by Collector/ District Magistrate vide Order No.45/XVI-137/2020 dtd.07.01.2021 and the copy is submitted.</td></tr>
<tr><td>Para-3</td><td>The supportive data regarding the number of houses and population is derived from official government records, specifically the Population Census of 2011. For the two hamlets, Badbahal and Daldali, of Kapanda Revenue village, and for the village of Patajharan, additional information has been gathered from the Integrated Child Development Services (ICDS) database, with collaboration from local Anganwadi workers. A comprehensive report containing this information is presented in Annexure 1.</td><td>The land for proposed project is allotted by IDCO and there is no project affected people in respect of land oustee and house oustee in the allotted land of 47.348 Ha. granted by IDCO. No Rehabilitation and Resettlement was required during land acquisition process.

People from villages like Fatajharan, Badbahal, Kapanda etc. were present in the PH meeting dtd. 24.05.2022 and given their opinion which was mentioned in the Public Hearing proceedings granted by SPCB, Odisha and submitted to MoEF&CC. Some of the data are mentioned in the following table;
<table>
<tr><th>Page No of PH Proceedings</th><th>Sl. No.</th><th>Name of Person present in the PH meeting and given their opinion</th><th>From Villagers</th></tr>
<tr><td>22</td><td>28</td><td>Anita Munda</td><td rowspan="3">Fatajharan</td></tr>
<tr><td>26</td><td>55</td><td>Beronika Munda</td></tr>
<tr><td>26</td><td>58</td><td>Kuanri JoJo</td></tr>
<tr><td>27</td><td>68</td><td>Rushi Ku Munda</td><td>Badbahal</td></tr>
<tr><td>27</td><td>73</td><td>Anita Jojo</td><td>Fatajharan</td></tr>
<tr><td>20, 21</td><td>3, 8</td><td>Bishnu Chandra Kisan, Raju Kishan and many more.</td><td>Kapanda</td></tr>
</table></td></tr>
<tr><td>P</td><td>In accordance with Section 11 of the Ministry of E</td><td>The proposed site meets the siting criteria of MoEF&C</td></tr>
</table>

Sl. No.	Raised Points	Compliance
ara-4	nvironment and Forests Notification issued on May 30, 2008, it is apparent that the designated location for the proposed industry is in immediate proximity to three villages, all situated within a distance of less than 1 km. This contravenes the stipulated siting guidelines and criteria for the establishment of a new highly polluting industry in a tribal area. It is explicitly prohibited to set up a highly polluting industry in close proximity to residential dwellings based on this regulation.	C which was duly examined with three alternatives of the site analysis, after examination by EAC and MoEF&CC had approved Terms of Reference vide File No. IA-J-11011/59/2021-IA.II(I) dtd. 29.11.2021. All information regarding above villages are mentioned in the EIA report uploaded in the Parivesh Portal. The affidavit submitted to NGT was subjected on tree filling activities and involvement of forest land at KIPL project site which did not require to mention the surrounding villages.
Para-5	Refer the Annexure- 18_Socioeconomic Report: On Page 47, Annexure 2, Sl No. Fatajharan village (sensus code 384839), the total population is declared as 149. Fatajharan village is situated within 200 meters to 1 km from the project site. Additionally, in the Final EIA Annexure 17_Baseline Report, on Page No. 9, 12, 19, 24, and many other pages, samples were collected and studies were conducted for a village named "Barhabahar Village,". Actual village name is “Badbahal” which is situated around 400 meters from the project site. As two villages are closely adjacent to the project site, which goes against the siting criteria, these details have deliberately not been declared anywhere in the PFR report, Form 1, TOR application, EC application, and in the affidavit submitted to the NGT. In other words, all the applications submitted by the PP shall be declared as null and void.	
Para-6	It is crucial to note that a Pallisabha, a vital prerequisite for the scheduled district, has not been conducted, in direct contravention of the notice issued by the Sundargarh district collector, which underscores stringent requirements for the scheduled district of Odisha state. This represents a blatant violation of the regulation. Moreover, the local tribals have been enduring continuous threats from local mobs, resulting in an ongoing state of mental trauma among the affected communities.	Since no forest land is involved in the project site, holding the pallisabha by KIPL is not a prerequisite for setting up the proposed project. The public hearing has been conducted as per EIA notification. However, amount of Rs. 5.2 Crore has been earmarked for undertaking various activities in the surrounding villages as detailed in the PH action plan and Budget provided in the EIA report **at Chapter- 7, Section No. 7.1.1, Table No. 7.1, Page No. 6- 10.**
Para-7	We remain hopeful that your esteemed authority and the EAC committee will thoroughly investigate the substantial violations resulting from false declarations submitted to obtain Environmental Clearance (EC). We are confident that the concerned authorities will take necessary disciplinary actions against Visiontek Consultancy and KAI Industry to put an end to the distress inflicted upon tribal communities.	Project Proponent and as well as consultant had factually presented information in the EIA report as per guidelines of MoEF&CC. The data were not hidden for any specific area nor misled the information in said EIA report which was submitted for Environment clearance. We are taking due care while preparing EIA report and we will keep in future as well.
Note: **The EAC was informed about a representation received by the Ministry, raising concerns about the project. The EAC recommended that the issues raised be shared with the project proponent, who provided a detailed pointwise reply on 04.01.2021 through written submission, which was further deliberated by the EAC and subsequently found to be satisfactory by the EAC.**		

3.7.3. Deliberations by the committee in previous meetings

Date of EAC 1 :29/11/2023

Deliberations of EAC 1 :
Deliberations by the Committee

1. The Committee noted the following:

1. It is reported that there is a litigation bearing Original Application No. 94/2021/EZ was filed at Honourable NGT wherein Interim Orders were issued by Hon'ble NGT on 08.10.2021 & on 07.02.2023 for stay of EC process. As per orders, a Field Visit was carried by Joint committee comprising of nominee of DG Forest, MoEF&CC (not below the rank of ADG), Integrated Regional Officer of MoEF&CC, Bhubaneshwar, PCCF (HoFF), Odisha, Chief Wildlife Warden, Odisha and the District Magistrate, Sundergarh on 18.03.2023 and 28.04.2023. Pursuance of the Joint committee visit report and submissions, final order was passed by Hon'ble NGT dated 22.08.2023, the above case was disposed with direction to MoEF&CC, to take a decision in the matter of grant of Environmental Clearance to the Project Proponent in accordance with law within a period of three months. In this context, the EAC discussed the ruling of Hon'ble NGT and believes that the PP should provide an update on the extent of adherence to the Joint Committee's observations and recommendations as outlined in its report. This update should include a justification and action plan for any conditions that have not been fulfilled i.e. PP needs to submit the detailed compliances of Hon'ble NGT order and Joint Committee report.
2. The EAC took into consideration kml file on the Google Earth presented by the project proponent along with DSS of the project site shown on PARIVESH and observed that there is a habitation namely Village Daldali Sai at a distance of 0.5 km in SW and also Kukia RF is at a distance of 0.12 km from the project site. PP is required to submit a robust action plan aimed at minimizing the impact of project activities on these sensitive areas. Additionally, the PP must revisit the engineering layout plan, taking into account the presence of these sensitive areas.
3. The EAC noted that the Joint Committee in its report mentioned the possible high impact of raw material transport to the site, the existing road that connects to the National Highway (NH) needs to be strengthened and mitigate measures to be taken up. It is further noted that since the proposed Plant is surrounded by hillocks, (Electrostatic Precipitators) ESPs have to be installed and the chimney has to be designed of appropriate height and green belt plantation around the site must be taken up to mitigate air pollution. PP need to give special emphasis on these points and detailed Air pollution modelling study to understand the impact of surrounding hills on pollution dispersion. Further effect of stack height on incremental GLC needs to be established using the model. In this context, the PP needs to submit the detailed mitigation measures and plans for this issue.
4. The Committee deliberated on the public hearing issues along with action plan submitted by the proponent to address the issues raised during the public hearing and is of the view that the submitted action is not sufficient to address all the issues. The EAC advised PP to revise the action plan as per Ministry's O.M. dated 30.09.2020.
5. The Committee has deliberated on the baseline data and incremental GLC due to the proposed project and observed that PM2.5 and PM10 values are recorded already too high. PP/Consultant shall submit a stringent plan to minimise the levels of PM2.5 and PM10.
6. The PP has reported that proposed water requirement is 1180 m3/day, which is to be sourced from Brahmani River and allocation for drawl of 0.50 Cusec (1223.287 m3/day) surface water is obtained from Department of Water Resources. It is observed that the approval granted exceeds the stipulated quantity. The PP is required to provide a copy of the Memorandum of Understanding (MOU) or agreement executed with the Department of Water Resources.
7. The PP has reported that there are 3972 nos. of total trees available in the project site. 1500 trees have already been felled after taking permission from Divisional Forest Officer cum Wildlife Warden Rourkela Forest Division, Odisha vide letter number 5838/3F dated 20 Sep. 2021. Further, remaining trees available in the project site are 2472 nos. PP shall submit the permission letter obtained from the State Forest Department in this regard.
8. The PP reported that Wildlife Conservation Plan has been prepared with a budget of Rs. 55.871 lakhs to be implemented in 5 years and the plan submitted to PCCF (Wildlife) vide memo no. no. 7846/4 F (Misc.), dated 20.09.2022 for approval. PP shall submit the status of the approval with supporting documents.
9. The EAC advised PP/Consultant to represent the case again with revised proposal presentation. In view of the same, the EAC opined that PP needs to submit the report for consideration of the proposal.
10. The EAC agreed to the request of PP/Consultant and allowed them to reappear after the revision of the application incorporating the desired information.

Recommendations of the Committee:

1. In view of the foregoing and after detailed deliberations, the committee recommended to **defer the proposal** to address the shortcomings enumerated at para no. 49.10.6 above. The proposal may be considered after submission of the requisite information.

3.7.4. Deliberations by the EAC in current meetings

Deliberations by the Committee

1. The Committee noted the following:
2. The instant proposal is for setting up of a greenfield project for installation of Iron Ore Beneficiation Plant- 1.5 MTPA throughput (1.16 MTPA High Grade Ore), Iron Ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 Nm3/hr.
3. The EAC, constituted under the provision of the EIA Notification, 2006 comprising Expert Members/domain experts in various fields, examined the proposal submitted by the Project Proponent in desired format along with EIA/EMP reports prepared and submitted by the Consultant accredited by the QCI/ NABET on behalf of the Project Proponent.
4. The EAC noted that the Project Proponent has given an undertaking that the data and information given in the application and enclosures are true to the best of his knowledge and belief and no information has been suppressed in the EIA/EMP reports. If any part of data/information submitted is found to be false/ misleading at any stage, the project will be rejected and Environmental Clearance given, if any, will be revoked at the risk and cost of the project proponent.
5. The Committee noted that the EIA reports are in compliance of the ToR issued for the project, reflecting the present environmental status and the projected scenario for all the environmental components. The Committee deliberated on the proposed mitigation measure towards Air, Water, Noise and Soil pollutions. The Committee suggested that the storage of toxic/explosive raw materials/products shall be undertaken with utmost precautions and following the safety norms and best practices.
6. The EAC also took into consideration the drone survey of the project site and kml file on the Google Earth presented by the project proponent along with DSS of the project site on PARIVESH and made following deliberations accordingly.
7. Total land required for project is 19.32 ha. (47.74 Ac) which is a IDCO Land (Industrial land) and is under the possession of the company. Land Agreement made between IDCO & KIPL as per land allotment letter no. IDCO:HO:P&A:LAE:7751/2019 dated 06.08.2021.
8. Village Daldali Sai is at a distance of 0.5 km in the SW of the project site along with other sensitive areas such as Samaradari Juniani PF (0.41 Km, E), Kukia R.F (0.12 Km (NW) etc.within the study area of the project site. The EAC is of the opinion that PP shall prepare and strictly implement the environmental safeguard measures to minimise the impact on the project activities on these sensitive areas.
9. Brahmani River is at a distance of 1.6 km in West of the project site along with other water bodies within the study area of the project site. The EAC is of the opinion that the water bodies shall not be disturbed. Mitigation measures w.r.t. safeguarding the water bodies shall be prepared and submitted.
10. Water requirement is proposed as 1180 m3/day which is to be sourced from Brahmani River.The EAC deliberated on the water requirement is of the opinion that PP shall obtain necessary permission from the Competent Authority in this regard. No Ground water abstraction is permitted.
11. The Committee has deliberated on the baseline data and incremental GLC due to the proposed project and is of the opinion that stringent mitigation measures to minimise the pollution shall be strictly implemented.
12. There are Schedule-I species like Elephant, Leopard, Sloth bear & Python etc. falling within the study area of the proposed site. Wildlife Conservation Plan has been prepared with a budgetary allocation of Rs. 55.871 Lakhs for 5 years and submitted to PCCF wildlife for approval vide memo no. 7846/ 4F (Misc.), dated 20.09.2022.
13. The PP has submitted that there are 3972 nos. of total trees available in the project site. 1500 trees have already been felled after taking permission from Divisional Forest Officer cum Wildlife Warden Rourkela Forest Division, Odisha vide letter number 5838/3F dated 20 Sep. 2021. Remaining trees available in the project site are 2472 nos. Budget earmarked for plantation of trees over an area of 8.78 Ha. are Rs.68.17 Lakhs. Against tree felling of 1500 trees, Compensatory afforestation will be done in the ratio of 1:10 i.e. 15000 number in consultation with the State Forest Department. Budget for Compensatory afforestation is Rs. 52.50 Lakhs. Hence total budget for green belt development will be Rs. 120.67 Lakhs (say 121 Lakhs) The greenbelt and plantation area will be 8.78 ha (21.7 acres) i.e. 45.4% of the total plant area of 19.32 ha. (47.74 acres). The EAC deliberated on the greenbelt layout plan along with action plan and the budget earmarked and is of the opinion that greenbelt

shall be completed within a span of one year.

14. The committee deliberated details of carbon foot prints and carbon sequestration study w.r.t. proposed project and found them to be satisfactory.
15. The Committee also deliberated on the public hearing issues along with action plan submitted by the proponent to address the issues raised during the public hearing and found it satisfactory.
16. The EAC noted that a litigation bearing Original Application No. 94/2021/EZ was filed by applicant (Mr. Chittaranjan Mahanta & Others) at Honourable NGT, Interim Orders were issued by Hon'ble NGT on 08.10.2021 & on 07.02.2023 for stay of EC process. As per orders, a Field Visit was carried by Joint committee comprising of nominee of DG Forest, MoEF&CC (not below the rank of ADG), Integrated Regional Officer of MoEF&CC, Bhubaneshwar,PCCF (HoFF), Odisha,Chief Wildlife Warden,Odisha and the District Magistrate, Sundergarh on 18.03.2023 and 28.04.2023. Pursuance of the Joint committee visit report and submissions, final order was passed by Hon'ble NGT dated 22.08.2023, the above case was disposed with direction to MoEF&CC, to take a decision in the matter of grant of Environmental Clearance to the Project Proponent in accordance with law within a period of three months. In this regard, the EAC deliberated all the issues pertaining to the case and accordingly suggested various mitigation measures in this regard while deliberating the EC proposal.
17. The EAC deliberated on the other ADS reply submitted by the project proponent and found it satisfactory.
18. The EACwas informed about a representation received by the Ministry, raising concerns about the project. The EAC recommended that the issues raised be shared with the project proponent, who provided a detailed pointwise reply on 04.01.2021 through written submission, which was deliberated by the EAC and subsequently found to be satisfactory by the EAC.
19. The EAC deliberated on the proposal with due diligence in the process as notified under the provisions of the EIA Notification, 2006, as amended from time to time and accordingly made the recommendations to the proposal. The Experts Members of the EAC found the proposal in order and recommended for grant of environmental clearance.
20. The environmental clearance recommended to the project/activity is strictly under the provisions of the EIA Notification 2006 and its subsequent amendments. It does not tantamount/construe to approvals/consent/permissions etc. required to be obtained or standards/conditions to be followed under any other Acts/ Rules/ Subordinate legislations, etc., as may be applicable to the project. The project proponent shall obtain necessary permission as mandated under the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981, as applicable from time to time, from the State Pollution Control Board, prior to construction & operation of the project.
21. The EAC also reviewed the EC conditions (specific and general) pertaining to Industry-I projects and observed that some of the specific conditions stipulated so far in the previously recommended EC projects are common and applicable to most of the projects in general. In view of the same, the General Conditions (in case of EC projects) have been revised through reallocation of these common conditions from specific to General Conditions (in case of EC projects). Accordingly, the instant project is also being stipulated with the modified General conditions.

Recommendations of the Committee:

1. In view of the foregoing and after detailed deliberations, the committee **recommended** the instant proposal for grant of Environment Clearance **subject to uploading the written submission on portal** under the provisions of EIA Notification, 2006 subject to the stipulation of following specific conditions and general conditions as per the Ministry's Office Memorandum No. 22-34/2018-III dated 9/8/2018 based on project specific requirements:

3.7.5. Recommendation of EAC

Recommended (Subject to submission of requisite information/ documents)

3.7.6. Details of Environment Conditions

3.7.6.1. Specific

specific

1.	1. This Environmental clearance is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, if any, as may be applicable to this project. 2. The project proponent shall comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, and risk mitigation measures relating to the project shall be implemented. 3. The project proponent shall utilize modern technologies for capturing of carbon emitted and shall also develop carbon sink/carbon sequestration resources capable of capturing more than emitted. The implementation report shall be submitted to the IRO, MoEF&CC in this regard. 4. PP shall strictly adhere to the Joint Committee's observations and recommendations as outlined in its report in the matter of litigation bearing Original Application No. 94/2021/EZ filed at Honourable NGT. 5. Village Daldali Sai is at a distance of 0.5 km in the SW of the project site along with other sensitive areas such as Samaradari Juniani PF (0.41 Km, E), Kukia R.F (0.12 Km (NW) etc. within the study area of the project site. Proponent shall take appropriate environmental safeguard measures to minimise the impact on the habitation of the locals. PP needs to strengthen green belt all around the plant area to reduce the dust pollution. The PP shall also include some of these locations in its environmental monitoring programme. 6. Brahmani River is at a distance of 1.6 km in West of the project site along with other water bodies within the study area of the project site. A robust and full proof Drainage Conservation scheme to protect the natural drainage and its flow parameters; along with Soil conservation scheme and multiple Erosion control measures shall be implemented. 7. The water requirement of 1180 m3/day which shall be sourced from Brahmani River. PP shall obtain necessary permission from the Competent Authority in this regard. No Ground water abstraction is permitted. 8. Three tier Green Belt shall be developed in at least 33% of the project area in a period of one yearall along the project site of adequate width and tree density shall not be less than 2500 per ha. Survival rate of green belt developed shall be monitored on periodic basis to ensure that damaged plants are replaced with new plants in the subsequent years. PP shall also develop greenbelt in the form of shelter belt comprising of total of 6 rows of 2x2 m plantation with tall trees & broad leaves with thick canopy along with windshield inside the plant premises to act as green barrier for air pollution & noise levels towardssensitive areas nearby project site. Compliance status in this regard, shall be submitted to concerned Regional Office of the MoEF&CC. 9. All the commitments made towards socio-economic development of the nearby villages shall be satisfactorily implemented. The action plan based on the social impact assessment study of the project as per the EMP in accordance to the Ministry's OM dated 30.09.2020 amounting to Rs. 5.20 Crores shall be strictly implemented and progress shall be submitted to the Regional Office of MoEF&CC. 10. PP shall undertake village adoption programme and prepare and implement the action plan to develop them into a model village. 11. The recommendations of the approved Site-Specific Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report to the concerned Regional Office of the MoEF&CC. 12. PP shall obtain permission from the State Forest Department for any tree felling involved in the project.

3.7.6.2. Standard

2(b)	**Mineral beneficiation**
Air quality monitoring and preservation	
1.	Design the ventilation system for adequate air changes as per ACGIH document for all tunnels, motor houses, Oil Cellars.
1.	The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories. Monitor fugitive emissions in the plant premises.

1.	The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through labs recognised under Environment (Protection) Act, 1986. 9) The project proponent shall install system to carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g., PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to S02 and NOx emissions) within and outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120'each). covering upwind and downwind directions.
1.	The project proponent shall install system to carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g., PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to S02 and NOx emissions) within and outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120'each). covering upwind and downwind directions.
1.	The project proponent shall submit monthly summary report of continuous stack emission and air quality monitoring and results of manual stack monitoring and manual monitoring of air quality /fugitive emissions to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.
1.	Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.
1.	The project proponent use leak proof trucks/dumpers carrying ore and other raw materials and cover them with tarpaulin.
Air Quality Monitoring and Preservation	
1.	The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through laboratories recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.
1.	Following additional arrangements to control fugitive dust shall be provided: a. Fog / Mist Sprinklers at all on bulk raw material storage area (at the transfer points) like Iron Ore, Coal and for Fly Ash and similar solid waste storage areas. b. Proper covered vehicle shall be used while transport of materials. c. Wheel washing mechanism shall be provided in entry and exit gates with complete recirculation system.
1.	Sampling facility at process stacks and at quenching towers shall be provided as per CPCB guidelines for manual monitoring of emissions.
1.	The particulate matter emissions from the process stacks shall be less than 30 mg/Nm3 and measures shall be undertaken as per the submitted action plan. Efficient Air monitoring equipment shall be installed.
1.	The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission as well as 04/06 Nos. Continuous Ambient Air Quality Station (CAAQMS) for monitoring AAQ parameters with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time. The CEMS and CAAQMS shall be connected to SPCB and CPCB online servers and calibrate these systems from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories. (case to case basis small plants: Manual; Large plants: Continuous and their no's.)
1.	Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.
1.	Wind shelter fence and chemical spraying shall be provided on the raw material stock piles.
1.	The project proponent shall provide leakage detection and mechanized bag cleaning facilities for better maintenance of bags.

1.	Sufficient number of mobile or stationery vacuum cleaners shall be provided to clean plant roads, shop floors, roofs, regularly.
1.	The project proponent shall provide primary and secondary fume extraction system at all heat treatment furnaces.
1.	The project proponent use leak proof trucks/dumpers carrying coal and other raw materials and cover them with tarpaulin.
1.	Ensure covered transportation and conveying of raw material to prevent spillage and dust generation; Use closed bulkers for carrying fly ash.
1.	Recycle and reuse iron ore fines, coal and coke fines, lime fines and such other fines collected in the pollution control devices and vacuum cleaning devices in the process after briquetting/ agglomeration.
1.	Design the ventilation system for adequate air changes as per prevailing norms for all tunnels, motor houses, Oil Cellars.
1.	Pollution control system in the plant shall be provided as per the CREP Guidelines of CPCB.
1.	Water Sprinklers/Water mist system shall be installed near raw material yards, operational units and other strategic locations to control fugitive emissions from the plant.
1.	Bag filters shall be cleaned regularly and efficiency of bag filter system shall be monitored at regular intervals.
1.	The project proponent shall adopt the Clean Air practices like mechanical collectors, wet scrubbers, fabric filters (bag houses), electrostatic precipitators, combustion systems (thermal oxidizers), condensers, absorbers, adsorbers, and biological degradation. Controlling emissions related to transportation shall include emission controls on vehicles as well as use of cleaner fuels. Sufficient numbers of additional truck mounted Fog/Mist water cannons shall be procured and operated regularly inside the project premises and also in the surrounding villages to arrest suspended dust in the atmosphere.
1.	The project proponent shall carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g. PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to SO2 and NOx emissions) within and outside the plant area (at least at four locations one within and three outside the plant area at an angle of 120° each), covering upwind and downwind directions.
Corporate Environment Responsibility	
1.	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Mineral Beneficiation plants shall be implemented.
1.	Self-environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.
1.	Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.
1.	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.
1.	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for 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. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest I wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.
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.
Energy Conservation measures	
1.	Provide solar power generation on roof tops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly;
1.	Provide LED lights in their offices and residential areas.
Energy Conservation Measures	
1.	Use torpedo ladle for hot metal transfer as far as possible. If ladles not used, provide covers for open top ladles.
1.	Restrict Gas flaring to < 1%.
1.	Provide solar power generation on roof tops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly;
1.	Provide LED lights in their offices and residential areas.
Environment Management	
1.	The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 30/09/2020. As part of Corporate Environment Responsibility (CER) activity, company shall adopt nearby villages based on the socio-economic survey and undertake community developmental activities in consultation with the village Panchayat and the District Administration as committed.
1.	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.
1.	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for 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. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.
1.	Performance test shall be conducted on all pollution control systems every year and report shall be submitted to Integrated Regional Office of the MoEF&CC.
Green Belt	
1.	The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration by trees.
1.	Project proponent shall submit a study report on Decarbonisation program, which would essentially consist of company's carbon emissions, carbon budgeting/ balancing, carbon sequestration activities and carbon capture, use and storage and offsetting strategies. Further, the report shall also contain time bound action plan to reduce

	its carbon intensity of its operations and supply chains, energy transition pathway from fossil fuels to Renewable energy etc. All these activities/ assessments should be measurable and monitor able with defined time frames.
1.	Greening and Paving shall be implemented in the plant area to arrest soil erosion and dust pollution from exposed soil surface.
Green Belt and EMP	
1.	The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration including plantation.
1.	Green belt shall be developed in an area equal to 33% of the plant area with a native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant
Miscellaneous	
1.	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.
1.	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
1.	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 has to display the same for 30 days from the date of receipt.
1.	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
1.	The project proponent shall monitor the criteria pollutants level namely; PM10, SO2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.
1.	Action plan for developing connecting and internal road in terms of MSA as per IRC guidelines shall be implemented
1.	The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
1.	The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
1.	The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.
1.	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
1.	The recommendations of the approved Site-Specific Wildlife Management Plan (in case of involvement of Schedule-I species) shall be implemented in consultation with the State Forest Department. The implementation

	report shall be furnished along with the six-monthly compliance report to the concerned Regional Office of the MoEF&CC.
1.	The PP shall put all the environment related expenditure, expenditure related to Action Plan on the PH issues, and other commitments made in the EIA/EMP Report etc. in the company web site for the information to public/public domain. The PP shall also put the information on the left over funds allocated to EMP and PH as committed in the earlier ECs and shall be carried out and spent in next three years, in the company web site for the information to public/public domain.
1.	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).
1.	Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
1.	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
1.	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
1.	The Regional Office of this Ministry shall 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.
Miscellaneous	
1.	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.
1.	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.
1.	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).
1.	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
1.	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
1.	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
1.	The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.
1.	44) The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.

1.	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 has to display the same for 30 days from the date of receipt.
1.	The project proponent shall monitor the criteria pollutants level namely; PM10, S02, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.
1.	The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
1.	The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
Noise monitoring and prevention	
1.	Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.
1.	The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.
Noise Monitoring and Prevention	
1.	Noise pollution shall be monitored as per the prescribed Noise Pollution (Regulation and Control) Rules, 2000 and amendments thereof, and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.
Public hearing and Human health issues	
1.	The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms of Factory Act.
1.	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.
1.	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.
1.	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
Public Hearing and Human Health Issues	
1.	The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms.
1.	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.
1.	All the commitments made towards socio-econmic development of the nearby villages shall be satisfactorily implemented. The action plan based on the social impact assessment study of the project as per the EMP in accordance to the Ministry's OM dated 30.09.2020 shall be strictly implemented and progress shall be

	submitted to the Regional Office of MoEF&CC. PP shall adopt nearby villages and prepare and implement a robust plan to develop them into model villages in next 10 years.
1.	Occupational health surveillance of the workers shall be done on a regular basis and records maintained.
1.	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP. Safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
Statutory compliance	
1.	The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.
1.	The project proponent shall obtain authorization under the Hazardous and other Waste Management Rules, 2016 as amended from time to time.
1.	The project proponent shall obtain the necessary permission from the Central Ground Water Authority, in case of drawl of ground water / from the competent authority concerned in case of drawl of surface water required for the project.
1.	The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee.
1.	The project proponent shall prepare a Site-Specific Conservation Plan & Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (in case of the presence of Schedule-I species in the study area).
1.	The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
Statutory compliance	
1.	This Environmental clearance is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, if any, as may be applicable to this project.
1.	The Environment Clearance (EC) granted to the project/ activity is strictly under the provisions of the EIA Notification, 2006 and its amendments issued from time to time. It does not tantamount/ construe to approvals/ consent/ permissions etc., required to be obtained or standards/conditions to be followed under any other Acts/Rules/Subordinate legislations, etc., as may be applicable to the project.
Waste management	
1.	Kitchen waste shall be composted or converted to biogas for further use.(to be decided on case to case basis depending on type and size of plant)
1.	The waste oil, grease and other hazardous waste shall be disposed of as per the Hazardous & Other waste (Management & Transboundary Movement) Rules, 2016.
Waste Management	
1.	100% utilization of fly ash shall be ensured. All the fly ash shall be provided to cement and brick manufacturers for further utilization and Memorandum of Understanding in this regard shall be submitted to the Ministry's Regional Office.

1.	Used refractories shall be recycled as far as possible.
1.	Solid waste utilization: a. PP shall install a slag crusher to convert steel slag into aggregate for use in construction industry, fine sand for use as flux in steel plant, sand in brick making and as lime in cement making. b. PP shall recycle/reuse solid waste generated in the plant as far as possible. c. Used refractories shall be recycled as far as possible.
1.	Oil Collection pits shall be provided in oil cellars to collect and reuse/recycle spilled oil. Oil collection trays shall be provided under coils on saddles in cold rolled coil storage area.
1.	A proper action plan must be implemented to dispose of the electronic waste generated in the industry.
1.	Kitchen waste shall be composted or converted to biogas for further use.
1.	The Plastic Waste Management Rules 2016, inter-alia, mandated banning of identified Single Use Plastic (SUP) items with effect from 01/07/2022. In this regard, CPCB has issued a direction to all the State Pollution Control Boards (SPCBs)/Pollution Control Committees (PCCs) on 30/06/2022 to ensure the compliance of Notification published by Ministry on 12/08/2021. The technical guidelines issued by the CPCB in this regard is available at https://cpcb.nic.in/technical-guidelines-3/. All the project proponents are hereby requested to sensitize and create awareness among people working within the Project area as well as its surrounding area on the ban of SUP in order to ensure the compliance of Notification published by this Ministry on 12/08/2021. A report, along with photographs, on the measures taken shall also be included in the six monthly compliance report being submitted by the project proponents.
Water quality monitoring and preservation	
1.	The project proponent shall provide the slime disposal facility with impervious lining and collection wells for seepage. The water collected from the slime pond shall be treated and recycled.
1.	The project proponent shall monitor regularly ground water quality at least twice a year (pre and post monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognised under Environment (Protection) Act, 1986 and NABL accredited laboratories.
1.	The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories.
1.	The project proponent shall make efforts to minimise water consumption in the steel plant complex by segregation of used water, practicing cascade use and by recycling treated water.
1.	The project proponent shall practice rainwater harvesting to maximum possible extent.
1.	Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off.
1.	Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet the prescribed standards.
1.	Adhere to 'Zero Liquid Discharge'
1.	The project proponent shall submit monthly summary report of continuous effluent monitoring and results of manual effluent testing and manual monitoring of ground water quality to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.
Water Quality Monitoring and Preservation	

1.	Rain water harvesting shall be implemented to recharge/harvest water as per the action plan submitted in the EIA/EMP report.
1.	All stockyards shall have impervious flooring and shall be equipped with water spray system for dust suppression. Stock yards shall also have garland drains and catch pits to trap the run off material and shall be implemented as per the action plan submitted in EIA/EMP report.
1.	The proposed project shall be designed as Zero Liquid Discharge Plant. ETP shall be installed and there shall be no discharge of effluent from the plant. Domestic effluent shall be treated in Sewage Treatment Plant. Suitable measures shall be adopted for sewage water handling to ensure no contamination of any kind of water body.
1.	Water meters shall be provided at the inlet to all unit processes in the steel plants.
1.	Tyre washing facilities shall be provided at the entrance of the plant gates.
1.	Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off.
1.	The project proponent shall monitor regularly ground water quality at least twice a year (pre- and post-monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognized under Environment (Protection) Act, 1986 and NABL accredited laboratories.
1.	The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.
Water Quality Monitoring and Preservation in case of Beneficiation Plant	
1.	Tailing management plan shall be implemented as included in EIA report.
1.	Tailings from Iron Ore beneficiation plant shall be dewatered in filter press and no slime /tailing pond shall be permitted.

3.8. Agenda Item No 8:

3.8.1. Details of the proposal

Establishment of Greenfield steel plant comprising of DRI Kilns (2,31,000 TPA), Induction Furnaces with matching LRF & CCM (Hot Billets / Billets / Ingots – 1,98,000 TPA), Rolling Mills (TMT bars / Structural Steel) (85% Hot charging with Hot Billets and remaining 15% through RHF with Gasifer as fuel – 1,98,000 TPA), Coal Gasifier – 1700 NM3/Hr., Ferro Alloy Unit 1 x 9 MVA (FeSi – 7,000 TPA/ FeMn – 20,000 TPA/ SiMn – 14,000 TPA/FeCr – 15,000 TPA/ Pig Iron - 24,000 TPA), Briquetting Plant (100 K by **KRITIKA STEELS PRIVATE LIMITED** located at **RAJNANDGAON,CHHATTISGARH**			
Proposal For		Fresh ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/CG/IND1/452998/2023	IA-J-11011/427/2023-IA-II(IND-I)	15/12/2023	Metallurgical Industries (ferrous and non ferrous) (3(a))

3.8.2. Project Salient Features

ବନଖଣ୍ଡ ଅଧିକାରୀ ତଥା ବନ୍ୟପ୍ରାଣୀ ତତ୍ତ୍ୱାବଧାରକଙ୍କ କାର୍ଯ୍ୟାଳୟ, ରାଉରକେଲା

OFFICE OF THE DIVISIONAL FOREST OFFICER CUM WILDLIFE WARDEN
ROURKELA FOREST DIVISION, ROURKELA, SUNDARGARH, ODISHA
Phone No. 0661-2664637, Fax No. 0661-2664638, e mail- dfo.rourkela@odisha.gov.in

Memo No.7846/4F (Misc.)/dt.20./09./ 2022

To

The Principal Chief Conservator of Forests (Wild life)
& Chief Wildlife Warden Odisha, Bhubaneswar.

Sub: - Submission of Wildlife Conservation Plan for conservation of Schedule-I fauna, if any, exists in the study area for Installation of Iron Ore Benefication Plant- 1.5 MTPA throughput (1.16 MTPA High Grade Are), Iron Ore Pelletization Plant-1.2 MTPA and producer Gas Plant-27,000 Nm^3/hr. located at village Kapanda, Tahasil Lahunipara, District- Sundargarh, Odisha.

Ref: - Terms of reference for Greenfield projects for Installation of Iron Ore Benefication Plant- 1.5 MTPA throughput (1.16 MTPA High Grade Are), Iron Ore Pelletization Plant-1.2 MTPA and producer Gas Plant-27,000 Nm^3/hr. by M/s KAI International Pvt. Ltd. Rourkela, file no.IA-J-11011/59/2021-IA-II(I), dtd-29th November 2021 addressed to Sri Suresh Agarwal, Director- M/s KAI International Pvt. Ltd. Rourkela located at village Kapanda, Tahasil Lahunipara, District- Sundargarh, Odisha.

With reference to the memo no. cited above, this is to inform you that, a wildlife conservation plan for conservation of Schedule-I fauna in the study area has been prepared and sent herewith in compliance with condition No 5(v) of the Generic Terms mentioned under reference for favour of your kind approval.

Encl: Wildlife Conservation Plan
With map 5 copies

20/9/22

Divisional Forest Officer,
Rourkela Division.

Memo No.7847/dt.20.09.2022

Copy submitted to the Regional Chief Conservator of Forests, Rourkela Circle, Rourkela for kind information and necessary action with reference to his memo no.3021 dtd.08.09.2022.

20/9/22

Divisional Forest Officer,
Rourkela Division.

P.T.O

Memo No. 7848/dt. 20.09.2022

Copy forwarded to the KAI International Pvt. Ltd. Civil Township, Rourkela for information and necessary action.

20/9/22

Divisional Forest Officer,
Rourkela Division.

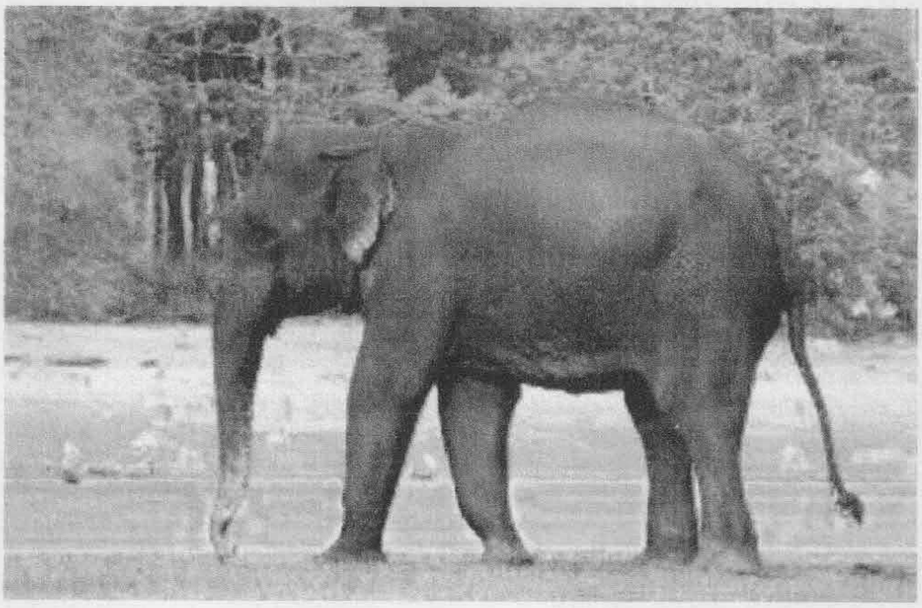
WildLife Conservation Plan

For

Conservation of Schedule-I Fauna in the Study Area

KAI International Pvt. Ltd.

Sundargarh, Odisha



Rourkela Forest Division

Forest & Environment Department

Government of Odisha

Table of Contents

Sl. No.	Particulars	Page No.
1	Executive Summary	3-5
2	Chapter-I: Introduction to the Project	6-11
3	Chapter-II: Description of Project Area and Impact Area	12-25
4	Chapter-III: Impact of the Project	26-30
5	Chapter-IV: Mitigation Measures	31-40
6	Chapter – V : Animal Passage Plan	41
6	Chapter-VI : Financial Implications	42-43
7	Chapter-VII: List of Maps, Appendices	44
	Plates	
1	Topo Map showing the Project Area and 10 km radius impact area.	Plate No.-1
2	Map showing the Location of the project area with reference to WL Sanctuaries and National Parks	Plate No.-2
	Annexure	
1	Copy of ToR issued by the Govt. of India, Ministry of Environment, Forest and Climate Change in their letter F. No. J-11011/ 59/ 2021-IA-II (I), Dated: 29th November, 2021.	Annexure-I

EXECUTIVE SUMMARY

M/s KAI International Private Limited is a private limited company involved in trading of Iron ore,coal, and iron & steel etc., it is proposing to establish a green field project of Iron ore beneficiation plant - 1.5 MTPA throughput (1.16 MTPA high grade ore), Iron ore pellet plant - 1.2 MTPA and producer gas plant 27000 Nm^3/hr at Village Kapanda, Tahasil Lahunipada in the District of Sundargarh (under the jurisdiction of Rourkela Forest Division). The establishment of this project will be a small steps towards the bridging of Country's steel requirement and production of steel.

The total land required for the project is 19.319 ha. (47.74 Acre). The land has been allotted by IDCO - 2 M/s KAI International Private Limited vide Letter No. IDCO / HO / P&A - LA-E-7751 / 2020-21, dt. 06.08.2021.

The Project is located between Latitude - 21° 53' 11.30"N to 21° 53' 29.01"N and Longitude - 84° 52' 15.80"E to 84° 52' 35.23"E

The total area of the project is 19.3 Ha. It is located in village Kapanda of Lahunipada Tahasil in Sundargarh District. It is in the administrative jurisdiction of Rourkela Forest Division.

Commonly occurring fauna include Spotted Deer, Barking Deer, Wild Pig, Hyena, Jackal, Sloth Bear, Elephant, Indian Hare, Palm Squirrel, Hanuman Langur and small Indian Mongoose etc.. Birds seen in this area are Parakeets, Spotted Dove, Grey Jungle Fowl, Crow, House Sparrow, Crow Pheasant, Blue Jay, Black Drongo, Spotted Owlet, Spotted Munia, Sunbirds, Tailor Bird etc. Reptiles that are commonly reported are Cobra (*NajaNaja*), Rat Snake, Sand Boa, House Geko, Keel Back, etc.

Human-animal conflict has been noticed at moderate rate according to information collected from the village and official data. However, the threat to wildlife is from forest fire, water scarcity, poaching, habitat destruction. Besides the stake holder's dependence on forests for use of fuelwood and other small timber. Besides grazing of cattle also create some disturbance for the wild animals.

The present project is located on a land owned and allotted by IDCO. But the Project area is surrounded by several Forest Blocks such as Kukia RF, Dhanghar RF,Dhanghar DPFBirtola PRF,Samardhari Junani PRF, Dhenkiam RF.

In order to compensate the damages to happen due to the project implementation, a Wildlife Conservation Plan has been prepared which includes mitigation measures as well as suggestions to improve the existing habitats due to the pressure exerted by Project Implementation.Further, The Govt. of India in their Ministry of Environment, Forest and Climate Change prescribed the ToR in their letter F. No.IA-J-11011/59/2021-IA-II (I), Dated: 29th November, 2021. In the Generic ToR the following condition No. 5(v) relating to Wildlife (if applicable) has been incorporated which says "***Wildlife Conservation Plan duly authenticated by the Chief Wildlife Warden of the State Government for Conservation of Schedule I fauna, if any exists in the study area.***" To honour the Genereic ToR, a wildlife conservation plan for schedule-I Fauna has been prepared.

The important measures envisaged to mitigate the negative impacts arising due to project implementation are as follows: -

Mitigation Measures taken by the Project Proponent:

Construction Phase

During construction phase general measures will be taken to reduce pollution. However, this phase is a temporary phase and after completion of construction activities this phase will be over.

Operation Phase

During operation phase steps will be taken to:

The following steps are proposed in the Environment Management Plan; hence no cost is suggested.

a. Control of Water Pollution.
b. Control of Air Pollution.
c. Control of Noise Pollution.
d. Control of Traffic Density.
e. Measures to maintain Ecology.

Project Impact Area: Mitigation measures to be taken by Forest Department with the funds provided by the project proponent:

The mitigation measures are indicated separately. However, the consolidated steps need to be taken are as follows:

i. Construction of Water Harvesting structure at Kukia RF with estimated expenditure of 15 lakh.
ii. Creation of Salt lick in and around water bodies in Kukia and Dhanghar RF with proposed expenditure of 1.5 Lakh.
iii. Wildlife/Forest Protection will be done by deployment of 02 member Anti-poaching Squad for 5years. Proposed expenditure Rs.16.625 lakhs .
iv. Eradication of Invasive allien species over 10 Ha in Kukia and Dhanghar RF with proposed expenditure of 2.934 Lakh.
v. Creation of 20 Nos of waterholes in Kukia and Dhanghar RF with proposed expenditure of 2.0 Lakh.
vi. Purchase of 10 nos of stealth camera trap with proposed expenditure of 3.5 Lakh.
vii. Monitoring and evaluation with proposed expenditure of 5.0 Lakhs

This plan is prepared for 5 years and may be revewed at any time during the Plan period, if required.

The total allocation of funds during the plan period is Rs 55.87 lakhs which shall be deposited with the Forest Department.

CHAPTER- I

Introduction – It shall cover brief description of the project, its cost, location (beat, section, range in addition to district, block, GP etc.), nature and extent of land required. Conditions imposed in Stage-I or EC regarding SSWLCP

Brief description of the project

INTRODUCTION

i) Brief Description of the Project :

M/s KAI International Private Limited is a private limited company involved in trading of Iron ore, coal,Iron&steel etc., it is proposing to establish a green field project of Iron ore beneficiation plant - 1.5 MTPA throughput (1.16 MTPA high grade ore), Iron ore pellet plant - 1.2 MTPA and producer gas plant 27000 Nm^3/hr at Village Kapanda, Tahasil Lahunipada in the District of Sundargarh (under the jurisdiction of Rourkela Forest Division). The establishment of this project will be a small steps towards the bridging of Country's steel requirement and production of steel.

The project will produce Iron ore fines pallet which are used by large number of sponge Iron units in the country. The raw material of the plant will be Iron ore fines of size below 10mm, which will be produced from captive Iron ore benefication plant of the company. The employment generation from the proposed project will be around 500 persons including direct (280) person and indirect (220) person for employment.

The Project Configuration is as follows :

Sl. No.	Plant	Proposed Configuration	Proposed Capacity
1.	Iron Ore Beneficiation Plant	1.5 MTPA	Beneficiated ore 1.15 MTPA
2.	Iron Ore Pallet Pant	2 x 0.6 MTPA	1.2 MTPA
3.	Producer Gas Plant	6 x 4500 N cum / hr.	27000 N cum/hr.

The total area of the project is 19.319 ha. The entire area is non forest land and the area have been allotted by IDCO in favour of M/s

KAI International Private Limited videtheir letter No. HO/P&A-LA-E-7751 / 2019 - 21, dt. 06.08.2021. Out of the total area the plant will be constructed over an area of 13.03 ha. and the balance 6.27 ha. will be kept as permanent green belt.

As per the EIA notification this project falls under Sl. No. 2 (Primary Processing), project activities 2(b) mineral beneficiation and Sl. No. 3 (Material Production), Project Activities 3(a) (Metallurgical Industries).

There is no habitation or house or any agriculture land within the project area.

ii. Cost of the Project :

The total cost of the project is Rs. 341.72 Crs and the capital cost for environmental protection measures is proposed at Rs. 18.72 Crs. (Capital) and Rs. 123.86 Lakhs / year (recurring cost).

iii. Location of the Project :

The location of the project are as follows :

Topo sheet No. - F45 M / 13

Location Details			
Plot No.	1104 (P), 1107 (P)		
Total Land	Total Land: 19.319 Ha. (47.74 Acres) Land Use: Industrial		
Village	Kapanda		
Tehsil	Lahunipara		
District	Sundergarh		
State	Odisha		
Coordinates of the project boundary	Sl No.	Latitude	Longitude
	1	21°53'28.44"N	84°52'15.80"E
	2	21°53'25.49"N	84°52'16.45"E
	3	21°53'21.00"N	84°52'17.41"E
	4	21°53'17.11"N	84°52'22.04"E
	5	21°53'11.30"N	84°52'29.12"E
	6	21°53'11.40"N	84°52'35.21"E
	7	21°53'17.15"N	84°52'35.23"E
	8	21°53'22.78"N	84°52'35.20"E
	9	21°53'23.68"N	84°52'30.77"E
	10	21°53'23.86"N	84°52'26.76"E
	11	21°53'29.01"N	84°52'26.29"E
	12	21°53'28.77"N	84°52'20.69"E

Topo sheet No.	F45M13
Elevation of Project Site - 193 m to 252 m abive MSL	
Nearest Railway Station	Patasahi Railway Station (12.96 km, NE)
Nearest Highway	NH - 23 (3.1 km, E)
Nearest Airport	Rourkela Airport, 40.5 km (N)
Nearest Town	Rourkela (40.4 km, N)
Nearest village Panchayat with address	Village - Kapanda Block - Lahunipara Gram Panchayat - Bada Purnapani Zilla Parishad - Sundargarh Pin - 770040
National Parks, Wildlife Sanctuaries, Biosphere Reserves,Reserve forest, and Protected forest within 10 km radius	No national parks Wildlife Sanctuaries, Biosphere Reserves are present within 10 km radius.

Name of the RF, PRF, PF, etc.	Distance (km) & Direction
Kukia RF	0.15 km(NW)
Dhenkiam RF	2.6 km (W)
Nalghati Rajabasa RF	3.3 km (SW)
Dhenkiam Block RF	3.74 km (NW)
Bhagoth RF	6.68 km (SSW)
Dhanaghar Extension RF	6.9 km (NNE)
Gurundia RF	7.92 km (SW)

Nearest Water Body	Brahmani River- 1.65 Km (West)

Village - Kapanda

Tahasil - Lahunipada

Sub.-Division - Bonai

District - Sundargarh

Forest Division - Rourkela

Forest Range - Banki

Section - Rajamunda

Beat - Rajamunda

Near by Village / Habitation - Kapanda, Nuagaon, Talabahali and TiayatpaliNear by Railway Station - Patasahi (1.96 Km NE)

Road Ways - N.H. 23 (3.1 Km East)

Near by Water Body - Brahamani River (1.65 Km West),
Amruahi Nala (3.1 Km East)
Rukra River (4.35 Km South)
Katangamuda Nala (3.4 Km North)

iv. Nature and extend of Land Required :

The total land required for the project is 19.319 ha. (47.74 Acre). The land has been allotted by IDCO - to M/s KAI International Private Limited vide Letter No. IDCO / HO / P&A - LA-E-7751 / 2020-21, dt. 06.08.2021.

The entire land is a non-forest Government Land. The land is partly covered with tree over an area of 6.27 ha. where in their exist tree growth. The balance 13.03 ha. have few trees and bushy growth and are scrub land. There is no agricultural land any habitation or houses in the project area. Thus, there is no rehabilitation plan for the project.

The plant will need main Plant Facilities, Raw Material Storage yard, Raw Water Storage Reservoir & Treatment plant, Auxiliary facilities, viz. Administrative Building, Technical Building etc. The detailed land use break up for the proposed plant has been given in the table below:

Land Use Break Up

Item No.	Description	Area		
		Acres	Hectares	%
1.	Product Storage Yard	0.670	0.271	1.40
2.	Administrative Building	0.25	0.101	0.52
3.	Car Parking	0.050	0.02	0.10
4.	Internal Road	4.435	1.794	9.29
5.	Vacant Space	9.372	3.734	19.63
6.	Surface Runoff	0.03	0.012	0.06
7.	Pulverized Coal Injection (PCI)	0.17	0.068	0.36
8.	Fire Hydrant	0.06	0.024	0.13
9.	Truck parking	0.16	0.064	0.34
10.	Weigh bridge/office	0.15	0.06	0.31
11.	Rain water harvesting	1.1	0.445	2.30
12.	Main receiving sub-Station	0.171	0.069	0.36
13.	Collection Tank	0.22	0.089	0.46
14.	LDO	0.148	0.059	0.31
15.	Crusher shed	0.106	0.042	0.22
16.	Balling shed	0.14	0.056	0.29

17.	Travel grate	0.428	0.173	0.90
18.	Rotary kiln	0.16	0.064	0.34
19.	Annular cooler	0.536	0.216	1.12
20.	ESP	0.13	0.052	0.27
21.	Ball mill	0.232	0.008	0.49
22.	Thickener	0.406	0.164	0.85
23.	Filter press	0.162	0.065	0.34
24.	Raw material storage yard	1.40	0.566	2.93
25.	Sewage treatment plant	0.021	0.008	0.04
26.	Solid Waste Storage	0.226	0.091	0.47
27.	Effluent treatment plant	0.079	0.031	0.17
28.	Tailing pond	2.989	1.209	6.26
29.	Producer gas Plant	0.378	0.152	0.79
30.	Coal Storage	0.164	0.066	0.34
31.	Water reservoir	0.468	0.189	0.98
32.	Conveyor	0.296	0.119	0.62
33.	Proposed greenbelt	6.19	2.505	12.97
34.	Greenbelt (Retained)	15.5	6.272	32.47
35.	Drier	0.079	0.032	0.17
36.	Air compressor station	0.073	0.029	0.15
37.	DM Plant	0.061	0.024	0.13
38.	Flux, Coke & Bentonite Storage Area With Milling System	0.531	0.214	1.11
Total		**47.741**	**19.319**	**100**

v. **Condition Imposed in Stage-I / ToR for EC-Regarding SSWLCP :**

Conditions imposed in Stage-I

No Forest Land is required, hence Stage-I is not required

Status of Environmental Clearance

The Govt. of India in their Ministry of Environment, Forest and Climate Change prescribed the ToR in their letter F. No.IA-J-11011/59/2021-IA-II (I), Dated: 29th November, 2021. In the Generic ToR the following conditions relating to Wildlife (if applicable) are prescribed.

Condition No. 5.iv.: - *The projects to be located within 10 km of National Parks, Sanctuaries, Biosphere Reserve, Migratory Corridors of Wild Animals, the project proponent shall submit the map duly authenticated by Chief Wildlife Warden showing these features vis-a-vis the project location and the recommendations or comments of the Chief Wildlife Warden thereon.* (This condition is not Applicable)

Condition No. 5. v.: -*Wildlife Conservation Plan duly authenticated by the Chief Wildlife Warden of the State Government for Conservation of Schedule I fauna, if any exists in the study area*. (This Plan is prepared to comply this condition)

Condition No. 5. vi.: - Copy of application submitted for clearance under the Wildlife (Protection) Act, 1972, to the Standing Committee of the National Board for Wildlife.) (This condition is not Applicable)

CHAPTER-II

: Project and Impact Area – Description of the project area and its impact area covering location, land use, human habitations, flora fauna, forests, other habitats and movement patterns of the mega fauna, Wildlife corridors, HWC details in the area. Other projects or their impact area in the impact area of the project proposed.

A Description of the Project Area :

The Project is located between Latitude - 21° 53' 11.30"N to 21° 53' 29.01"N and Longitude - 84° 52' 15.80"E to 84° 52' 35.23"E

The total area of the project is 19.3 Ha. It is located in village Kapanda of Lahunipada Tahasil in Sundargarh District. It is in the administrative jurisdiction of Rourkela Forest Division.

The area is slightly undulating in the western part and the elevation various in between 193 Mtr. to 252 Mtr. MSL. The entire land is Non-Forest Land and allotted by IDCO to KAI International Pvt. Ltd. Out of the total land 6.27 Ha. of area is having some tree growth. The said portion will be kept as green belt as shown in the layout plan map.

The plant will be constructed over the remaining 13.02 Ha. of land which have sparse tree growth. There are altogether 5856 Nos. of tree available within the project area out of which 2500 Nos. of tree are inside the proposed permanent green belt. There are no streams or nala exist inside the project area. There is also no agricultural land or habitation existing in the area. So this project does not involve any rehabilitation plant.

The main drainage system leads to river Brahamani located 1.65 K.M. in the West Direction and Rukra Nala is at a distance of 3.4 K.M. in the North West Direction.

ii. Land used Plan : The item wise land used plan with the green belt are as follows :

Item No.	Description	Area		
		Acres	Hectares	%
1.	Product Storage Yard	0.670	0.271	1.40
2.	Administrative Building	0.25	0.101	0.52
3.	Car Parking	0.050	0.02	0.10
4.	Internal Road	4.435	1.794	9.29

5.	Vacant Space	9.372	3.734	19.63
6.	Surface Runoff	0.03	0.012	0.06
7.	Pulverized Coal Injection (PCI)	0.17	0.068	0.36
8.	Fire Hydrant	0.06	0.024	0.13
9.	Truck Parking	0.16	0.064	0.34
10.	Weigh bridge / office	0.15	0.06	0.31
11.	Rain water harvesting	1.1	0.445	2.30
12.	Main receiving sub-station	0.171	0.069	0.36
13.	Collection Tank	0.22	0.089	0.46
14.	LDO	0.148	0.059	0.31
15.	Crusher shed	0.106	0.042	0.22
16.	Balling shed	0.14	0.056	0.29
17.	Travel grate	0.428	0.173	0.90
18.	Rotary Kiln	0.16	0.064	0.34
19.	Annular cooler	0.536	0.216	1.12
20.	ESP	0.13	0.052	0.27
21.	Ball mill	0.232	0.008	0.49
22.	Thickener	0.406	0.164	0.85
23.	Filter Press	0.162	0.065	0.34
24.	Raw Material Storage Yard	1.40	0.566	2.93
25.	Sewage Treatment Plant	0.021	0.008	0.04
26.	Solid Waste Storage	0.226	0.091	0.47
27.	Effluent Treatment Plant	0.079	0.031	0.17
28.	Tailing Pond	2.989	1.209	6.26
29.	Producer Gas Plant	0.378	0.152	0.79
30.	Coal Storage	0.164	0.066	0.34
31.	Water Reservoir	0.468	0.189	0.98
32.	Conveyor	0.296	0.119	0.62
33.	Proposed Greenbelt	6.19	2.505	12.97
34.	Greenbelt (Retained)	15.5	6.272	32.47
35.	Drier	0.079	0.032	0.17
36.	Air Compressor Station	0.073	0.029	0.15
37.	DM Plant	0.061	0.024	0.13
38.	Flux, Coke & Bentonite Storage Areawith Milling System	0.531	0.214	1.11
	TOTAL	**47.741**	**19.319**	**100**

iii. Human Habitation : The Project Area comes under the Village Jurisdiction of Kapanda Village. There is no agricultural land or any habitation inside the project area, thus there is no rehabilitation plan for the said project.

iv. Forest : The entire project area is a Non-Forest Land and not included in the DLC Report of the Division / District. Of course there are some tree growth of No. 5856 in the entire 19.3 Ha. area out of which 4356

Nos of trees over an area 6.23 Ha. will be kept as permanent green belt.

v. Flora (In the project area) : The following are the details of tree / herb / shurb / climbers found in the project area.

Sr no	Local Name	Botanical Name	Family Name
	TREE SPECIES		
1	Achu	*Morinda Tinctoria*	Rubiaceae
2	Amba (Mango)	*Mangifera Indica*	Anacardiaceae
3	Amla	*Emblica Officinalis*	Euphorbiaceae
4	Asan	*Terminalia Tomentosa*	Combretaceae
5	Bahada	*Terminalia belerica*	Combretaceae
6	Char	*Buchnania lanzan*	Anacardiaceae
7	Dhaman	*Grewia tillaefolia*	Combretaceae
8	Dhaura	*Anogeissus latifolia*	Combretaceae
9	Dhala Siris	*Albizzia procera*	Mimosaceae
10	Haldu	*Adina cordifolia*	Rubiaceae
11	Harida	*Terminalia chebula*	Combretaceae
12	Jamun	*Syzygium cuminii*	Myrtaceae
13	Kamalagundi	*Mallotus phillipinensis*	Euphorbiaceae
14	Kendu	*Diospyrus melanoxylon*	Ebenaceae
15	Kumbhi	*Careya arborea*	Myrtaceae
16	Kusum	*Schleichera oleosa*	Sapindaceae
17	Mahul	*Madhuca Indica*	Sapotaceae
18	Mundi	*MItragyna parviflora*	Rubiaceae
19	Palas	*Butea monosperma*	Papilionaceae
20	Rai	*Dillenia pentagyna*	Dilleniaceae
21	Rohini / Som	*Soymida febrifuga*	Meliaceae
22	Sal	*Shorea robusta*	Dipterocarpaceae
23	Semul	*Bombax ceiba*	Bombacaceae
24	Sidha	*Lagerstroemia parviflora*	Lythraceae
25	Siris / Tentra	*Albizzia lebbek*	Mimosaceae
26	Teak	*Tectona grandis*	Verbenaceae
	HERBS / SHRUBS		
27	Anantamula	*Hemidesmus indicus*	Asclepiadaceae
28	Arakha	*Calotropis procera*	Asclepiadaceae
29	Baibidanga	*Embelia robusta*	Myrsinaceae

30	Basanga	*Adhatoda vasica*	Acanthaceae
31	Dhatki	*Woodfordia fruticosa*	Lythraceae
32	Kurei	*Holarrhena antidysenterica*	Apocynaceae
	CLIMBERS		
33	Atundi	*Combretum decandrum*	Combretaceae
34	Baidanka	*Mucuna monosperma*	Papilionaceae
35	Bichhuati	*Urtica dioica*	Euphorbiaceae
36	Muturi	*Smylax macrophylla*	Liliaceae
37	Siali	*Bauhinia vahlii*	Papilionaceae
38	Satabari	*Asparagus racemosus*	Liliaceae

vi. **Fauna found in the project area :** The following are the details are the Fauna found in theproject area.

Sr No	Local Name	English Name	Zoological Name	Schedule
		MAMMALS		
1	Bilua	Jackal	*Canis aureus*	II
2	Heta	Hyena	*Hyaena hyaena hyaena*	III
3	Kutura	Barking deer	*Muntiacus muntijak*	III
4	Mankad	Monkey	*Presbytes entellus*	II
5	Neula	Mongoose	*Herpestes eduardsii*	II
6	Saliapatni	Small Indian Civet	*Viverricula indica*	II
7	Thekua	Indian Hare	*Lepus nigricollis*	IV
		BIRDS		
8	Bana Kukuda	Jungle Fowl	*Gallus gallus*	IV
9	Gunduri	Grey Patridge	*Francolinus pondicerianus*	IV
10	Kajalpati	Black Drongo	*Didrirus adsimillis*	IV
11	Kapta	Ring Dove	*Streptopelia decaocto*	IV
12	Kathahana	Woodpecker	*Dinopium benghalense*	IV
13	Koel	Cuckoo	*Eudynamic scolopaceus*	IV
14	Pecha	Owl	*Athena brama*	IV
15	Kumbhatua	Crow Pheasant	*Centropus sinensis*	IV

REPTILES				
16	Dhamana	Rat Snake	*Ptyas mucosus*	II
17	Boda	Common Boa	*Boa Constricta*	IV
18	Chiti	Common Krait	*Bangarus caruleus*	IV
19	Naga	Cobra	*Naja naja*	II
21	Godhi	Monitor Lizard	*Varanus bengalensis*	II
22	Endua	Garden Lizard	*Calotes versicolor*	IV

B. Description of the Project Impact Area :

The Project Impact area at a radious of 10 K.M. around the site occurs on S.O.I toposheet No. F45M13. The Impact Area at a radious of 10 K.M. area of the project site covers an area of about 314.113 Sq. K.M. It covers jurisdiction of two Forest Division of Rourkela and Banai in the district of Sundargarh. This includes forest area, agricultural land, scrub land, water body, builtup area and sand/soil.

There are altogether 132 Nos. Villages in Four Revenue Blocks within the project impact area.

The river Brahamani flowing in the west direction is the main drainage line in the zone of influence. The other mains stream and nalas are Rukra Nala, Amruhi Nala andKatangamunda Nala.

The average elevation of the impact area is 193 Mtr. to 252 Mtr. MSL.

The N.H. - 23 & 215 passes in the area.

There is no Railway Line in the Zone ofimpact.

ii.Land Used : The land used project impact area i.e. the Zone of influence are as under :

Sl. No.	Type of Land Use	Area (in Ha)	Percentage
1.	Agricultural Land	2696.93	8.6 %
2.	Scrub Land	12765.56	40.7 %
3.	Forest Land	13271.96	42.25 %
4.	Water Body	687.01	2.19 %
5.	Buildup area	1035.35	3.5 %
6.	Sand / Soil / Open area	954.47	3.06
	TOTAL	**31411.30 (314.11 Sq.K.M.)**	100%

iii. Human Habitation / Population in the Zone of Impact : According to census data of Govt. of India 2011 there are 132 Nos. of Villages comming in the Zone of impact. The impact area extends over parts of 4 CD Blocks. The information on population in these CD blocks as per 2011 Census is as follows:

Sl. No.	Particulars	C D Blocks			
		Lahunipara	Bonai	Gurundia	Koida
1	Geographical Area (Ha)	70138	33858	58821	64912
2	No of House Hold	22953	16937	14701	19713
3	Total Population	99526	69891	66988	86818
4	Male Population	49510	34727	33187	44024
5	Female Population	50016	35164	33801	42794
6	Male : Female	1000:1010	1000:1012	1000:1018	1000:972
7	S C Population	6426	8740	3698	5475
	S C %	6.45	12.50	5.52	6.30
8	S C Male Population	3140	4281	1797	2794
9	S C Female Population	3286	4459	1901	2681
10	S T Population	67541	37448	53195	60938
	S T %	67.86	53.58	79.40	70.19
11	S T Male Population	33365	18476	26315	30243
12	S T Female Population	34176	18972	26880	30695
13	Literates	49074	44721	35875	40467
14	Literates Male	28407	24863	20545	24673
15	Literates Female	20667	19858	15330	15794
16	Total Workers	48044	30153	32430	33285
17	Male Workers	27518	19098	18674	23021
18	Female Workers	20526	11064	13756	10264
19	Cultivators	70962	6154	7902	5301

iv. Forest, Flora, Fauna and Other Habittas in the Z.O.I. :

a) The following forest blocks occurs totally / partially in the project impact area of the forest division of Rourkela and Bonai. The name of the R.F. / PRF / DPF / PF with approximate area are furnished as bellow :

Sl. No.	Name of the Forest Block		Area in Ha. (Approximate)
1.	Rourkela Division	Kuradihi R.F.	496
2.		Kukia R.F.	467
3.		Jharbeda-II PRF	71
4		Birtola PRF	53
5		Dhangarh D.P.F.	855
6		Dhangarh R.F.	940
7		Samardhari Junani P.R.F.	360
			3242
8	Bonai Division	Dhenkiam R.F.	4040
9		Paragoth(Bhagoth) D .P.F.	707
10		Gurundia R.F.	238
11		Nalaghati Rajabasa P.R.F.	607
12		Banaraj R.F.	66
13.		Huluku R.F.	30
14.		Bashit Kucher R.F.	74
15.		Rusimatha R.F(.part}	674
		Total	**6436**
		GRAND TOTAL	**9678**

The Major forest in the zone of impact is of Tropical Dry Desidous Forest. The average density of the forest area in the zone of influance are 0.5 to 0.6. The forest area mostly bears good sal forest with sal associate with bamboo brakes.

The forest type observed in the zone of impact are as follows :

Sl. No.	Group	Sub-Group	Type
1.	5 Tropical Dry Deciduous Forest	5B Northen Tropical Deciduous Forest	5B / C1 Dry Sal bearingforest 5B / C1(e) Dry PeninsularSal. 5 / E Dry Bamboo Brakes.

The above forest blocks serve the abode of varieties of flora and fauna and constitute the bio-diversity of the impact zone. Villages surrounding the wildlife habitats as mentioned above depend on the forests for their livelihood at some places by collecting MFP items, small timber and firewood etc. Kendu leaf is the major MFP collection in the impact area.

All the forest blocks in the both the division are coming in the wildlife overlaping working circle as per the current working plans.

b. Flora of the Impact Area:

There are several Reserved Forests around the project area. The flora of the Impact area is quite diversified. However the important flora can be listed as follows:

Sl. No.	Local Name	*Botanical Name*	Family
		TREES SPECIES	
1.	Achu	*Morinda tinctoria*	Rubiaceae
2.	Amba (Mango)	*Mangifera indica*	Anacardiaceae
3.	Amla	*Emblica officinalis*	Euphorbiaceae
4.	Asan	*Terminalia tomentosa*	Combretaceae
5.	Bahada	*Terminalia belerica*	Combretaceae
6.	Char	*Buchnania lanzan*	Anacardiaceae
7.	Dhaman	*Grewia tillaefolia*	Combretaceae
8.	Dhaura	*Anogeissus latifolia*	Combretaceae
9.	Dhala siris	*Albizzia procera*	Mimosaceae
10.	Haldu	*Adina cordifolia*	Rubiaceae
11.	Harida	*Terminalia chebula*	Combretaceae
12.	Jamun	*Syzygium cuminii*	Myrtaceae
13.	Kaluchia	*Diospyros sylvatica*	Ebenaceae

14.	Kamalagundi	*Mallotus phillipinensis*	Euphorbiaceae
15.	Kendu	*Diospyrus melanoxylon*	Ebenaceae
16.	Kumbhi	*Careya arborea*	Myrtaceae
17.	Kusum	*Schleichera oleosa*	Sapindaceae
18.	Mahul	*Madhuca indica*	Sapotaceae
19.	Moi	*Lannea grandis*	Anacardiaceae
20.	Mundi	*Mitragyna parviflora*	Rubiaceae
21.	Palas	*Butea monosperma*	Papilionaceae
22.	Rai	*Dillenia pentagyna*	Dilleniaceae
23.	Rohini/Som	*Soymida febrifuga*	Meliaceae
24.	Sal	*Shorea robusta*	Dipterocarpaceae
25.	Semul	*Bombax ceiba*	Bombacaceae
26.	Sidha	*Lagerstroemia parviflora*	Lythraceae
27.	Siris / Tentra	*Albizzia lebbek*	Mimosaceae
28.	Teak	*Tectona grandis*	Verbenaceae
		HERBS / SHRUBS	
29.	Anantamula	*Hemidesmus indicus*	Asclepiadaceae
30.	Arakha	*Calotropis procera*	Asclepiadaceae
31.	Baibidanga	*Embelia robusta*	Myrsinaceae
32.	Basanga	*Adhatoda vasica*	Acanthaceae
33.	Dhatki	*Woodfordia fruticosa*	Lythraceae
34.	Kurei	*Holarrhena antidysenterica*	Apocynaceae
		CLIMBERS	
35.	Atundi	*Combretum decandrum*	Combretaceae
36.	Baidanka	*Mucuna monosperma*	Papilionaceae
37.	Bichhuati	*Urtica dioica*	Eiuphorbiaceae
38.	Muturi	*Smylax macrophylla*	Liliaceae
39.	Siali	*Bauhinia vahlii*	Papilionaceae
40.	Satabari	*Asparagus racemosus*	Liliaceae

c. **IMPORTANT FAUNA PRESENT IN THE IMPACT AREA:**

Scientific Name	Common Name	Schedule
MAMMALS		
Axis axis	Spotted deer	III
Bandicota bengalensis	Lesser Bandicoot rat	IV
Bandicota indica	Large Bandicoot rat	IV
Boselaphus tragocamelus	Blue bull (Neel gai)	III
Canis aureus	Golden Jackal	II
Cervus unicolor	Sambar	III
Elephas maximus	Elephant	I
Felis chaus	Jungle Cat	III
Funambulus palmarum	Palm squirrel	IV
Funambulus pennantii	Northern Palm Squirrel	IV
Golunda ellioti	Indian bush rat	IV
Herpestes edwardsii	Common mongoose	IV
Hyaena hyaena	Striped Hyaena	III
Hystrix indica	Indian porcupine	IV
Lepus nigricollis	Indian Hare	IV
Macaca mulatta	Rhesus macaque	II
Melursus ursinus	Sloth bear (Bhalu)	I
Muntiacus munjak	Barking Deer (Kutra)	III
Mus booduga	Little Indian field mouse	IV
Mus musculus	House mouse	IV
Nesokia indica	Short-tailed mole rat	IV
Panthera pardus	Leopard	I
Paradoxus hermaphorditus	Common Palm Civet	II
Petaurista phillippensis	Large Brown Flying Squirrel	II
Presbytis entellus	Grey Langur	II
Pteropus giganteus	Indian flying fox	IV
Pteropus melanotus	Black flying fox	IV
Rattus blanfordi	White tailed woodrat	IV
Rattus rattus	House rat	IV
Ratufa bicolor	Giant Squirrel	II
Semnopithecus entellus	Hanuman Langur	II
Sus scrofa	Wild boar	III
Viverricula indica	Small Indian Civet	II
Vulpes bengalensis	Bengal Fox	II
REPTILES		
Ahaetulla nasuta	Green vine snake	IV
Amphiesma stolatum	Buff striped keelback	IV
Bungarus caeruleus	Common Indian Krait	IV
Calotes versicolor	Garden lizard	IV
Calotes rouxii	Forest Lizard	IV
Chameleon zeylanicus	Chameleon	II
Cnemaspis indica	Indian Day Gecko	IV
Daboia russelii	Russel's Viper	II

Scientific Name	Common Name	Schedule
Dendrelaphis tristis	Tree Snake	II
Echis carinatus	Saw scaled viper	II
Eryx johnii	Sand boa	IV
Eutropis carinata	Indian grass Skink	IV
Eutropis multifasciata	Common skink	II
Hemidactylus flaviviridis	Indian wall lizard	IV
Hemidactylus leschenaultii	Marbled tree gecko	IV
Lycodon aulicus	Wolf snake	II
Naja naja	Indian cobra	II
Psammophilus blanfordanus	Indian Rock Lizard	II
Ptyas mucosus	Rat snake	II
Python molurus	Python	I
Riopa punctata	Snake skink	IV
Typhlops diardii	Giant Blind Snake	IV
Typhlops porrectus	Slender Blind Snake	IV
Vipera russselli	Russell's viper	II
AMPHIBIANS		
Bufo melonosticatus	Common Indian Toad	IV
Hoplobatrachus tigerinus	Tiger Frog	IV
Polypedates maculatus	Tree Frog	IV
Rana hexadactyla.	Green Pond Frog	IV
BIRDS		
Acridotheres ginginianus	Bank Myna	IV
Acridotheres tristis	Common myna	IV
Apus affinis	Indian House Swift	IV
Aquila pomarina	Lesser Spotted Eagle	IV
Ardea cinerea	Grey Heron	IV
Ardeola grayii	Pond heron	IV
Bubo bengalensis	Indian Eagle Owl	IV
Bubo coromandus	Dusky eagle-owl	IV
Bubulcus ibis	Cattle egret	IV
Burhinus indicus	Stone curlew	IV
Caprimulgus asiaticus	Common Indian Night Jar	IV
Centropus sinensis	Coucal	IV
Columba livia	Blue rock Pigeon	IV
Copsychus saularis	Oriental magpie Robin	IV
Coracus benghalensis	Roller	IV
Corvus macrorhynchos	Jungle Crow	IV
Corvus splendens	House Crow	V
Coturnix coturnix	Common Quail	IV
Cyanocitta cristata	Blue Jay	IV
Dendrocitta vagabunda	Indian Tree Pie	IV
Dendrocopos mahrattelsis	Yellow-crowned woodpecker	IV
Dendrocygna javanica	Lesser Whistling teal	IV
Dicrurus macrocercus	Black Drongo	IV
Dinopium benghalense	Black rumped Flameback Woodpecker	IV
Egretta garzetta	Little egret	IV
Eudynamys scolopaceus	Asian Koel	IV
Euodice malabarica	Indian Silverbill	IV

Scientific Name	Common Name	Schedule
Gallus gallus	Red Jungle Fowl	IV
Glaucidium radiatum	Jungle Owlet	IV
Halcyon smyrnensis	White-breasted King Fisher	IV
Leptocoma zeylonica	Purple rumped sunbird	IV
Lonchura punctulata	Scaly breasted munia	IV
Megalaima haemacephala	Coppersmith barbet	IV
Merops orientalis	Small green bee eater	IV
Microptermus brachyurus	Wood Pecker	IV
Milvus migrans	Black kite	IV
Motacilla cinerea	Grey Wagtail	IV
Nectarinia asiatica	Purple Sun Bird	IV
Oriolus xanthornus	Black headed Oriole	IV
Orthotomus sutorius	Tailor Bird	IV
Parus cinereus	Cinereous tit	IV
Passer domesticus	Sparrow	IV
Phaenicophaeus leschenaultii	Sirkeer malkoha	IV
Phalacrocorax fuscicollis	Indian Cormorant	IV
Ploceus philippinus	Baya weaver	IV
Prinia socialis	Ashy Prinia	IV
Prinia subflava	Tawny-flanked prinia	IV
Psittacula cyanocephala	Blossom headed Parakeet	IV
Psittacula krameria	Rose ringed Parakeet	IV
Pycnonotus barbatus	Common Bulbul	IV
Pycnonotus cafer	Red vented bulbul	IV
Rhipidura albicollis	White throated Fantail	IV
Streptopelia chiinensis	Spotted Dove	IV
Sturnia pagodarum	Brahminy starling	IV
Sturnus contra	Pied Myna	IV
Turdoides caudatus	Common babbler	IV
Tyto alba	Barn Owl	IV
Tyto caparsis	Grass Owl	IV
Vanellus indicus	Red Wattled Lapwing	IV
Zosterops palpebrosus	Oriental white Eye	IV

From fauna mentioned above in project impact area the following Schedule-I species are either present or moving around the Impact Area.

Elephas maximus	Elephant
Panthera pardus	Leopard
Melursus ursinus	Sloth bear (Bhalu)
Python molurus	Python

No endemicspecies are noticed in the impact area.

The project area does not form a part of any National park, wildlife sanctuary or anyprotected area.The project also does not pass through any Eco-sensitive zone of any sanctuary\National park.\Biosphre Reserve.

There is no Protected area, Elephant corridor, Elephant reserve etc. within the impact area.

v. **Movement pattern of mega fauna :** No identified elephant coridor of the state, is comming in the zone of impact .

Mega Fauna like elephants from Saranda Area (Jharkhand) come to Rourakela and Banei Forest Division area ,regularly and move around the area particularly during the Crop Season.

The movement pattern of elephants can be described as:

1. From Saranda - Silkuta RF - Jhorbandha RF - Mahura RF - Dhanghar RF (Rkl Dvn), then Crossing River Baitarani at Deodar enter in to Bonai Division and move around - Dhenkiam RF - Kusumdihi RF - Rushimatha RF - Kunjam RF.

2. From Saranda - Toda RF - Sarkunda RF - Sarkunda PRF and move around the area.

The elephant mostly move during crop season and cause men - animal conflict in the impact area. There by human kill / injury and elephant death occur in the area.

The elephant census data of Rourkela Forest Division as per 2017 census are furnished as below :

Forest Division	No of Elephants recorded				
	Male	Female	Unknown	young	Total
Rourkela	2	21	2	10	35

vi. **Human Wildlife conflict(HWC) :** Man wild animal conflict particularly human conflict with elephants and bear is a regular phenomena in the impact area coming within both the forest divisions.

The details of the animal depredation and death of elephant in both the divisions are asfurnished below :

Information of Elephant death / Human kill / Human Injury :

Name of the Division	Year	Nos. of Elephantdeath	Human Kills (By Wild Animal)	CompassionateGrant Paid	Human Injury(By Wild Animal)	CompassionateGrant Paid
Rourkela	2021-22	01	06	24,00000/-	04	20,000/-
	2020-21	02	09	32,00000/-	-	-

Name of the Division	Year	Nos. of Elephantdeath	Human Kills (By Wild Animal)	CompassionateGrant Paid	Human Injury (By Wild Animal)	CompassionateGrant Paid
	2019-20	04	04	16,00000/-	-	-
	2018-19	03	09	36,00000/-	04	20,000/-
	2017-18	03	15	52,00000/-	11	1,50,000/-

Information of Crop damaged :

Division	Year	No. of Cases	Paddy (Acre)	Vegetable (Acre)	Total Area	Compassionate amount Paid
Rourkela	2021-22	623	155.434	-	155.434	12,68,320/-
	2020-21	909	316.58	37.45	354.03	36,25,200/-
	2019-20	791	241.055	33.28	274.335	28,09,910/-
	2018-19	1444	596.176	91.90	688.076	70,64,560/-
	2017-18	1020	317.61	24.63	342.24	34,71,660/-

Information of House damaged :

Division	Year	No. of Cases	Partially damaged	Fully damaged	otal Nos. of damaged	ompassionate amount Paid
Rourkela	2021-22	134	92	42	134	6,04,000/-
	2020-21	90	69	21	90	3,48,000/-
	2019-20	109	78	31	109	4,66,000/-
	2018-19	230	136	94	230	12,12,000/-
	2017-18	125	100	25	125	4,50,000/-

vii. Other Project or their impact area vis a vis impact area of the project proposed : There are 5 Nos. of Project exist in the project impact area of Rourkela Forest Division.such as:

1. BR Sponge Power Limited(DRI),
2. Vidya Mineral Pvt. Ltd.(Rice mill),
3. Bikram Pvt. Ltd. (DRI),
4. Maa Manasa Devi Alloys Pvt. Ltd(DRI),
5. Bhagya Steel and Alloys Ltd.

In Bonai Forest Division thereare no mining or any other industrial project exist in the zone of influence of this project. However, there are no project for which wildlife conservation plan have been approved and the impact area does not overlap of with any other wildlife conservation plan of other projects.

CHAPTER - III

Probable Impacts of the Project on Flora and Fauna- Under this likely impacts of project and ancillary activities on flora and fauna on movement of mega fauna shall be discussed.

Probable Impact of the Project on flora and fauna

This project is an industry have two distinct phases such as construction phase and operation

phase.

a. Impact on flora and fauna during construction stage : Construction work which are likely tocause impact will involve following activities

- Site Clearance and excavation
- Transportation, Storage and Handling of construction material
- Movement of workers, vehicles and machineries
- Maintenance of vehicles and equipments
- Deployment of Power Generating equipments
- Solid waste (debrise generation)

During the construction stage land will be developed by levelling and grading over a portion of the land, over an area of 13.049 Ha. out of the total land 19.319 Ha. for eraction of plant and construction of building. The remaining area 6.27 Ha. will be kept as such as permanent green belt. (as shown in the layout plan)

The activities may have the following adverse effect on flora and fauna

- 1500 no of trees have been felled in the project area for which felling permission granted by DFO Rourkela to Director KAI International Pvt. Ltd vide letter no 5838 dtd 20.09.2021
- There by loss of habitat to avi fauna on account of loss of nests in the felling of 1500 no of tree.
- There will be disturbance of the top soil.
- There will be generation of used fuel / oil and grease container.
- There will be generation of unused welding rods, metal, scrap, etc.

The impact during the construction stage are temporary in nature. The perceived impact will seize as soon as construction works are over. However, there will be no direct impact on the wild life of the

surrounding area but there will be some loss to the vegetation cover due to felling of trees(1500no) and clearance of the bushes in the project area, required for construction.

There are altogether 5856 Nos. of trees (enumerated) present in the project site out of which 1500 Nos. of trees need to be felled and 260 Nos. of trees are to be relocated for construction of the plant, living 4096 Nos. of tree in the permanent green belt over an area of 6.27 Ha.

Due to felling of 1500no tress in the project area, habitat of avifauna of the project areawill be affecter on account of loss of the nests in the felled trees.

Impact during operation stage on flora and fauna: The activites of operation stage will be permanent in nature and will continue till the plant exist and operate.

Within the project area appropriate landscaping will be done.

- Creation of green belt by planting Trees.
- Grass lawns will be developed at blank spaces.
- Avenue plantation will be taken up along the sides of roads. Plantation will be taken up around residential colony,stock yard and plant.

These activites will improve the vegitation of the project site and also result in positive impact as the project site will be properly fenced,and the area of the project is small there will be no adverse effect on the fauna in the adjacent impact area.

The implementation of the project is a localised and captive activities except that of transportation of material. Due to spreading of large amount of dust ,the fodder plant within the immediate vicinity of the impact area may become unpalatable. So,there will be some shortage of fodder for the herbivores and the habitat may become unsuitable for wild life mainly herbivores.

Impact of the Project on Movement of Mega Fauna :

The area of the project is 19.319 Ha. only which will be properly fenced.

It is located near Kukia R.F. where elephant movement is rare.

The activities of Operation stage will be permanent in nature and will continue till the plant exist and operate. The impacts which are perceived during this phase will be due to the following activities:

- Transportation of raw material to the plant site;
- Storage, handling and crushing of raw material;
- Operation of the Grinding Unit cum-Beneficiation Plant;
- Water treatment;
- Cooling & heat recovery;
- Storage, handling and transportation of finished product;
- Operation of DG sets in case of power failure;
- Vehicular movement.

The combined effect of all these activities will create certain imbalance in environment.

The most important factor in the operation of this Plant may generate toxic emissions like SO_2, CO, and Oxides of Nitrogen. Emission of SO_2 if exceeds a particular limit may cause Acid rain which will damage the environment. CO is a poisonous gas and can threaten the life of all animals including man. Similarly, certain oxides of Nitrogen will have effect on the Nervous System.

Other specific effects on different environmental component can be described as follows:

B. Impact on Soil

The effect on soil is only for a temporary period of construction stage. At the time of levelling of the land, the land breaking to the desired extent will be done. As the ground will be made almost plane and drainage arrangements will be made, there will be no soil erosion. Beside the land will also be developed by land scraping, planting grasses and trees, and these activities will be beneficial for the soil.

As far as the Impact area is concerned, there will be no impact on soil.

C. Impact on Vegetation

Within the project area appropriate landscaping will be done by:

- Creation of green belt by planting of Trees.

- Grass lawns will be developed at blank spaces.
- Avenue plantation will be taken up along the sides of roads.
- Plantation will be taken up around residential colony, stock yard and Plant.

These activities will improve the vegetation of the project site and also result in positive impact.

D. Impact on Water Regime

During the monsoon season there is chance of wash out of mud and debris in the run-off. This may result in suspended solids and turbidity in run offs water during the monsoon period causing water pollution.

The overall impact on water regime within the project area will be negligible and within the Project Impact area will be nil.

Waste Generation and Management

No effluent will be discharged from the plant since the plant will operate on Zero discharge policy.

Other waste generated in the process will be managed as per Environment Management Plan.

Impact on Air:

Operation Phase: Air pollution is envisaged from two sources. The first one is from the submerged electric arc furnaces and the second one is from the raw material handling sections.

- Large amount of dust is likely to be generated during handling of raw material such as loading/ unloading, crushing, screening, conveyance and transfer points. The pollutants are primarily dust and fine particles of minerals. These materials will spread by wind throughout the Impact area and settle on plants. Such dust settling on the fodder plants will make the plant unpalatable and create health problems for the Wild animals.
- Air pollution from operations, shall also include NOx, SO_2, CO and unburnt hydrocarbons. All the three pollutants i.e. SO_2, and CO are released along with Flue gas emission from the furnace.

The plant is completely incorporated with the wet process, there will be no dust generation. However, there will be generation of dust during movement of loaded or empty trucks and dumping. To reduce fugitive dust emission due to handling of ore, dust suppression systems will be installed at appropriate locations. Plain water type dust suppression system will be provided at all around the ore stockpiles. All stack emission will be designed on PM emission as per CPCB guide lines from pollution control equipment. Moisture will be maintained in tailing.

Noise Pollution :

Generation of noise will be less, however a noise monitoring system shall be incorporated as per Environmental Management Plan.

Impact on movement of mega fauna

This project is an industry and surrounded by boundary wall on all sides. Hence there will be no impact on movement of mega fauna.

CHAPTER –IV

Mitigation Measures Required- In this mitigation measures required need to be detailed to counter the adverse impacts of the project along with its financial implication.

Several wild animals such as elephant, leopad, wildboar, spotted dear, barking dear, sloth bear, sambar, Hayna, Common Langur, Hare, etc. are seen in the forest blocks comming in the Zone of impact, in both the Rourkela Forest Division. The habitat of wild life may be affected to some extent due to loss of fodder and shrinkage of vegetation cover on account of establishment of the project.

There will be various pollutions during the construction phase as well as operation phase of the project. The type of pollution and the impact which are envisaged within the project area have been explained in the foregoing chapter.

The Environmental Management Plan deals in detail, all such pollutions and impact and prescribes certain control measures. This aspect is kept in view while proposing the mitigation measures.

Mitigatation measures proposed to be taken up in the project area :

To be implemented by the user agency (in the project area)

a. General Measures

- Litter, fuel/oil drums, used grease; Cartridge would be collected and removed and disposed of properly.
- Lubricating waste oil shall be collected separately in drums and shall be sent to used oil re-processor unit.
- Residual debris need to be cleared and utilized to fill up low lying areas immediately after completion of construction activities.
- Land utilization and clearing for construction site will be kept at the minimum;
- Construction site would be designed to minimize the removal of soil and vegetation.

b. Green Belt Development:

- There is no forest land within the project site. As per norm 33% of the project area i.e. 6.38 Ha is to be maintained as Green belt.
- There are around 5856 Trees out of which 1500 trees have been felleed and 260 trees will be relocated. The balance 4096 trees will be retained and maintained as such.
- A planned 3 year Afforestation scheme (Green Belt development scheme) shall be implemented over an area of 21.69 Acre. With 21700 saplings.

  The total planted area within the project area will be nearly 45% of the total area.
- SMC measures will be taken of in the permanent green belt area over an area of 6.3 Ha. for better growth and management of the existing trees. Under this stagered trench / contur trench / percolation pits etc. will be taken up to ensure soil moisture conservation in the permanent greenbelt.
- There will be provison of artificial nests in the remaining tree growth area kept as permanent green belt inside the project. Altogether 5000 nos eco-friendly local made artificial nests will be provided in the remaining trees by the user agency.

c. **Control of Air Pollution**

During construction phase, certain quantity of dust shall be generated due to the transportation of men, machinery and materials, operation of construction machineries / equipment, construction of foundations, erection of furnace and other requisite infrastructure etc. closed to the construction site. The impacts shall be temporary in nature and shall marginally deteriorate the ambient air quality. However, the following measures shall reduce the dust generation:

Control of Water Pollution

During construction phase there will be no release of water. Hence water pollution is not envisaged.

During operation phase:

- This project is proposed to adopt zero discharge policy.
- The waste water from the sewerage will be disposed through soak pit.
- The surplus industrial water for spray cooling of cast metal and slag, floor cleaning & washing and for dust suppression in raw materials storage yard.

The plant would be designed on the concept of 'zero discharge' of plant effluent.

The control measures are:

- There will be an effluent treatment plant with adequate capacity to take care of the effluents from ancillary sources. The treated effluent will be recycled or reused for miscellaneous non production use. The plant would be designed on the concept of 'zero discharge' of plant effluent.
- The water used for furnace & gas cleaning plant operation are completely recycled with proper water treatment.
- The domestic effluents will be treated through STP of adequate size and the treated water shall be used for gardening.
- Canteen waste water will be diverted to soak pit through settling tank.
- The plant concrete drainage network system will be constructed for most of the areas & it is connected to water recharging pits to take care of storm water.
- Further it is proposed to develop a settling pond to collect storm water around the premises to prevent it from any contamination. The

- During dry weather conditions, water sprinkling is done at the excavation, transportation and stock piling activities to minimize spreading of dust.
- Construction materials shall be fully covered during transportation to the site by road.
- Top soil will be preserved for plantation & greenbelt development.
- Vehicles to be used in construction will satisfy emission rules as per CPCB guidelines.
- Earth moving equipments, typically a bulldozer with a graderblade and ripper shall be used for excavation work.
- Regular maintenance of the vehicles shall be carried out to keep the emission levels within the stipulated norms.

d. **Control of Noise Pollution**

Noise pollution during construction phase is due to operation of heavy earth moving equipments and installation of various machineries. Depending on the soil condition, minor blasting activity may be required for foundation purposes. These activities may create instantaneous noise pollution at the work sites.

The following measures shall be taken to reduce the noise levels:

- Noise generating activities will be carried out during day time in order to have minimum noise impact during night time.
- Provision of rubber padding / noise isolators.
- Provision of silencer to modulate the noise generated by machines.
- Periodical lubrication of the heavy vehicles will help to keep the noise & vibration level at minimum.

Overall, the impact of generated noise on the environment is likely to be insignificant, reversible and localized in nature and mainly confined to the day hours.

accumulated water will be re-circulated by pumping system for plantation & sprinkling for dust suppression.

- The project proponent has also a proposal for designing and implementation of Roof-Top rainwater harvesting.

Control of Air Pollution

The following measures are proposed to be adopted:

- Selection and maintenance of APC equipments.
- Chemical wetting to be carried out for stock piles and conveyor transfer points to be equipped with dry fog system to arrest fugitive emission.
- Interlocking of the APC equipments to shut down plant units in case of APC failure.
- Pneumatic or covered conveying of raw materials.
- Maintenance of Plant roads and use of industrial vacuum cleaner and water sprinkling at regular intervals.
- Operation and maintenance of tyre washing system at the strategic location of the Plant.
- All vehicles and their exhausts would be well maintained and regularly tested for emission concentration;
- Regular preventive maintenance of pollution control equipment; and.
- Regular dust suppression with water sprinkler on the haul roads;
- The parking areas shall be made of concrete/ bitumen/brickwork;
- Green belt over 45% of the area to be developed within the plant premises and along the boundaries of the plant premises.

Control of Noise Pollution

- Green Belt Plantation around the plant boundary will create a noise barrier for attenuating noise level.

- Machinery and equipments in the proposed project are designed to limit the noise level within permissible limits. (as prescribed by Occupational Safety and Health Administration).
- Provision of acoustic enclosures to modulate the noise generated by machines.
- Regular lubrication and maintenance of the heavy vehicles so as to keep the noise & vibration level at the minimum.

Mitigation measures proposed in the Impact Area to be implemented by Forest Deptt.

ROURKELA FOREST DIVISION

1. **Habitate improvement**

i.) **Creation of Water Harvesting Structure.**

Water is one of the basic requirements of wildlife and as the water table is very low in many forest areas , severe water scarcity has been observed during dry season. In order to address scarcity of water for wild animals, particularly during stress period, one WHS is proposed in Kukia RF.

Estimated cost per WHS Rs 15.00 lakh

ii.) **Creation of saltlick:**

Salt licks will be placed near waterbodies frequented by wildlives. These mineral blocks will contain sodium, calcium,phosphorus and Zinc etc which are essential for muscle and bone growth aswell to keep a watch on animals. This will also improve their immune system. 5 Nos such salt licks are proposed to be constructed near water bodies @ 0.3 Lakh per salt lick in Kukia and Dhanghar RF.

iii.) **Eradication of Invasive Allien Species:**

Kukia RF is one of the major forest blocks of Banki Range of Rourkela Division and having dense forest. Various wildlife are observed in the forests frequently. Due to invasion of weeds, un- palatable grasses and

Eupatorium in open spaces all along the periphery of the forest block, establishment of natural regeneration and planted seedlings become difficult. In fire season, these weeds enhance the fire intensity. To keep the forest in a good status it is proposed to take up eradication of Invasive Alien Species over 10.00 ha. Each year uprooting of such weeds will be taken up thrice i.e. during monsoon, Post monsoon and pre monsoon in a year. This operation is required to be repeated for two years to make the area free from the weeds. All total 3x2= 6 times uprooting will be taken up. For a cycle per ha 15 Man days will be required. Hence a sum of Rs 2.934 Lakh (6x10x15x326/-) is proposed in this plan. During weed eradication process, the natural seedlings if encountered are to be taken care up for its establishment and subsequently it will suppress the weeds. Hence a sum of Rs 2.934 Lakh is provided in this plan..

iv) **Creation of Water holes:**

With streams and natural water sources fast drying up in wells as blistering heat wave conditions building up in early summer, availability of drinking warter becomes a problem for wild animals. A contingency plan to meet thre drinking water needs to be prepared. So, it proposed to construct 20 nos of water holes in Dhanghar and Kukia RF @0.1 Lakh/Unit

V) **Deployment of Forest/Wildlife Protection Squad:**

(Anti-poaching –cum- Anti-depredation Squad):

This squad will be deployed where ever required (to be decided by the Divisional Forest Officer) The squad can also be utilised as a strike unit at the time of need. The squad will move with the local forest department staff and assist them for wildlife / forest protection. One such squad will be provided with a 2 member team with logistics for a period of 5 years as follows:

i. Wages of Squad Members@12,750/- = 25,500/- per month
ii. Recharging of Mobile Phone @500/- = 500/- per month
v.Contingency @20,500/- per year.

Total= Rs. (25500 + 500)x12 + 20,500/- = Rs.3,32,500.00 per Year. Hence, Total cost for 5 years will be Rs.16.625 lakhs

This squad can also be deployed as fire fighters during the fire season.

2. **Purchase of Trap Camera:**

To keep a tab on movement and availability of wild animals aswell their behaviours it is proposed to purchase 10 Nos of stealth camera @Rs.35,000/Piece to be installed in Kukia and Dhanghar RF.

3. **Undertaking:**

The project proponent undertakes to bear the cost of price escalation and/or differential wages in case of price rise or wage hike.

4. **Plan Period:**

This Plan is prepared for a period of 5 years. However if required, the same can be revisited and modified at any time.

CHAPTER -V

Animal Passage Plan – in case of linear projects and other projects affecting movement of wildlife species the details of structures and their locations should be mentioned as per prescriptions of "Eco Friendly Measures to Mitigate Impacts of Linear Infrastructure on Wildlife" issued by Government of India.

NOT APPLICABLE

CHAPTER -VI

Financial Implications and Monitoring- Total financial implications of proposals given and year wise cash flow statement need to be given here. Also monitoring and evaluation and interim review provisions shall be mentioned.

Financial Implications and Monitoring

PROJECT IMPACT AREA

ROURKELA FOREST DIVISION

Sl No	Description	Unit	Unit Price in Lakh	Quantum	Amount in Lakhs	Remark
1	Construction of water Harvesting Structure	No	15	1	15.00	Kukia RF
2	Craetion of Salt Lick	No	0.3	5	1.50	Kukia RF and Dhanghar RF
3	Creation of water hole	No	0.1	20	2.00	Kukia RF and Dhanghar RF
4	Eradication of Invasive Allien Species	Ha	0.2934	10	2.934	Kukia RF
5	Purchase of Stealth Camera Trap	No	0.35	10	3.50	Kukia RF and Dhanghar RF
6	Deployment of 02 Nos of Forest Protection Squad for 5 years @ 3.325 Lakh/year	No	3.325	5	16.625	
7	Monitoring and Evaluation	LS			5.00	
	Total				***46.559***	
	20% Escalation				***9.3118***	
	Grand Total				***55.87***	

KAI INTERNATIONAL PVT. LTD.

DIRECTOR

Divisional Forest Officer
Rourkela Division

Monitoring & Evaluation: The Forest department will take up Monitoring & Evaluation of the Plan implementation internally at periodic interval.

Plan Period: This Plan is prepared for a period of 5 years. However if required, the same can be revisited and modified at any time

Undertaking: The project proponent undertakes to bear the cost of price escalation and/or differential wages, and additional cost in case the Plan is revised.

YEARWISE REQUIREMENT OF FUNDS
FOR THE ACTIVITIES WITHIN THE IMPACT ZONE
ROURKELA FOREST DIVISION

Sl. No.	Activity	Requirement of Funds (Lakhs.)					
		1st year	2nd year	3rd year	4th year	5th year	Total
1	Construction of WHS.	15	-	-	-	-	15
2	Creation of Salt Lick	1.5	-	-	-	-	1.5
3	Craetion of Waterholes	2	-	-	-	-	2
4	Eradication of Invasive Allien Species	2.934	-	-	-	-	2.934
5	Purchase of Stealth Camera	3.5	-	-	-	-	3.5
6	Deployment of 02 Nos of Squad	3.325	3.325	3.325	3.325	3.325	16.625
7	Monitoring & Evaluation	1	1	1	1	1	5
	TOTAL	**29.259**	**4.325**	**4.325**	**4.325**	**4.325**	**46.559**
	Cost escalation 20%	5.852	0.865	0.865	0.865	0.865	9.312
	GRAND TOTAL	**35.111**	**5.19**	**5.19**	**5.19**	**5.19**	**55.871**

KAI INTERNATIONAL PVT. LTD.

DIRECTOR

19/9/22

Divisional Forest Officer
Rourkela Division

1009

ABSTRACT

Forest Division	Requirement of Funds (Rs.)					
	1st year	2nd year	3rd year	4th year	5th year	Total
Rourkela	35.111	5.19	5.19	5.19	5.19	55.871

KAI INTERNATIONAL PVT. LTD.

DIRECTOR

19/9/22

Divisional Forest Office.
Rourkela Division

CHAPTER – VII

Maps and Annexures- A topo sheet map 1:50000 scale showing project area , Impact area, location of underpass/overpass, movement of mega fauna, location of nearby Protected Areas, Wildlife Corridors etc need to be enclosed. In case of overlap of impact area with other projects an additional map showing location of existing project and its impact area and location of new project and its impact area shall be enclosed. Copy of Stage-I clearance and Environmental Clearance shall be annexed.

Maps

1. **Plate- 1 :** Survey of India Topo showing location of the project and its impact area(10 km radious) in1:50000 scale.
2. **Plate-2 :** LocationMap on state Wildlife Map showing the distance of neareast wildlife sanctuary,National park,Elephant corriders,Elephant Reserve,Tiger Reserve from the projest site.

Annexure:

3. **Annexure-I :** Copy of ToR issued by Govt.of india Ministry of Environment,Forest and Climate change in their letter no FNO.IA-11011/59/2021-IA-II(1),Dt 29.11.2021 for EC in favour KAI International pvt ltd for eastablisment of Greenfield iron plant.

F. No. IA-J-11011/59/2021-IA-II(I)
Government of India
Ministry of Environment, Forest and Climate Change
(Impact Assessment Division)

Indira Paryavaran Bhawan
Jor Bagh Road, Aliganj,
New Delhi – 110003

E-mail: r.sundar@nic.in
Tel: 011-24695304

Dated: 29th November, 2021

To

Shri. Suresh Agarwal,
Director,
M/s. KAI International Private Limited,
CCC-23, Civil Township, Rourkela,
Odisha – 769 004
Email: info@groupkalinga.com; Tel: 0661-2400175

Subject: Greenfield project for installation of Iron ore Beneficiation Plant –1.5 MTPA throughput (1.16 MTPA High Grade Ore), Iron ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 Nm^3/hr by **M/s. KAI International Private Limited** located at Village Kapanda, Tehsil Lahunipara, **District - Sundergarh, Odisha– Prescribing of Terms of Reference – regarding.**

Sir,

1. This has reference to online application of M/s. KAI International Private Limited made vide proposal no. IA/OR/IND/235042/2021 dated 21/10/2021 along with the application in prescribed format (Form I), copy of Pre-feasibility report and proposed ToRs for undertaking detailed EIA study as per the EIA Notification, 2006 for the project mentioned above. The proposed project activity is listed at S. No. 2(b) Mineral Beneficiation & 3(a) Metallurgical industries (ferrous & non-ferrous) under Category "A" of the schedule of the EIA Notification, 2006 and appraised at central level.

2. The proposal cited above was considered in 48th meeting of Reconstituted Expert Appraisal Committee (Industry 1 sector) held on 11-12th November, 2021. The EAC proceeding of the said meeting is furnished as below:

Details submitted by Project proponent

3. The project of M/s. KAI International Private Limited located in Kapanda Village, Lahunipara Tehsil, Sundergarh District, Odisha State is for setting up for Greenfield project for installation of Iron ore Beneficiation Plant –1.5 MTPA throughput (1.16 MTPA High Grade Ore), Iron ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 Nm^3/hr.

4. Environmental site settings:

SNo	Particulars	Details	Remarks
i.	Total land	Total Land: 19.3 ha. (47.74 Acres)	Land use: Industrial.
ii.	Existence of habitation &involvement of R&R, if any.	R&R – Not Applicable. No habitants or houses within the identified project area.	
iii.	Latitude and Longitude of the project site	**Latitude:** 21°53' 11.30"N to 21°53'29.01"N **Longitude:** 84°52'15.80"E to 84°52'35.23"E	
iv.	Elevation of the project site	193 to 252 m AMSL	
v.	Involvement of Forest land if any.	**Forest Land:** No forest Land Involved.	
vi.	Waterbody exists within the project site as well as the study area	**Project site:** Nil **Study area:** BrahmaniRiver (1.65 km, West) Amrurhi Nala (3.1 km, NNE) Katangamunda Nala (3.4km NW) Rukura River (4.35 km S)	
vii.	Existence of ESZ/ ESA/ national park/ wildlife sanctuary/ biosphere reserve/ tiger reserve/elephant reserve etc. if any within the study Area.	**Protected Forest:** Samaradari Juniani PF (E) 0.41 km **Reserve Forest:** Kukia RF (NW) 0.15 km Dhenkiam RF (W) 2.6 km NalghatiRajabasa RF (SW)3.3 km Dhenkiam Block RF (NW) 3.74 km Bhagoth RF (SSW) 6.68 km Dhanaghar Extension RF (NNE) 6.9 km GurundiaRF (SW) 7.92 km No National Parks, Wildlife Sanctuaries, Biosphere Reserves within 10 Km radius of the proposed site	

5. The unit configuration and capacity of proposed project is given as below:

S No	Plant Facilities	Configuration	Production Capacity (TPA)
1	Iron ore Beneficiation	(1x1.5 MTPA) throughput	15,00,000 TPA throughput (11,60,000 TPA high grade ore)
2	Pellet	(2x0.6 MTPA)	12,00,000 TPA
3	Producer Gas Plant	6x4500 Nm^3/hr	27,000 Nm^3/hr

6. The details of the raw material requirement for the proposed project along with its source and mode of transportation is given as below:

S. No	Raw Material Required	Quantity in Tons per Annum	Source	Distance from site (Kms)	Mode of Transportation
1	Iron Ore Fines	15,00,000	Barbil, Koida mine, Joda mine	55 km, 12 km, 58 km	Road/ Rail (Railway Siding: Chandiposh 15.8 km NNW)
2	Process returns fines & ESP Dust	45,927	In- house Generation	0.1 km	Pneumatically
3	High grade Iron ore Fines	1,40,000	Domestic Market	58 km	Road
4	Coal	95,513	Mahanadi Coal field	106 km	Rail/ Road
5	Bentonite	13,063	Rourkela	41 km	Road
6	Lime Stone	13,063	Khatkurbahal limestone mine	64 km	Rail/ Road
7	Coke	3,575	Rourkela	41 km	Road
8	LDO	2,400	Domestic Market	40 km	Road

7. The water requirement for the project is estimated as 665 KLD (make-up). The source of water will be Brahmani river (permission for the same will be obtained). The pickup point is estimated to be approximately 1.65 km aerial distance from the plant boundary. The length of the water pipeline will be approximately 4 km.

8. The power requirement for the project is estimated as 12 MW which will be sourced from the nearest grid at Purunapani substation which is 3.70 km distance in ESE direction.

9. The capital cost of the project is Rs. 341.72 Crores, and the capital cost for Environmental protection measures is proposed as Rs. 18.72 Crores (Capital), Rs. 123.86 Lakhs/yr (Recurring cost). The employment generation from the proposed project will be around 500, including direct (280) and indirect (220) employment.

10. Proposed Terms of Reference (**Baseline data collection period: October 2021 to December, 2021**):

Environmental Aspect	Frequency/ Parameters / Locations
Micro Meteorology	**Frequency:** Continuous recording of hourly micro-meteorological parameters for 3 months **Parameters:** Temperature, Relative Humidity, Rainfall, Wind speed, Wind direction, Cloud cover, **Location:** At/Near Project Site
Ambient Air Quality	**Frequency:** Twice a week on 24 hrs basis for 12 weeks **Parameters:** PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, NH_3, O_3, BaP& Fe **Locations:**8 locations within the study area covering core zone, upwind directions, downwind directions, crosswind directions and nearby habitations based on the predominant windrose as presented above.

Environmental Aspect	Frequency/ Parameters / Locations
Ambient Noise Levels	**Frequency:** Continuous monitoring for 24 hours (Day & Night) at each location, once in a month for 3 months **Parameters:** Leq Day Time, Leq Night Time **Locations:** 8 locations within the study area covering core zone, various land uses and nearby habitations.
Surface Water Quality	**Frequency:** Once during the study period (Three Month) **Parameters:** Colour, pH, Dissolved Oxygen (min), Conductivity, Total Hardness, Turbidity, Chlorine (Cl^-),Total Dissolved Solids, Oil & Grease (max), BOD (3) days at 27°C (max), Chemical Oxygen Demand (COD), Arsenic (As), Lead (Pb), Cadmium (Cd) (max), Hexa Chromium as Cr^{+6}, Copper (Cu) (max), Zinc (Zn) (max), Selenium (Se) (max), Cyanide (CN) (max), Fluoride (F), Sulphates ($SO4^-$), Calcium (Ca), Magnesium (Mg), Manganese (Mn), Boron (B), Mercury (Hg), Phenolic Compounds as C_6H_5OH (max), Iron (Fe) (max), Nitrate (NO_3), Anionic Detergents (max), Total Coliform. **Locations:** 11 locations within the study area covering major surface water bodies.
Ground Water Quality	**Frequency:** Once during the study period (Three Month) **Parameters:** Color, Odour, Taste, Turbidity, pH, Total Hardness (as $CaCO_3$), Iron (Fe) , Chloride (Cl^-), Residual Free Chlorine, Total Dissolved Solids as TDS, Calcium (Ca), Magnesium (Mg), Copper (Cu), Manganese (Mn), Sulphate (SO_4^-), Nitrate (NO_3), Fluoride (F), Phenolic Compounds as C_6H_5OH, Mercury (Hg), Cadmium (Cd), Selenium (Se), Arsenic (As), Cyanide (CN), Lead (Pb), Zinc (Zn), Total Chromium as Cr, Mineral Oil, Alkalinity, Aluminium (Al), Boron (B), Total Coliform as TC, Amonia Total, Barium (Ba), Molybdenum (Mo), Nickel (Ni), PAH & Pesticide. **Locations:** 8 locations within the study area.
Soil Quality	**Frequency:** Once during the study period (Three Month) **Parameters:** Conductivity, Water Holding Capacity, Infiltration Rate, pH, Texture, Sand, Silt, Clay, Bulk Density, Exchangeable Calcium, Exchangeable Sodium, Exchangeable Magnesium, Available Potassium, Available Phosphorus, Available Nitrogen, Organic Matter, Organic Carbon, Water Soluble Chloride, Water Soluble Sulphate, Sodium Absorption Residue, Aluminium, Iron, Manganese, Boron, Zinc, Chromium, Hexavalent Chromium, Nickel, Copper, Cadmium, Iron, Silica, Lead, Available Phosphorus. **Locations:** 6 locations within the study area covering different land uses such as agricult ire land, park, waste land, etc.
Hydrogeology	**Frequency:** During Winter &post-monsoon season **Parameters:** Drainage pattern, Ground water table depth, ground water quality, ground water yield, etc. **Locations:** villages within 10 km radius study area
Land use land cover	Satellite imagery-based land use study and preparation of land use land cover maps based on latest LULC classifications & Ground truthing.

Environmental Aspect	Frequency/ Parameters / Locations
	Parameters: Agricultural area, Water bodies, Industrial land, Barren land, Built-up land, Forest area.
Ecology & Biodiversity	**Frequency:** Primary survey during study period. Secondary data collection from Forest department **Parameters:** Terrestrial Flora & Fauna, Aquatic flora & fauna, Forests, etc. **Location:** 10 km radius study area
Socio-economy	**Frequency:** Primary survey during study period. Secondary data collection from Govt. offices, Village Panchayats, Census of India records **Parameters:** Demographic pattern, economic pattern, social amenities availability **Location:** 10 km radius study area

11. It has been reported by PP that, there is no violation under EIA Notification, 2006/court case/show cause/direction related to the project under consideration.

12. Name of the EIA consultant: M/s. Visiontek Consultant Services Private Limited [S. No.98, List of ACOs with their Certificate no. NABET/EIA/2023/RA 0209, valid up to 16/12/2023, Rev. 15, October 11, 2021].

Observations of the Committee

14. The EAC noted the following:
    i. Instant proposal is for setting up for Greenfield project for installation of Iron ore Beneficiation Plant –1.5 MTPA throughput (1.16 MTPA High Grade Ore), Iron ore Pelletization Plant– 1.2 MTPA and Producer Gas Plant – 27,000 Nm^3/hr at Kapanda Village, Lahunipara Tehsil, Sundergarh District, Odisha.
    ii. Total project area is 19.3 ha out of which 6.27 ha area is occupied with dense trees and remaining 13.03 ha is proposed for installing the plant facilities.
    iii. Out of 3972 trees present at project site 1500 trees will be felled down and 260 no of trees will be transplanted. The requisite permission to fell down 1500 trees has been obtained by the proponent from DFO.

Recommendations of the Committee

15. After deliberations, the Committee recommended the project proposal for prescribing following specific ToRs for undertaking detailed EIA and EMP study in addition to the generic ToR enclosed at Annexure-1 read with additional ToRs at Annexure-2:
    i. 665 KLD water shall be drawn from Brahmani river. No ground water abstraction is permitted.
    ii. Total 3972 trees are present at project site out of which the PP has received permission from local Forest authorities for felling of 1500 trees. Further, 260 trees are proposed to be transplanted. Compensatory plantation for the felled down trees shall be raised as per the State Govt norms and detail shall be furnished in the EIA report.
    iii. Conservation plan duly approved by the State Forest department for the protection of Forest patches situated adjacent to the project site shall be submitted.
    iv. Action plan to limit the dust emission from all the stacks below 30 mg/Nm^3 shall be furnished.
    v. Action plan for fugitive emission control in the plant premises shall be provided.

vi. Action plan for green belt development covering 33% of the project area all along the periphery of the project site with a density of 2500 trees per hectare shall be submitted.
vii. Action plan for 100 % solid waste utilization shall be submitted.
viii. Action plan for rain water harvesting shall be submitted.
ix. Action plan for the stock piles with impervious floor, provision of garland drains and catch pits to trap run off material shall be submitted.
x. Action plan for treatment, storage and utilization of tailings shall be submitted.

Decision of MoEF&CC

16. The undersigned is directed to inform that Ministry of Environment, Forest and Climate Change has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the Expert Appraisal Committee (Industry-1) hereby decided to accord above-said specific ToRs, in addition to the standard ToRs and Sector Specific ToRs as enclosed at Annexure I read with additional ToRs at Annexure-2 for carrying out detailed EIA/EMP for the above project.

17. It is requested that the draft EIA Report may be prepared in accordance with the above-mentioned specific ToRs and enclosed generic ToRs and additional ToRs and thereafter further necessary action including conduct of public consultation may be taken for obtaining Environment Clearance in accordance with the procedure prescribed under the EIA Notification, 2006 as amended.

18. The ToRs are valid for a period of four years from date of issue of this letter as per the Ministry's Notification S.O. 751 (E) dated 17/02/2020.

19. This issue with the approval of the Competent Authority.

29/11/24
(Sundar Ramanathan)
Scientist 'E'

Copy to: -

1. Secretary, Department of Environment, Government of Odisha, Secretariat, Bhubaneswar.
2. Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
3. Regional Officer, Ministry of Environment, Forest and Climate Change, Integrated Regional Office, A/3, Chandersekharpur, Bhubaneswar – 751023.
4. Chairman, Odisha State Pollution Control Board, Parivesh Bhawan, A/118 Nilakantha Nagar, Unit-VIII, Bhubaneshwar-751012.
5. Chief Wildlife Warden, Govt. of Odisha, 5th Floor, BDA Apartments, Prakruti Bhawan, Nilakantha Nagar, Nayapalli, Bhubaneshwar-751012
6. Member Secretary, Central Ground Water Authority, A2, W3 Curzon Road Barracks, K.G. Marg, New Delhi-110001.
7. District Collector, Sundergarh District, Odisha.
8. Guard File/Record File/Monitoring File.
9. MoEF&CC Website.

29/11/24
(Sundar Ramanathan)
Scientist 'E'

ANNEXURE –1

GENERIC TERMS OF REFERENCE (ToR) IN RESPECT OF INDUSTRY SECTOR

1. **Executive Summary**
2. **Introduction**
   - i. Details of the EIA Consultant including NABET accreditation
   - ii. Information about the project proponent
   - iii. Importance and benefits of the project

3. **Project Description**
   - i. Cost of project and time of completion.
   - ii. Products with capacities for the proposed project.
   - iii. If expansion project, details of existing products with capacities and whether adequate land is available for expansion, reference of earlier EC if any.
   - iv. List of raw materials required and their source along with mode of transportation.
   - v. Other chemicals and materials required with quantities and storage capacities
   - vi. Details of Emission, effluents, hazardous waste generation and their management.
   - vii. Requirement of water, power, with source of supply, status of approval, water balance diagram, man-power requirement (regular and contract)
   - viii. The project proponent shall furnish the requisite documents from the competent authority in support of drawl of ground water and surface water and supply of electricity.
   - ix. Process description along with major equipment and machineries, process flow sheet (Quantitative) from raw material to products to be provided
   - x. Hazard identification and details of proposed safety systems.
   - xi. Expansion/modernization proposals:
     a. Copy of all the Environmental Clearance(s) including Amendments thereto obtained for the project from MoEF&CC/SEIAA shall be attached as an Annexure. A certified copy of the latest Monitoring Report of the Regional Office of the Ministry of Environment, Forest and Climate Change as per circular dated 30th May, 2012 on the status of compliance of conditions stipulated in all the existing environmental clearances including Amendments shall be provided. In addition, status of compliance of Consent to Operate for the ongoing /existing operation of the project from SPCB/PCC shall be attached with the EIA-EMP report.
     b. In case the existing project has not obtained environmental clearance, reasons for not taking EC under the provisions of the EIA Notification 1994 and/or EIA Notification 2006 shall be provided. Copies of Consent to Establish/No Objection Certificate and Consent to Operate (in case of units operating prior to EIA Notification 2006, CTE and CTO of FY 2005-2006) obtained from the SPCB shall be submitted. Further, compliance report to the conditions of consents from the SPCB shall be submitted.

4. **Site Details**
   - i. Location of the project site covering village, Taluka/Tehsil, District and State, Justification for selecting the site, whether other sites were considered.
   - ii. A toposheet of the study area of radius of 10km and site location on 1:50,000/1:25,000 scale on an A3/A2 sheet. (Including all eco-sensitive areas and environmentally sensitive places)
   - iii. Co-ordinates (lat-long) of all four corners of the site.

iv. Google map-Earth downloaded of the project site.
v. Layout maps indicating existing unit as well as proposed unit indicating storage area, plant area, greenbelt area, utilities etc. If located within an Industrial area/Estate/Complex, layout of Industrial Area indicating location of unit within the Industrial area/Estate.
vi. Photographs of the proposed and existing (if applicable) plant site. If existing, show photographs of plantation/greenbelt, in particular.
vii. Land use break-up of total land of the project site (identified and acquired), government/private - agricultural, forest, wasteland, water bodies, settlements, etc shall be included. (Not required for industrial area)
viii. A list of major industries with name and type within study area (10km radius) shall be incorporated. Land use details of the study area
ix. Geological features and Geo-hydrological status of the study area shall be included.
x. Details of Drainage of the project upto 5km radius of study area. If the site is within 1 km radius of any major river, peak and lean season river discharge as well as flood occurrence frequency based on peak rainfall data of the past 30 years. Details of Flood Level of the project site and maximum Flood Level of the river shall also be provided. (Mega green field projects)
xi. Status of acquisition of land. If acquisition is not complete, stage of the acquisition process and expected time of complete possession of the land.
xii. R&R details in respect of land in line with state Government policy.

5. Forest and wildlife related issues (if applicable):

i. Permission and approval for the use of forest land (forestry clearance), if any, and recommendations of the State Forest Department. (If applicable).
ii. Land use map based on High resolution satellite imagery (GPS) of the proposed site delineating the forestland (in case of projects involving forest land more than 40 ha).
iii. Status of Application submitted for obtaining the stage I forestry clearance along with latest status shall be submitted.
iv. The projects to be located within 10 km of the National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild Animals, the project proponent shall submit the map duly authenticated by Chief Wildlife Warden showing these features vis-à-vis the project location and the recommendations or comments of the Chief Wildlife Warden-thereon.
v. Wildlife Conservation Plan duly authenticated by the Chief Wildlife Warden of the State Government for conservation of Schedule I fauna, if any exists in the study area.
vi. Copy of application submitted for clearance under the Wildlife (Protection) Act, 1972, to the Standing Committee of the National Board for Wildlife.

6. Environmental Status

i. Determination of atmospheric inversion level at the project site and site-specific micro-meteorological data using temperature, relative humidity, hourly wind speed and direction and rainfall.
ii. AAQ data (except monsoon) at 8 locations for PM_{10}, $PM_{2.5}$, SO_2, NO_X, CO and other parameters relevant to the project shall be collected. The monitoring stations shall be based CPCB guidelines and take into account the pre-dominant wind direction, population zone and sensitive receptors including reserved forests.

iii. Raw data of all AAQ measurement for 12 weeks of all stations as per frequency given in the NAQQM Notification of Nov. 2009 along with – min., max., average and 98% values for each of the AAQ parameters from data of all AAQ stations should be provided as an annexure to the EIA Report.
iv. Surface water quality of nearby River (60m upstream and downstream) and other surface drains at eight locations as per CPCB/MoEF&CC guidelines.
v. Whether the site falls near to polluted stretch of river identified by the CPCB/MoEF&CC.
vi. Ground water monitoring at minimum at 8 locations shall be included.
vii. Noise levels monitoring at 8 locations within the study area.
viii. Soil Characteristic as per CPCB guidelines.
ix. Traffic study of the area, type of vehicles, frequency of vehicles for transportation of materials, additional traffic due to proposed project, parking arrangement etc.
x. Detailed description of flora and fauna (terrestrial and aquatic) existing in the study area shall be given with special reference to rare, endemic and endangered species. If Schedule-I fauna are found within the study area, a Wildlife Conservation Plan shall be prepared and furnished.
xi. Socio-economic status of the study area.

7. Impact Assessment and Environment Management Plan

i. Assessment of ground level concentration of pollutants from the stack emission based on site-specific meteorological features. In case the project is located on a hilly terrain, the AQIP Modelling shall be done using inputs of the specific terrain characteristics for determining the potential impacts of the project on the AAQ. Cumulative impact of all sources of emissions (including transportation) on the AAQ of the area shall be well assessed. Details of the model used and the input data used for modelling shall also be provided. The air quality contours shall be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any.
ii. Water Quality modelling – in case, if the effluent is proposed to be discharged in to the local drain, then Water Quality Modelling study should be conducted for the drain water taking into consideration the upstream and downstream quality of water of the drain.
iii. Impact of the transport of the raw materials and end products on the surrounding environment shall be assessed and provided. In this regard, options for transport of raw materials and finished products and wastes (large quantities) by rail or rail-cum road transport or conveyor-cum-rail transport shall be examined.
iv. A note on treatment of wastewater from different plant operations, extent recycled and reused for different purposes shall be included. Complete scheme of effluent treatment. Characteristics of untreated and treated effluent to meet the prescribed standards of discharge under E (P) Rules.
v. Details of stack emission and action plan for control of emissions to meet standards.
vi. Measures for fugitive emission control
vii. Details of hazardous waste generation and their storage, utilization and disposal. Copies of MOU regarding utilization of solid and hazardous waste shall also be included. EMP shall include the concept of waste-minimization, recycle/reuse/recover techniques, Energy conservation, and natural resource conservation.
viii. Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 2009. A

detailed plan of action shall be provided.

ix. Action plan for the green belt development plan in 33 % area i.e. land with not less than 1,500 trees per ha. Giving details of species, width of plantation, planning schedule etc. shall be included. The green belt shall be around the project boundary and a scheme for greening of the roads used for the project shall also be incorporated.

x. Action plan for rainwater harvesting measures at plant site shall be submitted to harvest rainwater from the roof tops and storm water drains to recharge the ground water and also to use for the various activities at the project site to conserve fresh water and reduce the water requirement from other sources.

xi. Total capital cost and recurring cost/annum for environmental pollution control measures shall be included.

xii. Action plan for post-project environmental monitoring shall be submitted.

xiii. Onsite and Offsite Disaster (natural and Man-made) Preparedness and Emergency Management Plan including Risk Assessment and damage control. Disaster management plan should be linked with District Disaster Management Plan.

8. **Occupational health**

i. Details of existing Occupational & Safety Hazards. What are the exposure levels of above mentioned hazards and whether they are within Permissible Exposure level (PEL). If these are not within PEL, what measures the company has adopted to keep them within PEL so that health of the workers can be preserved,

ii. Details of exposure specific health status evaluation of worker. If the workers' health is being evaluated by pre-designed format, chest x rays, Audiometry, Spirometry, Vision testing (Far & Near vision, colour vision and any other ocular defect) ECG, during pre-placement and periodical examinations give the details of the same. Details regarding last month analysed data of abovementioned parameters as per age, sex, duration of exposure and department wise.

iii. Annual report of health status of workers with special reference to Occupational Health and Safety.

iv. Plan and fund allocation to ensure the occupational health & safety of all contract and casual workers.

9. **Corporate Environment Policy**

i. Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.

ii. Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA.

iii. What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions? Details of this system may be given.

iv. Does the company have 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? This reporting mechanism shall be detailed in the EIA report

10. Details regarding infrastructure facilities such as sanitation, fuel, restroom etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers

during operation phase.

11. To address the Public Hearing issues, provisions contained under Ministry's Office Memorandum vide F.No. 22-65/2017-IA.III dated 30/09/2020 shall be complied.
12. Any litigation pending against the project and/or any direction/order passed by any Court of Law against the project, if so, details thereof shall also be included. Has the unit received any notice under the Section 5 of Environment (Protection) Act, 1986 or relevant Sections of Air and Water Acts? If so, details thereof and compliance/ATR to the notice(s) and present status of the case.
13. A tabular chart with index for point wise compliance of above ToRs.
14. The ToRs prescribed shall be valid for a period of three years for submission of the EIA-EMP reports along with Public Hearing Proceedings (wherever stipulated).

The following general points shall be noted:

i. All documents shall be properly indexed, page numbered.
ii. Period/date of data collection shall be clearly indicated.
iii. Authenticated English translation of all material in regional languages shall be provided.
iv. The letter/application for environmental clearance shall quote the MOEF&CC file No. and also attach a copy of the letter.
v. The copy of the letter received from the Ministry shall be also attached as an annexure to the final EIA-EMP Report.
vi. The index of the final EIA-EMP report must indicate the specific chapter and page no. of the EIA-EMP Report
vii. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MOEF&CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry shall also be followed.
viii. The consultants involved in the preparation of EIA-EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA-EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. Name of the Consultant and the Accreditation details shall be posted on the EIA-EMP Report as well as on the cover of the Hard Copy of the Presentation material for EC presentation.
ix. ToRs' prescribed by the Expert Appraisal Committee (Industry) shall be considered for preparation of EIA-EMP report for the project in addition to all the relevant information as per the 'Generic Structure of EIA' given in Appendix III and IIIA in the EIA Notification, 2006. Where the documents provided are in a language other than English, an English translation shall be provided. The draft EIA-EMP report shall be submitted to the State Pollution Control Board of the concerned State for conduct of Public Hearing. The SPCB shall conduct the Public Hearing/public consultation, district-wise, as per the provisions of EIA notification, 2006. The Public Hearing shall be chaired by an Officer not below the rank of Additional District Magistrate. The issues raised in the Public Hearing and during the consultation process and the commitments made by the project proponent on the same shall be included separately in EIA-EMP Report in a separate chapter and summarized in a tabular chart with financial budget (capital and revenue) along with time-schedule of implementation for complying with the commitments made. The final EIA report shall be submitted to the Ministry for obtaining environmental clearance.

****

ANNEXURE-2

ADDITIONAL ToRs FOR PELLET PLAN

1. Iron ore/coal linkage documents along with the status of environmental clearance of iron ore and coal mines.
2. Quantum of production of coal and iron ore from coal & iron ore mines and the projects they cater to. Mode of transportation to the plant and its impact
3. Recent land-use map based on satellite imagery. High-resolution satellite image data having 1m-5m spatial resolution like quickbird, Ikonos, IRS P-6 pan sharpened etc. for the 10 Km radius area from proposed site. The same shall be used for land used/land-cover mapping of the area.
4. PM (PM_{10} and $PM_{2.5}$) present in the ambient air must be analysed for source analysis – natural dust/RSPM generated from plant operations (trace elements) of PM10 to be carried over.
5. All stock piles will have to be on top of a stable liner to avoid leaching of materials to ground water.
6. Plan for the implementation of the recommendations made for the steel plants in the CREP guidelines.
7. Plan for slag utilization
8. Plan for utilization of energy in off gases (coke oven, blast furnace)
9. System of coke quenching adopted with justification.
10. Trace metals Mercury, arsenic and fluoride emissions in the raw material.
11. Trace metals in waste material especially slag.
12. Trace metals in water.

*****

ADDITIONAL ToRS FOR BENEFICIATION PLANT

1. Complete process flow diagram describing each unit, its processes and operations, along with material and energy inputs & outputs (material and energy balance).
2. Details regarding pollution control measures to be adopted in the mineral handling area, loading and unloading areas including all transfer points shall be submitted.
3. The Project proponent shall submit action plan for conditioning of the ore with water to mitigate fugitive dust emission, without affecting flow of ore in the ore processing and handling areas.
4. Treatment details regarding effluent generated from the ore beneficiation plant and the mode of transportation of tailing slurry shall be submitted.
5. Separate chapter on design of the tailing/slime pond by considering the rainfall in the area, proximity of the tailing/slime pond to the nearby water bodies and safety etc., shall be submitted.
6. Action plan for regular monitoring of ground water level and quality in and around the project area of beneficiation plant and tailing/slime pond shall be submitted by establishing a network of existing wells and constructing new piezometers.
7. Details regarding establishment of garland drain around the tailing/slime pond and the quantity of decanted water to be re-circulated from the tailing/slime pond shall be submitted along with complete water balance.
8. Technology to be adopted for maximum recovery of ore in order to reduce slurry discharge and to increase the life of the tailing/slime pond shall be submitted.

******

Executive Summary

Executive summary of the report in about 8-10 pages incorporating the following:

i. Project name and location (Village, Dist, State, Industrial Estate (if applicable)
ii. Products and capacities. If expansion proposal, then existing products with capacities and reference to earlier EC.
iii. Requirement of land, raw material, water, power, fuel, with source of supply. (Quantitative)
iv. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes. Materials balance shall be presented.
v. Measures for mitigating the impact on the environment and mode of discharge or disposal.
vi. Capital cost of the project, estimated time of completion
vii. Site selected for the project – Nature of land – Agricultural (single/double crop), barren, Govt./private land, status of is acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest, eco-sensitive zones, accessibility, (note – in case of industrial estate this information may not be necessary)
viii. Baseline environmental data – air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
ix. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
x. Likely impact of the project on air, water, land, flora-fauna and nearby population
xi. Emergency preparedness plan in case of natural or in plant emergencies
xii. Issues raised during public hearing (if applicable) and response given
xiii. CSR plan with proposed expenditure.
xiv. Occupational Health Measures
xv. Post project monitoring plan

******

भारत सरकार / Government of India
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय / Ministry of Environment, Forest and Climate Change
एकीकृत क्षेत्रीय कार्यालय / Integrated Regional Office
ए/3, चंद्रशेखरपुर / A/3, Chandrasekharpur
भुवनेश्वर - 751 023, ओडिशा / Bhubaneswar - 751 023, Odisha

सत्यमेव जयते

Telephone: 0674 - 2301213, 2302432, 2301248, 2302452, 2302453. E-mail: roez.bsr-mef@nic.in

File No. 107-469/21/EPE

Date 10.05.2023

To

The Inspector General of Forests(ROHQ),
Ministry of Environment, Forest & Climate Change,
Indira Paryavaran Bhawan, Jor Bagh Road,
Aliganj, New Delhi – 110001
Government of India

Sub: In compliance of the order dated 07.02.2023 passed by the Hon'ble National Green Tribunal, National Green Tribunal, Eastern Zone, Kolkata in Original Application no. OA 94 of 2021 Chittaranjan Mohanta vs State of Odisha-reg

Ref: Hon'ble National Green Tribunal Order dated 07.02.2023

Sir,

With reference to the subject and reference cited above I am directed to state that as per the order dated 07.02.2023 the Hon'ble tribunal had constituted a committee for the site visit in the aforesaid matter. As per the order(attached herewith) it is directed that "The report may also be placed on the website of Integrated Regional Office of MoEF&CC for being accessed by the applicants or any other interested persons who will be free to respond to the report before the next date." Site visit was conducted on 18.03.2023 and 28.04.2023.The Site Visit report has been submitted to the Hon'ble National Green Tribunal, Eastern Zone. As this regional office does not have any particular website therefore it is requested to direct the concerned official/department to upload the report in the Ministry's Website. The matter is posted on 19.05.2023.

This is for kind information. Please.

Yours faithfully,

Mahato

(Dr T.H Mahato)
Scientist 'D'

Encl: As above

Copy to:

1. **Shri Alok Tewari,**Deputy Director General,(MoEFCC), National Informatics Centre, New Delhi, Government of Indiaemail: alok.tiwari@nic.in
2. **The Registrar,**National Green Tribunal,Eastern Zone Branch,Finance Centre, 3rd Floor New Town, Kolkata-700161, For Kind Information please.
3. **Shri Soumitra Mookherjee**, Advocate,14a,Priya Nath Mallick Road Bhawanipore,Kolkata-70002 E-Mail: soumitramookherjee@gmail, With a copy of the report ,For Kind Information and necessary action.

Report of Committee, as per Hon'ble National Green Tribunal's Order in the matter of OA No 94/2021/EZ (Chittaranjan Mahanta &Ors.Vs State of Odisha &Ors) to ascertain impact of the project on the wildlife, forest and environment including the adjoining rivers and other environmentally sensitive areas.

Hon'ble National Green Tribunal, Eastern Zone, Kolkata, in its order dated 07.02.2022, in Original Application No. 94/2021/EZ has constituted a Joint committee *comprising of nominee of DG Forest, MoEF&CC (not below the rank of ADG), Integrated Regional Officer of MoEF&CC, Bhubaneshwar,PCCF (HoFF), Odisha,Chief Wildlife Warden,Odisha and the District Magistrate, Sundergarh.*

The Hon'ble National Green Tribunal, Eastern Zone has further directed that "The Committee may undertake visit to the site, ascertain impact of the project on the wildlife, forest and environment including the adjoining rivers and other environmentally sensitive areas. The Committee may meet within one month. It will be free to associate any other individual/institution/agency and interact with the stake holders"

After the receipt of the order of the Hon'ble NGT, the copy of the order was communicated to all the members and the Director General of Forests(DGF) was requested to nominate an officer not below the rank of Additional Director General(ADG) for the said committee.

As per the direction of the Hon'ble National Green Tribunal a meeting was conducted in the hybrid mode involving all the members of the committee on 06.03.2023.

PCCF & HOFF, Odisha, PCCF Wildlife, Odisha, PCCF (FD & Nodal Officer, FC Act),Odisha, DDGF(C), Integrated Regional Office, Bhubaneswar, ADM Sundargarh (In-charge DM, Sundargarh), SDM Bonai, Dr.T.H.Mahato, Scientist D, Regional Office Bhubaneswar of MOEF&CC, were present in the meeting.

In the meeting RCCF, Rourkela , Dr. T.H Mahato , Scientist 'D' ,IRO Bhubaneswar, representative of SIEAA were co-opted for the committee. In the meeting it was unanimously decided to carry out the site visit on 18th March 2023.

The site was visited by committee on 18.3.2023. Shri Debidutta Biswal, PCCF & HoFF, Odisha, Shri Sushil Kumar Popli, Chief Wildlife Warden, Odisha, Shri A.T Mishra, DDGF(C), IRO, Bhubaneswar, Dr. Gavali Parag Harshad, Collector & District Magistrate, Sundargarh were present during site inspection. Among the co-opted members Sri Arun Kumar Mishra, RCCF, Rourkela and Dr T H Mahato, Scientist 'D', IRO, Bhubaneswar, Dr Pradeepta Nayak, SEIAA, Odisha were present. The information regarding the visit of this committee was given to the petitioner Sri Sankar Prasad Pani, Advocate and the owner of the proposed plant Shri Suresh Agarwal.



The site was again visited by Nominee of DGF, Sri S P Yadav, ADGF, MoEF&CC, along with forest officials and officials of the revenue department on 28.04.2023.

LOCATION OF THE PROJECT:

The project site is located in Kapanda mouza of Bonai block of Sundergarh District. Initially about 117 acres of land was selected for this purpose which was later reduced to 47.74 Acres. The proposed site is surrounded by Hillocks from three sides. The Purnapani- Budhikhutini-Samardari PF is in the eastern side of project site. The Kukia RF is located in the west side of the project site. In the other side there is a hillock which is not a notified forest. The Brahmani river is located at about 2.0 km from the proposed site. The proposed site is not a part of any National Park, Wildlife Sanctuary, Critical wildlife habitat, Elephant or Tiger corridor. It is not within the Eco sensitive zone of any protected area. The nearest PA is Badrama Wildlife Sanctuary which is about 50 kilometer from the proposed

site.The forests of the Purnapani- Budhikhutini-Samardari PF and Kukia RF are having less than 0.4 crop density and has been kept in the Rehabilitation cum Plantation Working Circle as per the Compartment history available in the Rourkela Forest Division. The Google map showing the proposed site is attached as **annexure R/1**.



STAKEHOLDER COSULTATION

During the site inspection besides the member of the committee the officials of the Revenue department Sub Collector, Bonai , Tahasildar, Bonai , and the Amin of that area and officials of the Forest department DFO , ACF and Range officer of Rourkela Forest Division were present. The petitioner's advocate Shri Sankar Prasad Pani , the owner of the proposed plant and some of the villagers from Kapanda and Patajharia were also present.

The committee interacted with the villagers of both the villages. The village Kapanda is located 2 km away from the project site. Another village Patjharia is located near the site .

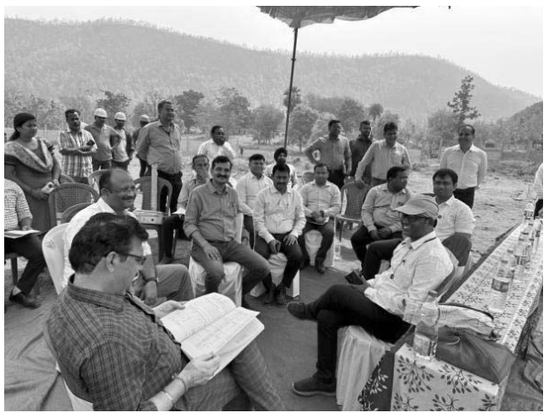
During interaction , some of the villagers were apprehensive about the dust pollution because of smoke from chimney and water pollution because

of polluted water from the plant. Some of the villagers were opposing because they are of the opinion that the black dust from the plant will act as layer in the leaves of the vegetable crop they are growing and consequently the production will be reduced .They are also apprehensive that the polluted discharge from the plant will pollute the ground water as well as the surface water.

Some of the villagers were in favour of the plant because they are of the opinion that they will get employment because of the plant. At the same time they were saying that the company should engage the local people in the plant.









EFFECT ON WILDLIFE:

During discussion with the villagers, some of the villagers said that last year one elephant had visited the forests of their village. The villagers also said that they have also spotted one wild boar few months back. As per the man- animal conflict report submitted by DFO, In the last three years (20-21, 21-22, 22-23) 2 cases of crop damage in Nuagaon village and one case of crop damage in Kapanda village have been reported. These cases are only in the year 20-21. As per the report no man animal conflict case has been reported in 21-22 & 22-23 in this area.The man animal report is attached as **annexure R/2.**

As per the report of the DFO; discussion with the villagers, and the site visit, it was observed that area in question is not of much significance from wild life point of view. Further, the proposed site is not a part of the National Park, Wildlife Sanctuary, Critical wildlife habitat, Elephant or Tiger corridor. It is not even within the Eco sensitive zone of any protected area. In fact, the nearest PA is Badrma which is about 50 km from the proposed site. Therefore, the proposed plant will not have any significant impact on wildlife.

EFFECT ON FOREST:

The Purnapani- Budhikhutini-Samardari PF and the Kukia RF are located close to the proposed site. As per the Compartment history available in Rourkela Forest division, these forests come under Dry Peninsular Sal forest. The canopy density is less than 0.4 and these forests have been kept under rehabilitation and Plantation working circle. As per the available record in the state forest department no flora or fauna is endemic to this area. Therefore the proposed project will not have any significant effect on the Flora and Fauna of the nearby forests.

Implementation of Proper Eco restoration plan can mitigate the adverse impact, if any.

EFFECT ON ENVIRONOMENT:

The proposed plant is an integrated steel plant. In such plants the raw materials are to be transported to the site, which may give rise to dust pollution. The existing road that connects to the NH needs to be strengthened and mitigative measures like sprinkling water on the connecting roads have to be taken up.

The proposed plant is surrounded by hillocks. Therefore ESPs have to be installed and the chimney has to be designed of appropriate height and green belt plantation around the site to be taken up to mitigate air pollution.

In Integrated steel plants the effluent water has to be treated. Zero effluent discharge, provisions of ETPs, garland drains around the site, water harvesting structure etc. have to be stipulated to mitigate the water pollution.

EFFECT ON RIVER:

The nearest river Brahmani is located at about 2.0 km. from the proposed site. The Google map showing the location of the river with distance is annexed as **annexure R/3**. Therefore, conditions such as zero effluent discharge, ETPs, garland drain and water harvesting structures will ensure that the river water will not be contaminated.

OBSERVATION OF THE COMMITTEE

As discussed above, the proposed plant will not have any significant impact on wildlife and forests. There are no environmentally sensitive areas nearby. Like any other integrated steel plant, this will also have environmental concern, which can be addressed / mitigated by the stipulations indicated in the above paragraphs. These stipulations are indicative only and not exhaustive.

Further the plant should engage the local people by providing employment, address the health issue of the villagers around the proposed site through regular medical checkup as well as treatment facilities and create a green belt all along the boundary of the proposed plant. Wildlife Conservation plan, Ecorestoration Plan for the surrounding forests will also help in mitigating the adverse impact.

(Shri Satya Prakash Yadav)
Additional Director General of Forest
ADG(FC)
MoEF&CC

(Shri Debidutta Biswal)
PCCF & HoFF,Odisha

(Shri Sushil Kumar Popli)
Chief Wildlife Warden,
Odisha

(Shri A.T Mishra)
DDG(F(C),IRO Bhubaneswar
MOEF&CC

(Dr. Gavali Parag Harshad)
Collector & District Magistrate
Sundargarh,Odisha

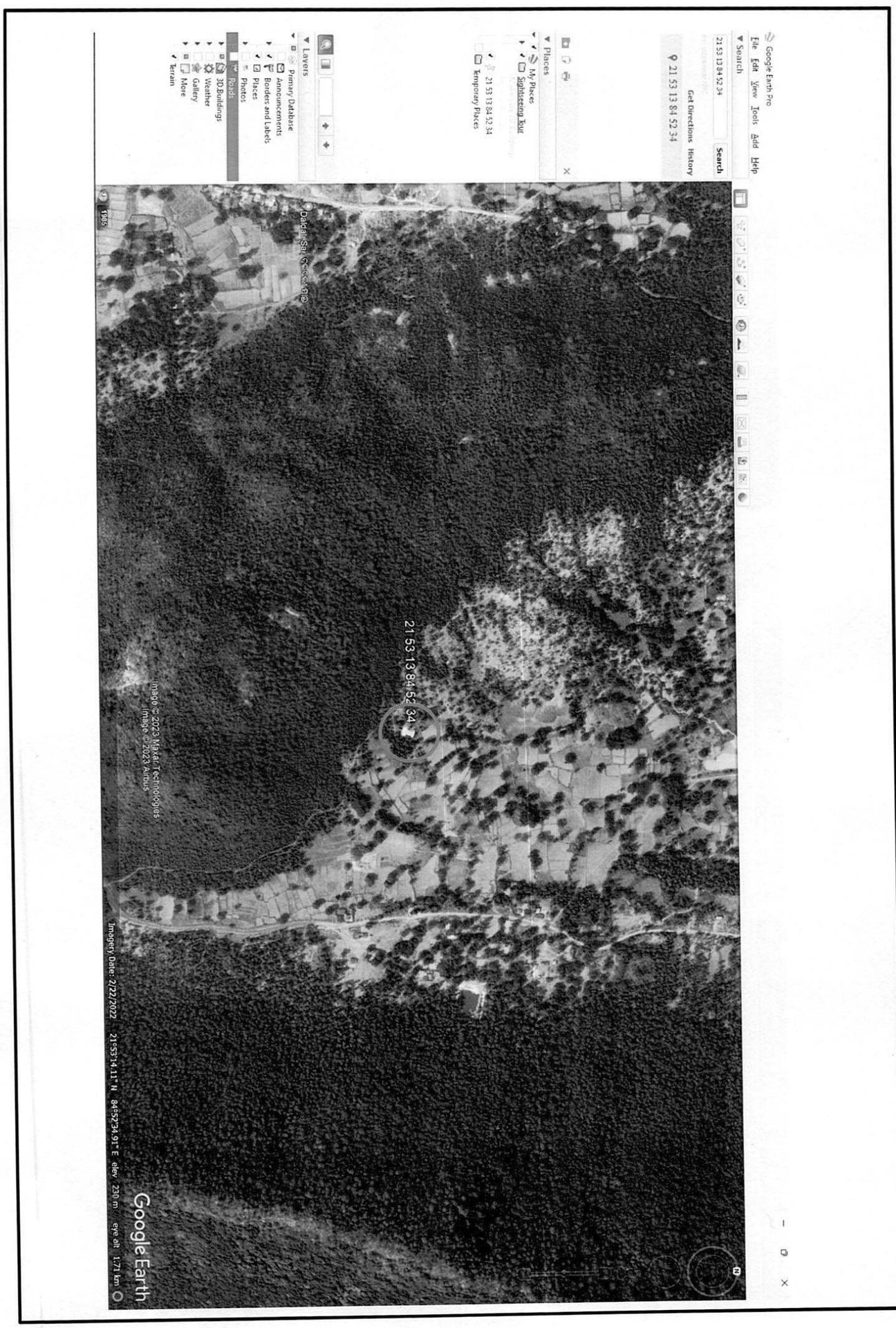
(Dr. T.H Mahato)
Scientist 'D'
Integrated Regional Office,
Bhubaneswar

(Shri Pradeepta Kumar Nayak)
Scientist,SEIAA,Odisha

(Shri Arun Kumar Mishra)
RCCF,Rourkela,Odisha

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annexure R/1



Annexure R/2

Man-Animal Conflict report in Kapanda & near by villages of project area of KAI International Pvt. Ltd.

Sl No	Type of Conflict	Details of Damage report.									Remarks
		2020-21	Name of village.	Damaged area (in Acre)	2021-22	Name of village.	Damaged area (in Acre)	2022-23	Name of village.	Damaged area (in Acre)	
1	Human Death	0	0	0	0	0	0	0	0	0	--
2	Human Injury	0	0	0	0	0	0	0	0	0	--
3	Crop damage	1	Nuagaon	0.32	0	0	0	0	0	0	
		1	Nuagaon	0.25	0	0	0	0	0	0	
		1	Kapanda	0.45	0	0	0	0	0	0	
	Total:-	**3**		**1.02**	**0**	**0**	**0**	**0**	**0**	**0**	
4	House Damage	0	0	0	0	0	0	0	0	0	

8/1/23

Divisional Forest Officer
Rourkela Division

1036

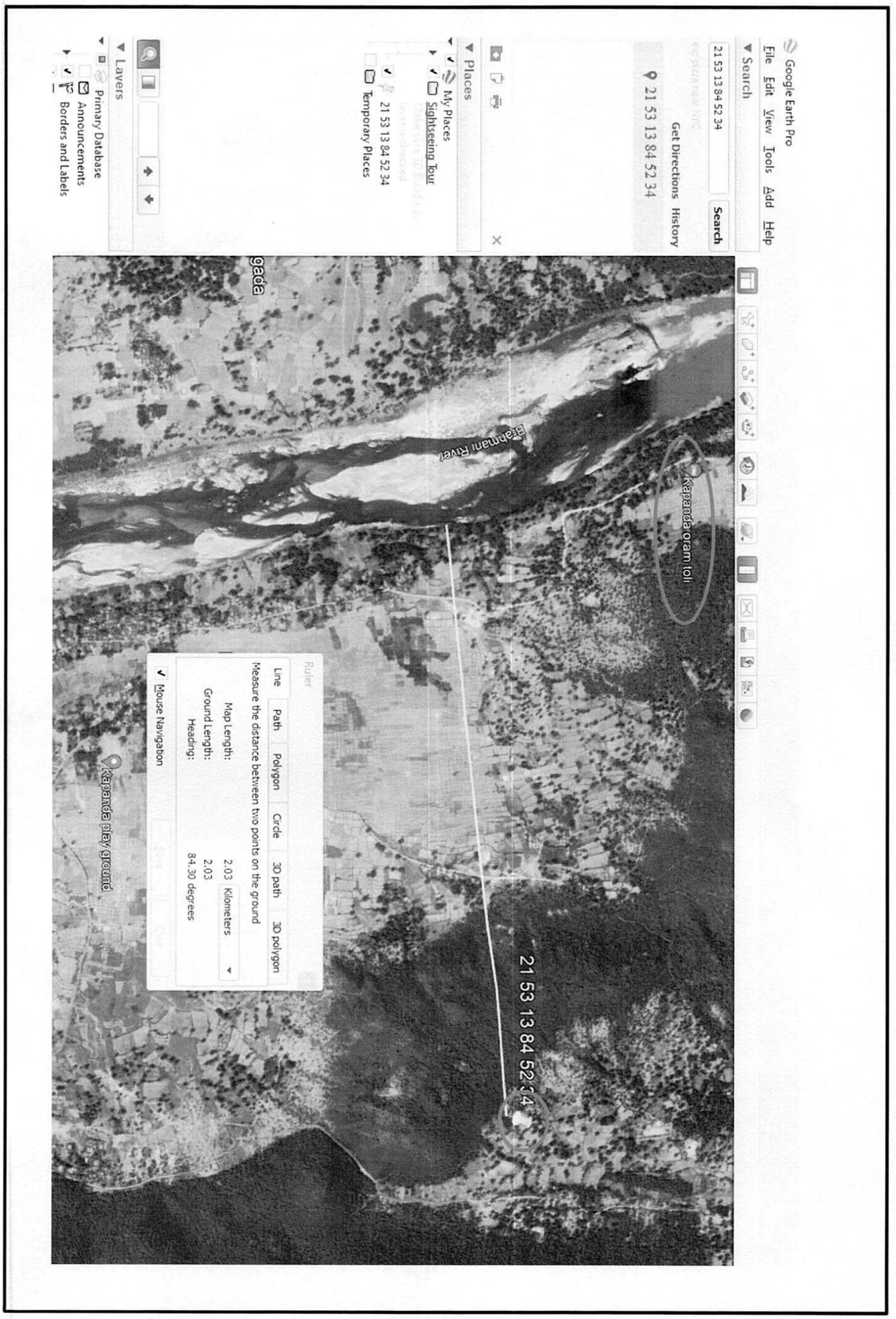
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annexure R/3



Item No. 03 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
EASTERN ZONE BENCH, FINANCE CENTRE
KOLKATA

(By Video Conference)

Original Application No. 94/2021/EZ
with
I.A. No. 01/2022/EZ
I.A No. 29/2022/EZ
I.A. No. 193/2022/EZ

Chittaranjan Mahanta &Ors. Applicant(s)

Versus

State of Odisha &Ors. Respondent(s)

Date of hearing: 07.02.2023

CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE MR. JUSTICE B. AMIT STHALEKAR, JUDICIAL MEMBER
HON'BLE PROF. A. SENTHIL VEL, EXPERT MEMBER
HON'BLE DR. AFROZ AHMAD, EXPERT MEMBER

Applicant(s): Mr. Sankar Prasad Pani, Advocate for Applicant

Respondents: Mr. Shakti Prasad Panda, AGA for R-1, 2, 3, 4, 5 & 7
Mr. Soumitra Mukherjee, Advocate for R-8
Mr. Sanwal Tibrewal, Advocate a/w Ms. Aparajita Rao, Advocate for R-9

ORDER

1. Grievance in this application is against steps taken for setting up of Iron ore beneficiation plant by the Project Proponent (PP), M/s KAI International Pvt. Ltd in District Sundergarh, Orissa in violation of environmental norms, particularly without requisite EC. It is stated that without requisite Forest Clearance (FC) under Forest (Conservation) Act, 1980 from Central Government, trees have been cut, illegally treating the

area as 'non-forest' and permission granted by DFO is in violation of law laid down inter alia in TN Godavarman, (1997) 2 SCC 267.

2. Case set out in the application is that the PP proposes to set up Iron ore beneficiation plant with production capacity of 1.5 Million Tons Per Annum (MTPA), Iron ore Pelletisation Plant of 1.2 MTPA, Sponge Iron of 0.346 MTPA, Billet of 0.43 MTPA, Rolling Mil 0.417 MTPA, Captive Power Plant (CPP) of 75 MW, Producer Gas Plant 30,000 Nm3/hr and SMS Slag Crushing Unit 60,150 TPA in Kapand Mouza of Lahunipada Tahasil in Sundergarh District. Its proposal for EC was considered by EAC on 25-26 February, 2021. In view of high pollution potential, the proposal was returned. Still, the PP has felled large number of trees illegally which will adversely affect animal habitat and animal movement in the area. The area is contiguous to Kukia Reserve Forest which is also a habitat to wild animals with rare and endangered species. Other adjoining reserved forests are Kukia RF (NW) 0.4 km, Dhenkiam RF (W) 2.8 km Dhenkiam Block RF (NW 4.3 km, Nalghati Rajabasa RE (SWw) 52 km Dhanaghar Extension RF (NNE) 7.4km, Gurundia RE (Sww) 8.7 km, Bhagoth RE (SSW) 7.1 km. Complaint was filed with the DFO, Rourkela on 01.10.2021 against illegal felling of trees but no action was taken. The PP is going ahead with the construction of the project without requisite EC.

3. Vide order dated 08.10.2021, the Tribunal considered the matter. Notice was also issued to all the respondents, including the PP, MoEF&CC, DFO, Rourkela and District Magistrate, Sundergarh. It was directed that since no EC had been granted, the PP may not raise any construction and may not fell any more trees without requisite clearance. The Tribunal also sought information from the State of Odisha about the number of trees already felled and action taken.

4. The said respondents have filed their respective replies.

5. Stand of the MoEF&CC is that the proposal for EIA was returned on recommendation of the EAC in its meeting held on 25 -26 February, 2021. The PP withdrew the application for EIA on 27.10.2021 on the ground that configuration of the plant had changed. Before that, fresh proposal was filed on 21.10.2021. The DFO, Rourkela had granted permission for felling of trees on 20.09.2021. The EAC considered the new proposal on 11 -12 November, 2021 and recommended grant of ToR which has been granted by the MoEF&CC on 29.11.2021. Final EIA report has not been filed with the MoEF&CC along with public hearing proceedings.

6. Stand of the DFO in affidavit dated 27.07.2022 is that land in question is *patit* (barren) land as per revenue record. 5856 trees are enumerated and permission granted for felling of trees was under Odisha Timber and other Forest Produce Transit Rules, 1980. PP has uprooted stumps of all 1500 trees and destroyed the evidence from the land. There is no scope for any further verification. Land is having moderately dense forest growth. Kukia Reserve Forest is not contiguous to the land in question and it is 0.12 Km away.

7. Stand of the PP is that on its application IDCO allotted land for the plant which is non forest land on 6.8.2021 against payment. It applied for EC on 16.2.2021 which was returned due to defects but another application has been filed on which TOR has been granted. The project involves investment of Rs.341 crore and generation of employment for 225 persons. DFO has granted permission for felling trees on the land and the PP has felled 1500 trees and deposited replantation charges (Rs.62 lacs).

8. The applicants in their rejoinder filed on 06.072022 have submitted that grant of permission by the DFO is illegal as the land is deemed forest

in view of order of Hon'ble Supreme Court in *T.N. Godavarman Thirumulpad (Supra).* Description in revenue record that land is barren is not final as dictionary meaning of 'forest' will include land where trees actually exist, as in the case of the land in question. As held in Lafarge (2011) 7 SCC 338, the DFO cannot grant permission by treating such land as non forest merely on the basis of revenue record. Moreover, appraisal has to be conducted by the MoEF&CC as per directions in the said judgment which has not been done before felling trees. Further, in terms of Forest Policy, 1988 and directions in Lafarge, (supra), forest is not to be treated as mere resource but national asset to prevent erosion and degradation of land. Thus, permission for felling trees by the DFO is illegal and it affects elephant movement and habitats of endangered flora and fauna. Number of trees actually cut by the PP is much more than those permitted by the DFO. Thus, ToR have been granted without considering these facts and pendency of these proceedings. Reasons for which the proposal was earlier returned on 26.02.2021 still hold good and have not been considered while granting TOR.

9. On pleadings of the parties, issues which arise for consideration are legality of permission for cutting of trees and granting of TOR without considering relevant facts. We have heard learned Counsel for the appearing parties, perused the record and considered the matter.

10. We first refer to minutes of meeting of EAC for consideration of the proposal for the project. The EAC decided to return the proposal on 26.02.2021 with following observations:-

> *"**Observations of the Committee***
>
> *31.10.13 The Committee noted the following:*
>
> *i. Form I is not complete as most of the details sought in the Form I are not provided.*

ii. Pre-feasibility report found to be incomplete as the details relating to environment settings for the proposed site has not been furnished.

iii. As per the records submitted, no alternate site details were furnished whereas PP during presentation referred three alternative sites for the proposed unit without any review by established methods of site selection.

iv. There are lots of trees in the proposed site that would be cut as observed from KML file and site photographs submitted during the presentation.

v. Management of phenolic water and tar recovered from PGP has not been described.

vi. ***Kukia RF is only 400 m from plant****.*

vii. 10 Nos of IFs are proposed (4x10 and 6x 15T capacity) to produce 0.43 MTPA steel which are having high pollution potential. PP should explore feasibility of installation of higher configuration of Induction Furnace."

11. As against above, the minutes of the reconstituted EAC dated 11-12 November, 2021 show that ToRs have been recommended without considering validity of permission granted by the DFO for cutting of the trees and also the pollution potential as earlier considered. There is no change of circumstance for revisiting decision of EAC dated 26.2.2021. Thus, grant of TOR is prima facie vulnerable.

12. Further, permission for felling of trees by the DFO is prima facie against the mandate of law laid down in judgement of the Hon'ble Supreme Court in *T.N Godavarman (Supra)* and *Lafarge Umiam Mining Pvt. Ltd (Supra)*. The said view has been reiterated inter alia in TN Godavarman (2014) 4 SCC 61, BDA v. Sudhakar Hegde (2020) 15 SCC 63 and TN Godavarman (2022) 4 SCC 289. When there are large number of trees in the land, it has to be treated as forest notwithstanding its description as 'barren' in revenue record. Thus, matter is governed by the Forest (Conservation) Act, 1980 attracting prohibition against its use for non forest purpose without requisite Forest Clearance (FC) from Central Government on consideration of Forest Policy 1988 and other relevant

factors including that such activity will have adverse impact on animal habitat and elephant movement which view finds mention in minutes of EAC dated 26.2.2021 which is not shown to have been duly considered.

13. Thus, there being prima facie strong case in favour of the applicants, we continue the interim order dated 08.10.2021 and also direct that no further steps for the project be taken by the PP without requisite EC and permissions. Process of consideration by EAC ignoring earlier view dated 26.2.2021 will be illegal. At the same time, instead of straightaway quashing the project at this stage, we consider it necessary to obtain an independent appraisal of the issue in the interest of protection of the environment under section 15 read with section 20 of the NGT Act, 2010.

14. Accordingly, we constitute a joint Committee of nominee of DG Forest, MoEF&CC (not below the rank of ADG), Integrated Regional Officer of MoEF&CC, Bhubaneshwar, PCCF (HoFF), Odisha, Chief Wildlife Warden, Odisha and the District Magistrate, Sundergarh. The Committee may undertake visit to the site, ascertain impact of the project on the wildlife, forest and environment including the adjoining rivers and other environmentally sensitive areas. The Committee may meet within one month. It will be free to associate any other individual/institution/agency and interact with the stake holders. The nodal agency for coordination and compliance will be the Integrated Regional officer of MoEF&CC, Bhubaneshwar for coordination and compliance. The Committee may give its report within two months by email to the NGT Registrar, EZB by email with a copy thereof to the PP. The report may also be placed on the website of Integrated Regional Office of MoEF&CC for being accessed by the applicants or any other interested persons who will be free to respond to the report before the next date. The EC proceedings will remain stayed till further orders.

List for further consideration on 19.05.2023.

A copy of this order be forwarded to the DG Forest, MoEF&CC, Integrated Regional Officer of MoEF&CC, Bhubaneshwar, PCCF (HoFF), Odisha, Chief Wildlife Warden, Odisha and the District Magistrate, Sundergarh by email for compliance.

I.A. No. 01/2022/EZ is for assessing number of trees and suitability of area for the project which will stand disposed of in terms of the above order. **I.A No. 29/2022/EZ** is for revoking ToR which cannot be straightway directed but is to be considered after the report is received. The IA is disposed of. **I.A. No. 193/2022/EZ** is for action against the PP for violations which matter will be considered after the report is received. The said IA is also disposed of.

Adarsh Kumar Goel, CP

Sudhir Agarwal, JM

B. Amit Sthalekar, JM

PROF. A. Senthil Vel, EM

Dr. Afroz Ahmad, EM

February 07, 2023
Original Application No. 94/2021/EZ
& I.A. No. 01/2022/EZ
I.A No. 29/2022/EZ
I.A. No. 193/2022/EZ
AB

Tel : 2564033/2563924
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Email :.paribesh1@ospcboard.org
Website :www.ospcboard.org

STATE POLLUTION CONTROL BOARD, ODISHA

[Department of Forest, Environment & Climate Change Govt. of Odisha]

Paribesh Bhawan, A/118, Nilakanthanagar, Unit-VIII, Bhubaneswar – 751012

No. 11670 **/ IND-II-PH-1017** **Dated** 5-07-2022

By Speed Post

To

The Secretary
Ministry of Environment, Forest &Climate Change
Govt. of India, Indira Paryavaran Bhawan,
Jorbagh Road, New Delhi-110003.

Sub: Proceedings of Public Hearing for M/s KAI International Pvt. Ltd. for Greenfield Project for installation of Iron Ore Beneficiation Plant -1.5 MTPA throughput (1.16 MTPA High Grade Ore), Iron Ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant 27,000 Nm^3/hr at village Kapanda under Lahunipara Tehsil of Sundargarh District-reg.

Sir,

Inviting a reference to the above, this is to inform that Public Hearing of the above mentioned project proposed by **M/s KAI International Pvt. Ltd.** was conducted **on 24-05-2022 at 10.00 A.M Football Play Ground, Bad-Purunapani Village of Sundargarh District** in accordance with the Ministry of Environment, Forest & Climate Change, Govt. of India, EIA Notification No. SO-1533(E) dt.14.09.2006.

As per the above Notification, notice inviting comments, views, objection, and suggestions from the public in respect of the above project was published in newspapers namely **"The Times of India" and "The Samaja" on 22.04.2022.**

Further 47 nos. of representations was received during Public Hearing and 4 Nos. representations received directly by the Board which is enclosed herewith for kind reference and further action during the consideration of Environmental Clearance

A copy of the proceedings of the Public Hearing along with the following documents is enclosed for kind information and necessary action at your end.

1. Video CD of Public Hearing.
2. Statement of issues raised by Public Hearing meeting and comments of applicant prepared in local language and in English.
3. Copies of the newspaper advertisement.
4. List of persons who participated in the public hearing.
5. Views and suggestions from the public received by the Board during the Public Hearing.
6. 47 (Forty-seven) nos. of representations was received during Public Hearing and 4(Four) Nos. representations received directly by the Board

Yours faithfully,

Encl: As above

MEMBER SECRETARY
P.T.O

Memo No 11671 **/dt.** 5-7-2022

Copy along with copy of the proceedings of Public Hearing forwarded to the **Addl. Chief Secretary, Department of Forest, Env & Climate Change, Govt. of Odisha** for kind information and necessary action.

Encl: As above

Addl. Chief Env. Engineer

Memo No 11672 **/dt.** 5-7-2022

Copy forwarded to the **Additional Director, Eastern Regional Office, MoEF & CC Govt. of India**, A-3, Chandrasekharpur, Bhubaneswar for kind information and necessary action.

Encl: As above

Addl. Chief Env. Engineer

Memo No 11673 **/dt.** 5-7-2022 **(By Speed Post)**

Copy along with copy of proceedings of Public Hearing forwarded to **The Director, M/s KAI International Pvt. Ltd., CCC-23, Civil Township, Rourkela – 769 094** for information.

Encl: As above

Addl. Chief Env. Engineer

PROCEEDINGSOF PUBLIC CONSULTATION (HEARING) FOR GREENFIELD PROJECT OF M/S K A I INTERNATIONAL PVT. LTD., FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT – 27,000 NM^3/HR AT VILLAGE KAPANDA UNDER TAHASIL OF SUNDARGHARH DISTRICT HELD ON DATED 24.05.2022 (10.00AM) AT BAD PURNAPANI, FOOTBALL PLAYGROUND BLOCK – LAHUNIPARA, OF SUNDARGARH DIST. (ODISHA)

The public hearing meeting for Iron Ore Beneficiation Plant – 1.5 MTPA Throughput (1.16 MTPA high grade ore), Iron Ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 NM3/hr, held on dated 24.05.2022 (10.00am) at Bad-Purnapani, Football playground block – Lahunipara, of Sundargarh District. Sri Pradeep Dang, Sub-collector, Bonai of Sundargarh district had presided over the meeting. At the outset, Dr. Binod Bihari Dash, Regional Officer, State Pollution Control Board, Odisha, Rourkela delivered welcome address, organised and conducted the public hearing meeting in association with District Administration.

The Public hearing in respect of the above greenfield project was conducted as per the schedule and at the venue in accordance with EIA Notification S.O.1533(E) dtd.14.09.2006 and subsequent amendment therein. The Public Hearing meeting with regards to date, place and time was announced in public address system apart from its publication in local dailies. The process followed for the public hearing was adequate. The attendance sheet of the public present in the meeting is annexed herewith in **ANNEXURE-I.** Around 300 nos. of persons attended the public hearing meeting and two hundred seventy two (272) Nos. of persons have signed in attendance sheet. Eighty nine (89) nos. of persons had delivered their views whose list and their signature is given in **ANNEXURE-II**.

Dr. B.B. Dash, Regional Officer, State Pollution Control Board, Rourkela had welcomed the Public &explained about the importance of such hearing and also invited views, comments, objections & opinions of the public which are necessary while considering the environmental clearance of the project and he also told that those who want to give their written statement about the proposed projects, they can do so. He had also reminded / requested the public to follow the COVID-19 guidelines on wearing the mask and on maintaining the social distance during Public hearing those have been issued by the State Government. He briefly mentioned about the green field project of M/s. K A I International Pvt. Ltd. to setup

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Iron Ore Beneficiation Plant – 1.5 MTPA Throughput (1.16 MTPA high grade ore), Iron Ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 NM3/hrin the land allotted by IDCO. He welcome and requested the Sub-Collector, Bonai to preside over and to conduct for the public hearing smoothly.

After that the Sub-Collectror, Bonai had briefly described about the project and invited the project proponent of M/s. K A I International Pvt. Ltd. And Mr. Hari Hara Dash, Project Head had described about the proposed greenfield project of Iron Ore Beneficiation Plant – 1.5 MTPA Throughput (1.16 MTPA high grade ore), Iron Ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 NM3/hr, salient features of the proposed project and Environmental Management Plan, Pollution Control Measures to be adopted during mining operation, Blasting procedure, Plantation Programme and various other peripheral development activities and contribution towards increase of State revenue etc. to be carried out during the course of production. The salient features of the project is given as follows;

Project Proposal: M/s K A I International Pvt. Ltd. proposes for Setup Iron Ore Beneficiation Plant – 1.5 MTPA Throughput (1.16 MTPA high grade ore), Iron Ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 NM3/hrover an area of 19.319 ha land leased out from IDCO, Bhubaneswar.

Location: Kapanda Village Tehsil - Lahunipara, Sundargarh District, Odisha

PROJECT DETAILS:

S. No.	Particular	Details
1	Type of project	Greenfield Project
2	Mining Lease area	19.319 ha (Leased out from IDCO, Bhubaneswar) Kisam - Patit
3	Production Capacity	Iron Ore Beneficiation Plant – 1.5 MTPA Throughput (1.16 MTPA high grade ore), Iron Ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 NM3/hr

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BONAI

4	Total water requirement & source	665 KLD water required which will be sourced from Brahmani River Blow down water will be used for road sprinkling & plantation
5	Power requirement & source	The total power requirement for the proposed project is 12 MW which will be sourced from nearest GRID Purnapani substation (3.70 km ESE)
6	Greenbelt & Plantation area	An area of 21.69 Acre (i.e, : 45 % of the total project area) will be covered under greenbelt /plantation.
7	Manpower requirement	Total employment generation (direct and indirect) will be of 500 persons. 280 will be direct employment.
8	Project cost	Rs. 341.72 Crores
9	Environment protection cost	EMP capital cost is Rs. 18.72 Crores & Recurring cost is Rs. 1.24 Crores/ Annum
10	National Parks/ Wildlife Sanctuaries	NONE.

DESCRIPTION OF THE ENVIRONMENT

The baseline data is generated within 10 km radius for air, water, soil, noise & ecological studies. The baseline environmental data were generated for Post Monsoon period i.e. October to December 2021 by conducting field monitoring / studies.

Met. Data

The data was collected in the post monsoon season. The pre dominant wind direction was found to be NW followed by NE. The major change was noticed between the site specific meteorological data & IMD data. The baseline monitoring locations were selected as per the data collected. The summary is mentioned below.

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Summary of Ambient Air monitoring (October to December 2021)

Particulate Matter (PM_{10}):

- A maximum value of 81.3 μg/m^3 was observed atAAQ-8 (Rajamunda village) as NH-520 is passing by and the market area of Rajamunda village is adjacent.
- The minimum value of 32.4 μg/m^3 was observed at Project Site (AAQ-1).
- The average values were observed to be in the range of 38.3 (AAQ1) to 73.4 (AAQ8) μg/m^3 and the 98% tile was observed by in the range of 42.1 (AAQ1) to 80.4 μg/m^3 (AAQ8).
- PM_{10} at each selected location is well within the limit which is in accordance with geography of the vicinity as there are no major industries or densely populated area.

Particulate Matter ($PM_{2.5}$):

- A maximum value of 44.2 μg/m^3 was observed atAAQ-8 (Rajamunda village).
- The minimum value of 17.8 μg/m^3 was observed at Project Site (AAQ-1).
- The average values were observed to be in the range of 20.8 (AAQ1) to 39.7 (AAQ8) μg/m^3 and the 98% tile was observed by in the range of 22.8 (AAQ1) to 43.6 μg/m^3 (AAQ8).

Sulphur Dioxide (SO_2):

- Maximum concentration of SO2 is observed to be 14.2 μg/m3 at AAQ-8 (Rajamunda village) and minimum value is <4.0 μg/m3 observed at AAQ-1 (Project Site).
- The average values were observed to be in the range of 4.8 μg/m3 to 12.2 μg/m3 and the 98% tile was observed by in the range of 5.5 μg/m3 to 14 μg/m3.

Oxides of Nitrogen (NO_x):

- Maximum concentration of NO2 was observed to be 25.2 μg/m3 at AAQ-8 at Rajamunda Village and minimum value is <9.0μg/m3 observed at AAQ-1 (Project Site).
- The average values were observed to be in the range of 10.5 μg/m3 to 22.1 μg/m3 and the 98% tile was observed by in the range of 11.7 μg/m3 to 24.5 μg/m3.

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Carbon Monoxide (CO):

- Maximum concentration of CO is observed to be 0.51 mg/m3 at AAQ-8 (Rajamunda Village) and minimum value of 0.12 mg/m3 observed at AAQ-1 (Project Site) & AAQ-5 (Nuagaon Village).
- The average values were observed to be in the range of 0.16 to 0.42 mg/m3 and the 98% tile was observed by in the range of 0.21 to 0.5 mg/m3.

Ambient Noise(October to December 2021)

- The day time and night time noise level in the study area was found to be under permissible limit.
- The maximum noise level was recorded at N-7 (Panchayat High School, Kapanda Village) during day time and at N-6 (Bagiabahal village) during night time.

Surface Water(October to December 2021)

- Colour ranges from 5 Hazen to 35 Hazen. pH varies between 7.25 (SW2) to 8.03 (SW6).
- DO values at SW2 & SW3 locations are very low i.e. 2.8 & 3.6 mg/l which signify that these two ponds which signifies the probable presence of phyto-plankton and it require water impairment to make the aquatic animals survive. On the other hand the BOD values at these locations are 5.0 & 4.3 respectively.
- At all the locations the Oil and Grease is absent. Turbidity varies from 3.0 mg/l at SW6 to 29.4 mg/l at SW11.
- The chloride content at the locations is well within the permissible limits. TDS is also well within the prescribed standard.
- Heavy metals such as Lead, Arsenic, Cadmium etc. are below detectable limit.
- Maximum Fluoride content is 0.35 mg/l at SW11.
- Phenolic compounds are below detection limit in all the Surface water result.
- Total coliform ranges from 11 MPN/100 ml at SW2 to 47 MPN/100 ml at SW3 which is also within permissible range.

Ground Water(October to December 2021)

- The odour and taste at all the locations are agreeable. Maximum color of 65 Hazen observed at GW7 which exceeds the permissible limit and correspondingly the turbidity is 64.7 NTU which signifies the contamination of ground water due to the

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presence of any kind of clay, silt, very tiny inorganic and organic matter, algae, dissolved colored organic compounds.

- pH varies from 6.6 at GW1 to 7.85 at GW5. The Iron content is high at GW7 i.e. 2.2 mg/l.
- Total hardness ranges from 73 mg/l (GW1) to 325 mg/l (GW4).
- Heavy metals such as Lead, Arsenic etc. is below BDL at all the locations.
- These values shows that overall the ground water is safe for domestic purpose in surroundings of the project area, but for safer side it is recommended to treat the water especially of the location GW& (Budhikutuni Village) Shall be treated prior to use.

Soil Environment (October to December 2021)

- The soil sample shows pH ranging between 6.63 to 7.16.
- The samples analysis of Soil by method of HLS Tandon shows the soil to be sandy clay loam at all location except at S4 & S6 where it was found to be sandy clay.
- Conductivity ranges from 21.8 µS/cm to 106.3 µS/cm at S3 & S4 respectively.
- Porosity of the soil at all locations is observed to be in between 50.94%- 55.47%. Moisture content is found to be in between 0.11% to 0.83 %.
- Chloride ranges from 38 mg/kg to 152 mg/kg.
- Nitrogen content varies from 17.45 mg/kg to 23.28 mg/kg. Organic carbon varies from 0.29 % to 0.78 %.

Land use / land cover of Study area

- Forest – The study area has a decent cover of deciduous forest due to proper rainfall in the district. It accounts for 42.25% of the total area as Samaradari Juniani PF, Dhenkiam RF, Nalaghati RF, Bhagoth RF covers the major forest land in the vicinity.
- Scrubland – Scrubland being an area covered with low trees & bushes covers mostly 40.6% of total area. The buffer zone is nearly 83% covered by either Forest land or Scrub land.
- Water Bodies – The study area is dominated by Brahmani River which starts from the North and ends in the SE direction passing through the project site in the west direction. Total area covered by water bodies is about 2.19%.
- Built-up Land – All of the settlements in the area are industrial and rural type, which covers the 3% of total land in buffer area. There are no major cities in the study

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area as the Western part of the buffer zone is mainly constituted by Hill & RF/PF. Majority of the population resides in the Eastern part as it is flat terrain area.

- Agriculture Land – This encompasses for about 8.6% of the entire study area. It is mostly alongside the river bank of Brahmani River.

Ecological Features

There are no endangered or endemic wildlife species in the area. Different family of trees, climbers and herbs/shrubs are found in the study area. Fauna includes Mammals, Reptiles, Fish & birds. Birds in the impact area are all under Schedule-IV.

Socio Economic Environment

Major Observation of the Socio-Economic Data/Information:

- Adequate School and Educational Institutes with low literacy rate of 59.74 %. This is primarily due to the language barrier as 57.38 % of the Population within the study area Scheduled tribes.
- Piped Water supply needs to be strengthened within the Study Area especially for the margimalized and under-developed.
- Irrespective of road connectivity (54.54 % of villages are connected with National/State Highway and villages connected with District's major roads are concluded to be 43.93 %), public transportation is very limited.
- The Health Care facility is also limited with partial resources for the population within the 10 kms radius from the project plant. VHND/Mamata Diwas and Pustikar Diwas are being regularly organized.
- Agriculture, NTFP & Daily Wages is primary occupation for majority of the population residing in the villages within 10 Kms of radius from the project site. However, Livestock rearing is also practiced and boosted by setting-up of Dairy plant.

Anticipated Environmental Impacts and Mitigations

Impact on Air Environment

Impacts is envisaged during demolition stage, construction and operation stage.

Demolition & Construction Stage

- No demolition work is envisaged.

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- Deterioration of air quality due to fugitive dust emissions from construction activities (especially during dry season) like excavation, back filling and concreting, hauling and dumping of earth materials and from construction spoils.
- Emission of gaseous pollutants due to operation of heavy vehicles and movement of machineries and equipment for material handling, earth moving, laying of sands, metal, stones, asphalt, etc.

Mitigation

- Proper maintenance of vehicles and construction 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 and construction site will prevent fugitive dust. Vehicles and machineries would be regularly maintained so that emissions conform to standards of Central Pollution Control Board (CPCB).
- Materials will be stored in covered warehouses or enclosed spaces to prevent the windblown fugitive emissions.
- Adequate dust suppression measures such as regular water sprinkling at vulnerable areas of construction sites will be undertaken to control fugitive dust during material handling and hauling activities.
- Monitoring of air quality at regular intervals will be conducted during construction phase.
- Construction workers will be provided with dust masks to protect them from inhaling dust.

Operation stage Impact

During operation phase, major sources of air pollution are:

- Raw material and product handling areas.
- Production process.
- Movement of Vehicles.
- The operational phase of the project comprises of various activities each of which will have an impact Air Quality. Both Dust & Gaseous emissions are likely to be emitted. The key emissions from the proposed Project are emissions due to Particulate Matter, Sulphur dioxide (SO2), Nitrogen dioxide (NO2) & CO.
- The Producer Gas plant will be operated in close circuit with provision of filters to arrest dust particles in the gas stream. So there will not be any emissions from the PGP.

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Mitigation

Installation of proper pollution control equipment like ESPs/Bag filters for arresting emissions. Details have been provided in Table.

All the vehicles carrying materials will be covered with tarpaulin / plastic sheet. Only vehicles with valid PUC certificate will be allowed.

Air pollution Control Equipment details

Section	Source	Air Pollution Control
Beneficiation Plant	Raw material handling and storage	Provision of wind break walls near raw material storage area Periodic water sprinkling on Raw material storage area.
	Belt Conveyors	Covering of belt conveyors Provision of water sprinklers at transfer points
Pellet Plant	Raw material handling	Induration Furnace ESP
	Coke Grinding	Raw material handling Bag filter
	Proportioning system	Coke Grinding Bag Filter
	Induration furnace Travelling Grate	Proportioning system Bag Filter
	Hearth Layer Separation Building	Finished product handling Bag Filter
	Finished product handling	Hearth Layer Separation Building
Producer Gas Plant	Coal gasification chamber	Closed circuit plant with provision of gas filtration systems.

Dispersion Modelling- Summary

- During the Uncontrolled condition maximum predicated GLC for the PM10 was observed to be 38.2 µg/m3 at location AAQ7. However, the maximum cumulative GLC will be 105.61- µg/m3 at AAQ8 location. Which is due to existing baseline condition, project activity, increase in traffic movement as it is near to the intersection point of NH 23 & 215 and meteorological factors.
- During the Controlled condition maximum predicated GLC for the PM10 was observed to be 0.8 µg/m3 at location AAQ7. However, the maximum cumulative

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GLC will be 80.7 µg/m3 at AAQ7 location. Which is due to existing baseline condition, project activity and meteorological factors.

- During the Uncontrolled condition maximum predicated GLC for the PM2.5 was observed to be 26.5 µg/m3 at location AAQ7. However, the maximum cumulative GLC will be 62.29 µg/m3 at AAQ8 location.
- During the Controlled condition maximum GLC for the PM2.5 was observed to be 0.5 µg/m3 at location AAQ7. However, the maximum cumulative GLC will be 43.9µg/m3 at location AAQ7.

Impact on noise & vibration environment

Demolition

- No demolition work is envisaged.

Construction phase

During construction phase, noise will mainly be due to civil work activities, construction of internal road, installation of machineries etc. Other activities which will contribute to ambient noise level will be movement of vehicles for transportation of construction material, equipment & also for to & fro of manpower. But this will be temporary in nature & will not last for too long.

Operation phase

During Operation Phase the sources of noise& vibration are running equipment viz. Exhaust fans, vibratory screens, ball mill, compressors, pumps, cooling towers, etc. It may be due to poor lubrication, worn out parts, loosened nuts/ bolts, improper foundation and its mountings, flattened springs support etc. The noise can also be generated due to other ancillary activities and movements of vehicles on roads, highways etc.

The Noise Level near the machinery will be maintained below 85 dB (A) and the expected noise levels at the project boundary will be maintained below 75 dB (A) during day time & 70 dB (A) during night time.

Vibrations are generated in the machines due to moving / rotating parts.

Whole body vibration (WBV) is mainly concerned with large shocks or jolts when there is a risk of injury to the back and usually applies to workers in the sitting or standing position

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when travelling in mobile machinery over rough surfaces for extended periods. The major health problem associated with WBV is back pain.

Mitigation measures for Noise & Vibration Environment

Demolition

Noise abatement - Machinery deployed during demolition activities

- Demolition activities will be restricted as per Noise (Regulation & Control) Rules 2000 i.e. Daytime: 6 am to 10 pm.
- To control the noise, regular preventative maintenance of equipment to be carried out. Regular and proper maintenance of noise generating machineries to avoid noise increase.

Construction phase

- Personal Protective Equipment (PPE) such as earplugs, earmuffs etc. will be provided to construction personnel exposed to high noise levels as preventive measures by contractors and will be strictly adhered to minimize / eliminate any adverse impact.
- It will be ensured that all the construction equipment and vehicles used are in good working condition, properly lubricated and maintained to keep noise within the permissible limits and engines turned off when not in use to reduce noise.

Operational phase

- Silencers will be provided in the machineries generating high noise.
- Green belt/plantation will be developed all along the project boundary.
- Regular monitoring of noise level is carried out and corrective measures in concerned machinery will be adopted accordingly.
- The overall aim towards control of noise pollution is not only to restrict the ambient and work zone noise within the specified norms but also to have minimum noise above the prevailing ambient noise levels in the vicinity of the pellet plant.

The following control measures will be adopted in the plant to minimize the impacts due to vibrations:

- Procurement of less vibration generating machines/equipment.
- Periodic preventive maintenance of all the machines/equipment.
- Provision of suitable hand gloves & safety shoes to operators.

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- Provision of vibration absorbing seats in transportation and other heavy vehicles.
- Periodic training to operators on how to prevent health problems caused by vibration.
- Periodic medical examination of the workers.
- Periodic vibration monitoring at major equipment, where operators are directly exposed to vibrations.
- Periodic vibration monitoring at major equipment, where operators are directly exposed to vibrations.

Impact on land Environment

Construction phase

The company has already acquired land. The project site is more or less leveled land. Thus there will be not much cutting or filling required. The demolition waste generated will be used for land filling purpose inside the project boundary as the western side which is hilly and covered with trees will be retained as it is and gap plantation will be done to increase the plantation density and also to check the soil erosion.

Operation Phase

During operation phase there is a possibility of soil contamination due to storage of raw materials, oil and grease and end products because of leaching.

Mitigation measures for land environment

Apart from change in land use, no adverse impact is envisaged. Minor construction work will not affect the topography. Pollution control measures for air and water would ensure low risk of land contamination. Materials will be stored on concrete floor or floor with impervious liners. Material storage area garland drains will collect the surface run-off and routed to clari-flocculator and then reused.

Impact on Water Environment

Construction phase

Surface water runoff problem will be the sole impact which can affect the water quality through washing off excavated soil or soil erosion. Only oil and grease due to vehicle movement during construction phase may impact the surface water bodies. Adequate drainage system for runoff water will be provided to overcome such problem.

SUB-COLLECTOR
BONAI

Operation phase

The net water requirement for the proposed project is 665 KLD which will be sourced from Brahmani River. Process effluent from beneficiation process will be treated in thickener and will be recycled in beneficiation process. Domestic waste water will be treated in STP of 15 KLD capacity. There will also effluent generation from producer gas plant. Which will betreated within the gassifier system as mentioned in chapter 2. As the project is proposed to have Zero Liquid Discharge (ZLD), no negative impact is envisaged on any surface water bodies in nearby areas. Surface flow of water may cause the surface water to be contaminated mainly with inorganic solids, either in suspension or solution, e.g., oil, grease etc. Groundwater extraction is not proposed.

Mitigation measures for Water Environment

Construction phase- Control of water pollution

- Quality of construction wastewater emanating from the construction site will be controlled through temporary drainage system with sediment traps (silting basin as water intercepting ditch) for arresting the silt / sediment load before its disposal.
- All the washable construction material will be stored under sheds or enclosed space by fencing it with brick or earth in order to prevent spillage into the drainage network, so that the same does not find its way into the surface water runoff.
- The sediment traps and storm water drainage network will be periodically cleaned and especially before monsoon season.

Operation phase

Domestic waste of around 10.71 KLD will be generated which will be treated in STP of 15 KLD capacity. Phenolic water from PGP will be treated in gassifier system.

Sewage Treatment Plant:STP of 15 KLD with MBBR technology will be used to treat 10.71 KLD domestic sewage. The treated water will be recycled and reused for dust suppression & plantation purposes.

Solid & Hazardous waste Management

Beneficiation Plant		
Solid waste	TPA	Disposal

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Tailing	3,40,000	Dewatered and stored in slime/tailing storage area, then disposed to construction contractors for road & construction filings. And the collected water will be recycled in process.
Pellet (including PG) Plant		
Solid waste	**TPA**	**Disposal**
Fines collected from ESP/Bag filters	45,927	Will be recycled in pellet plant along with concentrate
Ash from PGP	21213	To road construction contractors / masonry blocks manufacturing (Rourkela – 40 kms)
Tar	2828	Sold to Authorized Coal tar processing units (Shriya Chemicals, Rourkela 40 km)

Hazardous Waste – Category, Quantity & Disposal

Category of Hazardous Waste as per the Schedules I, II & III of these rules	Waste Description	Quantity	Mode of Disposal
Schedule- I Sl. No.- 5.1	Used Oil	1.5 KLA	Stored and disposed to Authorized recyclers as per norms (Shriya Metals & Chemicals, Rourkela 40 km)
Schedule- I Sl. No.- 4.1	Oily Sludge	0.25 KLA	Stored and disposed to Authorized recyclers/CHWTSDF as per norms
Schedule- I Sl. No.- 5.2	Oil Wastes/ Residues Containing Oil		
Schedule- I Sl. No.- 19.1	Phenolic water	6.42 TPA	Dedicated system will be provided to treat, neutralize and reuse wastewater within the gasifier system and the phenol will be sent to Authorized Recyclers/ Processors

Analysis Of Alternatives

The following three alternative sites have been considered for the proposed plant before finalizing the site.

- Kapanda
- Raikela

SUB-COLLECTOR BONAI

- Lauposh

Feasibility criteria for selecting the Site 1:

- The total number of trees present within the plant boundary is near to 3972 in site 1 from which 260 no of trees to be transplanted/felled.
- The Brahmaniriver which will be the source of water is adjacent (1.65 km) to the site.
- National Highway is 3.1 km from the site.
- Power Grid (Purunapani sub-station) is 3.70 km. `

Rejection criteria for not selecting Site 2 & Site 3:

In site 2:

- Trees present within the plant boundary is 23,467 no.,
- Trees coming in main plant is more.
- The land is hilly terrain area (MSL 370 m – 444 m) and Dense forest.
- NH & SH are more than 10 km from the site.

In site 3:

- Habitations are near to plant boundary,
- Trees present in boundary 15,442 no. (MSL 209 m – 289 m)
- OMC Power GRID is 8 km from the site.
- Distance from Koida Iron ore mine 22 km.

Analysis of Alternate technologies

- Travelling Grate & Grate-Kiln-Cooler are the universal processes for indurations of green pellets using hematite iron ores.
- Travelling grate technology will be adopted.

Environmental Monitoring Program

The monitoring and evaluation of the management measures envisaged are critical activities in implementation of the Project. Monitoring involves periodic checking to ascertain whether activities are in accordance with the plans. It provides the necessary feedback for project management to keep the program on schedule. The purpose of the environmental monitoring plan is to ensure that the envisaged purpose of the project is achieved and results have desired benefits.

SUB-COLLECTOR
BONAI

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 EIA.
- To suggest improvements in Environmental management plan, if required.
- To enhance environmental quality.
- To implement and manage the mitigative measures defined in EMP.
- To undertake compliance monitoring of proposed project operation and evaluation of mitigative measure.
- Control of activities inside the plant, until the environmental problem has been corrected.
- Suitably respond to emergency situations. Provide details of the emergency and the actions taken to the top management
- Suitably make modifications or alterations in the plant to meet regulatory standards as amended from time to time.

Cost for EMP is discussed below-

Estimated Cost of Environment Monitoring Plan

Sl. No.	Particulars	Total (in Rs. Lakhs)	
		Capital	Recurring per annum
1	Cost of monitoring of environmental parameters for Air, Water and Noise	40	38.0
2	Occupational Health & Safety (Surveillance of H&S and monitoring of Worker's health)	20	6.0
3	Plantation (Monitoring)	-	1.5
4	Performance evaluation of Pollution Control Equipment	10	12.0
Total		**70**	**57.5**

SUB-COLLECTOR
BONAI

Project Benefits

- Improvement in physical infrastructure, Improvement In social Infrastructure Employment Potential- Skilled; Semi-Skilled and Unskilled
- Additional housing demand for rental accommodation will increase
- Cultural, recreation and aesthetic facilities will also improve.
- Improvement in communication, transport, education, community development and medical facilities.
- Overall change in employment and income opportunity.

Environmental Management Program

During Construction

- All washable construction material will be stored under sheds or enclosed space to prevent spillage into the drainage network
- Use of covered trucks
- Regular water sprinkling at vulnerable areas of construction site and roads
- Construction waste generated will be disposed by use for leveling of pre-identified low lying areas within the plant.

During Operation

- All APCDs designed / upgraded to meet PM emissions of < 30 mg/Nm3
- Dust suppression consisting of water sprinkling facilities, dry fog and De dusting systems.
- Heavy noise generating equipment like – blowers/fans, crushers, compressors provided with acoustic barriers/ enclosures.
- Provision of PPEs, ear plugs/muffs provided to personnel working close to the noise generating equipment.
- ZLD systems will be implemented in the proposed plant.
- Process effluent from Beneficiation plant is recycled and kept in closed circuit through thickeners, so that there is no discharge of wastewater.
- STP based on MBBR technology for treatment of domestic wastewater.

The Regional Officer, SPCB then invited the public to put forth their views, suggestion, comments and objections on matters relating to environmental aspects of the project. **Fourth Seven Nos.** (47) of written representation has been received and annexed in **Annexure-III**. The video recording of the

SUB-COLLECTOR
BONAI

meeting was done. **Eighty nine (89) nos**. of speakers opined their views which are given as follows:

1) **Sri GetaCharan Dash, Kapanda:-**Sri Dash welcome all to the public hearing and extent his support to the public hearing for project. He demanded for local employment for the youth, medical facility for the villagers and development of local villages under CSR activity.

2) **Sri Bibhuti Bhusan Padhi, Rajamunda:-** Sri Padhi welcome all and supported the public hearing for the propose project. He stated that lots of mining project is situated in Bonai Sub Division area and local people are facing difficulties due to non availability of iron based industry. He demanded for environment protection, local employment as per their qualification, road development and education and health care facilities in Bonai area.

3) **Sri Bishnu Chandra Kisan, Kapanda:** Sri Kisan welcome all and extent his support for the public hearing of the project. He stated that local youths are going abroad for employment and due to propose project local youths will be benefit. He demanded for improvement on road network, local employment as per their qualification, drinking water facility, medical and emphasize on education facility for the local villagers.

4) **Sri Bikram Patra, Kapanda**:- Sri Patra welcome all and supported the public hearing of the project. He demanded for improvement on road network, local employment as per their qualification, drinking water facility, medical and emphasize on education facility for the local villagers.

5) **Sri Rajesh Kumar Dash, Kapanda** – Sri Dash welcome all. He extent his support for the project in the public hearing. He expressed that they are excited due to establishment of proposed plant by M/S KAI International and expect that the project proponent will cooperate with local people. He demanded for development of road, employment, education and environment facility for the local villagers.

6) **Sri Kandru Kishan, Nuapada**- Sri Kishan welcome all and supported the public hearing. He expressed that local employment opportunities will be created after establishment of proposed plant.

SUB-COLLECTOR
BONAI

7) **Sri Surendra Kumar Kumbhar**, **Kapanda:-** Sri Kumbhar Secretary of Jay Jagannath Seva Trust welcome all and extent his support for the public hearing. He demanded to project proponent for improvement in unemployment situation along with development in road, education & good health of local public.

8) **Sri Raju Kishan, Kapanda:-** Sri Kishan support the hearing and demanded for overall village development, local employment and better education facility to the villagers.

9) **Sri Siba Charan Kishan, Kapanda--** Sri Kishan extent his support for the public hearing and demanded for village social & economical development. He also expressed that the demand raised by the previous speaker shall be implemented by the project proponent.

10) **Smt. Sandhyarani Das, Kapanda**- Smt. Das welcome all and extend her support to the public hearing. She demanded for development in education facility of the youth in Kapanda village.

11) **Smt. Binapani Das, Kapanda** -Smt. Das welcome all and support the public hearing.

12) **Smt. Jayanti Sahu, Kapanda**- Smt. Sahu extend her support for the hearing due to generation of employment opportunities along with improvement in education and health care facilities. She also expressed that the drunker people of local village will be benefitted by engaging in the proposed plant.

13) **Sri Anadicharan Bagarti, Kapanda**- Sri Bagarti extends his support with local employment for youth.

14) **Sri Umesh Kishan, Kapanda**-Sri Kishan extend his support with local employment for youth and demanded to focus on environment protection.

15) **Sri Trilochan Majhi, Badapurnapani-** Sri Majhi welcome all and extend his full support for the public hearing. He expressed his happiness for the local people and demanded to provide local employment.

16) **Sri Motilal Sahu, Kapanda**- Sri Sahu extends his support for the public hearing. He stated that the local body and local migrant worker will get employment after establishment of industry.

SUB-COLLECTOR
BONAI

17) **Sri Millan Chandra Mahanta, Lahunipada**- Sri Mahanta welcome all and extend his full support and demanded for local employment, health facility, supply of clean drinking water and plantation of trees in vacant government land.

18) **Smt. Sunita Kishan, Kapanda**- Smt. Kishan extend her support for the project due to employment to unemployed youth.

19) **Smt. Rashmita Patra, Kapanda**- Smt. Patra extend her support for the public hearing due to employment to educated unemployed youth.

20) **Smt. Laxmi Kishan, Kapanda**-Smt. Kishan extend her support for the public hearing with employment to educated unemployed youth.

21) **Sri Sadhu Oram, Ward Member, Bad Purnapani**-Sri Oram support the public hearing with employment to local youth people.

22) **Sri Debasis Mahanta, Kapanda**- Sri Mahanta extend his support for the public hearing.

23) **Sri Patel Patra, Kapanda**- Sri Patra welcome all and extend his support for the public hearing for local employment and better health and education facility.

24) **Sri Budhu Kishan, Kapanda**- Sri Kishan supported the hearing and stated that development of road, health, education will take place due to the propose project.

25) **Sri Biswanath Kishan, Kapanda**- Sri Kishan supported the public hearing with emphasis on local employment by project proponent.

26) **Smt. Sabita Patra, Kapanda-** Smt. Patra welcome all and extend his support for the project and requested plant authority to emphasize on eradication of unemployment.

27) **Sri Kandi Charan Munda, Lahunipada** - Sri Munda welcome all and extend his support for the public hearing.

28) **Smt. Anita Munda, Patajharan**- Smt. Munda opposed the public hearing due to deforestation of their forest and they are dependent on forest as forest gives seasonal fruits, honey etc. She stated that they will cultivate in their forest land and they will manage their livelihood. She expressed that due to air pollution the leafs are being black and water is being polluted and aquaculture are

SUB-COLLECTOR
BONAI

affected. She also stated that due to lack of educated people in their locality employment generation will be negligible.

She also stated that due to industry people are affected from kind disease and if they are propose o setup they may establish the industry in Kapanda village not in their forest area.

29) **Smt. Archana Kishan, Kapanda-** Smt. Kishan extends her support for the public hearing for local employment opportunities due to the upcoming project in this area.

30) **Smt. Saraswati Kishan, Kapanda**- Smt. Kishan welcome all and extended her support for the project and requested project proponent to employee the local unemployed people.

31) **Sri Laxman Munda, MLA, Bonai**- Hon'ble Sri Munda welcome all and extend his support for the public hearing. He expressed that project proponent shall take care the local tribal people for their livelihood, environment protection, priority to engage local tribal people as per their educational qualification and financial supports during all local festival & cultural programmes by KAI International.

32) **Sri Kamal Lakra, Banki**- Sri Kamal extend his support and demanded to emphasis on Environment protection, health, education of villagers. He also stated that due to propose project the local people will get employed and he requested all villagers to support the proposed project.

33) **Smt. Mamata Kishan, Kapanda-** Smt. Kishan extends her support with demand for employment to educated villagers.

34) **Sri Gayadhar Kishan, Nuagaon-** Sri Kishan welcome all extend his support and demanded for all types of developmental works in favour of the local villagers.

35) **Sri Meghu Patra, Bonai-**Sri Patra welcome all and extend his support and request to laid emphasis on Road development.

36) **Smt. Srimati Kishan, Kapanda-** Smt. Kishan extend her support for the upcoming project.

SUB-COLLECTOR
BONAI

37) **Sri Changa Oram, Sarpanch, Bad Purnapani**-Sri Oram extend his support for the public hearing and expressed that the project proponent shall implement the issues raised by previous speaker.

38) **Sri Narendra Kishan, Nuagaon**-Sri Krishna welcome all and extend his support for the public hearing.

39) **Sri Manik lal Jaiswal, Rajamunda**- Sri Jaiswal welcome all and expressed that they are happy for the project. He stated that if steel plant was established in Bonai earlier, local people were benefitted and their livelihoods were much better. He stated that due to establish the company the whole district of Sundargarh as well as other local area will be benefitted as per their qualification and their experience. He supported the public hearing.

40) **Smt. Gomati Kishan, Kapnda**- Smt. Kishan extend her support to the public hearing with local employment.

41) **Sri Duryodhan Kishan, Nuagaon** - Sri Kishan extend his support and demanded for employment of local people with local village development.

42) **Sri Judishthira Tripathy, Gadhiali**- Sri Tripathy welcome all and expressed that labour class migrate worker, educated & qualified local people will be benefitted socially & economically due to the upcoming project. He requested that plant authority shall take steps for air pollution, water pollution, road development and priority on local employment.

43) **Sri Duryodhan Mahanta, Darjing**- Sri Mahanta extend his support and demanded for local employment opportunity for local people of Darjing Villages, health & free ambulance facility and supply of clean drinking water facility.

44) **Sri Prana Krushna Kishan, Nuagaon**- Sri Kishan extend his support for the public hearing. He started that tribal people residing in Badbahal village are facing difficulties due to the propose project. The innocent tribal people should not suffer due to the propose project. He demanded that all the poor tribal people should be given first job opportunities and priority should be given to the affected for development shall be given to local tribal people. He requested district Administration & project proponent to take care the tribal people.

45) **Smt. Julni Kandir, Lahunipada -** Smt. Kandir welcome all and extend her support to the public hearing for proposed project.

SUB-COLLECTOR
BONAI

46) **Smt. Sumati Munda, Lahunipada**- Smt. Munda welcome all and supported the public hearing.

47) **Sri Bhimsen Choudhury, Ex-MLA, Bonai**- Sri Choudhury welcome all and supported the public hearing. He stated that not only 1000 local people will directly engage however, around 5000 people will get income opportunities directly or indirectly after implementation of the project. He requested project proponent for plantation of fruit bearing trees, dust pollution control measures and employment of local people. He also thanks to the state government to choose this village for the upcoming project.

48) **Sri Ranjeet Kumar Sahu, Rajamunda**- Sri Sahu extend his support and expressed that value of land will increase after establishment of plant as well as good roads will also be build. He stated that lots of development work has already been conducted by the project proponent. He requested plant authority to construct road from Tikayatpali village to main plant gate.

49) **Sri Santanu Kumar Dash, Bhaludungari** -Sri Dash extend his support for the public hearing for employment of local people. He requested plant management and District Administration to develop the eight affected villages and provide financial as social support.

50) **Sri Kanhuch. Kisan, Gadapali**- Sri Kishan supported the public hearing. He demanded to provide an ESI medical in Bonai area, compensation to land looser & affected villagers, road development, electricity and fruit bearing trees plantation on vacant government land to abate pollution.

51) **Smt. Laxmi Kishan, Rajamunda** - Smt. Kishan welcome all extend her support for the public hearing and demanded local employment educated people will get engaged as per their qualification and Transportation system will get improved.

52) **Sri Parsuram Mahanto, Kapanda**- Sri Mahanto extend his support for the public hearing.

53) **Smt. Kishori Bagarti, Kapanda-** Smt. Bagarti extend his support for the public hearing.

54) **Smt. Baulo Kisan, Kapanda**- Smt. Kishan extend his support for the public hearing.

SUB-COLLECTOR
BONAI

55) **Smt. Beronika Munda, Patta Jharan**- Smt. Munda opposed the public hearing due to damage of agricultural land which leads to pollution. She also stated that they are not well educated and they will not grab the employment opportunity.

56) **Sri Narayan Kumbhar, Samirpali**- Sri Kumbhar supported the public hearing. He demanded for artificial environment, plantation & employment to local youth.

57) **Sri Pradeep Ku. Behera, Rajamunda**- Sri Behera welcome all then extend his support and demand for priority to local people for employment, clean drinking water facility, construction of Road, and club house for villages.

58) **Smt. Kuanri Jojo, Pattajharan**- Smt. Jojo opposed the project due to establishment of industry in forest area. The industry will generated the Methane, Ethane, green houses gases and other toxuic gases which will harmful for mankind and leading to global warming. She stated that deforestation with establishment of sponge iron industry in forest area is illegal.

59) **Sri Chalat Ku. Panda, Rajamunda** -Sri Panda supported the public hearing.

60) **Sri Bijay Kumar Kisan, Kapanda-** Sri Kisan extend his support for the public hearing.

61) **Sri Luthar Oram, Lahunipada** -Sri Oram extend his support for the public hearing and stated that the country will develop with establishment of industry.

62) **Smt. Rashmi Munda, Pattajharan-**Smt. Munda oppose the public hearing due to deforestation and increase of pollution in their area. She stated that due to deforestation they have loose all the medicinal plant and cultivation.

63) **Sri Fakir Mohan Sahu, Kapanda -**Sri Sahu extend his support and demanded development of tribal local village and education facility under CSR scheme and eradication of unemployment.

64) **Sri Govinda Mahakud, Kapanda -** Sri Mahakud extend his support for the public hearing.

65) **Sri Chitaranjan Patra, Kapanda** -Sri Patra extend his support for the public hearing.

66) **Smt. Namita Mahanto, Lahunipada -** Smt. Mahanto supported the project and request for establishment of an ITI College in Bonai area.

67) **Sri Rajendra Barik, Kapanda-** Sri Barik welcome all and extend his support and expressing his happiness for engagement of local migrants worker.

SUB-COLLECTOR
BONAI

68) **Sri Rushi Ku. Munda, Badbahal-** Sri Munda welcome all and extend his support for the public hearing and demanded for allotment of Patta to the land less people.

69) **Sri Bijay Patra, Kapanda:-** Sri Patra extend his support for the public hearing.

70) **Sri Asish Kumar Kar, Tumakela:-** Sri Kar welcome all and support the public hearing and demanded for Land Patta to the land less people.

71) **Sri Biranchi Narayan Sahu, Gamlei:** - Sri Sahu extend his support for the upcoming project.

72) **Smt. Nuadei Kisan, Nuagaon:-** Smt. Kisan oppose the public hearing for degradation of environment due to rapid industrialization.

73) **Smt. Anita Jojo, Patajharan**:- Smt. Jojo oppose the project for increase of air pollution by tree cutting.

74) **Sri Chakradhar Sahu, Gamlei:-**Sri Sahu extend his support for the public hearing.

75) **Sri Bhajan Kishan, Jibikaposh**- Sri Kishan supported the public hearing and requested for free education and employment.

76) **Sri Manas Kumar Pal, Tumkela**:- Sri Pal extend his support for the public hearing and the upcoming project and demand for generating employment.

77) **Sri Sashank Ku. Nanda, Bonai**:-Sri Nanda extend his support for the public hearing.

78) **Sri Karunakar Sahu, Gamle:-** Sri Sahu support the public hearing and demand for ESI medical.

79) **Sri Ashutosh Jaiswal, Banki**- Sri Jaiswal welcome all and extend his support to setup the project by M/s. KAI International Pvt. Ltd. and suggested to establish another plant at Gurundia block.

80) **Sri Kuleswar Kishan, Rajamunda:-** Sri Kishan supported the hearing and demand for eradication of all the problem of the locality.

81) **Sri Jagabandhu Kisan, Nuagaon:-** Sri Kisan extended his support for the public hearing.

82) **Sri Pradumna Tripathy, Bonai** - Sri Tripathy extended his full support and expressed that KAI group will solved all the problem of locality.

SUB-COLLECTOR
BONAI

83) **Sri Sudhansu Ch. Tripathy, Gudiali**- Sri Tripathy extend his support for the public hearing.

84) **Sri Singray Munda, Darjing**- Sri Munda support the public hearing and laid emphasis on transportation and requested for plantation of more trees to save the environment.

85) **Sri Susanta Mundari, Badapurnapani** - Sri Mundari extend his support for the public hearing.

86) **Sri Ashok Ku. Behera, Rajamunda** -Sri Behera extend his support for the public hearing.

87) **Sri Sundarmani Pradhan, Banarkela**-Sri Pradhan extend his support for the public hearing and demanded for engagement of local people on priority basis.

88) **Smt. Sevati Nayak, Samardari** -Smt. Nayak extend her support and demand that all the problem of local people should be solved by the company administration.

89) **Sri Kumar Goutam Barik, Arkeikela** -Sri Barik supported the public hearing and expressed that KAI group has a huge project so more people will be engage. He also requested project proponent for plantation of trees, road development, generating employment and abatement of pollution.

The Sub Collector, Bonai then elaborated on the issues raised by the public and requested M/s. K A I International Pvt. Ltd. to explain people on the issues. Sri Hemant Kumar Pati, Manager (HR) of M/s. K A I International Pvt. Ltd. Clarify the issues raised by the people which are listed in the executive summaries at Annexure – A and B in English and Oriya language respectively which were read before the audience in Odia language in public hearing meeting. Sri B. K. Bhoi, Asst. Env. Engineer of State Pollution Control Board, Odisha Regional Office Rourkela extended vote of thanks and Sub collector gave closing remarks and the meeting was concluded with expression the meeting.

Senior Environment Scientist and Regional Officer
State Pollution Control Board, Odisha,
Regional Office, Rourkela

Regional Officer
State Pollution Control Board Odisha
ROURKELA

Sub-Collector, Bonai
Sundargarh, Odisha

SUB-COLLECTOR
BONAI

Annexure-A

EXECUTIVE SUMMARY OF PUBLIC CONSULTATION (HEARING) OF M/S K A I INTERNATIONAL PVT. LTD., OF GREENFIELD PROJECT OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT – 27,000 NM^3/HR HELD ON DATED 24.05.2022 (10.00AM) AT FOOTBALL PLAY GROUND, BAD PURNAPANI VILLAGE, BLOCK–LAHUNIPARA, OFSUNDARGARH DIST. (ODISHA)

Sl. No.	Issues raised by Public	Comments of the Project Authority
1	**Environment:** • Air & Water pollution control. • Control of dust Pollution in the locality due to transportation. • Fruit bearing trees Plantation in vacant government land. • Damage of agricultural land due to establishment of industry. • Generation of Toxic gases like Ethane, Methane etc which will leads to global warming.	• Company will provide adequate air pollution control measures like ESP, Bag filters and other dust suppression system. Company will also provide waste water treatment system to control water pollution. • Company will provide water sprinkling system mobile water tankers in transporting road and dust suppression system as well as inside the plant premises to control dust pollution. • Company will carried out plantation in co-ordination with Forest Department, & road development authority, Govt. of Odisha.
2.	**Employment:** • Priority on employment to local tribal people in the company on priority basis and employment to local educated youth as per their qualifications.	• Employment opportunity will be there as per the skill and qualification. Local public will be given priority for employment.
3.	**Peripheral Development**	
	a) Education: Emphasize on tribal people education and development of school infrastructure.	Company will support for financial assistance to the school for infrastructure development and assistance for qualified teacher deployment in the school to be made as per recommendation of school & village committee.
	b) Road Development: Connecting road improvement from Tikayatpali to Kapanda village main plant gate.	Company will take up the matter by pursuing the matter through Govt. of Odisha for the improvement on road condition and its maintenance.

SUB-COLLECTOR
BONAI

	c) Supply of drinking water facility Drinking water facility at nearby local villages	Company will provide bore well with Syntax tank for drinking water facility as per requirement through CSR activities.
	d) Health and medical facility: ➢ **ESI Hospital in Bonai area.** ➢ **Free ambulance facility**	Company will provide ambulance for the emergency medical treatment and. Regular health camp for the nearby village will be conducted by Company authority.
	e) **Electrification of street lights:**	Electrification as well as renovation work will be conducted by company as per requirement through village committee. Wherever possible, solar light will be provided.
	f) Club House	Company will construct club house in the local villages as per requirement & consultation with village committee.
	g) Compensation to land losers	
	h) Financial assistance for local Cultural events	Company will provide financial assistance to village committee for the cultural & social activity.
	i) Facility for the displaced family (R&R)	The m\land has provided by IDCO, Gvt of Odisha and in propose project there will not be any families for displacement.
	j) Road condition improvement	Necessary repair and revamping of connecting road would be taken up as per the consultation of Govt. Department.

KAI INTERNATIONAL PVT. LTD.

Director,
DIRECTOR
M/s KAI International (P) Ltd.,
Sri Suresh Agrawal

Regional Officer
Odisha S.P.C.B., Rourkela
Regional Officer
State Pollution Control Board Odisha
ROURKELA

Sub-Collector
Bonai, Dist.: Sundargarh, Odisha
SUB-COLLECTOR
BONAI

ସଂଲଗ୍ନ - କ

ମେସର୍ଶ କାଇ ଇଣ୍ଟରନେସନାଲ ପ୍ରାଇଭେଟ ଲିମିଟେଡ୍‌ର କପଣ୍ଡ ଗ୍ରାମରେ ୧.୫ ଏମଟିପିଏ କ୍ଷମତା ବିଶିଷ୍ଟ ଆଇରନ ଓ ବେନିଫିକେଶନ ପ୍ରକଳ୍ପ ଥ୍ରୋପୁଟ (୧.୧୬ ଏମଟିପିଏ ଉଚ୍ଚମାନ ଯୁକ୍ତ ଓର୍), ୧.୨ ଏମଟିପିଏ କ୍ଷମତା ବିଶିଷ୍ଟ ଆଇରନ ଓର ପେଲେଟାଇଜେଶନ ପ୍ରସ୍ତାବିତ ପ୍ରକଳ୍ପ ର ଜନ ପରାମର୍ଶ (ଶୁଣାଣି) ର କାର୍ଯ୍ୟନିର୍ବାହୀ ସାରାଂଶ ।

ସ୍ଥାନ: ସୁନ୍ଦରଗଡ ଜିଲ୍ଲା ଲହୁଣୀପଡ଼ା ବ୍ଲକ ଅନ୍ତର୍ଗତ ବଡପୁରୁଣାପାଣି ଗ୍ରାମର ଫୁଟବଲ ଖେଳପଡ଼ିଆ ।

ତାରିଖ: ୨୪-୦୫-୨୦୨୨ (ଦିବା ୧୦:୩୦ଘଟିକା) ।

ସଂଖ୍ୟା	ଜନସାଧାରଣଙ୍କ ଦ୍ୱାରା ଉଠାଯାଇଥିବା ପ୍ରସଙ୍ଗ ଗୁଡିକ	ପ୍ରକଳ୍ପ ଅଧିକାରୀଙ୍କ ମନ୍ତବ୍ୟ
୧	**ପରିବେଶ:** ➢ ବାୟୁଏବଂ ଜଳପ୍ରଦୂଷଣ । ➢ ପରିବହନ ହେତୁ ସ୍ଥାନୀୟ ଅଞ୍ଚଳରେ ଧୂଳି ପ୍ରଦୂଷଣକୁ ନିୟନ୍ତ୍ରଣ କରନ୍ତୁ । ➢ ଖାଲି ସରକାରୀ ଜମିରେ ଫଳ ଉତ୍ପାଦନ କରୁଥିବା ବୃକ୍ଷରୋପଣ । ➢ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ହେତୁ କୃଷି ଜମିର କ୍ଷତି । ➢ ଇଥେନ, ମିଥେନ ଇତ୍ୟାଦି ବିଷାକ୍ତ ଗ୍ୟାସର ଉତ୍ପାଦନ ଯାହା ଗ୍ଲୋବାଲ ୱାର୍ମିଂକୁ ବଢାଇଥାଏ ।	➢ କମ୍ପାନୀ ଇ.ଏସ.ପି, ବ୍ୟାଗଫିଲ୍ଟର ଏବଂ ଅନ୍ୟାନ୍ୟ ଧୂଳିଦମନ ପ୍ରଣାଳୀ ପରି ପର୍ଯ୍ୟାପ୍ତ ବାୟୁପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ପଦକ୍ଷେପ ପ୍ରଦାନ କରିବ । ➢ ଜଳ ପ୍ରଦୂଷଣକୁ ନିୟନ୍ତ୍ରଣ କରିବା ପାଇଁ କମ୍ପାନୀ ବର୍ଜ୍ୟଜଳ ବିଶୋଧନ ବ୍ୟବସ୍ଥା ମଧ୍ୟ ଯୋଗାଇବ । ➢ ଜଳସିଞ୍ଚନ ପ୍ରଣାଳୀ କାରଖାନା ପରିସର ଭିତରେ ରହିବ। ଆବଶ୍ୟକତା ଅନୁଯାୟୀ କମ୍ପାନୀ ଭ୍ରମଣଶୀଳ ଟ୍ୟାଙ୍କର ଦ୍ୱାରା ଜଳସିଞ୍ଚନ କରିବଏବଂଧୂଳି ନିୟନ୍ତ୍ରଣ ପ୍ରଣାଳୀ କମ୍ପାନୀ ପରିସର ଭିତରେ ରହିବ। ➢ ଜଙ୍ଗଲ ବିଭାଗ ଏବଂ ସଡକବିକାଶ କର୍ତ୍ତୃପକ୍ଷ, ଓଡିଶା ସରକାରଙ୍କ ସହ ସମନ୍ୱୟରେ କମ୍ପାନୀ ବୃକ୍ଷରୋପଣ କରିବ। ➢ କମ୍ପାନୀ ଦ୍ୱାରା କୌଣସି ଚାଷ ଜମି କ୍ଷତି କରାଯିବ ନାହିଁ।
୨	**ରୋଜଗାର:** ପ୍ରାଥମିକତା ଆଧାରରେ କମ୍ପାନୀରେ ସ୍ଥାନୀୟ ଆଦିବାସୀ ଲୋକଙ୍କୁ ନିଯୁକ୍ତି ଏବଂ ସେମାନଙ୍କ ଯୋଗ୍ୟତା	➢ ଦକ୍ଷତା ଏବଂ ଯୋଗ୍ୟତା ଅନୁଯାୟୀ ନିଯୁକ୍ତିର ସୁଯୋଗ ରହିବ । ➢ ରୋଜଗାର ପାଇଁ ସ୍ଥାନୀୟ ଜନସାଧାରଣ ଙ୍କୁ ପ୍ରାଥମିକତା ଦିଆଯିବ ।

SUB-COLLECTOR
BONAI

	ଅନୁଯାୟୀ ସ୍ଥାନୀୟ ଶିକ୍ଷିତ ଯୁବକମାନଙ୍କୁ ନିଯୁକ୍ତି ଉପରେ ପ୍ରାଥମିକତା ।	
୩	ପାରିପାର୍ଶ୍ୱିକ ବିକାଶ:	
	କ) ଶିକ୍ଷା: ଆଦିବାସୀ ମାନଙ୍କ ଶିକ୍ଷା ଏବଂ ବିଦ୍ୟାଳୟର ଭିତ୍ତିଭୂମି ବିକାଶ ଉପରେ ଗୁରୁତ୍ୱ ଦିଆଯିବ ।	➢ ଭିତ୍ତିଭୂମି ବିକାଶ ପାଇଁ ବିଦ୍ୟାଳୟକୁ ଆର୍ଥିକ ସହାୟତା ଏବଂ ବିଦ୍ୟାଳୟ ତଥା ଗ୍ରାମ କମିଟିର ସୁପାରିଶ ଅନୁଯାୟୀ ବିଦ୍ୟାଳୟରେ ଯୋଗ୍ୟ ଶିକ୍ଷକ ନିୟୋଜନ ପାଇଁ କମ୍ପାନୀ ସହାୟତା କରିବ । ➢ ବିଦ୍ୟାଳୟ ଏବଂ ଗ୍ରାମ କମିଟିର ସୁପାରିଶ ଅନୁଯାୟୀ କମ୍ପାନୀ ପୁସ୍ତକ, ଖାତା, କଲମ, ପେନ୍ସିଲ ଇତ୍ୟାଦି ଅଧ୍ୟୟନ ସାମଗ୍ରୀ ଯୋଗାଇବ ।
	ଖ) ରାସ୍ତାବିକାଶ: ଟିକାୟତ ପାଲିରୁ କପଣ୍ଡ ଗାଁ ମୁଖ୍ୟ ପ୍ଲାଣ୍ଟ ଫାଟକ ପର୍ଯ୍ୟନ୍ତ ରାସ୍ତାର ଉନ୍ନତିକରଣ କରିବ ।	ସଡକ ସ୍ଥିତିର ଉନ୍ନତି ତଥା ଏହାର ରକ୍ଷଣାବେକ୍ଷଣ ପାଇଁ କମ୍ପାନୀ ଓଡିଶା ସରକାରଙ୍କ ଦ୍ୱାରା ଏହି ମାମଲା ଅନୁସରଣ କରିବ।
	ଗ) **ପାନୀୟ ଜଳ ସୁବିଧା ଯୋଗାଣ :** ନିକଟସ୍ଥ ଗ୍ରାମ ଗୁଡିକରେ ପାନୀୟଜଳ ସୁବିଧା ।	ସି.ଏସ୍.ଆର କାର୍ଯ୍ୟକଳାପ ମାଧ୍ୟମରେ ଆବଶ୍ୟକତା ଅନୁଯାୟୀ ପାନୀୟଜଳ ସୁବିଧା ପାଇଁ କମ୍ପାନୀ ସିଷ୍ଟାକ୍ସଟ୍ୟାଙ୍କ ସହିତ ଗଭୀର ନଳକୂଅ ଯୋଗାଇବ ।
	ଘ) **ସ୍ୱାସ୍ଥ୍ୟ ଏବଂ ଚିକିତ୍ସା ସୁବିଧା:** • ବଣାଇ ଅଞ୍ଚଳରେ ଇ.ଏସ.ଆଇ ଡାକ୍ତରଖାନା । • ମାଗଣା ଆମ୍ବୁଲାନ୍ସ ସୁବିଧା ।	ଜରୁରୀ କାଳୀନ ଚିକିତ୍ସା ପାଇଁ କମ୍ପାନୀ ଆମ୍ବୁଲାନ୍ସ ଯୋଗାଇବ ଏବଂ ନିକଟଗ୍ରାମ ପାଇଁ ନିୟମିତ ସ୍ୱାସ୍ଥ୍ୟ ଶିବିର ସି.ଏସ୍.ଆର ସ୍କିମ୍ ଅଧୀନରେ କମ୍ପାନୀ କର୍ତ୍ତୃପକ୍ଷଙ୍କ ଦ୍ୱାରା ପରିଚାଳିତ ହେବ।
	ଙ) **ଷ୍ଟ୍ରିଟ ଲାଇଟ ବ୍ୟବସ୍ଥା ସହ ବିଦ୍ୟୁତିକରଣ ।**	ଗ୍ରାମ କମିଟି ମାଧ୍ୟମରେ ଆବଶ୍ୟକତା ଅନୁଯାୟୀ ବିଦ୍ୟୁତିକରଣ ଏବଂନବୀକରଣ କାର୍ଯ୍ୟ କମ୍ପାନୀ ଦ୍ୱାରା ପରିଚାଳିତ ହେବ ।ଯେଉଁଠାରେସମ୍ଭବ, ସୌର ଚାଳିତ ଆଲୋକ ଯୋଗାଇ ଦିଆଯିବ ।
	ଚ) **କ୍ଲବ୍ ଘର ନିର୍ମାଣ ।**	ସି.ଏସ୍.ଆର ସ୍କୀମ ଯୋଜନା ଅନୁଯାୟୀ ଗ୍ରାମ କମିଟି ସହିତ ପରାମର୍ଶ କରିବା ପରେ ଆବଶ୍ୟକତା ଅନୁଯାୟୀ କମ୍ପାନୀ ସ୍ଥାନୀୟ ଗ୍ରାମଗୁଡିକରେ କ୍ଲବ୍ ଘର ନିର୍ମାଣ ।
	ଛ) ସ୍ଥାନୀୟ ସାଂସ୍କୃତିକ କାର୍ଯ୍ୟକ୍ରମ	ସାଂସ୍କୃତିକ ତଥା ସାମାଜିକ କାର୍ଯ୍ୟକଳାପ ପାଇଁ କମ୍ପାନୀ

SUB-COLLECTOR
BONAI

	ପାଇଁ ଆର୍ଥିକ ସହାୟତା ।	ଗ୍ରାମ କମିଟିକୁ ଆର୍ଥିକ ସହାୟତା ପ୍ରଦାନ କରିବ |
	ଜ) ବିସ୍ଥାପିତ ପରିବାର ପାଇଁ ସୁବିଧା ।	ଇ.ଡ୍.କୋ, ଓଡିଶା ସରକାର ଦ୍ୱାରା ଏହି ଜମି ଯୋଗାଇ ଦିଆଯାଇଛି ଏବଂ ପ୍ରସ୍ତାବିତ ପ୍ରୋଜେକ୍ଟରେ କୌଣସି ପରିବାର ବିସ୍ଥାପିତ ହେଉ ନାହାନ୍ତି |
	ଝ) ସଡକ ସ୍ଥିତିର ଉନ୍ନତି ।	ସରକାରୀ ବିଭାଗ ର ପରାମର୍ଶ ଅନୁଯାୟୀ ସଂଯୋଗ ରାସ୍ତାର ଆବଶ୍ୟକ ମରାମତି ଏବଂ ନବୀକରଣ କାର୍ଯ୍ୟ ଗ୍ରହଣ କରାଯିବ |

KAI INTERNATIONAL PVT. LTD.

DIRECTOR

ନିର୍ଦ୍ଦେଶକ

କାଇ ଇଣ୍ଟରନେସନାଲ ପ୍ରାଇଭେଟ ଲିମିଟେଡ୍

Sri Suresh Agarwal

ଆଞ୍ଚଳିକ ଅଧିକାରୀ,

ଓଡ଼ିଶା ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ,

ରାଉରକେଲା

Regional Officer
State Pollution Control Board Odisha
ROURKELA

ଉପ-ଜିଲ୍ଲାପାଳ, ବଣେଇ,

ଜିଲ୍ଲା: ସୁନ୍ଦରଗଡ, ଓଡ଼ିଶା

SUB-COLLECTOR
BONAI

SUB-COLLECTOR
BONAI

To,

The Member Secretary State Pollution Control Board, Odisha

Sub : (Support to the establishment of Industry at Kapanda Village)

Sir,

With due respect & humble submission we the villagers of Kapanda & Nearby villager, and also the public representatives of Badpurunapani G.P. of Lahunipara Block beg to state that in the matter of Installation of Industry at village Kapanda, we are very happy because our area is a backward region and much of the youth are unemployed. But after KAI INTERNATIONAL PVT. LTD. came to our area to establish the said industry after due allotment of land by IDCO, one public is hearing going to be held on 24.05.2022 as per publication of your department for the said project. We extended our full support to establish the said industry and we have got NO OBJECTION if the industry will establish at Kapanda for the interest of local people. Now some antisocial people are continuously oppose to establish the said industry without having any sufficient cause. They are creating disturbance in the area. That if the said Industry will establish the local unemployed youth will get service as per their qualification, the company will take up many development project in the periphery & massive plantation in the area.

Therefore we request you kindly look into the matter and allow KAI INTERNATIONAL PVT. LTD. to establish the industry as soon as possible for the interest for the general public and tribal people and for the same we shall remain grateful to you.

Your faithfully

Sarapanch
Badpurunapani G.P

24

ସେବା ସମିତି,କପଣ୍ଡ

ଗ୍ରାମ-କପଣ୍ଡ,ବ୍ଲକ-ଲହୁଣିପଡା,ଜିଲ୍ଲା-ସୁନ୍ଦରଗଡ,ଓଡିଶା,୭୭୦୦୫୦

ପତ୍ରାଙ୍କ..... ତାରିଖ.....

Changer Oram
Sarapanch
Badpurunapani G.P

Malati Kisan (Naib Sarapanch) W.M (4)
Prasanta Kumar Kisan. W.M Nuagaon (03)
Sushanta Mundari P.S Member, Badpurunapani
Biswanath Ichsan Kapanda WM (2)

Sabita Patra W.M. Kapanda (1) Word No
Basudev Kisan. W.M Samardunu (7).

Karmu Oram . . W.M. Talbahali (9)
Sumati Oram - W.M. Jaiiani - (10)
Hemalata Kisan - W.M. Gibikaposh (5)
Sudarshan Dhibar - W.M Sali Kudar (11)
Sadhu Oram. W.M Bad purunapani - 06



TYPED COPY

Seba Samiti, Kapanda

Village- Kapanda, Block- Lahunipara, District- Sundargarh, Odisha, 770040

Ref: ..... Date.....

Malati Kisan: (Naib SareaPanch) W.M (4)

Prasanta Kumar Kishan: W.M Nuagaon- 031

Sushanta Mundari: P.S Mebar, Badpurunapani

Biswanath kishan: Kapanda W.M. (2)

Sabita Patra: W.M. Kapanda – (11)

Basudev Kisan: W.M. Samardam (7)

Karmu Oram : W.M. Talbahalu (9)

Sumati Oram – W.M. -Juniani- (10)

Hemalata kisan: W. M. Gibikaposh (5)

Surandra Dhibar- W.M.- Siali Kudara (11)

Sadhu Oram: W.M. Bad Puruna Pari- 06

ସେବା ସମିତି,କପଣ୍ଡ

ଗ୍ରାମ-କପଣ୍ଡ,ପୋ.-ବଡପୁରୁଣାପାଣି.ବ୍ଲକ-ଲହୁଣିପଡା,ଜିଲ୍ଲା-ସୁନ୍ଦରଗଡ,ଓଡିଶା,୭୭୦୦୫୦

କାପଣ୍ଡ ଗ୍ରାମ କାସ୍ତୀ କୃଷି

ପତ୍ରାଙ୍କ.....୨୪/୨୦୨୧ ତାରିଖ.....

1. Siba Charan Kisan.
2. ସତ୍ୟଭାଇ ଗିରୀଜନ
3. ଗଣେଶ୍ୱର ଦୁଆ
4.  Iti of Jamuna Kisan.
5. Kshetrabasi Kisan
6.  Sabasi Kisan.
7.  Life of Surekha Kisan.
8.  L.T.I. of Bipin Kisan.
9. ଦୁଲୁ ଜିରୁକି
10. Tapaswini kisan
11.  L.T.I. of Janami kisan
12. Srimati Kisan
13.  L.T.I. of Sabitri Kisan.
14.  L.T.I. of Dukhi Kisan.
15. Rama Chandra Kisan.

225A

TYPED COPY

Seba Samiti, Kapanda

Village- Kapanda, Post- Badpurunapani, Block- Lahunipara, District- Sundargarh, Odisha, 770040

Ref: ..... Date.....

1. Sd/-
2. Sd/- (Signature in Odia)
3. Sd/- (Signature in Odia)
4. LTI of Jamuna Kisan
5. Sd/-
6. LTI of Sebasi Kisan
7. LTI of Surekha Kisan
8. LTI of Bipen Kisan
9. Sd/- (Signature in Odia)
10. Sd/-
11. LTI of Janami kisan
12. Sd/-
13. LTI of Sabeti Kisan
14. LTI of Dakhi Kisan
15. Sd/-

(16) Tulasi Kisan

(17)  L.T.I of [illegible]

(18) Kanhei Kisan

(19)  L.T.I. of Tara patra.

(20) [illegible]

(21) Sebati patra

(22)  L.T.I. of Bilasa patra

(23) Santosh patra

(24) Dipak Kumar Patra.

(25)  L.T.I. of Mithu Kisan.

(26)  L.T.I. of Parbati Kisan.

(27)  L.T.I of Draupadi Kisan.

(28)  L.T.I of Tirtha Kisan.

(29)  L.T.I of Kanaka Kisan.



2260

TYPED COPY

Seba Samiti, Kapanda

Village- Kapanda, Post- Badpurunapani, Block- Lahunipara, District- Sundargarh, Odisha, 770040

Ref: ..... Date.....

16. Sd/-
17. LTI
18. Sd/-
19. LTI of Tara Patra
20. Sd/- (Signature in Odia)
21. Sd/-
22. LTI of Belasa pasar
23. Sd/-
24. Sd/-
25. LTI of Mitbur kisan
26. LTI of Parbate kisan
27. LTI of Dropodi kisan
28. LTI of Tirtha Kisan
29. LTI of Kandre kisan

ସେବା ସମିତି,କପଣ୍ଡ

ଗ୍ରାମ-କପଣ୍ଡ,ବ୍ଲକ-ଲହୁଣିପଡା,ଜିଲ୍ଲା-ସୁନ୍ଦରଗଡ,ଓଡିଶା,୭୭୦୦୫୦

ପତ୍ରାଙ୍କ..... ତାରିଖ.....

30- RESHMI Hapatra

31 ମୁନ୍ନି ଗାଡ଼

32 Nirmal Kisan

33 Fakir mohan Sahu

34 Tikeswar Kisan

35 Bhakti Kishan

36  L.T. of Jagannath Kisan

37  R.T. of Chandra Kishn

38 Jadumani Kisan

39 Sabita Kisan

40 Ram Kisan

41 Lida Kishan

42 ଦ୍ରୌପଦି କିସାନ

43  Kamala Kishn

44  L.T. of Tikeswar Kishn

45 ସାବୁତ୍ରା ଦଳୁଇ ଜିସାନ

46 Daxi Priya Kisan

TYPED COPY

Seba Samiti, Kapanda

Village- Kapanda, Block- Lahunipara, District- Sundargarh, Odisha, 770040

Ref: ..... Date.....

30. Sd/-

31.Sd/- (Signature in Odia)

32. Sd/-

33. Sd/-

34. Sd/-

35. Sd/-

36. LTI of Jagamohan Kisan

37. LTI of Chandra Kisan

38. Sd/-

39. Sd/-

40.- Sd/-

41. Sd/-

42. - Sd/- (Signature in Odia)

43. LTI of Kamala Kisan

44. LTI of Tekeswar Kisan

45. Sd- (Signature in Odia)

46. Sd/-

ସେବା ସମିତି,କପଣ୍ଡ

ଗ୍ରାମ-କପଣ୍ଡ,ବ୍ଲକ-ଲହୁଣିପଡା,ଜିଲ୍ଲା-ସୁନ୍ଦରଗଡ,ଓଡିଶା,୭୭୦୦୫୦

ପତ୍ରାଙ୍କ..... ତାରିଖ.....

47 Sarna Kisan



48 L-T-1 ଚମ୍ପା କିସାନି

49 Pinki Kisan



50 L-T-1 ଚନ୍ଦ୍ରିକା କିସାନି

51 ଜିଲୁଲି କିସାନ

52 ଶୁଖୁରା କିସାନି

53 KASTURI KISAN

54 Asha Kisan

55 Trilochan Kisan.

56 Kadamtola Kisan



57 L-T-1 ଅନୁପୁର୍ଣା କିସାନି



58 L-T-1 ଶ୍ରୀମତୀ କିସାନି

59 ଧୃତିମଣି ଜୀ କିସାନି



60 L-T-1 - ସତ୍ୟ କିସାନି

61 Bijay Kisan

228A

TYPED COPY

Seba Samiti, Kapanda

Village- Kapanda, Block- Lahunipara, District- Sundargarh, Odisha, 770040

Ref: ..... Date.....

47. Sd/-
48. LTI
49. Sd/-
50. LTI
51. Sd- (Signature in Odia)
52. Sd- (Signature in Odia)
53. Sd/-
54. Sd/-
55. Sd/-
56. Sd/-
57. LTI
58. LTI
59. Sd- (Signature in Odia)
60. LTI
61. Sd/-

ସେବା ସମିତି,କପଣ୍ଡ

ଗ୍ରାମ-କପଣ୍ଡ,ବ୍ଲକ-ଲଫୁଣିପଡା,ଜିଲ୍ଲା-ସୁନ୍ଦରଗଡ,ଓଡିଶା,୭୭୦୦୫୦

ପତ୍ରାଙ୍କ..... ତାରିଖ.....

62 Motilal Sahu
63 Surendra Nayak
64 Indurama Sahu
65 Saradamani Nayak
66 Jubati Nayak
67 Jageswar Sahu
68 LTI Padmabati Sahu
69 Jabinka Sahu
70 Mini Sahu
71 Bibhakar Sahu
72 Surendu Nayak
73 ଛାଲୁ ଘିମ୍ବୁ ଗାଇଁ
74 ଜଗନ୍ନାଥ ହିରା
75 Sraban Jhora
76 Joshobanta Mahanta

1090

22-A

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Seba Samiti, Kapanda

Village- Kapanda, Block- Lahunipara, District- Sundargarh, Odisha, 770040

Ref: ..... Date.....

62. Sd/-
63. Sd/-
64. Sd/-
65. Sd/-
66. Sd/-
67. Sd/-
68. LTI of Padmabati Sahu
69. Sd/-
70. Sd/-
71. Sd/-
72. Sd/-
73. Sd/- (Signature in Odia)
74. Sd/- (Signature in Odia)
75. Sd/-
76. Sd/-

ସେବା ସମିତି,କପଣ୍ଡ

ଗ୍ରାମ-କପଣ୍ଡ,ପୋ.-ବଡପୁରୁଣାପାଣି,ବ୍ଲକ-ଲହୁଣିପଡା,ଜିଲ୍ଲା-ସୁନ୍ଦରଗଡ,ଓଡିଶା,୭୭୦୦୫୦

ପତ୍ରାଙ୍କ..... ତାରିଖ.....

77 Surendra Ku Kumbhar.

78 Anita Kumbhar.

79 Sameer kumbhar

80 Rajendra Barik

81  Uo of Malati Barik

82 ଦ୍ରୌପଦୀ ମାଝି

83  Uo of Jagadish Barik

84 Bideshi Barik

85  Uo of Saraswati Barik

86  Uo of Chamru Kumbhar.

87  Uo of Tara kumbhar.

88 ଲୋଚନ କୁମ୍ଭାର

89 Sakuntala Barik

90 Niranjan Kumbhar

91 ଚାଉଳୀ ମାଝି

TYPED COPY

Seba Samiti, Kapanda

Village- Kapanda, Block- Lahunipara, District- Sundargarh, Odisha, 770040

Ref: ..... Date.....

77. Sd/-
78. Sd/-
79. Sd/-
80. Sd/-
81. LTI of Malati Barik
82. Sd/- (Signature in Odia)
83. LTI of Jagadish Barik
84. Sd/-
85. LTI of Saraswati Barik
86. LTI of Chamir Kumsha
87. LTI of Tara Kumsha
88. Sd/- (Signature in Odia)
89. Sd/-
90. Sd/-
91. Sd/- (Signature in Odia)

ସେବା ସମିତି,କପଣ୍ଡ

ଗ୍ରାମ-କପଣ୍ଡ,ବ୍ଲକ-ଲହୁଣିପଡା,ଜିଲ୍ଲା-ସୁନ୍ଦରଗଡ,ଓଡିଶା,୭୭୦୦୫୦

ପତ୍ରାଙ୍କ..... ତାରିଖ.....

92 Amadu charan Bagarti

93 Kishori Bagarti

94 [illegible]

95 Madan Munda

96 Basanti Munda

97 Ganesh Mahakta

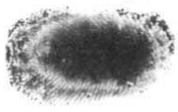
98 Mangemi Mahakta

99 N. Bagarti

100 

101 

102 Dambara dhar Mahanta

103 

104 

105

106 Vesaj chandra Mahanta

107

108 Anil Kumar Mahanta

109 Robinda Mahanal.

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Seba Samiti, Kapanda

Village- Kapanda, Block- Lahunipara, District- Sundargarh, Odisha, 770040

Ref: ..... Date.....

92. Sd/-

93. Sd/-

94. Sd/- (Signature in Odia)

95. Sd/-

96. Sd/-

97. Sd/-

98. Sd/-

99. Sd/-

100.LTI

101. LTI

102. Sd/-

103. LTI

104. LTI

105. Sd/- (Signature in Odia)

106. Sd/-

107. Sd/- (Signature in Odia)

108. Sd/-

109. Sd/-

110 [illegible]

111 Anil Mahanta

112 Tulsi Mahakul

113 Dhaneswar Mahanta

TYPED COPY

110. Sd/- (Signature in Odia)

111. Sd/-

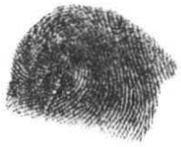
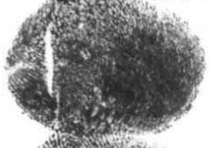
112. Sd/-

113. Sd/-

ସେବା ସମିତି,କପଣ୍ଡ

ଗ୍ରାମ-କପଣ୍ଡ,ପୋ.ଅ-ବଡ଼ପୁରୁଣାପାଣି,ଜିଲ୍ଲା-ସୁନ୍ଦରଗଡ଼(ଓଡ଼ିଶା)ପିନ୍-୭୭୦୦୪୦

ପତ୍ରାଙ୍କ..... ତାରିଖ.....

114 Fakira Mohan Sahu
115 Jayanti Sahu
116 Rohit Kumar Sahu
117 Pradeep Kumar Dash
118 Bamasri Dash
119 Trilochan Dash
120 Jharana Dash
121 Raj Kishor Dash
122 Lopamudra Dash
123 Pankaj Kumar Dash
124 Sandhyarani Dash
125 ଗୁରୁଚାଣ କିସାନ
126  ନଜୀନ କିସାନ
127  ଚୈତନ୍ୟ ସାହୁ
128 Lalita Kisan
129 Chandhari Kisan
130  ଯଶୋଦା ସାହୁ
131  ସୁଶୀଳା ସାହୁ
132 Santosini Sahu
133 Rabinarayan Sahu

1098

23

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Seba Samiti, Kapanda

Village- Kapanda, Block- Lahunipara, District- Sundargarh, Odisha, 770040

Ref: ..... Date.....

114. Sd/-

115. Sd/-

116. Sd/-

117. Sd/-

118. Sd/-

119. Sd/-

120. Sd/-

121. Sd/-

122. Sd/-

123. Sd/-

124. Sd/-

125. Sd/- (Signature in Odia)

126. LTI

127. LTI

128. Sd/-

129. Sd/-

130. LTI

131. LTI

132. Sd/-

133. Sd/-

ସେବା ସମିତି,କପଣ୍ଡ

ଗ୍ରାମ-କପଣ୍ଡ,ପୋ.-ବଡପୁରୁଣାପାଣି,ବ୍ଲକ-ଲହୁଣିପଡା,ଜିଲ୍ଲା-ସୁନ୍ଦରଗଡ,ଓଡିଶା,୭୭୦୦୨୦

ପତ୍ରାଙ୍କ.....

ତାରିଖ.....

134 Budhu Kisan
135 Bishi Kisan
136 ଭଲ୍ଲା ବାସ୍କି
137 Gomati Kisan
138 Sadhu Kisan
139 ଜାଦୁରଭି ଦି କିଷାନ
140 Susnila Kisan
141 Saraswati Kishan
142 Mamata Kisan
143 ଘଣ୍ଟିଦି କିଷାନ
144 Padmini Kisan
145 ଅମିତା କିଷାନ
146
147 Santosh Kisan
148 Ashok Kisan
149 Sarekha Nayak
150
151 ଜମ୍ପୁନ୍ତି କିଷାନ
152 Nakula Kisan
153 Jadu Kisan
154 ପାର୍ବତୀ କିଷାନ
155 Maheswar Kisan

Ltiob ଜାଦୁମଣି କିଷାନ

Ltiob କାର୍ତ୍ତିକ କିଷାନ

Pardeshi Kisan

Ltiob Rajesh Kisan

Ltiob କୁଣ୍ଡୁରୀ କିଷାନ

Ltiob ତୁଳସୀ କିଷାନ

TYPED COPY

Seba Samiti, Kapanda

Village- Kapanda, Block- Lahunipara, District- Sundargarh, Odisha, 770040

Ref: ..... Date.....

134. Sd/-

135. Sd/-

136. Sd/- (Signature in Odia)

137. Sd/-

138. Sd/-

139. Sd/- (Signature in Odia)

140. Sd/-

141. Sd/-

142. Sd/-

143. LTI of Rajesh Kisan

144. Sd/-

145. Sd/- (Signature in Odia)

146. LTI

147. Sd/-

148.Sd/-

149. Sd/-

150. LTI

151. Sd/- (Signature in Odia)

152. Sd/-

153. Sd/-

154. Sd/- (Signature in Odia)

155. Sd/-

ସେବା ସମିତି,କପଣ୍ଡ

ଗ୍ରାମ-କପଣ୍ଡ,ପୋ.-ବଡପୁରୁଣାପାଣି,ବ୍ଲକ-ଲହୁଣିପଡା,ଜିଲ୍ଲା-ସୁନ୍ଦରଗଡ,ଓଡିଶା,୭୭୦୦୫୦

ପତ୍ରାଙ୍କ.....

ତାରିଖ.....

156 Rajesh Kumar Dash
157 Dinabandhu Kallo
158 ଦିନବନ୍ଧୁ ପ୍ରଧାନ
159 ବାସନ୍ତୀ ଟାଳିଆ
160 Pramod ku Kallo
161 ଶାନ୍ତି ପ୍ରଧାନ
162 Sarbana Bhiba
163 ଶ୍ରୀମତୀ ସୁଶୀଳା ଦାଶ
164 Sumitra Bhuiyan
165  → କଣିଷ ଟିପଚିହ୍ନ
166 Hiran Kallo
167 Rita Rani Sahu
168 Sabitree sahu
169 ଶ୍ରୀଜୋଛନ ଜୀବନ୍
170 Geta charan Dash
171 Binapani Dash
172 ସୁଭାଶ୍ରୀନୀ ମାଝୀ
173 Rama Mahanta
174 ପ୍ରମିଳା ମାହାନ୍ତି
175 Sangeeta Dash

295A

TYPED COPY

Seba Samiti, Kapanda

Village- Kapanda, Block- Lahunipara, District- Sundargarh, Odisha, 770040

Ref: ..... Date.....

156. Sd/-

157. Sd/-

158. Sd/- (Signature in Odia)

159. Sd/- (Signature in Odia)

160. Sd/-

161. Sd/- (Signature in Odia)

162. Sd/-

163. Sd/- (Signature in Odia)

164. Sd/-

165. LTI

166. Sd/-

167. Sd/-

168. Sd/-

169. Sd/- (Signature in Odia)

170. Sd/-

171. Sd/-

172. Sd/- (Signature in Odia)

173. Sd/-

174. Sd/- (Signature in Odia)

175. Sd/-

ସେବା ସମିତି,କପଣ୍ଡ

ଗ୍ରାମ-କପଣ୍ଡ,ପୋ.ଅ-ବଡ଼ପୁରୁଣାପାଣି,ଜିଲ୍ଲା-ସୁନ୍ଦରଗଡ଼(ଓଡ଼ିଶା)ପିନ୍-୭୭୦୦୪୦

ପତ୍ରାଙ୍କ..... ତାରିଖ.....

176 Debashis Mahanta
177 Ashish Kumar Maharatta
178 Susama Mahanta
179 Asati Mahanta
180 Prosanta Ku mohanta
181 ଭଣ୍ଡାନି ମାହାନ୍ତି ।
182 Mayadhar Mahata
183 Nilupoma mohanta
184 ଶୀ କ ମାହାନ୍ତି
185 ଫୁଲମତା ମାହାନ୍ତି
186 Gridhari Maharata
187 Harihar Mahanta
188 Minashi Mahanta
189 Santhuna Kumar Patra
190 Bijay patra
191 Ramesh Patra.
192 Santhyarani Patra
193 Santosh kumar Mahanta
194 Rajkishore mahata
195 Tilottama Mohanta
196 Parameswar mahata

TYPED COPY

Seba Samiti, Kapanda

Village- Kapanda, Block- Lahunipara, District- Sundargarh, Odisha, 770040

Ref: ..... Date.....

176. Sd/-

177. Sd/-

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179. Sd/-

180. Sd/-

181. Sd/- (Signature in Odia)

182. Sd/-

183. Sd/-

184. Sd/- (Signature in Odia)

185. Sd/- (Signature in Odia)

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187. Sd/-

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189. Sd/-

190. Sd/-

191. Sd/-

192. Sd/-

193. Sd/-

194. Sd/-

195. Sd/-

196. Sd/-

ସେବା ସମିତି,କପଣ୍ଡ

ଗ୍ରାମ-କପଣ୍ଡ,ପୋ.-ବଡପୁରୁଣାପାଣି,ବ୍ଲକ-ଲହୁଣିପଡା,ଜିଲ୍ଲା-ସୁନ୍ଦରଗଡ,ଓଡିଶା,୭୭୦୦୫୦

ପତ୍ରାଙ୍କ..... ତାରିଖ.....

197 Basanti Chandra Kisan

198 Shiboani Kisan

199 ପୁଷ୍ପାମ୍ବିକା କିସାନ

200  L.T.I ପଶୁପତି ହାସା କିସାନ

201  L.T.I ସୁନାପୁଣ୍ଡ କିସାନ

202 Srimati Kisan
&

203 ଗାଣ୍ଡି କିସାନ

204  L.T.I ଜୋଶୀ କିସାନ

205  L.T.I. ନୂପୁରୀ କିସାନ
& ଘୋଷପାତ୍ର

206

207 ସ୍ମିତି ପାତ୍ର

208 ପ୍ରିୟଦର୍ଶିନୀ ପାତ୍ର

209  L.T.I ସାଜିତା ପାତ୍ର

38A

TYPED COPY

Seba Samiti, Kapanda

Village- Kapanda, Block- Lahunipara, District- Sundargarh, Odisha, 770040

Ref: ..... Date.....

197. Sd/-

198. Sd/-

199. Sd/- (Signature in Odia)

200. LTI

201. LTI

202. Sd/-

203. Sd/- (Signature in Odia)

204. LTI

205. LTI

206. Sd/- (Signature in Odia)

207. Sd/- (Signature in Odia)

208. Sd/- (Signature in Odia)

209. LTI

ସେବା ସମିତି,କପଣ୍ଡ

ଗ୍ରାମ-କପଣ୍ଡ,ପୋ.ଅ-ବଡ଼ପୁରୁଣାପାଣି,ଜିଲ୍ଲା-ସୁନ୍ଦରଗଡ଼(ଓଡ଼ିଶା)ପିନ୍-୭୭୦୦୪୦

ପତ୍ରାଙ୍କ..... ତାରିଖ.....

210 Jogeswar oram

211 [illegible]

212 Sankha Sini oram

213 [illegible]

214 [illegible]

215 Bicay oram.

216 Pooja oram

217 Urasi oram

218 LALi oram

219 [illegible]

220 [illegible]

221 Sarojini oram

222 [illegible] Rajani oram

223 [illegible]

224 [illegible]

225 Sudam oram

226 Chankha oram

227 [illegible]

TYPED COPY

Seba Samiti, Kapanda

Village- Kapanda, Block- Lahunipara, District- Sundargarh, Odisha, 770040

Ref: ..... Date.....

210. Sd/-

211. Sd/- (Signature in Odia)

212. Sd/-

213. Sd/- (Signature in Odia)

214. Sd/- (Signature in Odia)

215. Sd/-

216. Sd/-

217. Sd/-

218. Sd/-

219. Sd/- (Signature in Odia)

220. Sd/- (Signature in Odia)

221. Sd/-

222. LTI

223. LTI

224. Sd/- (Signature in Odia)

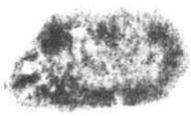
225. Sd/-

226. Sd/-

227. Sd/- (Signature in Odia)







ସେବା ସମିତି,କପଣ୍ଡ

ଗ୍ରାମ-କପଣ୍ଡ,ପୋ.-ବଡପୁରୁଣାପାଣି,ବ୍ଲକ-ଲହୁଣିପଡା,ଜିଲ୍ଲା-ସୁନ୍ଦରଗଡ,ଓଡିଶା,୭୭୦୦୫୦

ପତ୍ରାଙ୍କ..... ତାରିଖ.....

228 Umesh chandra Kisan

229 Roumeshch Kishk

230 Papi Kisan.

231 ଶ୍ୟାମିକି ଖାଲକ

232 ratanmani Barik

233  L.T.9 Jamuna Kisan

234  LT.9. Poama Kisan

235  L.T.9. Khada Kisan

236 Lambodar Kisan

237 Laxmi Kisan

238 ସିବଜି ଖାଲ

239 Sanaswati Kisan.

240 ଅଭିମନ୍ୟୁ ମଝିଆର

241 Laxmi Kisan

242 Sunil Kisan

243 Sasmita Pradhan

244 Sita Kisan

245 Sanjay Sahu

24 M

TYPED COPY

Seba Samiti, Kapanda

Village- Kapanda, Block- Lahunipara, District- Sundargarh, Odisha, 770040

Ref: ..... Date.....

228. Sd/-

229. Sd/-

230. Sd/-

231. Sd/- (Signature in Odia)

232. Sd/-

233. LTI

234. LTI

235. LTI

236. Sd/-

237. Sd/-

238. Sd/- (Signature in Odia)

239. Sd/-

240. Sd/- (Signature in Odia)

241. Sd/-

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244. Sd/-

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ସେବା ସମିତି,କପଣ୍ଡ

ଗ୍ରାମ-କପଣ୍ଡ,ପୋ.-ବଡପୁରୁଣାପାଣି,ବ୍ଲକ-ଲହୁଣିପଡା,ଜିଲ୍ଲା-ସୁନ୍ଦରଗଡ,ଓଡିଶା,୭୭୦୦୫୦

ପତ୍ରାଙ୍କ..... ତାରିଖ.....

246 Seema Mahato

247 [illegible] ସାହାନ୍ତ

248 [illegible] ପ୍ରହ୍ଲାଦ ସାହାନ୍ତ

249 କାର୍ତ୍ତିକା ସାହାନ୍ତ

250 Parsha ram Mahanta

251 ହର୍ଷିଲା ସାହାନ୍ତ

252 [illegible] ଦିହୀ

253 ଚୋଳ ଦିହୀ

254 ଅଗେଶ୍ୱର ସାହାନ୍ତ

255 ଫୁଲ୍ଗୁଲା ସାହାନ୍ତ

256 Paful Patra

257 Sabita Patra

258 Jagan nath Patra

259 Sabaitri Patra

260 ଚଞ୍ଚଳା ସାହୁ

261 [illegible]

262 Bridha Kisan

263 [illegible]

242A

TYPED COPY

Seba Samiti, Kapanda

Village- Kapanda, Block- Lahunipara, District- Sundargarh, Odisha, 770040

Ref: ..... Date.....

246. Sd/-

247. Sd/- (Signature in Odia)

248. Sd/- (Signature in Odia)

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251. Sd/- (Signature in Odia)

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260. Sd/- (Signature in Odia)

261. Sd/- (Signature in Odia)

262. Sd/- (Signature in Odia)

263. Sd/- (Signature in Odia)

ସେବା ସମିତି,କପଣ୍ଡ

ଗ୍ରାମ-କପଣ୍ଡ,ବ୍ଲକ-ଲହୁଣିପଡା,ଜିଲ୍ଲା-ସୁନ୍ଦରଗଡ,ଓଡିଶା,୭୭୦୦୫୦

ପତ୍ରାଙ୍କ..... ତାରିଖ.....

264 Bansidhar Kisan

265 Kanchna Kisan

266 Kumari Janaki Kisan

267 ଲକ୍ଷ୍ମୀ ଚନ୍ଦ୍ର ମହାନ୍ତି

268  Left of Chandrakala Mahanta.

269  Left of Laxman Mahanta.

270 Ajay Mahanta.

271 Guru Bari Kisan

272 Bishnu charan Kisan

273 Meena Kumari Kisan

274 ସୁଧା କାଷ୍ଯପ

275 Ritarani Mahanta.

276 Prakash Kisan

277 ଦିବ୍ଯଜ୍ଯୋତି ଦାଶ

278 Bina Kisan

279 Abhay Kisan

280 Santosh Patra

243A

TYPED COPY

Seba Samiti, Kapanda

Village- Kapanda, Block- Lahunipara, District- Sundargarh, Odisha, 770040

Ref: ..... Date.....

264. Sd/-

265. Sd/-

266. Sd/-

267. Sd/- (Signature in Odia)

268. LTI

269. LTI

270. Sd/-

271. Sd/-

272. Sd/-

273. Sd/-

274. Sd/- (Signature in Odia)

275. Sd/-

276. Sd/-

277. Sd/- (Signature in Odia)

278. Sd/-

279. Sd/-

280. Sd/-

ସେବା ସମିତି,କପଣ୍ଡ

ଗ୍ରାମ-କପଣ୍ଡ,ପୋ.-ବଡପୁରୁଣାପାଣି,ବ୍ଲକ-ଲହୁଣିପଡା,ଜିଲ୍ଲା-ସୁନ୍ଦରଗଡ,ଓଡିଶା,୭୭୦୦୫୦

ପତ୍ରାଙ୍କ..... ତାରିଖ.....

281 ସାବନା ଦୁଲୁଙ୍ଗ ପାତ୍ର

282 ଗୁ ଗୁଁନା ପାତ୍ର

283 ଶ୍ରୀ ରାମ ମିଞ୍ଜ୍ୟ

284 ଜିମାଣୀ ସରସ୍ୱତୀ ମିଞ୍ଜ୍ୟ

285 Bijay Lotra

286 ପ୍ରତାପ କିସାନ

287 ଚାଷି କିସାନ୍

288 Kandel Kisan

289  Thumb of Dalimepatra.

290 ଅଜୟ ମାଝି

291 ଗୁରା କିସାନ

292 Ganeswar kisan

293 ଗୁରୁ କିସାନ

294 ଅମାର କୁମ୍ଭାର

244A

TYPED COPY

Seba Samiti, Kapanda

Village- Kapanda, Block- Lahunipara, District- Sundargarh, Odisha, 770040

Ref: ..... Date.....

281. Sd/- (Signature in Odia)

282. Sd/- (Signature in Odia)

283. Sd/- (Signature in Odia)

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285. Sd/-

286. Sd/- (Signature in Odia)

287. Sd/- (Signature in Odia)

288. Sd/-

289. LTI

290. Sd/- (Signature in Odia)

291. Sd/- (Signature in Odia)

292. Sd/-

293. Sd/- (Signature in Odia)

294. Sd/- (Signature in Odia)

ସେବା ସମିତି,କପଣ୍ଡ

ଗ୍ରାମ-କପଣ୍ଡ,ବ୍ଲକ-ଲହୁଣିପଟା,ଜିଲ୍ଲା-ସୁନ୍ଦରଗଡ,ଓଡିଶା,୭୭୦୦୫୦

ପତ୍ରାଙ୍କ..... ତାରିଖ.....

295 Sunita Kisan.
296 Mita Kisan
297 Jagnath Kisan
298 Biswajit Kisan
299 Rabindra Kisan
300 Surendra Kisan
301 Jiuli Kisan
302 [illegible]
303 Purna Kisan
304 [illegible] Utg Malli Kisan
305 Chaitanya Kisan
306 Kuleswar Kisan
307 [illegible]
308 [illegible]
309 Pradeep Prasad Sing
310 [illegible]
311 [illegible]
312 Chandu Kisan
313 [illegible]

246A

TYPED COPY

Seba Samiti, Kapanda

Village- Kapanda, Block- Lahunipara, District- Sundargarh, Odisha, 770040

Ref: ..... Date.....

295. Sd/-

296. Sd/-

297. Sd/-

298. Sd/-

299. Sd/-

300. Sd/-

301.Sd/-

302. Sd/- (Signature in Odia)

303. Sd/-

304. LTI of Malli Kisan

305. Sd/-

306. Sd/-

307. Sd/- (Signature in Odia)

308. Sd/- (Signature in Odia)

309. Sd/-

310. Sd/- (Signature in Odia)

311. Sd/- (Signature in Odia)

312. Sd/-

313. Sd/- (Signature in Odia)

ସେବା ସମିତି,କପଣ୍ଡ

ଗ୍ରାମ-କପଣ୍ଡ,ପୋ.-ବଡପୁରୁଣାପାଣି,ବ୍ଲକ-ଲହୁଣିପଡା,ଜିଲ୍ଲା-ସୁନ୍ଦରଗଡ,ଓଡିଶା,୭୭୦୦୫୦

ପତ୍ରାଙ୍କ..... ତାରିଖ.....

314 ଲିଲା ବଡ଼ କିଷାନି

315 ସୁରେନ୍ଦ୍ର କିଷାନି

316  Lti of କାଞ୍ଚିରୀ କିଶାନ

317 Manas kisan

318 Basanti kisan

319 Fakirmohan Saku.

320 Rabananda Saku.

248A

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Seba Samiti, Kapanda

Village- Kapanda, Block- Lahunipara, District- Sundargarh, Odisha, 770040

Ref: ..... Date.....

314. Sd/- (Signature in Odia)

315. Sd/- (Signature in Odia)

316. LTI

317. Sd/-

318. Sd/-

319. Sd/-

320. Sd/-

ସେବା ସମିତି,କପଣ୍ଡ

ଗ୍ରାମ-କପଣ୍ଡ,ପୋ.-ବଡପୁରୁଣାପାଣି,ବ୍ଲକ-ଲହୁଣିପଡା,ଜିଲ୍ଲା-ସୁନ୍ଦରଗଡ,ଓଡିଶା,୭୭୦୦୫୦

ପତ୍ରାଙ୍କ..... ତାରିଖ.....

321 Biswanath Kishan

322 Archana Kisan

323 Sudhir Kisan

324  Lt- Pramila Kisan

325  Lt- Parma Kisan

326  Lt- Surya Kisan

327  Lt- Raghu kisan

328  Chandra Kisan

329  Chandra Kisan

330

331 Dhaneswar Kisan

332 Saroj Kisan

333 Prafulla Kisan

334 Arata bandhu Kisan

335 Biranjit Kisan

336 Trilochan Majhi

249A

TYPED COPY

Seba Samiti, Kapanda

Village- Kapanda, Block- Lahunipara, District- Sundargarh, Odisha, 770040

Ref: ..... Date.....

321. Sd/-

322. Sd/-

323. Sd/-

324. LTI of Pramila Kisan

325. LTI of Parma Kisan

326. LTI of Surya Kisan

327. LTI of Raghu Kisan

328. LTI of Chandra Kisan

329. LTI

330. Sd/- (Signature in Odia)

331. Sd/-

332. Sd/-

333. Sd/-

334. Sd/-

335. Sd/-

336. Sd/-

337. Sd/-

(47)

SUB-COLLECTOR
BONAI

To,

① The Collector & Dist Magistrate/
Sub-Collector Sundargarh.

② The Chairman (Regional) Odisha.
State Pollution Control Board-
Rourkela/ Bhubaneswar.

(Sub:- Regarding not allowing to enter into the public hearing)

Dear Sir,

We the affected Communities of M/S. K.A.I. International private Ltd would like to inform you that as according to the OSPCB Notification No-6686 Dated 19/04/2022, we have come to keep opinion of the above project.

But we are following no of people are not allowed to enter into the public hearing venue and refrained from keeping opinion. We do have the right to opinion. Violation of Right to opinion means violation of Right to environment, violation of Right to environment means violation of Right to life Article-21 of the Constitution of India.

Public hearing means hearing of the public..
But the police is stopping for going to the venue and refocaining from right to opinion.

Therefore request you to allow us for participant in the public hearing, as we can able to keep opinion on the basis of E.I.A. Notification-2006.

Thanking You.

Yours faithfully;

Date 24/05/2022

Balmati Munda
Jayanta Kumar Mahanta
Tikili Munda
Dasharath Mahanta
Jayadev Mahanta

Patel Keshan
Abhimanyu Mohanta
Narayan Munda
Rohit Ku. Mohanta
Purna Chandra Mahato
Sebati Sahu
Rita Mohanta

SUB-COLLECTOR
BONAI

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

ତା୨୩.୫.୨୦୨୨ ରିଖ

ଶ୍ରୀଗଣପତି ଆଚାର୍ଯ୍ୟ
At-Kapanda

252A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 23.05.2022

Yours faithfully,

Sd/-

At-Kapanda

SUB-COLLECTOR
BONAI

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

ଧନ୍ୟବାଦ ସହ

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

ତା ୨୨.୫.୨୦୨୨ ରିଖ

At-Kapanda

25A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 22.05.2022

Yours faithfully,

Sd/- (Signature in Odia)

At-Kapanda

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

SUB-COLLECTOR
BONAI

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ୍ଡ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ୍ଡ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

ବାସୁ ଦେବ

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

At-Kapanda

ତା ୨୩.୫.୨୦୨୨ ରିଖ

1134

254A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 23.05.2022

Yours faithfully,

Sd/-

At-Kapanda

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

SUB-COLLECTOR
BONAI

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ୍ଡ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ୍ଡ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

ଭବଦୀୟ ବିଶ୍ୱସ୍ତ

।। ଇତି ।।

ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

At-Kapanda

ତା ୭୩.୫.୨୦୨୨ ରିଖ

25A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 23.05.2022

Yours faithfully,

Sd/- (Signature in Odia)
At-Kapanda

SUB-COLLECTOR
BONAI

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

ତା ୭୩.୫.୨୦୨୨ ରିଖ

ଅଜିତ ପାତ୍ର
At-Kapanda

25A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 23.05.2022

Yours faithfully,

Sd/- (Signature in Odia)
At-Kapanda

SUB-COLLECTOR
BONAI

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ୍ଡ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ୍ଡ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ
At-Kapanda

ତା ୭୩.୫.୨୦୨୨ ରିଖ

(ଦସ୍ତଖତ ଅସ୍ପଷ୍ଟ)

1140

25A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

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Date: 23.05.2022

Yours faithfully,

Sd/-

At-Kapanda

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ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

SUB-COLLECTOR
BONAI

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ୍ଡ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ୍ଡ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।

ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

Sakuntala Bag
Kapanda.

ତା ୨୩.୫.୨୦୨୨ ରିଖ

25A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 23.05.2022

Yours faithfully,

Sd/-

At-Kapanda

SUB-COLLECTOR
BONAI

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ୍ଡ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ୍ଡ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ
ଅଶ୍ୱିନୀ କୁମାର ବେହେରା
Kapanda.

ତା ୨୩.୫.୨୦୨୨ ରିଖ

259A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

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Date: 23.05.2022

Yours faithfully,

Sd/-

At-Kapanda

SUB-COLLECTOR
BONAI

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

ତା ୨୨.୫.୨୦୨୨ ରିଖ

ଊର୍ମିଳା ମାଝୀ
At-Kapanda

260A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 22.05.2022

Yours faithfully,

Sd/-

At-Kapanda

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

SUB COLLECTOR BONAI

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।

ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

Ltd of Jamuna Kisan

At - Kapanda

ତା ୨୩.୫.୨୦୨୨ ରିଖ

261A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

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Date: 22.05.2022

Yours faithfully,

LTI of Jamuna Kisan

At-Kapanda

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ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

SUB-COLLECTOR
BONAI

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

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ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ
Sabitri Kisan
At-Kapanda

ତା ୨୨ .୫.୨୦୨୨ ରିଖ

262

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

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Date: 22.05.2022

Yours faithfully,

Sd/- (Signature in Odia)
At-Kapanda

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SUB-COLLECTOR
BONAI

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ୍ଡ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ୍ଡ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ
Seema Mahato
At-Kapanda

ତା ୭୩.୫.୨୦୨୨ ରିଖ

26A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 23.05.2022

Yours faithfully,

Sd/- (Signature in Odia)
At-Kapanda

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

SUB-COLLECTOR
BONAI

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ୍ଡ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ୍ଡ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

ତା ୨୩.୫.୨୦୨୨ ରିଖ

Sankhasini
At- Kapanda

26A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 22.05.2022

Yours faithfully,

Sd/-

At-Kapanda

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

SUB-COLLECTOR
BONAI

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ୍ଡ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ୍ଡ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

ତା ୨୩.୫.୨୦୨୨ ରିଖ

Sushila Kisan
At-Kapanda

265A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 23.05.2022

Yours faithfully,

Sd/-

At-Kapanda

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

SUB-COLLECTOR
BONAI

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ
Archana Kisan
At-Kapanda

ତା ୨୨ .୫.୨୦୨୨ ରିଖ

266

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 22.05.2022

Yours faithfully,

Sd/-

At-Kapanda

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

SUB-COLLECTOR BONAI

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ୍ଡ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ୍ଡ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।

ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

ତା ୭୩.୫.୨୦୨୨ ରିଖ

ଅମ୍ବାଦତ୍ତ ଜୀପାନ୍

At-Kapanda

267A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

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Date: 23.05.2022

Yours faithfully,

Sd/-

At-Kapanda

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

SUB-COLLECTOR
BONAI

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ୍ଡ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ୍ଡ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

ତା ୨୨.୫.୨୦୨୨ ରିଖ

L.T.I

At - Kapanda

~~206~~A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 22.05.2022

Yours faithfully,

LTI

At-Kapanda

SUB-COLLECTOR
BONAI

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ୍ଡ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

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ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ୍ଡ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।

ତା ୨୩.୫.୨୦୨୨ ରିଖ

ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

Laxmi Kisan

At- Kapanda

269A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 22.05.2022

Yours faithfully,

Sd/-

At-Kapanda

SUB-COLLECTOR
BONAI

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।

ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

ତା ୭୩.୫.୨୦୨୨ ରିଖ

At- Kapanda

270A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 23.05.2022

Yours faithfully,

Sd/- (Signature in Odia)
At-Kapanda

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

SUB-COLLECTOR
BONAI

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ
ଆବେଦକ କିସାନ
At-Kapanda

ତା ୭/୫.୨୦୨୨ ରିଖ

27A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

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Date: 23.05.2022

Yours faithfully,

Sd/- (Signature in Odia)
At-Kapanda

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SUB-COLLECTOR
BONAI

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

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ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

Laxmi Kisan
At Kapanda

ତା ୭୨.୫.୨୦୨୨ ରିଖ

~~2~~2A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

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Date: 22.05.2022

Yours faithfully,

Sd/-

At-Kapanda

SUB-COLLECTOR
BONAI

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ୍ଡ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ୍ଡ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।

ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

Arati Mahanta

At-Kapanda

ତା ୨୩.୫.୨୦୨୨ ରିଖ

2734

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 23.05.2022

Yours faithfully,

Sd/-

At-Kapanda

SUB-COLLECTOR
BONAI

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ୍ଡ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ୍ଡ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ
Tilottama Mahuty
At-Kapanda

ତା ୨୨ .୫.୨୦୨୨ ରିଖ

27A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 27.05.2022

Yours faithfully,

Sd/-

At-Kapanda

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

SUB-COLLECTOR
BONAI

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ୍ଡ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ୍ଡ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ
Lalita Kisan
At-Kapanda

ତା ୨୨ .୫.୨୦୨୨ ରିଖ

1176

275A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 23.05.2022

Yours faithfully,

Sd/-

At-Kapanda

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

SUB-COLLECTOR BONAI

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

ତା ୨୬.୫.୨୦୨୨ ରିଖ

ଅଞ୍ଜାନି ମାଝି
At-Kapanda

276A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 27.05.2022

Yours faithfully,

Sd/- (Signature in Odia)
At-Kapanda

SUB-COLLECTOR
BONAI

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ୍ଡ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ୍ଡ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

ତା 99 .୫.୨୦୨୨ ରିଖ

Chandra Kisan

At-Kapanda

27A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

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Date: 27.05.2022

Yours faithfully,

Sd/-

At-Kapanda

SUB-COLLECTOR
BONAI

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ
ଗ୍ରାମ ବାସିନ୍ଦା
At-Kapanda

ତା ୨୩.୫.୨୦୨୨ ରିଖ

278A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 23.05.2022

Yours faithfully,

Sd/-

At-Kapanda

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

SUB-COLLECTOR
BONAI

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

ତା ୨୩.୫.୨୦୨୨ ରିଖ

L.T.J. Khada
Kisan

At-Kapanda

279A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 23.05.2022

Yours faithfully,

LTI

At-Kapanda

ମାନନୀୟ,

SUB-COLLECTOR
BONAI

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ୍ଡ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ୍ଡ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

ତା ୨୨.୫.୨୦୨୨ ରିଖ

ଶ୍ରୀ ଗାଦୀ ଶିଙ୍ଗି
Kapanda.

280A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 22.05.2022

Yours faithfully,

Sd/-

At-Kapanda

SUB-COLLECTOR
BONAI

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ
Anita Kumbhar.
kapanda

ତା ୨୨.୫.୨୦୨୨ ରିଖ

28A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 22.05.2022

Yours faithfully,

Sd/-

At-Kapanda

SUB-COLLECTOR
BONAI

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ୍ଡ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ୍ଡ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

ତା ୨୩.୫.୨୦୨୨ ରିଖ

ଅରୋଡ଼ା ଗାଁ
At-Kapanda

282A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 23.05.2022

Yours faithfully,

Sd/- (Signature in Odia)
At-Kapanda

SUB-COLLECTOR
BONAI

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

ତା ୨୩.୫.୨୦୨୨ ରିଖ

Uday of Tara
Krushak.
Kapanda.

1192

28A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 23.05.2022

Yours faithfully,

Sd/-

At-Kapanda

SUB-COLLECTOR
BONAI

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ୍ଡ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ୍ଡ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

ତା ୨୩.୫.୨୦୨୨ ରିଖ

ମଧୁସୂଦନ ମାହାନ୍ତ
AT- Kapanda

~~2844~~

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

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Date: 23.05.2022

Yours faithfully,

Sd/-

At-Kapanda

SUB-COLLECTOR
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ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

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।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ
Jogeswar ORAM
At-Kapanda

ତା ୨୩.୫.୨୦୨୨ ରିଖ

~~285A~~

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

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Date: 23.05.2022

Yours faithfully,

Sd/-

At-Kapanda

SUB-COLLECTOR
BONAI

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

ତା ୨୩.୫.୨୦୨୨ ରିଖ

ଗ୍ରାମ କାର୍ତ୍ତିକଛତର

At-Kapanda

1198

28A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

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Date: 23.05.2022

Yours faithfully,

LTI

At-Kapanda

SUB-COLLECTOR
BONAI

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ୍ଡ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ୍ଡ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

Paoma Kisan

At-Kapanda

ତା 99 .୫.୨୦୨୨ ରିଖ

287A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date:

Yours faithfully,

Sd/-

At-Kapanda

SUB-COLLECTOR
BONAI

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ୍ଡ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ୍ଡ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ
Ashish Kumar Mahanta
At-Kapanda

ତା ୨୩.୫.୨୦୨୨ ରିଖ

288A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

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I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 23.05.2022

Yours faithfully,

Sd/-

At-Kapanda

SUB-COLLECTOR
BONAI

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ୍ଡ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

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।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ
Sameer Kunjhar
At-Kapanda

ତା ୨୨.୫.୨୦୨୨ ରିଖ

289A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

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Date: 23.05.2022

Yours faithfully,

Sd/-

At-Kapanda

SUB-COLLECTOR
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ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

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।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

ତା ୨୨.୫.୨୦୨୨ ରିଖ

Rameshch Kishath
At-Kapanda

290A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

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I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 22.05.2022

Yours faithfully,

Sd/-

At-Kapanda

SUB-COLLECTOR BONAI

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

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ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ୍ଡ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ
ଶ୍ରୀ ଗ ଦି ଏ/ଟ
At-Kapanda

ତା ୨୩.୫.୨୦୨୨ ରିଖ

291A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

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Date: 23.05.2022

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ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

ତା ୨୩.୫.୨୦୨୨ ରିଖ

Rajkishore Mehta
At-Kapanda

29A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 23.05.2022

Yours faithfully,

Sd/-

At-Kapanda

SUB-COLLECTOR
BONAI

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ୍ଡ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ୍ଡ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

ତା ୨୭.୫.୨୦୨୨ ରିଖ

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ
Kshetra Basi Kisan
At-Kapanda

29A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 23.05.2022

Yours faithfully,

Sd/-

At-Kapanda

SUB-COLLECTOR
BONAI

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।

ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

Bipin Kisan.

At-Kapanda

ତା ୨୩.୫.୨୦୨୨ ରିଖ

294A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 23.05.2022

Yours faithfully,

Sd/-

At-Kapanda

ମାନନୀୟ,

ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

SUB-COLLECTOR BONAI

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

(କପଣ ଗ୍ରାମରେ ହେବାକୁ ଯାଉଥିବା ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା ସମର୍ଥନ ସମ୍ବନ୍ଧେ)

ମହାଶୟ,

ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

ତା ୨୩.୫.୨୦୨୨ ରିଖ

ଏ.କେ.କପଣ
A.K.Kapanda

~~296~~A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

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I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 23.05.2022

Yours faithfully,

Sd/-

At-Kapanda

SUB-COLLECTOR
BONAI

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ଶ୍ରୀଯୁକ୍ତ ସଦସ୍ୟ ସଚିବ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡିଶା

ବିଷୟ : (ଆଞ୍ଚଳିକ ଅଧିକାରୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ ରାଉରକେଲାଙ୍କ ଜରିଆରେ)

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ନିବେଦନର ଅଭିପ୍ରାୟ ଏହିକି, ମୁଁ ଶୁଣିବାକୁ ପାଇଲି ମେସର୍ସ କେ.ଏ.ଆଇ. ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ବଡ଼ପୁରୁଣାପାଣି ଗ୍ରା.ପ. ଅର୍ନ୍ତଗତ କପଣ୍ଡ ଗ୍ରାମରେ ଏକ ଶିଳ୍ପ ପ୍ରତିଷ୍ଠା କରିବାକୁ ଯାଉଛନ୍ତି । ସେଥିପାଇଁ ଆସନ୍ତା ତାରିଖ ୨୪.୦୫.୨୦୨୨ଦିନ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ବିଭାଗ ଦ୍ୱାରା ଏକ ଜନଶୁଣାଣି କାର୍ଯ୍ୟକ୍ରମ ରଖାଯାଇଅଛି । ମୁଁ ଏହି ଶିଳ୍ପ ପ୍ରତିଷ୍ଠାକୁ ସମ୍ପୂର୍ଣ୍ଣ ଭାବରେ ସମର୍ଥନ କରୁଅଛି । ଏହି ଶିଳ୍ପ ପ୍ରକଳ୍ପ ହେଲେ ଆମ ଅଞ୍ଚଳର ବେକାର ଯୁବକ ଯୁବତୀ ମାନଙ୍କ ନିଯୁକ୍ତି ହେବା ସହ ବହୁବିଧ ଉନ୍ନତି ହୋଇପାରିବ ।

।। ଇତି ।।
ଆପଣଙ୍କ ବିଶ୍ୱସ୍ତ

At-Kapanda

ତା ୨୨.୫.୨୦୨୨ ରିଖ

ଯାଜ୍ଞସେନୀ ଦିହୁରା

296A

TYPED COPY

To,

The Honorable Member Secretary, State Pollution Control Board, Odisha

SUB-COLLECTOR, BONAI

Subject: (Through the Regional Officer, State Pollution Control Board, Rourkela)

(Regarding support for the establishment of the industry intended to be set up in Kapanda Village)

Sir,

The purpose of this petition is that I have come to hear that M/s K.A.I. International Pvt. Ltd. is going to establish an industry in Kapanda village under Badpurunapani Gram Panchayat. For that purpose, a Public Hearing program has been scheduled by the State Pollution Department on the upcoming date of 24.05.2022.

I completely support the establishment of this industry. If this industrial project is realized, along with providing employment to the unemployed young men and women of our region, multifaceted development can be achieved.

Date: 27.05.2022

Yours faithfully,

Sd/- (Signature in Odia)
At-Kapanda

ATTENDANCE SHEET

(Signatures of the person who deliberate in the PH)

ATTENDANCE SHEET OF THE PERSONS DELIBERATED IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH .

DATE & TIME: 24-05-2022 (10:00 AM.)

S/N	Name & Address	Signature
1.	Geeta Charan Dash. Kapanda	
2.	Bibhuti bhusan padhi Rajamunda	
3.	Bishnu charan Kisan Kapanda,	
4.	Bikram patra Kapanda	
5.	Rajesh Kumar Dash Kapanda	
6	Kandru Kisan Nuapada	
7.	Surendra Kumar Kumbhar Kapanda,	
8.	Raibu Kisan Kapanda,	

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

(Signatures of the person who deliberate in the PH)

ATTENDANCE SHEET OF THE PERSONS DELIBERATED IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH .

DATE & TIME: 24-05-2022 (10:00 AM.)

S/N	Name & Address	Signature
9.	Shiba charan Kisan Kapanda,	Shiba
10.	Sandhyarani Dash Kapanda	Sandhyarani Dash
11.	Binapani Dash Kapanda,	Binapani Dash
12.	Jayanti Sahu Kapanda	Jayanti Sahu
13.	Anadicharan Bagarti Kapanda	Anadicharan Bagarti
14.	Umesh chandra Kisan Kapanda	Umesh Ch Kisan
15.	Trilochan Majhi Bad-purunapani	Trilochan Majhi
16.	Motilal Sahu Kapanda	Motilal Sahu

SUB-COLLECTOR
BONAI

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(Signatures of the person who deliberate in the PH)

ATTENDANCE SHEET OF THE PERSONS DELIBERATED IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH .

DATE & TIME: 24-05-2022 (10:00 AM.)

S/N	Name & Address	Signature
17.	Milan Chandra Mahanta Lahunipada	
18.	Sunita Kisan Kapanda	
19.	Rashmita patra Kapanda	Rashmita Patra
20.	Laxmi Kisan Kapanda	Laxmi Kisan
21.	Sadhu Oram Bad-purunapani	Sadhu Oram
22.	Debashis Mahanta Kapanda	
23.	Patel patra Kapanda	
24.	Budhu Kisan Kapanda	

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

(Signatures of the person who deliberate in the PH)

ATTENDANCE SHEET OF THE PERSONS DELIBERATED IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH .

DATE & TIME: 24-05-2022 (10:00 AM.)

S/N	Name & Address	Signature
25.	Biswanath Kisan Kapanda.	Biswanath Kisan
26.	Sabita patra Kapanda	Sabita Patra
27.	Pandit Ch Munda Lahunipada	Pandit Ch. Munda
28.	Amita pushpa Munda patajharan.	Returned to Sagar
29.	Archana Kisan Kapanda	Archana Kisan
30.	Saraswati Kisan Kapanda	Saraswati Kisan
31.	Laxman Munda MLA, Bonai	Laxman Munda MLA.
32.	Kamal Lakra Banki	Kamal Lakra Vice President SNS

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

(Signatures of the person who deliberate in the PH)

ATTENDANCE SHEET OF THE PERSONS DELIBERATED IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH .

DATE & TIME: 24-05-2022 (10:00 AM.)

S/N	Name & Address	Signature
33.	Mamata Kisan Kapanda	mamata kisan
34.	Gayadhar Kisan Nuagaon	Gayadhar kisan
35.	Premananda pabisa Bonai	
36.	Sarmati Kisan Kapanda	Srimati Kisan
37.	Changa Oram Sarpunch, Bad-purunapani	Changa Oram
38.	Narendra Kisan Bad-purunapani	Narendra Kisan
39.	Manik Lal Jaiswal Rajamunda	Gomati Kisan
40.	Gomati Kisan Kapanda	Gomati Kisan

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

(Signatures of the person who deliberate in the PH)

ATTENDANCE SHEET OF THE PERSONS DELIBERATED IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH .

DATE & TIME: 24-05-2022 (10:00 AM.)

S.N.	Name & Address	Signature
41.	Duryodhan Kisan Nuagaon.	Duryodhan Kisan
42.	Yudhisthir Tripathy Gudubali	Yudhisthir Tripathy
43.	Duryodhan Mahanta Darjing.	Duryo dhan mahanta
44.	Prana Krushna Kisan Nuagaon.	Prana Krushna Kisan. Ex I.P mem L.P(A)
45.	Jubni Kindo Z.P. Lahunipara (Rep)	JKandi 24.5.2
46.	Sukumati Munda Haldikundar (Chairman Lahunipara)	Sukmati Munda
47.	Bhimsen Choudhary Ex. MLA, Bonai	
48.	Ranjit Kumar Sahu Rajamunda.	Ranjit

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

(Signatures of the person who deliberate in the PH)

ATTENDANCE SHEET OF THE PERSONS DELIBERATED IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH .

DATE & TIME: 24-05-2022 (10:00 AM.)

S.N.	Name & Address	Signature
49.	Santanu Kumar Dash, Bhaludungri	Santanu Kr. Dash
50.	Kanhu Charan Kisan Gadapali	Kanhu Charan Kisan
51.	Laxmi Kisan Rajamunda	Laxmi Kisan
52.	Parshuram Mahanta Kapanda	Parshuram Mahanta
53.	Kishori Bagarti Kapanda	Kishori Bagarti
54.	Baula Kisan Kapanda	
55.	Beronika Munda patajharan	Beronika munda
56.	Narayan Kumbhar Saleipali	Narayan Kumbhar

SUB-COLLECTOR
BONAI



ATTENDANCE SHEET

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ATTENDANCE SHEET OF THE PERSONS DELIBERATED IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH .

DATE & TIME: 24-05-2022 (10:00 AM.)

S.N.	Name & Address	Signature
57.	Pradeep Behera Rajamunda	
58.	Kuanri Jojo Patajharsera	Kuanri Jojo
59.	Chalat Kumar panda Rajamunda	
60.	Bijay Ku Kisan. Kapanda	Bijay Ku. Kisan.
61.	Luthar Oram Lahunipada	Luthar oram
62.	Rashimi Munda patajharsara.	Rashmi munda
63.	Fakir Mohan Sahu Kapanda	Fakir mohan Sahu
64.	Gobinda Mahakhud Kapanda	Gobinda mahakud

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

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ATTENDANCE SHEET OF THE PERSONS DELIBERATED IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH .

DATE & TIME: 24-05-2022 (10:00 AM.)

S.N.	Name & Address	Signature
65.	Chitaranjan pabra Kapanda.	Chitaranjan Patra
66.	Namita Mahantra Lahunipada.	Namita mahantra
67.	Rajendra Barik Rajamunda, Kapanda	Rajendra Barik
68.	Rushi Ku Munda. Badbahal	Rushi Ku Munda
69.	Bijay pabra Kapanda.	Bijay Patra
70.	Asish Kumar Kasa Tumkela.	Asish Kr Kasa
71.	Biranchi Narayan Sahu Gambei	Biranchi Narayan Sahu
72.	Nuadai Ikram Nuagaon.	[illegible]

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

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ATTENDANCE SHEET OF THE PERSONS PRESENT IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
73.	Amita Jojo. Patajharan.	
74.	Chakradhar Sahu Gamlei	
75.	Bhajan Kisan Sibka post.	
76.	Manas Kumar pal Tumkela.	Manas Ku. Pal
77.	Shashanka Kumar Nanda Pandrisola.	
78.	Karunakar Sahu Gamlei	
79.	Asutosh jaiswal Banki	Asutosh Jaiswal
80.	Kuleswar Kisan Rajamunda	Kuleswar Kisan
81.	Jagabandhu Kisan Nuagaon.	Jagabandhu Kisan

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET Deliberate

(Signatures of the person who present in the PH)

ATTENDANCE SHEET OF THE PERSONS PRESENT IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

DELIBERATED

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
82.	Pradumna Tripathy. Kendrakela	
83.	Sudam Chandra Tripathy Gudukhali.	
84.	Singray Munda Sarpanch, Darjilng.	
85.	Sushanta Mundari Bad-purunapani	
86.	Ashok Kumar Behera Rajamunda.	
87.	Sundar Mani pradhan. Bonai	
88.	Sebati Naik Samardari	
89.	Kumar Gautam Barik Arhakala	

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

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ATTENDANCE SHEET OF THE PERSONS PRESENT IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
1.	Dinakrushna Mahanta.	Dinakrushna Mahanta. Sarapha pur
2.	Roshan Charan Rebag	Roshan Charan Rebag. At-Kaoja Pali
3.	Swash Lenhatar	Swash Lenhatar
4.	Gobardhan Jhankar	Gobardhan Jhankar
5.	Jankal Parja	Jankal Parja
6.	Basu deo Sahu	
7.	Santosh Kr Jha	
8.	Satish Kumar Mahato	
9.	Raghu Bandhan	

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

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ATTENDANCE SHEET OF THE PERSONS PRESENT IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
10.	Manoj Seth.	
11.	Milan Ch. Mahanta AT- Baldehi, Lahunipara	
12.	Duryodhan Mahanta	
13.	Pradeep Ku Behera	
14.	Lalbahadr Mahanta Lahui par L.C secy C.P.I.M.	
15.	Chalat Ku Panda Ratamunda C.P.I.M-PR	
16.	Pradeep Ku. Mahanta S.pur	
17.	Deba Charan Kisan	
18.	Ajay Kumar Oraon	

SUB-COLLECTOR
BONAI

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ATTENDANCE SHEET OF THE PERSONS PRESENT IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
019.	Santanu Kumar Dash Representive - Sarapanch Bhakaraguri G.P	Santanu Ku. Dash Dt/24/05/22
20.	Jamuna Munda AT-PO- Jarsing Sarpanch Jarsing	
21.	Sushanta Mundari AT/PO - Badpurupani P.S Member	
22.	Dhanga Oran Badpurunapani G.P. AT Talbahali Sarpanch	
23.	Nagabandhu Kishan Ex Sarpanch At= Nuagaon Po= Badpurnapani	
24.	Ramesh Bhanu Kisan Nuagaon 7608839263	
25.	Sambar Ku Barik At - Bonei	
26.	Sarjeeb Jena Rajamunda	
27.	Biranchi Narayan Sahu. Gamaki	

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

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ATTENDANCE SHEET OF THE PERSONS PRESENT IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
28.	ଦେବାଶିଷ ତ୍ରିପାଠୀ (ଏଡଭୋ)	ଦେବାଶିଷ ତ୍ରିପାଠୀ
29.	Manik lal jaul	
30.	Yudhisthir Tripathy	
31.	Sudam chandra Tripathy	
32.	Sri Buddha dev Sahu.	
33.	Padma charan Acharya	
34.	Prafulla Charan Sahu.	
35.	Ratha kumar Sahu.	
36.	Premananda Pattra D.Y.C. Vice-President	

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

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ATTENDANCE SHEET OF THE PERSONS PRESENT IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
37.	Siba kishan	
38.	Chany kumar	
39.	Siba Mahanta	
40.	Parma kishan Kapond	
41.	Tishna pootsa Vishei	Tishna Pootsa
42.	Hanihan Mahanta	Hanihan Mahanta
43.	Ashok kumar Mahanta	Ashok kumar Mahanta
44.	Chandra kishan	
45.	Santosh kumar Mahanty	Santosh kumar Mahanty

SUB-COLLECTOR
BONAI



ATTENDANCE SHEET

(Signatures of the person who present in the PH)

ATTENDANCE SHEET OF THE PERSONS PRESENT IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
46.	Jogeswar Oram	Jogeswar Oram
47.	Jadu Kisan	Jadu Kisan
48.	Niranjan kumbhar	Niranjan kumbhar
49.	Rajendra Barik	Rajendra Barik
50.	Dhaneswar Mahanto	Dhaneswar Mahanto
51.	Bijay Patra	Bijay Patra
52.	Dambaru dhar Mahanta	Dambaru dhar Mahanta
53.	Sameer kumbhar	Sameer kumbhar
54.	Prafulla Kisan	Prafulla Kisan

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

(Signatures of the person who present in the PH)

ATTENDANCE SHEET OF THE PERSONS PRESENT IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
55	Jayanti Sahu At - Kapanda	Jayanti Sahu
56.	RASHMITA patra A Kapada	RASHMITA Patra
57.	Sumita Kisan. At - Kapanda	Skisan.
58.	Laxmi Kisan At - Kapanda	Laxmi Kisan
59.	Sabita Patra A.T - Kapanda	Sabita Patra
60.	Archana Kisan At - Kapanda	Archana Kisan
61.	Saraswati Kishan At - Kapanda	Sarasawati Kishan
62.	Manata kisan At - Kapanda	Manata Kisan
63.	Gomati Kisan At - Kapanda	Gomati Kisan

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

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ATTENDANCE SHEET OF THE PERSONS PRESENT IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
64.	Omesh ch Kisan Kapanda	
65.	Trilochan Manjhi BJD Brijendra Bad Purunapani	T. Manjhi
66.	Moti Lal Sahu Kapanda	
67.	Debasis Mahanta Kapanda	Mahanta
68.	Padoch Patra Kapanda	
69.	Budhu Kisan At-Kapanda	
70.	Biswanath Ishan Kisan Kapanda	
71.	Binapani Dash At-Kapanda	Dash
72.	Sandhyarani Dash Kapanda	

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

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ATTENDANCE SHEET OF THE PERSONS PRESENT IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
73.	Gela Charan Dash Kapanda	
74.	Basanta Kisan Kapanda	
75.	Bikram Kumar Patra Kapanda	
76.	Rajesh kumar Dash. Kapanda.	
77.	Kanchan Kisan. Near Para	
78.	Surendra Kumbhar. Kapanda.	
79.	Raiba Kisan Kapanda	
80.	Siba charan Kisan Kapanda	
81.	Anadi Charan Bagarti Kapanda	

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

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ATTENDANCE SHEET OF THE PERSONS PRESENT IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
82.	Srimati Kisan AT Kapanda	Srimati Kisan
83.	Basa Kisan At- Kapanda.	
84.	Kishori Bagarti A- Kapanda	Kishori Bagarti
85.	Bijayadhar Kisan Nuagaon	Bijay
86.	Hosendra Kisan Nuagaon	Hosendra Kisan
87.	Dhanyodhar Kisan Nuagaon	Dhanyodhar
88.	Fakir Mohan Sahu Kapanda.	F. M Sahu
89		

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

(Signatures of the person who present in the PH)

ATTENDANCE SHEET OF THE PERSONS PRESENT IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
89.	[illegible]	
90.	Pabana Munda	
91.	Tikeswa kisan Kapanda	
92.	Patel kisan Kapanda	[illegible]
93.	Kaudik kisan	
94.	Putul Jhanna Kapanda	[illegible]
95.	Anil Mohanta (Kapanda)	Anil
96.	[illegible] Tibikapash	
97.	Upendranath Kerz Budhi Kutasi	Upendranath Kerz

SUB-COLLECTOR
BONAI







ATTENDANCE SHEET

(Signatures of the person who present in the PH)

ATTENDANCE SHEET OF THE PERSONS PRESENT IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
98.	Pramakanta Kisan At- Nuagaon - PO-Bad Purunapani, SNG	Pramakanta Kisan
99.	Parameswar Kisan At- Nuagaon, PO - Bad Purunapani Dist - SNG	Parameswar Kishan
100.	Saroj Kisan At : Kapanda PO Bad purunapani Dist - S.N.G	Saroj Kisan
101.	Rabindra Kisan At- Nuagaon PO-Bad Purunapani Dist- S.N.G	Rabindra Kisan
102.	Sarada Kisan AT- Kapanda P.O - Baddemi	Sagna Kisan
103.	Chaudhari Kisan AT- Kapanda P.O - Bad/Pani	Chkn
104.	Surendra Kisan AT - Kapanda P.O Bad Purun.	S Kisan
105.	Kapanja	Bishi Kisan
106	Nirmal Kisan At Kapanja	Nirmal Kisan

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

(Signatures of the person who present in the PH)

ATTENDANCE SHEET OF THE PERSONS PRESENT IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
107.	Ekaduria kisan. At- Jibika posh.	Ekaduria kisan.
108.	Chinmaya Kishan At - Nuagaon po. Badpurunapani	Chinmaya Kishan
109.	Jamyadhar kisan Jibika posh	Jamyadhar kisan
110.	Bijay Ku. kisan. At- Kapanda	Bijay Ku. kisan.
111.	Trilochan Dash At - Kapanda	Trilochan Dash
112	Sukadev kisan At KAPANDA	Sukadev
113.	[illegible]	[illegible]
114.	[illegible]	[illegible]
115.	[illegible]	[illegible]

SUB-COLLECTOR
BONAI

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VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
116.	Gunanidhi Mishra At Po - Bonaigarh SNG.	
117.	Raghu Kishan	
118.	Bipin Kishan	
119.	Bichu Kishan	
120.	Mahesh wor Kishan	
121.	Patel Kisan (Budhi Kuteni)	Patel Kisan.
122.	Suanta Kisan (Kuagaon)	
123.	Babuli Kishan. (Budhi Kuteni)	Babuli Kishan
124.	Nirmal Kisan (Budhi Kuteni)	Nirmal Kisan

SUB-COLLECTOR
BONAI



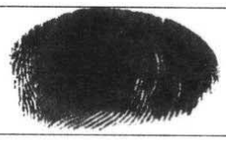
ATTENDANCE SHEET

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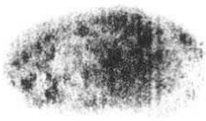
ATTENDANCE SHEET OF THE PERSONS PRESENT IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
125.	Gabardhan kisan Kapanda	
126.	[illegible]	[illegible]
127.	Khada kisan	
128.	Ganesh patira Kapanda	[illegible]
129.	Parshuram Mahanta Kapanda	Parshuram Mahanta
130.	Deepak Munda Padatharia	
131.	Ganesh Mahanta Kapanda	[illegible]
132.	[illegible]	[illegible]
133	[illegible]	[illegible]

SUB-COLLECTOR
BONAI







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VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
134.	Namita mahanta (B.J.D) At-Lahni Pak Dist S-N.G	Namita mahanta
135.	Jayantee Mahanta MM @ president · Bandhu Pada	J Mahanta
136.	Namita Mahanta Theatre Posh	N. Mahanta
137	Champabati mahanta AT - Saggadia Posh	C. mahanta
138.	Aimchi oram (B.J.D) At - Badpurunapani (G.P)	Aram
139.	Purnabala Nayak (B.J.D) (XPS) members Juniani	Purnabala Nayak.
140.	Chumaki Naik (BJD) G.P president JUNIANI	Chumaki Naik
141.	Anita Oram (B.J.D)	Talbahali (GS)
142.	Sebati Naik. Sate executive Member (BJP)	

SUB-COLLECTOR
BONAI

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VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
143.	Bhajan Kisan Jibikeposh	
144.	Maheswar Oisan Badhikutoria	
145.	Sachin kumar kisan Budhikutura	
146.	Sufia Akhtar Jiali Kujar	
147.	Karamu Oram	Karamu Oram
148.	Prasanta Kumar Kishan Nuagaon 03 (WM)	prasanta Kumar Kishan
149.	Sadhu Oram (W.m) Bad purana pani	Sadhu Oram
150.	Kuleswar Kisan Rajamanda Naib Sarpanch	Kuleswar Kisan
151.	Sukmati Munda Chairman Lahunipara Block	Sukmatimanda

SUB-COLLECTOR
BONAI

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VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
152.	Jeliani Kandir Z.P. Lahunipara (Ka)	JKandir 24.5.22
153.	Pandit charan Munda Vice. chairman Lahunipara Block	24.5.2022
154.	Laxman munda MLA. Bonai	Mn Bai 24/5/2022
155.	Kumar Goutam Banik. Reporter Samaja Lahunipara.	KGBanik 24.5.2022.
156.	Laxmi Kisan Samiti member Laheerdpara	Kisan 24.5.2022
157.	Sundar nani Pradhan Spokes Person. BJD Bonai A/c	24.5.2022
158.	Luthar Oram. Lahunipara Dist. Gen-sec BJP Bonai	24.5.22
159.	Narayan Kumbhar Lahunipara Block BMP. Representative.	NKumbhar 24.5.22
160.	Bibasho Patra AT. Kapanda	[redacted]

SUB-COLLECTOR
BONAI

~~382~~



ATTENDANCE SHEET

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ATTENDANCE SHEET OF THE PERSONS PRESENT IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
161.	Susana Mahanta Kapanda	Susana Mahanta
162.	Tilottama Mahanta Kapanda	Tilottama Mahanta
163.	ଅଞ୍ଜାନି ମାହାନ୍ତି କପାଣ୍ଡା	ଅଞ୍ଜାନି ମାହାନ୍ତି
164.	Laxmi Patra AT - Kapanda	
165.	Lopamudra Dash AT - Kapanda	Lopamudra DASH
166.	Bhimsen Barik. AT- Gamela.	Bhimsen Barik.
167.	Jugal kishor Jena AT. Gandar	
168.	Chakradhar Sahu. Ganadia	
169.	Munu Behera Ganjeri	Munu Behera

SUB-COLLECTOR
BONAI

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VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
170.	Kamaranatha Majee, at. Gamadeli	
171.	Lalita Kishan AT - Kapanda	
172.	ଶ୍ରୀ ଚି କିଷାନ ଗା: କପଣ୍ଡ	ଶ୍ରୀ ଚି କିଷାନ
173.	Laxmi Nisan AT. Kapanda.	Laxmi kisan
174.	AT - Kapanda	Sanaswadi Kisan.
175.	Sambari Kisan AT - Kapanda	ସମ୍ବାରି କିଷାନ
176.	Raimati Mahakud AT - Kapanda	ରାଇମତି ମହାକୁଡ
177.	Seema Mahato AT - Kapanda	Seema Mahato
178.	Phulmani Mahanta AT - Kapanda	

SUB-COLLECTOR
BONAI

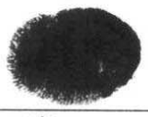
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VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
179.	Sunaghela Kishan AT - Kapanda	
180.	Tara Kumbhar AT - Kapanda.	
181.	Anita Kumbhar AT- kapanda	Anita kumbhar.
182.	[illegible]	[illegible]
183.	Kuna Kisan AT - Kapanda	
184.	Dukhi Kishan AT - Kapanda	
185.	Janni Kishan AT - Kapanda	
186.	Draupati Kisan AT - Kapanda	
187.	Parbati Kishan AT - Kapanda	

SUB-COLLECTOR
BONAI



ATTENDANCE SHEET

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VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
188.	ଘାସୁରା ଗିଆରି ଗ୍ରା: କପଣ୍ଡୁ	ଘାସୁରା ଗିଆରି
189.	ଜିଗାନି ଜିରୁଆରି ଗ୍ରା: କପଣ୍ଡୁ	ଜିଗାନି ଜିରୁଆରି ଗ୍ରା: କପଣ୍ଡୁ
190.	Sambari Kishen At- Kapanda	
191.	Laxmi Kisan Vill- Kapanda	
192.	Surya Kisan Vill - Kapanda	
193.	Kadamfola Kisan Vill. Kapanda	Kadamfolakisan
194.	Sakuntala Badik At- Kapanda	Sakuntala Badik
195.	KASTURI KISAN At - Kapanda	KASTURI KISAN
196.	ଜୟଧାଡୁ , ଗ୍ରା: କପଣ୍ଡୁ	ଜୟଧାଡୁ

SUB-COLLECTOR
BONAI

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VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
197.	[illegible]	[illegible]
198.	[illegible]	[illegible]
199.	Rajkori Oram Vill- Kapanda	Rajkori Oram
200.	Ragi Oram Vill: Kapanda	Ragi Oram
201.	Sankhasini Oram At- Kapanda	Sankhasini Oram
202.	Parmila Kisan Vill- Kapanda	
203.	Sushila Kisan Vill- Kapanda	Sushila Kisan
204.	parbati Kisan Vill- Kapanda	parbati Kisan
205.	Domani Kisan Vill- Kapanda	

SUB-COLLECTOR
BONAI

~~340~~

ATTENDANCE SHEET

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VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
206.	Sabitri Kisan At- Kapanda	Sabitri Kisan At- Kapanda
207.	Kuili Oram At - Kapanda	
208.	Sabitri Patra V.M - Kapanda	
209.	Akshaya Kr. Sahu. Bonaigarh	
210.	Abhaya kumar Satapathy Bonaigarh	
211.	Bijayeeni Kisan At- Nuagaon	Bijayeeni Kisan At- Nuagaon
212.	Pramila Kisan At- Nuagaon	ପ୍ରମିଳା କିସାନ ନୂଆଗାଁ
213	Meena Kumari Kisan At- Nuagaon	Meena Kumari Kisan At - Nuagaon
~~214~~		

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

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VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
214.	Jubati Nayak Kapanda	Jubati Nayak
215.	Saudamini Nayak Kapanda	Saudamini Nayak
216.	Rasodhibar Nayak Vill. Kapanda	
217.	Binod Kisan AT = Bodhi Kutuni	Binod Kisan
218.	Prakasini Dash AT - Tumkela.	Prakasini Dash
219.	Dalimba sahu. AT – Kapanda	Dalimba sahu.
220.	Sairendri Patra AT:- Gamalei	S. Patra
221.	Malati Patra. Gamalei	M. Patra.
222.	Mini Sahu AT- Kapanda	Mini Sahu

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

(Signatures of the person who present in the PH)

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DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
223	Indurama Sahu Kapanda	Indurama Sahu
224.	Benudhr Kisan Nuagaon	Benudhr Kisan
225.	Ladra Munda Bad Purunapani	Ladra Munda
226.	Bikash Ranjan Chakra Rajamunda	Bikash Ranjan Chakra
227.	Maheswar Kar. Rourkela.	M.K.
228.	Ranjeet Ku. Parti Gaanlei	Ranjeet Parti
229.	Balabhadra Kishan Rourkela	
230.	Mahish Ku. Parti Gaanlei	M.K. Parti
231.	Alok Tripathy. Gaanlei	

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

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DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
232.	Lochan Kisan. At. Gamalai	Lochan Kisan.
233.	Sanjay Ku. Patra At - Gudhiali	Patra
234	Roshan Lal Shrestha At - Gudhiali	Roshan
235	ALOKA MOHANTY At. Gudhiali	
236.	Gopinath Kishan At - Bancha Mukha	Gopi
237.	Bishnu Das BR Sponge	
238.	Nagaraj M Das (B R SPONGE)	
239.	Pramod Ku Pati Gamalai	Pati
240.	Gocalconi pasa Name : Sunil Ku. Kumbhar	Sunil Kumar Kumbhar

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

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DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
241.	Ashok Kr. Pradhan	
242.	Bishnu Kisan	
243.	Pankaj kr Dash	
244.	[illegible]	
245.	Lambodar Kishan	
246.	Ajit Kumar Patra Budhi Kuturni	
247.	Mayadhar Mahanta Kapanda	
248.	Shiba Shankar Sahu	
249	Surendra Nayak	

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

(Signatures of the person who present in the PH)

ATTENDANCE SHEET OF THE PERSONS PRESENT IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
250.	[illegible]	[illegible]
251.	Jogeswar Sahu At - Kapanda	Jogeswar Sahu
252.	Rohit Kumar Sahu At - Kapanda	Rohit Kumar Sahu
253.	Dhaneswar Kisan At - Kapanda	Dhaneswar Kisan
254.	Chidanjan Patra Kapanda	Chitaranjan Patra

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

(Signatures of the person who present in the PH)

ATTENDANCE SHEET OF THE PERSONS PRESENT IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
255.	Indramani Kisan	
256.	Bhagaban Kisan	
257.	Bideshi Barik	Kapanda
258.	At – Kapanda Pradeep Ku Nayak	Pradeep Ku Nayak
259.	Ram Kumar Gouda	Ram Kumar
260.	[illegible]	[illegible]
261.	Purendra Kisan JIBIKA POSH	Purendra Kisan
262.	[illegible]	[illegible]
263.	Abhimanyu Kumbhar	Abhimanyu Kumbhar

SUB-COLLECTOR
BONAI

ATTENDANCE SHEET

(Signatures of the person who present in the PH)

ATTENDANCE SHEET OF THE PERSONS PRESENT IN THE PUBLIC HEARING MEETING FOR GREENFIELD PROJECT OF M/S KAI INTERNATIONAL PVT. LTD. FOR INSTALLATION OF IRON ORE BENEFICIATION PLANT – 1.5 MTPA THROUGHPUT (1.16 MTPA HIGH GRADE ORE), IRON ORE PELLETIZATION PLANT – 1.2 MTPA AND PRODUCER GAS PLANT 27,000 Nm^3/hr AT VILLAGE KAPANDA UNDER LAHUNIPARA TAHASIL OF SUNDARGARH DISTRICT.

VENUE: AT – FOOTBALL PLAY GROUND, BAD-PURUNAPANI VILLAGE, TAHASIL - LAHUNIPARA, DIST - SUNDARGARH.

DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
264.	Bhajan Chandra Kisan Mreeg Oram	
265	Kanthar Kisan Mreeg Oram	
266.	Ramesh Mahanta Kapanda	
267.	Sialikudar Chama Oram	
268.	Sialikudar Sanika Oram	
269.	Phutakan munda Tikayat pali	Phutakan Munda
270.	Thakursingh Munda Tikayat pali	Thakursingh Munda
271.	Khageswar Kisan Jibika posh	Khageswar Kisan Jibika posh
272.	Tapaswini Kisan Sukudali Kisan	

Buthikutumi
ଭୁବନିକୁଟୁମି
Buthikutumi
ଭୁମ କିଷାଣ

SUB-COLLECTOR
BONAI

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(Signatures of the person who present in the PH)

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DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
273.	Dhaneswar Kishan	Dhaneswar Kishan
274.	Nabin Mahanta	Nabin Mahanta
275.	Rasmita Kishan Gudhiali	Rasmita Kishan
276.	Anjana Mahanta Gadhiali	Anjana Mahanta.
277.	Bishnu Priya Sahu Gadhiali	
278.	Sukanta Patra Gadhiali	
279.	Puspa Manjari Mishra. Gamlei	
280.	Rekha Nag	
281.	Soudamini Kishan.	

SUB-COLLECTOR
BONAI

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DATE &TIME: 24-05-2022 (10.00 AM.)

S.N.	Name & Address	Signature
282.	[illegible]	
283.	[illegible]	
284.	[illegible]	
285.	[illegible]	
286.	Gobardhan Kisku Goredani Posh	
287.	[illegible]	
288.	Birsa Oram Thiberna	
289.	Pandav Mahuta. AT- Thiberana.	
290.	[illegible]	

Bansidhar Kisan (Adhikuta Soi)
Laxman Kisan Hansi Kisan.
Godadan Kisa Goldadan Kisan.
Bendmod Kisan.

SUB-COLLECTOR
BONAI

ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡ଼ିଶା

(ଜଙ୍ଗଲ, ପରିବେଶ ଓ ଜଳବାୟୁ ପରିବର୍ତ୍ତନ ବିଭାଗ, ଓଡ଼ିଶା ସରକାର)

ପରିବେଶ ଭବନ, ଏ/୧୨୮, ନୀଳକଣ୍ଠନଗର, ୟୁନିଟ୍-୮, ଭୁବନେଶ୍ୱର-୭୫୧୦୧୨

ବିଜ୍ଞାପନ

ସଂଖ୍ୟା: 6686/IND-II-PH-1017

ତାରିଖ: ୧୯.୦୫.୨୦୨୨

CAD-266 : ଏତଦ୍ଦ୍ୱାରା ସମସ୍ତଙ୍କ ଅବଗତି ନିମନ୍ତେ ଜଣାଇ ଦିଆଯାଉଅଛି ଯେ ମେସର୍ସ ଜେ.ଏ ଆଇ ଇଣ୍ଡରନ୍ୟାସନାଲ ପ୍ରା. ଲି ଓଡ଼ିଶାର ସୁନ୍ଦରଗଡ଼ ଜିଲ୍ଲା, ଲହୁଣୀପଡ଼ା ତହସିଲ ଅନ୍ତର୍ଗତ କପଣା ଗ୍ରାମରେ ଗ୍ରାନ୍‌ପିଲ୍ସ ପ୍ରକଳ୍ପ ପାଇଁ ବାର୍ଷିକ ୧.୫ ନିୟୁତ ଟନ୍ କ୍ଷମତା ବିଶିଷ୍ଟ ଲୌହ ଖଣିଜ ବିଶୋଧନ ପ୍ରକଳ୍ପ ଥ୍ରୋପୁଟ୍ (ବାର୍ଷିକ ୧୧୬ ନିୟୁତ ଟନ୍ ଜଟମାନ ଯୁକ୍ତ ଖଣିଜ), ବାର୍ଷିକ ୧.୨ ନିୟୁତ ଟନ୍ ଲୌହ ଖଣିଜ ପେଲେଟାଇଜେସନ ପ୍ରକଳ୍ପ ଏବଂ ପ୍ରତି ଘଣ୍ଟା ୨୬୦୦୦ ନର୍ମାଲ ଘନମିଟର କ୍ଷମତା ବିଶିଷ୍ଟ ପ୍ରଟ୍ଟ୍ୟୁଜର ଗ୍ୟାସ ପ୍ରକଳ୍ପ ପ୍ରତିଷ୍ଠା ନିମନ୍ତେ ଭାରତ ସରକାରଙ୍କ ପରିବେଶ, ଜଙ୍ଗଲ ଏବଂ ଜଳବାୟୁ ପରିବର୍ତ୍ତନ ମନ୍ତ୍ରଣାଳୟ ଦ୍ୱାରା ପରିବେଶୀୟ ମଞ୍ଜୁରୀ ନିମନ୍ତେ ଆବଶ୍ୟକ ପଡୁଥିବା ସର୍ବସାଧାରଣ ଶୁଣାଣି ନିମନ୍ତେ ଓଡ଼ିଶା ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡକୁ ଆବେଦନ କରିଛନ୍ତି।

ଭାରତ ସରକାର ପରିବେଶ, ଜଙ୍ଗଲ ଏବଂ ଜଳବାୟୁ ପରିବର୍ତ୍ତନ ମନ୍ତ୍ରଣାଳୟର ପରିବେଶୀୟ ମଞ୍ଜୁରି ନିମନ୍ତେ ଅଧିସୂଚନା ସଂଖ୍ୟା ଏଚ୍.ଓ ୧୪୩୩(ଇ), ତା.୧୪.୯.୨୦୦୬ରିଖ ଅନୁଯାୟୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡ଼ିଶା, ଭୁବନେଶ୍ୱରକୁ ସର୍ବସାଧାରଣ ଶୁଣାଣି କରିବାର କ୍ଷମତା ପ୍ରଦାନ କରିଛନ୍ତି। ଏଥିନିମନ୍ତେ ବୋର୍ଡ, ସର୍ବସାଧାରଣଙ୍କ ସମେତ ପ୍ରକୃତ ଅଧିବାସୀ, ପରିବେଶୀୟ ସଂସ୍ଥା ଏବଂ ପ୍ରସ୍ତାବିତ ପ୍ରକଳ୍ପ ସ୍ଥାପନ ହେଉଥିବା ସ୍ଥାନରେ ଜନବର୍ଗ, ପ୍ରକଳ୍ପ ଯୋଗୁଁ ଉଚ୍ଛେଦ ହେଉଥିବା ବାସିନ୍ଦା, ପ୍ରକଳ୍ପ ଯୋଗୁଁ ପ୍ରଭାବିତ ହେଉଥିବା ବାସିନ୍ଦାମାନଙ୍କଠାରୁ ପ୍ରକଳ୍ପ ସ୍ଥାପନ ଯୋଗୁଁ ପରିବେଶୀୟ ପ୍ରଭାବ ସମ୍ବନ୍ଧୀୟ ପ୍ରସ୍ତାବ, ମତାମତ, ମନ୍ତବ୍ୟ ଓ ଆପରି ପତ୍ର ଆହ୍ୱାନ କରୁଛନ୍ତି। ଏଥିନିମନ୍ତେ ବ୍ୟକ୍ତିର ଅର୍ଥ କେବଳ ନିମ୍ନମତେ ବୁଝାଯାଉଛି :

(କ) ପରିବେଶୀୟ ମଞ୍ଜୁରି ଦ୍ୱାରା ପ୍ରଭାବିତ ହେଉଥିବା ବା ହେବାକୁ ଥିବା ଯେକୌଣସି ବ୍ୟକ୍ତି।

(ଖ) ପ୍ରକଳ୍ପ ସମ୍ବନ୍ଧିତ ପରିବେଶୀୟ ମଞ୍ଜୁରି ପାଇଁ ଆଗତ ଦରଖାସ୍ତ ପରିପ୍ରେକ୍ଷୀରେ ତହିଁ ଉପରେ କର୍ତ୍ତୃତ୍ୱ ଜାହିର କରିଯାଉଥିବା କୌଣସି ବ୍ୟକ୍ତିବିଶେଷ।

(ଗ) ପରିବେଶ କ୍ଷେତ୍ରରେ କାର୍ଯ୍ୟ କରୁଥିବା କିମ୍ବା/ଏବଂ ପ୍ରସ୍ତାବିତ ପ୍ରକଳ୍ପ ଦ୍ୱାରା ପ୍ରଭାବିତ ହେଉଥିବା (ପଞ୍ଜୀକୃତ ବା ଅପଞ୍ଜୀକୃତ) ଯେକୌଣସି ବ୍ୟକ୍ତି ସମୂହଙ୍କ ସଂଘ।

(ଘ) ପ୍ରସ୍ତାବିତ ପ୍ରକଳ୍ପର ସ୍ଥାନୀୟ ସୀମାରୁକ୍ତ ନିକଟବର୍ତ୍ତୀ ଅଞ୍ଚଳରେ ଯେକୌଣସି ସ୍ଥାନୀୟ କର୍ତ୍ତୃପକ୍ଷ।

ଉପରୋକ୍ତ ବ୍ୟକ୍ତିମାନେ ସେମାନଙ୍କର ପ୍ରସ୍ତାବ, ମତାମତ, ମନ୍ତବ୍ୟ ଏବଂ ଆପତ୍ତି ଇତ୍ୟାଦିକୁ ସଦସ୍ୟ ସଚିବ, ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡ଼ିଶାଙ୍କୁ ଲିଖିତ ଆକାରରେ ଏହି ବିଜ୍ଞାପନ ପ୍ରକାଶନର ୩୦ ଦିନ ମଧ୍ୟରେ ରେଜେଷ୍ଟ୍ରି ଡାକଯୋଗେ ଜଣାଇପାରିବେ। ଏହାଛଡ଼ା ଉକ୍ତ ପ୍ରସ୍ତାବିତ ପ୍ରକଳ୍ପ ଉପରେ ଲିଖିତ ବା ମୌଖିକ ଭାବେ ମତାମତ ଦେବା ପାଇଁ ଇଚ୍ଛୁକ ବ୍ୟକ୍ତିମାନେ ତା.୨୪.୦୫.୨୦୨୨ ରିଖ ଦିବା ୧୦.୦୦ ଘଟିକା ସମୟରେ ସୁନ୍ଦରଗଡ଼ ଜିଲ୍ଲା ଅନ୍ତର୍ଗତ ବଡ଼-ପୁରୁଣାପାଣି ଗ୍ରାମସ୍ଥିତ ଫୁଟବଲ ଖେଳପଡ଼ିଆରେ ଧାର୍ଯ୍ୟ ସର୍ବସାଧାରଣ ଶୁଣାଣି ସମୟରେ ମଧ୍ୟ ଉପସ୍ଥାପନ କରିପାରିବେ। ଉକ୍ତ ସର୍ବସାଧାରଣ ଶୁଣାଣି କଠୋର ଭାବରେ ଭାରତ ସରକାରଙ୍କ ପରିବେଶ, ଜଙ୍ଗଲ ଏବଂ ଜଳବାୟୁ ପରିବର୍ତ୍ତନ ମନ୍ତ୍ରଣାଳୟ ଦ୍ୱାରା ପ୍ରଦତ୍ତ Covid-19 ମହାମାରୀ ପ୍ରତିବନ୍ଧକ ମାର୍ଗଦର୍ଶିକା ନଂ ୨୨-୨୫-IA.III, ତା.୦୯.୦୬.୨୦୨୧ରିଖ ତଥା ଓଡ଼ିଶା ସରକାରଙ୍କ ଅନୁଯାୟୀ କାର୍ଯ୍ୟକାରୀ କରାଯିବ।

ପ୍ରସ୍ତାବିତ ପ୍ରକଳ୍ପ ବିଷୟରେ ବିଶଦ ଭାବରେ ଜାଣିବା ପାଇଁ ପରିବେଶୀୟ ପ୍ରଭାବ ମୂଲ୍ୟାୟନ ବିବରଣୀ (Environmental Impact Assessment) ଏବଂ ଏହାର ନିର୍ବାହୀ ସାରାଂଶ (Executive Summary) ଓଡ଼ିଆ ଏବଂ ଇଂରାଜୀ ଭାଷାରେ ନିମ୍ନଲିଖିତ ସ୍ଥାନମାନଙ୍କରେ ମିଳିପାରିବ।

୧. ଜିଲ୍ଲାପାଳଙ୍କ କାର୍ଯ୍ୟାଳୟ, ସୁନ୍ଦରଗଡ଼।

୨. ଜିଲ୍ଲା ଶିଳ୍ପକେନ୍ଦ୍ର, ସୁନ୍ଦରଗଡ଼।

୩. ଜିଲ୍ଲା ପରିଷଦ ମୁଖ୍ୟ ନିର୍ବାହୀ ଅଧିକାରୀ, ସୁନ୍ଦରଗଡ଼।

୪. ମୁଖ୍ୟ କାର୍ଯ୍ୟାଳୟ, ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡ଼ିଶା, ପରିବେଶ ଭବନ, ଏ/୧୨୮, ନୀଳକଣ୍ଠ ନଗର, ଭୁବନେଶ୍ୱର-୭୫୧୦୧୨।

୫. ଆଞ୍ଚଳିକ କାର୍ଯ୍ୟାଳୟ, ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡ଼ିଶା, ରାଉରକେଲା।

୬. ଜଙ୍ଗଲ, ପରିବେଶ ଓ ଜଳବାୟୁ ପରିବର୍ତ୍ତନ ବିଭାଗ, ଓଡ଼ିଶା ସରକାର, ଭୁବନେଶ୍ୱର।

ଏତଦ୍‌ବ୍ୟତୀତ ପରିବେଶୀୟ ପ୍ରଭାବ ମୂଲ୍ୟାୟନ ବିବରଣୀର ନିର୍ବାହୀ ସାରାଂଶ (Executive Summary) ଓଡ଼ିଆ ଏବଂ ଇଂରାଜୀ ଭାଷାରେ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡ଼ିଶାର ୱେବସାଇଟ୍ www.ospcboard.orgରୁ ମଧ୍ୟ ମିଳିପାରିବ।

ଏ ବିଷୟରେ ସବିଶେଷ ବିବରଣୀ ପାଇଁ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡ଼ିଶାର ଆଞ୍ଚଳିକ କାର୍ଯ୍ୟାଳୟ, ରାଉରକେଲାସ୍ଥିତ ଆଞ୍ଚଳିକ ଅଧିକାରୀ କିମ୍ବା ଭୁବନେଶ୍ୱରସ୍ଥିତ ମୁଖ୍ୟ କାର୍ଯ୍ୟାଳୟରେ ସଦସ୍ୟ ସଚିବଙ୍କ ସହ ଯୋଗାଯୋଗ କରାଯାଇପାରେ।

ସ୍ୱା/- ସଦସ୍ୟ ସଚିବ

STATE POLLUTION CONTROL BOARD, ODISHA

(Department of Forest, Environment & Climate Change, Govt. of Odisha)
Paribesh Bhawan, A/118, Nilakanthanagar, Unit-VIII, Bhubaneswar-751012

No. 6879/ IND-II-PH-1017 Date : 19.04.2022

NOTICE

It is brought to the notice of all concerned that **M/s KAI International Pvt. Ltd.** has proposed to have Environmental Assessment for **Greenfield Project for installation of Iron Ore Beneficiation Plant -1.5 MTPA throughput (1.16 MTPA High Grade Ore), Iron Ore Pelletization Plant - 1.2 MTPA and Producer Gas Plant 27,000 Nm³/hr at village Kapanda under Lahunipara Tehsil of Sundargarh District** to obtain Environmental Clearance from Ministry of Environment, Forest and Climate Change, Govt. of India. The proponent has applied to the State Pollution Control Board, Odisha, Bhubaneswar for a Public Hearing.

By virtue of Ministry of Environment, Forests & Climate Change, Government of India Notification No. S.O. 1533 (E) Dtd. 14.09.2006, the Board has been authorized to conduct environmental public hearing and as such invites suggestions, views, comments and objections on matters relating to environmental aspects of the proposed project from all the persons including bonafide residents, environmental groups and others located at the proposed site/sites of displacement/sites likely to be affected.

For the above purpose, a person will only mean:

A. Any person who is likely to be affected by the grant of Environmental Clearance.

B. Any person who owns his control over the project with respect to which an application has been submitted for environmental clearance.

C. Any association of persons whether incorporated or likely to be affected by the project and / or functioning in the field of environment.

D. Any local authority within any part of whose local limits is within the neighborhood, wherein the project is proposed to be located.

Persons as above who desire to submit their views, comments, objections etc. relevant to the project, may do so in writing within 30 days from the date of publication of this notice addressing the same to the Member Secretary, State Pollution Control Board, Odisha through Registered Post Besides this, persons interested to submit their views relevant to the proposed project in writing or orally may also do so during the public hearing rescheduled to be conducted **on 24.05.2022 at 10.00 AM Football Play Ground, Bad-Purunapani Village of Sundargarh District. Public hearing shall be conducted strictly observing guidelines contained in COVID - 19 pandemic restrictions issued by the MoEF&CC, Govt. of India vide OM No.22-25-IA.III, dated 09.06.2021 as well as Govt. of Odisha.**

Persons desirous of participating in the public hearing may go through the Environmental Impact Assessment (EIA)/Environmental Management Plan (EMP) of the said project which will be available at the following offices. Copy of the Executive Summary both in English & Odia is also available in the following offices & the same can also be downloaded from the website **www.ospcboard.org** free of cost.

1. District Collector's Office, **Sundargarh**
2. District Industries Center, **Sundargarh.**
3. In the office of the Chief Executive Officer, Zilla Parishad, **Sundargarh.**
4. In the Head office of the State Pollution Control Board, Odisha, Parivesh Bhawan, A/118, Nilakanthanagar, Unit -VIII, Bhubaneswar -12.
5. Regional Office, State Pollution Control Board, Odisha, **Raurkela.**
6. Department of Forest & Environment (Environment), Govt. of Odisha, Bhubaneswar.

For any further clarification in the matter, the Regional Officer, State Pollution Control Board, **Raurkela** or the Member Secretary, State Pollution Control Board, Odisha at Bhubaneswar may be contacted.

Sd/-
MEMBER SECRETARY

O/PR - 6801/2/11/0035/22-23

The Times of India 27.22.4.22 P-4

Final Environmental Impact Assessment & Environment Management Plan Report

Proposed Greenfield project of Iron Ore Beneficiation Plant- 1.5 MTPA throughput (1.16 MTPA High grade ore), Iron ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 Nm3/hr (6 x 4,500 Nm^3/hr) located at village- Kapanda, Tehsil–Lahunipara, District- Sundergarh, Odisha.

Category of Project – A

Project Proponent:

KAI International Pvt. Ltd.

3rd Floor, Forum Galleria Office No. 316-323
Civil Township, Rourkela, Dist.- Sundargarh, Odisha

- **Document No.: VCSPL/IND/KAI/003/26**
- **ToR File No.: J-11011/59/2021-IA.II(I); Dated: 29.11.2021**
- **Baseline Period: October to December 2021 (Post-Monsoon)**
- **Laboratory Engaged: In-House Lab**
- **Public Hearing Conducted on 24.05.2022**

NABL Accreditation: Valid up to 25.09.2023
MoEF & CC Recognition: Valid up to 16.10.2024
NABET Accreditation- Valid up to 16th December, 2023

Visiontek Consultancy Services Pvt. Ltd.
(Committed for better Environment)

Plot No- M-22 & M23, Chandaka Industrial Estate, Patia, Bhubaneswar- 751024
Phone No.: 91-674-3511721,
Website- www.visiontek.org; E-mail- visiontekin@gmail.com

List of Contents

ToR Compliance……TC. Pg. No. 1 -24

Executive Summary…… EX. Pg. No. 1-11

CHAPTER- 1		
1.1	PURPOSE OF THE REPORT	Pg. No. 1
1.2	DETAILS OF PROJECT PROPONENT	Pg. No. 1
1.21	NAME OF THE PROJECT	Pg. No. 1
1.2.2	DETAILS OF THE COMPANY	Pg. No. 1
1.2.3	REGISTERED ADDRESS OF THE COMPANY	Pg. No. 1
1.2.4	BRIEF OF PROMOTERS	Pg. No. 1
1.2.5	DETAILS OF JOINT VENTURE (IF ANY)	Pg. No. 1
1.3	BRIEF DESCRIPTION OF THE PROJECT	Pg. No. 2
1.3.1	NATURE, SIZE & CATEGORY OF THE PROJECT	Pg. No. 9
1.3.2	IMPORTANCE OF THE PROJECT	Pg. No. 9
1.3.3	BRIEF HISTORY OF THE PROJECT	Pg. No. 10
1.4	SCOPE OF THE STUDY	Pg. No. 11
1.4.1	BASELINE DATA GENERATION, FIELD STUDIES AND DATA COLLECTION	Pg. No. 12
1.5	APPLICABLE ENVIRONMENTAL & FACTORY LAWS/ACTS/ RULES	Pg. No. 12
1.6	STRUCTURE OF THE EIA REPORT	Pg. No. 13
1.7	SITE HISTORY	Pg. No. 14
1.8	COURT CASE/LITIGATION PENDING DETAILS	Pg. No. 14
CHAPTER- 2		
2.1	TYPE OF THE PROJECT	Pg. No. 1
2.1.1	NATURE OF PROJECT	Pg. No. 1
2.1.2	SIZE & MAGNITUDE OF OPERATION	Pg. No. 1
2.1.3	NEED FOR THE PROJECT	Pg. No. 2
2.2	SITE CHARACTERISTIC & LAND REQUIREMENT	Pg. No. 3
2.2.1	VICINITY OF THE PROJECT SITE	Pg. No. 3
2.2.2	LIST OF INDUSTRIES IN STUDY AREA	Pg. No. 7
2.2.3	LAND DETAILS	Pg. No. 7
2.3	PROCESS DESPRIPTION	Pg. No. 14
2.3.1	IRON ORE BENEFICIATION	Pg. No. 14
2.3.2	IRON ORE FINES PELLETIZATION	Pg. No. 16
2.3.3	PROCESS DESCRIPTION PRODUCER GAS PLANT	Pg. No. 24
2.4	RAW MATERIAL REQUIRED ALONG WITH ESTIMATED QUANTITY	Pg. No. 27
2.5	WATER REQUIREMENT	Pg. No. 29
2.6	POWER REQUIREMENT	Pg. No. 32
2.7	MANPOWER REQUIREMENT	Pg. No. 32
2.8	UTILITIES & SERVICES	Pg. No. 33
2.9	MATERIAL/ MASS BALANCE	Pg. No. 34

2.10	ENERGY & HEAT BALANCE	Pg. No. 36
2.11	RESOURCES OPTIMIZATION	Pg. No. 37
2.12	PROJECT COST BREAKUP	Pg. No. 39
2.13	PROPOSED SCHEDULE FOR APPROVAL AND IMPLEMENTATION	Pg. No. 39
2.14	DESCRIPTION OF MITIGATIVE MEASURES TO BE PROPOSED	Pg. No. 41
2.14.1	MITIGATIVE MEASURES FOR CONTROL OF AIR POLLUTION	Pg. No. 41
2.14.2	MITIGATIVE MEASURES FOR CONTROL OF WATER POLLUTION	Pg. No. 43
2.14.3	MITIGATIVE MEASURES FOR CONTROL OF NOISE POLLUTION	Pg. No. 44
2.14.4	SOLID & HAZARDOUS WASTE MANAGEMEN	Pg. No. 44
2.15	OTHER INFORMATION AS PER SPECIFIC TOR	Pg. No. 45
2.15.1	DETAILS OF SLAG UTILIZATION	Pg. No. 45
2.15.2	PLAN FOR UTILIZATION OF ENERGY IN OFF GASES (COKE OVEN, BLAST FURNACES)	Pg. No. 45
2.15.3	COKE QUENCHING	Pg. No. 45
2.15.4	TRACE METALS IN RAW MATERIAL & WASTE MATERIAL	Pg. No. 45
2.15.5	TRACE METALS IN WATER	Pg. No. 42
2.16	FEASIBILITY DRAWING WITH SCHEMATIC REPRESENTATION FOR EIA PURPOSE	Pg. No. 47
CHAPTER- 3		
3.1	STUDY AREA	Pg. No. 1
3.1.1	CORE ZONE	Pg. No. 1
3.1.2	BUFFER ZONE	Pg. No. 1
3.1.3	STUDY PERIOD	Pg. No. 1
3.1.4	STUDY COMPONENTS	Pg. No. 1
3.1.5	STUDY METHODOLOGY	Pg. No. 2
3.2	LAND ENVIRONMENT	Pg. No. 3
3.2.1	LAND USE PATTERN	Pg. No. 3
3.2.2	LAND USE OF THE STUDY AREA	Pg. No. 4
3.2.3	OBSERVATION & INTERPRETATION OF LAND USE/LAND COVER DATA	Pg. No. 8
3.3	METOROLOGY & CLIMATE	Pg. No. 10
3.3.1	REGIONAL METEOROLOGICAL DATA & WIND DIRECTION AS PER IMD	Pg. No. 10
3.3.2	METEOROLOGICAL DATA RECORDED AT SITE	Pg. No. 11
3.3.3	OBSERVATIONS & INTERPRETATION OF THE MET DATA	Pg. No. 11
3.4	AIR ENVIRONMENT	Pg. No. 14
3.4.1	AAQ MONITORING LOCATIONS AND MAP	Pg. No. 14
3.4.2	SUMMARY OF AAQ DATA	Pg. No. 14
3.4.3	OBSERVATIONS AND INTERPRETATION OF AAQ DATA	Pg. No. 21
3.4.4	INTERPRETATION OF AAQ DATA	Pg. No. 23
3.5	NOISE ENVIRONMENT	Pg. No. 25
3.5.1	NOISE MONITORING LOCATION AND MAP	Pg. No. 25
3.5.2	SUMMARY OF NOISE DATA- DAY & NIGHT	Pg. No. 28
3.5.3	OBSERVATION AND INTERPRETATION	Pg. No. 29
3.6	WATER ENVIRONMENT	Pg. No. 31
3.6.1	SURFACE WATER MONITORING LOCATIONS & MAP	Pg. No. 33

3.6.2	SUMMARY OF SURFACE WATER DATA	Pg. No. 36
3.6.3	OBSERVATION & INTERPRETATION OF SURFACE WATER DATA	Pg. No. 39
3.6.4	GROUND WATER MONITORING LOCATIONS & MAP	Pg. No. 40
3.6.5	SUMMARY OF GROUND WATER DATA	Pg. No. 43
3.6.6	OBSERVATIONS AND INTERPRETATION OF GROUNDWATER DATA	Pg. No. 46
3.7	SOIL ENVIRONMENT	Pg. No. 47
3.7.1	SOIL MONITORING LOCATIONS & MAP	Pg. No. 48
3.7.2	SUMMARY OF SOIL DATA	Pg. No. 52
3.7.3	OBSERVATION AND INTERPRETATION OF SOIL SAMPLING DATA	Pg. No. 55
3.8	TOPOGRAPHY AND GEOMORPHOLOGY	Pg. No. 54
3.8.1	TOPOGRAPHY	Pg. No. 54
3.8.2	LITHOSTRATIGRAPHY	Pg. No. 54
3.8.3	HYDROGEOLOGY	Pg. No. 55
3.8.4	GEOMORPHOLOGY	Pg. No. 56
3.8.5	GEOLOGY	Pg. No. 57
3.9	TRAFFIC STUDY	Pg. No. 60
3.9.1	ANALYSIS OF MONITORED TRAFFIC DENSITY	Pg. No. 60
3.9.2	SUMMARY OF THE TRAFFIC DENSITY/COUNT & PCU	Pg. No. 61
3.9.3	OBSERVATION AND INTERPRETATION OF MONITORING DATA	Pg. No. 62
3.10	ECOLOGICAL & BIOLOGICAL ENVIRONMENT	Pg. No. 63
3.10.1	ECOLOGY & BIODIVERSITY OF THE AREA	Pg. No. 63
3.10.2	FLORA IN THE BUFFER ZONE	Pg. No. 63
3.10.3	FAUNA IN THE BUFFER ZONE	Pg. No. 66
3.10.4	FLORA IN THE CORE ZONE	Pg. No. 70
3.11	SOCIO-ECONOMIC ENVIRONMENT	Pg. No. 70
3.11.1	OBJECTIVE AND SCOPE OF THE STUDY	Pg. No. 71
3.11.2	DESCRIPTION AND RATIONALE OF METHODOLOGY ADOPTED FOR THE STUDY	Pg. No. 73
3.11.3	ADMINISTRATIVE DETAILS OF THE STUDY AREA	Pg. No. 76
3.11.4	DEMOGRAPHIC PROFILE OF THE STUDY AREA	Pg. No. 81
3.13	DEMOGRAPHIC INTERRELATIONSHIP WITH THE PROJECT	Pg. No. 91
3.14	OBSERVATION OF THE SOCIO-ECONOMIC DATA INFORMATION	Pg. No. 91
CHAPTER- 4		
4.1	OBJECTIVES & METHODOLOGY OF IMPACT PREDICTION	Pg. No. 1
4.1.1	OBJECTIVE OF IMPACT PREDICTION	Pg. No. 1
4.1.2	METHODOLOGY OF IMPACT PREDICTION FOR VARIOUS COMPONENTS	Pg. No. 1
4.1.2.1	ASSESSMENT OF SIGNIFICANCE OF IMPACTS (CRITERIA FOR DETERMINING SIGNIFICANCE, ASSIGNING SIGNIFICANCE) & MITIGATION MEASURES	Pg. No. 3
4.1.2.2	SEVERITY CRITERIA	Pg. No. 3
4.2	IMPACTS ON AIR ENVIRONMENT	Pg. No. 8
4.2.1	IMPACTS AND MITIGATION MEASURES DUE TO PROJECT LOCATION	Pg. No. 8
4.2.2	IMPACT AND MITIGATION MEASURES DUE TO PROJECT DESIGN	Pg. No. 9
4.3	IMPACT ON AIR ENVIRONMENT	Pg. No. 9
4.3.1	IMPACTS AND MITIGATION MEASURES DURING CONSTRUCTION PHASE	Pg. No. 9

4.3.2	IMPACTS AND MITIGATION MEASURES DURING OPERATIONAL PHASE	Pg. No. 9
4.3.3`	AMBIENT AIR QUALITY MODELING	Pg. No. 11
4.3.3.1	EMISSION DETAILS OF POLLUTANTS	Pg. No. 15
4.3.4	DISPERSION MODELING	Pg. No. 17
4.3.5	AIR QUALITY INDEX	Pg. No. 32
4.4	CONCLUSION	Pg. No. 33
4.4.1	INCREMENTAL GROUND LEVEL CONCENTRATIONS	Pg. No. 33
4.4.2	CONTROL OF PARTICULATE EMISSION FROM STACK	Pg. No. 37
4.4.3	CONTROL OF FUGITIVE EMISSIONS	Pg. No. 37
4.4.4	ACTION PLAN TO FOLLOW NAAQS	Pg. No. 38
4.5	IMPACT ON NOISE & VIBRATION ENVIRONMENT	Pg. No. 38
4.5.1	CONSTRUCTION PHASE	Pg. No. 38
4.5.2	OPERATION PHASE	Pg. No. 38
4.6	MITIGATION MEASURES FOR NOISE & VIBRATION ENVIRONMENT	Pg. No. 38
4.6.1	CONSTRUCTION PHASE	Pg. No. 38
4.6.2	OPERATIONAL PHASE	Pg. No. 38
4.7	IMPACT ON LAND ENVIRONMENT	Pg. No. 39
4.8	IMPACT ON WATER ENVIRONMENT	Pg. No. 39
4.8.1	CONSTRUCTION PHASE	Pg. No. 39
4.8.2	OPERATION PHASE	Pg. No. 39
4.9	MITIGATION MEASURES FOR WATER ENVIRONMENT	Pg. No. 40
4.9.1	CONSTRUCTION PHASE- CONTROL OF WATER POLLUTION	Pg. No. 40
4.9.2	OPERATION PHASE- CONTROL OF WATER POLLUTION	Pg. No. 40
4.10	SEWAGE TREATMENT PLANT	Pg. No. 41
4.11	EFFLUENT TREATMENT PLANT	Pg. No. 42
4.12	RAIN WATER HARVESTING	Pg. No. 43
4.13	IMPACT ON SOIL ENVIRONMENT	Pg. No. 47
4.13.1	CONSTRUCTION PHASE	Pg. No. 47
4.13.2	OPERATION PHASE	Pg. No. 47
4.14	MITIGATION MEASURES FOR SOIL ENVIRONMENT	Pg. No. 48
4.15	SOLID & HAZARDOUS WASTE MANAGEMENT	Pg. No. 48
4.16	IMPACT DUE TO TRAFFIC AND ITS MANAGEMENT	Pg. No. 49
4.17	OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT	Pg. No. 51
4.17.1	CONSTRUCTION PHASE	Pg. No. 51
4.17.2	OPERATION PHASE	Pg. No. 52
4.18	SOCIO-ECONOMIC ENVIRONMENT & MANAGEMENT	Pg. No. 53
4.18.1	CONSTRUCTION PHASE	Pg. No. 53
4.18.2	OPERATION PHASE	Pg. No. 53
4.19	MITIGATION MEASURES FOR ECOLOGY & BIODIVERSITY	Pg. No.66
CHAPTER- 5		
5.1	ALTERNATIVE ANALYSIS	Pg. No. 1
5.2	SITE SECLECTION ALTERNATIVES	Pg. No. 1
5.3	SELECTION OF TECHNOLOGY	Pg. No. 6

5.4	POLLUTION CONTROL TECHNOLOGY ALTERNATIVES	Pg. No. 10
5.5	WATER POLLUTION CONTROL DEVICES	Pg. No. 10
5.6	CONCLUSION	Pg. No. 10
CHAPTER- 6		
6.1	OBJECTIVE OF ENVIRONMENTAL MONITORING	Pg. No. 1
6.1.1	PERFORMANCE MONITORING SCHEDULE FOR POLLUTION CONTROL DEVICES	Pg. No. 1
6.1.2	STRUCTURE OF ENVIRONMENT MANAGEMENT CELL (EMC)	Pg. No. 2
6.2	METHODOLOGIES OF MEASUREMENT	Pg. No. 3
6.2.1	AMBIENT AIR MONITORING	Pg. No. 3
6.2.2	SURFACE WATER MONITORING	Pg. No. 3
6.2.3	GROUND WATER MONITORING	Pg. No. 5
6.2.4	NOISE MONITORING	Pg. No. 6
6.3	PERFORMANCE MONITORING	Pg. No. 7
6.3.1	MONITORING SCHEDULE DURING CONSTRUCTION PHASE	Pg. No. 6
6.3.2	MONITORING SCHEDULE DURING OPERATION PHASE	Pg. No. 8
6.4	OCCUPATIONAL HEALTH & SAFETY MONITORING	Pg. No. 10
6.5	ACCIDENT AND DISEASE MONITORING	Pg. No. 10
6.6	ENVIRONMENTAL LABORATORY	Pg. No. 11
6.8	COST OF ENVIRONMENT MONITORING	Pg. No. 13
CHAPTER-7		
7.1	PUBLIC CONSULTATION	Pg. No. 1
7.1.1	ACTION PLAN AS PER MOEF&CC O.M DATED 30.09.2020 FOR THREE YEARS BUDGETARY PROVISION	Pg. No. 6
7.2	REHABILITATION & RESETTLEMENT PLAN	Pg. No. 11
7.3	RISK ASSESSMENT & DISASTER MANAGEMENT PLAN	Pg. No. 11
7.3.1	RISK ASSESSMENT & DAMAGE CONTROL	Pg. No. 11
7.3.2	HAZARD IDENTIFICATION & RISK ASSESSMENT (HIRA)	Pg. No. 12
7.3.2.1	PROCESS HAZARD ANALYSIS & NECESSARY RISK CONTROL MEASURES	Pg. No. 15
7.3.2.2	EXPOSURE TO HIGH TEMPERATURE	Pg. No. 21
7.3.2.3	PHYSICAL HAZARDS	Pg. No. 21
7.3.2.4	RISK ANALYSIS CALCULATION	Pg. No. 22
7.3.2.5	ELECTROCUTION	Pg. No. 24
7.4.2.6	NATURAL AND MANMADE CALAMITIES WHICH CAN LEAD TO EMERGENCY	Pg. No. 24
7.4.2.7	HIGH RISK CATEGORIES AND PREVENTIVE MEASURES	Pg. No. 27
7.4.2.8	MEASURES FOR CONTROL OF OCCUPATIONAL HEALTH HAZARDS	Pg. No. 28
7.4.3	DISASTER MANAGEMENT PLAN	Pg. No. 28
7.4.3.1	OBJECTIVE	Pg. No. 28
7.4.3.2	EMERGENCY COMMAND STRUCTURE	Pg. No. 29
7.4.3.3	ON-SITE EMERGENCY CONTROL PLAN (ECP	Pg. No. 30
7.4.3.4	ROLES AND RESPONSIBILITY	Pg. No. 33
7.4.3.5	EVACUATION PLAN	Pg. No. 34
7.4.3.6	FIRE FIGHTING EQUIPMENT	Pg. No. 36

7.4.3.7	ALARM SYSTEM	Pg. No. 37
7.4.3.8	FIRST AID	Pg. No. 37
7.4.3.9	MOCK DRILL	Pg. No. 37
7.4.3.10	OFF-SITE EMERGENCY PLANNING	Pg. No. 38
7.4.3.11	ORGANIZATION	Pg. No. 38
7.5	OCCUPATIONAL HEALTH STUDY	Pg. No. 41
7.5.1	EXPECTED OCCUPATIONAL HAZARDS	Pg. No. 49
7.5.2	HAZARDS FOR WORKMEN FROM THE RAW MATERIAL	Pg. No. 50
7.5.3	HAZARDS FOR WORKMEN FROM PROCESS	Pg. No. 50
7.6	DISCUSSIONS & RECOMMENDATIONS FOR PREVENTION OF HEALTH IMPACTS	Pg. No. 60
7.6.1	PRE-EMPLOYMENT HEALTH CHECKUP & SCHEDULE	Pg. No. 50
7.6.2	POST-EMPLOYMENT HEALTH CHECKUP & SCHEDULE	Pg. No. 51
7.6.3	MEASURES FOR MAINTAINING OCCUPATIONAL HEALTH SAFETY (OHS)	Pg. No. 52
7.7	CARBON FOOT PRINT STUDY	Pg. No. 45
7.7.1	OBJECTIVE	Pg. No. 45
7.7.2	METHODOLOGY	Pg. No. 45
7.7.3	RESULT BASED ON DATA COLLECTION AND INVENTORY CALCULATION IN DIFFERENT SCOPE	Pg. No. 45
7.7.4	DEVELOPMENT OF GREENBELT BASED ON CARBON SEQUESTRATION SCHEME	Pg. No. 47
7.7.5	CONCLUSION BASED ON CARBON FOOTPRINT & CARBON SEQUESTRATION	Pg. No. 47
CHAPTER- 8		
8.1	INTRODUCTION	Pg. No. 1
8.2	BENEFITS OF THE PROJECTS	Pg. No. 1
8.3	IMPROVEMENT IN PHYSICAL INFRASTRUCTURE	Pg. No. 1
8.4	IMPROVEMENT IN SOCIAL INFRASTRUCTURE	Pg. No. 1
8.5	EMPLOYMENT POTENTIAL- SKILLED; SEMI-SKILLED AND UNSKILLED	Pg. No. 4
8.6	CORPORATE ENVIRONMENT RESPONSIBILITY	Pg. No. 5
CHAPTER- 9		
9.1	Environment Cost Benefit Analysis	Pg. No. 1
CHAPTER- 10		
10.1	OBJECTIVES OF ENVIRONMENT MANAGEMENT PLAN	
10.2	ENVIRONMENT MANAGEMENT DURING CONSTRUCTION PHASE	Pg. No. 3
10.3	ENVIRONMENT MANAGEMENT DURING OPERATION PHASE	Pg. No. 5
10.4	MANAGEMENT OF STORAGE FACILITY	Pg. No. 8
10.5	GREENBELT DEVELOPMENT AND PLANTATION PROGRAMME	Pg. No. 11
10.6	CORPORATE ENVIRONMENT POLICY	Pg. No. 11
10.6.1	ENVIRONMENTAL PRINCIPLES	Pg. No. 11
10.6.2	ENVIRONMENTAL POLICY STATEMENT	Pg. No. 11
10.7	INFRASTRUCTURE FACILITIES	Pg. No. 14
10.8	REPORTING OF NON-CONFORMANCE & MANAGEMENT REVIEW	Pg. No. 14
10.8.1	ADMINISTRATIVE SET UP	Pg. No. 14
10.9	COST OF ENVIRONMENT MANAGEMENT PLAN	Pg. No. 16

10.10	COMPLIANCE OF CREP GUIDELINES	Pg. No. 16
CHAPTER- 11		
11.1	INTRODUCTION	Pg. No. 1
11.2	PROJECT DESCRIPTION	Pg. No. 1
11.2.1	PRODUCTION TECHNOLOGY	Pg. No. 3
11.2.2	ANNUAL RAW MATERIAL EQUIREMENT	Pg. No. 5
11.2.3	WATER REQUIREMENT	Pg. No. 6
11.2.4	POWER REQUIREMENT	Pg. No. 6
11.2.5	MANPOWER REQUIREMENT	Pg. No. 7
11.2.6	PROJECT COST	Pg. No. 7
11.3	DESCRIPTION OF ENVIRONMENT	Pg. No. 7
11.4	ANTICIPATED ENVIRONMENTAL IMPACT & MITIGATION MEASURES	Pg. No. 11
11.4.2	DISPERSION MODELLING- SUMMARY	Pg. No. 14
11.4.2	TRAFFIC ASSESSMENT	Pg. No. 14
11.5	ANALYSIS OF ALTERNATIVES	Pg. No. 15
11.6	ENVIRONMENTAL MANAGEMENT PLAN	Pg. No. 15
11.7	ADDITIONAL STUDIES	Pg. No. 16
11.8	PROJECT BENEFITS	Pg. No. 16
11.9	ENVIRONMENT MANAGEMENT PLAN	Pg. No. 16
11.9.1	ONSITE OFFSITE EMERGENCY PLAN	Pg. No. 17
11.9.2	OCCUPATIONAL HEALTH & SAFETY MANAGEMENT PLAN	Pg. No. 17
11.9.3	GREENBELT DEVELOPMENT PLAN	Pg. No. 17
11.9.4	E- WASTE MANAGEMENT PLAN	Pg. No. 17
11.9.5	PLASTIC WASTE MANAGEMENT PLAN	Pg. No. 17
11.9.6	CONSTRUCTION WASTE MANAGEMENT PLAN	Pg. No. 18
11.10	CONCLUSION	Pg. No. 18
CHAPTER- 12		
12.1	CONSULTANT'S PROFILE	Pg. No. 1
12.2	EIA COORDINATORS & FUNCTIONAL EXPERTS INVOLVE IN THIS PROJECT	Pg. No. 2
12.3	ENVIRONMENT POLICY	Pg. No. 4
12.4	INVOLVEMENT IN THE EIA	Pg. No. 4
12.5	ACCREDITATION OF VCSPL	Pg. No. 5
12.6	QUALITY POLICY OF VCSPL	Pg. No. 9
12.7	ISO CERTIFICATION	Pg. No. 10
12.8	QUALITY POLICY OF VCSPL	Pg. No. 13
CHAPTER- 13		
13.1	PROJECT & SITE DETAILS	Pg. No. 1
13.2	ACTIVITIES CARRIED AT SITE	Pg. No. 1
13.3	BACKGROUND OF LITIGATION	Pg. No. 1
13.4	CHRONOLOGY OF PROJECT AND CASE	Pg. No. 2
13.5	INTERIM ORDER OF NGT (BRIEF SUMMARY)	Pg. No. 3
13.6	FIELD VISIT BY COMMITTEE (BRIEF SUMMARY)	Pg. No. 5

13.7	FINAL ORDER OF NGT (BRIEF SUMMARY)	Pg. No. 6
13.7.1	COMPLIANCE OF FINAL ORDER DIRECTION	Pg. No. 7
13.8	IDENTIFICATION OF VIOLATION AS PER NORMS, IF ANY	Pg. No. 7
13.9	DAMAGE ASSESSMENT & PENALTY CALCULATIONS FOR VIOLATIONS, IF ANY	Pg. No. 8
13.10	NATURAL & COMMUNITY RESOURCE AUGMENTATION PLAN AND MITIGATION MEASURE	Pg. No. 8

List of Tables

Table 1.1- Nature, Size & Location of the Project	CH-I, Pg. 2
Table 1.2- Applicability of the Project	CH-I, Pg. 4
Table 1.3- GPS Co-ordinates of the Project Site	CH-I, Pg. 5
Table 1.4- Configuration of the proposed Project	CH-I, Pg. 9
Table 1.5- Chronology of the Proposed Project	CH-I, Pg. 11
Table 1.6- Details of ToR	CH-I, Pg. 11
Table 1.7- Key Environment Laws	CH-I, Pg. 12
Table 1.8- Layout of the Report	CH-I, Pg. 13
Table 2.1- Proposed Unit Configuration & Capacity	CH-II, Pg. 1
Table 2.2- Products & By-products generation from different plants	CH-II, Pg. 2
Table 2.2-Shift Timing	CH-II, Pg. 2
Table 2.4- Land details with Khata No. & Plot No.	CH-II, Pg. 3
Table 2.5- Environmental Site Settings	CH-II, Pg. 3
Table 2.6- List of Industries within 10 km radius	CH-II, Pg. 7
Table 2.7- Proposed Land Use Break-up	CH-II, Pg. 9
Table 2.8-Pellet Characterize	CH-II, Pg. 22
Table 2.9- Annual Raw Material Requirement	CH-II, Pg. 27
Table 2.10-Chemical Requirements	CH-II, Pg. 28
Table 211- Typical Analysis of Input Raw Materials	CH-II, Pg. 29
Table 2.12- Proximate Analysis of Coal	CH-II, Pg. 29
Table 2.13- Breakup of water Requirement	CH-II, Pg. 29
Table 2.11- Power Requirement for the Proposed Project Activity	CH-II, Pg. 28
Table 2.12- Category wise breakup of Manpower	CH-II, Pg. 28
Table 2.13- Material Balance for Proposed (6,00,000 TPA) Pellet Plant	CH-II, Pg. 30
Table 2.14-Unit Wise Water Consumption	CH-II, Pg. 30
Table 2.15-Total Power Requirement for the proposed plant	CH-II, Pg. 32
Table 2.16- Manpower Requirement	CH-II, Pg. 32
Table 2.17-Material Balance for 1.5 MTPA Beneficiation Plant	CH-II, Pg. 34
Table 2.18-Material Balance for 1.2 MTPA iron Ore Pellet plant	CH-II, Pg. 34
Table 2.19-Energy Balance	CH-II, Pg. 36
Table 2.20- Cost Breakup	CH-II, Pg. 39
Table 2.21- Project Implementation Schedule	CH-II, Pg. 36
Table 2..22- Details of Bag Filters and ESPs at different locations	CH-II, Pg. 41
Table 2.23- Details of Air Pollution Control Devices proposed in different units	CH-II, Pg. 42
Table 2.24- APCD & Stack details	CH-II, Pg. 43
Table 2.25- Quantity of Solid & Hazardous waste and its Management	CH-II, Pg. 44
Table 2.15- Energy Balance with respect to Power Consumption for pellet plant	CH-II, Pg. 32
Table 2.16- Summary of the estimated capital cost of the project	CH-II, Pg. 34
Table 3.1-Environmental setting of the study Area	CH-III, Pg. 2
Table 3.2 Land Use Pattern (Core Zone)	CH-III, Pg. 3
Table 3.2- Land Use/Land Cover of the Study Area	CH-III, Pg. 5
Table 3.3- Average Annual Rainfall (2012- 2021)	CH-III, Pg. 7

Table 3.4-Block Wise Land Use Utilization Pattern in Sundargarh District	CH-III, Pg. 8
Table 3.5-Land Use Pattern of Block Area	CH-III, Pg. 9
Table 3.6- Met data on IMD station from 1981 to 2010 (Climatological Book)	CH-III, Pg. 9
Table 3.7- Summary of Site Specific Meteorological Data (March- May 2021)	CH-III, Pg. 11
Table 3.8- Comparison of site-specific meteorological data with IMD data of Keonjhar	CH-III, Pg. 13
Table 3.9- Ambient Air Quality monitoring stations	CH-III, Pg. 14
Table 3.10- Testing and Monitoring Procedures	CH-III, Pg. 17
Table 3.11- Summarised results of 24 hours average ambient Pollutant	CH-III, Pg. 19
Table 3.12- Ambient air monitoring locations	CH-III, Pg. 26
Table 3.13- Noise Monitoring Results (Mar-May 2021)	CH-III, Pg. 28
Table 3.14- Ambient Noise Standard	CH-III, Pg. 29
Table 3.15- Analytical Techniques for Water and Wastewater Sampling and Analysis	CH-III, Pg. 31
Table 3.16- Surface Water Monitoring Locations	CH-III, Pg. 34
Table 3.17 (a)- Summary of surface water data	CH-III, Pg. 36
Table 3.17(b)- Summary of surface water data	CH-III, Pg. 38
Table 3.18- Ground water sampling locations (Oct-Dec2021)	CH-III, Pg. 40
Table 3.19- Summary of ground water data	CH-III, Pg. 43
Table 3.20- Soil Monitoring Location	CH-III, Pg. 48
Table 3.21- Analytical Techniques For Soil Analysis	CH-III, Pg. 50
Table 3. 12- Standard Soil Classification	CH-III, Pg. 51
Table 3.23- Summary of soil data	CH-III, Pg. 52
Table 3.24- Details of traffic monitoring locations	CH-III, Pg. 61
Table 3.25- Monitored Cumulative Traffic per day, Dt. 17.12.2021	CH-III, Pg. 61
Table 3.26- Monitored Cumulative Traffic per day, Dt. 19.12.2021	CH-III, Pg. 62
Table 3.27- LOS of Monitored Location at Present Scenario	CH-III, Pg.62
Table 3.28- List of Flora in the Project Area	CH-III, Pg.63
Table 3.29- List of Flora in the Impact Area	CH-III, Pg.65
Table 3.30- List of Fauna Project Area	CH-III, Pg.66
Table 3.31- List of Fauna in Impact Area	CH-III, Pg.67
Table 3.32- Details of Descriptive and Diagnostic Research Design	CH-III, Pg.71
Table 3.33- Administrative details of the Villages under various Buffer Zone	CH-III, Pg. 73
Table 3.34- Buffer zone wise population distribution of the study area	CH-III, Pg. 76
Table 3.35- Buffer Zone wise number and percentage of Literates within the study area	CH-III, Pg. 78
Table 3.36- Workforce distribution of the population within the study area	CH-III, Pg. 80
Table 3.37- Distribution of Various categories of Educational Facilities within the Study Area	CH-III, Pg. 100
Table 4.1- Impact identification matrix during construction phase	CH-IV, Pg. 2
Table 4.2- Impact identification matrix during Operation phase	CH-IV, Pg. 3
Table 4.3- Severity Criteria for Impact Matrix	CH-IV, Pg. 4
Table 4.4- Score Range for Beneficial and Adverse impacts	CH-IV, Pg. 4
Table 4.5- Environmental Impact Matrix without Mitigation (Construction Phase)	CH-IV, Pg. 5
Table 4.6- Environmental Impact Matrix with Mitigation (Construction Phase)	CH-IV, Pg. 6
Table 4.7- Environmental Impact Matrix without Mitigation (Operational Phase)	CH-IV, Pg. 7
Table 4.8- Environmental Impact Matrix with Mitigation (Operational Phase)	CH-IV, Pg. 8

Table 4.9- Proposed Air Pollution Mitigation Measures	CH-IV, Pg. 10
Table 4.10- Model Setup	CH-IV, Pg. 12
Table 4.11- DG Stack Emission Details	CH-IV, Pg. 14
Table 4.12- Stack Emission Details: after APCD with Control Measures	CH-IV, Pg. 15
Table 4.13- Transportation emission	CH-IV, Pg. 16
Table 4.14- Stack Emission Details: without control/failure of APCD	CH-IV, Pg. 16
Table 4.14- Stack Emission Details: Failure APCD with Uncontrolled Measures	CH-IV, Pg. 16
Table 4.15- Mixing Height	CH-IV, Pg. 17
Table 4.16- Incremental Concentration at the AAQ Monitoring Locations (Controlled)	CH-IV, Pg. 18
Table 4.17- Resultant Concentration at the AAQ Monitoring Locations (Controlled)	CH-IV, Pg. 26
Table 4.18- Resultant Concentration at the AAQ Monitoring Locations (Uncontrolled)	CH-IV, Pg. 27
Table 4.19- AQI Categories (Source: CPCB)	CH-IV, Pg. 32
Table 4.20- Health statements for AQI categories	CH-IV, Pg. 33
Table 4.21- AQI at each location for concerned pollutants	CH-IV, Pg. 33
Table 4.22- Incremental Ground Level Concentrations	CH-IV, Pg. 33
Table 4.23- Action plan to limit the dust emission from pellet plant below 30 mg/Nm3	CH-IV, Pg. 34
Table 4.24- Design Details of Air Pollution Control Devices	CH-IV, Pg. 34
Table 4.25 Action plan for controlling fugitive emissions	CH-IV, Pg. 37
Table 4.26- RWH Calculation for Monsoon Season	CH-IV, Pg. 45
Table 4.27- RWH Calculation for Non- Monsoon Season	CH-IV, Pg. 46
Table 4.28- Details of Solid waste generation & Management	CH-IV, Pg. 48
Table 4.29- Predicted Traffic from Plant	CH-IV, Pg. 50
Table 4.30- Additional traffic due to proposed project	CH-IV, Pg. 49
Table 5.1- Selection Criteria for proposed Land	CH-V, Pg. 1
Table 5.2- Details of APCD proposed in different units	CH-V, Pg. 4
Table 6.1- Bag Filter monitoring schedule	CH-VI-pg.1
Table 6. 1- ETP Monitoring Schedule	CH-VI-pg.2
Table 6. 2- Surface Water monitoring parameters with Testing Methods	CH-VI-pg.3
Table 6. 3- Ground Water monitoring parameters with Testing Methods	CH-VI-pg.4
Table 6. 4- Construction Phase Monitoring Parameters	CH-VI, Pg. 7
Table 6.6- Operational Phase Monitoring Parameters	CH-VI, Pg. 8
Table 6.7- Estimated Cost of Environment Monitoring Plan	CH-VI, Pg. 13
Table 7.1- Issues raised and Action plan in Public Hearing	CH-VII, Pg. 6
Table 7.2- Risk Assessment in different phase with Control Measures	CH-VII, Pg. 15
Table 7.3- The likelihood of occurrence & Severity of consequence	CH-VII, Pg. 22
Table 7.4- Risk Potential of different likely events	CH-VII, Pg. 23
Table 7.5- Possible Hazardous Locations onsite	CH-VII, Pg. 24
Table 7.6- Emergency recovery plan	CH-VII, Pg. 24
Table 7.7- Action plan to deal with food and water poisoning	CH-VII, Pg. 26
Table 7.8- High Risk category & preventive measures	CH-VII, Pg. 27
Table 7.9- Action taken for On-Site Emergency Control	CH-VII, Pg. 31
Table 7.10- Location, Type & Capacity of Fire Extinguishers	CH-VII, Pg. 36
Table 7.11- Location& Numbers of Fire buckets	CH-VII, Pg. 36
Table 8.1- Impacts on Socio-economic Parameters	CH-VIII, Pg. 2

Table 8.2- Manpower Requirement	CH-VIII, Pg. 4
Table 8.3- List of RF/PF within Study Area	CH-VIII, Pg. 5
Table 10.1- Environment Management during Construction Phase	CH- X, Pg. 3
Table 10.2- Environment Management Plan during Operation Phase	CH- X, Pg. 6
Table 10.3-Proposed Storage facilities of Material	CH- X, Pg. 8
Table 10.4- Proposed Action plan for Greenbelt Development	CH- X, Pg. 10
Table 10.5- Constitution of Environmental Management Cell (EMC)	CH- X, Pg. 15
Table 10.6- Environment Management Plan Budget	CH- X, Pg. 16
Table 10.7- Action Plan for compliance with CREP for Integrated Iron & Steel Plant	CH- X, Pg. 17

List of Figures

Fig. 1.1- Google Image of the Project site	CH-I, Pg. 6
Fig. 1.2- Location Map	CH-I, Pg. 7
Fig. 1.3- Topo-map of 10 Km radius around project site	CH-I, Pg. 8
Fig. 1.4- Global Steel Demand	CH-I, Pg. 9
Fig. 2.1- Vicinity May	CH-II, Pg. 6
Fig. 2.2- Plant Layout	CH-II, Pg. 11
Fig. 2.3- Block Layout	CH-II, Pg. 12
Fig. 2.4- Contour with drainage Layout	CH-II, Pg. 13
Fig. 2.5- Process Flow Chart – Beneficiation Plant	CH-II, Pg. 16
Fig. 2.6- Schematic diagram of the Grate-kiln induration process	CH-II, Pg. 19
Fig. 2.7- Process Flow Chart for Pellet	CH-II, Pg. 21
Fig. 2.8- Closed Loop PGP System	CH-II, Pg. 26
Fig. 2.9- Water balance Diagram	CH-II, Pg. 27
Fig. 2.10- Integrated Material Balance	CH-II, Pg. 35
Fig. 3.1- Showing bar graph for land requirement in different activity	CH-III, Pg. 3
Fig. 3. 2- Flow Chart of Methodology	CH-III, Pg. 5
Fig. 3.3- Land Use Patten of the Study Area	CH-III, Pg. 4
Fig. 3.4- Land use Land Cover map of the study area	CH-III, Pg. 6
Fig. 3.5- Land Use Patten of Block Area	CH-III, Pg. 9
Fig. 3.6- Wind Rose based on IMD Climatologically data Oct to Dec (1981- 2010)	CH-III, Pg. 11
Fig. 3.7- Wind Rose from Site Specific meteorology data)	CH-III, Pg. 12
Fig. 3.8- Comparison of IMD data (1981- 2010) & Site-Specific meteorology data	CH-III, Pg. 13
Fig. 3.9- Ambient Air Quality Monitoring Location Map	CH-III, Pg. 16
Fig. 3.10- Statistical Analysis of Particulate matter (PM10)	CH-III, Pg. 16
Fig. 3.11- Statistical Analysis of Particulate matter (PM2.5)	CH-III, Pg. 21
Fig. 3.12- Statistical Analysis of Particulate matter (SO2)	CH-III, Pg. 22
Fig. 3.13- Statistical Analysis of Particulate matter (NOx)	CH-III, Pg. 22
Fig. 3.14- Ambient Noise Quality Monitoring Location Map	CH-III, Pg. 27
Fig. 3. 15- Showing Leq Day and Leq Night in Oct- 2021	CH-III, Pg. 30
Fig. 3. 26- Showing Leq Day and Leq Night in Nov- 2021	CH-III, Pg. 30
Fig. 3. 17- Showing Leq Day and Leq Night in Dec- 2021	CH-III, Pg. 31
Fig. 3.18- Baseline Monitoring Location map of Surface Water	CH-III, Pg.34
Fig. 3.19- Baseline Monitoring Locations of Ground Water	CH-III, Pg. 41
Fig. 3.20- Baseline Monitoring Soil Location Map	CH-III, Pg. 49
Fig. 3.21- Drainage Map of the Study Area	CH-III, Pg. 59
Fig. 3.22- Traffic Study Location	CH-III, Pg. 60
Fig. 3.23- Villages under various buffer zones concluded for the study	CH-III, Pg. 75
Fig. 3.24- Distribution of Population within the buffer zone	CH-III, Pg. 98
Fig. 3.25- Percentage of Literates within various buffer zones in the study area	CH-III, Pg. 100
Fig. 3.26- Percentage of various workforces prevailing within the study area	CH-III, Pg. 102
Fig. 3.27- Map revealing Health facilities within the study area	CH-III, Pg. 104

Fig. 4.1- Impact is Multiplicative	CH-IV, Pg. 4
Fig. 4.2- Graph showing Max. & Min. Mixing Height	CH-IV, Pg. 17
Fig. 4.3- PM10 Concentration Controlled Scenario	CH-IV, Pg. 19
Fig. 4.4- PM 2.5 Concentration Controlled Scenario	CH-IV, Pg. 20
Fig. 4.5- SO2 Concentration Controlled Scenario	CH-IV, Pg. 21
Fig. 4.6- NOX Concentration Controlled Scenario	CH-IV, Pg. 22
Fig. 4.7- CO Concentration Controlled Scenario	CH-IV, Pg. 23
Fig. 4.8- PM10 Concentration Uncontrolled Scenario	CH-IV, Pg. 24
Fig. 4.9- Isopleths of PM2.5 (worst case)	CH-IV, Pg. 26
Fig. 4.10- Isopleth of PM10 (Line Source)	CH-IV, Pg. 28
Fig. 4.11- - Isopleth of PM2.5 (Line Source)	CH-IV, Pg. 29
Fig. 4.12- Isopleth of SO2 (Line Source)	CH-IV, Pg. 30
Fig. 4.13- - Isopleth of NOx (Line Source)	CH-IV, Pg. 31
Fig. 4.14- Schematic diagram of STP with MBBR Technology	CH-IV, Pg. 41
Fig. 4.15- Operational ETP flow-chart	CH-IV, Pg. 42
Fig. 4.16- - Rainwater harvesting design for KAI International Limited	CH-IV, Pg. 47
Fig. 6.1- Environment Monitoring Workflow	CH-VI, Pg. 1
Fig. 7.1- Public Hearing Notice in Times of India & Local Newspaper	CH-VII, Pg. 2
Fig. 7.2- Risk Assessment	CH-VII, Pg. 11
Fig. 7.3- Risk Assessment & Mitigation process	CH-VII, Pg. 13
Fig. 7.4- Flow chart of Quantitative Risk Analysis (QRA)	CH-VII, Pg. 14
Fig. 7.5- Hazard Signs	CH-VII, Pg. 21
Fig. 7.6- Emergency Command Structure	CH-VII, Pg. 29
Fig. 7.7- Various Organizations Involved During Emergency	CH-VII, Pg. 41
Fig. 7.8-Gross CO_{2e}Emission	CH-VII, Pg. 47
Fig. 10.1-Design of Greenbelt Development	CH- X, Pg. 10
Fig. 10.1- Corporate Environment Policy of KIPL	CH- X, Pg. 13
Fig. 10.2- Organizational Chart of Plant Operation including Environment & OHS Dept.	CH- X, Pg. 15

List of Annexures

1.	Letter to Regarding High Flood Level and Flood History of last 25 Years of Brahmani River by Govt. of India, Ministry of Jal Shakti Central Water Comission Mahanadi & Eastern Rivers Organization, Bhubneswar vide letter no. TD/905/CE/VI/2020/257 (H) Dtd. 03.02.2022	**Annexure- 1**
2.	Land deed vide I.D No. 1722200145 favor of M/s. KAI International Pvt. Ltd.	**Annexure- 2**
3.	Letter from SPCB, Odisha for SPA/CPA vide letter no. 12282/IND-VI-SC(I&PR)-03/16-17 dtd. 14.07.2022	**Annexure- 3**
4.	Allocation of Surface Water by Office of the Engineer-in-Chief, Water Resources, vide letter no. WS-IWS-781/22-204 Dtd. 21.01.2023	**Annexure- 4**
5.	NOC for no forest land involvement by Office of the Divisional Forest Officer Cum Wildlife Warden Rourkela Forest Division vide memo no. 8447/4F (Misc.) (PC-1), Dtd. 12.09.2023	**Annexure-5**
6.	Letter for Joint verification and tree enumeration by Office of the Divisional Forest Officer Cum Wildlife Warden Rourkela Forest Division vide letter no. 3764/4F (Misc.) dtd. 22.06.2021	**Annexure- 6**
7.	Raw Material Linkage documents for KAI International Pvt. Ltd.	**Annexure- 7**
8.	Letter for consent for purchase of Tailings by Brahmani Developers dtd. 26.07.2022	**Annexure- 8**
9.	Letter for Consent for purchase of Bottom Ash by Sudhir Kumar Harichandan vide Ref. No. SKH/2022-23/27 Dtd. 25.07.2022	**Annexure- 9**
10.	Letter for consent for purchase of Tar Oil/used Oil/ Oily Sludge by UITC (INDIA) Pvt. Ltd. Vide ref No. UITC/KAI/2022-23 dtd. 25.07.2022	**Annexure- 10**
11.	Trace metal analysis certificate dtd. 18.03.2022 favor of KAI International Pvt. Ltd.	**Annexure- 11**
12.	Approved ToR Letter vide F.No. IA-J-11011/59/2021-IA-II(I) dtd. 29.11.2021	**Annexure- 12**
13.	Plant Layout Plan	**Annexure-13**
14.	Block Layout Plan	**Annexure- 14**
15.	Contour & Drainage Plan	**Annexure- 15**
16.	Permission letter for tree felling by Office of the Forest Range Officer, Banki Forest Range vide memo no. 1007 dtd. 30.09.2021	**Annexure- 16**
17.	Baseline Report	**Annexure- 17**
18.	Socio Economic Impact Assessment Report	**Annexure- 18**
19.	Copy of Wild Life Conservation Plan	**Annexure- 19**
20.	Forest Patch Conservation Plan	**Annexure- 20**
21.	Traffic Study Report	**Annexure- 21**
22.	Periodical Medical Examination Format by KAI International	**Annexure- 22**
23.	Health Checkup Format by KAI International	**Annexure- 23**
24.	Carbon Foot Print Study Report of KAI International	**Annexure- 24**
	Chapter- 13	
25.	Single window clearance for setting up plant by IPICOL vide letter no. SJ/SLWCA-217(2)/6467 dtd. 17.08.2019 favor of KAI International Pvt. Ltd.	**Annexure- A**
26.	IDCO Allotment letter for Land favor of KAI International Pvt. Ltd. Vide letter no. IDCO/HO/P&A-L-A-E-7751/2019-21 12687 Dtd. 06.06.2021	**Annexure- B**
27.	MoM of 31st Meeting of the Re-constituted EAC (Industry-I) for KAI International	**Annexure- C**

	Pvt. Ltd.	
28.	Permission letter for tree felling by Office of the Divisional Forest Officer Cum Wildlife Warden Rourkela Forest Division letter no. 5838/3F (lease) Dtd. 20.09.2021	**Annexure- D**
29.	Acknowledgement Slip for ToR submission	**Annexure- E**
30.	Approved ToR Letter vide F.No. IA-J-11011/59/2021-IA-II(I) dtd. 29.11.2021	**Annexure- F**
31.	Land deed vide I.D No. 1722200145 favor of M/s. KAI International Pvt. Ltd.	**Annexure- G**
32.	Public Hearing Letter by Office of the Collector & District Magistrate, Sundargarh vide letter no. 109/ XV-13/2022, Dtd. 13.04.2022	**Annexure- H**
33.	Public Hearing Proceedings by SPCB, Odisha vide letter no. 11670/IND-II-PH-1017 Dtd. 05.07.2022 for KAI International Pvt. Ltd.	**Annexure- I**
34.	NGT Court Oder hearing dtd. 08.10.2021 for KAI International Pvt. Ltd.	**Annexure- J**
35.	EDS Generated dtd. 21.12.2022 by MoEF&CC	**Annexure- K**
36.	NGT Court Oder hearing dtd. 07.02.2023 for KAI International Pvt. Ltd.	**Annexure- L**
37.	NGT Committee Report vide File No. 107-469/21/EPE Dtd. 10.05.2023	**Annexure- M**
38.	Final NGT Court Oder dtd. 22.08.2023	**Annexure- N**
39.	Letter for closing matter by MoEF&CC vide File No. J-11011/524/2017-IA-II(I) Dtd. 25.09.20223	**Annexure- O**
40.	Affidavit copy for NGT Order	**Annexure- P**
41.	Undertaking for No violation by KAI International	**Annexure- Q**
42.	OM of MoEF&CC for activities stop without prior EC Vide File No. J-11013/41/2006-IA.II(I) dtd. 19.08.2010	**Annexure- R**

EXECUTIVE SUMMARY

1. PROJECT NAME AND LOCATION

Proposed Greenfield project of Iron Ore Beneficiation Plant- 1.5 MTPA throughput (1.16 MTPA High grade ore), Iron ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 Nm^3/hr (6 x 4,500 Nm^3/hr) located at village- Kapanda, Tehsil–Lahunipara, District- Sundergarh, Odisha of M/s KAI International Private Limited (KIPL).This is a standalone greenfield project and there are no interlinked or inter-dependent project with the proposal.

2. PROPOSED UNIT CONFIGURATION WITH CAPACITY

SL. No.	Units	Product	Configuration	Capacity	End Use
1.	Iron Ore Beneficiation (Proposed)	Beneficiated Iron Ore	1 X 1.5 MTPA	15,00,000 TPA (throughput) 1160000 TPA (High grade ore)	Used in-house for Iron Ore Pellet Plant
2.	Iron Ore Pellets (Proposed)	Iron ore Pellet	2 x 0.6 MTPA	12,00,000 TPA	Will be sold in the open market.
3.	Producer Gas Plant (Proposed)	Producer Gas	6 Nos. (5W+1S) 6 X 4,500 Nm^3/hr	27,000 Nm^3/hr	Captive use in Pellet Plant

3. REQUIREMENTS FOR THE PROJECT

Raw Material Requirement

Sr. No.	Proposed Facility	Raw Material Required	Quantity	Source	Distance from site (Kms)	Mode of Transportation
1.	Iron Ore Beneficiation Plant (1.5 MTPA Throughput)	Iron Ore Fines	15,00,000 TPA	KJS Ahluwalia, Guali/ Seven Hills Minerals, Barbil/ GM Iron & Steel Company Ltd, Mayurbhanj (Iron Ore Trader)	12 - 58 km	Road/ Rail (Railway Siding: Chandiposh 15.8 km NNW)
2.	Iron Ore Pellet Plant (1.2 MTPA)	High grade Iron ore Fines	11,60,000 TPA	From In-house Beneficiation Plant	In-house	Conveyor belts
		High grade Iron ore Fines	1,40,000 TPA	JSW Steel Ltd., Barbil/ M/s. T. P. Mohanty/ Indrani Patnaik, Rourkela	58 km	Road
		Bentonite	13,063 TPA	Rourkela	41 km	Road
		Lime Stone	13,063 TPA	Khatkurbahal limestone mine & other mines by E-auction	64 km	Rail/ Road
		Coke	3,575 TPA	Rourkela	41 km	Road

		LDO	2,400 KLA	Domestic Market	40 km	Road
3.	PG Plant (6 X 4500 Nm^3/Hr) & PCI	Coal	95,513 TPA (PGP Coal-70713 TPA & PCI Coal-24800 TPA)	Open Auction MCL, Odisha & ECL/ Agarwal Coal Corporation Pvt. Ltd. (Coal Trader)	106 km	Rail/ Road

Water Requirement

The make-up water requirement for the proposed project is estimated as 1180 KLD. Water requirement will be met from Brahmani River. The allocation for drawl of 0.50 Cusec (1223.287 KLD) surface water is obtained from Department of Water Resources vide Lt. No. WS-IWS-781/22-2024 dated 21.01.2023. The average Specific water consumption per ton of product:

For Beneficiation- 0.1 m^3/T of product
For Pellet- 0.16 m3/T of Product For Beneficiation- 0.1 m^3/T of product
The intake point is estimated to be approx. 1.65 Km aerial distance from the plant boundary. The length of the water pipeline will be approx. 4 Km.

Power Requirement

The total power requirement for the proposed project is estimated as 12.0 MW, which will be met from GRID (WESCO) at Purunapani Substation which is 3.7 Km (ESE) from the project site. However, permission for 12 MW will be taken during CTE period.

Whereas, there will be 1 no. of DG set of 750 KVA , for emergency/backup purpose.

Manpower Requirement

The employment generation from the proposed project is 500 Nos. (Direct: 280 Nos. & contractual: 220 Nos.; Preference will be given to local Public).

4. PROCESS DESCRIPTION

Iron Ore Beneficiation

The steps in the process are as under:

- Size reduction,
- Size separation or classification,
- Iron Ore up-gradation as beneficiation,
- Thickening of slurry and pumping of slurry,
- Residual /Slime disposal.

Iron Ore Pelletization

The Pellet plant shall be designed to operate for 330 working days per year, 24 hours per day on the basis of 3 shifts working. **"Grate Kiln Technology (GKT)"** will be adopted with firing system producer gas + Furnace oil + Pulverized coal injection system. Gasification, Particle separator chamber & hot gas filter are the main steps involved in Producer Gas manufacturing through the "Gasifier".

Manufacturing process comprises of following steps:

1. Raw Material unloading, sizing & storage.

2. Iron Ore Pellet manufacturing by Grate Kiln technology.
3. Dispatch of products.

MATERIAL BALANCE

Material Balance for proposed (15,00,000 TPA) Beneficiation Plant

Input		Output	
Raw Material	**Quantity in TPA**	**Product**	**Quantity in TPA**
Iron ore fines (Fe%: 56 - 58)	15,00,000	Beneficiated Iron ore (Fe%: + 63)	11,60,000
-	-	Slimes/Tailings (max.) (Fe%: <40)	3,40,000
Total Input	**15,00,000**	**Total Output**	**15,00,000**

Material Balance for 1.2 MTPA Iron Ore Pellet Plant

Input					Output				
Item	**Ratio (%)**	**Quantity kg/T**	**T/hr**	**T/Yr**	**Item**	**Ratio (%)**	**Quantity kg/T**	**T/hr**	**T/Yr**
Iron Ore Fines(Dry)	94.5	1083	164	13,00,000	Pellet	87.28	1000	152	12,00,000
Bentonite	0.95	10.9	1.6	13,063	Return Fines (Pellet fines& ESP dust)	3.4	38.964	5.5	45,927
Lime Stone/Dolomite	0.95	10.9	1.6	13,063	LOI	9.36	107.2656	16.2	1,29,701
Coke (Dry)	0.26	3.0	0.45	3,575					
Return Fines (DRY)	3.34	38.3	5.8	45,927					
TOTAL	**100**	**1146**	**173.70**	**13,75,628**		**100**	**1146**	**173.70**	**13,75,628**

SOLID & HAZARDOUS WASTE MANAGEMENT

Facility	Waste	Quantity (TPA)	Management
Solid Waste			
Beneficiation	Tailings/Slime	3,40,000	Dewatered and stored in slime/tailing storage area, then disposed to construction contractors for road & construction filings. And the collected water will be recycled in process. MoU has been signed with Brahmani Developers Pvt. Ltd.
Pellet Plant	ESP Dust	45,927	Recycle in Pellet Plant (used in house)

	Pellet Fines		
PGP Plant	Tar	2828	Sold to Authorized Coal tar processing units MoU has been signed with UITC (India)Pvt. Ltd.
	Ash	28,286 (70713 TPA Coal X 40% ash)	To road construction contractors / masonry blocks manufacturing MoU has been signed with Sudhir Kumar Harichandan, manufacturer of Maa Brand Fly Ash Bricks.
Hazardous Waste			
Waste Description	**Category as per HWM Rules, 2016**	**Quantity**	**Mode of Disposal**
Used oil	Cat. 5.1	1.5 KL/yr	Stored and disposed to Authorized recyclers as per MoU has been signed with UITC (India) Pvt. Ltd.
Oily Sludge	Cat. 4.1	0.25 KL/yr	Stored and disposed to Authorized recyclers/CHWTSDF as per norms.
The residue of the oil Storage tank	Cat. 5.2		
Phenolic Water from PGP	Cat. 19.1	6.42 TPA	Dedicated system will be provided to reuse wastewater in PGP and sprinkling in Pellet plant cooler section.

5. ANTICIPATED ENVIRONMENTAL IMPACT & MITIGATION MEASURES

Air Environment	
During Construction	
Potential impacts	**Mitigation measures**
Fugitive dust emissions from Open site construction activities like Operation of heavy vehicles excavation, dumping of earth materials etc.	• Construction materials will be stored in covered warehouses or bounded spaces. • Regular water sprinkling at vulnerable areas of construction site and roads. • BS-VI compliant vehicles shall be used in construction to reduce emissions.
During Operation	
Potential impacts	**Mitigation measures**
• Stack emissions have the potential to impact up to far distances from the plant. • Due to vehicular traffic during operation there can be an increase on ambient concentrations in nearby area.	• ESP shall be installed with 4 fields to reduce the emissions from the furnace. • Heat shall be used for drying of pellets to reduce energy consumption. • Centralized de-dusting system with common ESP will be provided. • Exhaust gas from drying and grinding systems to be cleaned using fans, suction hoods, cyclones, bag filters. • Water sprinkling through static nozzle type sprinklers. • Closed conveyors shall be used to reduce fugitive emissions.
Noise Environment	

During Construction	
Potential impacts	**Mitigation measures**
Increase in noise levels due to Operation of construction equipment & Vehicular traffic for carrying construction material.	• Less noisy instruments equipped with acoustic system will be selected for construction works. • No worker shall be exposed to noise levels > 85 dB(A) for a duration of >8 hours/day without hearing protection. • PPE like earplugs, earmuffs etc. will be provided to construction personnel exposed to high noise areas.
During Operation	
Potential impacts	**Mitigation measures**
• Main noise generating sources are much away from the boundary. The predicted incremental noise levels due to proposed units without considering the attenuation factor shows very marginal increase on the ambient noise levels. • Green belt to be developed along the boundary will attenuate the noise levels further.	• Use of Noise barriers. • Noise level at 1m from equipment will be limited to 85 dB (A). • The fans and ductwork will be designed for minimum vibration. • Timely maintenance will be done. • PPEs such as ear muffs will be provided to personnel working in high noise zones.
Water Environment	
During Construction	
Potential impacts	**Mitigation measures**
Increase in suspended solids from Storm water run-offs during heavy rain & flooding situations carrying loose soil/ construction material from site.	• Storm water drainage system with sediment traps for arresting the silt / sediment load • All construction material will be stored under sheds or enclosed space to prevent spillage into the drainage network. • Thick Greenbelt developed both side of the Nala.
During Operation	

Environmental Aspect	**Impact Evaluation**	**Mitigation Measures**
Surface Water Quality	• Effluents from plant may contaminate nearby water bodies.	• Domestic waste water of around 16 KLD will be generated which will be treated in STP of 20 KLD capacity. • Effluent Treatment Plant of capacity 60 KLD will be installed to treat the 50 KLD effluent. About 48.3 KLD will be recycled and reused in the process. Treated water of 48.3 KLD will be reused for dust suppression & Fire fighting. • Dedicated ETP within the gasification unit (capacity 10 KLD) will be provided for treatment of blow down water coming from PGP process. Treated water about 7.5 KLD will be reused in pellet plant process
Ground Water Resources	No impact on ground water is envisaged as no ground water will be used in the project.	New proposal for rainwater harvesting schemes will be developed which will assist in improvement of the overall groundwater regime.
Soil Environment		

During Construction	
Potential impacts	**Mitigation measures**
Pre-constructional clearing of site will lead to removal of topsoil	Topsoil will be stored for reuse in plantation.
During Operation	
Potential impacts	**Mitigation measures**
• Changes in soil texture due to settling of air borne dust or due to wash off of solid particulates by surface runoff water. This may lead to change in porosity, permeability and other physical characteristics of soil of the area. • Changes in soil chemistry due to addition of foreign material from polluted air and water due to plant activities in the area.	• To ensure restoration of land surface and landform consistent with the condition and contours prior to commencement of construction; • Fuel, lubricants and chemicals will be stored on impervious floor; • Litter, fuel, oil drums, used grease cartridges would be collected and disposed properly; • Dust bins will be placed at requisite locations; • To install and maintain effective run-off control, including siltation ponds, bunds so as to minimize erosion;
Solid & Hazardous waste Management	
During Operation	
Potential impacts	**Mitigation measures**
Hazardous waste generation will be primarily due to Tarry waste generation & Phenolic water from PGP	• Fines collected from ESP/Bag filters will be re-used in pellet plant. • Ash from PGP will be supplied to ash brick manufacturer. • Phenolic Sludge from ETP Fired in Producer Gas Plant (PGP)
Ecology & Biodiversity Environment	
During Construction	
Potential impacts	**Mitigation measures**
In the project site there are no major trees except some shrubs and bushes.	During construction activities some plantation activities will be started.
During Operation	
Potential impacts	**Mitigation measures**
• No major plant species are available within the propos site except some shrubs and bushes. • Diversity value is almost nil within the core area. • No forest land is involved in the project area.	• A planned 3 year Afforestation scheme shall be developed over an area of 8.78 Ha. with 21950 saplings. • The maintenance such as suitable fencing, watering, replacement of dead plants etc. shall be done for better survival rate. • Dust suppression shall be done by regular water sprinkling to minimize the impact on plants. • Wildlife Conservation Plan has been prepared with a budgetary allocation of 55.871 Lakhs for 5 years.

6. CAPITAL COST OF THE PROJECT & ITS COMPLETION

The Project cost is Rs. 341.72 Crores. Capital cost for Environmental protection is 19.46 Crores where recurring Cost is Rs. 1.41 Crores/Annum. The installation of the above-mentioned facilities for the plant is envisaged to be completed within 25 months from the zero date.

7. SITE CHARACTERSTIC & LAND REQUIREMENT

<table>
<tr><th>Sr. No.</th><th>Particulars</th><th>Details</th><th>Remarks</th></tr>
<tr><td>1.</td><td>Total land</td><td>Total land required – 19.32 ha. (47.74 Ac)
Govt. Land – 19.32 Ha. (47.74 Acre) [IDCO Land], Agriculture- Nil, Grazing Land- Nil.
No forest land involved.</td><td>Total Land: 19.32 Ha. (47.74 Acre) is IDCO land</td></tr>
<tr><td>2.</td><td>Land acquisition details as per MoEF&CC O.M. dated 7/10/2014</td><td>Acquired Land: 19.32 ha. (47.74 Acre)
Total land is under possession.</td><td>Land use: Industrial Land provided by IDCO
After payment all necessary charges as demand by IDCO, Bhubneswar. Land Agreement made between IDCO & KIPL as per land allotment letter no. IDCO:HO:P&A:LAE:7751/2019 dtd. 06.08.2021.</td></tr>
<tr><td>3.</td><td>Existence of habitation & involvement of R&R, if any.</td><td>There is no existence of habitants identified within the plant boundary.</td><td>R&R is not applicable.</td></tr>
<tr><td>4.</td><td>Latitude and Longitude of the project site</td><td><table><tr><th>Pillar No.(s)</th><th>Latitude</th><th>Longitude</th></tr><tr><td>1</td><td>21°53'28.44"N</td><td>84°52'15.80"E</td></tr><tr><td>2</td><td>21°53'25.49"N</td><td>84°52'16.45"E</td></tr><tr><td>3</td><td>21°53'21.00"N</td><td>84°52'17.41"E</td></tr><tr><td>4</td><td>21°53'17.11"N</td><td>84°52'22.04"E</td></tr><tr><td>5</td><td>21°53'11.30"N</td><td>84°52'29.12"E</td></tr><tr><td>6</td><td>21°53'11.40"N</td><td>84°52'35.21"E</td></tr><tr><td>7</td><td>21°53'17.15"N</td><td>84°52'35.23"E</td></tr><tr><td>8</td><td>21°53'22.78"N</td><td>84°52'35.20"E</td></tr><tr><td>9</td><td>21°53'23.68"N</td><td>84°52'30.77"E</td></tr><tr><td>10</td><td>21°53'23.86"N</td><td>84°52'26.76"E</td></tr><tr><td>11</td><td>21°53'29.01"N</td><td>84°52'26.29"E</td></tr><tr><td>12</td><td>21°53'28.77"N</td><td>84°52'20.69"E</td></tr></table></td><td>-</td></tr>
<tr><td>5.</td><td>Elevation of the project site</td><td>193 m to 252 m AMSL</td><td>High flood level data of last 26 years of river Brahmani at Gomlai location collected. The letter issued from Central Water Commission Mahanadi & Eastern River Organization, Bhubaneswar vide letter no. TD/905/CE/VI/202/257(H), dated 03.02.22.
As per the data, maximum HFL</td></tr>
</table>

			is 147.660 m AMSL against site elevation of 193m to 252m AMSL.
6.	Involvement of Forest land if any	There is no forest land involved within the plant boundary.	As per joint field verification conducted on 08.02.23 by Forest and revenue dept. officials, entire land is non-forest land of kissam patit. Joint field verification report along with Vide Memo No. 8447/4F (Misc.) (PC- 1), dtd. 12.09.2023.
7.	Forest within 10 km buffer zone	**Protected Forest:** Samaradari Juniani PF (E)- 0.41 Km **Reserve Forest:** • Kukia R.F- 0.12 Km (NW) • Dhenkiam R.F- 2.6 Km (W) • Nalghati Rajabasa R.F- 3.3 Km (SW) • Dhenkiam Block R.F- 3.7 Km (NW) • Bhagoth R.F- 6.6 Km (SSW) • Dhanaghar Extension R.F- 6.9 Km (NNE) • Gurundia R.F- 7.9 Km (SW)	
8.	Water body exists within the project site as well as study area	**Study Area:** Brahmani River- 1.6 Km (W) Amrurhi Nala- 3.1 Km (NNE) Katangamunda Nala- 3.4 Km (NW) Rukura River- 4.3 Km (S)	
9.	Existence of ESZ /ESA/national park / wildlife sanctuary / biosphere reserve/ tiger/ elephant reserve etc. if any within the study area	No National Park / wildlife sanctuary / biosphere reserve / tiger reserve / elephant etc. within the study area.	-

8. BASELINE ENVIRONMENT STUDIES

Period	October to December 2021
AAQ parameters at 8 locations (min. & Max.)	PM_{10}= 32.4 to 81.3 µg/m^3 $PM_{2.5}$= 17.8 to 44.2 µg/m^3 SO_2= BDL (<4) to 14.2 µg/m^3 NOx= 9.0 to 25.2 µg/m^3 CO= 0.12 to 0.51 mg/m^3
Incremental GLC level	PM_{10}= Max. GLC- 2.17 µg/m^3 in Project Site $PM_{2.5}$= Max. GLC- 1.46 µg/m^3 in Project Site SO_2= Max. GLC- 3.72 µg/m^3 in Project Site NOx= Max. GLC- 2.07 µg/m^3 in Project Site CO= Max. GLC- 0.73 mg/m^3 in Project Site
Ground Water	pH: 6.6 to 7.85, Total Hardness: 73 to 325 mg/l, Chlorides: 11 to 179 mg/l, Fluoride:

<table>
<tr><td>quality at 8 locations</td><td>0.01 to 0.28 mg/l. Heavy metals such as Lead, Arsenic etc. are BDL at all the locations.</td></tr>
<tr><td>Surface water quality at 11 locations</td><td>pH: 7.25 to 8.07; DO: 4.6 to 7.8 mg/l and BOD: 2.0 to 2.9 mg/l.</td></tr>
<tr><td>Noise levels Leq (Day & Night) at 8 locations</td><td>Ambient noise reaches 41.6 to 56.9 dB(A) during day time and 36.8 to 46.9 dB(A) during night time.</td></tr>
<tr><td>Traffic assessment study findings</td><td>Traffic study has been conducted at 3 locations Kapanda-Fatjharan village road (Near Entry gate of project site), near intersection of Santikayatpali Road to NH-23 and at Gudhiali (Intesection of NH-23 & NH 215).

Transportation of raw material, fuel & finished product will be done 50 % by road & 50% rail.

Existing PCU details is given below-
<table>
<tr><th>Sl No.</th><th>Study Location</th><th>Details</th><th>Volume (PCU/hr)</th><th>*Capacity (PCU/hr)</th><th>Existing V/C ratio</th><th>**Level of Service (LOS)</th></tr>
<tr><td rowspan="2">1.</td><td rowspan="2">Kapanda – Fatjharan village road (near Entry Gate of Project Site)</td><td>Average Hour Load</td><td>294</td><td>1400</td><td>0.21</td><td>B</td></tr>
<tr><td>Peak Hourly Load</td><td>310</td><td>1400</td><td>0.22</td><td>B</td></tr>
<tr><td rowspan="2">2.</td><td rowspan="2">Near intersection of Santikayatpali Road to NH-23</td><td>Average Hour Load</td><td>1642</td><td>5400</td><td>0.30</td><td>B</td></tr>
<tr><td>Peak Hourly Load</td><td>1820</td><td>5400</td><td>0.33</td><td>B</td></tr>
<tr><td rowspan="2">3</td><td rowspan="2">Gudihali (Intersection of NH-23 & NH-215)</td><td>Average Hour Load</td><td>1794</td><td>5400</td><td>0.33</td><td>B</td></tr>
<tr><td>Peak Hourly Load</td><td>2187</td><td>5400</td><td>0.40</td><td>C</td></tr>
</table>
IRC 106:1990
Additional PCU load after proposed project will be 40 PCU/hr.
<table>
<tr><th>Sl No.</th><th>Study Location</th><th>#Volume after Proposed project (PCU/hr)</th><th>*Capacity (PCU/hr)</th><th>V/C ratio after Proposed project</th><th>**Level of Service (LOS)</th></tr>
<tr><td>1</td><td>Kapanda – Fatjharan village road (near Entry Gate of Project Site)</td><td>350</td><td>1400</td><td>0.25</td><td>B</td></tr>
<tr><td>2</td><td>Near intersection of Santikayatpali Road to NH-23</td><td>1860</td><td>5400</td><td>0.34</td><td>B</td></tr>
<tr><td>3</td><td>Gudihali (Intersection of NH-23 & NH-215)</td><td>2227</td><td>5400</td><td>0.41</td><td>C</td></tr>
</table>
Considering peak hour traffic at the three locations.
Conclusion: The level of service will remain same even after including additional traffic due to proposed project.</td></tr>
</table>

Flora & Fauna	Conservation Plan has been prepared for the Schedule-I fauna with a budgetary allocation of Rs. 55.871 Lakhs for 5 years.

9. EMERGENCY PREPARDNESS PLAN

- An onsite disaster management plan is prepared and furnished in EIA report
- Pre-Emergency preparedness measures will be taken & internal safety team will be constituted for management and implementation of safety measures
- Training to all employees to handle different type of emergencies.
- Fire hydrants will be available to combat fire if any.

10. ISSUES RAISED DURING PUBLIC HEARING AND REPONSE GIVEN

Issues raised by Public	Comments of the Project Authority
Environment: • Air & Water pollution control • Control of dust pollution in the locality due to transportation. • Fruit bearing trees plantation in vacant government land • Damage of agricultural land due to establishment of industry • Generation of Toxic gases like Ethane, Methane etc. which will leads to global warming.	• Company will provide adequate air pollution control measures like ESP, Bag Filters and other dust suppression system. Company will also provide waste water treatment system to control water pollution. • Company will provide water sprinkling system mobile water tankers in transporting road and dust suppression system as well as inside the plant premises to control dust pollution. • Company will carried out plantation in co-ordination with Forest Department, & road development authority, Govt. of Odisha.
Employment: • Priority on employment to local tribal people in the company on priority basis and employment to local educated youth as per their qualifications.	• Employment opportunity will be there as per the skill and qualification. Local public will be given priority for employment.
Peripheral Development	
a) Education: Emphasize on tribal people education and development of school infrastructure.	Company will support for financial assistance to the school for infrastructure development and assistance for qualified teacher deployment in the school to be made as per recommendation of school & village committee.
b) Road Development: Connecting road improvement from Tikayatpali to Kapanda village main plant gate.	Company will take up the matter by pursuing the matter through Govt. of Odisha for the improvement on road condition and its maintenance.
c) Supply of drinking water facility Drinking water facility at nearby local villages	Company will provide bore well with Syntax tank for drinking water facility as per requirement through CSR activities.
d) Health and medical facility: ➢ ESI Hospital in Bonai area ➢ Free ambulance facility	Company will provide ambulance for the emergency medical treatment and Regular health camp for the nearby village will be conducted by Company authority.
e) Electrification of street lights:	Electrification as well as renovation work will be conducted by company as per requirement through village committee. Wherever possible, solar light will be provided.
f) Club House	Company will constructed club house in the local villages as per requirement & consultation with village committee.
g) Compensation to land losers	
h) Financial assistance for local cultural events	Company will provide financial assistance to village

	committee for the cultural & social activity.
i) Facility for the displaced family (R&R)	The land has provided by provided by IDCO, Govt. of Odisha and in propose project there will not be any families for displacement.
j) Road condition improvement	Necessary repair and revamping of connecting road would be taken up as per the consultation of Govt. Department.

11. PUBLIC HEARING COMPLIANCES WITH PROPOSED EXPENDITURE

The financial allocation against the public hearing issues estimated as Rs.409.9 Lakhs for a period of 3 years. Which is approx. 1.2% of total project cost.

12. OCCUPATIONAL HEALTH MEASURES

- Pre-medical examination of all new employees as per statutory provision.
- Periodic Health Check-up of all employees.
- Providing Hygienic canteen and drinking water for all employees.
- Provision of first aid and onward medical treatment for employees.

13. ENVIRONMENTAL MANAGEMENT PLAN

Estimated Cost of EMP			
Sr. No.	**Particulars**	**Estimated Capital cost in Rs. Cr.**	**Recurring cost in Rs. Cr./annum**
1.	Air Pollution Control	10.65	0.4
2.	Water Pollution Control	2.9	0.1
3.	Noise Pollution Control	1.2	0.1
4.	Environment Monitoring & Management	0.70	0.57
5.	Occupational Health	1.5	0.1
6.	EMS & Disaster Management	1.3	0.10
7.	Green Belt/plantation & Maintenance	1.21	0.04
Total		**19.46**	**1.41**

EMP Cost is about 5.69 % of the total project cost.

14. DETAILS OF LITIGATION & COMPLIANCE OF HON'BLE NGT ORDER

A litigation bearing Original Application No. 94/2021/EZ was filed by applicant (Mr. Chittaranjan Mahanta & Others) at Honourable NGT, Interim Orders was issued by NGT on 08.10.2021 & on 07.02.2023 for stay of EC process.

Then Filed Visit was carried by Joint committee comprising of nominee of DG Forest, MoEF&CC (not below the rank of ADG), Integrated Regional Officer of MoEF&CC, Bhubaneshwar,PCCF (HoFF), Odisha,Chief Wildlife Warden,Odisha and the District Magistrate, Sundergarh on 18.03.2023 and 28.04.2023.

Pursuance of the Joint committee visit report and as per the final NGT order dated 22.08.2023, the above case was disposed and it has been directed to MoEF&CC, to take a decision in the matter of grant of Environmental Clearance to the Project Proponent in accordance with law within a period of three months.

K A I INTERNATIONAL PVT. LTD.

Office : 3rd Floor, Forum Galleria Office No. : 316-323, **CIN No. :** U131000R2007PTC009647
Civil Township, Rourkela, Dist. : Sundargarh, Odisha - 769004
Ph.: +91-661-3500245, E-mail : info@groupkalinga.com

DECLARATION OF PROJECT PROPONENT FOR EC OF GREENFIELD PROJECT

KAI International Pvt. Ltd., has applied for grant of Environment Clearance (EC) to MoEFCC, New Delhi for the Proposed Greenfield project of Iron Ore Beneficiation Plant- 1.5 MTPA throughput (1.16 MTPA High grade ore), Iron ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 Nm^3/hr (6 x 4,500 Nm^3/hr) located at village- Kapanda, Tehsil–Lahunipara, District-Sundergarh, Odisha. As per EIA notification dated 14th September, 2006, this project falls in category "A" under schedule 3(a) Metallurgical industries (ferrous &nonferrous) for major activity & 2(b) Mineral beneficiation plant as minor activities which required for Environmental Clearance from Ministry of Environment, Forest & Climate Change (MoEF&CC). Accordingly the Terms of Reference (ToR) was issued by MoEF&CC by letter No. F. No. IA-J-11011/59/2021-IA-II(I) dated 29.11.2021.

We have entrusted M/s. Visiontek Consultancy Services Pvt. Ltd., Bhubaneswar, who have been accredited by NABET, Quality Council of India vide accreditation no. NABET/EIA/2023/RA 0209 and valid upto 16th December, 2023, for conducting EIA/EMP study and preparation of report required under EIA Notification for grant of EC for said expansion project.

The Environmental Impact Assessment (EIA) & Environmental Management Plan Report has been prepared in accordance with the approved ToR and as per the generic structure of EIA notification 2006 and amendments thereof. The data contained in EIA report are sourced from primary survey & secondary data collected by M/s. Visiontek Consultancy Services Pvt. Ltd. based on EIA methodologies.

We hereby undertake to mention that the information/ data given in the EIA/ EMP are factual and scientific to the best of our knowledge and understanding. This EIA/EMP report along with all data and information is owned by KAI International Pvt. Ltd. Any deficiency or mistake due to unintentional omission or lack of understanding will be incorporated in EIA/EMP report & furnished as per the appraisal process of MoEF&CC.

Thanking You,
Yours Faithfully,

Suresh Agarwal

For KAI International Pvt. Ltd.
Mr. Suresh Agarwal
(Director)
Email:- *info@groupkalinga.com*
Mob:- +91 9937760750
Date: 04.11.2023
Place: Rourkela

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA/EMP OF

M/s. KAI International Pvt. Ltd.

Proposed Greenfield project of Iron Ore Beneficiation Plant- 1.5 MTPA throughput (1.16 MTPA High grade ore), Iron ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 Nm3/hr (6 x 4,500 Nm^3/hr) located at village- Kapanda, Tehsil–Lahunipara, District- Sundergarh, Odisha.

Declaration by Experts contributing on the EIA/EMP:

I, hereby, certify that I was part of the EIA team in the following capacity that developed the above EIA/EMP.

EIA Coordinator:

		EIA Coordinator	Co- EIA Coordinator	TM- EIA Coordinator
Name	:	Dr. Ashok K. Rathoure (Sector- 8)	Mr. Parag S. Khujnare (Sector- 7)	Mr. Gangadhar Sahoo
Signature & Date	:			
Period of involvement	:	March 2021 -Till date.	February 2021 – Till date	June 2022 – Till date.
Contact Information	:	Visiontek Consultancy Services Pvt. Ltd. M 22 & M 23, Chandaka Industrial Estate, Patia, Bhubaneswar-24 Phone No.: 91-674-6451781 E-mail-visiontekin@gmail.com, www.vcspl.org		

Functional Area Experts (FAEs):

S.	Functional	Name of the	Involvement	Signature

No	Area	Expert/s	(Period & Task)	
1	**AP** (Air pollution monitoring, prevention and control)	FAE (Cat. A): Dr. C.R. Panda	March 2021 – March 2023 Assessment of existing Air Quality, Identifying the sources of emissions, Evaluation of Ambient Air Quality Results, identification of Impacts, suggestions & finalization of mitigation measures.	CRP
		TM: Bharat Sharma		Bharat Sharma
2	**AQ** (Meteorology, air quality modeling and prediction)	FAE (Cat. A): Dr. C.R.Panda	March 2021 – March 2023 Identification of air emission sources and their inventorisation, prediction of cumulative impacts due to all identified area and point sources. Air dispersion modeling for prediction of GLCS due to PM10, SO_2 and NOx. Finalization of mitigation measures.	CRP
		TM: Gangadhar Sahoo		Gangadhar Sahoo
3	**WP** (Water pollution monitoring, prevention and control)	FAE (Cat. A): Dr. C.R.Panda	March 2021 – March 2023 Evaluation of Surface and Ground water quality results, impacts on Water environment and mitigations. Identification, Characterization of effluent streams and treatment thereof. Water balance and conservation measures.	CRP
		FAE (Cat. B): Bharat Sharma		Bharat Sharma
		FAE (Cat. B): Dr. Ashok K. Rathoure		
		TM: Gangadhar Sahoo		Gangadhar Sahoo
4	**SHW** (Solid and hazardous waste	FAE (Cat. A): B.K Mishra	March 2021 – Till date Identification of potential Solid & hazardous waste generating sources and their invetorisation, finalization of waste management strategies, identification of impacts, suggestions & finalization of mitigation measures.	BKmishra
		TM: Bharat Sharma		Bharat Sharma

	management)			
5	**SE** (Socio-economics)	FAE (Cat. A): Dr. Arati Nanda	March 2021 – Till date Field Survey, Assessment of Possible Changes due to proposed industrial activity, Determination of demographic profile, identification of impacts, suggestions & finalization of mitigation measures.	Arati Nanda
6	**EB** (Ecology and biodiversity)	FAE (Cat. A): Dr. Ashok Rathoure	Sept 2021 -Till date Field Survey, Assessment of possible impacts on biological environment status in respect of terrestrial, aquatic flora & fauna. impacts, suggestions & finalization of mitigation measures	
7	**HG** (Hydrology, ground water and water conservation)	FAE (Cat. A): Prafulla Kumar Panda	March 2021 – Till date Study of water bearing properties of formations, occurrences of ground water and depth to ground water level at the project site and study area. Rainwater Harvesting feasibility analysis, storm water management, surface runoff calculation. Recommendations for water conservation measures.	
		TM: Anupam Moitra		Anupam Moitra.
8	**GEO** (Geology)	FAE (Cat. A): Prafulla Kumar Panda	March 2021 – Till date Study of Geological aspects, Topographical conditions, Natural drainage, Soil types and Geomorphology, Litho profile and geological succession of the project site and study area. Determination of hard rock foundation. Impacts of the project and Recommendations.	
		TM: Anupam Moitra		Anupam Moitra.
9	**LU** (Land use)	FAE (Cat. A): Dr. B.C. Nagaraja	March 2021 – Till date Analysis of data related to land use, Development of LULC Maps using GIS techniques, impact on Land environment	

		TM: Anupam Moitra	with respect to land form change.	
10	**RH** (Risk assessment and hazard management)	FAE (Cat. A): Aprup A. Adwadkar	March 2021 – Till date Identification of hazard prone areas, major risks associated with and quantifying the extent. Development of Onsite/Offsite emergency plan and integration with local disaster management plan.	
11	**NV** (Noise and vibration)	FAE (Cat. A): Parag S. Khujnare	February 2021 – Till date Analysis of noise quality data, identification of impacts, suggestions & finalization of suitable mitigation measures.	
		FAE (Cat. B): Bharat Sharma		
12	**SC** (Soil conservation)	FAE (Cat. A): Dr. B. C Nagaraja	March 2021 – March 2023 Analysis of Soil Quality Data, Identification of Impacts, Suggestions & finalization of suitable mitigation measures	

Declaration by the Head of the accredited consultant organization/ authorized person

I, **P. Kumar Ranjan,** Managing Director of Visiontek Consultancy Services Pvt. Ltd., hereby, confirm that the above-mentioned experts were involved in the preparation of the EIA/EMP Report for Proposed Greenfield project of Iron Ore Beneficiation Plant- 1.5 MTPA throughput (1.16 MTPA High grade ore), Iron ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 Nm^3/hr (6 x 4,500 Nm^3/hr) located at village- Kapanda, Tehsil–Lahunipara, District- Sundergarh, Odisha by M/s KAI International Private Limited.

The Awarded ToRs are complied with and incorporated in the EIA/EMP Report. The data submitted in the EIA Report are correct to best our knowledge. I also confirm that I shall be fully accountable for any misleading information mentioned in this statement.

Name: Mr. P. Kumar Ranjan

Signature:

P. Kumar Ranjan

Designation: Managing Director

Name of the EIA Consultant Organization: **Visiontek Consultancy Services Pvt. Ltd.**
QCI/NABET Accredited Environment Consultancy.

NABET Certificate No. & Date of Issue: NABET/EIA/2023/RA 0209, Dated 29th June 2021 – Valid up to 16th December 2023

Visiontek Consultancy Services Pvt. Ltd.
(Committed For Better Environment)
Certified for: ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 (OH&S), ISO/IEC 17025:2005
Accredited by: NABET-A Grade, MOEF & CC/CPCB & SPCB-A Grade

- Infrastructure Engineering
- Water Resource Management
- Environmental & Social Study
- Surface & Sub-Surface Investigation
- Quality Control & Project Management
- Renewable Energy
- Agricultural Development
- Information Technology
- Public Health Engineering
- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

Laboratory Services
Environment Lab
Food Lab
Material Lab
Soil Lab
Mineral Lab
&
Microbiology Lab

UNDERTAKING BY CONSULTANT

This is to certify that Visiontek Consultancy Services Pvt. Ltd. (VCSPL) has carried out the preparation of the EIA/EMP report for Environmental Clearance of Proposed Greenfield project of Iron Ore Beneficiation Plant- 1.5 MTPA throughput (1.16 MTPA High grade ore), Iron ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 Nm^3/hr (6 x 4,500 Nm^3/hr) located at village- Kapanda, Tehsil–Lahunipara, District- Sundergarh, Odisha of M/s KAI International Private Limited.

The primary baseline data was collected by VCSPL in-house laboratory during post-monsoon season of October 2021 to December 2021 in the study area supported by the secondary data collected from the different Govt. and recognized agencies e.g. Forest Department, Census Office and India Meteorological Department etc. This primary and secondary data were used as the baseline on which prediction of impacts due to project for different environmental and social attributes such as Air, Noise, Water, Land, Ecology & Biodiversity, Socio-economic etc. were carried out. The details and information provided by the project proponent have been used as is in the EIA report giving reference to the source.

The Environmental Impact Assessment (EIA) & Environmental Management Plan (EMP) Report has been prepared based on the approved ToR and as per the generic structure of the EIA Notification 2006. We hereby undertake to mention that the information / data given in the EIA report are factual and scientific to the best of our knowledge & belief.

Name: Mr. P Kumar Ranjan
Signature:

P. Kumar Ranjan

Designation: Managing Director
For Visiontek Consultancy Services Pvt. Ltd.

Plot No.- M-22 & 23, Chandaka Industrial Estate, Patia, Bhubaneswar, Khurda, Odisha-751024, India Tel.: 0674-3511721
E-mail: visiontek@vcspl.org, visiontekin@gmail.com
Visit us at: www.vcspl.org

Certificate for Plagiarism Check

Title of EIA/ EMP Report	:	Proposed Greenfield project of Iron Ore Beneficiation Plant- 1.5 MTPA throughput (1.16 MTPA High grade ore), Iron ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 Nm^3/hr (6 x 4,500 Nm^3/hr) located at village- Kapanda, Tehsil–Lahunipara, District- Sundergarh, Odisha of M/s KAI International Private Limited.
Name of Accredited Organization	:	Visiontek Consultancy Service Pvt. Ltd., Bhubaneswar
Accreditation No.	:	NABET/ EIA/2023/RA 0209
Validity of Accreditation	:	16.12.2023
Name of EIA Co-ordinator (EC)	:	Dr. Ashok Rathoure
Name of Software	:	Plagiarism Checker X
Similarity Found	:	9%
Date of Check	:	06.11.2023

Declaration by the Head of Accredited Consultant Organization (ACO)/ Authorized person.

I hereby certify that, this EIA/ EMP report has been evaluated using online/ In- house software viz., Plagiarism Checker X. The report produced has been analyzed by the system and based on it, I certify that the EIA/ EMP report produced in accordance with good scientific practices.

Date and Sing. Of EIA Coordinator	**:**	06.11.2023
Name of EIA Co- ordinator (EC)/ Head of Department	**:**	Mr. Gangadhar Sahoo
Date of Sign of Head of Accredited Organization	**:**	06.11.2023

P. Kumar Ranjan
Managing Director

Name of EIA Consultant Organization	**:**	Visiontek Consultancy Service Pvt. Ltd., Bhubaneswar
Accreditation No.	**:**	NABET/ EIA/2023/RA 0209
Validity of Accreditation	**:**	16.12.2023



Plagiarism Checker X – Report

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ToR COMPLIANCE

ToR.No. F. No. IA-J-11011/59/2021-IA-II(I) dated: 29th Nov. 2021.

GENERIC TERMS OF REFERENCE (ToR) IN TERMS OF INDUSTRY SECTOR

ToR Point No.	ToR Points	Compliances	Citations
1.	**Executive Summary**	Executive Summary of this project has been prepared as prescribed in the ToR.	Ex. i to xi
2.	**Introduction**		
i	Details of the EIA Consultant including NABET accreditation.	Visiontek Consultancy Services Pvt. Ltd., is accredited by QCI/NABET for preparing EIA/EMP reports under Sector 8, Schedule 3(a)- "Metallurgical industries (ferrous & non-ferrous) – both primary and secondary" and sector 7, schedule 2(b) Mineral Beneficiation, vide their Certificate No. NABET/EIA/2023/RA 0209 which is valid up to 16th Dec., 2023. Details of the EIA Consultant including NABET accreditation has been incorporated in this EIA/EMP Report.	Chapter -12 Section No. 12.1 Page No. 1
ii	Information about the project proponent	**Project proponent**: KAI International Pvt. Ltd. **Registered Office:** CCC-23, Civil Township, Rourkela, District: Sundergarh, State: Odisha The company is involved in trading of iron ores, limonite, Coal, Iron and Steel, etc.	Chapter -1, Section 1.2.3 Page No.1
iii	Importance and benefit of the project	In order to meet the ever-increasing demand of steel and demand of pellets by a large no of sponge iron units in the country, it is envisaged to set-up a 1.5 MTPA throughput Iron Ore Beneficiation Plant & 1.2 MTPA capacity iron ore pellet plant. Social, Economic benefit from the project on the locality will be there. Rs. 409.9 Lakhs. is allocated against Public hearing compliances.	Chapter- I Section No. 1.3.2 Page No. 9
3.	**Project Description**		
i	Cost of project and time of completion	The total investment for the proposed project works out to approximately Rs 341.72Crore. The completion time of Project after statuary clearances is envisaged as 25 months.	Chapter -2, Section2.12, Table-2.20, Page No. 39
ii	Products with capacities for the proposed	**Product** | **Configuration** | **Capacity**	Chapter- I

	project	Beneficiated Iron Ore	1 X 1.5 MTPA	15,00,000 TPA (throughput) 1160000 TPA (High grade ore)	Section No. 1.3.1 Table No. 1.4 Page No. 9
		Iron ore Pellet	2 x 0.6 MTPA	12,00,000 TPA	
		Producer Gas	6 Nos. (5W+1S) 6 X 4,500 Nm^3/hr	27,000 Nm^3/hr	
iii	If expansion project, details of existing products with capacities and whether adequate land is available for expansion, reference of earlier EC if any.	As it is a Greenfield project this section is Not Applicable.			Chapter- 2 Section No. 2.1.1 Page No. 1
iv	List of raw materials required and their source along with mode of transportation.	Raw materials required for the proposed project are Iron Ore Fines, Coke Breeze, Bentonite, Limestone, Dolomite fines, Coal. Iron ore fines will be sourced from mines in Barbil, Koida, Joda area. Coal, bentonite, limestone will be sourced from Agarwal Coal Corporation Pvt. Ltd., Rourkela & Khatkurbahal limestone mine etc.			Chapter -2, Section No. 2.4 Table-2.9, Page No. 27
v	Other chemicals and materials required with quantities and storage capacities	No other specific chemicals/materials are required.			-
vi	Details of Emission, effluents, hazardous waste generation and their management.	Process return fines & ESP Dust- 45,927 TPA (In house use) Domestic Waste Water: 16 KLD (To be treated in 20 KLD Capacity STP) Effluent: Blow down from Pellet process 50 KLD (to be treated in 60 KLD ETP) & Blow down from PGP process 8 KLD (to be treated in 10 KLD ETP). Used Oil: 1.5 KLA Oily Sludge: 0.25 KLA (Sold to authorized Recyclers/Re-processors having valid authorization from SPCB or disposed to TSDF) Phenolic Water: 6.42 KLD (To be treated in the dedicated system of Gassification Unit)			Chapter- 2 Section No. 2.14.4 Table No. 2.25 Page No. 44
vii	Requirement of water, power with source of supply, status of approval (energy	**Particular**	**Total Requirement**	**Source**	Chapter- I Section No. 1.3

	balance with provision of renewable energy), material balance, water balance diagram for different purposes with water harvesting, man-power requirement (regular and contract)	Water	1180 KLD	Brahmani river	Table- 1.1 Page No. 4
		Power	12 MW	Nearest GRID (WESCO)	
		Manpower	500	For Semi Skilled & Un-skilled manpower local people will be preferred.	
viii	The project proponent shall furnish the requisite documents from the competent authority in support of drawl of ground water and surface water and supply of electricity	Water requirement is 1180 KLD and its source will be Brahmani River. The allocation for drawl of 0.50 Cusec (1223.287 KLD) surface water is obtained from The Additional Chief Secretary to Govt., Department of Water Resources vide Lt. No. WS-IWS-781/22-2024 dated 21.01.2023. Ground water will not be sourced. The total power requirement for the proposed project is estimated as 12.0 MW, which will be met from GRID (WESCO) at Purunapani Substation which is 3.7 Km (ESE) from the project site. However, permission for 12 MW will be taken during CTE period.			Chapter- I Section No. 1.3 Table- 1.1 Page No. 4 **Annexure- 4**
ix.	Process description along with major equipment and machineries, process flow sheet(quantitative) from raw material to products to be provided	Beneficiation Plant: 1.5 MTPA (Wet Grinding Process by Wet grinding Mill along with other auxiliary equipment) Pellet Plant: 1.2 MTPA (Grate Kiln Technology, Equipment: Traveling Grate, Rotary Kiln, Annular Cooler with other auxiliary Equipment)			Chapter- 2 Section No. 2.3 Page No. 14-27
x.	Hazard identification and details of proposed safety systems.	Risk & Hazard related with following have been identified and control measures suggested: Kiln Area (Pelletization Process); Producer gas Plant; Electrical rooms; Transformer area; Coal Storage yard; Crushing and grinding unit; Chimney Fuel/Coal Storage Silo; Storage of Hazardous Waste			Chapter- 7 Section No.7.3.2.5 Table No.- 7.5 Page No. 24
xi.	Expansion /modernization proposals: a. Copy of all the Environmental clearances(s) including Amendments thereto obtained for the project from MoEF&CC/SEIAA shall be attached as an Annexure. A certified copy of the latest monitoring Report of the Regional Office of	Not applicable. As it is a green-field project			--

	the Ministry of Environment, Forest and Climate Change as per circular dated 30th May, 2012 on the status of compliance of Consent to Operate for the ongoing /existing operation of the project from SPCB/PCC shall be attached with the EIA-EMP Report. b. In case the existing project has not obtained environmental clearance, reasons for not taking EC under the provisions of the EIA Notification 1994 and /or EIA Notification 2006 shall be provided. Copies of Consent to Establish /No Objection Certificate and Consent to Operate (in case of units operating prior to EIA Notification 2006, CTE and CTO of FY2005-2006) obtained from the SPCB shall be submitted. Further, compliance report to the conditions of consents from the SPCB shall be submitted.		
4	**Site Details**		
i	Location of the project site covering village, taluka/Tehsil, District and State, Justification for selecting the site, whether other sites were considered.	The proposed project is located at Village: Kapanda, District: Sundargarh, Odisha. Alternate sites: Option 1: Kapanda, Dist-Sundergarh, State-Odisha Option 2:Raikela,Dist-Sundergarh, State-Odisha) Option-3: Lauposh, Dist-Sundergarh, State-Odisha) Option 1 in located at Kapanda Village in Sundergarh District has been selected after alternative analysis.	Chapter -1 Section 1.3, Chapter -5 Section 5.1 Table 5.1 Page No. 2-3
ii	A topo-sheet of the study area of radius of 10 km and site location on 1,50,000/1,25,000 scale on an A3/A2 sheet	Map showing project site and 10 km radius study area on topo-sheet of 1:50,000 scale has been prepared (including all eco-sensitive areas and environmentally sensitive places).	Chapter -1 Fig. No.1.3 Page no. 8

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<table>
<tr><td></td><td>(including all eco-sensitive areas and environmentally sensitive places)</td><td></td><td></td></tr>
<tr><td>iii</td><td>Co-ordinates (lat-long) of all four corners of the site.</td><td>The GPS locations of corners of the project site are givenbelow;
<table>
<tr><th>Sl. No.</th><th>Latitude</th><th>Longitude</th></tr>
<tr><td>1</td><td>21°53'28.44"N</td><td>84°52'15.80"E</td></tr>
<tr><td>2</td><td>21°53'25.49"N</td><td>84°52'16.45"E</td></tr>
<tr><td>3</td><td>21°53'21.00"N</td><td>84°52'17.41"E</td></tr>
<tr><td>4</td><td>21°53'17.11"N</td><td>84°52'22.04"E</td></tr>
<tr><td>5</td><td>21°53'11.30"N</td><td>84°52'29.12"E</td></tr>
<tr><td>6</td><td>21°53'11.40"N</td><td>84°52'35.21"E</td></tr>
<tr><td>7</td><td>21°53'17.15"N</td><td>84°52'35.23"E</td></tr>
<tr><td>8</td><td>21°53'22.78"N</td><td>84°52'35.20"E</td></tr>
<tr><td>9</td><td>21°53'23.68"N</td><td>84°52'30.77"E</td></tr>
<tr><td>10</td><td>21°53'23.86"N</td><td>84°52'26.76"E</td></tr>
<tr><td>11</td><td>21°53'29.01"N</td><td>84°52'26.29"E</td></tr>
<tr><td>12</td><td>21°53'28.77"N</td><td>84°52'20.69"E</td></tr>
</table></td><td>Chapter-1
Table No. 1.3
Page No. 5</td></tr>
<tr><td>iv</td><td>Google map- Earth downloaded of the project site</td><td>Google Earth image of the project site is given in this EIA/EMP Report.</td><td>Chapter -1
Fig. No. 1.1
Page No. 6</td></tr>
<tr><td>v</td><td>Layout map indicating existing unit as well as proposed unit indicating storage area, plant area, green belt area, utilities etc. If located within an Industrial area/ Estate/ Complex layout of Industrial area indicating location of unit within the industrial area/Estate.</td><td>Plant Layout showing proposed proportioning unit, storage area, greenbelt area (45.4%), internal road (width of 7meter) other utilities etc. as per the recommendations of EAC has been prepared.</td><td>Chapter -2
Fig. No.2.2
Page No. 11</td></tr>
<tr><td>vi</td><td>Photographs of the proposed and existing (if applicable) plant site. If existing show photographs of plantation / greenbelt in particular.</td><td>Photographs of the project site in different direction along with existing green belt have been incorporated.</td><td>Chapter -2
Fig. No.2.2.3
Page No. 8</td></tr>
</table>

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<table>
<tr><td>vii</td><td>Land use break-up of total land of the project site (identified and acquired) govt/private -agricultural, forest, wasteland, water bodies, settlements etc shall be included (not required for industrial area). Land schedule to be furnished.</td><td>The total land 47.348 Ha (117 Acres) has been leased from IDCO to M/s KAI International Private Limited vides lease deed doc. no. 11722200143 dated 12th April 2022.
Out of which the proposed project will be established on 19.32 ha (47.74 Acres). The kissam of the Land is Patita as mentioned in the Land lease Deed.</td><td>Chapter –2
Section-2.2.3
Page No. 7</td></tr>
<tr><td>viii</td><td>A list of major industries with name and type within study area (10 km radius) shall be incorporated. land use details of the study area.</td><td>Name Of Industries
BR Sponge Power Limited, Vidya Mineral pvt. Ltd, Vikrampvt. Ltd., MaaManasha Devi alloys pvt. Ltd., Bhaskar Steel and Ferro Alloy pvt.
Land Use:
<table>
<tr><th>Land Use</th><th>%</th></tr>
<tr><td>Water Bodies</td><td>2.19</td></tr>
<tr><td>Forest</td><td>42.25</td></tr>
<tr><td>Built-up Land</td><td>3.3</td></tr>
<tr><td>Agriculture Land</td><td>8.6</td></tr>
<tr><td>Scrubland</td><td>40.7</td></tr>
<tr><td>Sand</td><td>3.06</td></tr>
</table></td><td>Chapter –2
Section 2.2.2
Table No. 2.6
Page No. 7

Land Use:
Table No. 2.7
Page no. 9</td></tr>
<tr><td>ix</td><td>Geological features and Geo-hydrological status of the study shall be included.</td><td>The study area is a part of Gangpur Group, South Singhbhum Granite-Iron Ore Series. The soil of the district is broadly
grouped into1) Ultisols and 2) Alfisols.
The Hydro-Geological units of the study area is found to be in 3 categories: Consolidated, Semi-consolidated & Unconsolidated.</td><td>Chapter-3,
Section- 3.8
Page No. 54</td></tr>
<tr><td>x</td><td>Details of Drainage of the project up to 5 km radius of study area. If the site is within 1 km radius of any major river, peak and lean season river discharge as well as flood occurrence frequency based on peak rainfall data of the past 30 years. Details of flood level of the project site and maximum flood</td><td>Plant Site does not fall within 1 km radius of any major River.
Drainage details of the study area has been interpreted and Map has been prepared accordingly.
Nearest River Brahmani is at a distance of 1.65 km (HFL data of nearest gauge station Gomlai (7 km from the project site) has been obtained.</td><td>Chapter –3, Section 3.8
Page No. 58
Annexure- 1</td></tr>
</table>

	level of the river shall also be provided (mega green field projects)		
xi	Status of acquisition of land. If acquisition is not complete, stage of the acquisition process and expected time of complete possession of the land.	The total land 47.348 Ha (117 Acres) has been leased from IDCO to M/s KAI International Private Limited vides lease deed doc. no. 11722200143 dated 12th April 2022. Out of which the proposed project will be established on 19.32 ha (47.74 Acres). The kissam of the land is Patita s mentioned in the Land Lease Deed. The land for the proposed project is in possession of the PP.	Chapter –2 Section-2.2.3 Page No. 7 **Annexure- 2**
xii	R & R details in respect of land in time with state Govt policy.	R&R is not applicable; as the land required for the proposed project is leased to M/s. KAI International pvt. Ltd.	Chapter –7 Section.7.2 Page No. 11
5	**Forest and Wildlife related issues (if applicable):**		
i	Permission and approval for the use of forest land (forestry clearance) if any and recommendation of the State Forest Department (if applicable)	No forest land involved. As per joint field verification conducted on 08.02.23 by Forest and revenue dept. officials, entire land is non-forest land of kissam patit. Joint field verification report along with Vide Memo No. 8447/4F (Misc.) (PC- 1), dtd. 12.09.2023. The kissam of the Land is Patita as mentioned in the Land lease Deed.	**Annexure- 5**
ii	Land use map based on High resolution satellite imagery (GPS) of the proposed site delineating the forestland (in case of projects involving forest land more than 40 ha)	Multispectral Data from Cartosat 2E with a maximum resolution of 1.6 m was used for Land Use/Land Cover analysis. It belongs to Cartosat 2 Series of satellites from Indian Space Research Organization (ISRO). Surveys of India OSM were used as base map. Ortho-rectification, Terrain correction, and Geo-referencing were done using Cartosat – 2 Panchromatic data. Ground truthing was undertaken at random points to verify the results. Accuracy assessment provided a result of 99.155% accuracy. ESA SNAP image processing software was used in atmospheric correction. Arc GIS was used in processing of spatial data and preparation of Land use/Land Cover Map. Processing of satellite data was done by using Object Based Image	Chapter 3 Section 3.2.3, Fig No. 3.4 Page No. 7

		Analysis (OBIA) method via Supported Vector Machine learning algorithm.	
iii	Status of application submitted for obtaining the stage forestry clearance along with latest status shall be submitted.	Not applicable because no forest land is present in proposed green-field project.	-----
iv	The projects to be located within 10 km of the national Parks, Sanctuaries, Biosphere Reserves, migratory Corridors of Wild Animals, the project proponent shall submit the map duly authenticated by Chief Wildlife Warden showing these features vis-à-vis the project location and recommendations or comments of the Chief Wildlife Warden – thereon.	No National Parks, Sanctuaries, Biosphere Reserves, migratory Corridors of Wild Animals within10 Kms. from project site. Kukia RF is the nearest forest which is 0.12 km (NW) distance.	Chapter 1 Section 1.3 Page No. 3
v	Wildlife conservation plan duly authenticated by the Chief Wildlife Warden of the State Government for conservation of Schedule I fauna, if any exists in the study area.	Wildlife conservation plan has been prepared for the study area. Schedule- I species like Elephant, Leopard, Sloth Bear and Python are present. However, as per primary data Elephant, Sloth Bear and Python are available. Leopard is not reported during interaction with local people. In compliance to above, Wildlife Conservation Plan has been prepared with a budget of Rs. 55.871 lakhs to be implemented in 5 years and the plan submitted to PCCF (Wildlife) vide memo no. no. 7846/4 F (Misc.), dated 20.09.2022 for approval As mentioned in the Sub-Committee visit report, an Eco-restoration Plan in terms of Forest Conservation Plan is also prepared and submitted to Office of PCCF (Wildlife) vide memo no. no. 7843/4 F (Misc.), dated 20.09.2022 for approval.	**Annexure- 19** **Annexure- 20**
vi	Copy of application submitted for clearance under the Wildlife (protection) Act, 1972 to be standing Committee of the National Board for Wildlife.	Not Applicable	-
6	**Environmental Status**		

i	Determination of atmospheric inversion level at the project site and site-specific micro-meteorological data using temperature, relative humidity, hourly wind speed and direction and rainfall.	Details of atmospheric inversion level have been obtained from Envitrans Portal and incorporated in this EIA Report. Site-specific micro-meteorological data (temperature, relative humidity, wind speed and direction) were collected during Post Monsoon Season i.e. Oct-Dec 2021.	Chapter -4 Fig. 4.2, Pg. No. 17 Chapter- 3 Table No. 3.7 Page No. 11
ii	AAQ data (except monsoon) at 8 locations for PM 10, PM 2.5, SO2, NOx, CO and other parameters relevant to the project shall be collected. The monitoring stations shall be based CPCB guidelines and take into account the pre-dominant wind direction, population zone and sensitive receptors including reserved forests	AAQ monitoring at 8 locations were carried out during Post Monsoon Season i.e. Oct-Dec 2021 within 10 km radius study area. The monitoring stations were selected taking into account the pre-dominant wind direction, population zone and sensitive receptors etc.	Chapter -3 Section 3.4 Table- 3.9 Page No.15
iii	Raw data or all AAQ measurement for 12 weeks of all stations as per frequency given In the NAQQM Notification of Nov. 2009 along with – min, max, average and 98% values for each of the AAQ parameters from data of all AAQ stations should be provided as an annexure to the EIA Report.	Raw data of all AAQ measurement / detailed AAQM Tables of all AAQ stations along with min., max., average and 98% values for each of the AAQ parameters have been given in EIA Report. Summary of the AAQ baseline data: PM2.5 =17.8 to 44.2 $\mu g/m^3$ PM10 =32.4 to 81.3 $\mu g/m^3$ SO2 = <4.0 to 14.2 $\mu g/m^3$ NOx = <9.0 to 25.2 $\mu g/m^3$ CO = 0.12 to 0.51 mg/m^3 Baseline result with the min, max, average and 98% values for each of the AAQ parameters has been summarized.	Chapter -3 Section 3.4.4 Page No. 23

1320

1320

iv	Surface water quality or nearby River (60m upstream and downstream) and other surface drains at eight locations as per CPCB/MoEF&CC guidelines	Surface water analysis at 11 locations (including Upstream & downstream of Brahmani River) has been carried out for Oct-Dec 2021. Summary: pH: 7.25 to 8.07; DO: 4.6 to 7.8 mg/l and BOD:2.0 to 2.9 mg/l	Chapter -3 Section- 3.6.1 Table 3.17 (a) & (b) Page no. 36- 38
v	Whether the site falls near to polluted stretch of river Identified by the CPCB/MoEF&CC.	The project site does not fall near to polluted stretch of any river identified by the CPCB/MoEF&CC.	-
vi	Ground water monitoring at minimum at 8 locations shall be included	Ground water analysis has been carried out for Oct-Dec 2021. Summary: pH: 6.6 to 7.85, Total Hardness: 73 to 325 mg/l, Chlorides: 11 to 179 mg/l, Fluoride: BDL to 0.28 mg/l. Heavy metals such as Lead, Arsenic etc. is below BDL at all the locations.	Chapter -3 Section 3.6.5 Table No. 3.19 Page No. 43- 45
vii	Noise levels monitoring at 8 locations within the study area.	Noise level monitoring was carried out at 8 locations during Post Monsoon Season (Oct-Dec 2021) within 10 km radius study area. Ambient noise reaches 41.6 to 56.9 dB(A) during day time and 36.8 to 46.9 dB(A) during night time.	Chapter -3 Section 3.5.2 Table- 3.13 Page No. 28
viii	Soil Characteristic as per CPCB guidelines	Soil sampling was carried out for 8 locations within the study area during Post monsoon Season (6 locations for Oct-Dec 2021. P: 9.93 to 9.98 mg/Kg; N: 17.45 to 40.71 mg/Kg; K: 19.0 to 42.0 mg/Kg; pH: 6.4 to 6.83; Electric Conductivity: 21.8 to 106.3 µS/cm	Chapter -3 Section- 3.7.2 Table- 3.23 Page No. 52- 53
ix	Traffic study of the area, type of vehicles, frequency of vehicles for transportation of materials, additional traffic due to proposed project, parking arrangement etc.	Traffic study was carried out at 3 locations. At the location i.e. Kapanda – Fatjharan village road (near Entry Gate of Project Site), the LOS of the village road is found to be very good (B) most of time. At intersection of Santikayatpali Road to NH-23 and at Gudihali (Intersection of NH-23 & NH-215), the LOS of the road is found to be very good (B) most of the time. But, the LOS of road at Gudihali (Intersection of NH-23 & NH-215), is found to be good (C) sometimes during peak hour traffic.	Chapter- 3 Section- 3.9.1 Page No. 60- 62 **Annexure- 21**

1321

1321

x	Detailed description of flora and fauna (terrestrial and aquatic) existing in the study area shall be given with special reference to rare, endemic and endangered species. If Schedule-I fauna are found within the study area, a Wildlife Conservation Plan shall be prepared and furnished.	Schedule- I species like Elephant, Leopard, Sloth Bear and Python are present. However, as per primary data Elephant, Sloth Bear and Python are available. Leopard is not reported during interaction with local people. In compliance to above, Wildlife Conservation Plan has been prepared with a budget of Rs. 55.871 lakhs to be implemented in 5 years and the plan submitted to PCCF (Wildlife) vide memo no. no. 7846/4 F (Misc.), dated 20.09.2022 for approval As mentioned in the Sub-Committee visit report, an Eco-restoration Plan in terms of Forest Conservation Plan is also prepared and submitted to Office of PCCF (Wildlife) vide memo no. no. 7843/4 F (Misc.), dated 20.09.2022 for approval.	Chapter- 3 Section- 3.10 Page No. 63- 70 **Annexure- 19**
xi	Socio-economic status of the study area.	As per the Census Records of India 2011, the study area within 10 kms has 132 Villages with appropriate majority of the population getting affected has been duly considered for the Study. Considering the population as per Census 2011, it can be concluded that 46.21 % of Total Workforce population prevails within the Study Area The Main Workers consist of 25.04 % and Marginal Workers comprise of 21.17 %. Such projects shall always boost and strengthen the economy of the community in both direct and indirect means.	Chapter –3 Section 3.12 at page no. 126 to 146.
7	**Impact Assessment and Environment Management Plan**		
i	Assessment of ground level concentration of pollutants from the stack emission based on site- specific meteorological features. In case the project is located on a hilly terrain, the AQIP Modelling shall be done using inputs of the specific terrain characteristics for determining the potential impacts of the project on the AAQ. Cumulative impact of all sources of emissions (including transportation) on the AAQ of the area shall be well assessed Details of the model used and the input data used for modeling shall also be provided.	The incremental ground level concentration of pollutants from the stack emissions based on site-specific meteorological features has been predicted via computation done through mathematical modeling. The maximum GLC value for PM_{10} $PM_{2.5}$ SO_2 SOx & NOxs found to be at project site which is 2.17µg/m^3, 1.46 µg/m^3, 2.07 µg/m^3 & 0.73 µg/m^3 respectively in control scenario.	Chapter -4 Table- 4.16 Page No. 18

	The air quality contours shall be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any.		
ii	Water Quality modelling - in case, if the effluent is proposed to be discharged in to the local drain, then Water Quality Modelling study should be conducted for the drain water taking into consideration the upstream and downstream quality of water of the drain.	Not Applicable as Zero Liquid Discharge will be followed.	-
iii	Impact of the transport of the raw materials and end products on the surrounding environment shall be assessed and provided. In this regard, options for transport of raw materials and finished products and wastes (large quantities) by rail or rail-cum road transport or conveyor-cum-rail transport shall be examined.	There will be no major impact of the transport of the raw materials and end products on the surrounding environment due to proposed project as proper mitigation measures will be adopted. Major Raw materials Iron ore fines will be transported in trucks/dumpers covered with tarpaulin from a maximum distance of 58km. Nearest railway siding is Chandiposh which is at a distance of 15.8km only. Beneficiated Iron Ore will be transported through conveyor to the specified storage yard within the plant.	Chapter - 4 Section- 5.15 Page No. 49
iv	A note on treatment of wastewater from different plant operations, extent recycled and reused for different purposes shall be included. Complete scheme of effluent treatment. Characteristics of untreated and treated effluent to meet the prescribed standards of discharge under E(P) Rules.	Domestic Waste Water: 16 KLD (To be treated in 20 KLD Capacity STP) Effluent: Blow down from Pellet Plant 50 KLD (to be treated in 60 KLD ETP) & Blowdown from PGP process 8 KLD (to be treated in 10 KLD ETP). All the wastewater after treatment will be recycled/reused for industrial purposed in PGP, Pellet cooler, dust suppression and horticulture/plantation.	Chapter -4 Section 5.11.2 Page No. 40
v	Details of stack emission and action plan for control of emissions to meet Standards	The stack has been designed to keep the Particulate emission < 30 mg/m^3. Efficient Air Pollution Control Equipment (APCE) will be installed for the control of emissions from all the sources within the prescribed limit.	Chapter -4 Section- 4.6.2 Page No. 37
vi	Measures for fugitive emission control.	**Activity/ Equipment** / **Proposed Action** Transportation of Raw / Major Raw materials Iron ore fines will be transported	Chapter -4 Section 4.4.3 Page No. 37

1323
1323

		materials		in trucks/dumpers covered with tarpaulin.	
				Concentrate iron ore will be transported through closed conveyor.	
		Process Controls		Dust extraction with Bag house to be installed.	
		Transportation of product		The finish product will transport from plant via trucks with covered tarpaulin.	
		Raw materials handling		Dust Suppression System like water sprinkling & covered shed will be installed at all the junction houses/transfer points/ grinding sections.	
		Reduction of surface fugitive dust		Water sprinklers along the internal roads and, raw material yard and product storage yard will be installed.	
vii	Details of hazardous waste generation and their storage, utilization and disposal Copies of MOU regarding utilization of solid and hazardous waste shall also be included EMP shall include the concept of waste-minimization, recycle/ reuse/recover techniques, Energy conservation and natural resource conservation.	Used oil	1.5 KL/yr	Stored and disposed to Authorized recyclers as per MoU has been signed with UITC (India)Pvt. Ltd.	Chapter -4 Section- 5.14 Page No. 48 **Annexure- 10**
		Oily Sludge	0.25 KL/yr	Stored and disposed to Authorized recyclers/CHWTSDF as per norms.	
		The residue of the oil Storage tank			
		Phenolic Water from PGP	6.42 TPA	Dedicated system will be provided to reuse wastewater in PGP and sprinkling in Pellet plant cooler section.	
viii	Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 2009. A detailed plan of action shall be provided	28286 TPA ash will be generated from PGP plant which will be Supplied to fly ash bricks/blocks manufacturers.			Chapter -4 Section- 4.14 Page No. 48 **Annexure- 9**
ix	Action plan for the green belt development plan in 33% area i.e. land with not less than 1500 trees per ha Giving details of species, width of plantation, planning schedule etc. shall be included. The green belt shall be around the project boundary and a scheme for greening of the roads used for the project	Western side of the project site will be retained as it is along with gap filling plantation scheme. Total 36950 (including Compensatory Plantation against tree felling) saplings will be planted. 2500 trees per hectare has been considered for the greenbelt development.			Chapter -10 Section- 10.5 Page No. 8 to 11

1324

	shall also be incorporated.		
x	Action plan for rain water harvesting measures at plant Site Shall be submitted to harvest rainwater from the roof tops and storm water drains to recharge the ground water and also to use for the various activities at the Project site to conserve fresh water and reduce the water requirement from other sources.	Rain water harvesting structure is proposed to collect rain water. 32 KLD of makeup water will be sourced from the same, reducing the fresh water consumption.	Chapter -4 Section 4.11.4 Page No. 43- 47
xi	Total capital cost and recurring cost/annum for environmental pollution control measures shall be included.	Estimated Capital Cost of Environment Monitoring Plan is 70 Lakhs and recurring cost is envisaged as 57.5 Lakhs. Cost for Environmental Protection Measures: Capital Cost: Rs. 19.46 Crore; Recurring Cost: Rs. 1.41 Crs./ Annum	Chapter-10, Section 10.9 Page No 16
xii	Action plan for post project environmental monitoring shall be submitted.	Action plan for post-project environmental monitoring for effectiveness evaluation of EMP has been incorporated in this EIA/EMP Report.	Chapter -6 Section 6.3.2 Table No. 6.6 Page No. 8 to 10
xiii	Onsite and offsite disaster (natural and man-made) preparedness and Emergency Management Plan including Risk Assessment and damage control. Disaster management plan should be linked with District Disaster Management Plan.	Onsite Disaster management Plan comprises of below mentioned points: • Provision of PPE • Creation of awareness • Periodic Training • Provision of first aid medical facilities. Hazard Identification & Risk Assessment comprises of the following steps • Identification of the Hazard • Assessment of the Risk • Elimination/Reduction of the Risk • Mitigation Measures	Chapter- 7 Section- 7.4.3.3 & 7.4.3.10 Pg No. 30 to 34 & 37 to 38
8	**Occupational health**		
i	Details of existing Occupational & safety Hazards. What are the exposure levels of abovementioned hazards and whether they are within permissible	Not Applicable as it is a Greenfield Project. Whereas, Entry Medical examination & Health Record of the workers preserved in giving format which is attached in Annexure- VII & VIII	Chapter -7 Section- 7.6.2 Page No. 43 **Annexure- 22 &**

	exposure level (PEL). If these are not within PEL, what measures the company has adopted to keep them within PEL so that health of the workers can be preserved.	**Measures** • Ensure use of PPE Kits like safety helmet, safety shoes, goggle, dust mask, ear plug & hand gloves. • Display material safety data sheets for use of every hazardous substance Ensure proper maintenance of temperature & ambient air in different sections etc.	**Annexure- 23**
ii	Details of exposure specific health status evaluation of worker. If the workers health is being evaluated by designed format, chest, X rays, Audiometry, spirometry, Vision testing (Far & near vision, colour vision and any other ocular defect) ECG, during pre-placement and periodical examinations give the details of the same. Details regarding last month analyzed data of above mentioned parameters as per age, sex, duration of exposure and department wise.	This is a proposed greenfield project. Specific health status evaluation of workers will be done as per guidelines and Factory act, 1948. Pre-employment health checkup and schedule & Post-Employment health checkup & schedule including X-Ray, ECG etc. has been incorporated in the Medical Examination Certificate.	Chapter -7 Section- 7.6.2 Page No. 43 **Annexure- 22 & Annexure- 23**
iii	Annual report of health status of workers with special reference to Occupational Health and Safety.		
iv	Plan and fund allocation to ensure the occupational health & safety of all contract and casual workers.	• Estimated Capital Cost of Rs. 1.5 Crores has been allocated and Rs. 0.1 Crores/ annum as recurring cost towards occupational health & safety. • A detail Plan for occupational Health Safety (OHS) is given in this EIA report. Whereas in this plan an annual health checkup & adequate paramedical staff should be appointed, sufficient number of First & Boxes & Health record should be maintained etc.	Chapter -10 Section- 10.9 Table 10.6 Page No. 16
9	**Corporate Environment Policy**		
i	Does the company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.	Yes. The Company has a well laid environment policy and the same has been approved by Board of Directors and will be implemented as it is.	Chapter-10, Section-10.4 at page No. 315

1326

1326

ii	Does the Environment Policy prescribe for standard operating process/ procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? if so, it may be detailed in the EIA.	Yes, the company commits itself to the protection of environment & forest norms. In lieu of which company has proposed a well laid down Corporate Environment Policy emphasizing on any kind of deviation/violation to the norms through standard Operating Process.	Chapter-10 Section-10.6.2 Page 11 to 13
iii	What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions? Details of this system may be given.	The environment manager, Safety manager, Doctors & Fire manager will report to the Head Environment and subsequently it will be reported to Plant Chief.	Chapter-10, Section-10.8 Fig. 10.3 Page No. 15
iv	Does the company have 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? This reporting mechanism shall be detailed in the EIA report.	In order to take care of the administrative aspects for implementation of various mitigation measures, sustainable initiatives and monitor its effectiveness, reporting of non-compliances, an Environmental Management Cell (EMC) will be constituted along with Environment Department under the Chairmanship of CEO, Operation which will be strengthened further to take care of the proposed plant.	Chapter-10, Section-10.8 Page No. 14
10	Details regarding infrastructure facilities such as sanitation, fuel, restroom etc to be Provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase.	KAI International Private limited will develop the Amenities/Facilities within the site for the staff/workers like Toilet/washroom, rest room etc. RCC Stock house with charging system, plant and other miscellaneous amenity building like ECR and MCC, compressor house, etc. Road & drain facilities will be constructed of sustainable quality. First AID room, Canteen, rest shelter for site workers etc. basic facilities will be provided.	-
11	**Corporate Environment Responsibility (CER)**		
i	To address the Public Hearing issues, an amount as specified under Ministry's Office	The Issues raised at the public hearing meeting are the following – Employment to local villagers	Chapter- 7 Section- 7.1.1

1327 13X

	Memorandum vide F.No. 22-65/2017-IA.III dated 1st May 2018 amounting to Rs …….crores, shall be earmarked by the project proponent, towards Corporate Environment Responsibility (CER). Distinct CER projects shall be carved out based on the local public hearing issues. Project estimate shall be prepared based on PWD schedule of rates for each distinct Item and schedule for time bound action plan shall be prepared. These CER projects as indicated by the project proponent shall be implemented along with the main project. Implementation of such program shall be ensured by constituting a Committee comprising of the project proponent, representatives of village Panchayat& District Administration. Action taken report in this regard shall be submitted to the Ministry's Regional office. No free distribution/donations and or free camps shall be included in the above CER budget.	– Medical Facility – Pollution Control Measures – Welfare activities • Budget allocated against issue raised during public hearing Rs. 506.1 Lakhs which will benefit to the local peoples of the villagers.	Table 7.1 Page 6 **Annexure- H**
12	Any litigation pending against the project and /or any direction passed by any court of lawagainst the project, if so, details thereof shall also be included. Has the unit received any notice under section 5 of Environment (Protection) Act, 1986 or relevant Sections of Air and Water Acts? If so, details thereof and compliance / ATR to the notice(s) and present status of the case.	A litigation bearing Original Application No. 94/2021/EZ was filed by applicant (Mr. Chittaranjan Mahanta & Others) at Honourable NGT, Interim Orders was issued by NGT on 08.10.2021 & on 07.02.2023 for stay of EC process. Then Filed Visit was carried by Joint committee comprising of nominee of DG Forest, MoEF&CC (not below the rank of ADG), Integrated Regional Officer of MoEF&CC, Bhubaneshwar,PCCF (HoFF), Odisha,Chief Wildlife Warden,Odisha and the District Magistrate, Sundergarh on 18.03.2023 and 28.04.2023. Pursuance of the Joint committee visit report and as per the final NGT order dated	Chapter 13

1328

		22.08.2023, the above case was disposed and it has been directed to MoEF&CC, to take a decision in the matter of grant of Environmental Clearance to the Project Proponent in accordance with law within a period of three months. .	
13	A tabular chart with index for point wise compliance of above TORs.	Noted & compiling all ToR points in tabular chat with proper indexing.	-
C	The TOR prescribed shall be valid for a period of three years for submission of the EIA-EMP reports along with public hearing proceedings (wherever stipulated) as per MOEF&CC, Govt. of India O.M. NO. J-11013/41/2006-IA- II(I)(P), Dated 08.10.2014.	ToR has been granted on 29th Nov 2021 vide File No IA-J-11011/59/2021-IA.II (I) and the validity is upto 28th Nov 2025. EIA study has been completed within the validity of ToR	-

1329

SPECIFIC TERMS OF REFERENCE (ToR)

Specific Terms of Reference			
S. No	**ToR points**	**Compliance**	**Reference in Final EIA Report**
1.	665 KLD water shall be drawn from Brahmani River. No ground water abstraction is permitted.	The make-up water requirement for the proposed project is estimated as 1180 KLD. Water requirement will be met from Brahmani River. The allocation for drawl of 0.50 Cusec (1223.287 KLD) surface water is obtained from Department of Water Resources vide Lt. No. WS-IWS-781/22-2024 dated 21.01.2023	Chapter -2 Section 2.5 Page No. 29
2.	Total 3972 trees are present at project site out of which the PP has received permission from local Forest authorities for felling of 1500 trees. Further, 260 trees are proposed to be transplanted. Compensatory plantation for the felled down trees shall be raised as per the State Govt norms and detail shall be furnished in the EIA report.	1500 trees have been cut and 260 no of trees will be transplanted. Compensatory afforestation against tree felling of 1500 tress in ratio 1:10 = 15000 X Rs. 350 Nos. = Rs. 52,50,000/- Hence total budget for green belt development = 68.17 Lakhs + 52.50 Lakhs = 120.67 Lakhs The tree cutting permission from DFO is attached as **Annexure- D** Details are mentioned in **Chapter- 10** of EIA Report.	Chapter- 10 Section- 10.5 Page No. 11
3.	Conservation plan duly approved by the State Forest department for the protection of Forest patches situated adjacent to the project site shall be submitted.	Kukia RF is the nearest Forest to the project site which is at a distance of 0.12 km. Forest Conservation Plan is also prepared and submitted to Office of PCCF (Wildlife) vide memo no. no. 7843/4 F (Misc.), dated 20.09.2022 for approval.	**Annexure- 19**
4.	Action plan to limit the dust emission from all the stacks below 30 mg/Nm shall be furnished. Bag filters and ESP shall be used for particulate emission control.	For Exhaust gas of Kiln ESP has been proposed. At other locations like Kiln discharge end, Cooler discharge, Coal grinding, Transfer Point of Conveyor, PCI – Bag filter has been proposed to limit the dust emission from all the stacks below 30 mg/Nm^3.	Chapter- 4 Table- 4.24 Page No. 34
5.	Action plan for fugitive emission control in the plant premises shall be provided.	**Activity/ Equipment** / **Proposed Action** Transportation of Raw materials: Major Raw materials Iron ore fines will be transported in trucks/dumpers covered with tarpaulin. Concentrate iron ore will be transported through closed conveyor.	Chapter- 4 Section- 4.6.3 Page No. 37

		Process Controls: Dust extraction with Bag house to be installed. Transportation of product: The finish product will transport from plant via trucks with covered tarpaulin. Raw materials handling: Dust Suppression System like water sprinkling & covered shed will be installed at all the junction houses/transfer points/ grinding sections. Reduction of surface fugitive dust: Water sprinklers along the internal roads and, raw material yard and product storage yard will be installed.	
6.	Action plan for green belt development covering 33% of the project area all along the periphery of the project site with a density of 2500 trees per hectare shall be submitted.	In the proposed construction area for plant facilities, 1500 number of trees have been cut and 260 number of trees will be transplanted. As per guidelines, compensatory afforestation will be done in the ratio of 1:10 i.e. 15000 number. The proposed plantation will be developed as gap plantation within the plant site especially in the western region where the density of greenbelt is lesser. Compensatory afforestation against tree felling of 1500 tress in ratio 1:10 = 15000 X Rs. 350 Nos. = Rs. 52,50,000/- Hence total budget for green belt development = 68.17 Lakhs + 52.50 Lakhs = 120.67 Lakhs The total greenbelt and plantation area will be 8.78 ha (21.7 acres) i.e. 45.4% of the total plant area of 19.32 ha. (47.74 acres).	Chapter- 10 Section- 10.5 Page No. 8 to 11
7.	Action plan for 100 % solid waste utilization shall be submitted.	Tailings:3,40,000 TPA ESP dust/Pellet fines: 45,927 TPA Tar: 2828 TPA Bottom Ash: 28286 TPA Action plan for 100% solid waste utilization is mentioned in **Chapter- 4**	Chapter- 4 Section- 4.14 Page No. 48
8.	Action plan for rain water harvesting shall be submitted.	Rain water harvesting structure is proposed to collect rain water. 32 KLD of makeup water will be sourced from the same, reducing the fresh water consumption.	Chapter 4 Section- 4.11.4 Page No. 43 to 47
9.	Action plan for the stock piles with	It is proposed to store all the raw material and tailing cakes on concreted/ HDPE	Chapter 4

1331

1331

	impervious floor, provision of garland drains and catch pits to trap run off material shall be submitted.	lined area with a provision of storm water drain network.	Section- 4.10 Page No. 40
10.	Action plan for treatment, storage and utilization of tailings shall be submitted.	Tailing will be dewatered and stored in slime/tailing storage area, then disposed to construction contractors for road & construction filings. And the collected water will be recycled in process.	Chapter 4 Section- 4.14 Page No. 48 **Annexure- 8**

ADDITIONAL TERMS OF REFERENCE (ToR) FOR PELLET PLANT

Additional Terms of Reference			
ToR Point No	**ToR points**	**Compliance**	**Reference in Final EIA/EMP Report**
1.	Iron ore/coal linkage documents along with the status of environmental clearance of iron ore and coal mines	Iron ore fines of 15,00,000 TPA will be sourced from nearby mines of Barbil, Koida & Joda. Coal will be sourced through Agarwal Coal Corporation Pvt. Ltd. MoU is attached as linkage.	**Annexure- 7**
2.	Quantum of production of coal and iron ore from coal & iron ore mines and the projects they cater to. Mode of transportation to the plant and its impact	Iron ore will be sourced from nearby Mines from the Joda, barbil Area. Coal will be sourced through the Agarwal Coal Corporation Pvt. Ltd. MoU/Agreement with the parties has been signed.	**Annexure- 9**
3.	Recent land-use map based on satellite imagery. High-resolution satellite image data having 1m-5m spatial resolution like quickbird, Ikonos, IRS P-6 pan sharpened etc. for the 10 Km radius area from proposed site. The same shall be used for land used/land cover mapping of the area	Multispectral Data from Cartosat 2E with a maximum resolution of 1.6 m was used for Land Use/Land Cover analysis. It belongs to Cartosat 2 Series of satellites from Indian Space Research Organization (ISRO). Surveys of India OSM were used as base map. Ortho-rectification, Terrain correction, and Geo-referencing were done using Cartosat – 2 Panchromatic data. Ground truthing was undertaken at random points to verify the results. Accuracy assessment provided a result of 99.155% accuracy. ESA SNAP image processing software was used in atmospheric correction. ArcGIS was used in processing of spatial data and preparation of Land use/Land Cover Map. Processing of satellite data was done by using Object	Chapter 3 Section 3.2.3, Fig No. 3.4 Page No. 7

1332
1332

		Based Image Analysis (OBIA) method via Supported Vector Machine learning algorithm.	
4.	PM (PM_{10} and $PM_{2.5}$) present in the ambient air must be analyzed for source analysis –natural dust/RSPM generated from plant operations (trace elements) of PM_{10} to be carried over.	Proposed Environmental Monitoring Program during operation phase considering the source analysis –natural dust generated from plant operations of PM (PM_{10} and $PM_{2.5}$).	Chapter -6 Section 6.3.2 Table No. 6.6 Page No. 8 to 10
5.	All stock piles will have to be on top of a stable liner to avoid leaching of materials to ground water.	It is proposed to store all the raw material and tailing cakes on concreted/ HDPE lined area with a provision of storm water drain network.	Chapter 4 Section- 4.10 Page No. 40
6.	Plan for the implementation of the recommendations made for the steel plants in the CREP guidelines	CREP guidelines for industrial projects will be complied.	Chapter 10 Section- 10.10 Table No. 10.7 Page No. 17 to 24
7.	Plan for slag utilization	No Slag will be generated from pellet & PGP process.	Chapter- 2 Section- 2.15.1 Page No. 45
8.	Plan for utilization of energy in off gases (coke oven, blast furnace)	No Coke Oven & BF are proposed in the project. PGP gas will be used in pellet plant.	Chapter- 2 Section- 2.15.2 Page No. 45
9.	System of coke quenching adopted with justification.	No Coke Oven Plant is proposed in the project.	Chapter- 2 Section- 2.15.3 Page No. 45
10.	Trace metals Mercury, arsenic and fluoride emissions in the raw material	Trace metals Analysis for the Raw Material has been performed. No trace elements have been detected as per Analysis report.	**Annexure- 11**
11.	Trace metals in waste material especially slag.	As this is a green field project, raw material and waste generated during operation of plant will be tested in environmental laboratory for trace metals like As, Hg & Pb to confirm the concentration of trace metals within the norms. Accordingly Environmental management plan will be formulated to address the issues.	Chapter- 2 Section- 2.15.4 Page No. 45
12.	Trace metals in water	Water from river Baitarani will be used in the proposed plant. As per the analysis	Chapter- 2

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		report, no trace metals are found in water. During operation of project, raw water and treated water from ETP & STP will be tested to confirm the concentration of trace metals within the norms.	Section- 2.15.5 Page No. 46

ADDITIONAL ToR POINTS FOR IRON ORE BENEFICIATION PLANT

ToR point No.	ToR points	Compliance	Reference in Final EIA Report
1	Complete process flow diagram describing each unit, its processes and operations, along with material and energy inputs & outputs (material and energy balance).	The proposed project utilizes beneficiation technology and produces a Concentrate of > 63% Fe from the Iron Ore Fines of average grade 55% to 58% Fe. For this wet grinding process has been opted. For pelletization Grate Kiln Technology has been opted. Material balance for both the process Beneficiation & Pelletization have been prepared.	Chapter- 2 Section No. 2.9 Fig. No. 2.9 Table No. 2.17 & 2.18 Page No. 34- 35
2	Details regarding pollution control measures to be adopted in the mineral handling area, loading and unloading areas including all transfer points shall be submitted.	Dust Suppression System like water sprinkling & covered shed will be installed at all the junction houses/transfer points. Water sprinklers along the internal roads and, raw material yard and product storage yard will be installed.	Chapter 2 Section- 2.14.1 Page No. 41
3	The Project proponent shall submit action plan for conditioning of the ore with water to mitigate fugitive dust emission, without affecting flow of ore in the ore processing and handling areas.	Water will be sprinkled on the raw materials especially Iron Ore Fines to check the fugitive emission.	Chapter 2 Section 2.14 at page No. 56

Activity/ Equipment	Proposed Action
Transportation of Raw materials	Major Raw materials Iron ore fines will be transported in trucks/dumpers covered with tarpaulin.
	Concentrate iron ore will be transported through closed conveyor.
Process Controls	Dust extraction with Bag house to be installed.
Transportation of product	The finish product will transport from plant via trucks with covered tarpaulin.
Raw materials handling	Dust Suppression System like water sprinkling & covered shed will be installed at all the junction

		houses/transfer points/ grinding sections.	
		Reduction of surface fugitive dust: Water sprinklers along the internal roads and, raw material yard and product storage yard will be installed.	
4	Treatment details regarding effluent generated from the ore beneficiation plant and the mode of transportation of tailing slurry shall be submitted.	The generation of slime quantity from the Beneficiation Plant will be approximately 3,40,000TPA depending on the Fe content/quality of Iron ore feed. The tailing will be dewatered in the filter press and dry tailing in cake form will be stored over an area of 2.989 Acres for only 60 days. No slurry will be generated.	Chapter 2
5	Separate chapter on design of the tailing/slime pond by considering the rainfall in the area, proximity of the tailing/slime pond to the nearby water bodies and safety etc., shall be submitted.	A tailing storage are proposed of 1.209 ha. The slime generated will be Dewatered and stored in slime/tailing storage area (Max for 60 days), then disposed to construction contractors for road & construction filings. Nearest water bodie is Brahmani River is located at a distance of 1.65 Km. No water will be discharged from the surrounding area.	Chapter- 2 Section- 2.14.4 Page No. 45
6	Action plan for regular monitoring of ground water level and quality in and around the project area of beneficiation plant and tailing/slime pond shall be submitted by establishing a network of existing wells and constructing new piezometers	Regular monitoring of ground water level and quality in and around the project area of beneficiation & Pellet plant will be monitored in Pre & Post- Monsoon season at 2 locations in core zone & 4 location in buffer zone.	Chapter -6 Section 6.3.2 Table No. 6.6 Page No. 8 to 10
7	Details regarding establishment of garland drain around the tailing/slime pond and the quantity of decanted water to be re-circulated from the tailing/slime pond shall be submitted along with complete water balance.	Garland drain all around the plant facilities including tailing disposal area are proposed and 16380 KLD water will be re-circulated after dewatering the slime in the process which minimizes the fresh water consumption. The same is depicted in the water balance diagram.	Chapter- 2 Table 2.14 Page No. 30
8	Technology to be adopted for maximum recovery of ore in order to reduce slurry discharge and to increase the life of the tailing/slime pond shall be submitted.	High Gradient Magnetic separation along with filter press technology is adopted for maximum recovery of Ore & water towards conservation of mineral & water respectively.	-

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CHAPTER- 1
INTRODUCTION

1.1 PURPOSE OF THE REPORT

As per the EIA Notification dated 14th September 2006, as amended from time to time; it is mandatory to obtain the prior Environmental Clearance for any new industry or the expansion of the primary metallurgical industry from MoEF&CC, Government of India, New Delhi for which EIA is required be conducted as per the guidelines of MoEF&CC, New Delhi. The purpose of this report is to assess the environmental Impacts from the proposed Greenfield project of **M/s KAI International Private Limited (hereinafter termed as KIPL)** coming up at village- Kapanda, Tehsil–Lahunipara, District- Sundergarh, Odisha of M/s KAI International Private Limited.

1.2 DETAILS OF PROJECT PROPONENT

1.2.1 Name Of The Project

Proposed Greenfield project of Iron Ore Beneficiation Plant- 1.5 MTPA throughput (1.16 MTPA High grade ore), Iron ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 Nm^3/hr (6 x 4,500 Nm^3/hr) located at village- Kapanda, Tehsil–Lahunipara, District- Sundergarh, Odisha of M/s KAI International Private Limited (KIPL).

1.2.2 Details Of The Company

KIPL is a Private Limited company incorporated on 30th November 2007. It is classified as a non-government company and is registered at Registrar of Companies, Cuttack. Its authorized share capital is Rs. 44.00 Crores and its paid-up capital is Rs. 21,274,000. The company is involved in trading of iron ores, limonite, Coal, Iron and Steel, etc. in domestic as well as in International Markets.

1.2.3 Registered Address Of The Company

Corporate & Registered Office
3rd Floor, Forum Galleria Office No. 316-323 Civil Township, Rourkela, Dist.- Sundargarh, Odisha **T:** + 0661-3500245 **Email:** info@groupkalinga.com

1.2.4 Brief Of Promoters

Director Name	Designation	Appointment Date	Experience
Natwar Kumar Agarwal	Director	30th Nov. 2007	28 years
Yashraj Sethia	Director	30th Nov. 2007	26 years
Suresh Agarwal	Director	15th Oct 2008	21 years

1.2.5 Details Of Joint Ventures (If Any)

There is a no Joint Venture involved in the proposed project.

1.3 BRIEF DESCRIPTION OF THE PROJECT

The brief description about the nature, size and location of the project is given in **Table 1.1**

Table 1. 1- Nature, Size & Location of the project

S. No.	Particulars	Details
1.	**Name of the Project (s)**	Proposed Greenfield project of Iron Ore Beneficiation Plant- 1.5 MTPA throughput (1.16 MTPA High grade ore), Iron ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 Nm^3/hr (6 x 4,500 Nm^3/hr) located at village- Kapanda, Tehsil–Lahunipara, District- Sundergarh, Odisha of M/s KAI International Private Limited.
2.	**Name of the Company**	M/s KAI International Private Limited.
3.	**Location of the project**	
	Village	Kapanda
	Tehsil	Lahunipara
	District	Sundergarh
	State	Odisha
	Pincode	769004
	Khata & Plot No.	Khata No. – 118; Plot No. - 1104 (P), 1107 (P)
	Survey of India Toposheet No.	F45M13
	Coordinates of the project boundary	Latitude: 21°53’11.30”N to 21°53’29.01”N Longitude: 84°52’15.80”E to 84°52’35.23”E
	Elevation of Project Site	193 m to 252 m AMSL
4.	**Distance of Nearest HFL from the project boundary within the study area**	High flood level data of last 26 years of river Brahmani at Gomlai location collected. The letter issued from Central Water Commission Mahanadi & Eastern River Organization, Bhubaneswar vide letter no. TD/905/CE/VI/202/257(H), dated 03.02.22, is Attached as **Annexure- 1.** As per the data, the HFL is 147.660 m AMSL against site elevation of 193m to 252m AMSL.
5.	**Total Land**	19.32 Ha. (47.74 Acres)
6.	**Land acquisition details as per MoEF&CC O.M. dated 7/10/2014**	Total Land (117 acre) is under possession of KAI International Pvt. Ltd, allotted by IDCO. Land Deed is attached as **Annexure- 2.** Out of the total 47.348 Ha (117 Acres), land the present project is proposed over an area of 19.32 Ha (47.74 Acres) only.
7.	**Existence of habitation & involvement of R&R, if any**	R&R- Not Applicable No, habitants or houses are identified within the project area.
8.	**Involvement of Forest land if any.**	No forest land involved in the project area, as per the letter of DFO Vide Memo No. 8447/4F (Misc.) (PC- 1), dtd. 12.09.2023 attached as **Annexure- 5**

9.	**Environmental Setting Details (with approximate aerial distance and direction from the project site)**		
	Nearest village Panchayat with address	Village – Kapanda (1.5 km, SW) Block – Lahunipara, Gram Panchayat - Bada Purnapani Zilla Parishad - Sundargarh Pin – 770040	
	Nearby Habitations	• Daldali Sai- 0.5 Km SW • Nuagan- 1.3 km, S • Kapanda- 1.5 km, SW • Talabahali- 2.9 km, E • Tikayatpali- 2.8 km, NNE	
	Nearest Town/ City	Rourkela- 40.4 km, (N)	
	Nearest National Highway / State Highway	• NH - 149 (3.1 km, E) • Kapanda-Fatajharan Road - 0.1 km, NW	
	Nearest Railway station	Patasahi Railway Station- 12.9 km, NE	
	Nearest Airport	Rourkela Airport, 40.5 km, N	
	Whether Project located in CPA/SPA	Proposed project site does not fall under the CPA/SPA region. Confirmation of the same from SPCB, Odisha vide letter no.12282, dated 14.07.22 is attached as **Annexure-3.**	
	Seismic Zone	Zone – II (Low Damage Risk Zone) [as per IS 1893 (Part-I): 2002]	
	School/Colleges in vicinity	• Panchayat High School, Kapanda- 1.7 km SSW • U.G.Primary School, Kapanda- 1.8 km SSW • Tikayatpali Primary School- 2.7 km NNE • Yogamaya Women's College- 4.7 km, SE • Gudhiali High School- 4.82 km, SE	
	Hospital within 10 Km buffer zone	Lahunipara Hospital 6.6 km, E	
	Defence Installations	No defence installations within 10 Km radius	
	National Parks, Wildlife Sanctuaries, Biosphere Reserves, Reserve forest, and Protected forest within 10 km radius	No national parks, Wildlife Sanctuaries, Biosphere Reserves are present within 10 km radius.	
		Name of the RF, PRF, PF, etc.	**Distance (km) & Direction**
		Samardari Juniani PF	0.41 km (E)
		Kukia RF	0.12 km (NW)
		Dhenkiam RF	2.6 km (W)
		Nalghati Rajabasa RF	3.3 km (SW)
		Dhenkiam Block RF	3.7 km (NW)
		Bhagoth RF	6.6 km (SSW)
		Dhanaghar Extension RF	6.9 km (NNE)
		Gurundia RF	7.9 km (SW)
	Nearest Water Body	Brahmani River- 1.65 Km (West)	
10.	**Project Cost (CAPEX)**	Rs. 341.72 Crores	
11.	**Environmental Protection Cost (Capital & Recurring)**	Capital Cost Rs. 19.46 Crore	Recurring Cost Rs. 1.41 Crore/ Year
12.	**Basic Requirements of the Project**		
13.	**Water Requirement & Source**	The make-up water requirement for the proposed project is estimated as 1180 KLD. Water requirement will be met from Brahmani River. The allocation for drawl of 0.50	

		Cusec (1223.287 KLD) surface water is obtained from Department of Water Resources vide Lt. No. WS-IWS-781/22-2024 dated 21.01.2023. (**Annexure- 4**) The intake point is estimated to be approx. 1.65 Km aerial distance from the plant boundary. The length of the water pipeline will be approx. 4 Km.
14.	**Power Requirement & Supply/ Source**	The total power requirement for the proposed project is estimated as 12.0 MW, which will be met from GRID (WESCO) at Purunapani Substation which is 3.7 Km (ESE) from the project site. However, permission for 12 MW will be taken during CTE period. Whereas, there will be 1 no. of DG set of 750 KVA , for emergency/backup purpose.
15.	**Manpower**	Total: 500 Nos. (Direct: 280 Nos. & contractual: 220 Nos.; Preference will be given to local Public)
16.	**Working Days**	330 days Per Annum

Table 1.2- Applicability of the project

SL. No.	Particulates	Yes/ No
1.	Whether project/ activity attracts the General Condition specified in the Schedule of EIA Notification	No
2.	Whether Proposal has interlinked/ interdependent projects of activities	No
3.	Whether consent under Air & water Act has been obtained from SPCB/ UTPCC	No
4.	Whether the project/ activity located in Notified Industrial Area	No
5.	Whether the project/ activity located in CRZ or ICRZ area	No
6.	Whether project activity attracts the specified condition specified in the Schedule of EIA Notification	No
7.	Whether project/ activity located in the Eco-sensitive zone notified/ proposed to be notified under Environment (Protection) Act, 1986	No
8.	Whether the project proposed to be located in Territorial waters (Off-shore)	No

Location of proposed Greenfield project is shown on Survey of India Toposheet No.F45M13 and same has been furnished here in **Fig. 1.3**. The GPS locations of corners of the project site are given in **Table 1.3**.

Table 1. 3- GPS Co-ordinates of the Project Site

Pillar Nos. (s)	Latitude	Longitude
1	21°53'28.44"N	84°52'15.80"E
2	21°53'25.49"N	84°52'16.45"E
3	21°53'21.00"N	84°52'17.41"E
4	21°53'17.11"N	84°52'22.04"E
5	21°53'11.30"N	84°52'29.12"E
6	21°53'11.40"N	84°52'35.21"E
7	21°53'17.15"N	84°52'35.23"E
8	21°53'22.78"N	84°52'35.20"E
9	21°53'23.68"N	84°52'30.77"E
10	21°53'23.86"N	84°52'26.76"E
11	21°53'29.01"N	84°52'26.29"E
12	21°53'28.77"N	84°52'20.69"E

Location Map on Google Imagery, Index Map & 10 km topographical maps are given **in Fig. 1.2, 1.1** respectively.



Pillar Nos. (s)	Latitude	Longitude
1	21°53'28.44"N	84°52'15.80"E
2	21°53'25.49"N	84°52'16.45"E
3	21°53'21.00"N	84°52'17.41"E
4	21°53'17.11"N	84°52'22.04"E
5	21°53'11.30"N	84°52'29.12"E
6	21°53'11.40"N	84°52'35.21"E
7	21°53'17.15"N	84°52'35.23"E
8	21°53'22.78"N	84°52'35.20"E
9	21°53'23.68"N	84°52'30.77"E
10	21°53'23.86"N	84°52'26.76"E
11	21°53'29.01"N	84°52'26.29"E
12	21°53'28.77"N	84°52'20.69"E

Fig. 1.1- Google Earth Image of the Project Site

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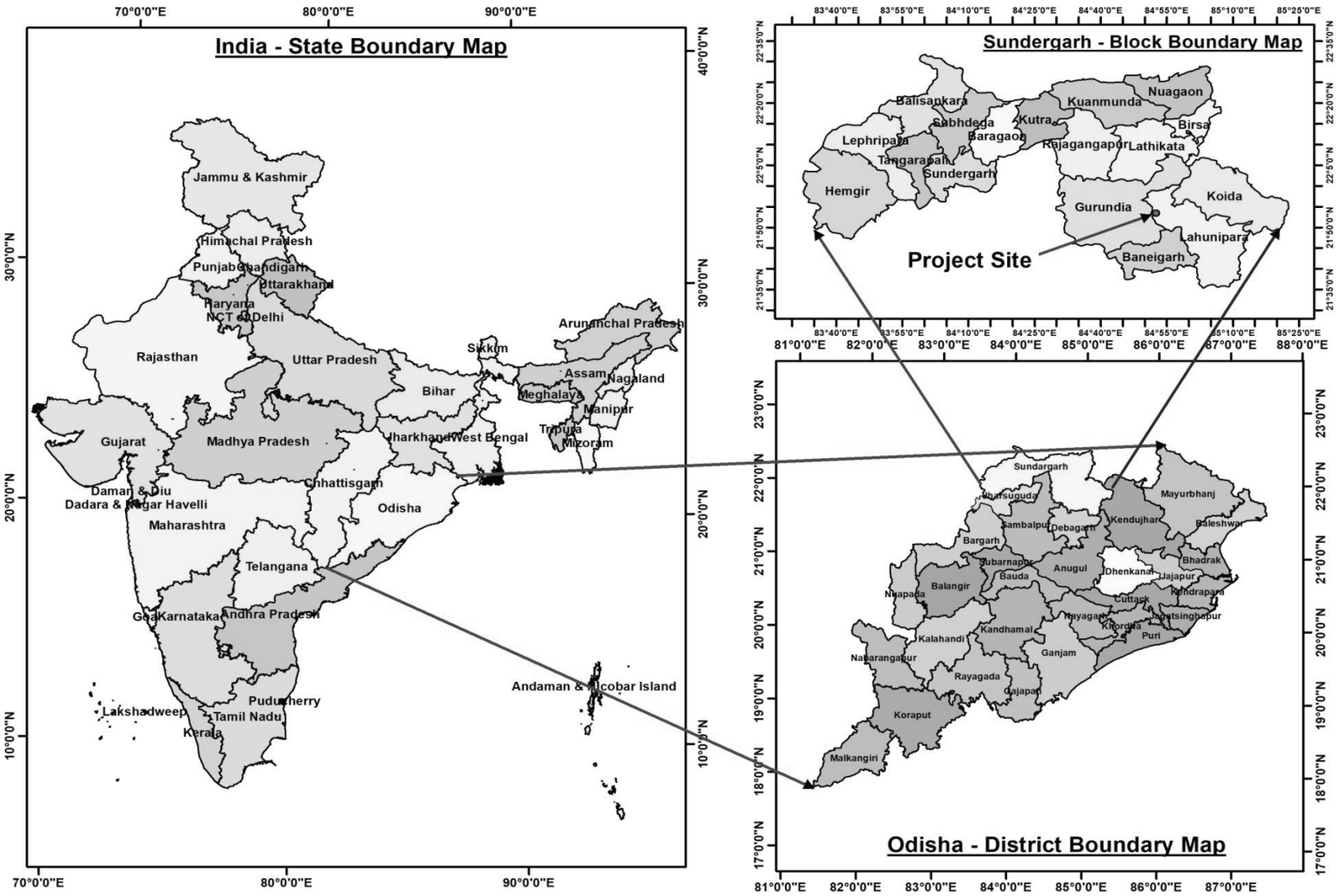


Fig. 1.2- Location Map

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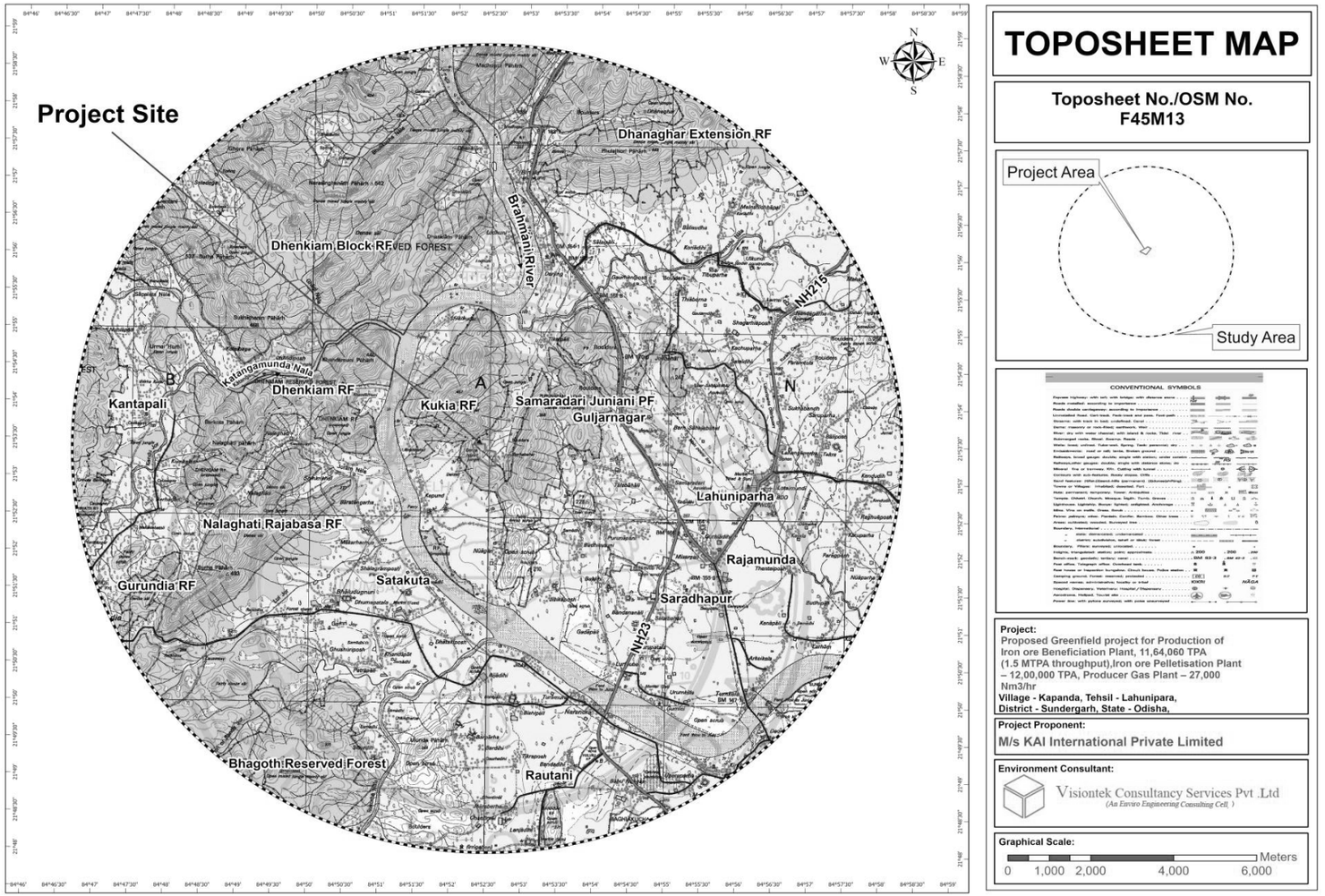


Fig. 1.3- Toposheet Map

1.3.1 Nature, Size & Category Of The Project

The Proposed project is a Greenfield project falls under Category-A at Sl. No 2 (Primary Processing), Project Activity '2 (b)' Mineral beneficiation & S. No. 3 (Material Production), Project Activity '3 (a)' Metallurgical Industries in the Schedule i.e. list of projects or activities requiring prior Environmental Clearance as per EIA notification 2006 and its subsequent amendments. The proposed green-field project is for establishment of Beneficiation plant, Pellet Plant & Producer Gas Plant. The Total area of the project is 19.32 Ha. (47.74 Acres).

Table 1. 4- Configuration of the proposed project

SL. No.	Units	Product	Configuration	Capacity	End Use
1.	Iron Ore Beneficiation (Proposed)	Beneficiated Iron Ore	1 X 1.5 MTPA	15,00,000 TPA (throughput) 1160000 TPA (High grade ore)	Used in Iron Ore Pellet Plant
2.	Iron Ore Pellets (Proposed)	Iron ore Pellet	2 x 0.6 MTPA	12,00,000 TPA	Will be sold in the open market.
3.	Producer Gas Plant (Proposed)	Producer Gas	6 Nos. (5W+1S) 6 X 4,500 Nm^3/hr	27,000 Nm^3/hr	Captive use in Pellet Plant

No general and specific conditions are applicable to the project as specified in said notification. Public Hearing is applicable for this project.

1.3.2 Importance Of The Project

- As per the recent forecast, there will be an increase in global steel demand from 1.8 billion tons in 2020 to approx. 2.0 billion tons in 2030. This corresponds to an average annual growth rate of around 1.06% or 11% in absolute terms compared with 2020. The growth in this decade is mainly driven by increasing industrialization in developing countries such as India and other steel consumers.

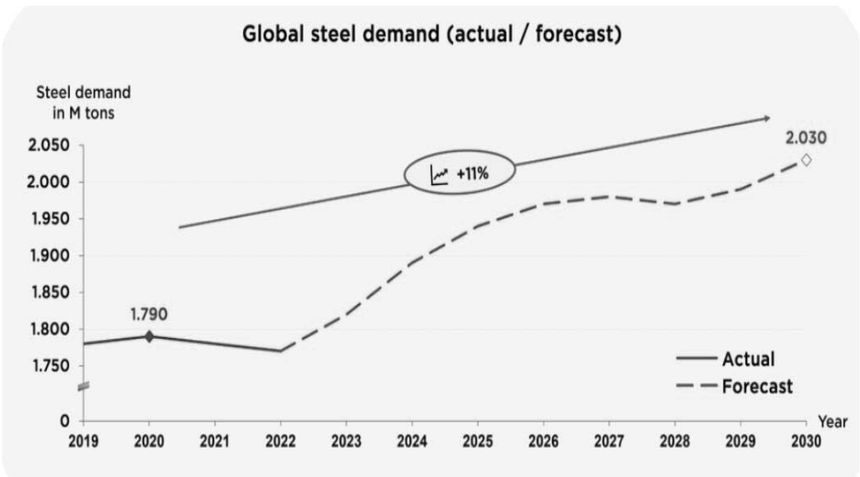


Fig. 1.4- Global Steel demand

- This presents the investors with adequate resources a huge opportunity for investment in steel industry with high returns. Accordingly, KIPL intends to install proposed plant at Kapanda village in the District of Sundargarh of State Odisha. The manufacturing processes have been so selected that at each stage, there is revenue generating potential till the downstream facility is ready for operation.
- Looking at the projection of demand for steel in the present market, it can be realized that there remains a considerable gap between demand and supply of steel. To meet the demand, new capacities have to be created. As such setting up proposed Plant by KIPL is of great significance under present scenario.
- This increasing involvement in the local as well as in the global market with a wide-ranging business scope will definitely improve the state and country's economy.

1.3.3 Brief History Of The Project

Initially the ToR application was filed at Privesh portal vide proposal number IA/OR/IND/198770/2021, dated 17th Feb 2021. The proposal was appraised in the 31st EAC meeting held on 25th-26th February, 2021, Observations of the committee are mentioned below:

1. Form I is not complete as most the details sought in the Form I are not provided.
2. Pre-feasibility report found to be incomplete as the details relating to environment settings for the proposed site has not been furnished.
3. As per the records submitted, no alternate site details were furnished whereas PP during presentation referred three alternative sites for the proposed unit without any review by established methods of site selection.
4. There are lots of trees in the proposed site that would be cut as observed from KML file and site photographs submitted during the presentation.
5. Managed abatement of phenolic water and tar recovered from PGP has not been described.
6. Kukia RF is only 400 m from plant.
7. 10 Nos. of Induction Furnaces (IF) are proposed (4x10 and 6 x 15T capacities) to produce 0.43 MTPA steel which are having high pollution potential PP should explore feasibility of installation of higher configuration of Induction Furnace.

In view of the aforesaid observations, the Committee after deliberations, recommended to return the proposal in its present form for addressing the shortcomings as listed above.

Meanwhile, the project configuration was revised and incorporating the above observations in the project proposal, fresh application was filed again vide proposal number IA/OR/IND/235042/2021 on 21st Oct 2021 with 1.5 MTPA throughput beneficiation plant & 1.2 MTPA pellet plant along with 27000 Nm^3/hr Producer Gas Plant and subsequently ToR was granted on 29th Nov 2021.

The table below shows the chronology of the activities that were undertaken during initial stages of the work for proposed project:

Table 1. 5- Chronology of the proposed project

S. No.	Particulars	Date
1.	Online Submission of ToR Application in Parivesh Portal	21.10.2021
2.	Proposal accepted by MS	01.11.2021
3.	Apprised ToR before EAC Committee	11.11.2021
4.	Date of ToR Approved/grant	29.11.2021
5.	Baseline Environmental Monitoring	Oct to Dec 2021
6.	Draft EIA Report submission for Public Hearing to SPCB	06.04.2022
7.	Date of Advertisement for Public Hearing (in English/Hindi Newspaper)	22.04.2022
8.	Date of Conduct of Public Hearing	24.05.2022
9.	Final EIA submitted to MoEF&CC	10.12.2022
10.	EDS raised by MoEF&CC	21.12.2022
11.	NGT Issued Stay Oder	07.02.2023
	High Level Committee constituted by NGT	
12.	Committee submitted site visit report	15.03.2023
13.	Final Order issued by NGT	22.08.2023
14.	MoEF&CC communicated to KIPL for submission of EC application within 3 months of final NGT Order	25.09.2023

The detail of the ToR is furnished as below:

Table 1.6- Details of ToR

Date of application	Consideration	Details	Date of accord	ToR Validity
21st October 2021	48th meeting of REAC (Industry-1)	TOR vide F. No. IA-J-11011/59/2021-IA-II(I)	29th Nov 2021	28th Nov 2025

1.4 SCOPE OF THE STUDY

- Preparation of EIA report complying with the conditions in ToR given by MoEF&CC.
- Collecting baseline data on different environmental parameters for the period from 1st Oct, 2021 to 31st Dec, 2021 (Post- Monsoon).
- Impact Assessment and suggestion of mitigation measures to minimize the impacts.
- Preparation of Environmental Management Plan and Environmental Monitoring Plan.
- Primary data generation for preparing Draft EIA/ EMP Report.

- To present the results of EIA/EMP report during the public consultation.
- Preparation of Final EIA/ EMP report incorporating the time bound action plan with budget for compliance of issues raised in the Public Consultation and the reply of the proponent to these issues.
- Submission of Final EIA/EMP report to the MoEF&CC for getting Environmental Clearance.

1.4.1 Baseline Data Generation, Field Studies And Data Collection

This report is prepared on the basis of one non monsoon season (three months) baseline monitoring data during 1st Oct, 2021 to 31st Dec, 2021 (Post- Monsoon) by field study. Data from the secondary source were used for comparison between present environmental conditions and laboratory results. The data includes meteorological conditions, ambient air quality, Noise, Water quality and Soil Quality. Site survey has been conducted for studying the Flora and Fauna, Socio-economic conditions including public consultation, Land use etc. Additional information is also collected from several agencies and departments, both under State and Central Governments pertaining to above. The collected data have been analyzed in detail for identifying, predicting and evaluating the environmental impacts of the proposed project. The maximum anticipated impacts on environment are assessed and suitable environmental management plan has been suggested.

1.5 APPLICABLE ENVIRONMENTAL & FACTORY LAWS/ ACTS/ RULES

The list of applicable laws for proposed project is as under **Table 1.7**.

Table 1.7- Key environment Laws

Name	Scope and Objectives
Environment & Wildlife Protection	
Environment (Protection) Act 1986; Environment Protection Rules 1989. & EIA Notification, 2006 Reg: MoEF & CC, CPCB & SPCB	To provide for protection and improvement of environment. Prior Environment Clearance for project activity
Wildlife (Protection Act) 1972 and amendment in 2022	For conservation, protection and management of wildlife in the study area.
Water Environment	
Water (Prevention and Control of Pollution) Act 1974 & Rules 1975 Reg: CPCB & SPCB	To provide for prevention & control of water pollution & maintaining wholesomeness of water quality
Air Environment	
Air (Prevention and Control of Pollution) Act 1981 & Rules 1982 Reg: CPCB & SPCB	To provide for prevention and control of air pollution. Maintaining air quality in the area
Noise Environment	
Noise Pollution (Prevention & Control) 2000 & its Amendments. Reg: CPCB & SPCB	To control and take measures for abatement of Noise Pollution
Waste Management	
Construction and Demolition Waste	Proper collection, handling, Management, and

Name	Scope and Objectives
Management Rules, 2016. Reg: CPCB, SPCB & Local bodies	disposal of C & D wastes generated during construction phase of unit.
Waste Management Rules as Notified in 2016 and amendments. Reg: CPCB, SPCB & Local bodies	Proper collection, handling, management, and disposal of various wastes generated in the industry
Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and amendments. Reg: CPCB & SPCB	Proper collection, handling, management, and disposal of Hazardous & Other wastes generated during life of project.
Solid Waste Management Rules, 2016 Reg: CPCB & SPCB	Proper collection, handling, management, and disposal of Solid wastes generated during life of project.
E-Waste (Management) Rules, 2022	Management of Electrical & Electronic Waste.
Plastics Waste Management Rules, 2016 and amendments	Management of plastic wastes generated from project activities.
Occupational Health & Safety	
Factories Act, 1948 Reg: Min. of Labour, Inspectorate of Factories etc.	Control of Work zone environment & providing for workers health and safety
Public Liability Insurance Rules, 1991 & amendments. Reg: CPCB & SPCB	To provide immediate relief to persons affected by accident involving hazardous substances.

1.6 STRUCTURE OF THE EIA REPORT

As per **Appendix- III of EIA Notification, 2006**; EIA report contains **12 Chapters.** However an additional **Chapter- 13** has been included describing court case. Structure of EIA report with contents of the Chapters are described as tabulated form:

Table 1.8- Layout of the Report

Chapter- 1	Introduction	Presents an introduction along with scope and objective of this EIA/EMP study
Chapter- 2	Project Description	Presents project details of location and technical details related with production process, raw materials, emissions and control.
Chapter- 3	Description of Environment	Presents the baseline status for various environmental parameters in the study area for one season (3 months).
Chapter- 4	Anticipated Environmental Impacts and Mitigation Measures	Presents the identification, prediction and evaluation of environmental impacts due to the proposed project activities. Also presents proposed mitigation measures.

Chapter- 5	Analysis of Alternatives	Presents analysis of alternatives with respect to site and technology.
Chapter- 6	Environment Monitoring Programme	Presents details of monitoring, audit and reporting
Chapter- 7	Additional Studies	Public Consultation, Risk Assessment and Disaster Management Plan
Chapter- 8	Project Benefits	Presents project benefits as: Improvements in the physical infrastructure, social infrastructure Employment potential – skilled; semi-skilled and unskilled etc.
Chapter- 9	Environmental Cost Benefit Analysis	Project cost & net present value, Environmental cost benefit ratio, Profit margin, Analysis of cost effectiveness
Chapter- 10	Environment Management Plan	Description of the administrative aspects to ensure the mitigation measures are implemented and their effectiveness monitored, after approval of the project
Chapter- 11	Summary & Conclusion	Summary of the Report
Chapter- 12	Disclosure of Consultant	Disclosure of the Consultant with brief experience of team members.
Chapter- 13	Details of Court Cases	Description of relevant court orders

1.7 SITE HISTORY

Total land acquired through IDCO, (nodal agency of Government of Odisha) on lease basis vide Doc No. 11722200143 dtd. 12.04.2022 in pursuance of the allotment letter by IDCO to KIPL vide letter IDCO:HO:P&A:LAE:7751/2019/12687 Dtd. 06.08.2021. The total land is non-forest revenue land having kisam Patit. Out of the total land, the proposed project area is 47.74 Acres having dense trees and scattered tree growth of approx. total of 3972 trees in the project area. Out of which 1500 trees have been fell down after permission from the DFO vide letter no.5838/3F (Lease), dated. 20.09.2021 (**Annexure- D**) and passing list of trees approved by Forest Ranger is enclosed as **Annexure- 16**. In this land, there was no infrastructure or other facilities. Land documents for proposed area of 47.74 acre is enclosed as **Annexure- 2.**

1.8 COURT CASE/LITIGATION PENDING DETAILS

A litigation bearing Original Application No. 94/2021/EZ was filed by applicant (Mr. Chittaranjan Mahanta & Others) at Honourable NGT, Interim Orders was issued by NGT on 08.10.2021 & on 07.02.2023 for stay of EC process.

Then Filed Visit was carried by Joint committee comprising of nominee of DG Forest, MoEF&CC (not below the rank of ADG), Integrated Regional Officer of MoEF&CC, Bhubaneshwar,PCCF (HoFF), Odisha,Chief Wildlife Warden,Odisha and the District Magistrate, Sundergarh on 18.03.2023 and 28.04.2023.

Pursuance of the Joint committee visit report and as per the final NGT order dated 22.08.2023, the above case was disposed and it has been directed to MoEF&CC, to take a decision in the matter of grant of Environmental Clearance to the Project Proponent in accordance with law within a period of three months.

Details of court cases and compliance of order are given in **Chapter-13**.

CHAPTER- 2
PROJECT DESCRIPTION

2.1 TYPE OF THE PROJECT

This is a Greenfield project of 1.5 MTPA Throughput Iron Ore Beneficiation (1.16 MTPA high grade iron ore), 1.2 MTPA Pellet plant along with 27,000 Nm^3/hr (6 x 4500 Nm^3/hr) Producer Gas Plant proposed by M/s KAI International Private Limited located at village- Kapanda, Tehsil- Lahunipara, District- Sundergarh, Odisha. This is a standalone Greenfield project and there are no interlinked or inter-dependent projects with the proposal.

2.1.1 Nature Of Project

This is a Category– A project which falls under schedule 3(a), Metallurgical Industries (ferrous & nonferrous) for pellet plant as major activity and 2(b), Mineral Beneficiation for iron ore beneficiation as per the EIA Notification 2006 and amendments thereafter.

The proposal for ToR was presented before the Expert Appraisal Committee (EAC) on 11th Nov 2021 and ToR was granted by the concerned authorities vide F.No. J-11011/59/2021-IA.II(I), dated: 29th Nov, 2021. Copy of TOR is attached as **Annexure- 12**

- **Previous EC, CTE if any-** Not Applicable; as it is a green field project.
- **Implementation status of the existing EC**- Not Applicable. Greenfield project.
- **Certified compliance report from Regional Office-** Not Applicable. Greenfield project.
- **Litigations Pending Regarding this Project-** Litigation filed bearing O.A No. 94/2021/EZ is disposed by NGT vide final order dated 22.08.2023. Details of court matter and compliances are given in detail in **Chapter-13**. No litigation pending as of now.

2.1.2 Size Or Magnitude Of Operation

Table 2.1- Project Unit configuration & Capacity

Sl. No.	Plant Equipment/ Facility	Facilities as per existing EC & as per CTO	Proposed Units		Final (Existing + Proposed)	
			Config.	Capacity	Config.	Capacity
1.	Iron Ore Beneficiation	No Previous EC or CTE/CTO, as it is a	1 X 1.5 MTPA Throughput	1.5 MTPA	1 X 1.5 MTPA Throughput	1.5 MTPA (throughput)

2.	Iron Ore Pellet Plant	Greenfield Project	2 X 0.6 MTPA	1.2 MTPA	2 X 0.6 MTPA	1.2 MTPA
3.	Producer Gas Plant		6 Nos. (5W+1S)	4,500 Nm^3/Hr each	6 Nos. (5W+1S)	27,000 Nm^3/Hr

A. Products and By-Products Details

Anticipated product and by-product details for various units has been tabulated below:

Table 2.2- Products and By-products generation from different plants

Plant Facilities	Product/By-Product Details	Quantity (TPA)
Beneficiation Plant	Iron Ore Fines	15,00,000
	Beneficiated Iron ore Fines	11,60,000
	Tailings/Slime	3,40,000
Pellet Plant	Pellet	12,00,000
	Pellet Fines & ESP Dust	45,927
Producer Gas Plant	Gas generated (5 working)	22500 Nm^3/Hr
	Ash	28286
	Tar Generation	2828

B. Number of Shift per Day

The number of working days for proposed plant capacity has been considered on the basis of 330 days in four shifts.

Table 2.3- Shift Timing

Shift	Timing
A	0600-1400hrs
B	1400-2200 hrs
C	2200-0600 hrs
General	0900-1800 hrs Break 1300-1400 hrs

2.1.3 Need for the Project

- As per the recent forecast, there will be an increase in global steel demand from 1.8 billion tons in 2020 to approx. 2.0 billion tons in 2030.
- Looking at the projection of demand for steel in the present market, new capacities have to be created. Hence setting up proposed Plant by KIPL is of great significance under present scenario.

2.2 SITE CHARACTERISTIC & LAND REQUIREMENT

2.2.1 Vicinity of the project site

The key attributes are presented in **Table 2.4** below. Vicinity map has been shown in **Fig. 2.1**.

- **Environmental Sensitivity of the site**

The proposed site is located at village- Kapanda, Tehsil- Lahunipara, District- Sundargarh of Odisha state under Survey of India Topo sheet OSM No. F45M13 (Scale 1:50,000). Shape of the land is Non-linear.

Bounded Coordinates of the project site are given below:

Latitude : 21°53'11.30"N to 21°53'29.01"N
Longitude : 84°52'15.80"E to 84°52'35.23"E

Table 2.4- Land Details with Khata No. & Plot No.

Sl. No.	Khata No.	Plot No.	Area (In Ac.)	IDCO/ Private	Kissam	Acquired/ Under Process of Acquisition
1.	118 AJA	1104	30.24	IDCO	Patita	Acquired
		1107	17.50	IDCO	Patita	
Total Area			**47.74**			

Table 2.5- Environmental Settings of the Project Site

Sr. No.	Particulars	Details	Remarks
1.	Total land	Total land required – 19.32 ha. (47.74 Ac) Govt. Land – 19.3 Ha. (47.74 Acre) [IDCO Land], Agriculture- Nil, Grazing Land- Nil. No forest land involved.	Total Land: 19.32 Ha. (47.74 Acre) is IDCO land
2.	Land acquisition details as per MoEF&CC O.M. dated 7/10/2014	Acquired Land: 19.32 ha. (47.74 Acre) Total land is under possession.	Land use: Industrial Land provided by IDCO After payment all necessary charges as demand by IDCO, Bhubneswar. Land Agreement made between IDCO & KIPL as per land allotment letter no. IDCO:HO:P&A:LAE:7751/2019 dtd. 06.08.2021.

<table>
<tr><td>3.</td><td>Existence of habitation & involvement of R&R, if any.</td><td>There is no existence of habitants identified within the plant boundary.</td><td>R&R is not applicable.</td></tr>
<tr><td>4.</td><td>Latitude and Longitude of the project site</td><td><table><tr><th>Pillar No.(s)</th><th>Latitude</th><th>Longitude</th></tr><tr><td>1</td><td>21°53'28.44"N</td><td>84°52'15.80"E</td></tr><tr><td>2</td><td>21°53'25.49"N</td><td>84°52'16.45"E</td></tr><tr><td>3</td><td>21°53'21.00"N</td><td>84°52'17.41"E</td></tr><tr><td>4</td><td>21°53'17.11"N</td><td>84°52'22.04"E</td></tr><tr><td>5</td><td>21°53'11.30"N</td><td>84°52'29.12"E</td></tr><tr><td>6</td><td>21°53'11.40"N</td><td>84°52'35.21"E</td></tr><tr><td>7</td><td>21°53'17.15"N</td><td>84°52'35.23"E</td></tr><tr><td>8</td><td>21°53'22.78"N</td><td>84°52'35.20"E</td></tr><tr><td>9</td><td>21°53'23.68"N</td><td>84°52'30.77"E</td></tr><tr><td>10</td><td>21°53'23.86"N</td><td>84°52'26.76"E</td></tr><tr><td>11</td><td>21°53'29.01"N</td><td>84°52'26.29"E</td></tr><tr><td>12</td><td>21°53'28.77"N</td><td>84°52'20.69"E</td></tr></table></td><td>-</td></tr>
<tr><td>5.</td><td>Elevation of the project site</td><td>193 m to 252 m AMSL</td><td>High flood level data of last 26 years of river Brahmani at Gomlai location collected. The letter issued from Central Water Commission Mahanadi & Eastern River Organization, Bhubaneswar vide letter no. TD/905/CE/VI/202/257(H), dated 03.02.22, is Attached as Annexure- 1.

As per the data, maximum HFL is 147.660 m AMSL against site elevation of 193m to 252m AMSL.</td></tr>
<tr><td>6.</td><td>Involvement of Forest land if any</td><td>There is no forest land involved within the plant boundary.</td><td>As per joint field verification conducted on 08.02.23 by Forest and revenue dept. officials, entire land is non-forest land of kissam patit. Joint field verification report along with Vide Memo No. 8447/4F (Misc.) (PC- 1), dtd.</td></tr>
</table>

			12.09.2023 is enclosed as **Annexure-.**
7.	Forest within 10 km buffer zone	**Protected Forest:** Samaradari Juniani PF (E)- 0.41 Km **Reserve Forest:** • Kukia R.F- 0.12 Km (NW) • Dhenkiam R.F- 2.6 Km (W) • Nalghati Rajabasa R.F- 3.3 Km (SW) • Dhenkiam Block R.F- 3.7 Km (NW) • Bhagoth R.F- 6.6 Km (SSW) • Dhanaghar Extension R.F- 6.9 Km (NNE) • Gurundia R.F- 7.9 Km (SW)	
8.	Water body exists within the project site as well as study area	**Study Area:** Brahmani River- 1.6 Km (W) Amrurhi Nala- 3.1 Km (NNE) Katangamunda Nala- 3.4 Km (NW) Rukura River- 4.3 Km (S)	
9.	Existence of ESZ /ESA/national park / wildlife sanctuary / biosphere reserve/ tiger/ elephant reserve etc. if any within the study area	No National Park / wildlife sanctuary / biosphere reserve / tiger reserve / elephant etc. within the study area.	-

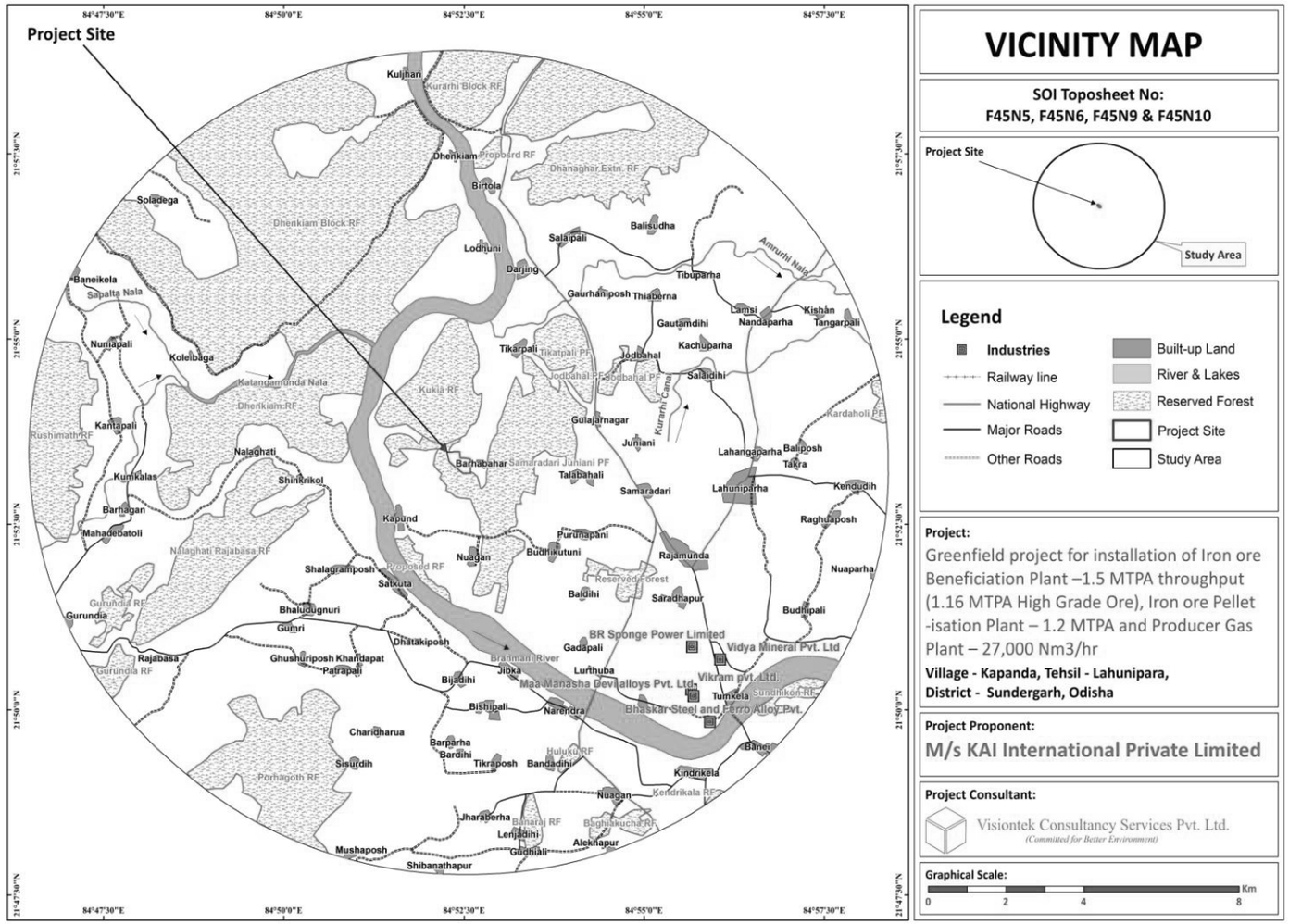


Fig. No. 2.1- Vicinity Map

2.2.2 List of Industries in Study Area

Table 2.6- List of Industries within 10 Km Radius

Sl. NO.	Name Of Industries	Product	Distance (km)	Direction	Co-ordinates
1.	BR Sponge Power Limited	Steel	6.87 km	SE	21°50'50.78"N 84°55'40.02"E
2.	Vidya Mineral pvt. Ltd	Rice mill	7.59 km	SE	21°50'40.48"N 84°56'3.38"E
3.	Vikram pvt. Ltd.	DRI	7.43 km	SE	21°50'18.88"N 84°55'45.43"E
4.	Maa Manasha Devi alloys pvt. Ltd.	DRI	7.49 km	SE	21°50'10.99"N 84°55'42.09"E
5.	Bhaskar Steel and Ferro Alloy pvt.	Integrated Steel plant	7.95 km	SE	21°49'50.01"N 84°55'54.88"E

2.2.3 Land Details

The proposed project is located in Kapanda Village, Sundergarh over an area of 19.320 Ha (47.74 Acres). The land for total 47.348 Ha (117 Acres) has been allotted by IDCO to M/s KAI International Private Limited vide letter no. IDCO/HO/P&A-LA-E-7751/2019-21 Dated 6th Aug 2021. (Attached as **Annexure- 2**).

There are total 3972 trees within the proposed project boundary. The tree enumeration report is attached as **Annexure- 6.** In the proposed construction area for plant facilities, 1500 number of trees have been cut and 260 needs to be transplanted. The trees have been cut after obtaining the permission for tree felling of 1500 trees from Office of the Divisional Forest Officer cum Wildlife Warden Rourkela Forest Division, Odisha vide letter number 5838/3F dated 20 Sep. 2021 (**Annexure- D**).

Photographs of Proposed plant: (from various directions)



North Direction



East Direction



West Direction



South Direction

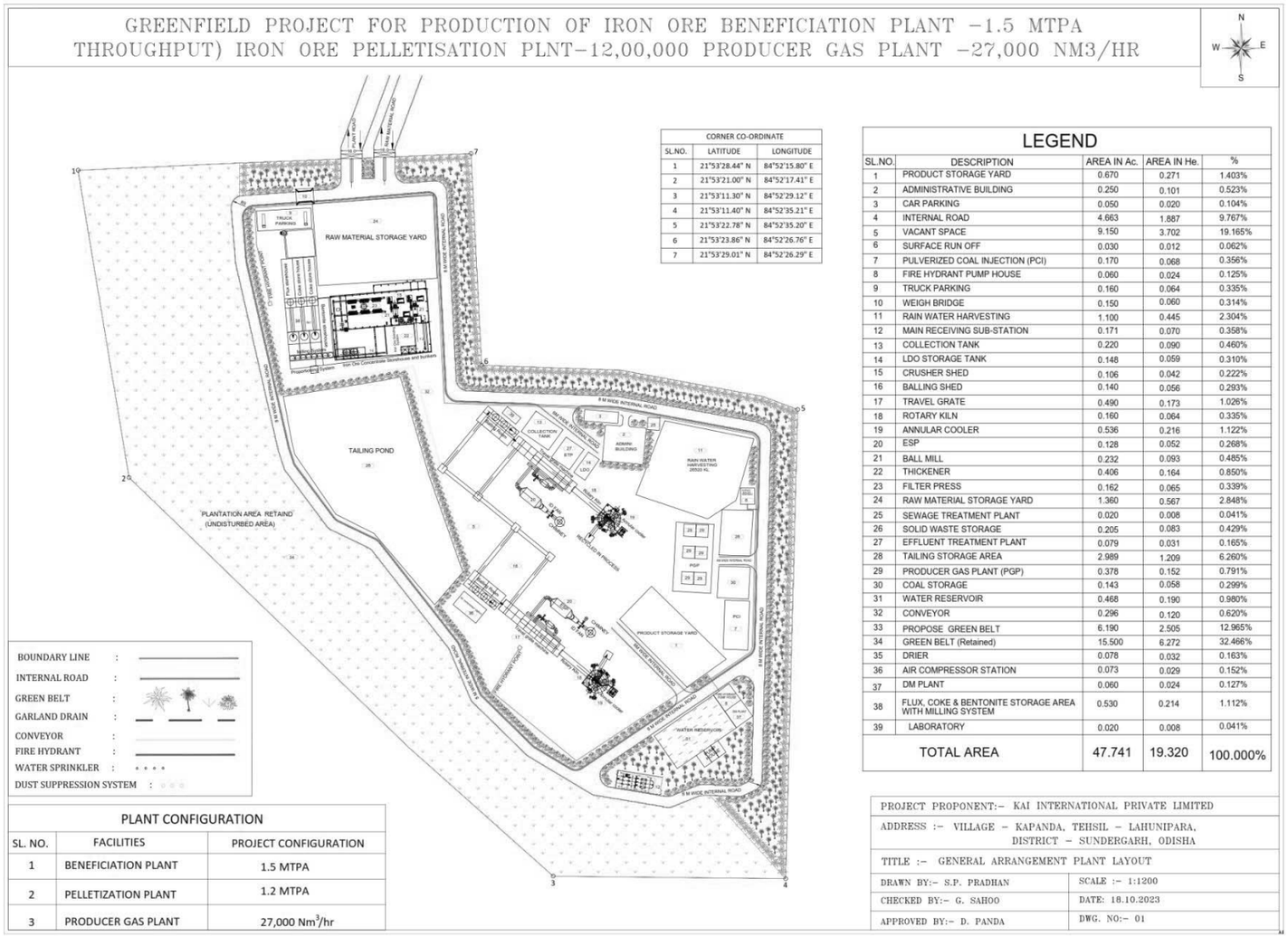
Land Utilization Patter (After Construction)

The plant will need main Plant Facilities, Raw Material Storage yard, Raw Water Storage Reservoir & Treatment plant, Auxiliary facilities, viz. Administrative Building, Technical Building etc. The detailed land use break up for the proposed plant has been given in the table below:

Table 2.7- Proposed Land Use Break Up

Item No.	Description	Area		
		Acres	Hectares	Percentage (%)
1.	Product Storage Yard	0.670	0.271	1.403
2.	Administrative Building	0.250	0.101	0.523
3.	Car Parking	0.050	0.020	0.104
4.	Internal Road	4.663	1.887	9.767
5.	Vacant Space	9.150	3.702	19.165
6.	Surface Runoff	0.030	0.012	0.062
7.	Pulverized Coal Injection (PCI)	0.170	0.068	0.356
8.	Fire Hydrant	0.060	0.024	0.125
9.	Truck parking	0.160	0.064	0.335
10.	Weigh bridge/office	0.150	0.060	0.314
11.	Rain water harvesting	1.100	0.445	2.304
12.	Main receiving sub-Station	0.171	0.070	0.358
13.	Collection Tank	0.220	0.090	0.460
14.	LDO Storage Tank	0.148	0.059	0.310
15.	Crusher shed	0.106	0.042	0.222
16.	Balling shed	0.140	0.056	0.293
17.	Travel grate	0.490	0.173	1.026
18.	Rotary kiln	0.160	0.064	0.335
19.	Annular cooler	0.536	0.216	1.122
20.	ESP	0.128	0.052	0.268
21.	Ball mill	0.232	0.093	0.485
22.	Thickener	0.406	0.164	0.850
23.	Filter press	0.162	0.065	0.339
24.	Raw material storage yard	1.360	0.567	2.848
25.	Sewage treatment plant	0.020	0.008	0.041
26.	Solid Waste Storage	0.205	0.083	0.429
27.	Effluent treatment plant	0.079	0.031	0.165
28.	Tailing Storage Area	2.989	1.209	6.260
29.	Producer gas Plant	0.378	0.152	0.791
30.	Coal Storage	0.143	0.058	0.229
31.	Water reservoir	0.468	0.190	0.980
32.	Conveyor	0.296	0.120	0.620

33.	Proposed greenbelt	6.190	2.505	12.965
34.	Greenbelt (Retained)	15.500	6.272	32.466
35.	Drier	0.078	0.032	0.163
36.	Air compressor station	0.073	0.029	0.152
37.	DM Plant	0.060	0.024	0.127
38.	Flux, Coke & Bentonite Storage Area With Milling System	0.530	0.214	1.112
39	Laboratory	0.020	0.008	0.041
Total		**47.741**	**19.32**	**100**



CORNER CO-ORDINATE		
SL.NO.	LATITUDE	LONGITUDE
1	21°53'28.44" N	84°52'15.80" E
2	21°53'21.00" N	84°52'17.41" E
3	21°53'11.30" N	84°52'29.12" E
4	21°53'11.40" N	84°52'35.21" E
5	21°53'22.78" N	84°52'35.20" E
6	21°53'23.86" N	84°52'26.76" E
7	21°53'29.01" N	84°52'26.29" E

LEGEND

SL.NO.	DESCRIPTION	AREA IN Ac.	AREA IN He.	%
1	PRODUCT STORAGE YARD	0.670	0.271	1.403%
2	ADMINISTRATIVE BUILDING	0.250	0.101	0.523%
3	CAR PARKING	0.050	0.020	0.104%
4	INTERNAL ROAD	4.663	1.887	9.767%
5	VACANT SPACE	9.150	3.702	19.165%
6	SURFACE RUN OFF	0.030	0.012	0.062%
7	PULVERIZED COAL INJECTION (PCI)	0.170	0.068	0.356%
8	FIRE HYDRANT PUMP HOUSE	0.060	0.024	0.125%
9	TRUCK PARKING	0.160	0.064	0.335%
10	WEIGH BRIDGE	0.150	0.060	0.314%
11	RAIN WATER HARVESTING	1.100	0.445	2.304%
12	MAIN RECEIVING SUB-STATION	0.171	0.070	0.358%
13	COLLECTION TANK	0.220	0.090	0.460%
14	LDO STORAGE TANK	0.148	0.059	0.310%
15	CRUSHER SHED	0.106	0.042	0.222%
16	BALLING SHED	0.140	0.056	0.293%
17	TRAVEL GRATE	0.490	0.173	1.026%
18	ROTARY KILN	0.160	0.064	0.335%
19	ANNULAR COOLER	0.536	0.216	1.122%
20	ESP	0.128	0.052	0.268%
21	BALL MILL	0.232	0.093	0.485%
22	THICKENER	0.406	0.164	0.850%
23	FILTER PRESS	0.162	0.065	0.339%
24	RAW MATERIAL STORAGE YARD	1.360	0.567	2.848%
25	SEWAGE TREATMENT PLANT	0.020	0.008	0.041%
26	SOLID WASTE STORAGE	0.205	0.083	0.429%
27	EFFLUENT TREATMENT PLANT	0.079	0.031	0.165%
28	TAILING STORAGE AREA	2.989	1.209	6.260%
29	PRODUCER GAS PLANT (PGP)	0.378	0.152	0.791%
30	COAL STORAGE	0.143	0.058	0.299%
31	WATER RESERVOIR	0.468	0.190	0.980%
32	CONVEYOR	0.296	0.120	0.620%
33	PROPOSE GREEN BELT	6.190	2.505	12.965%
34	GREEN BELT (Retained)	15.500	6.272	32.466%
35	DRIER	0.078	0.032	0.163%
36	AIR COMPRESSOR STATION	0.073	0.029	0.152%
37	DM PLANT	0.060	0.024	0.127%
38	FLUX, COKE & BENTONITE STORAGE AREA WITH MILLING SYSTEM	0.530	0.214	1.112%
39	LABORATORY	0.020	0.008	0.041%
	TOTAL AREA	47.741	19.320	100.000%

PLANT CONFIGURATION		
SL. NO.	FACILITIES	PROJECT CONFIGURATION
1	BENEFICIATION PLANT	1.5 MTPA
2	PELLETIZATION PLANT	1.2 MTPA
3	PRODUCER GAS PLANT	27,000 Nm^3/hr

PROJECT PROPONENT:– KAI INTERNATIONAL PRIVATE LIMITED	
ADDRESS :– VILLAGE – KAPANDA, TEHSIL – LAHUNIPARA, DISTRICT – SUNDERGARH, ODISHA	
TITLE :– GENERAL ARRANGEMENT PLANT LAYOUT	
DRAWN BY:– S.P. PRADHAN	SCALE :– 1:1200
CHECKED BY:– G. SAHOO	DATE: 18.10.2023
APPROVED BY:– D. PANDA	DWG. NO:– 01

Fig. 2.2- Plant Layout

1361

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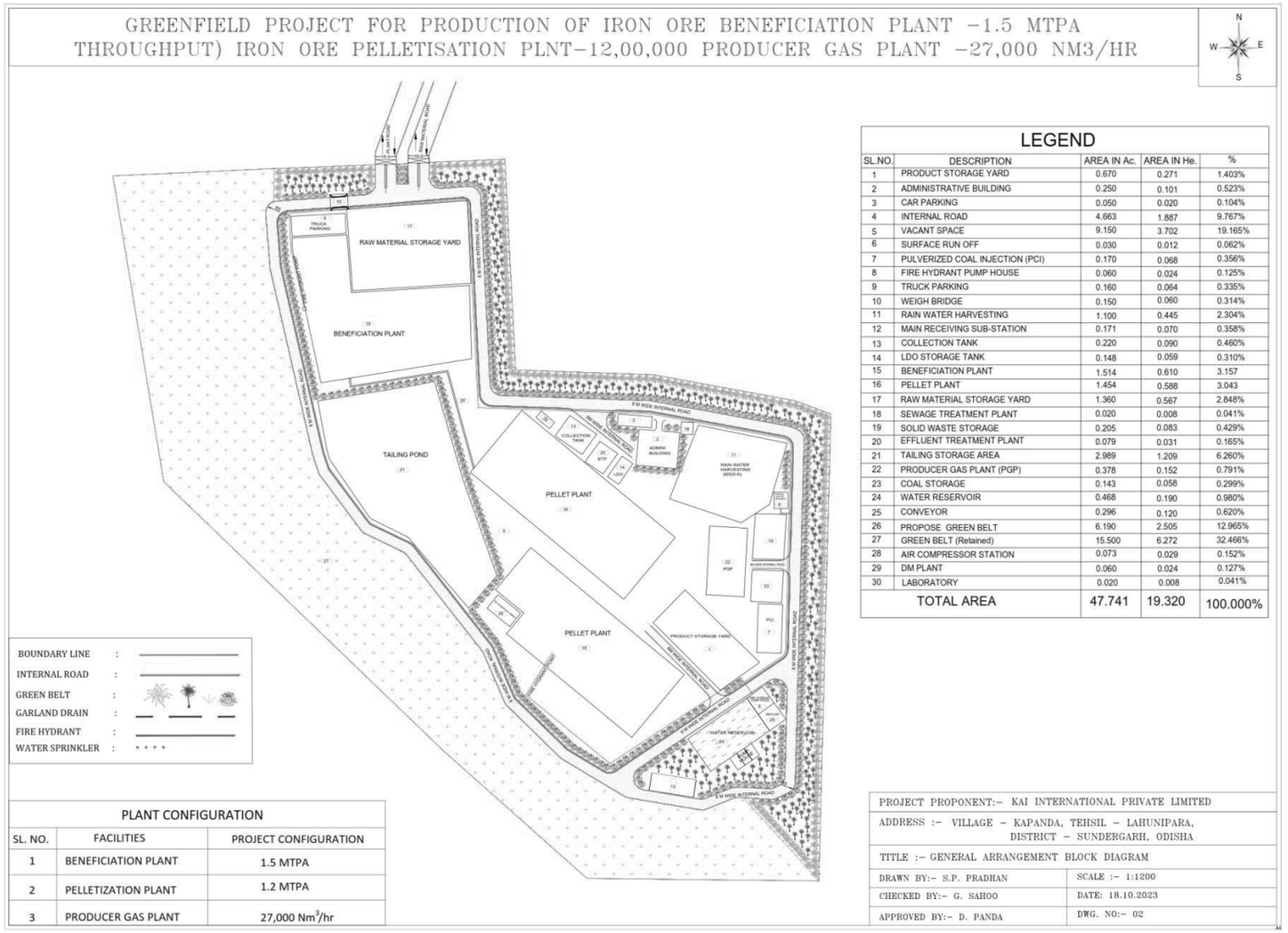
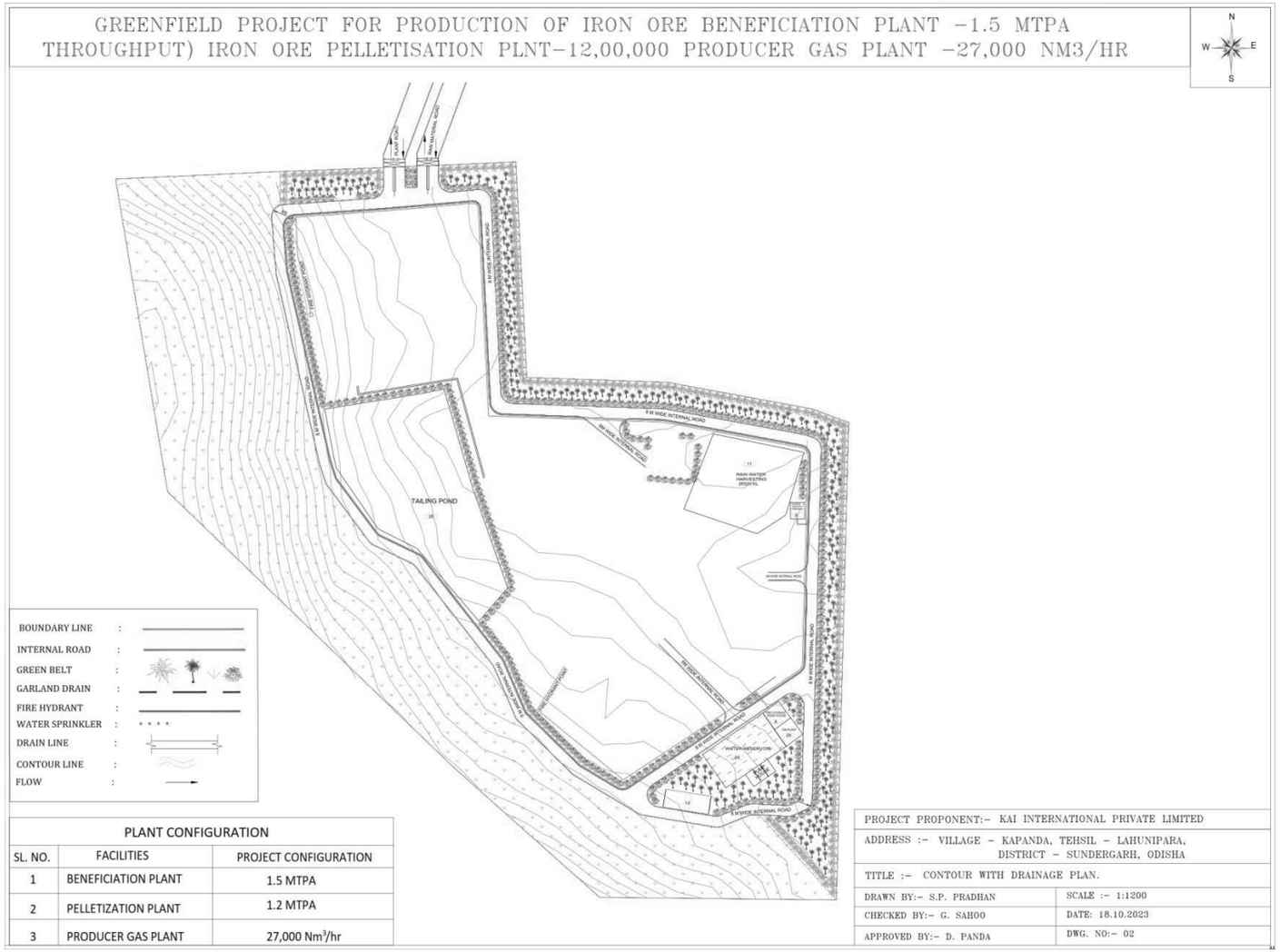


Fig. 2.3- Block Layout

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PLANT CONFIGURATION

SL. NO.	FACILITIES	PROJECT CONFIGURATION
1	BENEFICIATION PLANT	1.5 MTPA
2	PELLETIZATION PLANT	1.2 MTPA
3	PRODUCER GAS PLANT	27,000 Nm^3/hr

Fig. 2.4- Contour with drainage Layout

1363
1353

2.3 PROCESS DESCRIPTION

2.3.1 Iron Ore Beneficiation

Production of Iron ore Beneficiation: 11,60,000 TPA (15,00,000 TPA Throughput)

The beneficiation process of ore results in a more concentrated form of the product. It will be used for the preparation of iron ore fines for pelletization. The Raw iron ore fines of the grade 55-58% Fe from various mines will be beneficiated to obtain the product with > 63% Fe for use in the in-house pellet plant.

Process Description:

The proposed project utilizes beneficiation technology and produces a Concentrate of > 63% Fe from the Iron Ore Fines of average grade 55% to 58% Fe.

The major technological processes involved in Iron Ore Beneficiation are:

- Size reduction,
- Size separation or classification,
- Iron Ore up-gradation as beneficiation,
- Thickening of slurry and pumping of slurry,
- Residual /Slime disposal.

Size Reduction: The Iron Ore in the form of fines (99% passing 10 mm size) are grounded to the size 80% < 45 micron. Grinding of Iron Ore will be done by Wet grinding process

Wet grinding process: Wet Grinding Mill is used to grind iron ore. The ground product in the form of slurry is pumped to the slurry storage tank fitted with agitating mechanism. Water and finely ground raw materials are separated by filters to obtain filter cakes. In the present context, wet grinding is preferred as there will be low emissions and losses. High Fe grains are liberated from the gangue materials by grinding. Since the downstream of the grinding process, like beneficiation and concentration, are carried out with wet process, wet grinding process is considered to be most suitable instead of dry grinding.

Size Separation: Size classification is done using hydro-cyclone and vibratory screen. This is done to obtain the uniformity in the further feed for efficient concentration of ore.

Beneficiation or Concentration: To achieve the desired Fe level of Concentrate, the ground and classified material is upgraded by removing the gangue materials. High Gradient Magnetic separators (HGMS) are suitable equipment for the beneficiation of Hematite Iron Ore.

Slime Disposal: The generation of slime quantity from the Beneficiation Plant will vary from 0.21 – 0.23 MTPA depending on the Fe content/quality of Iron ore feed.

Chemical Composition of Residuals / Slimes is Fe: < 40%, SiO_2: 10-14%, Al_2O_3: 8-10%. Particle size: 100 % < 75-micron Pressure Filters will be installed to dewater the Slimes and dry slimes of a maximum of 10-15% moisture would be conveyed through a conveyor to designated Slime storage area within the plant boundaries.

Manufacturing Process: Fe content of lean iron ore is improved by the Beneficiation process. The required green ball strength of pellets is obtained by using quality materials. The ore is grounded to obtain the fineness of the required quality. Characteristics of ore fines govern the degree of fineness and it has been observed that under Indian conditions, grinding of ore to size 60-80% passing through 325 mesh (-0.044 mm) is necessary for the production of high strength green pellets.

The overall plant yield would be average 77-78% depending on the feed quality of the incoming iron ore. Rejects may vary from 21-23%. Iron Ore feed fines are proposed to be used in beneficiation plant from various mines and the range of its chemical composition is envisaged as Fe%: 55.0 to 58.0, SiO2: 1.7 to 3.8, Al_2O_3: 2.50 to 3.9 & Moisture: 8.0 to 10%.

The physical characteristics of the iron ore fines considered or designing the plant and associated facilities are as given below:

- Top size: 10 mm
- Specific gravity of solids: 4.5 - 4.6
- Bulk density: 2.4 - 2.6 Tons/cum
- Bond Work Index: 12 kWh/Ton
- Angle of repose: 35^o
- Moisture content: 8-10%.

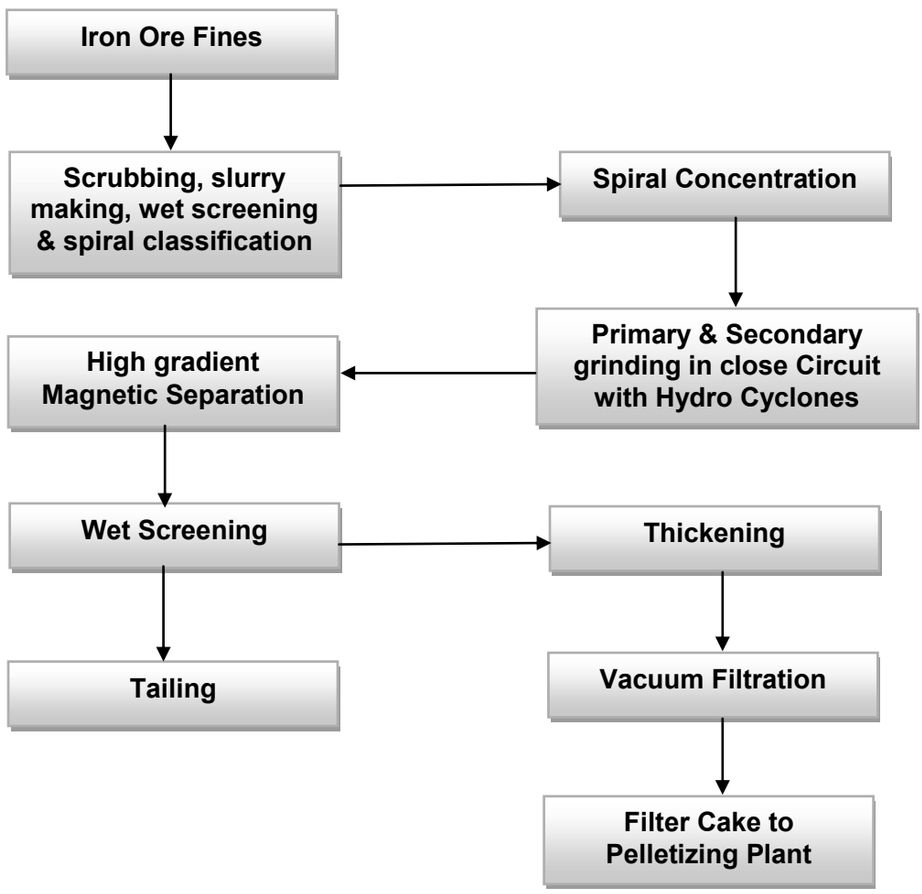


Fig. 2.5- Process Flow Chart – Beneficiation Plant

2.3.2 Iron Ore fines Pelletization

❖ **The magnitude of operation:**

Utilisation of in-house Iron ore Concentrate of 11,60,000 TPA and balance high grade Iron ore fins (Fe > 63) of 1,40,000 TPA will be purchased from domestic market.

Pelletizing is a process that involves mixing of very finely ground particles of iron ore concentrate having a size which is less than 45 mesh with additives like bentonite, coke and then shaping them into near-spherical balls having a size in the range of 8 mm to 16 mm in diameter by a pelletizer and hardening the balls by firing with a fuel. It is an agglomerating process of converting iron ore fines into 'uniformed sized iron ore pellets which can be charged directly into the rotary kiln, used for the production of direct reduced iron (DRI).

Process Description

There are four stages involved in the production of iron ore pellets. These stages consist of

- Raw material preparation,
- Formation of green balls or pellets,
- Induration of the pellets, and
- Cooling, storage, and transport of pellets.

Raw Material Preparation

Incoming raw materials Iron ore concentrate, Bentonite, Dolomite, Coke, Coal & Oil fuel will be stored under covered yard inside the plant premises. Iron ore concentrate, Bentonite will be received in powder form & stored in the proportionate buildings. Coke will be stored in a covered shed & transported to the proportionate building by front end loader. Coal fines will be stored in a covered shed & transported to coal ground hopper by dumper for further processing. LDO (7.27 KLD) will be stored in a covered tank nearby Rotary Kiln.

Iron Ore concentrate Filtration Process

Iron Ore concentrate is stored in thickener and from there it will be pumped through an iron ore concentrate transfer pump to a filtration building where water separation takes place from an iron ore concentrate. Filter cake discharged to bottom carrying conveyor to filter cake storage yard. Separated water will be recycled back to thickener.

Proportioning system – There are 10 bins in the Proportionating building. Four bins for Iron Ore concentrate, two bins for Bentonite, two bins for coke, and two bins for Dolomite. Belt conveyors and belt weighers are placed under the bins. From these bins required quantities of materials are transferred to the Mixture machine & in the Mixture machine iron ore cake, bentonite, dolomite & coke are properly mixed.

Formation of green balls or pellets

Green pellets with a size range of 8 mm to 16 mm are prepared in a balling drum or a disc pelletizer. Disc pelletizer is preferred for the production of quality green pellets since in the disc pelletizer it is easy to control the operation with a minimum of foot space. The disc pelletizer is an inclined pan having around 6 meters (m) diameter. It rotates at around 8 RPM. The inclination of the disc is around 45^o.

In the disc, the material is coagulated and due to the continuous rotary motion, materials get formed into pellets. Ore concentrate is lifted upwards until the friction is overcome by gravity and the material rolls down to the bottom of the disc. This rolling action first forms small granules called seeds. Growth occurs in the subsequent revolutions of the disc by the addition of more fresh feeds and by a collision between small pellets. As the pellets grow in size, they migrate to the periphery

and the top of the bed in the discs, until they overflow the rim. Pellet growth is controlled by the small amount of water sprayed in the disc and the adjustment in the disc rotational speed. These pellets are called green pellets as they do not have the required strength. The green pellets are then screened in a roller screen and the required size material is fed to the travelling grate of a pelletizing machine.

Induration

During the induration, heat hardening of green pellets is carried out. Induration of green pellets consists of three main steps namely

- Drying of green pellets,
- The firing of pellets and
- Cooling of hot pellets before discharging

During drying (temperature range of 180 °C to 350 ^{0}C), the moisture content of the green pellet is evaporated. Surface and interstitial moisture evaporate at lower temperatures whereas chemically combined water or any hydrate or hydroxide combinations lose their water at a slightly higher temperature.

During the pre-heating stage (temperature range of 500°C to 1,100°C), decomposition of carbonates and hydrates takes place. Gasification of solid fuels like coal or coke and conversion of iron oxides. Commencement of solid oxide bonding and grain growth are the important steps of this stage.

During the firing stage (temperature range of 1250°C to 1340°C), the temperature is below the melting temperature of the major oxide phase but within the reactivity range of gangue components and additives. The formation of oxides and slag bonds is decisive of this stage.

The induration treatment causes certain chemical reactions to occur which change the specific metallurgical properties of the pellets. These reactions can include the oxidation of magnetite and dehydration of earthy hematite.

Pellet cooling and handling

The pellets are cooled and screened after the induration. The oversized pellets are crushed and are sent along with the undersized to the stock house bins where they are reprocessed. Cooled pellets are sent to the storage for their transport to the downstream plants for further processing.

Pelletizing Process:

The pelletizing processes/technologies are available for the production of the pellets, from which Grate Kiln technology is used.

Grate Kiln Process:

In the grate-kiln process, the grate is used to dry and preheat the pellets. The material moves on grate till it attains the temperature in the range of 800°C to 1000 °C. After that, the material is transferred to a refractory lined rotary kiln for induration where the temperature is further raised in the range of 1250°C to 1300 °C. At 800 °C, the FeO of the magnetite iron ore gets converted into Fe_2O_3 in an exothermic reaction. The liberated heat hardens the green balls which is helpful to withstand the tumbling impact due to the rotation of the rotary kiln. A circular cooler is used for cooling the fired pellets.

a) Travelling Grate
b) Rotary Kiln
c) Annular Cooler

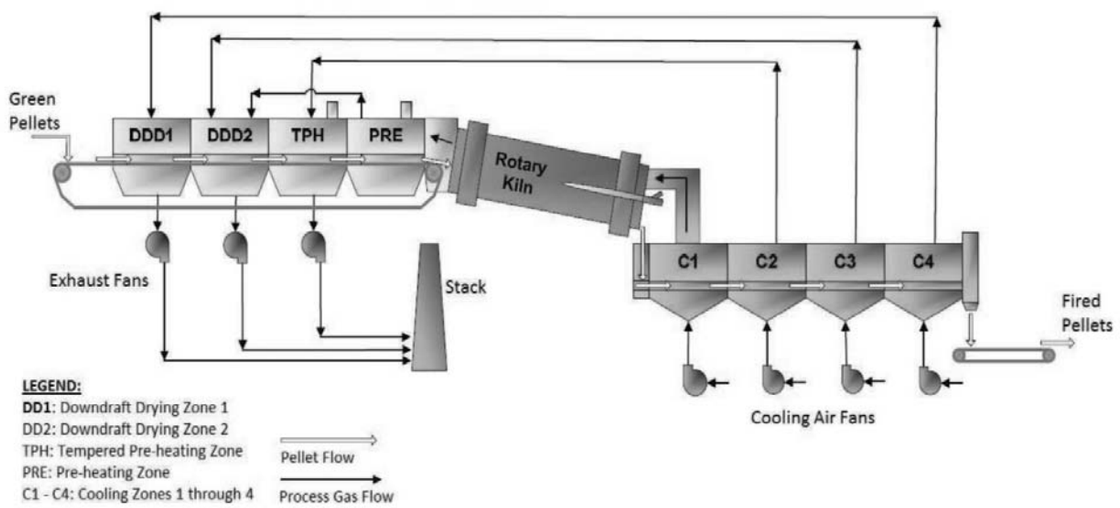


Fig. 2. 1- Schematic diagram of the Grate-kiln induration process

a) Travelling Grate:

The Travelling Grate machine is used for the induration of green pellets. The machine consists of three main parts.

- The central part is movable and consists of pallets, composed of a frame and supporting structure into which grate bars are inserted. The pallets are connected using sliding seal bars with the wind boxes in a gas-tight manner.
- The bottom part is composed of the stationary wind boxes connected with the gas mains duct line and the moving grate.
- The upper part comprises the heat energy and air supply system in the stationary hood above the grate.

- The system serves to circulate the necessary drying, heating, indurating, and cooling of pellets through the moving pellet bed. Important process equipment is the fan with which the process gases are moved through the charge. The entire thermal treatment is achieved during one passage of pellets on the indurating machine. To protect the grate bars from thermal shocks, hearth and side layers of indurated pellets are used.

b) Rotary Kiln:

Phosphate muds wear resistance bricks and high strength thermal isolating casting compound liner is being adopted. This kind of material has the properties of heat-shock resistant, anti-impact; wear-resistant, thermal isolating and can prolong the liner‘s life and reduce the shell temperature.

After pre-heating in the rotary kiln, pellet ore is discharged to the tail of the rotary kiln through a plate and chute. The head kiln is equipped with a specially designed expansion refractory gun. Burning intensity and flame shape are adjusted by controlling the expansion and each sprayed volume of the refractory gun. Pellets receive heat radiation in a rotary kiln and rotate restless while being roasted so that the pellets are roasted evenly. The roasting temperature in a rotary kiln is 1250~1300^oC. Rotation speed can be adjusted by different materials to determine its retaining time in rotary kiln and to determine the quality of pellets. The head housing and tail housing of the rotary kiln adopts a new type of sealing device and are equipped with a structural cooling fan.

c) Annular Cooler:

The rotary cooler consists of a rotating part, bellows, driving unit, frame, and upper hood; equipped with 3 sets of blowers with cooling air and 2 sets of the structural cooling fan. Annular cooler receives hot pellets with temp. up to 1300℃ coming from rotary kiln. Pellet size is 8~16mm. Oversize blocks are discharged as the result of high temp. Operation in a rotary kiln. The blocks are separated by a fixed screen equipped in the head kiln housing and are discharged and treated through a chute for the oversized blocks. Pellet ore enters into the annular cooler through distributing device.

The advantages of the Travelling Grate induration process are the production of pellets from different types of iron ore fines, uniform quality of pellets, the possibility of use of different types of fuels of relatively low specific heat consumption, production of large pellets quantity in one machine, etc.

The firing on the Rotary Kiln lasts longer and the material is cooled in a separate cooler, in which air passes through a relatively deep (0.8 -1.0m) bed of pellets. However, the Grate Kiln Cooler process has been adopted for the production of pellets from different types of iron ore fines and the specific energy consumption is low compared to the Travelling Grate process. The quality of pellets concerning tumbler and shatter index are superior and uniform, as pellets are rotated and tumbled continuously during firing inside the Rotary Kiln.

Based on the above technological considerations, the final selection of process for the proposed 2x0.6 MTPA capacity pellet plants have been arrived at as indicated below:

- Bentonite will be received in powder form or Bentonite is grounded in a separate mill.
- Disc pelletizer for production of green balls.
- Grate-Kiln-Cooler process for heat hardening of pellets.

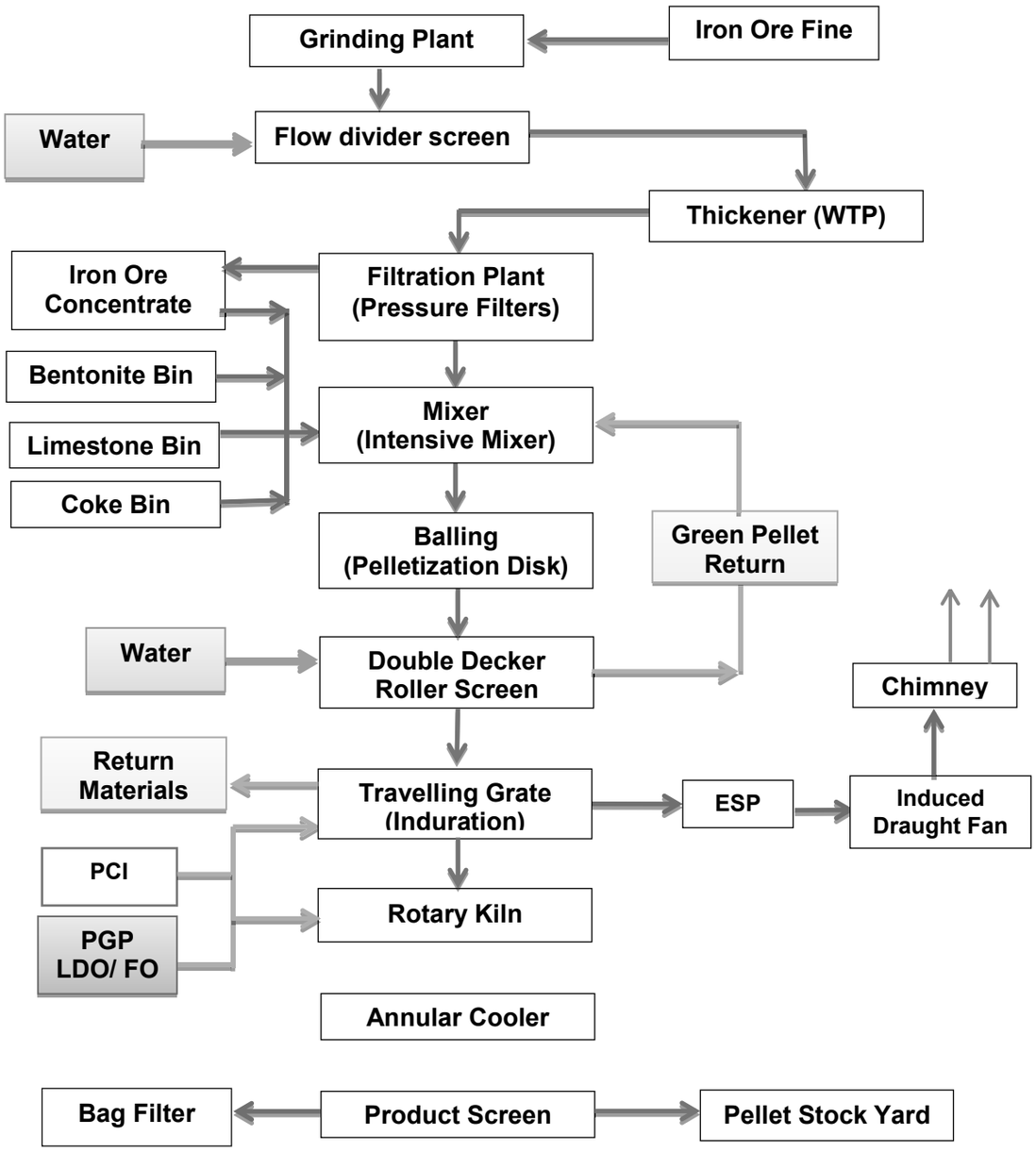


Fig 2.6- Process Flow Chart for Pellet

Product pellet Characteristic

The chemical analysis of the pellet computed based on qualities of raw materials and additives as well as the specific consumption indicated above works out as given in the following table:

Table 2.8- Pellet Characterize

Chemical Properties	
	Grade
Parameter	**Specification**
Fe(t)	65 %
SiO_2+Al_2O_3	3.10%Max
Na_2O	0.05%Max
K_2O	0.05%Max
TiO_2	0.10%Max
Mn	0.10%Max
P	0.04%Max
S	0.02%Max
V	--
Basicity(CaO/SiO_2)	0.5
Moisture (free moisture loss at105ºC)	4% max (fair season), 6% max (monsoon)
Physical Properties	
Grade	
Screen Analysis	**Specification**
+19mm	5%Max
-16mm,+9mm	85%Min
-9mm,+5mm	5% Min
-5mm	3%Max
Tumbler text(ASTM)	
Tumbler Index(+6.35mm)	94%Min
Metallurgical Properties	
Parameter	**Specification**
	GRADE
Swelling(JIS)	20%Max
Compression strength	250kg/pellet Min
Porosity	18-25%Min
Reducibility(JIS)	70%Min

APCD Facilities:

Number of ESP: 2, Height of the Stack: 65 mtr. each

Electrostatic Precipitator (ESP): Indurating process off-gasses from updraft drying hood exhaust and wind box exhaust are being cleaned using Electrostatic Precipitators (ESP). The outlet dust concentration is limited to 30 mg/Nm^3. The clean gas is sent to Pellet Plant. The emissions from the Pellet Plant are being treated in a high-efficiency ESP (99.5%) and discharged into the atmosphere through a stack.

Bag Filter:

Number of Bag Filter proposed: 8, Height of the Stack: 30-35 mtr

Fugitive dust from the machine discharge area and extraction area is being collected using suction ducts and cleaned in Bag Filters. Fugitive dust generated from Raw Material Handling, Additives and Coal Grinding, and Transfer points will be collected using suction ducts and cleaned in Bag Houses. Dust collected from the bentonite and limestone systems and other systems is returned to their respective storage bins. Bag filters will be installed in various material handling sections and transfer points. It will be designed for concentrations below 30 mg/Nm^3

The Coal Grinding PCI System

The magnitude of operation:

The capacity of PCI: 8 TPH (Operates for 16 hrs per day)

Process Description:

The incoming Lump Coal will be transferred to Coal Storage Yard by Tipper Truck and loaded into Receiving Hopper. The Lump Coal is transferred by Inclined Belt Conveyor into the Lump Coal Silo. The Pan Feeder beneath Lump Coal Silo feeds Lump Coal evenly into the Grinding Machine. The negative pressure created by the Dust Discharge Blower leading to absorption of Drying Agent into the Grinding Machine, resulting in Zero Pressure Point between the Dryer outlet and Grinding Machine Inlet. Drying Agent consists of waste gas emission from Dust Discharge Blower and high-temperature hot gas from combustion oven or hot waste gas from the cooler. The Lump Coal is further ground and dried in the Grinding Machine. After the particles separation process oversized portion from the primary ground product will be reground; whereas passing fine Coal Dust transferred along the Ducting into the Filter Bag Collector for storage. Finally, via Pneumatic Transfer System under the Filter Bag Collector, Coal Dust will be transferred to the kiln burner.

PCI coal requirement will be 24,800 TPA

2.3.3 Process Description- Producer Gas Plant:

The magnitude of operation:

There will be 6 numbers x 4,500 Nm^3/hr producer Gas plant out of which 5 nos x 4,500 Nm3/hr will be in operation and 1 x 4,500 Nm^3/hr will be in standby. The operating capacity of PGP will be 5X 4500 = 22,500 Nm^3/hr. Installed capacity shall be 6X 4500 = 27000 Nm^3/hr

Coal Gasifier Technology:

The Gasifier, which can gasify variety of coals to produce Producer Gas. In the thermal application, the Producer Gas is bunt directly in Kiln & induration Furnace.

Brief Description of Process

a) Crushed coal of the specified quality and size is carried to the top of the bunker by means of two bucket elevators and is put to the 6 bunkers one by one. The screen between the bunker and the bucket elevator separates out fines from the feed which is taken down through a chute.
b) Coal from the bunker is fed to the extended shaft of the Gasifier through a sector Gate and two bell cones operated by pneumatic power cylinders which open out the sector Gate and Bell Cones sequentially after getting signal from the LTC temperature whenever it touches the set temperature of 140 ºC or so.
c) Fed coal travels downwards and gets dried first and then gradually preheated up to a distillation temperature of about 45 ºC by the product gas moving upwards which itself gets gradually cooled down and picks up the volatile matte of coal and gets auto-carbureted to a much higher calorific value before it comes out to the LTC off take pipes. The coal, on the other hand, gets carbonized to nearly coke stage and its reactivity increases for a faster gasification.
d) When the coal enters through the generator bottom shaft, reaction between coal and (air+ steam) occurs and following reactions take place from bottom oxidation zone to top reduction zones.

A. Oxidation Zones
Reaction is : $C + O_2 = CO_2 + 42643$ Kcal

B. Primary Reduction Zone
Reactions are $C + H_2O = CO + H_2 - 19000$ Kcal
$C + 2H_2O = CO + 2H_2 - 19307$ Kcal
$C + CO_2 = 2CO - 18689$ Kcal
(Within 300 mm from Oxidation zone)

C. Secondary Reduction Zone
Reactions are $C + H_2O = CO + H_2 - 326$ Kcal
$C + CO_2 = 2CO$

Description of Gas Cleaning

Electrostatic gas cleaner is a particulate collection device that removes super fine particles from a flowing gas using the force of an induced electrostatic charge. It is highly efficient filtration device that minimally impede the flow of gases through the device and easily remove fine particulate matter such as dust and smoke from the gas stream.

During operation, the gas passes through a chamber containing a central high voltage (70 kV) negative electrode. A corona discharge forms around the central electrode, which imparts a negatively charge to all particles and droplets. The negatively charged particles then migrate to the positive electrode.

It is cylindrical weighted wire design which evolved as more efficient and robust. Transformer rectifier systems apply voltages of (50-100) kV at relatively high current densities. Modern controls minimize sparking and prevent arcing, avoiding damage to the components. Automatic rapping systems and hopper evacuation systems remove the collected particulate matter while on line.

Salient Features

- More cleaned gas
- Highly mechanized particulate matter removal system
- Highly safety
- Ease of operation
- Fully automated

Phenol water treatment and re-cycling system

Pyrolysis Coal Gasification Technology comes with a state of the art Phenol Water Treatment and recycling System. Because of the nature of Phenol water (absence of dust, tar and light tar) generated from the pyrolysis gasification technology, it becomes possible to treat this phenol water 100% and consume it back in the gasification system. The phenol water collected from the indirect cooler is collected in an underground untreated phenol water tank. From there it is pumped and sent to conditioner tank after being filtered for two times. In the conditioner tank, the phenol water will be treated for pH. The treated phenol water is taken to treated phenol water tank where from it is pumped to the vapor drums of the gasifier lower and middle water jackets. It then becomes steam which is sent to gasifier bottom as gasifying agent. Meanwhile, the phenolic substance in steam will be pyrolyzed at under high temperature. This is the most important technological feature of the Pyrolysis Gasification Technology where all the condensate water extracted from the gas from the indirect cooler is treated and gasifier blower used back in the system thus making it a Zero Liquid Discharge (ZLD) Technology. Phenol water treatment system is independent of gasifier operations and can be operated when phenol water levels in the untreated phenol water tank are high. This is a completely automatic system with plc control. The back wash, filtering etc. are all programmed and hence there is no intervention of any kind of manpower.

The system is designed to reuse the phenolic water in the Heat Exchanger and the generated steam and phenolic vapor. The generated steam and vapour are used in the process of coal gas generation.

a. **Phenolic water content:** Phenolic water contains various organic compounds to the average of 5 % by weight which is a condensate of the coal gas volatile matter like phenol, general oil, tar, and impurities in the water.
b. **Disposal:** The condensate phenolic water will be treated and used back in the system thus making it a Zero Liquid Discharge (ZLD) Unit.

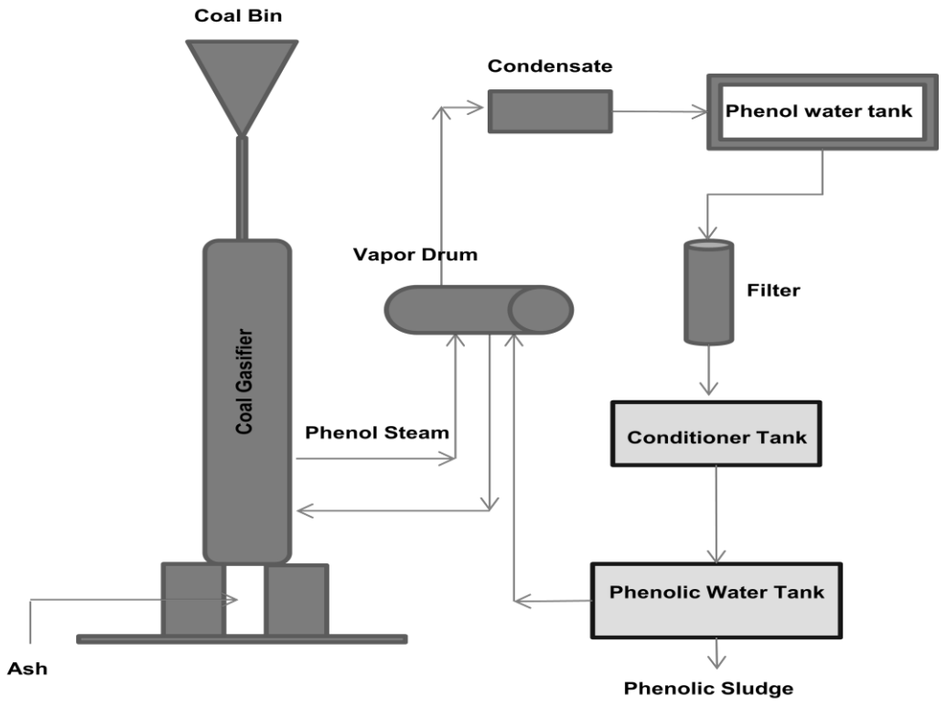


Fig. 2.7- Closed loop PGP System

Analysis of Coal Gas:

i) Composition (% v/v) (Dry) : CO_2 : 5% to 7%
O_2 : 0.2 to 0.4
CO : 23 to 26
H_2 : 11 to 12
Cn Hm : 2 to 2.5
CH_4 : 1 to 1.2
N_2 : Balance
ii) Calorific Value (Net) of final wet Gas : 1250 to 1375 Kcal/ Nm^3
iii) Pressure of Gas at Battery limit : 80 to 200 mm WC

iv) Temperature of Gas at Battery limit : 70ºC to 75ºC
v) Specific gravity (Air = 1.0) : 0.88 to 0.90
vi) Viscosity at 60º C : 0.0198 to 0.02 Cp

Features & Advantages

- The Coal Gasifier system is capable of gasifying several types of solid fuel such as Indian Steam coal, imported coal, Briquettes at high efficiency.
- Low NOx formation due to low flame temperature.
- Low SOx formation due to negligible sulphur content in fuel (about 0.5%).
- Extremely Low Particulates and smoke emission due to the complete direct firing of Producer Gas compare to solid fuels / liquid fuels firing.

Clean Gas and environmentally friendly system. Due to technology superiority, producer gas is clean and free from phenolic and other impurities.

2.4 RAW MATERIAL REQUIRED ALONG WITH ESTIMATED QUANTITY, LIKELY SOURCE, MARKETING AREA OF FINAL PRODUCTS, MODE OF TRANSPORT OF RAW MATERIAL AND FINISHED PRODUCT.

Table 2.9- Annual Raw Material Requirement Per Annum

Sr. No.	Proposed Facility	Raw Material Required	Quantity	Source	Distance from site (Kms)	Mode of Transportation
1.	Iron Ore Beneficiation Plant (1.5 MTPA Throughput)	Iron Ore Fines	15,00,000 TPA	KJS Ahluwalia, Guali/ Seven Hills Minerals, Barbil/ GM Iron & Sttel Company Ltd, Mayurbhanj (Iron Ore Trader)	55 km, 12 km, 58 km	Road/ Rail (Railway Siding: Chandiposh 15.8 km NNW)
2.	Iron Ore Pellet Plant (1.2 MTPA)	High grade Iron ore Fines	11,60,000 TPA	From In-house Beneficiation Plant	In-house	Conveyor belts
		High grade Iron ore Fines	1,40,000 TPA	JSW Steel Ltd., Barbil/ M/s. T. P. Mohanty/	58 km	Road

				Indrani Patnaik, Rourkela		
		Bentonite	13,063 TPA	Rourkela	41 km	Road
		Lime Stone	13,063 TPA	Khatkurbahal limestone mine & other mines by E-auction	64 km	Rail/ Road
		Coke	3,575 TPA	Rourkela	41 km	Road
		LDO	2,400 KLA	Domestic Market	40 km	Road
3.	PG Plant (6 X 4500 Nm^3/Hr) & PCI	Coal	95,513 TPA (PGP Coal-70713 TPA & PCI Coal-24800 TPA)	Open Auction MCL, Odisha & ECL/ Agarwal Coal Corporation Pvt. Ltd. (Coal Trader)	106 km	Rail/ Road

Source: KIPL

The plant is very well connected with road networks. Moreover, most of the raw materials will be sourced from the Rourkela area which is approximately at a distance of 41 km from the project site, since the railways connecting to the plant site is adjacent to Rourkela Railway Station and the road connecting to the plant site is adjacent to Kapanda-Fatajharan Road it will be convenient to transport the raw materials through the road network. (Railway Siding: Chandiposh 15.8 km NNW)

Raw materials linkage documents attached as **Annexure- 7**

Table 2. 10- Chemicals Requirements

Units	Chemicals	Quantity Required (TPA)	Storage
Cooling Tower	Thermax (7090)	2	Plastic Jar 25-35 L
	Corrosion Inhibitor	1.3	
	Biocide	1.5	
	Hypo	55	
ETP	Alum	3.4	Storage inside Concrete Bund
	Polyelectrolyte	2.8	Plastic Jar 35 L
	NaO-Cl	2.8	Plastic Jar 35 L

Specification and Chemical Analysis of Raw Materials

Table 2.11- Typical Analysis of Input Raw Materials

Raw Materials	Fe %	SiO_2 %	Al_2O_3 %	CaO %	MgO %	LOI %	Calorific Value (Kcal/kg)
Iron ore fines	60.0	3.0	2.1	--	--	3.0	--
Bentonite	--	45.5	16.0	1.3	1.5	10.0	--
Limestone	--	0.65	0.2	54.5	1.0	42.0	--
Coke	--	--	--	--	--	--	>6500
	Moisture %		**Ash %**	**VM%**	**FC %**		
Coal	8-10		35-40	18-20	35-40		3000-3500
	-	-	-	-	-	-	9200

Source: KIPL

Table 2.12- Proximate Analysis of Coal

Moisture %	Ash %	Volatile Matter %	Fixed Carbon %	Sulphur %
6.49	31.27	25.91	36.33	0.5

2.5 WATER REQUIREMENT

The make-up water requirement for the proposed project is estimated as 1180 KLD. The total fresh water requirement will be met from Brahmani River. The allocation for drawl of 0.50 Cusec (1223.287 KLD) surface water is obtained from The Additional Chief Secretary to Govt., Department of Water Resources vide Lt. No. WS-IWS-781/22-2024 dated 21.01.2023. (**Annexure- 4**)

The intake point is estimated to be approx. 1.65 Km aerial distance from the plant boundary. The length of the water pipeline will be approx. 4 Km.

The area proposed for water reservoir is 0.19 Ha. with depth 8 meters and RWH 0.445 Ha. is designed to store water requirement.

Table 2.13- Break up of water requirement

Units	Make up (KLD)	Capacity	Specific consumption
RWTP	12	1180 KLD	1%
Beneficiation	455	4546 TPD	0.1 m^3/T
Pellet	582	3637 TPD	0.16 m^3/T
PGP	56	22500 Nm^3/Hr	
Potable Water	20	500 person	40 liters/person

Water Sprinkling, Plantation, Fire Fighting	55		
Sub-Total	**1180**		

Table 2.14- Recirculation & Re-use of Water

A	B	C	D	E	F	G
Plant Facilities	**Make up Water (B=E+F) in KLD**	**Total Water available in System (C=D+E+F) in KLD**	**Re-Circulation Water in KLD**	**Evaporation/loss in KLD**	**Blow down/Waste Water in KLD**	**Reuse of Waste Water in KLD**
RWTP	12	**1180**	**1168**	**0**	**12**	Back wash reuse for dust suppression
Beneficiation	455	16835	16380	455	0	
Pellet	582	22730	22148	532	50	Treatment in ETP and reuse for dust suppression
PGP	56	3500	3444	48	8	Treatment in ETP and reuse in pellet plant
Potable Water	20	20	0	4	16	Treatment in STP and reuse for green belt development
Water Sprinkling, Plantation, Fire Fighting	55	55	0	0	55	
Total	**1180**	**44320**	**43140**	**1039**	**141**	

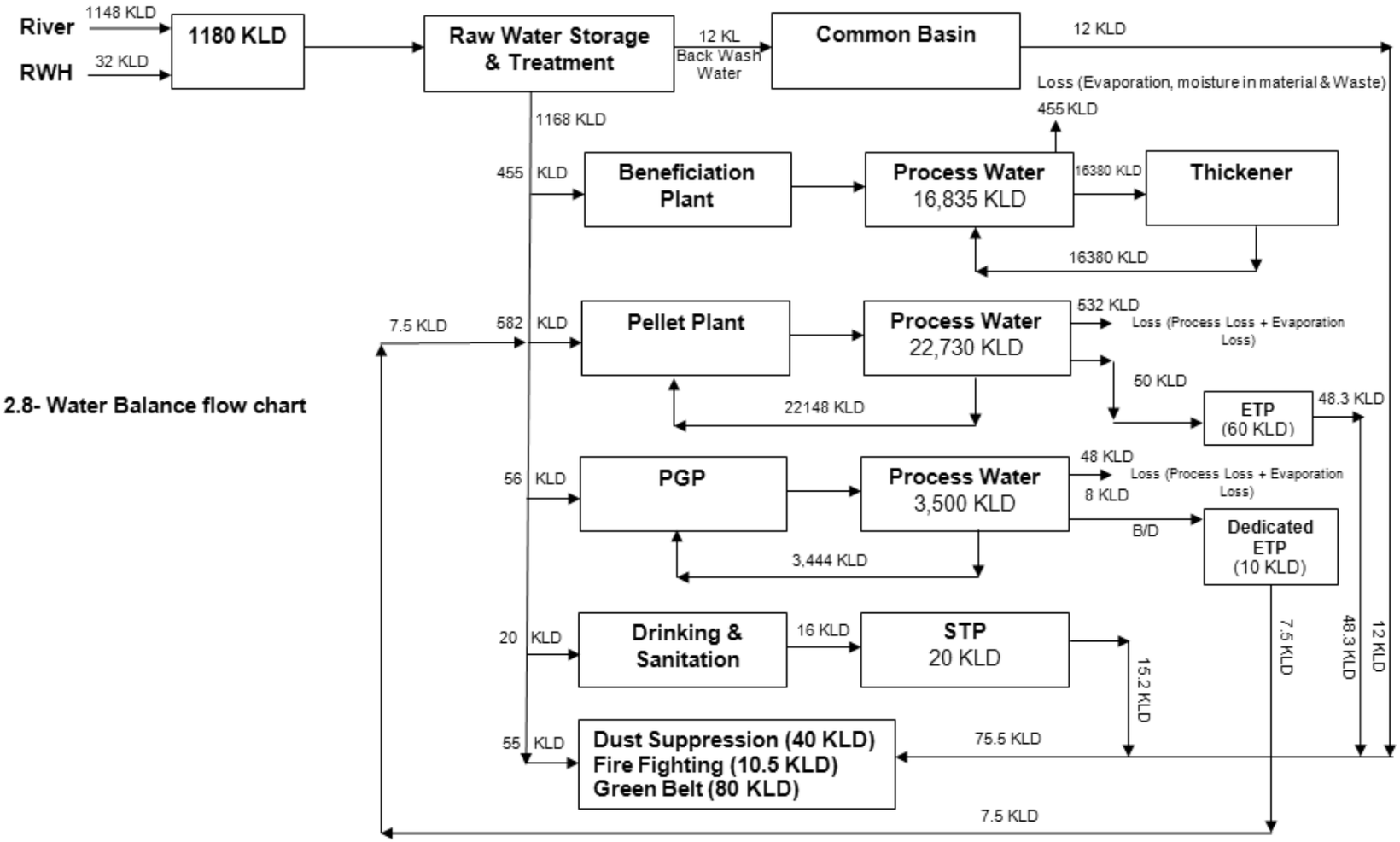


Fig 2.8- Water Balance flow chart

1381

2.6 POWER REQUIREMENT

The total power requirement for the proposed project is estimated as 12.0 MW, which will be met from GRID (WESCO) at Purunapani Substation which is 3.7 Km (ESE) from the project site. However, permission for 12 MW will be taken during CTE period.

Table 2.15- Total Power Requirement for the proposed plant

Unit	Plant Capacity	Power Requirement Per Hour(MW/Hr)
Beneficiation Plant	1x1.5 MTPA	5
Pelletization	2x0.6 MTPA	6
Producer Gas	6 x 4,500 Nm^3/hr	1
Total		**12**

DG Set Details

One Diesel Generator of 750 KVA will be installed as standby arrangement (Emergency use).

2.7 MANPOWER REQUIREMENT

The estimated manpower requirement is **280** numbers. Locals will be given preference in employment as per their qualification and experience. The indirect employment generation will be above 220.

The organizational structure that would be required for the Plant operations has been given due consideration. The manpower requirement has been planned keeping in view the following:

- Smooth & efficient running of the plant with optimum manpower.
- Capacity utilization with optimum energy consumption.
- Effective coordination
- Rational distribution of responsibilities

The organizational development would be started from the project phase itself those involved with the project would also be trained for Operations.

Table 2.16- Manpower Requirement

	Sr. Managerial	Middle & Junior Managerial	Services	Skilled & semiskilled	Unskilled
Beneficiation Plant	2	2	8	28	38
Pellet plant	2	2	8	32	43
Laboratory		1	2	5	9
Power distribution		1	2	4	38
Purchase & Stores		2	2	5	12

Finance & Accounts	1	1	2	10	1
Human Resources		1	2	3	2
Administration	1	2	2	2	2
Total	**5**	**12**	**28**	**89**	**145**
	280 (Direct)				
Indirect	**220**				

Source: KIPL

The above manpower estimates have been based on production technologies proposed, type of requirement envisaged from various new facilities units of the plant, level of mechanization and automation, the layout of the plant, the number of operating shifts for the various plant units, etc.

2.8 UTILITIES & SERVICES

During Construction:

A portable cabin will be constructed with proper partitioning which will be useful for the staff/workers. Potable water, sanitation & rest room will be provided.

During Operation:

Potable Water

The fresh water is passed through pressure sand filter/ activated carbon filter followed by disinfection and the filtered water is stored in 45 m^3 on ground tank. From Underground Tank water is transferred to overhead tank of 90 m^3 for uninterrupted water supply.

Miscellaneous

KAI International Private limited will develop the Amenities/Facilities within the site for the staff/workers like Toilet/washroom, rest room etc. RCC Stock house with charging system, plant and other miscellaneous amenity building like ECR and MCC, compressor house, etc. Road & drain facilities will be constructed of sustainable quality.

First AID room, Canteen, rest shelter for site workers etc. basic facilities will be provided.

2.9 MATERIAL BALANCE

Iron Ore Beneficiation- 1.5 MTPA

Table 2.17- Material Balance for proposed (15,00,000 TPA) Beneficiation Plant

Input		Output	
Raw Material	**Quantity in TPA**	**Product**	**Quantity in TPA**
Iron ore fines (Fe%: 56 - 58)	15,00,000	Beneficiated Iron ore (Fe%: + 63)	11,60,000
-	-	Slimes/Tailings (max.) (Fe%: <40)	3,40,000
Total Input	**15,00,000**	**Total Output**	**15,00,000**

Iron Ore Pellet Plant- 1.2 MTPA

Table 2.18- Material Balance for 1.2 MTPA Iron Ore Pellet Plant

Input					Output				
Item	**Ratio (%)**	**Quantity kg/T**	**T/hr**	**T/Yr**	**Item**	**Ratio (%)**	**Quantity kg/T**	**T/hr**	**T/Yr**
Iron Ore Fines(Dry)	94.5	1083	164	13,00,000	Pellet	87.28	1000	152	12,00,000
Bentonite	0.95	10.9	1.6	13,063	Return Fines (Pellet fines& ESP dust)	3.4	38.964	5.5	45,927
Lime Stone/Dolomite	0.95	10.9	1.6	13,063	LOI	9.36	107.2656	16.2	1,29,701
Coke (Dry)	0.26	3.0	0.45	3,575					
Return Fines (DRY)	3.34	38.3	5.8	45,927					
TOTAL	**100**	**1146**	**173.70**	**13,75,628**		**100**	**1146**	**173.70**	**13,75,628**

Producer Gas Plant 27,000 Nm^3/ Hr

Producer Gas Plant 5 x 4,500 Nm^3/hr will be in operation and 1 x 4,500 Nm^3/hr will be in standby.

Input:

- Coal requirement 70713 TPA.

Output :

- Gas = 22500 Nm^3/hr, will be used in pellet plant.
- Tar generation 2828 TPA, which will be supplied to an authorized coal tar processing units.
- Ash Generation: 28,286 TPA.

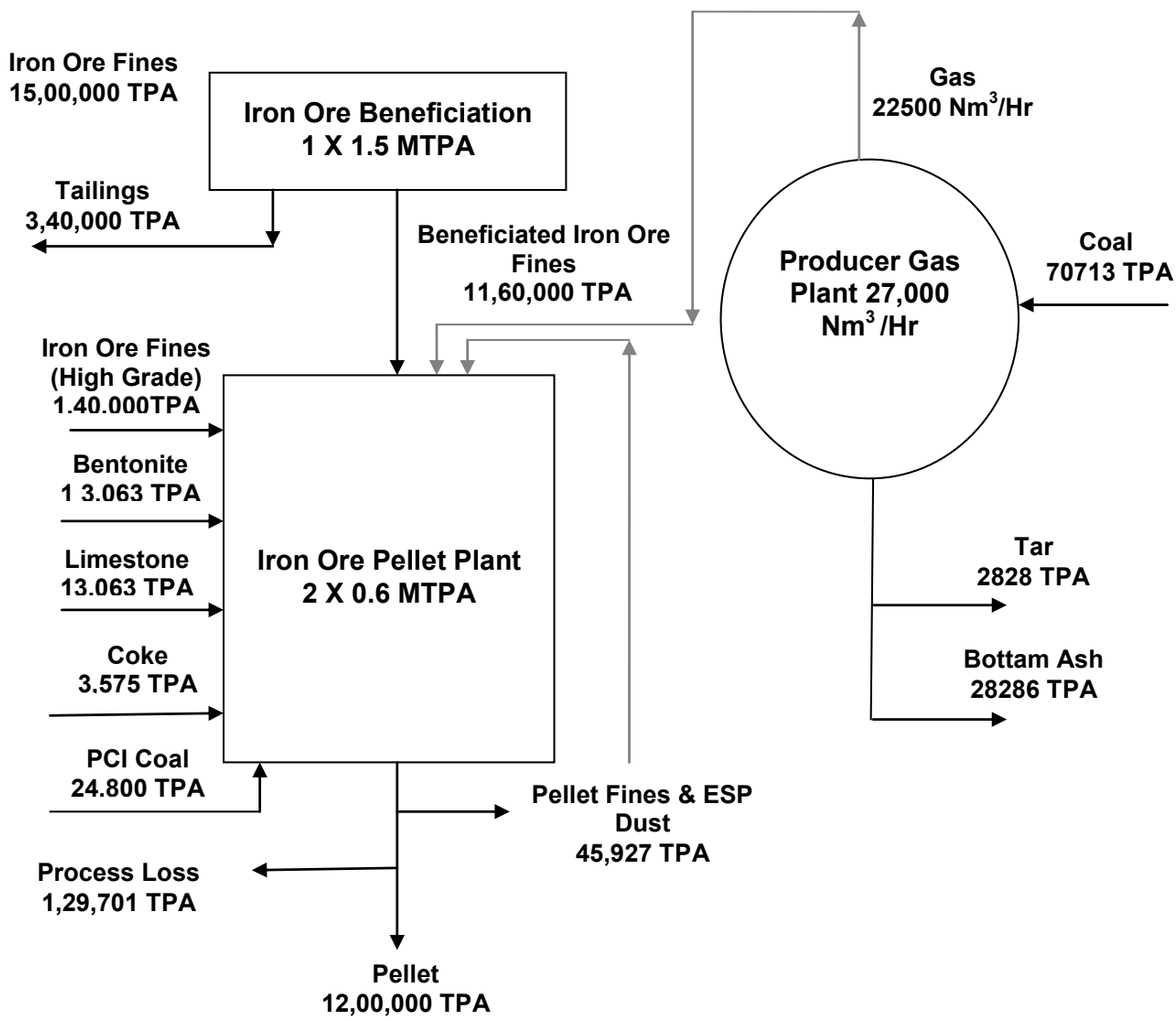


Fig. 2.9- Integrated Material Balance

2.10 ENERGY BALANCE

Table 2.19- Energy Balance

INPUT IN Kcal					OUTPUT IN Kcal		
Description	**GCV Kcal/kg**	**Quantity kg/T**	**Quantity T/Yr**	**Kcal/Annum**	**Description**	**Ratio**	**Kcal**
Gasifier coal	3500	58.93	70713	2,47,49,55,00,000	Heat utilized in process	50	2,19,10,77,50,000
PCI coal	6800	20.7	24800	1,68,64,00,00,000	Heat utilized for drying & preheating	23	1,00,78,95,65,000
LDO	9200	2	2400	22,08,00,00,000	Heat loss in product	1.5	6,57,32,32,500
					Heat loss in cooler	12	52,58,58,60,000
					Heat loss in chimney	7.0	30,67,50,85,000
					Heat Loss in radiation	6.5	28484007500
Total				**4,38,21,55,00,000**			**4,38,21,55,00,000**

1386

1376

2.11 RESOURCE OPTIMIZATION

A. Energy Conservation (Proposal for Solar power)

It has been proposed to install solar lights around the plant boundary & internal road of the plant area, with the view of green energy production and easiness of operation and lower cost in a few specific cases.

Other Proposed Locations:

1. Near the main security gate of plant
2. Near the office area
3. Around the raw material house
4. Near the Sewage Treatment Plant (STP)

Proposed Capacity of Lights:

1. Solar light will be provided around the plant boundary:

Total length of the plant boundary= 1613 m
Road width= 9m
Pole to pole space= 16
No. of poles= 101 Nos.
Solar Panel= 1x 120 W
LED Solar Light Capacity= 40 W
So, Total Solar Power provision= 101 X 40 = 4040 W = 4 KW

2. Solar light will be provided in the internal Road of plant area:

Total Length of internal road inside plant area= 221 m
Width of Road= 7m to 9 m
Pole to Pole space= 16m
No. of poles= 221/ 16 = 13.81 ~ 14 Nos.
Solar Panel= 1x 120 W
LED Solar Light Capacity= 40 W
So, Total Solar Power provision= 40 X 40 = 1600 W = 1.6 KW

Specifications:

Specifications	Solar light will be provided around the plant boundary	Solar light will be provided around the internal Road of plant area
Lumens	4800 lm	4800 lm
Battery	1 X 120 Ah	1 X 120 Ah
Optional Energy saving Function	Available	Available
Lighting Time	10-12 h/day, 3-5 Continued raining days	
Wind Resistance	130 Km/h (higher wind resistant available)	

Total power Generation = (4 + 1.6) KW = 5.6 KW
Percentages of Solar Power out of total Power = (5.6/ 12000) KW x 100= 0.046 = 0.05%

Energy Conservation Measures

- LED Lights to be used in office, streets & worksites.
- All Ceiling Fans in the office will be Brushless DC (BLDC) fans.
- Variable Frequency Drive Motors shall be fitted / Installed at suitable Industrial Fans.
- Pumps shall be installed based on the System BEP (Best Efficiency Point)
- Highly Efficient Motors based on NEMA Level 4 will be used wherever applicable.

B. Waste water treatment (STP)

During Plant operation approx. 500 nos. of people will be working in a day. Water requirement for 40 liters/head/day (as per ***NBC 2016, BIS)*** so, total waste water generation will be

Water requirement = 500 x 40 = 20,000 Lt/day
Domestic waste water generation = 20,000 x 0.8 (assume 80% by waste)
= 16,000 Lt/day
= 16 KLD

Hence, STP capacity will be 20 KLD.

The proposed STP area= 5m x 4m = 20 m^2. Including other vacant area for future expansion, total STP area will be 0.008 Ha = 80 m^2

Treated water from STP will be used for green belt & STP sludge will be used as manure for green belt development.

C. Effluent Treatment Plant (ETP)

An Effluent Treatment Plant of capacity 60 KLD will be installed to treat the 50 KLD effluent from pellet. Treated water will be recycled and reused in the process. The proposed ETP area 0.031 Ha = 310 m^2.

D. Green Belt Development

- Local and native species will be planted with a density of 2500 trees per hectare. A total no. of 21700 saplings will be planted and nurtured in 21.7 acre in 3 years.
- About 85% survival rate will be maintained.
- The spacing between the trees will be maintained at 2x2m. Green belt will consist of at least 3 tiers as per CPCB/MoEF&CC, guidelines. Plantation will also be done in the local area.
- For internal road: 1 m from the toe of the embankment or 6m from the edge of the shoulders. Shrubs and trees will be planted in encircling rows around the project site.
- The short trees (5-7m height) will be planted in the first rows (towards plant side) of the green belt. The tall trees (7-10 m height) will be planted in the second row (away from plant side). The tall trees (> 10 m height) will be planted in the third row (away from plant side).

- A dense & bigger plantation is suggested in river side plant boundary.
- The estimated capital cost for this plantation program is Rs. 32.90 Lakh.

2.12 PROJECT COST BREAKUP

The total investment for the proposed project works out to approximately Rs.341.72 Cr. The estimated Investment Cost for the project has been based on the requirement of fixed and non-fixed assets. The financing of the project, has been considered on the basis of Equity only.

Table 2.20- Cost breakup

Sl. No.	Particulars	Total (Rs. Cr.)
1	Land & Site Development	12.00
3	Water reservoir & Pumping station	5.00
4	Power Infrastructure	6.00
5	Plant, Machinery and Civil Construction	290.72
6	EMP cost	28.00
	Total capital cost	**341.72**

Other expenditure under this head includes fees to be paid towards legal expenses for fees payable to the lenders' and owner's legal counsel, insurance advisor's fees, start-up fuel, construction power, employees recruitment, training and salaries, appraisal fees, merchant banker's fees, upfront fees to lenders, advisors fees, etc.

2.13 PROPOSED SCHEDULE FOR APPROVAL AND IMPLEMENTATION

The installation of the above-mentioned facilities for the plant is envisaged to be completed within 25 months from the zero date.

Table 2.21- Project Implementation Schedule

Timeline in Months / Activity	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Submission of Final EIA																										
Grant of EC & CTE																										
Land Development																										
Building and Plant Shed																										
Finalization of Technology Partner																										
Procurement of Equipment																										
Installation of Plant & Equipment																										
Commissioning of Equipment																										
Obtaining CTO																										
Trial Run of Production																										
Commercial Production																										

2.14 DESCRIPTION OF MITIGATIVE MEASURES TO BE PROPOSED

2.14.1 Mitigative measures for control of Air pollution

Air pollution mitigation measures Air pollution mitigation measures would be from the point and fugitive sources within the Pellet plant. Given this, the pollution mitigation measures from various shops as envisaged are given below:

- Pollution control equipment (ESP/Bag filter) will be installed in the raw material handling, other sections and pellet plant circuit & maintained properly.
- Maintenance of vehicles will be done on regular basis.
- Vehicles with PUC certificates only will be allowed for transportation.
- Personal protective equipment like dust masks, earplugs, helmets etc., will be provided to the employees.
- Adequate greenbelt/plantation will be developed all around the boundary & within the plant premises to attenuate the gaseous emission impact.
- Regular ambient air monitoring around the plant & nearby villages will be done.

During construction phase

- Proper maintenance of vehicles and construction equipment will help in controlling the gaseous emissions.
- Vehicles having valid PUC certifictes will be used to control the gaseous emission from transportation.
- Water sprinkling on roads and construction site will prevent fugitive dust.

During operation phase

Maintenance and installation of pollution control equipment like ESPs/Bag filters will help in reducing dust emissions.

Table 2.22- Details of Bag Filters and ESPs at different locations

Unit	Stack attached to	Suction Point details	Quantity	Size of bags	Motor Capacity (KW)	RPM
Pellet Plant	Exhaust Gas of Klin	ESP	2	NIL	525 X 1	1440
	Kiln Discharge end bag filter	Bag Filter	2	Ø 150 X 3660 MM Lg.	40	1440
	Cooler Discharge	Bag Filter	2	Ø 150 X 3660 MM Lg.	40	1440
	Coal Grinding	Bag Filter	1	Ø 150 X 3660 MM Lg.	40	1440

	Transfer point of Conveyor	Bag Filter	2	Ø 150 X 3660 MM Lg.	40	1440
	Proportioning system	Bag Filter	1	Ø 150 X 3660 MM Lg.	40	1440
PCI Unit	PCI	Bag Filter	1	Ø 150 X 3660 MM Lg.	40	1440

In the beneficiation plant dry fog system will be installed at iron ore fines feed hopper.

Table 2.23- Details of Air Pollution Control Devices proposed in different units

SL. No.	Probable Pollution sources	Mitigation Measures
1.	**Pellet Plant**	
	Induration Process	• Coal gasifier gas free of dust is proposed as fuel for the indurating Furnace of pellet plant. • Electrostatic precipitators will be used for cleaning the furnace exhaust gases before releasing them to the environment through the process stacks. • Also dedusting will be done by use of bag filters for feed end, discharge end, and Hearth Layer Separation Building (HLSB) areas.
	Grinding	• Wet grinding process will be followed to reduce the dust emission. • Bag filters will be used at all fine material transfer points for efficient de-dusting • Dust suppression consisting of water spraying facilities, mechanical gas cleaning equipment, dust recycle arrangement and exhaust stack • Exhaust gas from drying and grinding system will be cleaned using fans, suction hoods, cyclones and bag filters.
	Mixing area	Bag filters will be used to de-dust the transfer points for powdery material.
2.	Loading/unloading of raw materials and dispatch section	• Water sprinkling/dry fog system will be installed. • Materials will be transported in covered conveyer.

Table 2.24- APCD &Stack details

Stack No	Stack Attached To	Qty.	Height, m	Flue Gas Temp. °C	Stack Dia., (m) Bottom	Stack Dia., (m) Top	Max. Velocity in Stack, m/s	Mass flow rate (Kg/s)	*Flue Gas Qty., Nm^3/sec
S1-S2	Exhaust gas of kiln- ESP	2	65	135	6.8	4.0	14.02	165.8	176.2
S3-S4	Kiln Discharge end bag filter	2	30	75	2	1.5	11.5	21.45	20.3
S5-S6	Cooler Discharge bag filter	2	30	75	2	1.5	11.5	21.45	20.3
S7	Coal Grinding - Bag Filter	1	30	40	0.6	0.5	14.2	3.37	3
S8-S9	Transfer point of Conveyor- Bag Filter	2	30	40	0.6	0.5	14.2	3.37	3
S10	Proportioning system-Bag Filter	1	30	40	0.6	0.5	14.2	3.42	3
S11	PCI- Bag Filter	1	30	40	2	1.5	10.9	20.4	19.2

2.14.2 Mitigative measure for control of Water Pollution

To minimize pollution of receiving body of wastewater, the project envisages following approaches:

- A plant wide water recycling plan to maximize efficiency of water use will be implemented. More than 95 % recycling of water is normally achievable.
- Dry techniques for removal of dust from plant equipment and premises will be used where possible, and rinse water will be collected and treated before reuse.
- Spillages and leakages will be collected using safety pits and drainage system.
- Zero Liquid Discharge (ZLD) will be adopted for the plant.
- Process wastewater shall be treated in the ETP of 70 KLD capacity and domestic wastewater shall be treated in STP of 15 KLD capacity before reuse.
- Air Cooled Techniques will be adopted rather than Water Cooled Techniques in pelletization process.
- 100 % Recycling and reuse practices of water will be followed.
- In PGP Plant, PGP gas used in hot condition (350-450℃) which reduces water consumption.
- Wastewater will be used for ash quenching, raw material stockpile sprinkling, and road quenching, and watering of Plantation.

Zero discharge concepts:

To have zero discharge of the Plant, the CT blow-down along with all other primary treated wastewater streams with high TDS levels would be used for water sprinkling purpose and PGP ash quenching.

2.14.3 Mitigative measure for control of Noise Pollution

Proper noise abatement measures will be taken and persons working just 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.
- Proper maintenance, lubrication and greasing of machines at regular intervals will be done to reduce generation of noise.
- Walls and ceilings of the concerned buildings will be lined with sound absorbing materials.
- Improved silencers will be provided in the machineries generating high noise.
- Green belt/plantation will be developed all along the project boundary.
- Noise abatement measures will help achieve the ambient noise levels as per the Environment (Protection) Act, 1986.

2.14.4 Solid & Hazardous Waste Management

- Tailings will be generated from the proposed Iron ore Beneficiation Unit. These rejects will be given to construction contractors for road & construction filings
- Fines collected from ESP/Bag filters will be re-used in pellet plant.

Table 2.25- Solid and hazardous waste Generation and Management

Facility	Waste	Quantity(TPA)	Management
Solid Waste			
Beneficiation	Tailings/Slime	3,40,000	Dewatered and stored in slime/tailing storage area, then disposed to construction contractors for road & construction filings. And the collected water will be recycled in process. MoU has been signed with Brahmani Developers Pvt. Ltd.(**Annexure- 8**)
Pellet Plant	ESP Dust	45,927	Recycle in Pellet Plant (used in house)
	Pellet Fines		
PGP Plant	Tar	2828	Sold to Authorized Coal tar processing units MoU has been signed with UITC (India)Pvt. Ltd. (**Annexure- 9**)
	Ash	28,286 (70713 TPA Coal	To road construction contractors / masonry blocks manufacturing MoU has been signed

		X 40% ash)	with Sudhir Kumar Harichandan, manufacturer of Maa Brand Fly Ash Bricks. (**Annexure- 10**)
Hazardous Waste			
Waste Description	**Category as per HWM Rules, 2016**	**Quantity**	**Mode of Disposal**
Used oil	Cat. 5.1	1.5 KL/yr	Stored and disposed to Authorized recyclers as per MoU has been signed with UITC (India) Pvt. Ltd. (**Annexure 9**)
Oily Sludge	Cat. 4.1	0.25 KL/yr	Stored and disposed to Authorized recyclers/CHWTSDF as per norms.
The residue of the oil Storage tank	Cat. 5.2		
Phenolic Water from PGP	Cat. 19.1	6.42 TPA	Dedicated system will be provided to reuse wastewater in PGP and sprinkling in Pellet plant cooler section.

Tailing Management:

Tailing Generation per Annum = 3,40,000 T
We'll store maximum 60 days tailing, i.e. = $\frac{3,40,000}{330} \times 60$ = 61,818 Tonnes in 60 days
Density of Iron ore Tailings = 2.60 T/m^3
Volume of Tailings = 61,818/2.6 = 23,776 m^3
Height of Tailings = 2 m (Effective depth 2m excluding free board of 0.3 m)
Area required for Tailing Pond = 23,776/2 = 12,000 m^2 (approx) = 1.2 Ha.

2.15 Other Information as Per Specific ToR

2.15.1 Details of Slag utilization

No Slag will be generated from pellet &PGP process.

2.15.2 Plan for utilization of energy in off gases (Coke Oven, Blast Furnaces)

No Coke Oven & BF are proposed in the project. PGP gas will be used in pellet plant.

2.15.3 Coke Quenching

No Coke Oven Plant is proposed in the project.

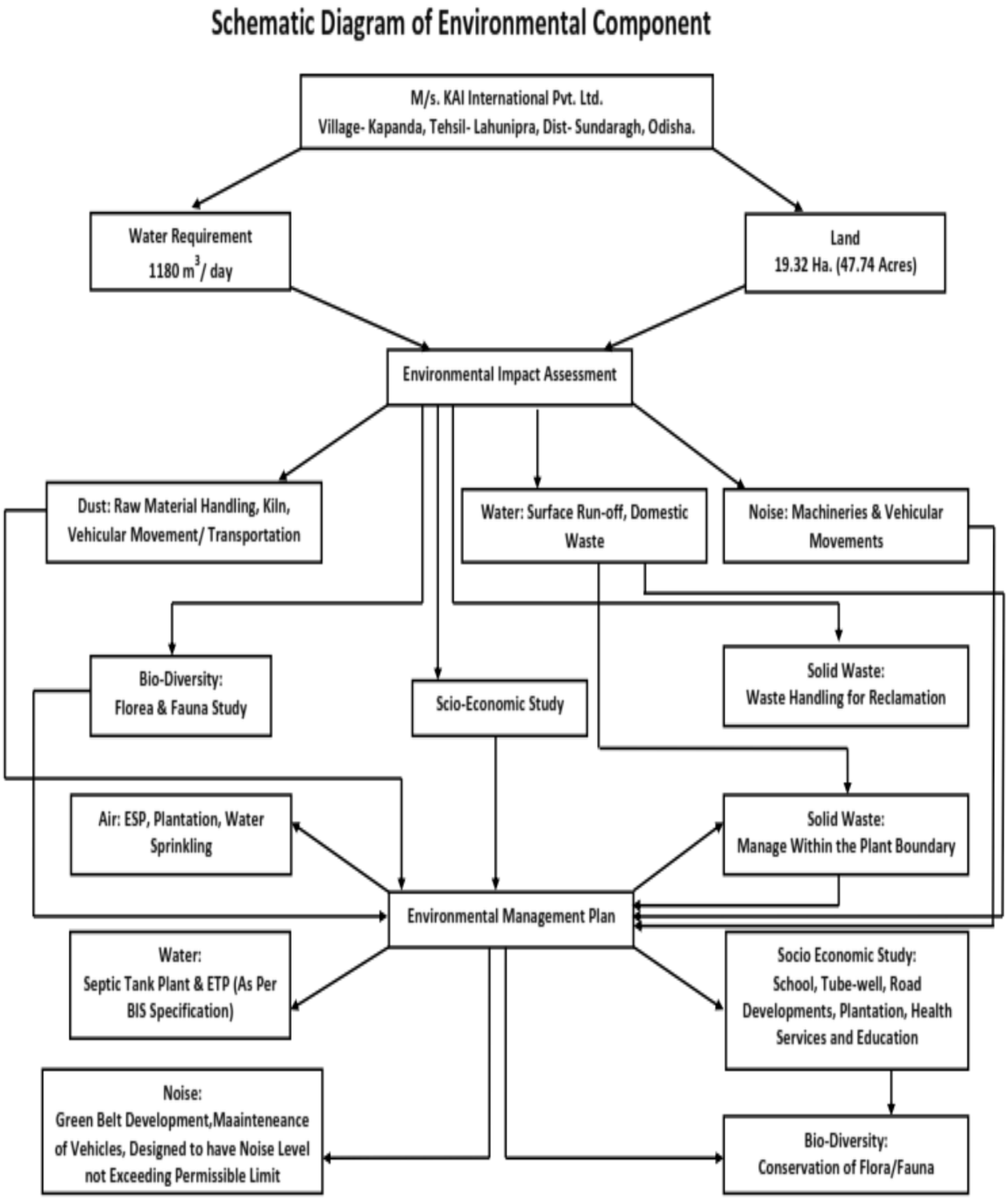
2.15.4 Trace metals in raw material & Waste material

Trace metals in raw materials such as Iron Ore, Coal, Limestone, bentonite, Coke are attached in Analysis Report as **Annexure- 11**. Whereas waste generated during operation of plant will be tested in environmental laboratory for trace metals like As, Hg & Pb to confirm the concentration of trace metals within the norms. Accordingly Environmental management plan will be updated to address the issues.

2.15.5 Trace metals in Water

Water from river Brahmani will be used in the proposed plant. As per the analysis report provided in **Chapter-3**, no trace metals are found in water. During operation of project, raw water and treated water from ETP & STP will be tested to confirm the concentration of trace metals within the norms.

2.16 Feasibility Drawing With Schematic. Representation for EIA purpose



CHAPTER- 3
DESCRIPTION OF ENVIRONMENT

3.1 STUDY AREA

For this report, the study area has been divided into two zones: Core Zone encompassing the project Site and the buffer zone consisting of area around the project site up to 10 km radius.

3.1.1 Core Zone

The core zone is designated as the area where all the plant related construction work and activities will be performed. The total project area is 19.32 Ha. (47.74 Acres). The core zone is slightly hilly in the western part & the elevation varies in between 193 m to 252 m AMSL. The latitude & longitude of core zone lies in between 21°53'11.30"N to 21°53'29.01"N & 84°52'15.80"E to 84°52'35.23"E respectively. The area for Seismic Zone falls under Zone – II (Low Damage Risk Zone) *Source: Odisha State Disaster Management Authority)*.

3.1.2 Buffer Zone

This is the 10 km radius area surrounding the core zone which will be impacted by the project in a lesser to moderate degree. The area around the proposed plant is a flat terrain in the east direction & hilly in the West to North region. The nearest Railway station is Patasahi Railway Station, approx. 12.96 km. from the proposed project site. Brahmani River is at 1.6 Km, W from the Proposed site. There are no Ecological Sensitive areas (Wild Life Sanctuary/ National Park / Biosphere Reserve etc.) within the 10 KM study area.

3.1.3 Study Period

Primary and secondary data were collected during Post-Monsoon of 2021, i.e., from 1st October 2021 to 31th December 2021 in accordance with CPCB guidelines and MoEFCC guideline for preparation of EIA/EMP report. Baseline Report attached as **Annexure- 17.**

3.1.4 Study Components

The description of the study area in relation to its environmental setting was studied under following components as per the approved ToRs:

a) **Physicochemical Component**– comprising of meteorological & air environment; noise environment; land & soil environment and water environment.
b) **Ecological Component**– comprising of terrestrial, avian & aquatic flora-fauna.
c) **Socio-Economic Component**– comprising demographic, socio-economic status and environment in & around the study site.
d) **Traffic density analysis-** Comprising of traffic data respect to the project.

General Environmental Setting of the study area has been tabulated below;

Table 3. 1- Environmental Setting of the Study Area

Nearest Railway Station	Patasahi Railway Station- 12.9 km, NE
Nearest State Highway/National Highway	• NH - 149 (3.1 km, E) • Kapanda-Fatajharan Road - 0.1 km, NW
Nearest Airport	Rourkela Airport, 40.5 km, N
Nearest Major Settlement	• Daldali Sai- 0.5 Km SW • Nuagan- 1.3 km, S • Kapanda- 1.5 km, SW • Talabahali- 2.9 km, E • Tikayatpali- 2.8 km, NNE
Rivers/Streams/ Reservoir around 10 Km radius	Brahmani River- 1.6 Km (West)
National Park, Wildlife Sanctuary, Biosphere reserves	There are no National Parks, Wildlife Sanctuaries and Biosphere Reserves within 10 km radius of the project. Whereas Reserve Forest are present in the vicinity such as
Interstate Boundary	None within 15 km radius
Notified Archaeologically important places, Monuments	None within 10 km radius
Local places of Historical and Tourism interest	None within 10 km radius
Defence Installations	None within 10 km radius.

Name of the RF, PRF, PF, etc.	Distance (km) & Direction
Samardari Juniani PF	0.41 km (E)
Kukia RF	0.12 km (NW)
Dhenkiam RF	2.6 km (W)
Nalghati Rajabasa RF	3.3 km (SW)
Dhenkiam Block RF	3.7 km (NW)
Bhagoth RF	6.6 km (SSW)
Dhanaghar Extension RF	6.9 km (NNE)
Gurundia RF	7.9 km (SW)

3.1.5 Study Methodology

An assessment of the baseline environment status and identification of impacts is a prerequisite for prediction of likely impacts due to the proposed project. With this specific view, an environmental quality study was undertaken, which included the collection and analysis of samples of ambient air, water, soil and noise, etc. covering three months data.

Meteorological station was set up within project site. Wind speed, wind direction, dry and wet bulb temperature, relative humidity, and general weather conditions were logged throughout the study period. Data on temperature as well as relative humidity were recorded hourly for 24 hours throughout the study period.

- Ambient Air quality was monitored in 8 locations in the study area including core zone. Samples were collected using Respirable Dust Sampler with gas attachments and Fine Particle Sampler.
- Groundwater and Surface water samples were collected from 11 & 8 locations respectively. Parameters for analysis was determined using IS:10500 criteria.
- Soil samples were collected from 6 locations and analyzed.
- Noise levels were measured at 8 locations in the study area with sound level meter to establish baseline noise levels.
- Biodiversity survey was carried out in core & buffer zone logging flora & fauna during the study period.
- Primary survey followed by collection of secondary socio-economic data from Census of India 2011.

The likely impacts on the present environment were assessed due to proposed activity and type of changes expected. To evaluate the pollution load before and after proposed activity, assessment was done based on the collected data from the various environmental components in & around the site. Trained staffs with adequate qualification and experience are involved in sampling and collection of data from the study area.

3.2 LAND ENVIRONMENT

Land use of a region reflects the change of land cover for sustenance and economic development, which may directly or indirectly influence the local environment. In present condition there is 1500 trees already been felled after getting permission from DFO, Rourkela in the project area except the area retained as greenbelt approx. 2472 trees. Also, besides the proposed area, other industries are present in the buffer zone such as B. R Sponge Power Ltd., Vidya Mineral Pvt. Ltd., Vikram Pvt. Ltd., Maa Manasha Devi Alloy Pvt. Ltd. & Bhaskar Steel & Ferro Alloy Pvt. Ltd. Project activities may affect the local habitation and land environment of this area.

3.2.1 Land Use pattern

Core Zone

Proposed Land use pattern of the core zone is tabulated below:

Table 3.2- Land Use Pattern (Core Zone)

Sl. No.	Description of Activity	Land Requirement in Ha.	Area in %
1.	Main Plant	2.15	11.13
2.	Area for solid waste Management	0.083	0.43
3.	Water Reservoir	0.19	0.98
4.	Open Space	3.702	19.16

5.	Internal Road	1.887	9.77
6.	ETP	0.031	0.16
7.	STP	0.008	0.04
8.	Green Belt (Retained)	6.272	32.46
9.	Propose Green Belt	2.505	12.97
10.	Tailing Storage Area	1.209	6.26
11.	Raw material Storage Yard	0.567	2.93
12.	Raw Water harvesting area	0.445	2.30
13.	Product Storage House	0.271	1.40
Total		**19.32**	**100**

Source: KIPL

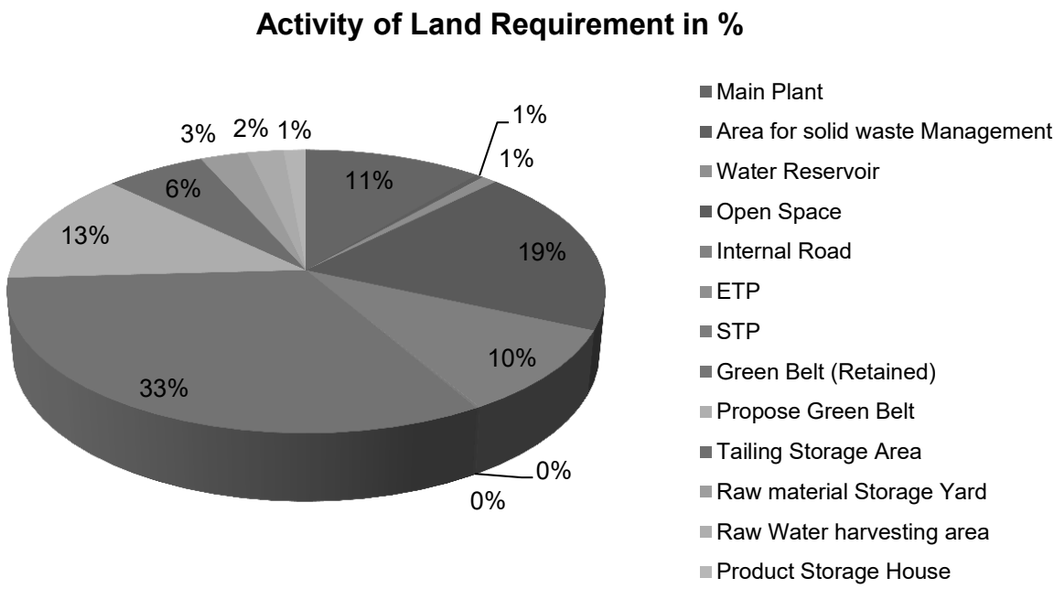


Fig. 3.1- Showing bar graph for land requirement in different activity

3.2.2 Land Use of the Study Area

Methodology for the LULC Study in the 10 Km Buffer Area

Multispectral Data from Sentinel 2A dated 08th Dec 2020 with a maximum resolution of 10 m was used for Land Use/Land Cover analysis. It belongs to Sentinel Constellation of satellites from European Space Agency. Arc GIS 10.8 is the software used for the processing purposes. The standard False Colour Composite (FCC) was been generated by assigning blue, green and red colors to visible green, visible red and near infrared bands respectively. The 1:50,000 scale toposheet of the study area were used for Ortho-rectification, Terrain correction, and Geo-referencing was done using Cartosat– 1 data. Ground truth was undertaken at random points to verify the results. Accuracy assessment provided a result of 98.16% accuracy.

Identifying different features has been developed systematically on the basis of image characteristics and associated elements viz. shape, size, shadow, pattern, texture and color/tone [e.g. like agricultural land is in red colour, forest land dark red to bright red, water bodies is in dark blue/black, builtup area (settlements) in cyan barren/ waste land is in greyish green) identified] and in depends upon the brightness, contrast and resolution of the image. Various land units were identified, delineated and the map was validated. After interpretation of all the features, the outer boundary of all the features have been digitized and marked in the project area. Accuracy assessment report showed an accuracy percentage of 99.371%.

Prior to ground trothing, the satellite data was classified using unsupervised classification technique. Further, after collecting ground truth details maximum likelihood classification based supervised classification method was used with remote sensing image data.

After the supervised classification procedure, a land use map prepared which the team at field verified and any errors or omissions were identified. A reclassification of the land-use categories implementing the details and corrections, if any, was done. The classification output was used for the preparation of the final land use classification map.

Land use of the Study Area has been classified in 3 Levels. **Table No. 3.3** shows the detailed list with area (in ha) and percentage coverage.

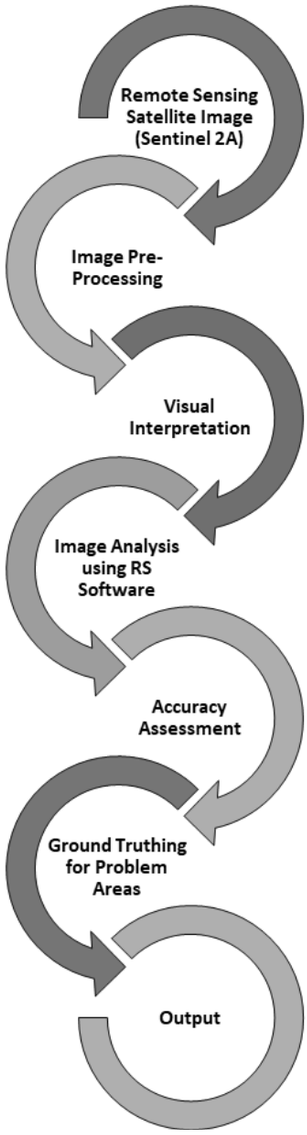


Fig. 3. 2- Flow Chart of Methodology

Primary Data Collection:

Table 3.3- Land Use/Land Cover of the Study Area

Sl. No.	Land Use	Area (Ha)	Percentage (%)
1.	Water Bodies	687.0128	2.19
2.	Forest	13271.9648	42.25
3.	Built-up Land	1035.3544	3.3
4.	Agriculture Land	2696.9324	8.6
5.	Scrubland	12765.5616	40.7
6.	Sand	954.4753	3.06

Total	**31411.3013**	**100**

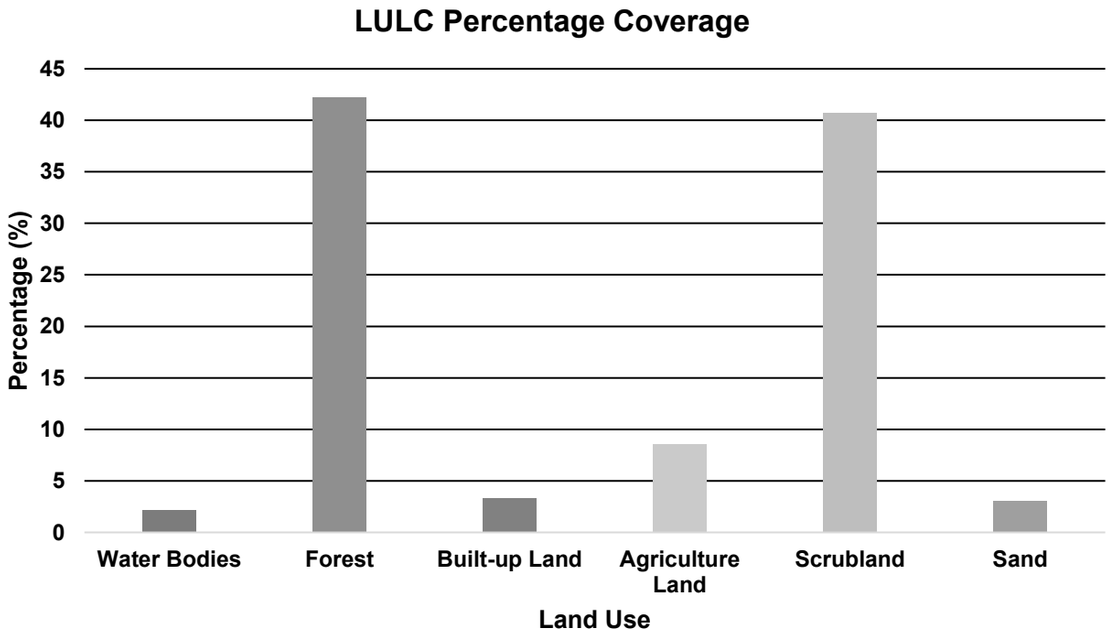


Fig. 3. 3- Land Use Patten of the Study Area

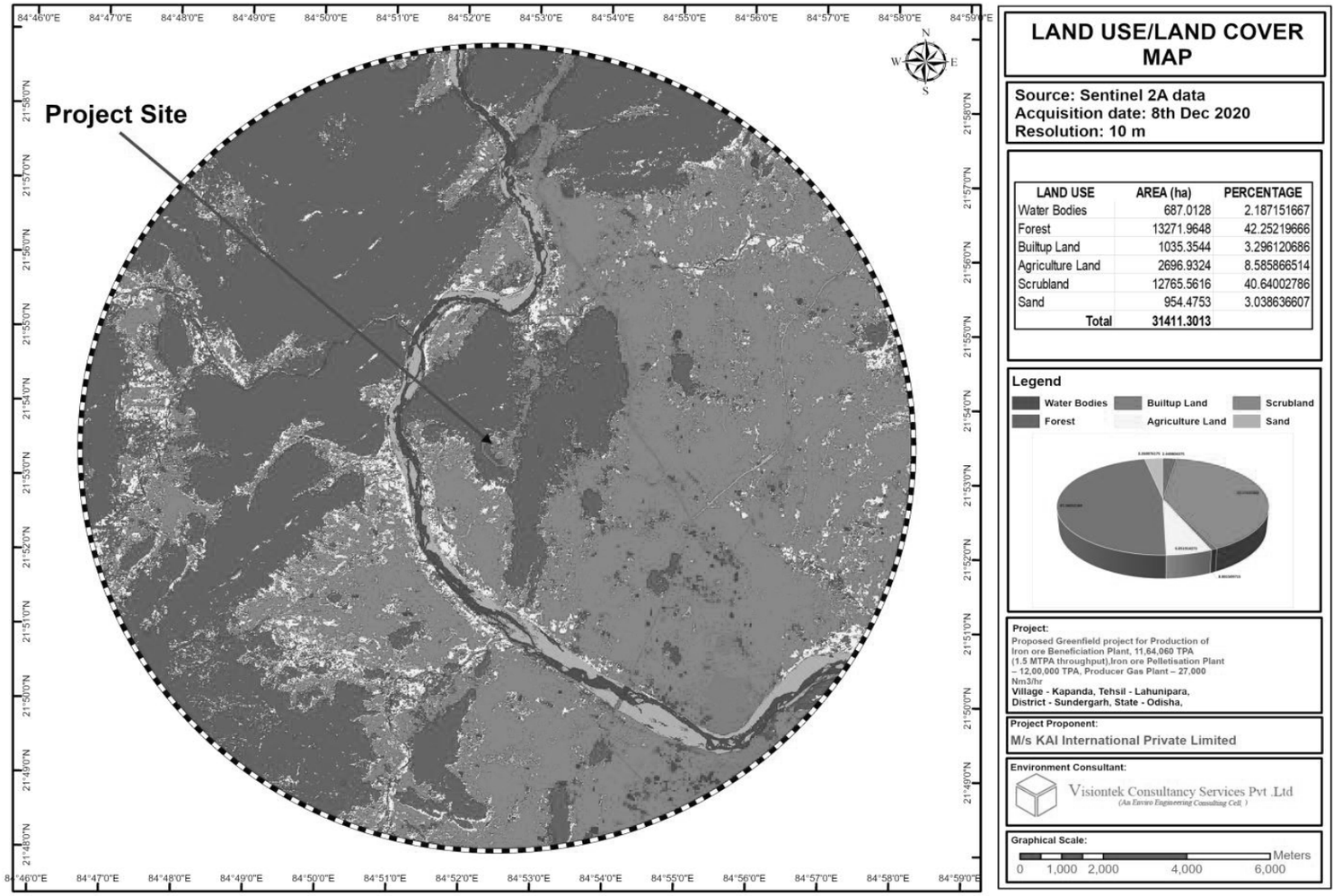


Fig. 3.4- Land Use/ Land Cover Map of Study Area

3.2.3 Observation & Interpretation of Land Use/ Land Cover data

Brief description regarding the type of land use pattern is mentioned below:

- **Forest –** The study area has a decent cover of deciduous forest due to proper rainfall in the district. It accounts for 42.25% of the total area as Samaradari Juniani PF, Dhenkiam RF, Nalaghati RF, Bhagoth RF covers the major forest land in the vicinity.
- **Scrubland –** Scrubland being an area covered with low trees & bushes covers mostly 40.6% of total area. The buffer zone is nearly 83% covered by either Forest land or Scrub land.
- **Water Bodies –** The study area is dominated by Brahmani River which starts from the North and ends in the SE direction passing through the project site in the west direction. Total area covered by water bodies is about 2.19%.
- **Built-up Land –** All of the settlements in the area are industrial and rural type, which covers the 3% of total land in buffer area. There are no major cities in the study area as the Western part of the buffer zone is mainly constituted by Hill & RF/PF. Majority of the population resides in the Eastern part as it is flat terrain area.
- **Agriculture Land –** This encompasses for about 8.6% of the entire study area. It is (45.4%) alongside the river bank of Brahmani River.

Secondary Data Collection:

Secondary data collected from Odisha Space Application Centre (ORSAC) which is Nodal Agency of the State to implement and execute the projects in the field of remote sensing and mapping Agency to cater to the mapping needs of all the line departments in the State of Odisha.

Under the study area 4 administrative blocks are present such as Lahunipara Block, Gurundia Block, Boneigarh Block & Koida Block. Data acquired for this 4 block has been captured & presented in below table;

Table 3.4- Block Wise Land Use Utilization pattern in Sundargarh District

Sl. No.	Classification	Lahunipara Block Area (Ha.)	Gurundia Block Area (Ha.)	Baneigarh Block	Koira Block	Total Area	Area %
1.	Agricultural Crop	30110.83	23775.99	21050.96	16603.19	91540.97	24.61
2.	Built-Up (Housing/ Utilities/ Services)	185.95	77.41	170.32	240.57	674.25	0.18
3.	Built- Up (Industrial)	72.04	20.69	76.24	94.41	263.38	0.07
4.	Built- Up (Rural)	1412.52	1356.06	1185.54	966.79	4920.91	1.32
5.	Built- Up (Transport)	818.15	768.47	561.79	869.06	3017.47	0.81
6.	Construction/ Infrastructure Units	273.38	94.62	178.24	144.22	690.46	0.19
7.	Mining Areas	256.08	2.87	6.89	2166.43	2432.27	0.65

8.	Surface Water Bodies	2273.97	2220.99	1107.12	1740.61	7342.69	1.97
9.	Vacant Land (Rural)	2084.29	747.07	1154.87	2061.25	6047.48	1.63
10.	Vacant Land (Urban)	30.55	6.6	7.21	7.71	52.07	0.01
11.	Vegetation/ Forest Land	42026.76	96382.5	16540.62	46939.95	201889.8	54.27
12.	Wastelands/ Underutlised Land	12862.53	10172.15	5496.15	24587.61	53118.44	14.28
13.	Wetland	12.92	13.93	12.69	1.15	40.69	0.01
	Total	**92420**	**135639**	**47549**	**96423**	**372031**	**100.00**

Source: ORSAC

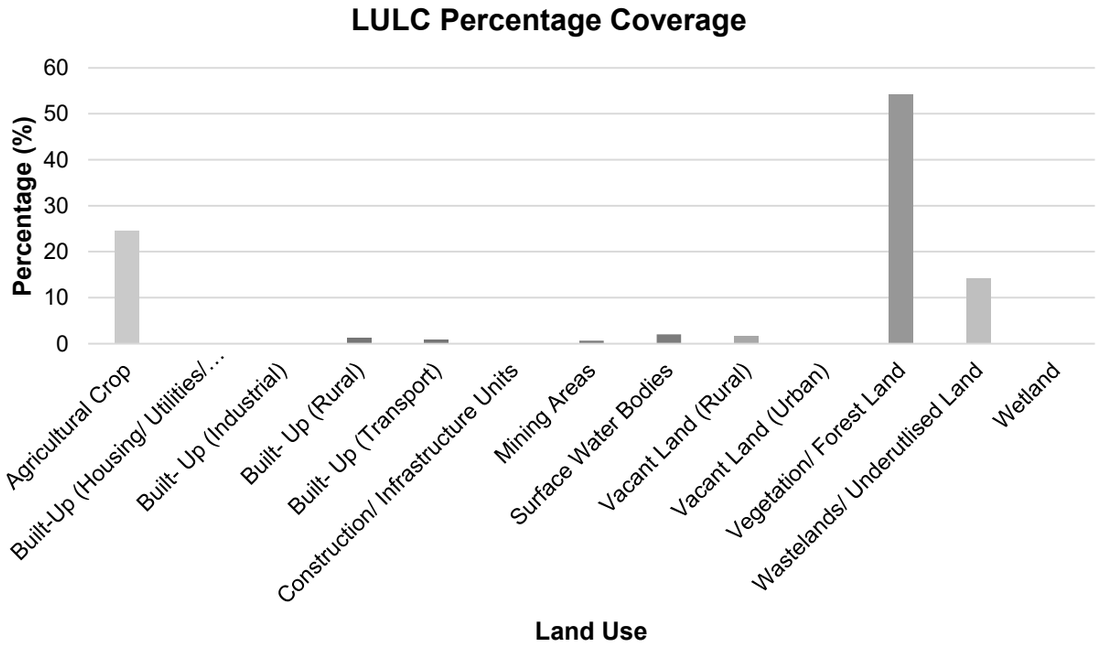


Fig. 3.5- Land Use Patten of Block Area

Comparison of Primary data with Secondary Data

Land Use	Primary Data (in %)	Secondary Data (in %) Odisha Space Application Centre (ORSAC)	Remarks (Justification for deviation if any)
Forest Land	42.25	54.27	In land use/ land cover pattern variation are clearly shown because primary data is procure specific for study area and it comprises 10 km radius from the
Agriculture Land	8.6	24.61	

Built-up Land	3.3	3.22	project site. Where in secondary data through Odisha Space Application Centre (ORSAC) is available for hole Block wise which is main reason for variation. However, if we overly seen the percentage of each classes individually with respect to area it is quite similar. Scrub land is not considered in secondary data.
Water bodies	2.19	1.97	

3.3 METEOROLOGY & CLIMATE

The meteorological data recorded during the study period is very useful for proper interpretation of the baseline information as well as for input in modeling. Historical data on meteorological parameters will also play an important role in identifying the general meteorological pattern of the region.

On site monitoring was taken for various meteorological variables in order to record the site- specific data. Data was recorded from **Oct-Dec-2021** covering **Post-monsoon season**. The site specific data are compared with meteorological data of nearest IMD station located in Sundergarh.

3.3.1 Regional Meteorological data & Wind Direction as per IMD

Climate of the region is tropical wet and dry. The south-west monsoon normally sets in the study area by first week of July. There are four major seasons in study area namely:

- Summer – March to May;
- Monsoon – June to August;
- Post Monsoon – September to November
- Winter – December to February.

Table 3.6- Met data on IMD station (Sundargarh) from 1981 to 2010

% No. of days wind from month of Oct to Dec (For 24 Hr)										
Months	**Time**	**N**	**NE**	**E**	**SE**	**S**	**SW**	**W**	**NW**	**CLAM**
Oct	**8:30 AM**	0	0	0	0	0	0	0	0	100
	5:30 PM	0	0	0	1	1	1	0	1	96
Nov	**8:30 AM**	0	0	0	0	0	0	0	0	100
	5:30 PM	0	0	0	0	0	0	0	0	100
Dec	**8:30 AM**	1	1	0	0	0	0	0	4	94
	5:30 PM	0	1	0	0	0	0	0	1	98
	Mean	0	0	0	0	0	0	0	0	100

Source: Climatologically Book

1st predominant wind direction	NW
2nd predominant wind direction	NE

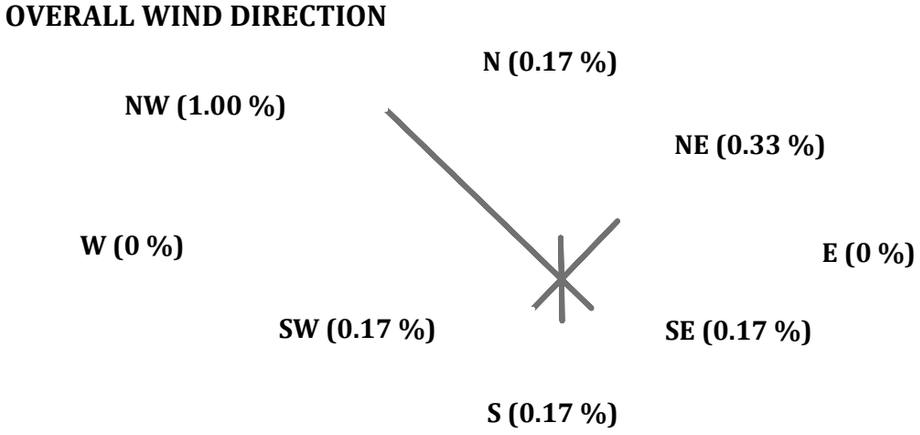


Fig. 3.6- Wind Rose based on IMD Climatologically data Oct to Dec (1981- 2010)

3.3.2 Meteorological Data Recorded At Site

Meteorological station was set up within project site. The meteorological parameters were recorded at site on hourly basis during the study period and consisted of parameters like wind speed, wind direction and temperature. The relative humidity was recorded. The maximum and minimum values for all the parameters are presented in **Table 3.7.**

Table 3.7- Summary of Site Specific Meteorological Data (Oct-Dec 2021)

Parameters		Oct-21	Nov-21	Dec-21
Temperature (^{0}C)	Minimum	19.5	15.2	9.4
	Maximum	36.4	33.6	33.9
	Average	26.8	24.2	21.6
Relative Humidity (%)	Minimum	46.0	44.0	40.0
	Maximum	99.0	97.0	91.0
	Average	70.7	68.7	67.5
Wind Speed (m/Sec)	Average	1.03	0.9	0.92
Wind Direction (%)	E	0.7	0.8	0.8
	ENE	0.5	0	0.3
	ESE	0.4	1.3	2.4
	N	1.2	4.2	5.5
	NE	15.2	16.6	15.4
	NNE	0.8	2.4	0.7
	NNW	6.5	6	6
	NW	20	21.1	16.6
	S	2.7	0	0.4
	SE	7.8	7.6	7.2
	SSE	1.6	0.4	1

	SSW	1.6	0.4	0.5
	SW	5.9	1.8	1.2
	W	2	2.2	2.8
	WNW	3.2	3.4	3.9
	WSW	0.9	1	0.8
	CALM	45.6	51.4	49.3
Cloud Cover (%)	Minimum	0	0	0
	Maximum	6	7	8
Rainfall (mm)	Monthly Total	27.0	0.0	0.0

Source: VCSPL Laboratory

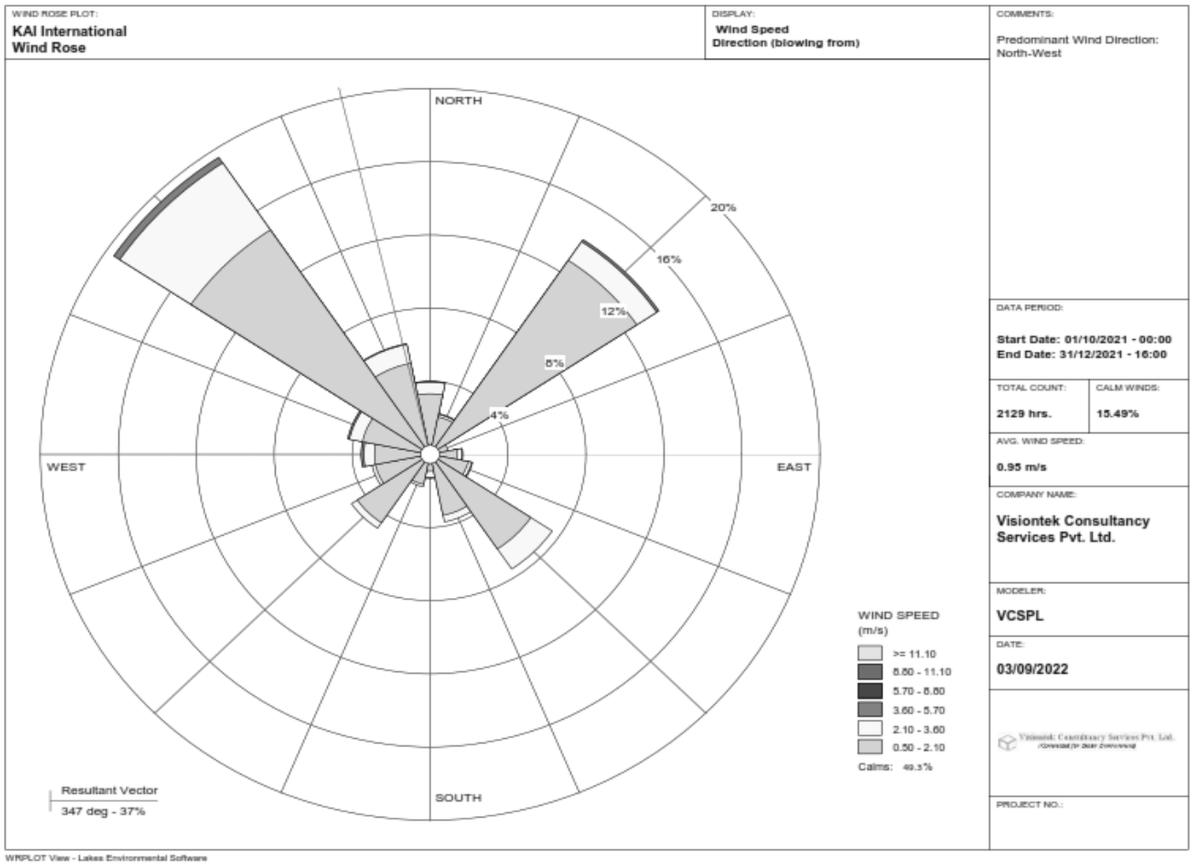


Fig. 3.7- Wind Rose from Site Specific meteorology data

3.3.2 Observations & Interpretation of the Met Data

The wind-rose diagram shows the pre-dominant wind direction is North-West (13.8%) followed by North-East (9.7%). 48.8 % the wind falls under calm condition. The wind rose obtained from site specific data is almost similar to that of wind rose obtained from IMD data for Sundergarh District. The slight variation may be due to difference in monitoring locations.

Rainfall recorded during the study period was 27 mm. Average temperature in the study period is 26.8 degrees. Apart from certain days, where average relative humidity is 70.7%. Site specific meteorological data comparison with IMD data is shown below-

Table 3.8- Comparison of Site-specific Meteorological data with IMD Secondary data of Sundargarh Station

Sr. No	Parameters	Monitoring Season(Oct-Dec)		Remarks
		Site Specific	IMD (1981-2010)	
1.	Avg. Wind Speed	1.03 m/s	2.2 m/s	Generally similar, minor divergences noted can be ascribed to location differences, differences in number of readings and duration of studies (one season v/s long term)
2.	Wind Direction	Predominantly from NW direction (13.8%) Calm Conditions: 49.3%	Predominantly from NW direction (1%) Calm Conditions: 98 %.	
3.	Temperature	Max.: 36.4°C Min.: 9.4°C	Highest: 34.6°C Lowest: 30.4°C	
4.	Relative Humidity	Max.: 99 % Min.: 40 %	Max.: 77% Min.: 66 %	

Source: Indian Meteorological Department (IMD), Climatological tables, 1981-2010

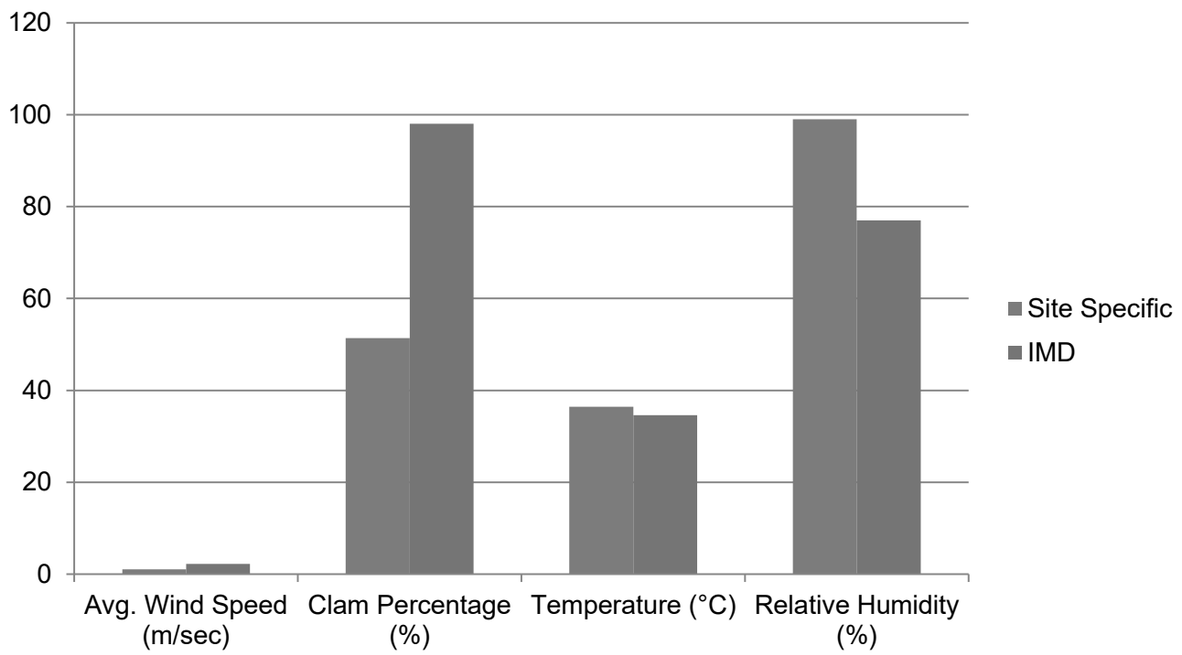


Fig. 3.8- Comparison of IMD data (1981- 2010) & Site-Specific meteorology data

3.4 AIR ENVIRONMENT

The prime objective of the ambient air quality study is to assess the existing air quality of study area and to establish the existing ambient air quality within the study area and its conformity to NAAQS. The observed sources of air pollution in the study area are industrial, traffic and domestic activities.

3.4.1 AAQ Monitoring locations and map

The monitoring was carried out from March to May 2021 to represent summer (Post-monsoon) season for the parameters such as PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, O_3, NH_3, C_6H_6, BaP, Pb, As, & Ni.

The baseline status of the ambient air quality has been established through a scientifically designed ambient air quality monitoring network considering the followings:

- Meteorological condition on synoptic scale.
- Topography of the study area.
- Representatives of regional background air quality for obtaining baseline status.
- Location of residential areas representing different activities.
- Accessibility and power availability; etc.

AAQ Samples (Filter Paper) were collected in air-tight locked polyethene and cassettes. Gaseous samples were collected in sample bottles preserved in ice box and transported to central laboratory as per the guidelines of BIS (Bureau of Indian Standard).

Ambient air monitoring locations have been tabulated below:

Table 3.9- Ambient Air Quality Location

Location Code	Location	Distance	Direction	Location details & selection Criteria	Latitude	Longitude
AAQ-1	At Project Site	-	-	Source Of Pollution	21°53'19.28"N	84°52'28.53"E
AAQ-2	Near Approach Road Close to the Project Site	0.10 Km	NW	Upwind Direction Near Approach Road to the Project Site & Near Dense Forest Area (Kukia RF)	21°53'30.83"N	84°52'13.58"E
AAQ-3	Badbahal Village	0.41 Km	SE	Downwind Direction Near Village Road & Near Dense Forest Area (Samaradari PF)	21°53'0.84"N	84°52'44.12"E
AAQ-4	Nuagan Village	1.51 Km	S	Crosswind Direction Village Habitation Near Project Site / Near Forest Area	21°52'22.37"N	84°52'35.61"E
AAQ-5	Kapanda Village	1.59 Km	SW	Crosswind Direction Nearest Village Habitation	21°52'35.42"N	84°51'49.51"E
AAQ-6	Bagiabahal Village	1.69 Km	W	Crosswind Direction Nearby Village Habitation Close To Kukia RF & Brahmani River	21°53'32.36"N	84°51'17.14"E
AAQ-7	Budhikutuni Village	2.55 Km	SE	Downwind Direction Near Village Habitation	21°52'17.32"N	84°53'42.40"E
AAQ-8	Rajamunda Village	4.62 Km	ESE	Downwind Direction Near NH- 143 & Densely Populated Area/ Market Area	21°52'29.91"N	84°55'8.59"E

Source: AAQ Monitoring Location Map

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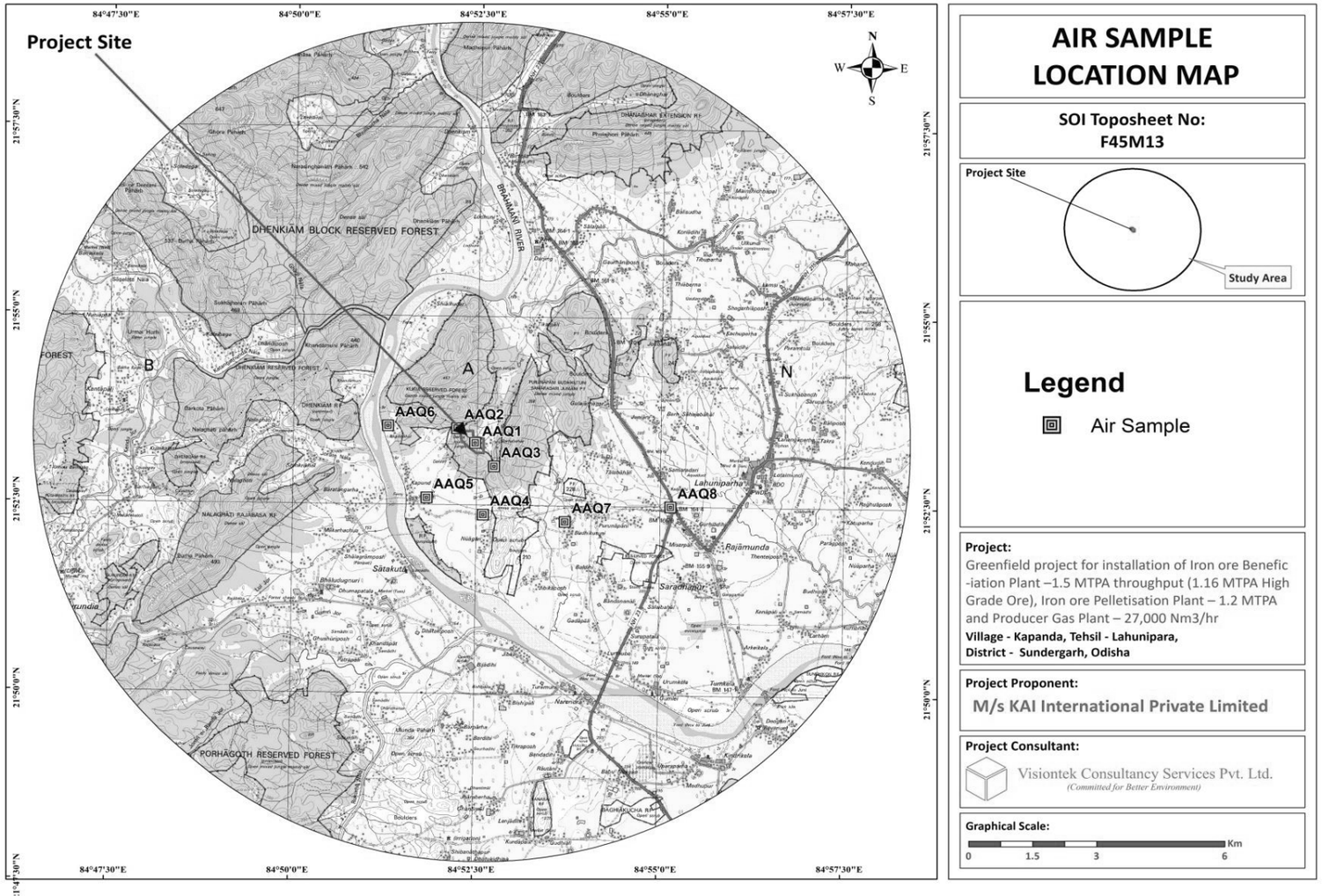
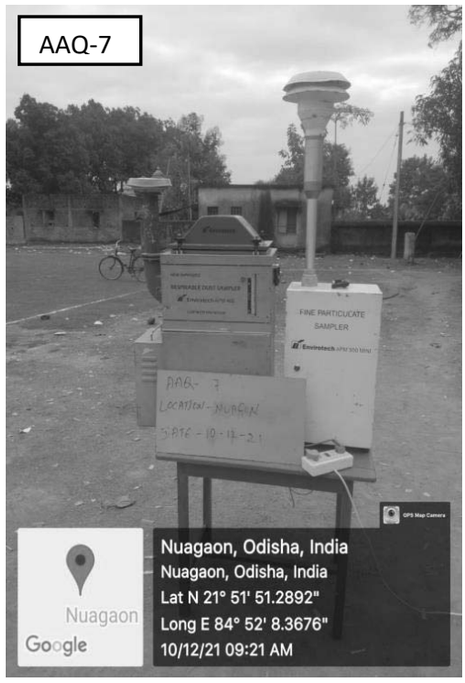


Fig. 3.9- Ambient Air Quality Monitoring Location Map

Ambient Air Monitoring Photographs





3.4.2 Summary of AAQ data

A. Sampling & Analytical Techniques

Samples for $PM_{2.5,}$ $PM_{10,}$ SO_2 & NOx were collected on 24 hourly basis with an interval of 4 hours. Grab samples for CO were monitored once in 8 hours and are reported on 24 hourly basis.

The sampling and analysis of ambient air quality were carried out as per the procedures detailed in IS-5182 (Indian Standards for Ambient Air Quality Parameters) for specific parameters. Brief of the sampling and testing procedures used are given in **Table- 3.10**

Table 3.10- Testing and Monitoring Procedures

Sr. No.	Parameter	Technical Protocol	Sampler	Instrument for Analysis	Methodology Adopted
1.	Particulate Matter ($PM_{2.5}$)	IS 5182: Part 24	Fine Particulate Sampler (APM 550)	Weighing Balance, Oven, Desiccator	Gravimetric Method
2.	Particulate Matter (PM_{10})	IS 5182: Part 23	RDS with cyclone separator (APM 460)	Weighing Balance, Oven, Desiccator	Gravimetric Method
3.	Sulphur dioxide (SOx)	IS 5182 Part 2 RA2017	Gaseous Sampler of RDS	UV Spectro-photometer	Improved West & Gaeke Method

Sr. No.	Parameter	Technical Protocol	Sampler	Instrument for Analysis	Methodology Adopted
4.	Oxide of Nitrogen (NOx)	IS 5182 Part 6 RA 2017	Gaseous Sampler of RDS	UV Spectro-photometer	Modified Jacob & Hochheiser method
5.	Carbon Monoxide (CO)	IS: 5182 Part 10: 1999	Tadler Bag	NDIR CO analyzer	Non Dispersive Infrared Spectroscopy
6.	Ozone (O_3)	VCSPL/AAQ-SOP/001 2019	Gaseous Sampler of RDS	UV Spectro-photometer	Color development
7.	Gaseous ammonia (NH_3)	VCSPL/AAQ-SOP/001 2019	Gaseous Sampler of RDS	UV Spectro-photometer	Indophenol Blue
8.	Lead (Pb)	IS 5182 Part 22 P 2004	RDS with cyclone separator (APM 460)	AAS/IPC	Extraction
9.	Benzene (C_6H_6)	IS 5182 Part 11 P 2006	VOC Sampler	G.C	Solvent Extraction
10.	Benzo[a]pyrene (BaP)	IS 5182 Part 12 P 2006	RDS with cyclone separator (APM 460)	G.C/HPLC	Solvent Extraction
11.	Arsenic (As)	IS 5182 Part 22 P 2004	RDS with cyclone separator (APM 460)	AAS/IPC	Extraction
12.	Nickel (Ni)	IS 5182 Part 22 P 2004	RDS with cyclone separator (APM 460)	AAS/IPC	Extraction
13.	Iron (Fe)	IS 5182 Part 22 P 2004	RDS with cyclone separator (APM 460)	AAS/IPC	Extraction

Source: VCSPL Laboratory

Table 3.11- Summarised results of 24 hours average ambient Pollutant Level

Sampling Stations	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	O_3 ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)	Pb ($\mu g/m^3$)	As ($\mu g/m^3$)	Ni ($\mu g/m^3$)	Fe ($\mu g/m^3$)
AAQ- 1: At Project Site (21°53'19.28"N 84° 52'28.53" E) (0.0 Km)													
Min.	32.4	17.8	<4.0	9.0	0.12	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
Max.	42.2	23.0	5.5	11.7	0.22	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
Average	38.3	20.8	4.8	10.5	0.17	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
98%tile	42.1	22.8	5.5	11.7	0.22	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
AAQ- 2: Near Approach road close to the project site (21°53'30.83"N 84°52'13.58"E) (0.10 Km, NW)													
Min.	42.7	22.3	4.7	9.6	0.13	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
Max.	53.5	28.2	7.5	13.8	0.24	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
Average	47.8	25.4	5.9	12.1	0.18	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
98%tile	52.5	27.9	7.5	13.8	0.24	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
AAQ- 3: Badbahal Village (21°53'0.84"N 84°52'44.12"E)(0.41 Km, SE)													
Min.	47.6	24.8	4.7	9.8	0.13	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
Max.	56.3	30.1	7.0	14.4	0.28	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
Average	51.5	27.5	5.8	12.1	0.20	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
98%tile	55.6	29.9	6.9	14.1	0.28	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
AAQ- 4: Nauagan Village (21°52'22.37"N 84°52'35.61"E)(1.51 Km, S)													
Min.	42.2	21.7	4.2	9.5	0.12	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
Max.	50.6	27.2	6.7	13.6	0.21	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
Average	46.8	24.7	5.2	10.9	0.16	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
98%tile	50.5	27.2	6.6	13.2	0.21	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
AAQ- 5: Kapanda Village (21°52'35.42"N 84°51'49.51"E) (1.59 Km, SW)													
Min.	45.7	24.0	4.5	10.2	0.13	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
Max.	54.7	29.7	8.2	14.7	0.24	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
Average	50.8	27.0	6.2	11.9	0.18	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
98%tile	54.6	29.6	8.0	14.5	0.24	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
AAQ- 6: Bagiabahal Village (21°53'32.36"N 84°51'17.14"E)(1.69 Km, W)													
Min.	40.4	21.2	4.3	9.5	0.13	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)

Max.	50.7	26.8	6.1	12.6	0.24	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
Average	46.1	24.2	4.9	10.8	0.18	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
98%tile	50.5	26.6	5.9	12.4	0.24	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
AAQ-7: Budhikutun Village (21°52'17.32"N 84°53'42.40"E) (2.55 Km,SE)													
Min.	39.8	21.5	4.3	9.5	0.13	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
Max.	51.2	27.3	6.7	12.4	0.25	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
Average	45.2	24.0	5.3	10.7	0.17	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
98%tile	50.4	27.0	6.6	12.1	0.24	BDL(<4.0)	BDL(<20.0)	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
AAQ- 8: Rajamunda Village (21°52'29.91"N 84°55'8.59"E) (4.62 Km, ESE)													
Min.	64.3	32.7	10.4	19.3	0.29	BDL(<4.0)	21.2	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
Max.	81.3	44.2	14.2	25.2	0.51	BDL(<4.0)	26.3	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
Average	73.4	39.7	12.2	22.1	0.42	BDL(<4.0)	24.1	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)
98%tile	80.4	43.6	14.0	24.5	0.50	BDL(<4.0)	26.2	BDL(<4)	BDL(<0.5)	BDL(<0.02)	BDL(<1)	BDL(<2.5)	BDL (<0.5)

Note: BDL Value PM_{10}- <20 µg/m^3, $PM_{2.5}$- <1 µg/m^3, SO_2- <4 µg/m^3, NO_2- <6 µg/m^3, CO- <0.1 mg/m^3, O_3- <0.5 µg/m^3, NH_3- <20 µg/m^3, Pb- <0.006 µg/m^3, As- <0.16 ng/m^3, Ni- <3.1 ng/m^3, Benzene- <4 µg/m^3, Benzo-pyrine- <0.5 ng/m^3, Iron- ND

Source: VCSPL Laboratory

1417

1407

3.4.3 Observations of AAQ Data

Particulate Matter (PM_{10}):

- In total 8 monitoring station 1st highest value of PM_{10} is observed at near Rajamunda Village (Down- wind direction) which is 81.3 µg/m^3 in AAQ- 8 location and 2nd highest value is observed at near Kapanda Village (Cross- Wind direction) which is 54.7 µg/m^3.
- In project site (AAQ-1) PM_{10} is ranges from 32.4 µg/m^3 to 42.2 µg/m^3. Also, lower value is observed at this location.
- The average values were observed to be in the range of 38.3 (AAQ- 1) to 73.4 (AAQ- 8)µg/m^3 and the 98% tile was observed by in the range of 42.1 (AAQ-1) to 80.4 µg/m^3 (AAQ- 8).

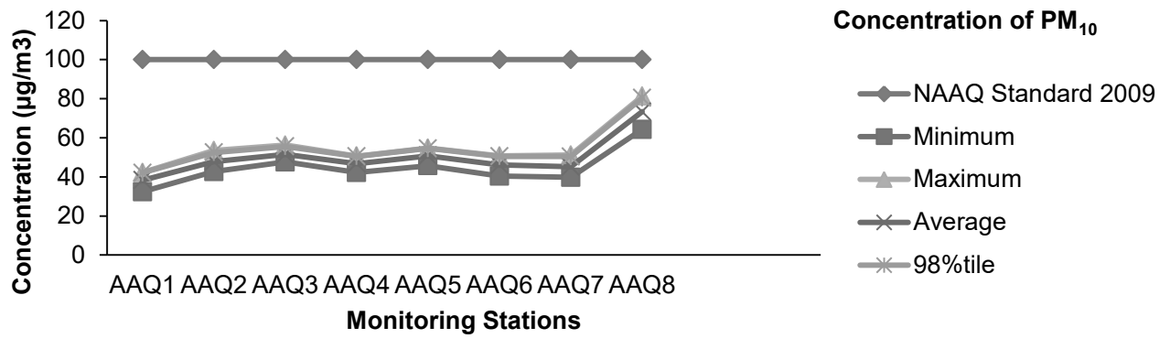


Fig. 3.10- Statistical Analysis of Particulate matter (PM_{10})

Particulate Matter ($PM_{2.5}$):

- In total 8 monitoring station 1st highest value of $PM_{2.5}$ is observed at near Rajamunda Village (Down- wind direction) which is 44.2 µg/m^3 in AAQ- 8 location and 2nd highest value is observed at near Kapanda Village (Cross- Wind direction) which is 29.7 µg/m^3.
- In project site (AAQ-1) $PM_{2.5}$ is ranges from 17.8 µg/m^3 to 23.0 µg/m^3. Also, lower value is observed at this location.
- The average values were observed to be in the range of 20.8 (AAQ-1) to 39.7 (AAQ-8) µg/m^3 and the 98% tile was observed by in the range of 22.8 (AAQ-1) to 43.6 µg/m^3 (AAQ-8).

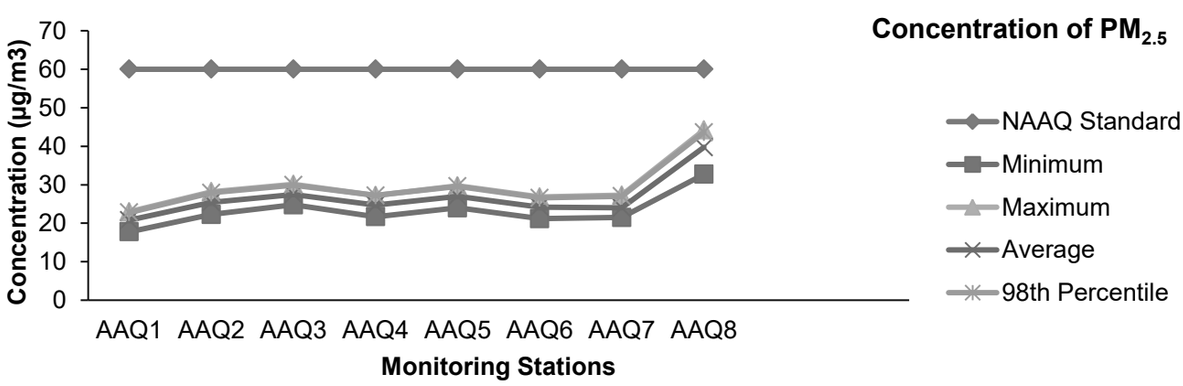


Fig. 3.11- Statistical Analysis of Particulate matter ($PM_{2.5}$)

Sulphur Dioxide (SO_2):

- Maximum concentration of SO_2 is observed to be 14.2 μg/m^3 at AAQ-8 (Rajamunda village) in downwind direction and minimum value is <4.0 μg/m^3 observed at AAQ-1 (Project Site).
- The average values were observed to be in the range of 4.8 μg/m^3 to 12.2 μg/m^3 and the 98% tile was observed by in the range of 5.5 μg/m^3 to 14.0 μg/m^3.

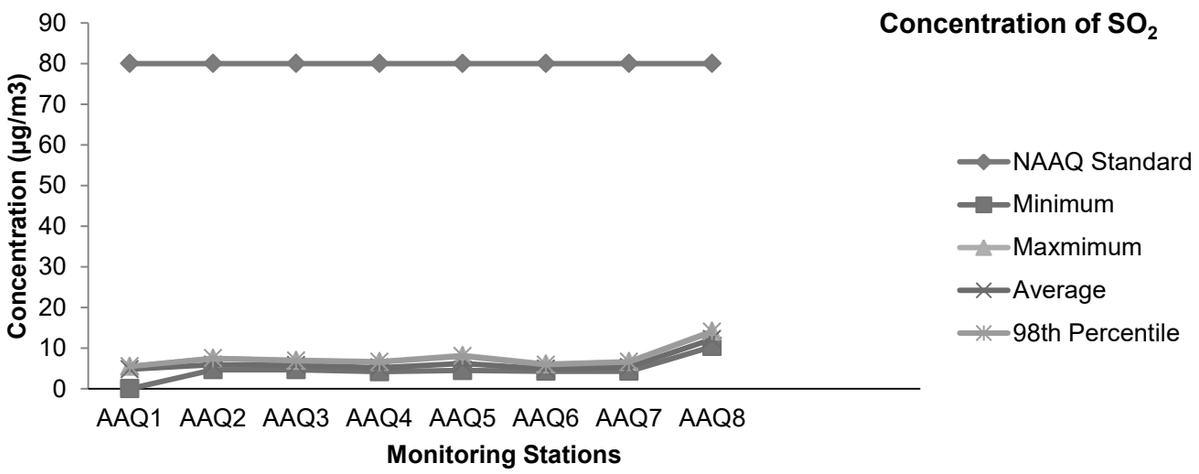


Fig. 3.12- Statistical Analysis of Particulate matter (SO_2)

Oxides of Nitrogen (NO_x):

- Maximum concentration of NOx was observed to be 25.2 μg/m^3 at AAQ-8 at Rajamunda Village in down wind direction and minimum value is <9.0μg/m^3 observed at AAQ-1 (Project Site).
- The average values were observed to be in the range of 10.5 μg/m^3 to 22.1 μg/m^3 and the 98% tile was observed by in the range of 11.7 μg/m^3 to 24.5 μg/m^3.

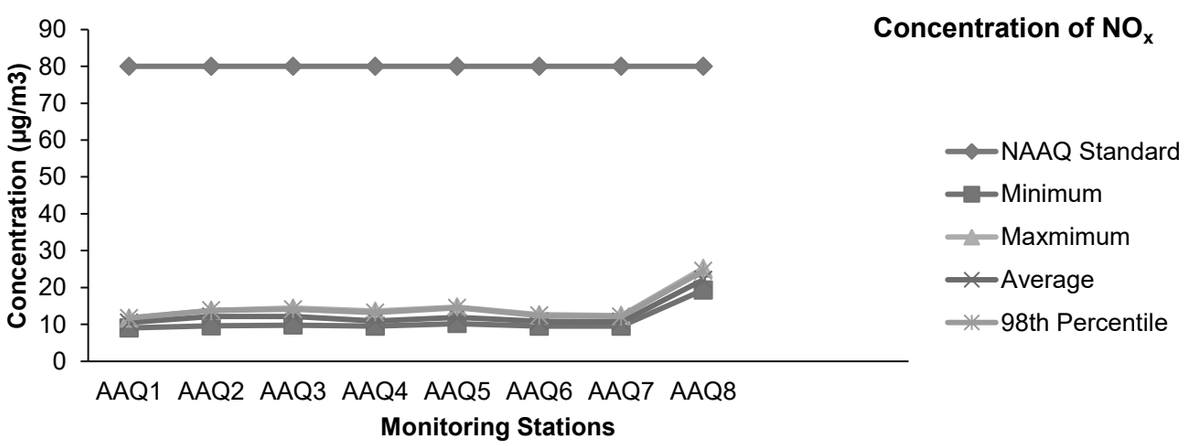


Fig. 3.13- Statistical Analysis of Particulate matter (NOx)

Carbon Monoxide (CO):

- Maximum concentration of CO is observed to be 0.51 mg/m^3 at AAQ-8 (Rajamunda Village) and minimum value of 0.12 mg/m^3 observed at AAQ-1 (Project Site) & AAQ-5 (Nuagaon Village).
- The average values were observed to be in the range of 0.16 to 0.42 mg/m^3 and the 98% tile was observed by in the range of 0.21 to 0.5 mg/m^3.

3.4.4 Interpretation of AAQ Data

Parameters	NAAQ Standards as per Gazette 18th Nov. 2009	Pollutant Level	Interpretation
PM_{10}	100 µg/m^3	32.4 to 81.3 µg/m^3	The highest value observed near to Rajamunda Village (AAQ-8) which is near to Rajamunda Chock. Due to Transportation activities & Industrial cluster is present in this area. So, PM_{10} recorded slightly high in this region. This location is 4.6 Km (ESE) from project site in downwind direction.
$PM_{2.5}$	60 µg/m^3	17.8 to 44.2 µg/m^3	
SO_2	80 µg/m^3	BDL (<4) to 14.2 µg/m^3	
NOx	80 µg/m^3	9.0 to 25.2 µg/m^3	
CO	2 mg/ m^3	0.12 to 0.51 mg/m^3	
Other Parameters			
O_3	100 µg/m^3	In all locations values are BDL (<4.0 µg/m^3)	
NH_3	400 µg/m^3	Most of the locations such as AAQ 1, 2, 4, 5, 6, 7 observed BDL (<20) value. In location AAQ 8 value ranges from 21.2 to 26.3 µg/m^3	
C_6H_6	5 µg/m^3	In all locations values are BDL (<4 µg/m^3)	
BaP	1 µg/m^3	In all locations values are BDL (<0.5 µg/m^3)	
As	6 µg/m^3	In all locations values are BDL (<0.16 µg/m^3)	
Ni	20 µg/m^3	In all locations values are BDL (<3.1 µg/m^3)	
Fe	-	In all locations values are BDL (<0.5 µg/m^3)	

Secondary data Collection

Secondary data collected from online portal of State Pollution Control Board, Odisha (OSPCB) in the location of IDL Outpost, Sonaparbat, Rourkela which is approx. 32 Km from the project site in North direction.

Month	Parameters						AQI W.r.t Prominent Pollutant	Categorization
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	NH_3	O_3		
Oct. 2021	89	55	7.0	11.7	22.8	22.8	89 (PM_{10})	Satisfactory
Nov. 2021	96	54	11.1	15.2	23.8	23.2	96 (PM_{10})	Satisfactory
Dec. 2021	93	54	9.8	11.3	23.3	22.7	93 (PM_{10})	Satisfactory

Source: Online portal of SPCB, Odisha

Comparison of Primary data with Secondary Data

Comparison of primary data with secondary data is given in below table;

AAQ Parameter	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)
Prescribed Standards	**0-100**	**0-60**	**0-80**	**0-80**
Exceeding Standards	NA	NA	NA	NA
Remarks	Monitored data are within standard			
As Per OSPCB	89 to 96	55 to 54	7.0 to 9.8	11.3 to 15.2
Site Specific Monitoring Data	32.4 to 81.3	17.8 to 44.2	BDL (<4) to 14.2	9.0 to 25.2

As per the above interpretation, Monitored AAQ data are not matching with the secondary data collected from SPCB as the highest conc. of AAQ comes near the industrial site, whereas secondary collected at different station i.e. at IDL Outpost, Sonaparbat Rourkela, Odisha.

Reasons for Higher values of Pollutants during the Study Period

Industrial Area - There are many industries and National Highway with the market place is present within study area of 10 Km range from the project site.

Sl. NO.	Name Of Industries	Product	Distance (km)	Direction
1.	BR Sponge Power Limited	DRI	6.87 km	SE
2.	Vidya Mineral pvt. Ltd	Rice mill	7.59 km	SE
3.	Vikram pvt. Ltd.	DRI	7.43 km	SE
4.	Maa Manasha Devi alloys pvt. Ltd.	DRI	7.49 km	SE
5.	Bhaskar Steel and Ferro Alloy pvt.	Integrated Steel plant	7.95 km	SE

- ✓ **Construction Area-** Within a range of 5 Km, many construction activities for expansion of industries are going on. This also contributes to high levels of dust at the monitored locations.
- ✓ **Unpaved area-** Area in close vicinity of the project site is unpaved land and paths that are exposed to the atmosphere acting as a source of dust dispersion by the action of wind. Vehicular movement in such vacant unpaved areas also adds to dust dispersion deteriorating the air quality and making the physical atmosphere.
- ✓ **Connectivity-** The area near the project site is marked by extensive transportation connectivity with the existence of NH-143 close to the project site (3.1 km) towards the East direction. These have attracted an immense crowd and thus the vehicular movement. Being domestic and Industrial, the roadway is very congested at maximum hours. Such close vicinity of public connectivity has engaged continuous flow of vehicles for public convenience creating a remarkable rise of the air pollutants at project site.

3.5 NOISE ENVIRONMENT

Ambient Noise Level

Digital Sound Level Meter was used for the study. All reading was taken on the 'A-Weighting' frequency network, at a height of 1.5 meters from ground level and on the 'Fast' Range Time Weighting. The sound level meter does not give a steady and consistent reading and it is quite difficult to assess the actual sound level over the entire monitoring period.

To mitigate this shortcoming, the Continuous Equivalent Sound level, indicated by L_{eq}, is used. Equivalent sound level, 'L_{eq}', can be obtained from variable sound pressure level, 'L', over a time period by using following equation.

The equivalent noise level is defined mathematically as

$$L_{eq} = 10 \text{ Log } L / T\sum (10^{Ln/10})$$

Where L = Sound pressure level at function of time dB (A)
T = Time interval of observation

3.5.1 Noise monitoring location and map

In order to assess the noise levels within the study area, noise monitoring was carried out at eight (8) locations as per details given in **Table- 3.12** and depicted in **Fig. 3.15**.

Noise data collection is basically based on study of habitation and manmade activities in the study area.

Table 3.12- Ambient Noise Level Monitoring Locations

Location Code	Location Name	Distance	Direction	Selection Criteria	Latitude	Longitude
NQ- 1	At Project Site	--	--	On - Site Location	21°53'19.28"N	84°52'28.53"E
NQ- 2	At Intersection of approach road & entrance road to the project site	0.12 km	N	Near approach road to the project site / Near Kukia RF	21°53'32.60"N	84°52'20.51"E
NQ- 3	Badbahal Village	0.28 km	E	Nearest village habitation to the project site	21°53'15.45"N	84°52'45.01"E
NQ- 4	Kapanda village	0.55 km	SW	Habitation near Reserve forest	21°53'7.54"N	84°52'5.18"E

NQ- 5	Nuagan Village	1.53 km	S	Nearby village habitation & Samaradari PF	21°52'21.89"N	84°52'35.13"E
NQ- 6	Bagiabahal Village	1.66 km	W	Nearby village habitation & Kukia RF	21°53'30.54"N	84°51'17.88"E
NQ- 7	Panchayat High School, Kapanda	1.73 km	SW	Near school area & village habitation	21°52'26.20"N	84°51'53.39"E
NQ- 8	Santikayatpali Village	1.81	NE	Sensitive region near village road (Kukia RF & Samadari PF)	21°54'2.19"N	84°52'54.91"E

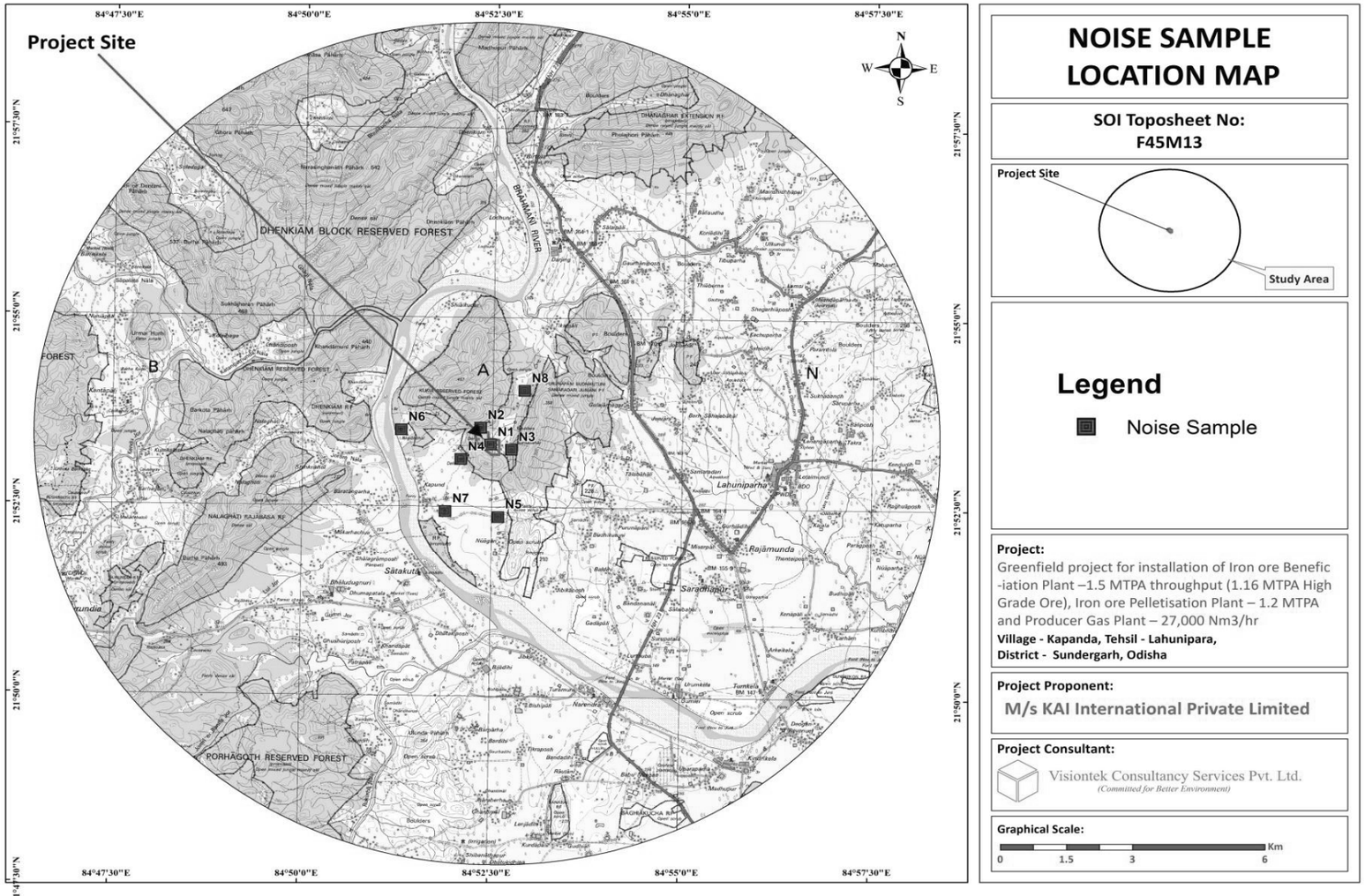


Fig. 3.14- Ambient Noise Quality Monitoring Location Map

3.5.2 Summary of Noise data

Table 3.13- Noise Monitoring Results

Location	Distance from Plant Site (Km) & Direction	Co-ordinate	Standard as per CPCB dB(A) Leq		Oct-21 (Leq)		Nov-21(Leq)		Dec-21(Leq)		Type of Area
			Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	
					dB(A) Leq	dB(A) Leq	dB(A) Leq	dB(A) Leq	dB(A) Leq	dB(A) Leq	
NQ-1: At Project Site	-	21°53'19.28"N 84°52'28.53"E	75	70	50.6	40.7	51.0	42.0	51.1	42.9	Industrial
NQ-2: At Intersection of approach road & entrance road to the project site	0.12 km & N	21°53'32.60"N 84°52'20.51"E	75	70	48.8	40.1	49.8	41.1	49.9	41.6	Industrial
NQ-3: Badbahal Village	0.28 km & E	21°53'15.45"N 84°52'45.01"E	55	45	50.1	40.7	50.8	41.2	51	41.1	Residential
NQ-4: Kapanda village	0.55km & SW	21°53'7.54"N 84°52'5.18"E	55	45	51.1	41	51.1	41.5	51.3	41.6	Residential
NQ-5: Nuagan Village	1.53km & S	21°52'21.89"N 84°52'35.13"E	55	45	52.4	42.4	51.5	42	50.8	42.4	Residential
NQ-6: Bagiabahal Village	1.66 km & W	21°53'30.54"N 84°51'17.88"E	55	45	52.6	43.1	52.7	43.2	51.5	43.4	Residential
NQ-7: Panchayat High School, Kapanda	1.73 km & SW	21°52'26.20"N 84°51'53.39"E	55	45	52.1	41.9	52.6	41.8	52.4	41.5	Residential
NQ-8: Santikayatpali Village	1.81 & NE	21°54'2.19"N 84°52'54.91"E	55	45	48.5	40.2	47.5	41.4	47.6	41.9	Residential
Maximum					**52.6**	**43.1**	**52.7**	**43.2**	**52.4**	**42.9**	
Minimum					**48.5**	**40.1**	**47.5**	**41.1**	**47.6**	**41.1**	

Source: VCSPL Laboratory

Ambient Noise Monitoring Photographs:

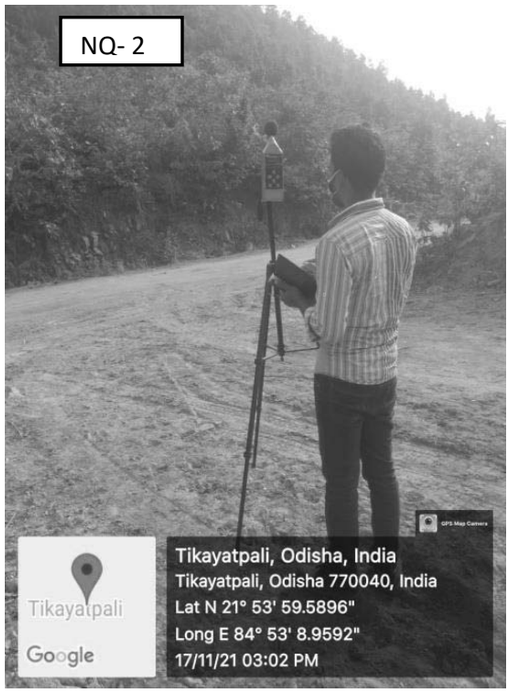




Table 3.15- Ambient Noise Standard

Area Code	Category of Area	Noise Levels dB(A) Leq	
		Day time	Night time
A	Industrial	75	70
B	Commercial	65	55
C	Residential	55	45
D	Silence	50	40

Source-The Noise Pollution (Regulation and Control) Rules, 2000

3.5.3 Observation and interpretation

- ✓ Ambient Noise levels fall within the standards specified by CPCB. The overall values vary scarcely from one another. This suggests the noise environment is consistent.
- ✓ Panchayat High School, Kapanda Village (NQ-7) due to vehicle movements & market area shows the highest values (day time) 51.9. Leq dB (A). At Main Entrance to the Project Site (NQ-1) at night time 49.9 dB (A) is the highest value observed.
- ✓ Santikayatpali Village (NQ-8) shows the Lowest values (day time) 40.8 Leq dB (A). At Bagiabahal Village (NQ-6) night time 42.8 Leq dB (A) is the highest value observed because in this location village road is connected to NH- 143 & lowest in night time is observed at intersection of approach road & entrance road to the project site (NQ- 2) which is 40.6 dB(A).
- ✓ The summary of the Ambient Noise Monitoring Result shows the Noise levels are mostly within the permissible limits for all the locations with respective to the various categories of the standard.

The highest sound level was found due to Human dwellings and sensitive establishments are situated near the haulage road areas, and they are also influenced by the high noise levels of heavy vehicles.

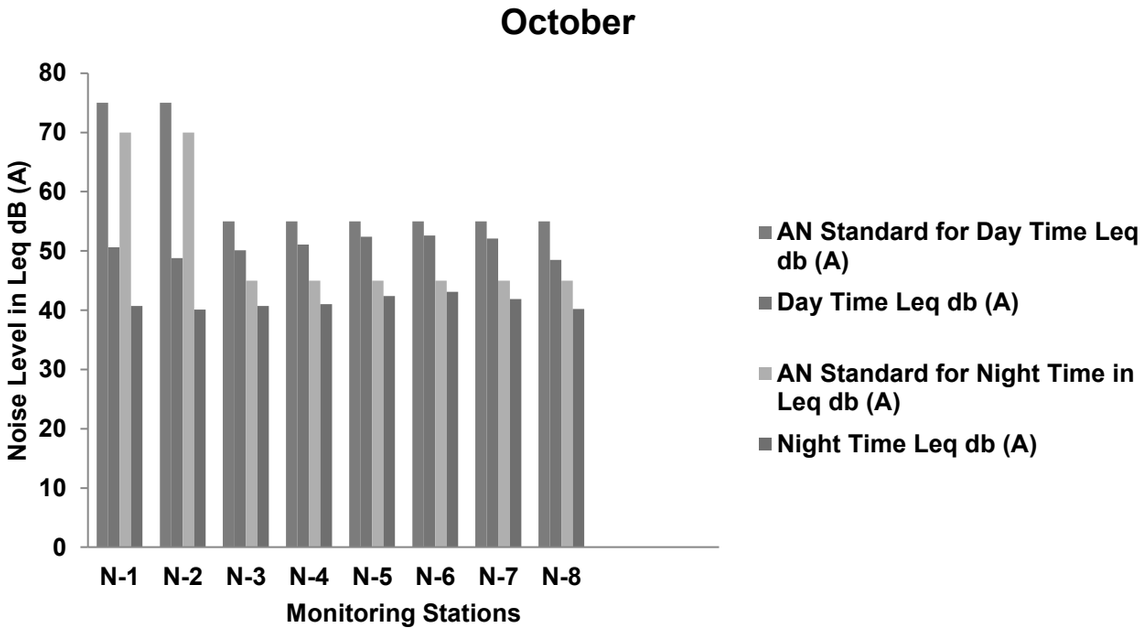


Fig. 3. 15- Showing Leq Day and Leq Night in Oct- 2021

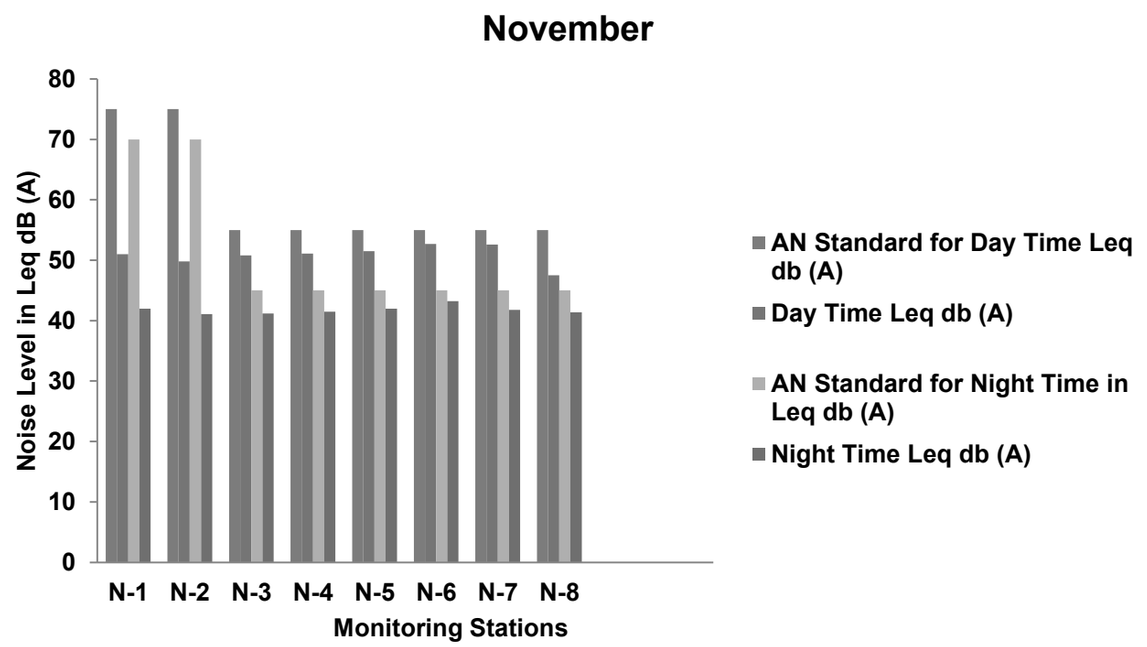


Fig. 3. 26- Showing Leq Day and Leq Night in Nov- 2021

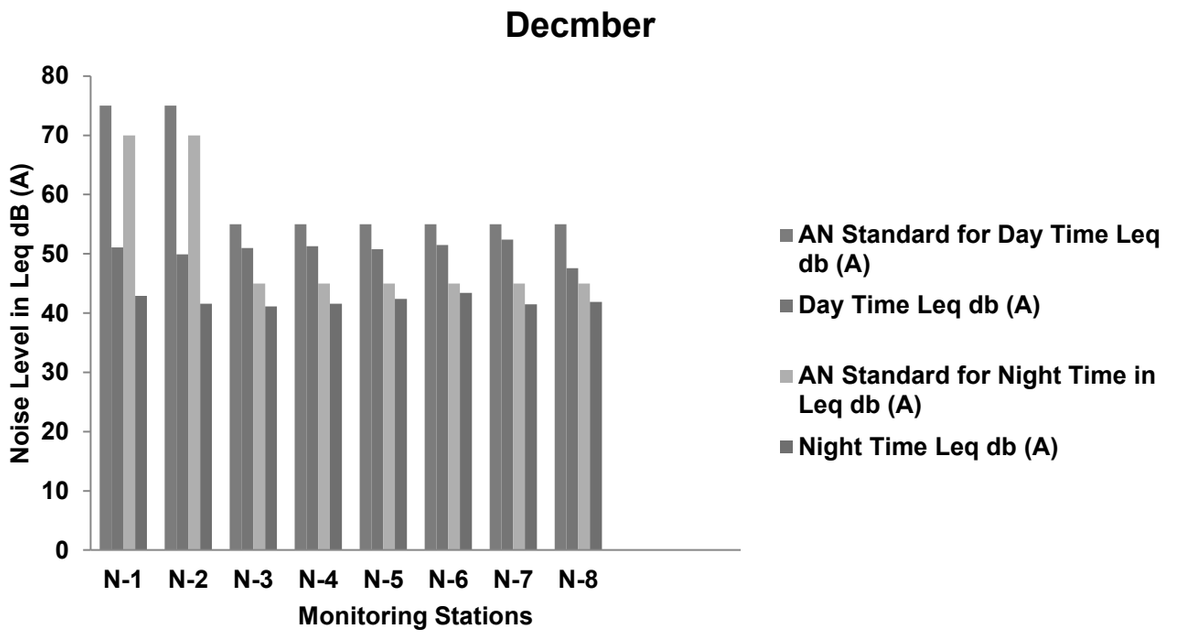


Fig. 3. 17- Showing Leq Day and Leq Night in Dec- 2021

3.6 WATER ENVIRONMENT

Grab water samples from eleven (11) Surface water and eight (08) ground water sources were collected once during the monitoring period as per details given in **Table – 3.16 & 3.18** and depicted in **Fig. 3.19 & 3.20**.

The sampling locations were selected based on reconnaissance survey with the following consideration:

- of Location of water sources; and
- Location residential areas representing different activities

Surface and ground water samples were analyzed as per parameter mentioned in Standards as per IS-2296 Class –'C' and IS: 10500 respectively.

Table 3.15- Analytical Techniques for Water and Wastewater Sampling and Analysis

Parameters	Standards
pH Value	APHA 4500H^+B
Temperature	---
Conductivity	APHA 2510 B
Suspended solids	APHA 2540 D
Dissolved Oxygen as DO	APHA 4500 O^-C
Chloride (max)	APHA 4500Cl^-B
Total Dissolved Solids as TDS	APHA 2540 C
Alkalinity as $CaCO_3$	APHA 2320 B

Parameters	Standards
Total Hardness or TH	APHA 2340 C
Calcium as Ca	APHA 3500Ca B
Magnesium as Mg	APHA 3500Mg B
BOD (3) days at 27^0C (max)	APHA 5210 B
Chemical Oxygen Demand as COD	APHA 5220 C
Sodium as Na	APHA 3500Na B
Potassium as K	APHA 3500K B
Silica	APHA SiO_2 C
Oil & Grease	APHA 5520 B
Fluoride as F (max)	APHA 4500F C
Sulphates (SO_4) (max)	APHA 4500SO_4^{2-} E
Phenolic Compounds as C_6H_5OH (max)	APHA 5530 B,D
Nitrate as NO_3, (max)	APHA 4500 N_{org} B
Phosphate as PO_4	APHA 4500 P, D
Total Coliform as TC	APHA 9221 B
Arsenic as As	APHA 3500 As B
Mercury as Hg	APHA 3112B
Lead as Pb	APHA 3111 B
Cadmium as Cd	APHA 3111 B
Hexavalent Chromium as Cr^{6+}	APHA 3500 Cr B
Total Chromium as Cr	APHA 3111 B
Copper as Cu	APHA 3111Cu B
Zinc as Zn	APHA 3111 B
Selenium as Se	APHA 2340 C
Iron as Fe	APHA 3500 Fe B

3.6.1 Surface water monitoring locations and map

Table 3.16- Surface water monitoring locations

Location Code	Location Name	Distance	Direction	Selection Criteria	Latitude	Longitude
SW-1	Kapanda Village	1.80 km	SW	Pond near dense village area	21°52'35.46"N	84°51'39.10"E
SW-2	Major pond near Talabahali Village	1.87 km	E	Major pond near Samaradari PF	21°53'23.54"N	84°53'40.42"E
SW-3	Nuagaon Village	1.89 km	S	Pond near village & sensitive forest area	21°52'10.16"N	84°52'34.76"E
SW-4	Brahmani River near Kapanda Village	2.10 km	SW	Downstream of major river / Near village residential area	21°52'38.27"N	84°51'25.00"E
SW-5	Purunapani Village	2.74 km	SW	Pond nearby village habitation	21°52'25.84"N	84°53'57.43"E
SW-6	Confluence point of Brahmani River & Katangamunda Nala, near Sialikudar Village	3.10 km	NW	Confluence point of Brahmani River & Katangamunda Nala / Near Kukia RF	21°54'53.20"N	84°51'17.47"E
SW-7	Confluence point of Brahmani River & Rukura Nala, near Jibika Village	4.34 km	S	Confluence point of Brahmani River & Rukura Nala / Near village residential area	21°50'51.20"N	84°52'41.11"E
SW-8	Amrurhi Nala near Gaudiniposh Village	5.06 km	NE	Nala near village residential area	21°55'43.05"N	84°54'8.36"E
SW-9	Brahmani River near Lodhuni village	5.12 km	NNE	Upstream of Brahmani River	21°56'13.09"N	84°52'56.87"E
SW-10	Katangamunda Nala near Chandiposh village	5.66 km	WNW	Upstream of Nala near Dhenkiam RF	21°54'15.50"N	84°49'5.05"E
SW-11	Rukura Nala near Samadhi village	6.53 km	SW	Upstream of Rukura Nala	21°49'55.41"N	84°51'1.77"E

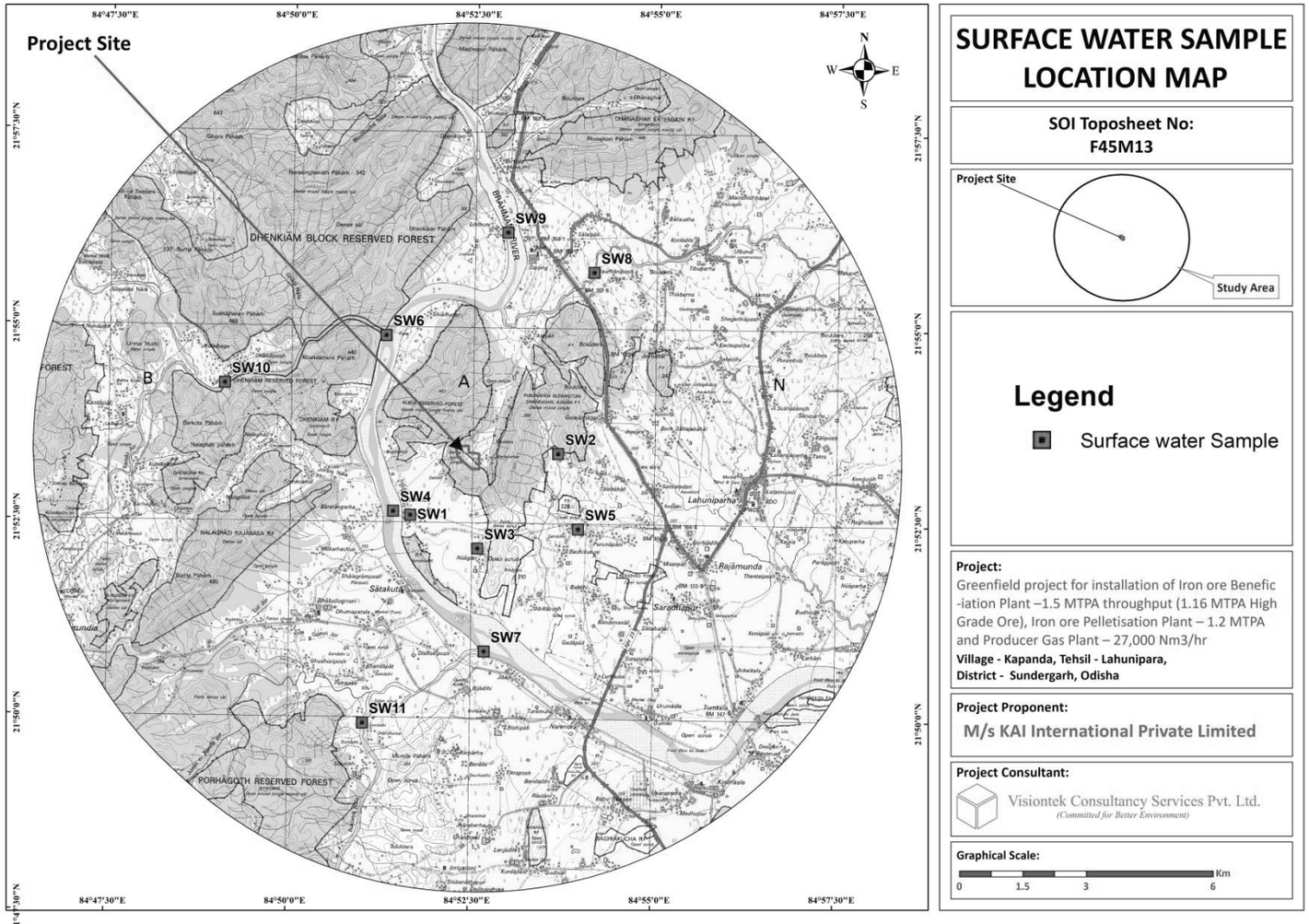
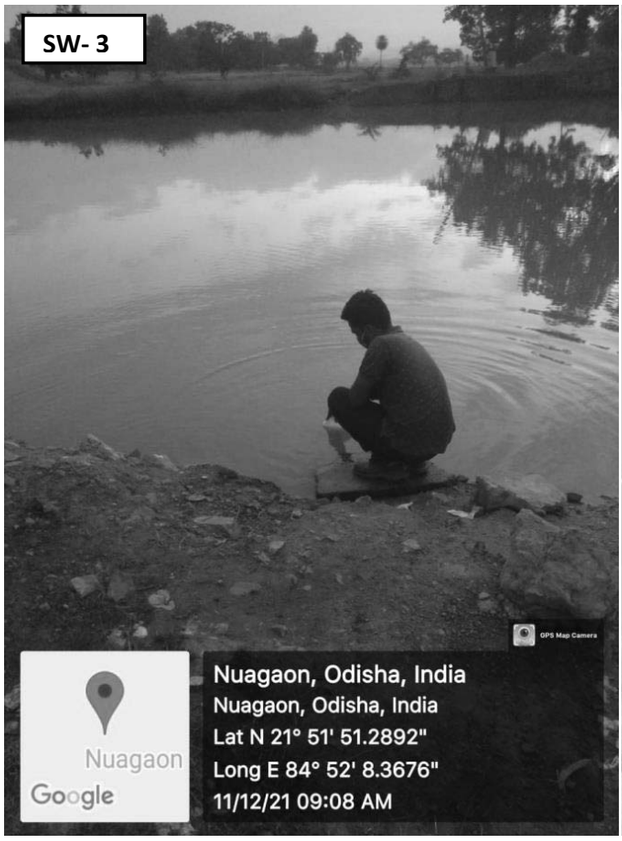


Fig. 3.18- Baseline Monitoring Location map of Surface Water

Surface Water Monitoring Photographs:





3.6.2 Summary of Surface water result

Table 3.17 (a)- Summary of surface water data

Sl. No.	Parameter	Unit	Testing Methods	Standards as per IS-2296:1992 Class –'C'	Analysis of Result							
					SW-1	SW-2	SW-3	SW-4	SW-5	SW-6	SW-7	SW-8
1	pH (at 25 °C)	--	APHA 4500H+ B	6.0-9.0	7.45	7.25	7.45	7.87	7.43	8.03	7.65	8.07
2	Colour	Hazen	APHA 2120 B	300 (max)	10	20	20	5	35	5	15	5
3	Electrical Conductivity	µS/cm	APHA 2510 C	--	180.7	163.0	135.0	169.0	203.4	176.3	198.2	143.6
4	Turbidity	NTU	APHA 2130 B	--	7.7	20.8	18.7	4.0	36.1	3.0	14.5	6.0
5	Total Dissolved Solids	mg/l	APHA 2540 C	1500 (max)	126.0	112.0	94.0	113.0	133.0	119.0	127.0	100.0
6	Dissolved Oxygen	mg/l	APHA 4500 O. C	4 (min)	4.9	4.8	4.6	6.2	5.7	6.1	7.6	7.2
7	BOD (3) days at 27°C	mg/l	IS 3025 (Part 44)	3 (max)	2.7	2.9	2.9	2.0	2.6	2.3	2.0	2.1
8	COD	mg/l	IS 3025 (Part 58)		8.1	8.4	7.9	6.6	6.8	7.1	6.1	6.4
8	Oil & Grease	mg/l	APHA 5520 B	--	ND	ND	ND	ND	ND	ND	ND	ND
9	Total Hardness as $CaCO_3$	mg/l	APHA 2340 C	--	44.0	52.0	81.0	82.0	45.0	83.0	56.0	97.0
10	Calcium as Ca	mg/l	APHA 3500 Ca B	--	14.0	16.0	18.0	25.0	11.0	25.0	16.0	25.0
11	Magnesium as Mg	mg/l	APHA 3500Mg B	--	2.2	2.9	8.8	4.8	4.3	5.0	3.9	8.4
12	Chloride	mg/l	APHA 4500Cl- B	600 (max)	22.0	21.0	17.0	20.0	28.0	22.0	31.0	28.0
13	Sulphates (SO_4)	mg/l	APHA 4500 $SO4^-$ E	400 (max)	8.2	7.3	15.6	5.9	12.2	7.3	10.8	5.0
14	Fluoride as F	mg/l	APHA 4500 F^- C, D	1.5 (max)	0.17	0.33	0.19	0.2	0.24	0.18	BDL (0.03)	0.12

1433 1423

15	Nitrate as NO_3	mg/l	APHA 4500 NO_3^- B	50 (max)	2.4	3.03	4.6	4.67	2.62	4.5	0.53	1.1
16	Ammonia as NH_4	mg/l	APHA 4500 NH_3F	--	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
17	Phenolic Compounds as C6H5OH	mg/l	APHA 5530-B, D	0.005 (max)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18	Cyanide as CN	mg/l	APHA 4500 CN- C, E	0.05(max)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19	Hexa Chromium as Cr^{+6}	mg/l	APHA 3500Cr B	0.05 (max)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20	Iron as Fe	mg/l	APHA 3111 B	0.5 (max)	0.23	0.59	2.79	0.125	0.866	0.224	0.265	0.163
21	Copper as Cu	mg/l	APHA 3111 B	1.5 (max)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22	Lead as Pb	mg/l	APHA 3111 B	0.1 (max)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23	Cadmium as Cd	mg/l	APHA 3111 B	0.01 (max)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
24	Arsenic as As	mg/l	APHA 3500 As	0.2 (max)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25	Selenium as Se	mg/l	APHA 3500 Se C	0.05 (max)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26	Zinc as Zn	mg/l	APHA 3111 B	15 (max)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27	Sodium as Na	mg/l	APHA 3500 Na, B	--	4.0	5.0	5.5	3.0	4.0	4.5	4.0	3.5
28	Potassium as K	mg/l	APHA 3500K, B	--	2.5	1.5	3.0	1.0	2.0	2.5	BDL	BDL
29	Boron as B	mg/l	APHA 4500 B, B	--	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30	Mercury as Hg	mg/l	APHA 3112 B	--	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31	Total Coliform	MPN/100 ml	APHA 9221 B	5000	17	11	47	11	17	11	12	14
32	Carbonate	mg/l	APHA 2340 C	--	4.0	5.0	9.0	1.0	1.0	1.0	2.0	5.0
33	Bicarbonate	mg/l	APHA 2320 B	--	10.0	23.0	58.0	63.0	4.0	67.0	11.0	68.0
34	Nitrite	mg/l	APHA 4500 NO2 B	--	0.29	0.21	0.38	0.37	0.17	0.27	0.11	0.24
35	Phosphate	mg/l	APHA 4500 P D	--	0.16	0.29	0.42	0.44	0.26	0.36	0.25	0.31

Table 3.17(b)- Summary of surface water data

Sl. No.	Parameter	Unit	Testing Methods	Standards as per IS-2296:1992 Class –'C'	Analysis Results		
					SW-9	SW-10	SW-11
1	pH (at 25 ^{o}C)	--	APHA 4500H+ B	6.0-9.0	7.86	8.0	7.77
2	Colour	Hazen	APHA 2120 B	300 (max)	10	5	30
3	Electrical Conductivity	µS/cm	APHA 2510 C	--	207.2	235.3	274.4
4	Turbidity	NTU	APHA 2130 B	--	10	5.6	29.4
5	Total Dissolved Solids	mg/l	APHA 2540 C	1500 (max)	132.0	150.0	192.0
6	Dissolved Oxygen	mg/l	APHA 4500 O. C	4 (min)	7.8	6.8	6.2
7	BOD (3) days at 27˚C	mg/l	IS 3025 (Part 44)	3 (max)	2.0	2.2	2.3
8	COD	mg/l	IS 3025 (Part 58)	-	6.2	6.1	6.9
8	Oil & Grease	mg/l	APHA 5520 B	--	ND	ND	ND
9	Total Hardness as $CaCO_3$	mg/l	APHA 2340 C	--	53.0	86.0	124.0
10	Calcium as Ca	mg/l	APHA 3500 Ca B	--	14.0	23.0	37.0
11	Magnesium as Mg	mg/l	APHA 3500Mg B	--	4.4	6.9	7.7
12	Chloride	mg/l	APHA 4500Cl- B	600 (max)	26.0	35.0	16.0
13	Sulphates (SO_4)	mg/l	APHA 4500 $SO4^-$ E	400 (max)	9.2	12.2	BDL(0.5)
14	Fluoride as F	mg/l	APHA 4500 F^- C, D	1.5 (max)	BDL (0.02)	0.23	0.35
15	Nitrate as NO_3	mg/l	APHA 4500 NO_3^- B	50 (max)	0.84	4.2	3.97
16	Ammonia as NH_4	mg/l	APHA 4500 NH_3F	--	BDL	BDL	BDL
17	Phenolic Compounds as C6H5OH	mg/l	APHA 5530-B, D	0.005 (max)	BDL	BDL	BDL
18	Cyanide as CN	mg/l	APHA 4500 CN- C, E	0.05(max)	BDL	BDL	BDL
19	Hexa Chromium as Cr^{+6}	mg/l	APHA 3500Cr B	0.05 (max)	BDL	BDL	BDL
20	Iron as Fe	mg/l	APHA 3111 B	0.5 (max)	0.374	0.101	1.18
21	Copper as Cu	mg/l	APHA 3111 B	1.5 (max)	BDL	BDL	BDL
22	Lead as Pb	mg/l	APHA 3111 B	0.1 (max)	BDL	BDL	BDL
23	Cadmium as Cd	mg/l	APHA 3111 B	0.01 (max)	BDL	BDL	BDL
24	Arsenic as As	mg/l	APHA 3500 As	0.2 (max)	BDL	BDL	BDL
25	Selenium as Se	mg/l	APHA 3500 Se C	0.05 (max)	BDL	BDL	BDL
26	Zinc as Zn	mg/l	APHA 3111 B	15 (max)	BDL	BDL	BDL
27	Sodium as Na	mg/l	APHA 3500 Na, B	--	4.5	5.0	4.0
28	Potassium as K	mg/l	APHA 3500K, B	--	2.0	2.0	2.5
29	Boron as B	mg/l	APHA 4500 B, B	--	BDL	BDL	BDL
30	Mercury as Hg	mg/l	APHA 3112 B	--	BDL	BDL	BDL
31	Total Coliform	MPN/ 100 ml	APHA 9221 B	5000	18	14	21
32	Carbonate	mg/l	APHA 2340 C	--	2.0	3.0	2.0
33	Bicarbonate	mg/l	APHA 2320 B	--	21.0	38.0	139.0
34	Nitrite	mg/l	APHA 4500 NO2 B	--	0.15	0.25	0.24
35	Phosphate	mg/l	APHA 4500 P D	--	0.24	0.38	0.53

ND: Not Detected, BDL Value: Chloride (max)- <1.0 mg/l, Oil & Grease (max)-<1.0, Arsenic as As- <0.005 mg/l, Led as Pb- <0.2 mg/l, Cadmium as Cd (max)-<0.03 mg/l, Hexa-chromium as Cr^{+6}-<0.05 mg/l, Copper as Cu (max)-<0.05 mg/l, Zinc as Zn (max)-<0.03 mg/l, Selenium as Se (max)-<0.005 mg/l, Cyanide as CN (max)-< 0.01 mg/l, Fluoride as F (max)-< 0.1, Sulphates (SO_4)-<1.0 mg/l, Phenolic Compounds as C_6H_5OH (max)-<0.001), Iron as Fe (max)-<0.1 mg/l, Nitrate as NO_3-<0.1, Sodium as Na-<1.0 mg/l, Potassium as K-<1.0 mg/l, Ammonium as NH_4-<1.0 mg/l, Boron as B-<0.1 mg/l, Calcium as Ca-<1.0 mg/l, Magnesium as Mg-<1.0 mg/l, Mercury as Hg-<0.004 mg/l, Manganese as Mn-<0.05 mg/l, Phosphate as PO_4-< 0.1 mg/l, Phenol- <0.05 mg/l, Nickel as Ni-<0.1 mg/l

Source: VCSPL Laboratory

3.6.3 Observation & Interpretation of the Surface Water Data

- Surface water data show significant variations in results for different locations. Colour range is below 5 Hazen to 35 Hazen in all the samples.
- pH is inclined towards basic side of the spectrum with highest value of 8.07 in SW- 6 and lowest value of 7.25 in SW-2.
- Electrical conductivity value is confined between 135 µS/cm (SW- 3) to 274.4 µS/cm (SW-11).
- Dissolved oxygen values are ranging from 4.6 (SW-3) to 7.8 (SW- 9).
- Turbidity varies from 4.0 NTU (SW- 4) to 36.1 NTU (SW- 5).
- Chloride content is within the permissible limits for all of the locations ranging from 16 mg/l (SW- 11) to 35 mg/l (SW- 10). The TDS values are within limit for all locations 94 mg/l (SW-3) to 192 mg/l (SW- 11).
- Oil and grease levels in surface water is below detection level at all surface water sample.
- All heavy metals like Arsenic, Lead, cadmium, Hexa chromium, copper etc. are below detectable levels in all the surface water samples.
- Sulphates in the surface water are within the standards in all the surface water samples.
- Phenolic compounds are below detectable levels. Nitrates also show levels below permissible limits.
- Quality wise surface water is fit for regular use but for drinking purpose it needs to be treated prior to use.

Interpretation:

Baseline monitored data are within permissible IS 2296 standards for Class C. Hence the water qualities of surface water bodies are suitable for human usage, but needs disinfection before using of drinking. TDS values are in higher side but it confirms within the permission limits. Therefore RO treatment is required for using the water for drinking.

3.6.4 Groundwater monitoring locations & map

Table 3.18- Ground water sampling locations (Oct-Dec2021)

Location Code	Location Name	Distance	Direction	Reason For Selection	Latitude	Longitude
GW1	Badbahal Village	0.25 km	E	Borewell sample from village habitation near the project site	21°53'19.59"N	84°52'44.05"E
GW2	Nuagaon Village	1.50 km	S	Tubewell sample from village habitation nearby project site	21°52'22.88"N	84°52'39.74"E
GW3	Bagiabahal Village	1.68 km	W	Tubewell sample from village habitation near Kukia RF close to Brahmani River	21°53'32.23"N	84°51'17.57"E
GW4	Kapanda Village	1.94 km	SW	Borewell sample from the nearest dense village habitation	21°52'30.81"N	84°51'37.09"E
GW5	Talabahali Village	2.37 km	E	Borewell sample from nearby village habitation	21°53'1.50"N	84°53'57.29"E
GW6	Santikayatpalli Village	2.80 km	NE	Tubewell sample from village between Kukia RF & Samaradari PF	21°54'49.43"N	84°53'12.39"E
GW7	Budhikutuni Village	2.93 km	SE	Tubewell sample from village residential area	21°52'1.21"N	84°53'44.03"E
GW8	Sialikudar Village	3.09 km	NNW	Borewell sample from village habitation near Kukia RF close to Brahmani River	21°55'6.71"N	84°51'52.26"E

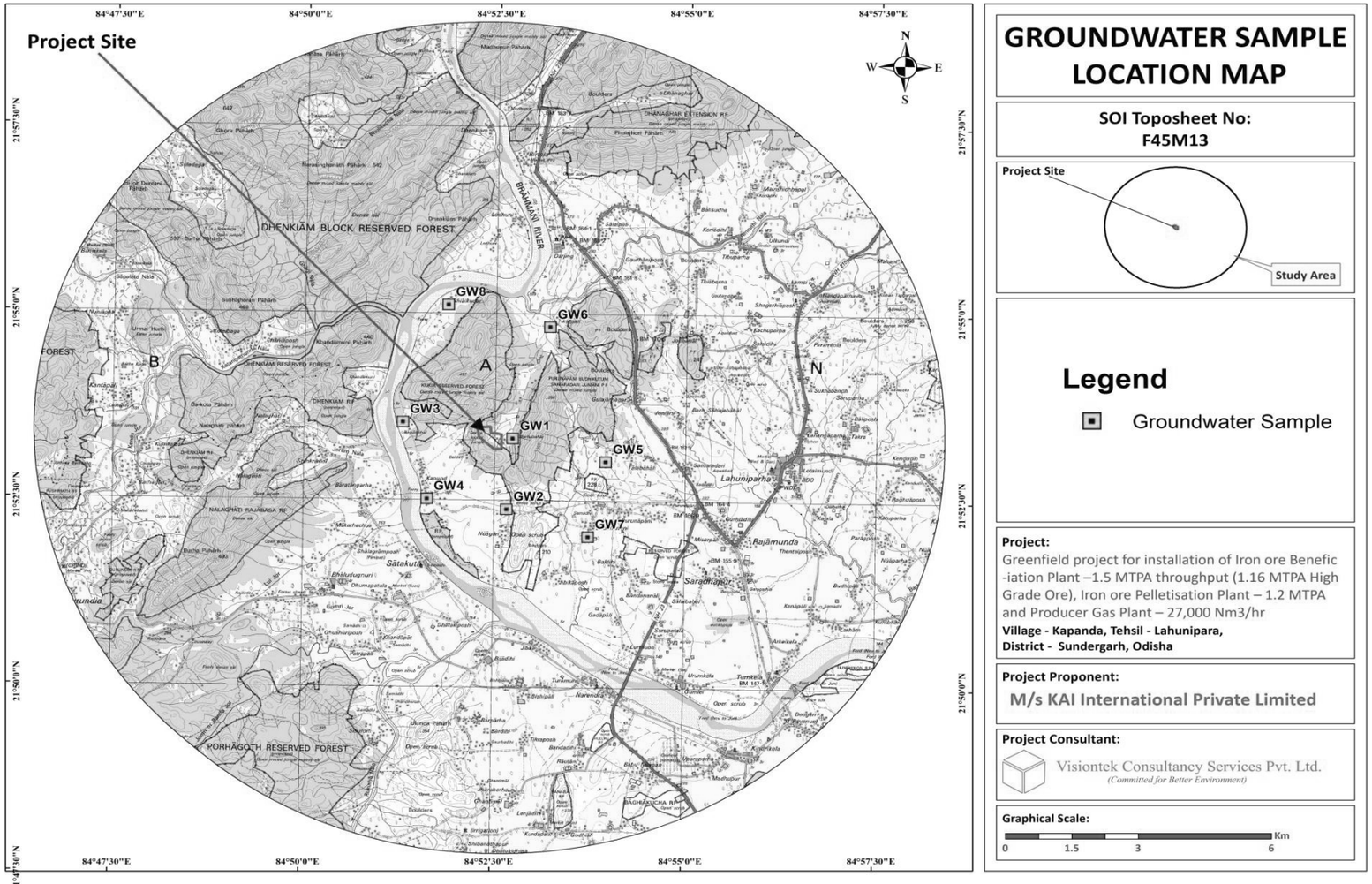
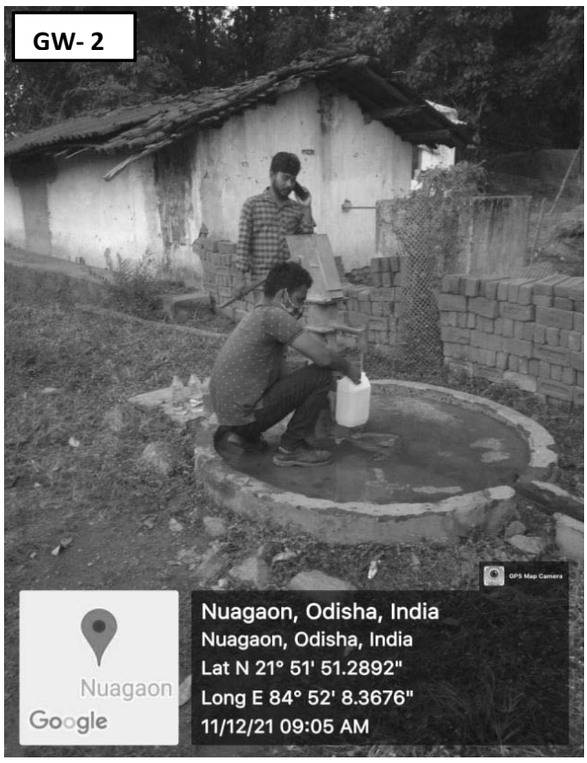
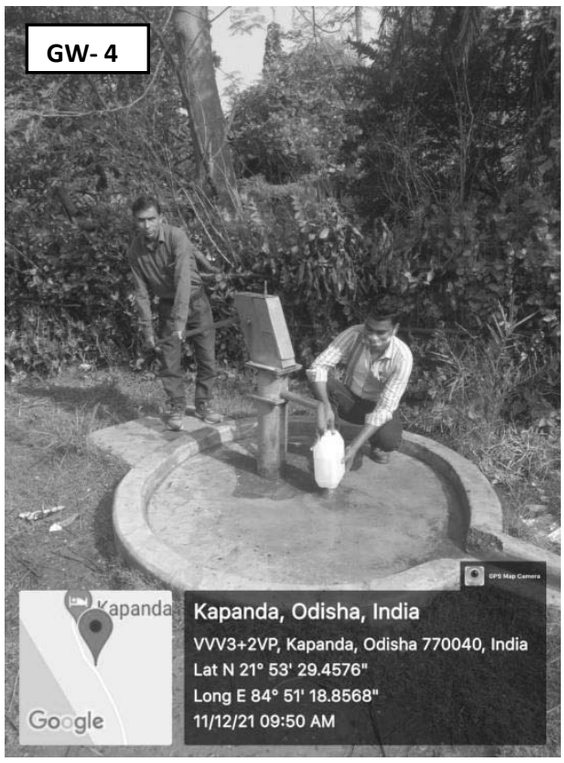


Fig. 3.19- Baseline Monitoring Locations of Ground Water

Ground Water Monitoring Photographs:





3.6.5 Summary of Ground Water Result

Table 3.19- Summary of ground water data

Sr. No.	Name of the Parameters	Unit	Testing Method	Standard as per IS 10500:2012, Amnd. 2015 & 2018		Analysis Result							
				Acceptable Limit	Permissible Limit	GW-1	GW-2	GW-3	GW-4	GW-5	GW-6	GW-7	GW-8
1	pH (at 25 °C)	---	APHA 4500H^+B	6.5-8.5	No Relaxation	6.6	6.77	7.27	7.37	7.85	7.01	7.08	7.45
2	Electrical Conductivity	µS/cm	APHA 2510 C	--	--	132.2	311.2	237.8	323	1125	492.5	526.8	294.6
3	Color	Hazen	APHA 2120 B,C	5	15	<5	15	5	<5	10	<5	65	<5
4	Taste	---	APHA 2160 C	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Odor	---	APHA 2150 B	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
6	Turbidity	NTU	APHA 2130 B	1	5	<1.0	14.1	3.3	<1.0	11.9	<1.0	64.7	<1.0
7	Total Dissolved Solids	mg/l	APHA 2540 C	500	2000	92.0	218.0	167.0	226.0	787.0	345.0	369.0	206.0
8	Total Hardness as $CaCO_3$	mg/l	APHA 2340 C	200	600	73.0	172.0	144.0	325.0	232.0	227.0	313.0	179.0
9	Total Alkalinity as $CaCO_3$	mg/l	APHA 2320 B	200	600	68.0	146.0	123.0	141.0	258.0	131.0	220.0	148.0
10	Calcium as Ca	mg/l	APHA 3500 Ca B	75	200	21.0	34.0	35.0	93.0	79.0	57.0	31.0	38.0
11	Magnesium as Mg	mg/l	APHA 3500Mg B	30	100	5	21.2	13.8	22.5	8.4	20.6	57.2	20.4
12	Chloride as Cl	mg/l	APHA 4500Cl^- B	250	1000	20	18	12	20	179	46	45	11
13	Residual Free Chlorine	mg/l	APHA 4500 Cl^- B	0.2 (Min)	1.0 (Min)	0.23	0.21	0.25	0.22	0.27	0.26	0.22	0.27
14	Sulphate as SO_4	mg/l	APHA 4500 SO_4^-	200	400	BDL(0.6)	4.7	5.0	5.9	103	334	22.4	4.3

			E										
15	Nitrate as NO_3	mg/l	APHA 4500 NO3-B	45	No Relaxation	7.0	1.8	3.0	5.6	33.2	34.9	BDL (0.04)	10
16	Fluoride as F	mg/l	APHA 4500 F – C, D	1.0	1.5	0.18	0.13	BDL(0.05)	0.28	BDL (0.01)	0.22	0.15	0.03
17	Phenolic Compounds as C_6H_6OH	mg/l	APHA 5530-B, D	0.001	0.002	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18	Cyanide as CN	mg/l	APHA 4500 CN^- C E	0.05	No Relaxation	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
19	Boron as B	mg/l	APHA 4500 B, B	0.5	2.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
20	Hexavalent Chromium as $Cr+^6$	mg/l	APHA 3500 Cr B	--	--	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
21	Ammonia as NH_4	mg/l	APHA 4500 NH_3F	0.5	No Relaxation	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
22	Sodium as Na	mg/l	APHA 3500 Na, B	--	--	6.0	5.0	4.1	5.0	72.0	20.0	21.5	5.0
23	Potassium as K	mg/l	APHA 3500K, B	--	--	3.0	3.5	2.0	2.0	1.5	2.5	2.9	BDL(0.5)
24	Copper as Cu	mg/l	APHA 3111 B	0.05	1.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
25	Manganese as Mn	mg/l	APHA 3111 B	0.1	0.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
26	Iron as Fe	mg/l	APHA 3111 B	1.0	No Relaxation	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27	Lead as Pb	mg/l	APHA 3111 B	0.01	No Relaxation	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
28	Cadmium as Cd	mg/l	APHA 3111 B	0.003	No Relaxation	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
29	Arsenic as As	mg/l	APHA 3500 As	0.01	No Relaxation	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
30	Mercury as Hg	mg/l	APHA 3112 B	0.001	No Relaxation	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
31	Selenium as Se	mg/l	APHA 3500 Se C	0.01	No Relaxation	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

32	Zinc as Zn	mg/l	APHA 3111 B	5	15	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
33	Aluminium as Al	mg/l	APHA 3500 Al B	0.03	0.2	BDL	BDL	BDL	BDL	BDL	BDL	0.11	0.24
34	Nickel	mg/l	APHA 3111 B	0.02	No Relaxation	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
35	Molybdenum	mg/l	APHA 3111 B	0.07	No Relaxation	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
36	Total Coliform	MPN/100 ml	APHA 9221 B	Shall not detectable in any 100ml sample		<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
37	Carbonate	mg/l	APHA 2340 C	--		6.0	19.0	11.0	108.0	2.0	32.0	65.0	19.0
38	Bicarbonate	mg/l	APHA 2320 B	--		23.0	110.0	95.0	165.0	119.0	90.0	231.0	135.0
39	Nitrite	mg/l	APHA 4500 NO_2 B	--		0.21	0.16	0.19	0.24	0.32	0.36	0.11	0.16
40	Phosphate	mg/l	APHA 4500 P D	--		0.15	0.34	0.22	0.16	0.24	0.15	0.18	0.15

Note: CL: Colourless, ND: Not Detected.

***** Ammended Standard (ISO 10500: 2015 & 2018) incorporated in above table.***

BDL Value: *Cu <0.02mg/l, Mn<0.05mg/l, Cd <0.03 mg/l, Se <0.001 mg/l, As <0.004 mg/l, Hg<0.002mgl, Pb<0.01mg/l, Zn<0.03mg/l, Cr <0.05mg/l, Cr^{+6}<0.05mg/l, PO_4 <0.02mgl, Na<1.0mg/l, K<1.0mg/l,Phenol <0.05mg/l, CN <0.02mg/l*

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3.6.6 Observations and interpretation of Ground water data

- Ground water data show significant variations in results for different locations.
- The odour and taste of groundwater are all agreeable.
- Colour ranges below < 5 Hazen in all the ground water samples.
- pH is inclined towards acidic side of the spectrum with highest value of 7.85 in GW-5 and lowest value of 6.6 in GW- 1.
- Electrical conductivity value is confined between 492.5 µS/cm (GW- 6) to 132.2 µS/cm (GW- 1). it shown ionic concentration and ionic mobility of the mineral contents present in water.
- Highest turbidity value is 64.7 in GW- 7, which is much higher than the expectable limit. In all other samples the turbidity value is below permissible limit.
- Chloride content is below the permissible limits for all of the sample locations.
- The TDS value is in within limit for all locations 369 mg/l for GW- 7 and 92 mg/l for GW-8.
- All heavy metals like Arsenic, Lead, etc. are below detectable levels.
- Fluoride is in permissible limits ranging between 0.22 mg/l (GW- 6) to 0.01 mg/l (BDL) in GW- 5.
- Sulphates in the surface water are within the standards.
- Phenolic compounds are below detectable levels. Nitrates also show levels below permissible limits.
- Alkalinity ranges from 258 mg/l (GW- 5) to 68 mg/l (GW- 1) .
- Total coliform value is in permissible range in all the samples analyzed.
- Quality wise Ground water is fit for regular use but for drinking purpose one should take the precautions and filter the water or treat it well.
- Pesticides are absent in all the groundwater samples shows no leeching of such contamination through soil and irrigation activities.
- These values show that ground water is safe for domestic purpose in surroundings of the project area, but for safer side it is recommended to treat the water before drinking use.
- Magnesium values are more than permissible limit and within acceptable limit. In all the samples and calcium is found 93 mg/l (GW- 4) to 21 mg/l (GW- 1) be in acceptable limit in all the ground water samples. Sulphates values are well below permissible limits ranging from 334 mg/l in (GW-6) to 4.7 mg/l (GW-2). and Nitrate value are well below permissible limits ranging from 34.9 mg/l in (GW- 6) to 0.04 mg/l (BDL) (GW-7)
- Fluoride is also below permissible limits reducing the risk of contamination in the area. All the heavy metals are below detectable range in the ground water including Hexavalent Chromium.

3.7 Soil Environment

Soil may be defined as a thin layer of earth's crust which serves as a natural medium for the growth of plants. It is unconsolidated mineral matter that has been subjected to and influenced genetic and environmental factors like plant material, climate, organism and topography all acting over a period of time. Soil differs from the parent material in the morphological, physical, chemical and biological properties. Also soils differ among themselves in some or all the properties depending on the difference in the genetic and environmental factors. Therefore some soils are light yellow and others are black. Some are coarse textured and the others are fine textured. They serve as a reservoir of nutrients and water for crops and provide mechanical anchorite. Soil Sampling is based on agriculture field available in the study area. Composite sampling is done following BIS method. Coning and Quartering method is done & the samples were collected in air locked polythenes following with proper PPE (Personal Protective equipment) and transported to laboratory.

The sampling locations have been finalized with the following objectives:

- To determine the baseline soil characteristics of the study area; and
- To determine the impact of industrialization on soil characteristics.

Quality of the soil in the area is showing a marked diversity in nature depending upon the parent rock and climatic conditions prevailing in different parts of the district. The analysis results of the soil samples collected are given in table below.

3.7.1 Soil monitoring location and map

Table 3.20- Sampling Locations for Soil (Oct-Dec 2021)

Location Code	Location Name	Distance	Direction	Reason For Selection	Latitude	Longitude
SQ-1	At Project Site	--	--	On - site location / Mixed forest & scrub land	21°53'18.84"N	84°52'27.59"E
SQ-2	Badbahal Village	0.43 km	E	Dense forest land	21°53'19.77"N	84°52'50.06"E
SQ-3	Santikayatpali Village	1.18 km	NNE	Dense forest land	21°54'4.87"N	84°52'40.99"E
SQ-4	Kapanda Village	1.72 km	SW	Rural built-up land	21°52'29.05"N	84°51'49.75"E
SQ-5	Nuagaon Village	2.17 km	S	Cropland near village area	21°52'0.70"N	84°52'31.97"E
SQ-6	Near Sub-station, Purunapani Village	3.39 km	SE	Barren land	21°52'31.45"N	84°54'25.22"E

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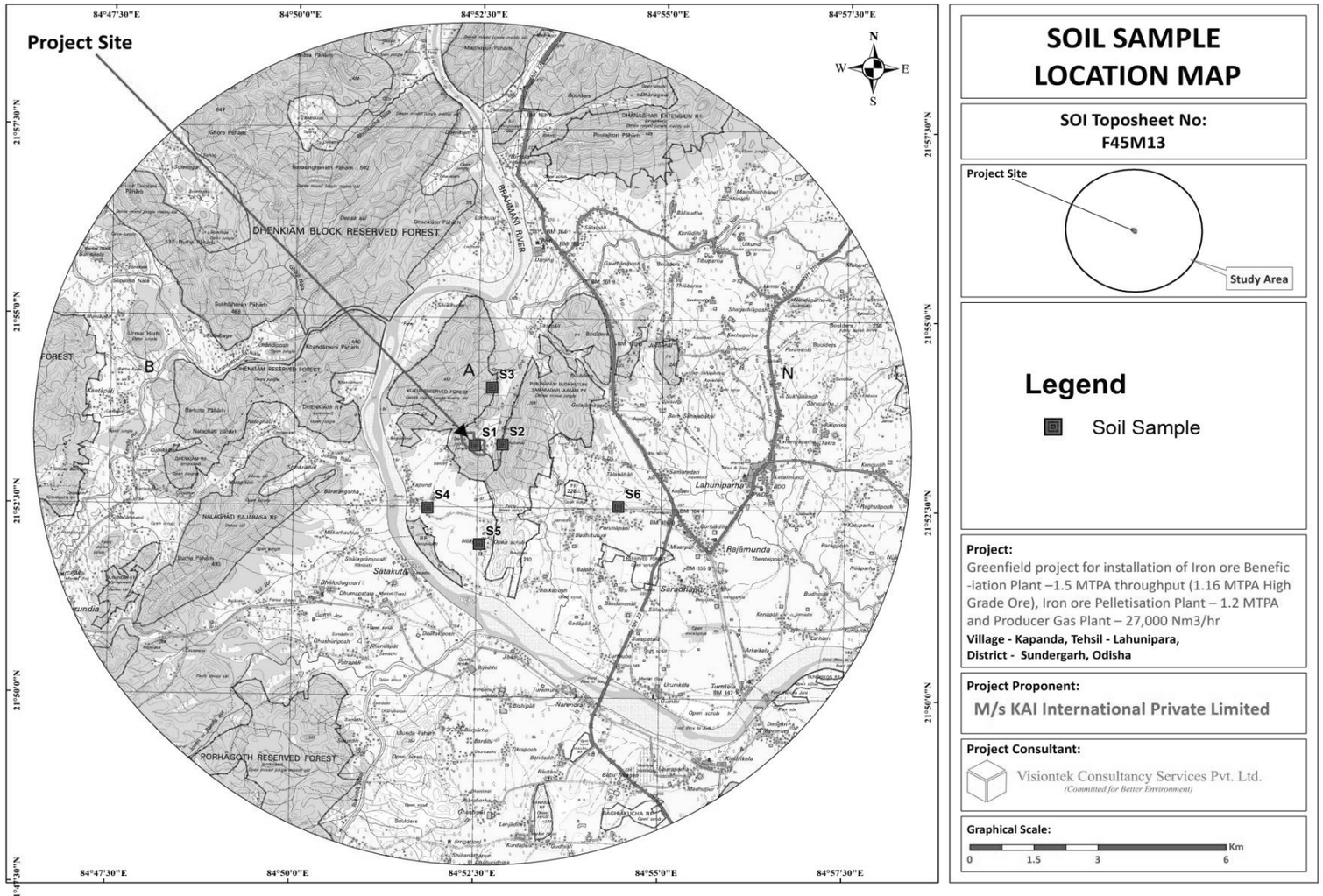
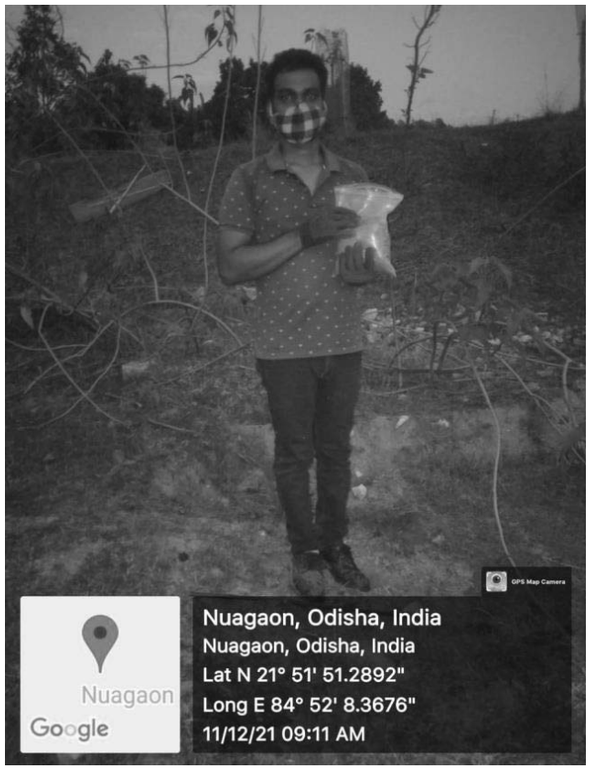


Fig. 3.20- Baseline Monitoring Soil Location Map

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Soil Quality Monitoring Photographs





The samples have been analysed as per the established scientific methods for physico-chemical parameters. The heavy metals have been analysed by using Atomic Absorption Spectrophotometer and Inductive Coupled Plasma Analyser. The methodology adopted for each parameter is described in **Table- 3.21**.

Table 3.21- Analytical Techniques For Soil Analysis

Parameters	Testing Method
pH	IS:2720(Pt-26):2007
Conductivity	IS: 14767:2000
Cation Exchange Capacity	IS: 2720(Part XXIV) 1976
Total Phosphorus as P	USDA:1954-Reaffirmed 2010, Page 134& Method in Environmental Analysis Water, Soil and Air Edition 2000
Total Nitrogen as N	IS 14684(Part-26) 1999, RA 2008
Total Potassium as K	Jackson M L Soil Chemical Analysis Page-183-2051973
Mercury as Hg	EPA 3050B, 7000B
Sand	Methods of Soil Analyses- Black-1965 American Society of omy USA
Silt	Methods of Soil Analyses- Black-1965 American Society of Agronomy USA
Clay	Methods of Soil Analyses- Black-1965 American Society of Agronomy USA

Table 3. 22- Standard Soil Classification

S. No.	Soil Test	Classification
1	**pH**	<4.5 Extremely acidic 4.51- 5.50 Very strongly acidic 5.51-6.00 moderately acidic 6.01-6.50 slightly acidic 6.51-7.30 Neutral 7.31-7.80 slightly alkaline 7.81-8.50 moderately alkaline
		8.51-9.0 strongly alkaline 9.01 very strongly alkaline
2	Salinity Electrical Conductivity (µmhos/cm) (1ppm = 640 µmho/cm)	Up to 1.00 Average 1.01-2.00 harmful to germination 2.01-3.00 harmful to crops (sensitive to salts)
3	Organic Carbon (%)	Up to 0.2: very less 0.21-0.4: less 0.41-0.5 medium 0.51-0.8: on an average sufficient 0.81-1.00: sufficient >1.0 more than sufficient
4	Nitrogen (Kg/ha)	Up to 50 very less 51-100 less 101-150 good 151-300 Better >300 sufficient
5	Phosphorus (Kg/ha)	Up to 15 very less 16-30 less 31-50 medium 51-65 on an average sufficient 66-80 sufficient >80 more than sufficient
6	Potash (Kg/ha)	0 -120 very less 120-180 less 181-240 medium 241-300 average 301-360 better >360 more than sufficient

Source: Hand Book of Agriculture, Indian Council of Agricultural Research

3.7.2 SUMMARY OF SOIL DATA

Table 3.23- Summary of soil data

Sl. No.	Parameters	Unit	Method of Testing	Analysis Result					
				SQ-1	SQ-2	SQ-3	SQ-4	SQ-5	SQ-6
1	pH	--	IS:2720(P-26):1987 (RA :2016)	6.63	6.78	7.16	6.4	6.68	6.83
2	Colour	--	VCSPL/SOIL- SOP/004	Light Brown	Red	Red	Grey	Light Brown	Red
3	Electrical Conductivity	µS/cm	IS:14767:2000 (RA 2016)	65.0	30.8	28.6	106.3	21.7	21.8
4	Type of Soil	--	VCSPL/SOIL- SOP/004	Sandy clay Loam	Sandy clay Loam	Sandy clay Loam	Sandy clay	Sandy clay Loam	Sandy clay
5	Sand	%	VCSPL/SOIL- SOP/004	28.9	26.16	25.73	41.54	25.51	37.26
6	Silt	%	VCSPL/SOIL- SOP/004	0.3	0.25	0.26	0.42	0.26	0.36
7	Clay	%	VCSPL/SOIL- SOP/004	70.8	73.59	74.01	58.04	74.23	62.35
8	Infiltration Rate	cm/hr	VCSPL/SOIL- SOP/004	0.4	0.35	0.4	0.6	0.35	0.45
9	Bulk Density	gm/cc	USDA :1954- Page 121 RA 2010	1.19	1.18	1.19	1.23	1.3	1.19
10	Porosity	%	VCSPL/SOIL- SOP/004	55.09	55.47	55.09	53.55	50.94	55.09
11	Moisture content	%	IS 2720 (Part-2) 1973,RA 2015	0.52	0.83	0.11	0.82	0.73	0.5
12	Chloride as Cl	mg/Kg	VCSPL/SOIL- SOP/004	95.0	76.0	76.0	152.0	38.0	38.0
13	Sulphate as SO_4	mg/Kg	VCSPL/SOIL- SOP/004	45.97	73.95	53.97	107.97	49.98	67.97
14	Available Potassium as K	mg/Kg	VCSPL/SOIL- SOP/004	23.0	15.0	20.0	31.0	35.0	32.0
15	Total Potassium as K	mg/Kg	VCSPL/SOIL- SOP/004	25.0	19.0	29.0	42.0	39.0	35.0
16	Available Phosphorous as P	mg/Kg	VCSPL/SOIL- SOP/004	9.97	9.93	9.98	9.97	9.95	9.94
17	Available Nitrogen as N	mg/Kg	VCSPL/SOIL- SOP/004	23.3	17.45	17.46	23.23	23.28	40.71
18	Organic Carbon	%	IS 2720 (Part-22) 1972,RA 2020	0.48	0.3	0.5	0.78	0.29	0.41
19	Silica as SiO_2	mg/Kg	VCSPL/SOIL- SOP/004	25.0	24.5	23.0	35.6	23	33.5

20	Iron as Fe	%	EPA 3050B, 7000B,Rev 02, 1996	2.49	6.9	7.04	2.17	1.83	2.66
21	Manganese as Mn	%	EPA 3050B, 7000B,Rev 02, 1996	0.024	0.075	0.067	0.02	0.02	0.044
22	Exchangeable Calcium as Ca	mg/Kg	VCSPL/SOIL- SOP/004	30.5	29	27.1	41	25.9	26.4
23	Exchangeable Magnesium as Mg	mg/Kg	VCSPL/SOIL- SOP/004	43.2	48.0	39.0	53.0	38.0	39.0
24	Water Holding Capacity	%	VCSPL/SOIL- SOP/004	51.96	57.96	55.97	48.99	42.98	49.97
25	Cadmium	mg/Kg	EPA 3050B, 7000B,Rev 02, 1996	BDL	BDL	BDL	BDL	BDL	BDL
26	Zinc	mg/Kg	EPA 3050B, 7000B,Rev 02, 1996	31.87	43.5	40.3	26.69	17.38	16.68
27	Nickel as Ni	mg/Kg	EPA 3050B, 7000B,Rev 02, 1996	11.47	66.47	57	19.65	32	30.8
28	Copper	mg/Kg	EPA 3050B, 7000B,Rev 02, 1996	30.1	62.62	57	16.77	13.79	14.89
29	Aluminium	%	EPA 3050B, 7000B,Rev 02, 1996	0.091	2.34	1.89	0.085	0.075	0.132
30	Lead	mg/Kg	EPA 3050B, 7000B,Rev 02, 1996	BDL	BDL	BDL	BDL	BDL	BDL
31	Exchangeable Sodium	mg/Kg	VCSPL/SOIL- SOP/004	45.0	29.0	32.0	48.0	59.0	64.0
32	Exchangeable Potassium	mg/Kg	VCSPL/SOIL- SOP/004	20.0	13.0	18.0	29.0	33.0	30.0
33	Sodium Absorption Ration (SAR)	mg/Kg	VCSPL/SOIL- SOP/004	1.22	0.76	0.92	1.16	1.72	1.84

BDL values: *Cd- 0.5 mg/kg, Pb- 0.5 mg/kg, Sulphate- 1 mg/kg* ***Source: VCSPL Laboratory***

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3.7.3 Observation and interpretation of soil data

- The soil sample shows pH ranging between 6.83 (SQ- 6) to 6.4 (SQ- 4) promotes plant growth.
- Conductivity ranges from 106.3 µS/cm (SQ- 3) to 21.7 µS/cm (SQ- 5). At the project location the soil is Sandy Clay Loam and at all the other monitoring locations the soil is sandy clay.
- Porosity of the soil at all locations is observed to be in between 55.47% (SQ- 2) to 55.09% (SQ- 1 & 3). Moisture content is found to be in between 0.82% (SQ- 4) to 0.11% (SQ- 3).
- Chloride ranges from 14.98 mg/kg to 96.3 mg/kg. Total potassium ranges from 42.0 mg/kg (SQ- 4) to 19.0 mg/kg (SQ- 2)
- Nitrogen content varies from 40.71 mg/kg (SQ- 6) to 17.45 mg/kg (SQ- 2). Organic carbon varies from 0.78 mg/l (SQ- 4) to % to 0.29 mg/liter (SQ- 5).
- The data suggests that the soil has ample nutrients and does not require additional fertilizer for single cycle farming. However, adding fertilizer in calculated amounts may help in sustaining the nutrient quality and reliability of farming.

3.8 Topography and Geomorphology

3.8.1 Topography

The coordinates of the plant area are 21°53’ 11.30"N to 21°53'29.01"N 84°52'15.80"E to 84°52'35.23"E. It is situated at Kapanda, Tehsil- Lahunipara, Sundargarh, Odisha. The topography of the plant area is hilly in the western part only and the slope is downward towards the East direction. The elevation varies from 193m to 252m AMSL. The perennial river Brahmani flows about 1.65 km in the West direction of the lease area and forms the main drainage system of the vicinity.

Sundargarh District is coming under the North Western Plateau as per the agro climatic zone of Odisha. Soil group of the Sundargarh district is mixture of red and yellow soil. Brahmani upland is situated in the central part of the study area which is formed over granite and granite gneiss.

3.8.2 Lithostratigraphy

The study area forms the eastern part of the Sundergarh district. The rocks of Iron Ore Group and Darjing Group are exposed in the eastern and western part of the study area respectively. The middle part of the area is underlain by Bonai Granite. The Precambrian rocks of the Deogarh group are exposed along the southern margin in the study area. The various lithostratigraphic units of the study area are discussed below:

Darjing Group – These rocks are exposed in the western part of the study area lying between Bonai Granite and Gangpur Group. The litho assemblage is characterized by a repetitive sequence of metamorphosed rudaceous, arenaceous, carbonaceous, and argillaceous sediments having basic and ultrabasic dykes. The dominant litho units are feldspathic quartzite, carbonaceous phyllite, slate, staurolite schist, mica schist etc. These rocks have undergone deformation in several phases during Satpura cycle (c.a. 1200my) with a typical E-W to ENE-WSW tectonic trend. They show features of

shearing and faulting probably related to Singhbhum Thrust. The Tamporkela Granite, a small granite body is intrusive into the Darjing Group of rocks. Groundwater movement and storage in this group of rocks occurs within weathered residum, joints/ fractures and other secondary porosity like foliation plane.

Deogarh Group – The rocks of this group occupy the southern margin of the study area. The important rock type is Quartzite, a member of Classic Formation of the Deogarh Group. Two types of quartzite are noticed in the study area, i.e., (a) micaceous quartzite, (b) massive quartzite. The micaceous quartzite mainly consists of quartz, sericite, and muscovite along with few grains of orthoclase. This quartzite forms linear hills trending E-W in the southern margin of the study area.

Bonai Group – The Bonai Group occupies a triangular area covering over 700 sq. km in the central part of the district. It is bordered on the east by Iron Ore Group. Within the granite body there are numerous enclaves of amphibolite and quartzite quartz schist. The major component of the Bonai Granite is porphyritic granite. The Bonai Granite itself is intruded by dolerite dykes and ultramafic bodies. Most of the dykes are quartz dolerite which are slightly metamorphosed and consists of saussuritised plagioclase, clino-Pyroxene with varying degree of alteration to chloritic and actinolitic amphibolites. Apart from the quartz dolerite, other rocks found in the dyke suite are peridotite. The prominent trends of dykes in granite body are NE-SW, NW-SE and NEE-SSW. In the rocks of Bonai Granite, groundwater occurs in the secondary porosity. The hydrogeology of the area is controlled by the thickness of the weathered zone, degree and extent of fracturing. However, at some places fractured and weathered dykes act as potential groundwater zone.

Laterite – Both ferruginous and manganiferous laterites are developed as small discontinuous patches in Koira, Lahunipara and Bonai Blocks of the Study area which act as a potential source of groundwater, forming shallow aquifers.

Alluvium – Alluvium of recent origin has limited occurrence along the banks of the stream and rivers which are comparatively more fertile and have good groundwater potential. In the study area, exploratory drilling operations have been undertaken by different central and state government organizations like CGWB, DWR and RWSS Sundargarh etc. As the work of exploratory drilling particularly in hard rock terrain involves high cost and progress of drilling is relatively slow to cover each village, exploratory drilling programme becomes an extremely difficult proposition. As such the number of exploratory drilling tube taken up in an area is generally decided by available resources, men, and machinery available at the disposal of the drilling crew and number of locations recommended as suitable sites for drilling.

3.8.3 HYDROGEOLOGY

Hydrogeological setting of an area is described with respect to the nature and disposition of subsurface geological features followed by the type of aquifer system and occurrence of groundwater. Besides this, systematic well inventory studies and its significance in the evaluation of water table configuration, groundwater flow direction and water table fluctuation from pre-monsoon to post-monsoon periods have

been dealt with. In the study area, groundwater is exploited through dug wells and borewells to meet the domestic and irrigation requirements tapping mostly the shallow depth aquifers.

- **Weathered mantle** - The weathered mantle has a thin layer of topsoil underlain by weathered rocks. The thickness of the weathered mantle varies from place to place and reaches maximum to a depth of 20 m bgl. Groundwater occurs under water table condition, and it is mostly developed by dug wells, the most common groundwater structure of the study area. Depending upon the topography and geological set-up, the productivity of the aquifer varies from place to place. In general, groundwater fluctuation is high in this zone and in peak summer some of the dug wells go dry.
- **Saprolitic zone** - This zone is sandwiched between the weathered mantle and fresh rock mass. It is a partly weathered zone but retaining its original features like joints, fractures etc. It represents a kind of transitional character between fresh rock and weathered mantle. In general, the depth of occurrence of this zone varies from 15 to 35 m bgl. Normally, deep, and prolonged process of weathering (hydrolysis) facilitates formation of thick saprolitic zone. Groundwater occurs under semi confined condition and yield of this aquifer sometimes go up to 3 lps which is nearly 40% of the total yield of a successful bore well in this area.
- **Fracture zone** - Rainwater directly or indirectly percolates down into the fracture zones of underlying rocks through interconnected joints, fissures, foliation planes and other weak planes in the Precambrian terrain. The movement and storage of groundwater in the fractures depends upon continuity of fractures, their interconnection, openness, degree of penetration, inclination and closeness to fault planes and shear zone etc. The principal types of fractures encountered below weathered zone are Saturated and unsaturated fractures. The unsaturated fractures are of two types - one is completely dry and the other is non-productive. The dry fractures are identified by the presence of quartz veins. The non-productive fractures are those in which fractured rock particle bears the marks of passage of water and air (oxidation mark) but the zone has no recoverable discharge. Besides this, another type of fracture, through rare in occurrence, was encountered during drilling which indicated isolated, more or less perched type of situation. When such fractured zone was encountered, the yield is only for a short initial period after which its yield reduced considerably. The occurrence of potential saturated fractures is mostly restricted down to 60m depth and further below. The lithological characteristics, age of rock mass and their structural features have significant control on the nature of saturated aquifers.

3.8.4 Geomorphology

The area is mainly represented by high hills, isolated hillocks, denudated volcanic outcrops and undulating plains etc. Highly resistant rocks like quartzites, B.H.J. and B.H.Q. bearing Iron Ore Group of rocks, Proterozoic volcanics and Kolhan sedimentaries constitute the high hill ranges rising to a maximum height of 805 m. above M.S.L. in Siddhamath Parbat. In general elevation ranges from 580 m to 800 m a m s l. The undulating terrain scattered sporadically in the area is traversed by numerous isolated hillocks and metasedimentary and quartzitic hills.

The undulating terrain bordering the hilly tract comprises the vast structural and denudational hills, pediments, intermountain valleys, gullies and pediplanes etc. Laterite forms lateritic upland in other areas bordering hills of iron ore range. The lateritic upland rises to a height of 384 m. above mean sea level and is developed in a sporadic manner in area.

Structural Hills

These are the most dominating hydromorphic unit. This hydromorphic unit comprises of Iron Ore Group of rocks mainly quartzites, banded Magnetite-Haematite-Quartzite, BHJ, Metasediments, Volcanic tuffs and ultrabasics. These form a major geomorphic unit in the eastern and western part of the area. These are structurally controlled hills with complex folding, faulting and traversed by numerous joints/fractures facilitating infiltration and mostly act as run-off zone. The occurrence springs are common in this hydromorphic unit.

Buried Pediments

This is the second most common unit in the study area and found bordering the hilly terrain and in localized patches throughout the buffer zone. Numerous fractures and joints especially in the banded iron formations traverse this. Saturated thickness of aquifers varying from 15-25 m. favours good amount of water to circulate within their zone before reaching the groundwater reservoir consisting of deeper fractured zones. Groundwater potential is poor to moderate, and this unit is suitable for dug wells and dug-cum-bore wells.

Residual and Denudational Hills

These hills are the residual masses of hillocks left out after prolonged weathering and denudation. These are very few but act as run off zone and rate of infiltration is poor.

Lineaments

Major lineaments are picked up from satellite data interpretation. Most of them are trending in NW-SE and NNE-SSW direction.

3.8.5 Geology

The District is part of Gangpur Group, South Singhbhum Granite-Iron Ore Series.

Iron Ore Series	Phyllites, Slates and Lavas
	Raghunathpali Conglomeretate
----------Shear zone----------	
Gangpur Series	Phellytes and Mica –schists
	Upper Carbonaceous Phyllites
	Calcitic Marbles
	Dolomitic Marbles

Mica-schist and Phyllites
Lower Carbonaceous Quartzites and Phyllites
Gondites with associated Phyllites
Base not seen

It should, however, be noted that some of the rocks , which have phyllitic appearance and characters, are really products of retrogressive metamorphism, containing relics of garnet, stourolite, biotite etc. The Satpura strike (ENE-WSW) is found to be superimposed on an earlier , presumably Eastern Ghats, strike which is prominent. The over lying beds are phyllites and mica-schists belonging to some parts of the Iron ore Series.

The Gangpur Series is intruded by basic sills (Dalma traps) and by the bosses of the Chhota Nagpur granite. The basic rocks have been converted in to schistose, amphibolites and epidiorites containing amphibole , clinozoisite and magnetite.

Drainage Pattern

The study area is drained by a number of streams of different order. They all act as distributaries of Brahmani River. In study are Brahmani River is a major river whereas other tributary rivers such as Amrurhi Nala (NNE), Katangamunda Nala (NW) & Rukura River (S). Major portion of the study area is drained by a number of sub-parallel drainage, which ultimately joins Brahmani River. The drainage in project area shows a radial and dendritic pattern and is mostly the result of topography rather than structurally controlled.

A drainage map of the study area is shown in **Fig. 3.21**. In this study area, highest order stream is 6^{th} order.

Stream orders

1^{st} Order Stream = 157
2^{nd} Order Stream = 40
3^{rd} Order Stream = 10
4^{th} Order Stream = 2
5^{th} Order Stream = 1
6^{th} Order Stream = 1

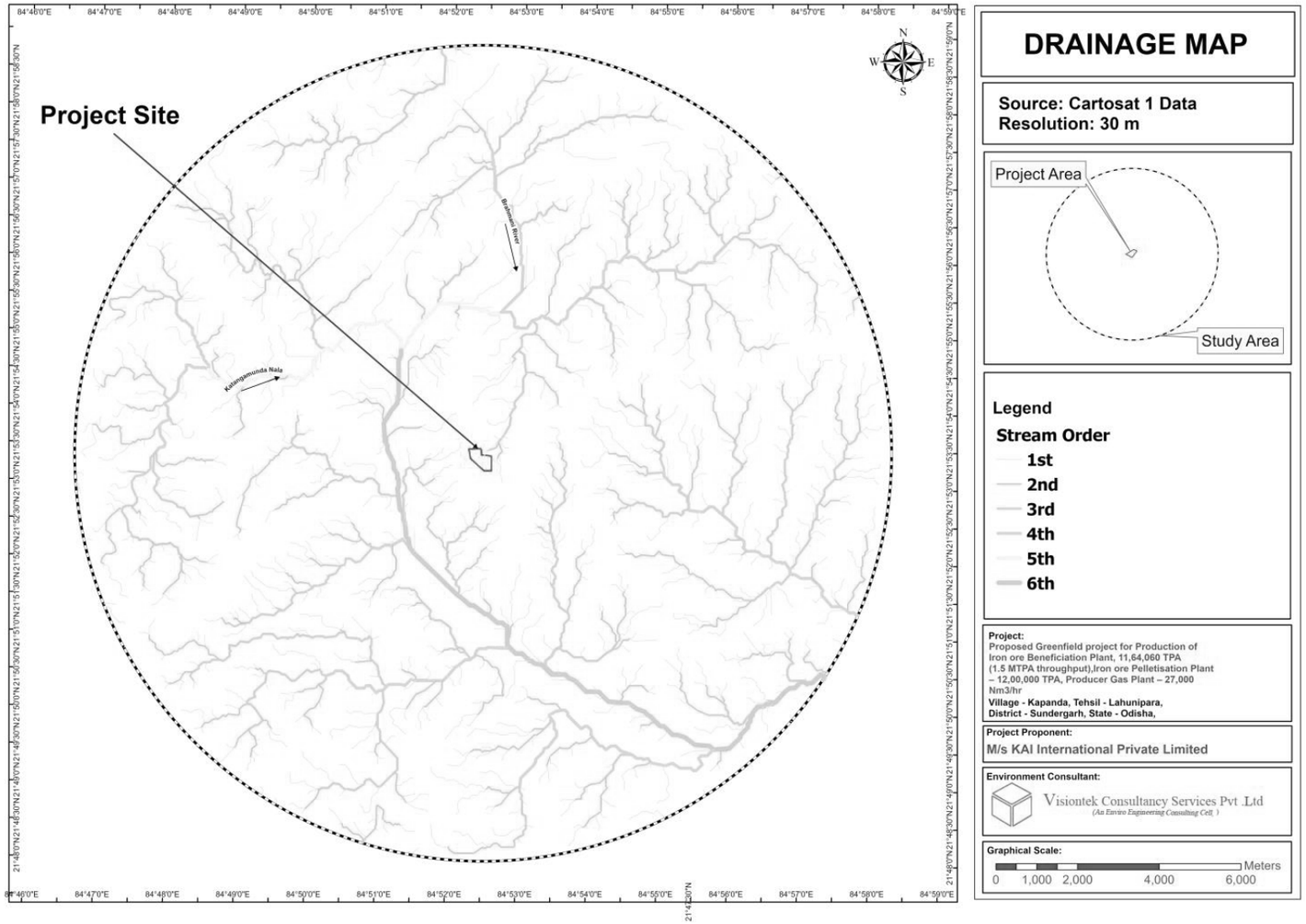


Fig. 3.21- Drainage Map of the Study Area

3.9 TRAFFIC STUDY

3.9.1 ROAD NETWORK IN THE AREA AND TRAFFIC COUNT STATION

The proposed location is surrounded by planned road network. The project has direct access to NH-23 & NH-215. The traffic study locations and surrounding road network as shown in below **Fig. 3.22**.

Data were collected at three locations at Kapanda-Fatjharan village road (Near Entry gate of project site), near intersection of Santikayatpali Road to NH-23 and at Gudhiali (Intesection of NH-23 & NH 215). Traffic surveys were carried out on 17.12.2021 and 19.12.2021.Traffic Volume data collection was carried out manually in all the three locations. The data were collected for 24 hours starting from 06:00 Hrs.

Based on the data collected, the number of vehicles/day was converted to equivalent PCUs. The following table provides a summary of Passenger Car Units (PCUs) monitored at the identified monitoring locations.



Fig. 3.22- Traffic study location

Table 3.24- Details of traffic monitoring locations

Sl. No.	Location Name	Location Code	Distance Aerial (Km)	Direction	Justification
1	At Kapanda-Fatjharan village road (Near Entry gate of project site)	TS1	0.1	N	Village Road passing close to the project site
2	Near intersection of Santikayatpali Road to NH-23	TS2	4.4	NE	Santikayatpalli Village road connected to NH 23 from the project Site
3	At Gudhiali (Intersection of NH-23 & NH 215).	TS3	4.6	SE	Intersection of NH-23 & NH-215 at Gudhiali Village

3.9.2 Summary of the Traffic Density/count & PCU

Table 3.25- Monitored Cumulative Traffic per day, Dt. 17.12.2021

S.No.	Study Location	Details	Volume (PCU/hr)	*Capacity (PCU/hr)	Existing V/C ratio	**Level of Service (LOS)
1.	Kapanda – Fatjharan village road (near Entry Gate of Project Site)	Average Hour Load	294	1400	0.21	B
		Peak Hourly Load	310		0.22	B
2.	Near intersection of Santikayatpali Road to NH-23	Average Hour Load	1642	5400	0.30	B
		Peak Hourly Load	1820		0.33	B
3.	Gudihali (Intersection of NH-23 & NH-215)	Average Hour Load	1794	5400	0.33	B
		Peak Hourly Load	2187		0.40	C

Table 3.26- Monitored Cumulative Traffic per day, Dt. 19.12.2021

S.No.	Study Location	Details	Volume (PCU/hr)	*Capacity (PCU/hr)	Existing V/C ratio	**Level of Service (LOS)
1.	Kapanda – Fatjharan village road (near Entry Gate of Project Site)	Average Hour Load	285	1400	0.20	B
		Peak Hourly Load	298		0.21	B
2.	Near intersection of Santikayatpali Road to NH-23	Average Hour Load	1578	5400	0.29	B
		Peak Hourly Load	1772		0.32	B
3.	Gudihali (Intersection of NH-23 & NH-215)	Average Hour Load	1745	5400	0.32	B
		Peak Hourly Load	2163		0.40	C

Source: IRC-106:1990
****Level of Service (LoS) as per IRC.***

3.9.3 Observation and interpretation of monitoring data

Table 3.27- LOS of Monitored Location at Present Scenario

Date	TS1	LOS at Average Hour Load	LOS at Peak Hourly Load	TS2	LOS at Average Hour Load	LOS at Peak Hourly Load	TS3	LOS at Average Hour Load	LOS at Peak Hourly Load
17.12.2021	Kapanda – Fatjharan village road (near Entry Gate of Project Site)	B	B	Near intersection of Santikayatpali Road to NH-23	B	B	Gudihali (Intersection of NH-23 & NH-215)	B	C
19.12.2021		B	B		B	B		B	C

At the location i.e. Kapanda – Fatjharan village road (near Entry Gate of Project Site), the LOS of the village road is found to be very good (B) most of time. At intersection of Santikayatpali Road to NH-23 and at Gudihali (Intersection of NH-23 & NH-215), the LOS of the road is found to be very good (B) most of the time. But, the LOS of road at Gudihali (Intersection of NH-23 & NH-215), is found to be good (C) sometimes during peak hour traffic.

The detailed Traffic Study Report is attached as **Annexure- 21**.

3.10 Ecological & Biological Environment

3.10.1 Ecology & Biodiversity of the Area

The detailed ecological assessment of the study area has been carried out with the following objectives:

- Identification of flora and fauna within the study area;
- Preparation of checklist of species which also include endangered, endemic and protected (both floral and faunal categories); and
- Evaluation of impact of proposed expansion on flora and fauna of the area. The ecological status of the study area has been assessed based on the following methodology:
- Primary field surveys to establish primary baseline of the study area; and
- Compilation of information available in published literatures and as obtained from Forest survey of India, Environmental Information Centre, Botanical Survey of India and Zoological Survey of India.

The flora and fauna studies were carried out at randomly selected different sites representing the entire study area of 10 km radius around project premises, eco sensitive locations viz. forest area, Bio-Sphere reserve etc.

❖ **Terrestrial Ecology**

The following major objectives have been considered:

- Assess the existing status of environment.
- Assess the impacts due to the proposed area.
- Suggest pollution control and ameliorative measures.
- Prepare an action plan for implementation of suggested ameliorative measures.
- Suggest a monitoring programme to assess the efficacy of the various adopted environmental control measures.
- Assess financial considerations for environmental control plans during operation.
- During the study period ecological study was conducted for both flora and fauna in the study area around 10km of the proposed project site and the list of species are given here under.

3.10.2 Flora in the Study Area

Table 3.28- List of Flora in the Project Area

Local Name	Botanical Name	Family Name
TREES SPECIES		
Achu	*Morinda tinctoria*	Rubiaceae
Amba (Mango)	*Mangifera indica*	Anacardiaceae
Amla	*Emblica officinalis*	Euphorbiaceae
Asan	*Terminalia tomentosa*	Combretaceae
Bahada	*Terminalia belerica*	Combretaceae
Char	*Buchnania lanzan*	Anacardiaceae

Local Name	Botanical Name	Family Name
Dhaman	*Grewia tillaefolia*	Combretaceae
Dhaura	*Anogeissus latifolia*	Combretaceae
Dhala siris	*Albizzia procera*	Mimosaceae
Haldu	*Adina cordifolia*	Rubiaceae
Harida	*Terminalia chebula*	Combretaceae
Jamun	*Syzygium cuminii*	Myrtaceae
Kaluchia	*Diospyros sylvatica*	Ebenaceae
Kamalagundi	*Mallotus phillipinensis*	Euphorbiaceae
Kendu	*Diospyrus melanoxylon*	Ebenaceae
Kumbhi	*Careya arborea*	Myrtaceae
Kusum	*Schleichera oleosa*	Sapindaceae
Mahul	*Madhuca indica*	Sapotaceae
Moi	*Lannea grandis*	Anacardiaceae
Mundi	*Mitragyna parviflora*	Rubiaceae
Palas	*Butea monosperma*	Papilionaceae
Rai	*Dillenia pentagyna*	Dilleniaceae
Rohini/ Som	*Soymida febrifuga*	Meliaceae
Sal	*Shorea robusta*	Dipterocarpaceae
Semul	*Bombax ceiba*	Bombacaceae
Sidha	*Lagerstroemia parviflora*	Lythraceae
Siris/ Tentra	*Albizzia lebbek*	Mimosaceae
Teak	*Tectona grandis*	Verbenaceae
HERBS/SHRUBS		
Anantamula	*Hemidesmus indicus*	Asclepiadaceae
Arakha	*Calotropis procera*	Asclepiadaceae
Baibidanga	*Embelia robusta*	Myrsinaceae
Basanga	*Adhatoda vasica*	Acanthaceae
Dhatki	*Woodfordia fruticosa*	Lythraceae
Kurei	*Holarrhena antidysenterica*	Apocynaceae
CLIMBERS		
Atundi	*Combretum decandrum*	Combretaceae
Baidanka	*Mucuna monosperma*	Papilionaceae
Bichhuati	*Urtica dioica*	Euphorbiaceae
Muturi	*Smylax macrophylla*	Liliaceae
Siali	*Bauhinia vahlii*	Papilionaceae
Satabari	*Asparagus racemosus*	Liliaceae

Table 3.29- List of Flora in the Impact Area

Sl. No.	Local Name	*Botanical Name*	Family
TREES SPECIES			
1.	Achu	*Morinda tinctoria*	Rubiaceae
2.	Amba (Mango)	*Mangifera indica*	Anacardiaceae
3.	Amla	*Emblica officinalis*	Euphorbiaceae
4.	Asan	*Terminalia tomentosa*	Combretaceae
5.	Bahada	*Terminalia belerica*	Combretaceae
6.	Char	*Buchnania lanzan*	Anacardiaceae
7.	Dhaman	*Grewia tillaefolia*	Combretaceae
8.	Dhaura	*Anogeissus latifolia*	Combretaceae
9.	Dhala siris	*Albizzia procera*	Mimosaceae
10.	Haldu	*Adina cordifolia*	Rubiaceae
11.	Harida	*Terminalia chebula*	Combretaceae
12.	Jamun	*Syzygium cuminii*	Myrtaceae
13.	Kaluchia	*Diospyros sylvatica*	Ebenaceae
14.	Kamalagundi	*Mallotus phillipinensis*	Euphorbiaceae
15.	Kendu	*Diospyrus melanoxylon*	Ebenaceae
16.	Kumbhi	*Careya arborea*	Myrtaceae
17.	Kusum	*Schleichera oleosa*	Sapindaceae
18.	Mahul	*Madhuca indica*	Sapotaceae
19.	Moi	*Lannea grandis*	Anacardiaceae
20.	Mundi	*Mitragyna parviflora*	Rubiaceae
21.	Palas	*Butea monosperma*	Papilionaceae
22.	Rai	*Dillenia pentagyna*	Dilleniaceae
23.	Rohini/Som	*Soymida febrifuga*	Meliaceae
24.	Sal	*Shorea robusta*	Dipterocarpaceae
25.	Semul	*Bombax ceiba*	Bombacaceae

26.	Sidha	*Lagerstroemia parviflora*	Lythraceae
27.	Siris / Tentra	*Albizzia lebbek*	Mimosaceae
28.	Teak	*Tectona grandis*	Verbenaceae
HERBS / SHRUBS			
29.	Anantamula	*Hemidesmus indicus*	Asclepiadaceae
30.	Arakha	*Calotropis procera*	Asclepiadaceae
31.	Baibidanga	*Embelia robusta*	Myrsinaceae
32.	Basanga	*Adhatoda vasica*	Acanthaceae
33.	Dhatki	*Woodfordia fruticosa*	Lythraceae
34.	Kurei	*Holarrhena antidysenterica*	Apocynaceae
CLIMBERS			
35.	Atundi	*Combretum decandrum*	Combretaceae
36.	Baidanka	*Mucuna monosperma*	Papilionaceae
37.	Bichhuati	*Urtica dioica*	Eiuphorbiaceae
38.	Muturi	*Smylax macrophylla*	Liliaceae
39.	Siali	*Bauhinia vahlii*	Papilionaceae
40.	Satabari	*Asparagus racemosus*	Liliaceae

3.10.3 Fauna in the Study Area

Table 3.30- List of Fauna Project Area

Local Name	English Name	Zoological Name
MAMMALS		
Bilua	Jackal	*Canis aureus*
Heta	Hyena	*Hyaena hyaena hyaena*
Kutura	Barking deer	*Muntiacus muntijak*
Mankad	Monkey	*Presbytes entellus*
Neula	Mongoose	*Herpestes eduardsii*
Saliapatni	Small Indian Civet	*Viverricula indica*
Thekua	Indian Hare	*Lepus nigricollis*
BIRDS		
Bana Kukuda	Jungle fowl	*Gallus gallus*
Gunduri	Grey Patridge	*Francolinus pondicerianus*
Kajalpati	Black Drongo	*Didrirus adsimillis*

Local Name	English Name	Zoological Name
Kapta	Ring Dove	*Streptopelia decaocto*
Kathahana	Goldenbacked Woodpecker	*Dinopium benghalense benghalense*
Koel	Cuckoo	*Eudynamis Scolopaceus*
Pecha	Owl	*Athere brama brama*
Kumbhatua	Crow pheasant	*Centropus sinensis*
REPTILES		
Dhamana	Rat snake	*Ptyas mucosus*
Boda	Common Boa	*Boa constricta*
Chiti	Common Indian Krait	*Bangarus caruleus*
Naga	Cobra	*Naja naja*
Godhi	Monitor Lizard	*Varanus bengalensis*
Endua	Garden Lizard	*Calotes versicolor*

Table 3.31- List of Fauna in Impact Area

Scientific Name	Common Name
MAMMALS	
Axis axis	Spotted deer
Bandicota bengalensis	Lesser Bandicoot rat
Bandicota indica	Large Bandicoot rat
Boselaphus tragocamelus	Blue bull (Neel gai)
Canis aureus	Golden Jackal
Cervus unicolor	Sambar
Elephas maximus	Elephant
Felis chaus	Jungle Cat
Funambulus palmarum	Palm squirrel
Funambulus pennantii	Northern Palm Squirrel
Golunda ellioti	Indian bush rat
Herpestes edwardsii	Common mongoose
Hyaena hyaena	Striped Hyaena
Hystrix indica	Indian porcupine
Lepus nigricollis	Indian Hare
Macaca mulatta	Rhesus macaque
Melursus ursinus	Sloth bear (Bhalu)
Muntiacus munjak	Barking Deer (Kutra)
Mus booduga	Little Indian field mouse
Mus musculus	House mouse
Nesokia indica	Short-tailed mole rat
Paradoxus hermaphorditus	Common Palm Civet
Petaurista phillippensis	Large Brown Flying Squirrel
Presbytis entellus	Grey Langur
Pteropus giganteus	Indian flying fox
Pteropus melanotus	Black flying fox
Rattus blanfordi	White tailed woodrat
Rattus rattus	House rat

Scientific Name	Common Name
Ratufa bicolor	Giant Squirrel
Semnopithecus entellus	Hanuman Langur
Sus scrofa	Wild boar
Viverricula indica	Small Indian Civet
Vulpes bengalensis	Bengal Fox
REPTILES	
Ahaetulla nasuta	Green vine snake
Amphiesma stolatum	Buff striped keelback
Bungarus caeruleus	Common Indian Krait
Calotes versicolor	Garden lizard
Calotes rouxii	Forest Lizard
Chameleon zeylanicus	Chameleon
Cnemaspis indica	Indian Day Gecko
Daboia russelii	Russel's Viper
Dendrelaphis tristis	Tree Snake
Echis carinatus	Saw scaled viper
Eryx johnii	Sand boa
Eutropis carinata	Indian grass Skink
Eutropis multifasciata	Common skink
Hemidactylus flaviviridis	Indian wall lizard
Hemidactylus leschenaultii	Marbled tree gecko
Lycodon aulicus	Wolf snake
Naja naja	Indian cobra
Psammophilus blanfordanus	Indian Rock Lizard
Ptyas mucosus	Rat snake
Python molurus	Python
Riopa punctata	Snake skink
Typhlops diardii	Giant Blind Snake
Typhlops porrectus	Slender Blind Snake
Vipera russselli	Russell's viper
AMPHIBIANS	
Bufo melonosticatus	Common Indian Toad
Hoplobatrachus tigerinus	Tiger Frog
Polypedates maculatus	Tree Frog
Rana hexadactyla.	Green Pond Frog
BIRDS	
Acridotheres ginginianus	Bank Myna
Acridotheres tristis	Common myna
Apus affinis	Indian House Swift
Aquila pomarina	Lesser Spotted Eagle
Ardea cinerea	Grey Heron
Ardeola grayii	Pond heron
Bubo bengalensis	Indian Eagle Owl
Bubo coromandus	Dusky eagle-owl
Bubulcus ibis	Cattle egret

Scientific Name	Common Name
Burhinus indicus	Stone curlew
Caprimulgus asiaticus	Common Indian Night Jar
Centropus sinensis	Coucal
Columba livia	Blue rock Pigeon
Copsychus saularis	Oriental magpie Robin
Coracus benghalensis	Roller
Corvus macrorhynchos	Jungle Crow
Corvus splendens	House Crow
Coturnix coturnix	Common Quail
Cyanocitta cristata	Blue Jay
Dendrocitta vagabunda	Indian Tree Pie
Dendrocopos mahrattelsis	Yellow-crowned woodpecker
Dendrocygna javanica	Lesser Whistling teal
Dicrurus macrocercus	Black Drongo
Dinopium benghalense	Black rumped Flameback Woodpecker
Egretta garzetta	Little egret
Eudynamys scolopaceus	Asian Koel
Euodice malabarica	Indian Silverbill
Gallus gallus	Red Jungle Fowl
Glaucidium radiatum	Jungle Owlet
Halcyon smyrnensis	White-breasted King Fisher
Leptocoma zeylonica	Purple rumped sunbird
Lonchura punctulata	Scaly breasted munia
Megalaima haemacephala	Coppersmith barbet
Merops orientalis	Small green bee eater
Microptermus brachyurus	Wood Pecker
Milvus migrans	Black kite
Motacilla cinerea	Grey Wagtail
Nectarinia asiatica	Purple Sun Bird
Oriolus xanthornus	Black headed Oriole
Orthotomus sutorius	Tailor Bird
Parus cinereus	Cinereous tit
Passer domesticus	Sparrow
Phaenicophaeus leschenaultii	Sirkeer malkoha
Phalacrocorax fuscicollis	Indian Cormorant
Ploceus philippinus	Baya weaver
Prinia socialis	Ashy Prinia
Prinia subflava	Tawny-flanked prinia
Psittacula cyanocephala	Blossom headed Parakeet
Psittacula krameria	Rose ringed Parakeet
Pycnonotus barbatus	Common Bulbul
Pycnonotus cafer	Red vented bulbul
Rhipidura albicollis	White throated Fantail
Streptopelia chiinensis	Spotted Dove
Sturnia pagodarum	Brahminy starling

Scientific Name	Common Name
Sturnus contra	Pied Myna
Turdoides caudatus	Common babbler
Tyto alba	Barn Owl
Tyto caparsis	Grass Owl
Vanellus indicus	Red Wattled Lapwing
Zosterops palpebrosus	Oriental white Eye

Source: VCSPL Site Survey and Secondary Data

3.10.4 Observations & Interpretation of the EB Data

As per the secondary data taken from Wild life Conservation Plan, schedule- I species like Elephant, Leopard, Sloth Bear and Python are present. However, as per primary data Elephant, Sloth Bear and Python are available. Leopard is not reported during interaction with local people.

For conservation of the fauna, Wildlife Conservation Plan has been prepared and submitted to PCCF wildlife for approval vide memo no. 7846/ 4F (Misc.), dated 20.09.2022 and attached as **Annexure- 19**

A budget of 55.871 Lakhs have been earmarked in the Wildlife Conservation for effective mitigation by Keonjar Forest Division. For conservation of flora species, Forest Conservation Plan is prepared and approved by DFO, Rourkela division vide memo no. 7843/ 4F (Misc.), dated 20.09.2022 and attached as **Annexure- 20.**

3.11 Socio-Economic Environment Assessment

Considering the requirement as per the statutory guidelines of MoEF&CC, the below mentioned objectives and scope were adhered by Visiontek Consultancy Services Pvt. Ltd. for Socio-Economic Status Assessment ;

1. Involve and seek advice from the official functionaries of the affected Gram Panchayat, Block and Project Proponent relating to the Study.
2. Socio-economic and cultural profile of the affected area.
3. Basing upon data collected from different sources, identification and assessment of the nature, extent and intensity of the positive and negative social impacts of the project.
4. Preparation of Corporate Environment Responsibility in accordance with the issues raised during Public Hearing. The proposed CER Budget shall include physical Targets to be achieved.
5. The Study must provide a comprehensive analysis impoverishment risk of the families losing land and getting displaced and the mitigation plan for resettlement and rehabilitation of such displaced and project affected families.

3.11.1 Description and Rationale of Methodology Adopted for the Study

A Baseline Study for the assessment of Socio-Economic Status was carried out for sketching the baseline conditions of the community. This included defining the measurable indicators of valued socio-economic components. Both Quantitative and Qualitative Research approach were adopted. The research design held during this Study was Descriptive and Diagnostic Research which are concerned with discovery of insights; characteristics of the affected community; and provides opportunity for considering many different aspects. But when the purpose happens to be an accurate description of a situation or an association between variables, this design will be the one that minimizes bias and maximizes the reliability of Data accumulated and analysed.

Generally, the following three methods in context to the research design for Socio-Economic Assessment Study are taken into consideration ;

i. Survey/Study pertaining with the Concerning Literature,
ii. Experience Survey,
iii. Analysis of 'insight-stimulating'

Table 3.32- Details of Descriptive and Diagnostic Research Design

Research Design		
Overall Design		Flexible Design (Design must provide opportunity for considering different aspects of the problem)
I.	Sampling Design	Probability Sampling Design
II.	Statistical Design	Pre-planned Design for Analysis as per the Socio-Economic Indicators
III.	Observational Design	Structured instruments for Quantitative and Qualitative data
IV.	Operational Design	Operational procedure like Identification of Primary Sample Unit (PSU)/Village, Identification of Household/Respondent etc. are defined.

The methodology for collection of baseline data includes collection & review of secondary data as well as primary data (field survey) is given below.

I. Methodology for Collection and Review of Secondary Data:

The initial methodology adopted for accumulating the Socio-Economic profile is based on the review of secondary data such as Census of India 2011, Odisha Administrative Atlas, Government Officials, Document of KAI International Pvt. Ltd. etc. This was primarily to assess the study area (Village within 10-km radius around the project site) along with the parameters of demography, structure of community etc. Socio-economic environment includes description of demography, basic amenities Education, Health care facilities, Infrastructure, Water facilities, Livelihood etc. Information on the above said factor

has been collected to define the socio-economic profile of the study area (10 km radius), which is a part of Environmental Impact Assessment study for the proposed activities.

II. Determination of Sample Size (Respondent) for the Study:

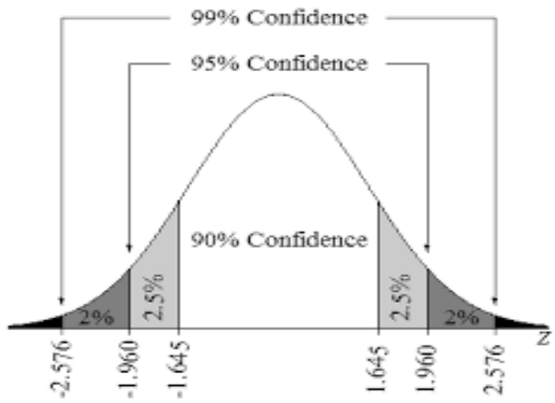
The present research study is considered as a Case of Proportions, i.e., a project involving the estimation of the proportion of respondents exhibiting a certain kind of actions (in our case, proportion of respondents who may face consequences from project is 80,000 as concluded from Census 2011 within the 91 populated villages. We assume that 50 percent of the respondents shall face the consequences from the project. In this case the project is the variable for any influence on situation of the respondent and/or the household. The contentment levels of the respondent from the project has been assessed and the sample is the representative of the Universe, that is, the sample size *n* is large enough to allow a high level of confidence that the key characteristics of the sample exactly represent the population. A high level of confidence is numerically expressed as 90-95%. The desired reliability of the sample is high that the maximum difference between a sample characteristic and the corresponding population characteristic (i.e., the permissible error E) is not allowed to be more than 0.1, or 10 percentage points. The characteristics compared are sample mean *Xs* and population mean *X* then numerically, the above fact is represented by:

Allowable difference between the two means ($Xs - X$) = $\pm$ E (Standard Deviation)

The total probability of population parameter (a mean X) will lie *outside* either end of the confidence interval and is very low (say, 0.1). In other words, the probability mean X will lie outside *one* end of the confidence interval is 0.01.

The Z Value that corresponds with such a low probability of 0.01 (i.e., the number of standard errors associated with it) is Z = 1.960. Let the sample size be **n**. However, N denotes the overall population.

p is the proportion of respondents who have impact from the project called the population proportion. In the absence of any estimate of **p**, a figure of 50 per cent is used for the anticipated population proportion i.e. 0.5



E is the allowable error, i.e., the allowable difference between sample and population proportion. We concluded this as 5 per cent for the present study as 0.05.

Z is the standard errors associated with the confidence level. The confidence level is fixed at 95 per cent. The associated value of **Z** at this confidence level is 1.960.

The estimated sample size **n** is worked out on the basis of the below formula.

$$n = \frac{z^2.p.q.N}{e^2(N-1) + z^2.p.q}$$

$$n = \frac{1.96^2.0.5.(1-0.5)100000}{0.05^2(100000-1) + 1.96^2.0.5.(1-0.5)}$$

$$n = \frac{3.8416 \text{ x } 0.5 \text{ x } 0.5 \text{ x } 100000}{(0.0025 \text{ x } 99999) + (3.8416 \text{ x } 0.25)}$$

$$n = 384$$

This sample size n works out to 384. Hence, 390 Households shall be covered (rounding off the 384) for accumulating necessary information pertaining with need and socio-economic environment. A Socio-Economic Impact Assessment Report attached as **Annexure- 18**.

3.11.2 Administrative Details of The Study Area

During the Socio-Economic Baseline study, it was assessed that 132 villages with settlements from Sundargarh District is located within a radius of 10 Kms. The details are presented below:

Table 3.33- Administrative details of the Villages under various Buffer Zone

Buffer Zone	Name of the District	Name of the Block	Name of the Panchayat	Total No. of Villages/ULBs	Number of UI Villages/ULBs	No. of Villages with Habitation
<2 KMs	Sundargarh	Lahunipara	Bad Purunapani	4	0	4
		Sub Total		**4 (2.81 %)**	**0**	**4 (3.03 %)**
>2.01<5 KMs	Sundargarh	Lahunipara	Bad Purunapani	9	1	8
			Darjing	6	0	6
			Rajamunda	5	0	5
		Gurundia	Bhaludunguri	11	1	10
			Narendra	2	0	2
		Sub Total		**33 (23.23 %)**	**2 (20.0 %)**	**31 (23.48 %)**
>5.01<10 KMs	Sundargarh	Lahunipara	Darjing	11	0	11
			Sankhapos h	8	0	8
			Lahunipara	11	0	11

			Rajamunda	14	2	12
			Kaleiposh	10	0	10
		Gurundia	Tamra	1	0	1
			Banaikela	3	0	3
			Gurundia	8	1	7
			Bhaludungu ri	8	2	6
			Narendra	15	0	15
		Boneigarh	Kendrikela	12	3	9
		Koida	Gopna	4	0	4
		Sub Total		**105 (73.94 %)**	**8 (80.0 %)**	**97 (73.48 %)**
		Grand Total		**142 (100 %)**	**10 (100 %)**	**132 (100 %)**

Source: Census Data of India, 2011

The below mentioned map reflects the villages/Clusters within various Buffer Zones. The forest cover within the buffer zone is also highlighted in the corresponding map.

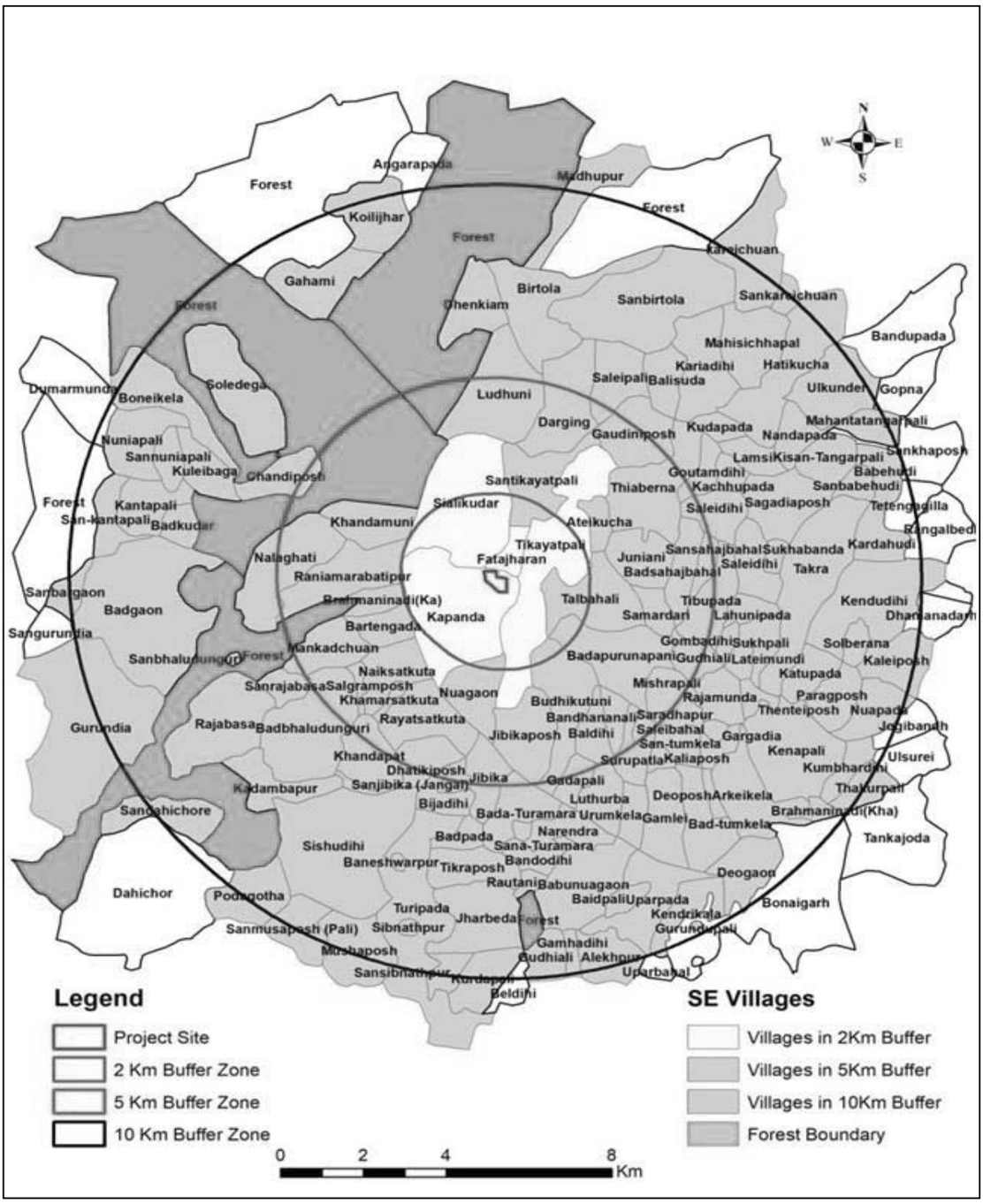


Fig. 3.23- Villages under various buffer zones concluded for the Study

The study area is laying mainly in 1 district namely Sundargarh covering all the 132 Villages with habitation. However, for revenue purposes the villages fall under 4 Blocks (75 Villages in Lahunipara Block; 44 Villages in Gurundia Block; 9 Villages in Baneigarh Block and 4 Villages in Koida Block).

3.11.3 Demographic Profile Of The Study Area

With reference to the census records 2011, Total number of Households was concluded to be 14,630 within 132 concluded villages with 63,398 Persons. Being detailed, the total population of the 2.0 km radial zone of study area was recorded as 1,873 persons within 405 Households in four (4) villages. Similarly, within >2.01<5 Kms have 13,416 Persons reside in 3,079 households in Thirty-one (31) Villages. The rest 97 villages within >5.01<10 Kms has 11,146 households with 48,109 persons. All the 132 Villages within the 10 Km radius come under Sundargarh District of Odisha.

Male-female wise total population was recorded as 31,294 (49.36 %) males and 32,104 (50.63 %) females, respectively with the Study Area concluding the Total population to be 63,398. The 0-6 year population was concluded to be 9,206 (14.52 %) with 4,673 (7.37 %) Males and 4,533 (7.15 %) females of the total population within the study area.

Referring to the Scheduled Caste Population within the entire Study Area, Scheduled Caste (SC) population was observed as 6,787 Persons (10.7 % of the Total Population in Study Area) consisting of 3,298 males and 3,489 females residing in 82 (63.63 %) villages in the 10.0km radial study zone. The scheduled caste male population is concluded to be 5.20 % and female scheduled caste is 5.50 % of the total population. Moreover, it was concluded that Scheduled Tribes (ST) were found 36,375 persons (57.37 % of the Total Population within the Study Area) consisting of 17,754 males (28.00 %) and 18,621 (29.37 %) females reside in 125 (94.69 %) villages within the Study Area.

Table 3.34- Buffer Zone Wise Population distribution of Study Area

Description of Indicators	Sub Total (0-2 KMs)	Sub Total (2.01-5 KMs)	Sub Total (5.01-10 KMs)	Grand Total (0-10 KMs)
No. of Villages	4	31	97	132
No. of Households	405	3079	11146	14630
Total Population	1873	13416	48109	63398
Total Male Population	932	6647	23715	31294
Total female Population	941	6769	24394	32104
Population below 6 Years	306	2001	6899	9206
Male Population below 6 Years	158	1010	3505	4673
Female Population below 6 Years	148	991	3394	4533

Total Scheduled Caste Population	198	1295	5294	6787
Total Scheduled Caste Male Population	96	636	2566	3298
Total Scheduled Caste Female Population	102	659	2728	3489
Total Scheduled Tribes Population	1315	8653	26407	36375
Total Scheduled Tribes Male Population	659	4233	12862	17754
Total Scheduled Tribes Female Population	656	4420	13545	18621

Source: Census Data of India, 2011

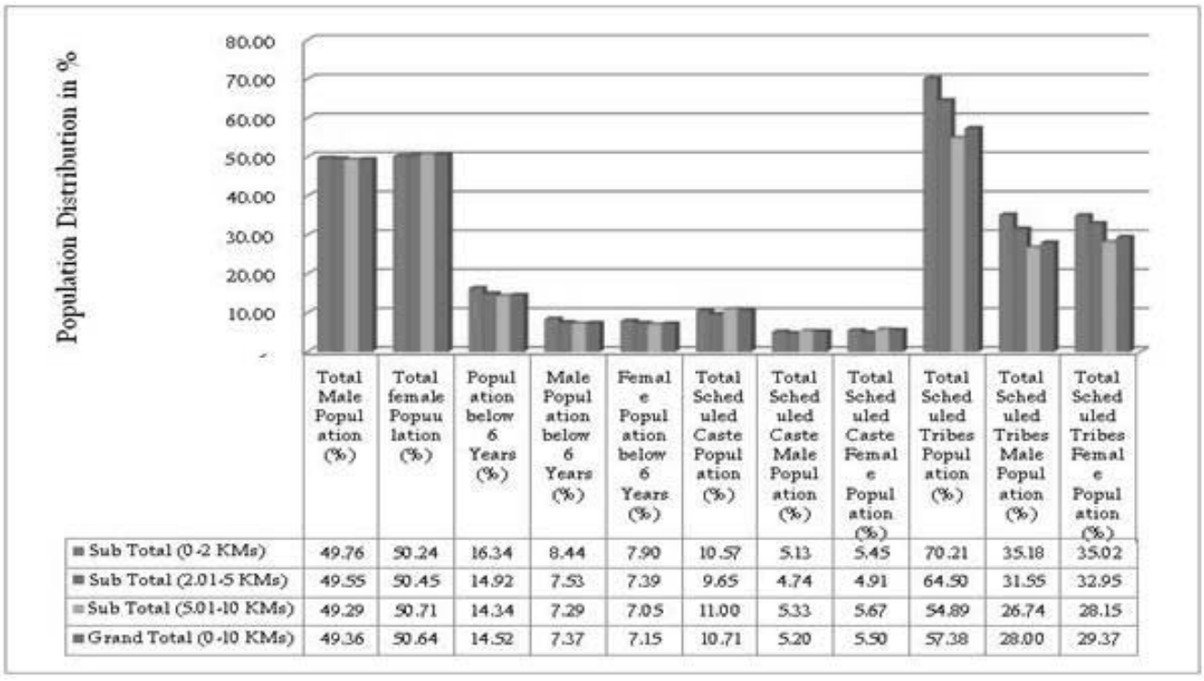


Fig. 3.24- Distribution of Population within the Buffer Zone

Source: Census Data of India, 2011

A. Sex Ratio

The Sex Ratio of the study area is a numeric relationship between females and males of an area and bears paramount importance in the present-day scenario where the un-ethnic predetermination of sex and killing of female fetus during pregnancy is practiced by unscrupulous medical practitioners against

the rule of the law of the country. It is evident that by contrast the practice of female feticide is not prevalent in the study area.

There are about 1026 females per 1000 males which is much higher than that of the State Ratio of 979. The Sex Ratio among the Scheduled caste is 1058 females per 1000 Males and Scheduled Tribe has a sex ratio of 1049 female per 1000 Male. The concern lies with the low sex ratio among Children below 6 years i.e. 970 females per 1000 males.

B. SC/ST Population

The state of Odisha has a high concentration of Scheduled Tribe (ST) and Scheduled Caste (SC) population. As per Census 2011, the state of Odiha is ranked 3rd in terms of ST population whereas its position is 11th in terms of SC Population. The States tribal population is 22.85 % and Scheduled Caste 17.13 %. However, the 132 affected Villages have only 57.37 % of ST population and only 10.70 % of SC population.

Scheduled Caste Population within the entire Study Area, Scheduled Caste (SC) population was observed as 6,787 Persons (10.7 % of the Total Population in Study Area) consisting of 3,298 males and 3,489 females residing in 82 (63.63 %) villages in the 10.0km radial study zone. The scheduled caste male population is concluded to be 5.20 % and female scheduled caste is 5.50 % of the total population. Moreover, it was concluded that Scheduled Tribes (ST) were found 36,375 persons (57.37 % of the Total Population within the Study Area) consisting of 17,754 males (28.00 %) and 18,621 (29.37 %) females reside in 125 (94.69 %) villages within the Study Area.

C. Literacy Rate

Literacy level is quantifiable indicator to assess the development status of an area or region. Male-Female wise literates and illiterate population is represented in **Table- 3.34.** The Literacy rate within the study area of 132 affected villages is concluded to be 59.74 % which is lower than the State of 72.9 %. Moreover, the Male Literacy rate of 67.83 % is also lower that the State i.e. 79.6 % and female literacy rate of 51.86 % is again lower than State of Odisha (60.7%). The low literacy rate is a concern for the socio-economic development of the community. The male-female population distribution in terms of literacy for the study area is depicted and shown by graphical representation in **Fig. 3 25**.

Table 3.35- Buffer Zone wise Number and percentage of Literates within the Study Area

Literacy Rate among the Affected Population	Sub Total (0-2 KMs)		Sub Total (2.01-5 KMs)		Sub Total (5.01-10 KMs)		Grand Total (0-10 KMs)	
	N	%	N	%	N	%	N	%
Literate Population	941	50.24	7751	57.77	29185	60.66	37877	59.74
Literate Male Population	548	58.80	4425	66.57	16254	68.54	21227	67.83

Literate Female Population	393	41.76	3326	49.14	12931	53.01	16650	51.86

Source: Census Data of India, 2011

The Literacy rate within the study area of 132 affected villages is concluded to be 59.74 % as per Census data 2011. However, being descriptive, the literacy rate among the 4 villages within 2 Kms is concluded to be 50.24 % where male literacy (58.80%) is higher than the women (41.76 %). Similarly, the literacy rate of the population within 2.01-5 kms (31 villages) is 57.77 % (Male and Female is concluded to be 66.57 % & 49.14 % respectively). For the rest 97 villages within 5.01-10 Kms, the literacy rate is concluded to be 60.66 % where male is 68.54 % and female is 53.01 %. However, the illiterate percentage is also presented in the below mentioned graph.

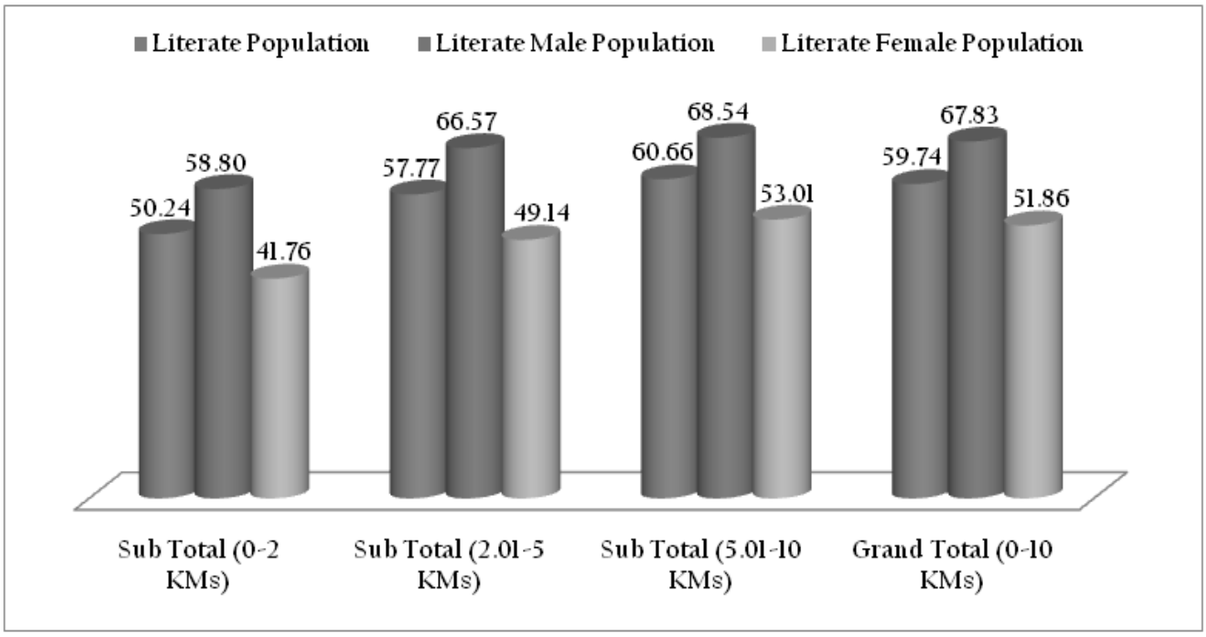


Fig. 3.25- Percentage of Literates within various buffer zones in the Study Area

Source: Census Data of India, 2011

D. Workers Scenario

Occupational Pattern was studied to assess the skills of people in the study area. Occupational pattern helps in identifying major economic activities of the area. The main and marginal workers population with further classification as casual, agricultural, households and other workers are also highlighted. In the study area the Total Workforce was observed as 29,296 (46.21 %) of the total population (63398) while 34,102 (53.79 %) persons were recorded as non-workers. Out of the 46.21 % of Workforce

population, Main Workforce population consists of 15,873 (25.05 %) and Marginal Workforce consist of 13,423 (21.17 %). The workforce participation is presented in the below mentioned table and graph.

Table 3.36- Workforce Distribution of the Population within the Study Area

Workforce Distribution	Sub Total (0-2 KMs)		Sub Total (2.01-5 KMs)		Sub Total (5.01-10 KMs)		Grand Total (0-10 KMs)	
	N	%	N	%	N	%	N	%
Total Population	1873	100	13416	100	48109	100	63398	100
Total Population (Male)	932	49.76	6647	49.55	23715	49.29	31294	49.36
Total Population (Female)	941	50.24	6769	50.45	24394	50.71	32104	50.64
Total Workforce Population	1020	54.46	6173	46.01	22103	45.94	29296	46.21
Workforce Population (Male)	514	27.44	3654	27.24	13148	27.33	17316	27.31
Workforce Population (Female)	506	27.02	2519	18.78	8955	18.61	11980	18.90
Main work force Population	567	30.27	3051	22.74	12255	25.47	15873	25.04
Main work force Population (Male)	378	20.18	2352	17.53	9305	19.34	12035	18.98
Main work force Population (Female)	189	10.09	699	5.21	2950	6.13	3838	6.05
Main Cultivator Population	402	21.46	1401	10.44	5601	11.64	7404	11.68
Main Cultivator Population (Male)	256	13.67	1260	9.39	4460	9.27	5976	9.43
Main Cultivator Population (Female)	146	7.79	141	1.05	1141	2.37	1428	2.25
Main Agricultural Labourer Population	26	1.39	548	4.08	1896	3.94	2470	3.90
Main Agricultural Labourer (Male)	17	0.91	250	1.86	1049	2.18	1316	2.08
Main Agricultural Labourer (Female)	9	0.48	298	2.22	847	1.76	1154	1.82
Marginal Worker Population	453	24.19	3122	23.27	9848	20.47	13423	21.17
Marginal Worker (Male)	136	7.26	1302	9.70	3843	7.99	5281	8.33
Marginal Worker (Female)	317	16.92	1820	13.57	6005	12.48	8142	12.84
Marginal Cultivator Population	79	4.22	758	5.65	2533	5.27	3370	5.32
Marginal Cultivator (Male)	15	0.80	390	2.91	1287	2.68	1692	2.67
Marginal Cultivator (Female)	64	3.42	368	2.74	1246	2.59	1678	2.65
Marginal Agriculture Labourer Population	319	17.03	1816	13.54	5506	11.44	7641	12.05

Marginal Agriculture Labourer (Male)	89	4.75	609	4.54	1659	3.45	2357	3.72
Marginal Agriculture Labourer (Female)	230	12.28	1207	9.00	3847	8.00	5284	8.33
Non-Work Population	853	45.54	7243	53.99	26006	54.06	34102	53.79
Non-Work (Male)	418	22.32	2993	22.31	10567	21.96	13978	22.05
Non-Work (Female)	435	23.22	4250	31.68	15439	32.09	20124	31.74

Source: Census Data of India, 2011

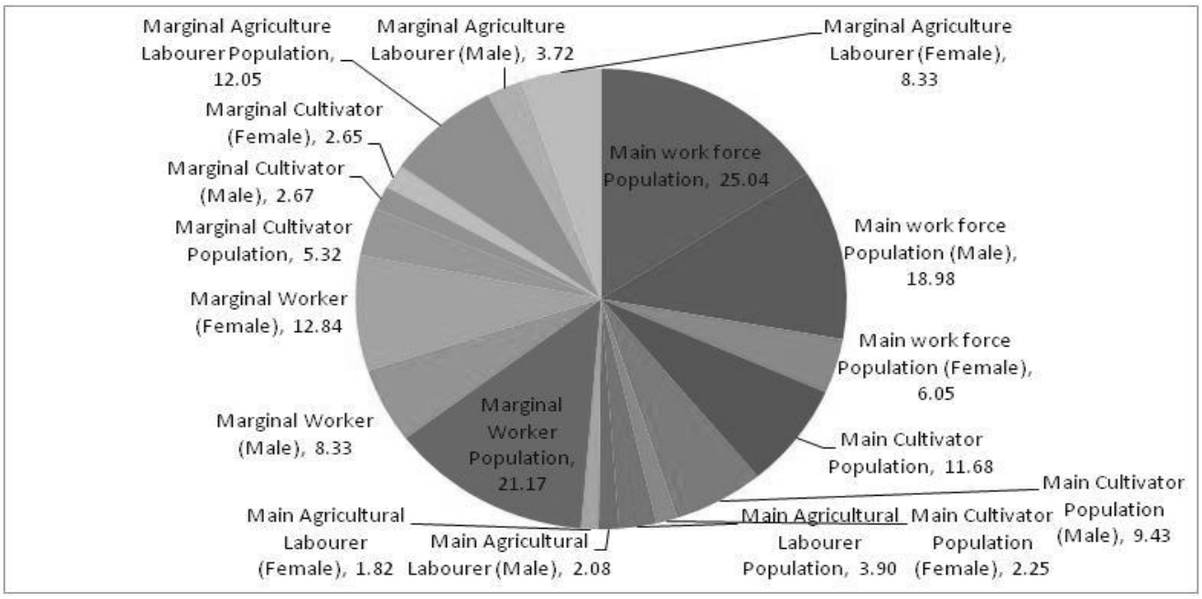


Fig. 3.26- Percentage of Various Workforces prevailing within the Study Area

Source: Census Data Of India, 2011

3.12 Basic Infrastructure; Amenities And Facilities

A review of Basic infrastructure facilities and Amenities available in the study area has been done on the basis of the Field inspection/observation, various Departments' secondary data and Census records, 2011 for the study area inhabited revenue villages of Sundargarh District in Odisha. The study area has an average level of basic infrastructure facilities like educational, medical, potable water, power supply, and transport & communication network. Entire study area is predominantly rural except a Census Town (Jhumpara). The study area is entirely laying in Sundargarh District.

A. Education Facilities

Referring OPEPA's information, it is clearly concluded that 132 Villages within the Study Area have 80 schools of various categories. The details have been presented below in tabular format.

- 1 Primary school with 2 Upper Primary Schools and 1 High school caters the educational to the 4 villages within the 0-2 KM buffer zone.
- The 31 villages with habitation have 7 Primary Schools, 5 Upper primary School & 2 High schools.
- The 97 villages with population within 5.01-10 KMs have 37 primary School, 20 Middle Schools and 4 High schools.
- The numbers may reflect the low facilities but analysizing the population and density, 40 Villages have less than 50 Households and the SSA norms stands for a School within 1 KM of any habitation but for minimum of 40 Students. Moreover, SSA norms of one upper primary school/section for every two primary schools stand intact in this scenario.
- 12 Villages of Bada Purunapani Panchayat under various buffer zone within the Study Area have 5 Primary Schools, 4 Middle Schools and 1 High/Secondary School. Similarly, 17 Villages of Darjing Panchayat under various buffer zone within the Study Area have 10 Primary Schools, 5 Middle Schools and 1 High/Secondary School.

Table 3.37- Distribution of Various categories of Educational Facilities within the Study Area

Block	Panchayat	Sl. No	Name of the School	Existence with the Buffer Zone	Management of the School	Lower Class	Upper Class
Lahunipara	Bad Purunapani	1	KAPANDA U.G.U. PRY. SCHOOL-1000701	0-2 KMs	School under S&ME Dept	I	VIII
Lahunipara	Bad Purunapani	2	PANCHAYAT HIGH SCHOOL, KAPANDA-1000702	0-2 KMs	40%/60% Block Grant	VIII	X
Lahunipara	Bad Purunapani	3	SIALIKUDAR PRY.SCHOOL-1001201	0-2 KMs	School under S&ME Dept	I	V
Lahunipara	Bad Purunapani	4	TIKAYATPALI PROJECT U.PRY. SCHOOL-1001501	0-2 KMs	New UPS under (SSA/DPEP)	I	VIII
Lahunipara	Bad Purunapani	5	BUDHIKUTUNI PRY, SCHOOL-1000401	2.01-5 KMs	School under S&ME Dept	I	V
Lahunipara	Bad Purunapani	6	JUNIANI PRY. SCHOOL-1000601	2.01-5 KMs	School under S&ME Dept	I	V
Lahunipara	Bad Purunapani	7	NUAGAON PRY. SCHOOL-1000801	2.01-5 KMs	School under S&ME Dept	I	V
Lahunipara	Bad Purunapani	8	SAMARDARI PRY. SCHOOL-1001001	2.01-5 KMs	School under S&ME Dept	I	V
Lahunipara	Bad Purunapani	9	TALBAHALI PROJECT U.PRY. SCHOOL-1021801	2.01-5 KMs	New UPS under (SSA/DPEP)	I	VIII
Lahunipara	Bad Purunapani	10	TALBAHALI U.P. SCHOOL-1001301	2.01-5 KMs	New UPS under (SSA/DPEP)	I	VIII
Lahunipara	Darjing	11	BADSAHAJBAHAL S/S-1003601	2.01-5 KMs	School under SC/ST Dev Dept	I	V
Lahunipara	Darjing	12	DARJING BANVIDYALAYA-1003902	2.01-5 KMs	40%/60% Block Grant	VIII	X
Lahunipara	Darjing	13	DARJING N.U.PRY. SCHOOL-1003901	2.01-5 KMs	School under S&ME Dept	I	VIII
Lahunipara	Darjing	14	GOUDUNIPOSH PROJECT U.PRY. SCHOOL-1004201	2.01-5 KMs	New UPS under (SSA/DPEP)	I	VIII
Lahunipara	Darjing	15	LUDHUNI PROJECT U.P. SCHOOL-1004601	2.01-5 KMs	New UPS under (SSA/DPEP)	I	VIII
Lahunipara	Darjing	16	MADHUPUR PRY. SCHOOL-	2.01-5 KMs	School under S&ME	I	V

			1004701		Dept		
Lahunipara	Darjing	17	THIABERNA PRIMARY SCHOOL-1001401	2.01-5 KMs	School under S&ME Dept	I	V
Lahunipara	Rajamunda	18	GUDHIALI HIGH SCHOOL-1016601	2.01-5 KMs	School under S&ME Dept	VIII	X
Lahunipara	Rajamunda	19	ARKEIKELA PRY. SCHOOL-1015801	5.01-10 KMs	School under S&ME Dept	I	V
Lahunipara	Rajamunda	20	GAMLEIU.G.U.PRY. SCHOOL-1016401	5.01-10 KMs	School under S&ME Dept	I	VIII
Lahunipara	Rajamunda	21	LUTHURBA PRY. SCHOOL-1016901	5.01-10 KMs	School under S&ME Dept	I	V
Lahunipara	Rajamunda	22	RAJAMUNDA PROJECT PRY. SCHOOL-1017101	5.01-10 KMs	New PS under (SSA/DPEP)	I	V
Lahunipara	Rajamunda	23	SARADHAPUR HIGH SCHOOL-1016701	5.01-10 KMs	School under S&ME Dept	VIII	X
Lahunipara	Darjing	24	BALISUDA PRY. SCHOOL-1003701	5.01-10 KMs	School under S&ME Dept	I	V
Lahunipara	Darjing	25	BIRTOLA PROJECT U.PRY. SCHOOL-1003801	5.01-10 KMs	New UPS under (SSA/DPEP)	I	VIII
Lahunipara	Darjing	26	DHENKIAM PROJECT PRY. SCHOOL-1004001	5.01-10 KMs	New PS under (SSA/DPEP)	I	V
Lahunipara	Darjing	27	GAHAMI PROJECT PRY. SCHOOL-1004101	5.01-10 KMs	New PS under (SSA/DPEP)	I	V
Lahunipara	Darjing	28	KARIADIHI PROJECT U.P. SCHOOL-1022101	5.01-10 KMs	New UPS under (SSA/DPEP)	I	VIII
Lahunipara	Darjing	29	KOILIJHAR PRY. SCHOOL-1004401	5.01-10 KMs	School under S&ME Dept	I	V
Lahunipara	Darjing	30	KUDAPADA PRY. SCHOOL-1004501	5.01-10 KMs	School under S&ME Dept	I	V
Lahunipara	Darjing	31	MAHISICHHAPAL PRY. SCHOOL-1004801	5.01-10 KMs	School under S&ME Dept	I	V
Lahunipara	Darjing	32	SALEIPALI PRY. SCHOOL-1005001	5.01-10 KMs	School under S&ME Dept	I	V
Lahunipara	Sankhaposh	33	BABEIHUDI PRY. SCHOOL-1020501	5.01-10 KMs	School under S&ME Dept	I	V
Lahunipara	Sankhaposh	34	LAMSI N. U. PRY. SCHOOL-1018401	5.01-10 KMs	School under S&ME Dept	I	VIII

1481
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Lahunipara	Sankhaposh	35	NANDAPARA PRY. SCHOOL-1018701	5.01-10 KMs	School under S&ME Dept	I	V
Lahunipara	Sankhaposh	36	SAGADIPOSH PRY. SCHOOL-1019001	5.01-10 KMs	School under S&ME Dept	I	V
Lahunipara	Lahunipada	37	GAUTAMDIHI PROJECT PRY. SCHOOL-1013801	5.01-10 KMs	New PS under (SSA/DPEP)	I	V
Lahunipara	Lahunipada	38	KACHUPARA PRY. SCHOOL-1013901	5.01-10 KMs	School under S&ME Dept	I	V
Lahunipara	Lahunipada	39	LAHUNIPARA GOVT. GIRLS H.S.-1014101	5.01-10 KMs	School under S&ME Dept	VIII	X
Lahunipara	Lahunipada	40	LAHUNIPARA GOVT. U. PRY. SCHOOL-1013701	5.01-10 KMs	New UPS under (SSA/DPEP)	I	VIII
Lahunipara	Lahunipada	41	LAHUNIPARA HIGH SCHOOL-1014401	5.01-10 KMs	School under S&ME Dept	VIII	X
Lahunipara	Lahunipada	42	LAHUNIPARA URDU PRY. SCHOOL-1014502	5.01-10 KMs	School under S&ME Dept	I	V
Lahunipara	Lahunipada	43	LATEIMUNDI U.G.U.PRY. SCHOOL-1014102	5.01-10 KMs	New UPS under (SSA/DPEP)	I	VIII
Lahunipara	Lahunipada	44	SALEIDIHI PROJECT U.PRY. SCHOOL-1014301	5.01-10 KMs	New UPS under (SSA/DPEP)	I	VIII
Lahunipara	Lahunipada	45	SUKHPALI PRY. SCHOOL-1014501	5.01-10 KMs	School under S&ME Dept	I	V
Lahunipara	Lahunipada	46	TAKARA SEVASHRAM-1014601	5.01-10 KMs	School under SC/ST Dev Dept	I	V
Lahunipara	Kaleiposh	47	KALEIPOSH N.U.PRY. SCHOOL-1008101	5.01-10 KMs	School under S&ME Dept	I	VIII
Lahunipara	Kaleiposh	48	KALEIPOSH PRY. SCHOOL-1007501	5.01-10 KMs	School under S&ME Dept	I	V
Lahunipara	Kaleiposh	49	KENAPALI PROJECT U.PRY. SCHOOL-1007701	5.01-10 KMs	New UPS under (SSA/DPEP)	I	VIII
Lahunipara	Kaleiposh	50	KENDUDIHI PROJECT U.PRY. SCHOOL-1007801	5.01-10 KMs	New UPS under (SSA/DPEP)	I	VIII
Lahunipara	Kaleiposh	51	PARAGPOSH PROJECT PRY. SCHOOL-1008201	5.01-10 KMs	New PS under (SSA/DPEP)	I	V
Lahunipara	Kaleiposh	52	THAKURPALI PRY. SCHOOL-1008501	5.01-10 KMs	School under S&ME Dept	I	VIII
Lahunipara	Kaleiposh	53	THENTEIPOSH PRY.	5.01-10 KMs	School under S&ME	I	V

1482

			SCHOOL-1008601		Dept		
Gurundia	Bhaludunguri	54	KHANDAMUNI PROJECT PRY. SCHOOL-0502801	2.01-5 KMs	New PS under (SSA/DPEP)	I	V
Gurundia	Bhaludunguri	55	BHALUDUNGURI PRIMARY SCHOOL-0502101	5.01-10 KMs	School under S&ME Dept	I	V
Gurundia	Bhaludunguri	56	BHALUDUNGURI U.P. SCHOOL-0502102	5.01-10 KMs	School under S&ME Dept	VI	VIII
Gurundia	Bhaludunguri	57	KHANDAPAT PROJECT U.PRY. SCHOOL-0502901	5.01-10 KMs	New UPS under (SSA/DPEP)	I	VIII
Gurundia	Bhaludunguri	58	RAJABASA MISSION PRY. SCHOOL-0503451	5.01-10 KMs	Mission Aided School	I	IV
Gurundia	Narendra	59	JIBIKA PRIMARY SCHOOL-0509501	5.01-10 KMs	School under S&ME Dept	I	V
Gurundia	Narendra	60	JHARBEDA U.G.U.P. SCHOOL-0509401	5.01-10 KMs	School under S&ME Dept	I	VII
Gurundia	Narendra	61	NARENDRA GOVT. U.P. SCHOOL-0509901	5.01-10 KMs	School under S&ME Dept	VI	VII
Gurundia	Narendra	62	NARENDRA PRIMARY SCHOOL-0509902	5.01-10 KMs	School under S&ME Dept	I	V
Gurundia	Narendra	63	SISHUDIHI PRIMARY SCHOOL-0510601	5.01-10 KMs	School under S&ME Dept	I	V
Gurundia	Narendra	64	TIKIRAPOSH PRIMARY SCHOOL-0510701	5.01-10 KMs	School under S&ME Dept	I	V
Gurundia	Gurundia	65	BADGAON PROJECT U.PRY. SCHOOL-0505302	5.01-10 KMs	New UPS under (SSA/DPEP)	I	VIII
Gurundia	Gurundia	66	GURUNDIA BLOCK COLONY P.S.-0505502	5.01-10 KMs	School under S&ME Dept	I	V
Gurundia	Gurundia	67	GURUNDIA MISSION P.S.-0505503	5.01-10 KMs	Mission Aided School	I	V
Gurundia	Gurundia	68	GURUNDIA U.P. SCHOOL-0505504	5.01-10 KMs	School under S&ME Dept	VI	VII
Gurundia	Gurundia	69	KANTAPALI MISSION PRY. SCHOOL-0505602	5.01-10 KMs	Mission Aided School	I	V
Gurundia	Gurundia	70	NUNIAPALI PRIMARY SCHOOL-0505803	5.01-10 KMs	School under S&ME Dept	I	V
Gurundia	Tamra	71	SOLDEGA PRIMARY SCHOOL-0513601	5.01-10 KMs	School under S&ME Dept	I	V

Gurundia	Baneikela	72	BANEIKELA PROJECT U.P.SCHOOL-0500201	5.01-10 KMs	New UPS under (SSA/DPEP)	I	VIII
Baneigarh	Kendrikela	73	BABUNUAGAON PRIMARY SCHOOL-0408101	5.01-10 KMs	School under S&ME Dept	I	V
Baneigarh	Kendrikela	74	BABUNUAGAON U.P. SCHOOL-0408151	5.01-10 KMs	40%/60% Block Grant	VI	VII
Baneigarh	Kendrikela	75	R.N. HIGH SCHOOL, BABUNUAGAON-0408102	5.01-10 KMs	School under S&ME Dept	VIII	X
Baneigarh	Kendrikela	76	KENDRIKELA U.G.U.P. SCHOOL-0408901	5.01-10 KMs	New UPS under (SSA/DPEP)	I	VIII
Baneigarh	Kendrikela	77	ALEKHPUR PRIMARY SCHOOL-0408001	5.01-10 KMs	School under S&ME Dept	I	V
Baneigarh	Kendrikela	78	BANDODIHI PRIMARY SCHOOL-0408301	5.01-10 KMs	School under S&ME Dept	I	V
Baneigarh	Kendrikela	79	GUDHIALI PROJECT PRY. SCHOOL-0408601	5.01-10 KMs	New UPS under (SSA/DPEP)	I	V
Koida	Gopna	80	HATIKUCHA SEVASHRAM-0703001	5.01-10 KMs	School under SC/ST Dev Dept	I	V

Source: http://opepa.odisha.gov.in/SchoolReports/SchoolDetails.aspx

B. Health Facilities

The medical facilities are provided by different agencies like Govt. & Private individuals and voluntary organizations in the study area. As per the district census handbook information of 2011 and NHM information, the followings are concluded-

- 2 CHC are functional within the Study Area at Lahunipara & Gurundia along with 1 Sub-Divisional Hospital at Boneigarh. Approximately 4 PHCs are included under each CHC thus catering to approximately 80,000 populations in tribal/hilly/desert areas and 1,20,000 population for plain areas. CHC is a 30-bedded hospital providing specialist care in Medicine, Obstetrics and Gynecology, Surgery, Paediatrics, Dental and AYUSH.
- It is clearly evident from the National helath Mission information that 17 Primary Health Sub Centre are functional and caters medical services to the 132 villages with habitation.
- ASHA & Gaon Kalyan Samiti (GKS) exist in almost all villages.
- Mamta Diwas joint initiative to strengthen the ongoing Mother and Child Health Services by the Department of Health and Family Welfare and DWCD. This is held throughout the District of Sundargarh at AWCs once in a month either on Tuesday or Friday
- Anganwadi centre (AWC) is available in 122 Villages.

Overall study area villages are served by average type of medical facilities. Specialized medical facilities are available only in Sundargarh & Rourkela and along with a Community Health Centre (CHC) each at Lahunipara & Gurundia block. Even the District Headquarter (HQ) Hospital and CHCs are limited with resources. The below mentioned map reflect the facilities.

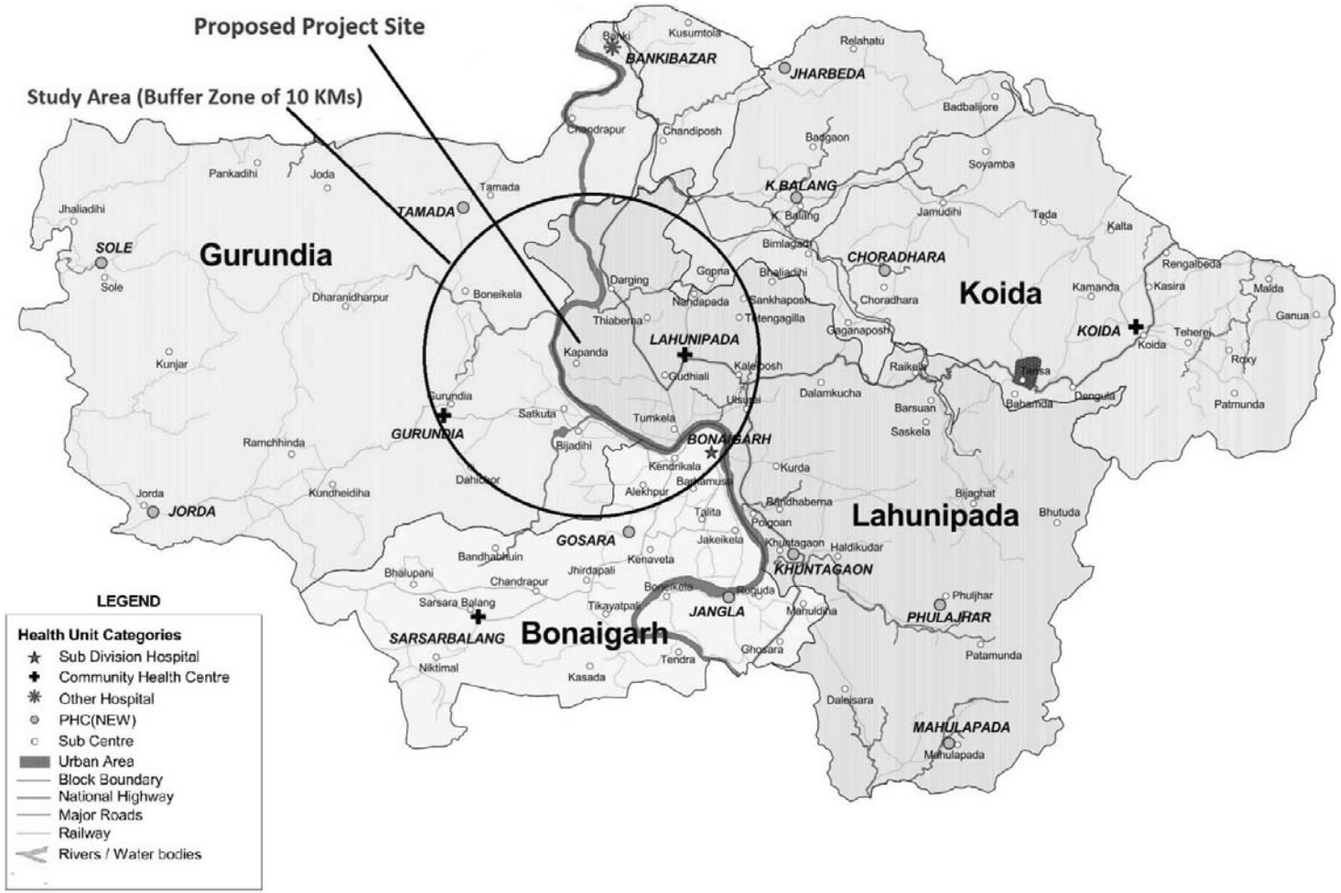


Fig. 3.27- Map revealing Health facilities within the Study Area

Source: https://health.odisha.gov.in/Important_Map.asp?GL=1

C. Potable Water Facilities

Potable water facility is available in nearly all of the villages/towns of the study area. The entire study area has good potable water facilities. All the 132 nos. of the villages either have Hand Pumps or uncovered wells as potable water facility.

The apprehension persists for the 98.68 % villages using Water from the uncovered well. However, it was observed that water from Handpumps is used for Drinking Water and the uncovered sources are used for other purposes than that of Drinking and Cooking. The District Administration of Sundargarh should focus that piped water supply should reach the maximum number of villages within the study area as they are still underdeveloped.

D. Housing Pattern

With reference to the interactions with the local champions/People's representative and data from secondary sources the following is concluded. The 132 villages within the study area, 25.09 % of Households reside in Pucca Houses/ permanent Structures. The percentage of households staying in Semi-pucca houses and Kutcha houses are 43.01 % & 31.62 % respectively. The District Census Handbook reveals that 61.8 % of the Rural Households with the Districts has Kitchen and 26.87 %doesn't have kitchen. However, with the implementation of Swach Bharat Mission, nearly 85 % of the Rural Houses have attached toilets.

E. Communication, Road & Transport Facilities

Transport is the main communication linkage in the study area. 26 (19.7 %) Villages have access to Public Bus services and 41 (31.06 %) of villages have private bus services. Moreover, 72 (54.54 %) villages are connected with National/State Highway. Villages connected with District's major roads are concluded to be 58 (43.93 %). It is also concluded that the number of villages with Mobile phone coverage is 124 (93.93 %)

F. Banking Facility

The study area has almost no schedule commercial banks within the Study area. Moreover, ATM facilities are available at the Block Headquarters i.e. Lahunipara & Gurundia. However, Rourkela, the district's major industial town which is approximately 60 kms from the project site has all the requisite facilities. Post offices' acting as financial institution, the existing 34 Post offices and 2 Sub-Post offices eliminates the requirement of commercial banks.

G. Power Supply

In order to ensure "Electricity to all" the state Government have launched Biju Gram Jyoti Yojana and Biju Sarahanchal Vidyutikaran Yojana in 2007-08. However, the National Scheme named the Rajiv Gandhi Gramin Vidyutikaran Yojana (RGGVY) also has the same motto i.e. Electrification. The New dimension of BGJ scheme for Development Programme for Electrical System Improvement (DESI) has been launched by Govt. for Rural electrification. The DESI initiave is taken up with the fund flow under various schemes such as BRGF, GGY, Biju KBK Plan, IAP, Biju Kandhamal and Gajapati Yojana, Gopabandhu Grameen Yojana and Western Odisha Development Funds (WODF). The major

source of light is electricity within the Study Area. However, it is not revealed from the information on Amenities availability as per the census record available with District Administration.

H. Food Security

Food insecurity is not an issue. Locally available plenty of wage opportunities couples with one rupee rice scheme of State Government ensure access to food for these community/families round the year. But, access to nutrition is very much limited, mainly for women, adolescent and children. Low income and subsistence agriculture are the main reasons to such a problem.

3.13 DEMOGRAPHIC INTERRELATIONSHIP WITH THE PROJECT

The population information pertaining with Demography is used to determine the demand of services among different segments of the population. Project Planners also study the present and future composition of the population and its spatial distribution to identify the best locations to provide services to meet local needs. Rapid and often unplanned population growth is often associated with population demands that outstrip infrastructure and service capacity and leading to environmental degradation.

Considering the population as per Census 2011, it can be concluded that 46.21 % of Total Workforce population prevails within the Study Area The Main Workers consist of 25.04 % and Marginal Workers comprise of 21.17 %. Such projects shall always boost and strengthen the economy of the community in both direct and indirect means.

3.14 OBSERVATION OF THE SOCIO-ECONOMIC DATA INFORMATION

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- Adequate School and Educational Institutes with low literacy rate of 59.74 %. This is primarily due to the language barrier as 57.38 % of the Population within the study area Scheduled tribes.
- Piped Water supply needs to be strengthened within the Study Area especially for the marginalized and under-developed.
- Irrespective of road connectivity (54.54 % of villages are connected with National/State Highway and villages connected with District's major roads are concluded to be 43.93 %), public transportation is very limited.
- The Health Care facility is also limited with partial resources for the population within the 10 kms radius from the project plant. VHND/Mamata Diwas and Pustikar Diwas are being regularly organized.
- Agriculture, NTFP & Daily Wages is primary occupation for majority of the population residing in the villages within 10 Kms of radius from the project site. However, Livestock rearing is also practiced and boosted by setting-up of Dairy plant.

CHAPTER- 4
ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

4.1 Objective & Methodology of Impact Prediction

4.1.1 Objective of Impact Prediction

Objective of impact assessment is to identify, characterize and evaluate potential impacts on the environmental attributes due to the proposed project. This provides a base upon which the Environmental Management Plan is prepared to mitigate/reduce the identified impacts.

Impacts have been identified considering the worst-case scenario for emissions, effluent discharge, solid and hazardous waste generation from the proposed project. Impacts have been identified for both construction and operational phase of the project.

Impact prediction is undertaken by using three methodologies namely; checklists, matrixes and flow diagrams all supplemented with GIS and overlays. For this report, matrix method has been utilized.

The impacts are identified based on the possible worst-case emission, effluent discharge, and solid waste generation from the proposed project and also taking into consideration the baseline environmental status of the study area of proposed project site. The potentially significant environmental impacts from the proposed project are:

- Impacts on air environment.
- Impacts on water environment.
- Impact on soil/land.
- Impacts due to disposal of solid wastes.
- Impacts on flora & fauna.
- Impacts on socio-economic environment.

The environmental impacts can be categorized as either primary or secondary. Primary impacts are those, which are attributed directly due to the project and secondary impacts are those, which are indirectly induced. The proposed project is likely to create impact on the environment in two distinct phases:

- During the construction phases, it may be regarded as temporary or short-term effects.
- During the operation phase that would have long term effects.

4.1.2 Methodology of impact prediction for Various Components

Considering that identification of significant environmental impact is essential in the preparation of EIA report, an attempt has been made here through the use of “Activity Effect” Matrix.

For simplicity the entire project has been divided into two phases.

- Construction Phase
- Operation Phase

Impact Identification Matrix during Construction Phase:

The impact identification matrix and impact assessment matrix for the construction & Operation/ Maintenance phase is discussed below:

Table 4. 1- Impact identification matrix during construction phase

Parameters / Activities	Environmental Attributes										
	Air	Water	Soil	Noise	LULC	Hydro Geology	Geology	SHW	Risk & Hazardous	Ecology and Biodiversity	Socio Economic
Transportation of Materials & Machinery	✔	-	✔	✔	-	-	-	✔	✔	✔	✔
Operation of Machinery and DG set	✔	–	✔	✔	–	–	–	✔	✔	–	✔
Construction Water	–	✔	–	✔	–	–	-	-	–	-	–
Civil Construction Activities	✔	–	✔	✔	-	–	-	✔	✔	✔	✔
Waste water Disposal	–	✔	✔	–	-	-	-	–	–	–	✔
Waste Disposal	–	✔	✔	–	-	-	-	–	–	–	✔
Greenbelt Development	✔	✔	✔	✔	✔	✔	✔	–	–	✔	✔
Employment Generation	–	✔	-	–	-	-	-	✔	✔	–	✔

Table 4. 2- Impact identification matrix during Operation phase

Parameters / Activities	Environmental Attributes										
	Air	Water	Soil	Noise	LULC	Hydro Geology	Geology	SHW	Risk & Hazardous	Ecology and Biodiversity	Socio Economic
Transportation and Utilities operation	✔	-	✔	✔	-	-	-	✔	✔	✔	✔
Product & Raw Material Handling, Storage & Processing	✔	✔	-	✔	-	-	-	✔	✔	✔	✔
Manufacturing Process	✔	✔	-	✔	-	-	-	✔	✔	✔	✔
Sewage & Effluent Generation	-	✔	-	✔	-	-	-	✔	-	-	✔
Solid/ Hazardous Waste Disposal	-	-	✔	-	-	-	-	✔	-	-	-
Green Belt Development	✔	✔	✔	✔	✔	✔	✔	–	✔	✔	✔
Employment Generation	-	✔	-	-	-	-	–	✔	-	-	✔

4.1.2.1 Assessment of Significance of Impacts (Criteria for determining significance, Assigning Significance) & Mitigation Measures

This section is devoted to the assessment of impacts due to the proposed project, which are the most important components of EIA. Assessment involves determination of nature and extent of impacts due to the industrial activities or the actions involved.

4.1.2.2 SEVERITY CRITERIA

The severity of the residual impact are assessed on the basis of

- Impact probability;
- Impact consequence

For each environmental component in this methodology determines the severity of each parameter based on a scale gradation between 1 and 5 for which criteria have been established based on similar project, site visit and the understanding.

Table 4. 3-Severity Criteria for Impact Matrix

Sl. No.	Category	Description	Impact	
			Adverse	Beneficial
1	No impact	-	0	0
2	No appreciable impact	Short term reversible	-1	1
3	Significant impact	Long term reversible	-2	2
4	Major impact	Irreversible but of lesser extent	-3	3
5	High impact	Irreversible but of medium extent	-4	4
6	Permanent impact	Severe irreversible impact	-5	5

Probability \ Impact	Very Low 1	Low 2	Medium 3	High 4	Very High 5
Very High 5	5	10	15	20	25
High 4	4	8	12	16	20
Medium 3	3	6	9	12	15
Low 2	2	4	6	8	10
Very Low 1	1	2	3	4	5

Fig. 4. 1- Impact is Multiplicative

Table 4. 4- Score Range for Beneficial and Adverse impacts

S. No.	Total score	Outcome
1.	+ve / -ve	Beneficial impact / adverse impact
2.	0-150	No appreciable Beneficial impact / adverse impact
3.	151-300	Appreciable but reversible adverse impact-mitigation measures are needed
4.	301-450	Significant adverse impacts: most of the impacts are reversible. Mitigation measures are crucial.
5.	451-600	Major adverse impacts; most of the impacts are reversible. Alternative site selection to be considered.
6.	>600	Permanent irreversible impact; alternatives to the project need to be explored

(A) Impact Assessment Matrix during construction Phase:

Table 4. 5- Environmental Impact Matrix without Mitigation (Construction Phase)

Parameters / Activities	Environmental Attributes											Total
	Air	Water	Soil	Noise	LULC	Hydro Geology	Geology	SHW	Risk & Hazardous	Ecology and Biodiversity	Socio Economic	
Transportation of Materials & Machinery	-15	-	-9	-9	-	-	-	-6	-6	-6	-9	-60
Operation of Machinery and DG set	-9	-	-6	-9	-	-	-	-4	-4	-	-4	-36
Construction Water	-	-12	-	-4	-	-	-	-	-	-	-	-16
Civil Construction Activities	-15	-	-9	-6	-	-	-	-6	-9	-	9	-36
Waste water Disposal	-	-4	-4	-	-	-	-	-	-	-	-4	-12
Waste Disposal	-4	-	-4	-	-	-	-	-2	-2	-2	-2	-16
Greenbelt Development	15	-12	15	12	12	-	-6	-	-	12	12	60
Employment Generation	-	-12	-	-	-	-	-	-6	-6	-	15	-9
Cumulative Score	-28	-40	-17	-16	12	-	-6	-24	-27	4	17	-125

Total Cumulative Score for various Environmental Parameters without mitigation measures is -125 which is not appreciable adverse impact during construction phase.

Table 4. 6- Environmental Impact Matrix with Mitigation (Construction Phase)

Parameters / Activities	Environmental Attributes											Total
	Air	Water	Soil	Noise	LULC	Hydro Geology	Geology	SHW	Risk & Hazardous	Ecology and Biodiversity	Socio Economic	
Transportation of Materials & Machinery	-3	-	-2	-4	-	-	-	-2	-2	-6	4	-15
Operation of Machinery and DG set	-2	-	-2	-4	-	-	-	-2	-4	-	2	-12
Construction Water	-	-2	-	-2	-	-	-	-	-	-	-	-4
Civil Construction Activities	-2	-	-2	-2	-	-	-	-2	-2	-	2	-8
Waste water Disposal	-	-2	4	-	-	-	-	-	-	-	-4	-2
Waste Disposal	-2	-	-2	-	-	-	-	-2	-2	-2	-2	-12
Greenbelt Development	6	-4	4	6	6	-	-	-	-	6	2	26
Employment Generation	-	-4	-	-	-	-	-	-4	-4	-	15	3
Cumulative Score	-3	-12	0	-6	6	0	0	-12	-14	-2	19	-24

Total Cumulative Score for various Environmental Parameters with mitigation measures is -24 which not appreciable adverse impact during Construction phase.

(B) Impact Assessment Matrix during Operation Phase:

Table 4. 7- Environmental Impact Matrix without Mitigation (Operational Phase)

Parameters / Activities	Environmental Attributes											Total
	Air	Water	Soil	Noise	LULC	Hydro Geology	Geology	SHW	Risk & Hazardous	Ecology and Biodiversity	Socio Economic	
Transportation and Utilities operation	-25	-	-4	-15	-	-	-	-6	-16	-16	-16	-98
Product & Raw Material Handling, Storage & Processing	-25	-12	-12	-12	-	-	-	-12	-15	-12	-2	-102
Manufacturing Process	-25	-12	-	-15	-	-	-	-12	-12	-15	-9	-100
Sewage & Effluent Generation	-	-16	-	-9	-	-	-	-12	-12	-	-5	-54
Solid/ Hazardous Waste Disposal	-	-	-15	-	-	-	-	-15	-9	-	-	-39
Green Belt Development	25	-12	6	6	12	-4	-4	-	-	25	9	63
Employment Generation	-	-12	-	-	-	-	-	-9	-	-	12	-9
Cumulative Score	-50	-64	-25	-45	12	-4	-4	-66	-64	-18	-11	-339

Total Cumulative Score for various Environmental Parameters without mitigation measures is -339 which has significant adverse impacts: most of the impacts are reversible. Mitigation measures are crucial.

Table 4. 8- Environmental Impact Matrix with Mitigation (Operational Phase)

Parameters / Activities	Environmental Attributes											
	Air	Water	Soil	Noise	LULC	Hydro Geology	Geology	SHW	Risk & Hazardous	Ecology and Biodiversity	Socio Economic	Total
Transportation and Utilities operation	-9	-	-4	-9	-	-	-	-4	-6	-6	15	-23
Product & Raw Material Handling, Storage & Processing	-6	-9	-	-6	-	-	-	-6	-9	-	-2	-38
Manufacturing Process	-9	-4	-	-6	-	-	-	-2	-2	-6	-9	-38
Sewage & Effluent Generation	-	-6	-	-9	-	-	-	-2	-2	-	-6	-25
Solid/ Hazardous Waste Disposal	-	-	-6	-	-	-	-	-6	-9	-	-	-21
Green Belt Development	25	-9	9	12	12	-	-	-	-	25	9	83
Employment Generation	-	-9	-	-	-	-	-	-9	-	-	16	-2
Cumulative Score	1	-37	3	-18	12	-	-	-29	-28	13	23	-64

Total Cumulative Score for various Environmental Parameters with mitigation measures is -64 which not appreciable adverse impact during operation phase.

4.2 IMPACT ON AIR ENVIRONMENT

4.2.1 Impacts and Mitigation measures due to Project Location

Impacts Measures

The proposed project is located at Village Kapanda, Sundargarh district. The site does not fall under critically polluted/severely polluted area. There are 5 existing industries within 10 km study area. Introduction of new units shall impart small disturbance in the eco-system of the study area.

Mitigation Measures

There will be a minimal impact on environment due to the project location as proper mitigation measures will be adopted during construction and operation phase.

4.2.2 IMPACT AND MITIGATION MEASURES DUE TO PROJECT DESIGN

Impacts Measures

The plant is being proposed based on techno-economic feasibility of the state-of-the-art technology available presently in the country and therefore no adverse impacts are anticipated due to project design.

Mitigation Measures

Eco-friendly features have been considered for the proposed plant to minimize or avoid pollution, promote energy conservation and recycle wastes. For example:

- Wet beneficiation process with closed circuit water system.
- Straight grate technology in pellet plant.
- Zero liquid discharge (ZLD) concept.
- Reuse of wastes
- State of the art pollution control equipment.

4.3 IMPACT ON AIR ENVIRONMENT

4.3.1 Impacts and Mitigation measures during Construction Phase

Impact Measures

- Fugitive emission generated due to construction activities like excavation, back filling, concreting, hauling and dumping of earth materials and from construction spoils. This will deteriorate the air quality of the area.
- Release of pollutants like dust SO_2, NOx from operation of heavy vehicles and movement of machineries and equipment.

Mitigation Measures

- Storage of construction material in covered sheds or warehouses to prevent windblown fugitive emissions.
- Trucks shall be covered with sheets to avoid spillage and dust emission.
- Regular water sprinkling shall be carried out on the roads and construction site.
- BS-VI standard vehicles shall be used in construction to reduce emissions.
- All construction equipment shall be properly tuned and maintained to keep emission within permissible limits.
- Air quality monitoring shall be done regularly during construction phase.
- Provision of masks for the workers.

4.3.2 IMPACTS AND MITIGATION MEASURES DURING OPERATIONAL PHASE

Activities/sources of impacts

- Raw material and product handling areas.

- Production process.
- Movement of Vehicles.
- During proportioning of additives, induration of pellets & transfer of material from one section to other, dust will be generated.
- The operational phase of the project comprises of various activities each of which will have an impact on Air Quality. Both Dust & Gaseous emissions are likely to be emitted. The key emissions from the proposed Project are emissions due to Particulate Matter, Sulphur dioxide (SO_2), Nitrogen dioxide (NO_2) & CO.
- ESP/Bag Filters will be installed in the pellet plant to control the emission of air pollutants.
- The Producer Gas plant will be operated in close circuit with provision of water spray system. So, there will not be any emissions from the PGP.

There will be some impact on the nearby habitation like increase in respiratory diseases, hypertension, eye and skin related problems due to degradation of ambient air quality of the area resulting from various activities like raw material transportation as the majority of raw material transportation will be done via road, material loading/unloading, handling and production process.

The transportation impacts can be minimized by adopting covered transportation of raw materials, keeping proper maintenance of the vehicles to be used & also allowing only those vehicles which are meeting PUC norms.

Mitigation measures

To mitigate the impacts on air quality, following measures have been proposed:

Table 4. 9- Proposed Air Pollution Mitigation Measures

Sl. No.	Area of Operation	Air Pollution Control Measures
1.	**Pellet Plant**	
	Induration process	• ESP shall be installed with 4 fields to reduce the emissions from the furnace. • Heat shall be used for drying of pellets to reduce energy consumption.
	Raw material preparation & handling	• Centralized de-dusting system with common ESP. • Water sprinkling, mechanical gas cleaning equipment, dust recycles arrangement. • Exhaust gas from drying and grinding systems to be cleaned using fans, suction hoods, cyclones, bag filters.
	Pellet screening and transport	
2.	**PGP**	
	Coal Gasification Chamber	Closed circuit plant with provision of spray system.
3.	**Common Areas**	
	Material transfer points	• Water sprinkling through static nozzle type sprinklers. Closed conveyors shall be used to reduce fugitive emissions.
	Roads	Frequent water sprinkling by tankers at the rate of once per hour.

4.3.3 Ambient Air Quality Modeling

Prediction of impacts on air environment has been carried out employing mathematical model based on a steady state Gaussian plume dispersion model designed for multiple point sources for short term. In the present case, AERMOD version 9.9.0 dispersion model based on steady state Gaussian plume dispersion, designed for multiple point sources and developed by United States Environmental Protection Agency [USEPA] has been used for simulations from Industrial sources.

Ambient air quality modeling of the study area has been performed considering PM10, $PM_{2.5}$, SO_2 & NO_x emissions. Incremental pollution due to the plant has been added to the background pollutant concentration to calculate resultant pollution level. Point source emission rates have been calculated considering latest emission standards notified by MoEF&CC. 24-hour mean Ground Level Concentrations (GLC) were estimated by using the site specific meteorological data of Oct-Dec 2021.

Modeling Procedure

Prediction of ground level concentrations (GLC's) due to enhancement project has been made by AERMOD version 9.9.0 as per CPCB guidelines. It is US-EPA approved model to predict the air quality. For this study uniform polar receptors on flat terrain have been assumed.

Gaussian Plume Model

The AERMOD version 9.9.0 model is based on a numerical integration over the area in the upwind and cross wind directions of Gaussian plume formula. This can be applied to the Point, Area, Line, Volume sources (and other forms of area sources) simultaneously and their resultant incremental concentration of the pollutant can be predicted.

There are two input data processors that are regulatory components of the AERMOD modeling system: AERMET, a meteorological data preprocessor that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, and AERMAP, a terrain data preprocessor that incorporates complex terrain using USGS Digital Elevation Data.

There are following considerations for this project:

- Emission during the operation phase is mainly from the stack.
- As per norms of Government of India and Motor Vehicle Rules, BS-IV norms.
- Stacks are proposed to be installed as per CPCB norms.
- Reference point has been taken as the center of the project site.
- Project Site falling under datum 43R
- Reference of calculation of emission factors is AP-42 by USEPA and As per CPCB norms for DG Sets.
- Only surface air data has been considered for the running the model for upper air, upper air estimator has been used.
- Model is run through the whole period and 24 Hours. Results have been prepared accordingly

Air Quality Modeling framework

The Gaussian Dispersion Modeling (GDM) is used for prediction of dispersion of air emission and the computation of Ground Level Concentration (GLC) up to a specified distance from source. The fundamental model is given below:

$$c(x,y,z) = \frac{Q}{2\pi\sigma_y\sigma_z u}\exp\left(\frac{-y^2}{2\sigma_y^2}\right)\left(\exp\left(\frac{-(z-h)^2}{2\sigma_z^2}\right)+\exp\left(\frac{-(z+h)^2}{2\sigma_z^2}\right)\right)$$

Where C is a concentration at a given position, Q is the source term, x is the downwind, y is the crosswind and z is the vertical direction and u is the wind speed at the h height of the release. The σ_y, σ_z deviations describe the crosswind and vertical mixing of the pollutant. The above equation describes a mixing process that results in a Gaussian concentration distribution both in crosswind and in vertical direction, centered at the line downwind from the source. Gravitational settling and chemical or radioactive decays are neglected.

Table 4.10- Model Setup

Parameter	Details
Model name	AERMOD 9.9.6
Model type	Steady state Gaussian plume air dispersion model
Averaging time	24 Hour
Source type	Point source and line source
Boundary limits	10 km
Surface meteorological data	Site specific data processed by AERMET

Dispersion Parameters

The mathematical model used for prediction of impacts on air environment in the present studies is the ISCST3 model, which is based on the straight line steady state Gaussian Plume Dispersion Model developed and approved by USEPA and MoEF, Govt. of India.

- The parameters for which the Ground Level Concentrations predicted are PM10, SO2 & NOx.
- A study area within a radius of 10 km around the project area is taken into consideration to compute the incremental ground level concentrations (GLC) of PM_{10}, SO_2 & NO_x from the Modeling study.
- These incremental values are added to the back ground GLC to know the resultant conc. after implementation of the proposed project.

In the present case Gaussian Dispersion model, applicable to industrial sources located on flat as well as undulated terrain has been applied for prediction on impacts on air environment. This model has been developed to simulate the effect of emissions from the proposed plant on the neighborhood air quality.

The impact has been predicted over a 10Km X10 Km area with center of the plant as center.

The receptors are defined with respect to 16 radial wind directions and radial distance from center. GLC have been calculated at every 1000 m grid points.

The impact on air quality due to emission from a single source or group of sources is evaluated by use of mathematical models. When the air pollutants enter into the atmosphere, they transport and diffuse in the atmosphere resulting in pollutant dilution. Air meteorology is the important factor in pollution status evaluation. The air quality models are designed to simulate these processes mathematically, and relate emission of primary pollutants to the resulting downwind air. The model inputs are emission load and nature, meteorology and topographic features.

- Emission details from the stacks of the proposed units have been given in the Table below.
- The prediction has been done to estimate concentration value over a radial distance of 10 km from the source.
- Cartesian receptor network has been considered.
- Emission rate was considered constant throughout the averaging period.
- Ground level concentrations were computed without any decay co-efficient.
- The micro-meteorological observations made during the study period have been taken as input meteorological data.

Model details and Frame work of Computation

The project involving Beneficiation & Pellet Plant and 2 Diesel Generator Set source identified for Dispersion of pollutants and Ground Level Concentration of pollutants depends upon the following factors:

- Emission sources from D.G. Sets. (1 x 750 KVA)
- Emissions from Pellet Plant Stacks
- Fugitive emissions from material handling, storage and transport activities.
- Meteorological conditions.
- Line source (Transportation routes)

AERMOD View 9.9.6 model has been used to calculate the Ground Level Concentration (GLC) which can simultaneously simulate many sources with different shapes, at ground or elevated, buoyant or non-buoyant, emitting one or more pollutants and is capable to account for the non-homogeneous vertical structure of the boundary layer. Vertical mixing is limited in case of stable conditions. The dispersion for unstable conditions is non-Gaussian, so as to correctly describe the high concentrations of pollutants that can be observed close to stacks under convective conditions.

Predictive GLCs are calculated by using meteorological data collected at site during the monitoring period i.e. from **October to December 2021.**

The receptors are defined with respect to 16 radial wind directions (N to NNW) and radial distance from the plant site. GLC have been assessed at every 1000m grid points. Predominant wind directions are from South-West.

As fuel burning is the sources, main pollution parameters being released in air will be NO_2, PM, & SO_2.

Table 4.11- DG Stack Emission Details

Details	DG
Capacity	1 x 750 KVA
Type of fuel	Diesel
Height of the stack (m)	15
Temp of flue gas (degree Celsius)	110
Internal Dia. of the stack (m)	0.13
Velocity of flue gas (m/s)	7.32
Volumetric flow rate (Nm^3/hr)	166.4
Flue gas Flow rate (m^3/hr)	250
PM_{10} Emissions (g/s)	0.0062
$PM_{2.5}$ Emissions (g/s)	0.0044
SO_2 Emissions (g/s)	0.0072
NO_X Emissions (g/s)	0.0071
CO Emissions (g/s)	0.0021

4.3.3.1 Emission details of pollutants

Table 4.12 – Stack Emission Details: after APCD with control measures

Stack No	Stack Attached To	Qty.	Height, m	Flue Gas Temp. C	Stack Dia., (m)		Max. Velocity in Stack, m/s	Mass flow rate (Kg/s)	*Flue Gas Qty., Nm^3/sec	Controlled Concentration							
					Bottom	Top				PM				SO_2		NOx	
										mg/Nm^3	Emission g/s	PM_{10}	$PM_{2.5}$	mg/Nm^3	Emission g/s	mg/Nm^3	Emission g/s
S1-S2	Exhaust gas of kiln- ESP	2	65	135	6.8	4.0	14.02	165.8	176.2	<30	5.29	3.17	2.11	45	7.93	25	4.41
S3-S4	Kiln Discharge end bag filter	2	30	75	2	1.5	11.5	21.45	20.3	<30	0.61	0.37	0.24	22	0.45	14	0.28
S5-S6	Cooler Discharge bag filter	2	30	75	2	1.5	11.5	21.45	20.3	<30	0.61	0.37	0.24	21	0.43	12	0.24
S-7	Coal Grinding - Bag Filter	1	30	40	0.6	0.5	14.2	3.37	3	<30	0.09	0.05	0.04				
S8-S9	Transfer point of Conveyor- Bag Filter	2	30	40	0.6	0.5	14.2	3.37	3	<30	0.09	0.05	0.04				
S-10	Proportioning system-Bag Filter	1	30	40	0.6	0.5	14.2	3.42	3	<30	0.09	0.05	0.04				
S-11	PCI- Bag Filter	1	30	40	2	1.5	10.9	20.4	19.2	<30	0.58	0.35	0.23	20	0.38	10	0.19

Source- PP

1503

1503

Table 4.13- Transportation emission

Activity	PM_{10} Emitted, gm/sec	$PM_{2.5}$ Emitted, gm/sec	SO_2 Emitted, gm/sec,	NOx g/s
Transportation	0.00005586	0.00003724	0.0000566	0.0000902

Table 4.14- Stack Emission Details: without control/failure of APCD

Stack No	Stack Attached To	Qty	Height, m	Flue Gas Temp. °C	Stack Dia.,		Max. Velocity in Stack, m/s	*Flue Gas Qty., Nm^3/sec	Worst Case (Failure of APCD)					
					Bottom (m)	Top (m)			PM10 g/s	PM2.5 g/s	SO_2		NOx	
											mg/Nm^3	Emission g/s	mg/Nm^3	Emission g/s
S1-S2	Exhaust gas of kiln- ESP	2	65	135	6.8	4.0	14.02	176.2	630.83	419.89	47	8.28	26	4.58
S-3-S4	Kiln Discharge end bag filter	2	30	75	2	1.5	11.5	20.3	73.63	47.76	24	0.49	16	0.32
S5-S6	Cooler Discharge bag filter	2	30	75	2	1.5	11.5	20.3	73.63	47.76	24	0.49	13	0.26
S-7	Coal Grinding - Bag Filter	1	30	40	0.6	0.5	14.2	3	9.95	7.96				
S8-S9	Transfer point of Conveyor- Bag Filter	2	30	40	0.6	0.5	14.2	3	9.95	7.96				
S-10	Proportioning system-Bag Filter	1	30	40	0.6	0.5	14.2	3	9.95	7.96				
S-11	PCI- Bag Filter	1	30	40	2	1.5	10.9	19.2	69.65	45.77	22	0.42	12	0.23

Source- PP

1504

Table 4.15- Mixing Height in (m)

Hours	Minimum Mixing Height (m)	Maximum Mixing Height (m)
7	98	122
8	142	188
9	290	318
10	562	635
11	740	815
12	882	975
13	1060	1165
14	1082	1238
15	1045	1215
16	910	1045
17	722	818
18	548	593
19	388	412

Source- Envitrans

Diurnal Variation of Mixing Height in Postmonsoon Season

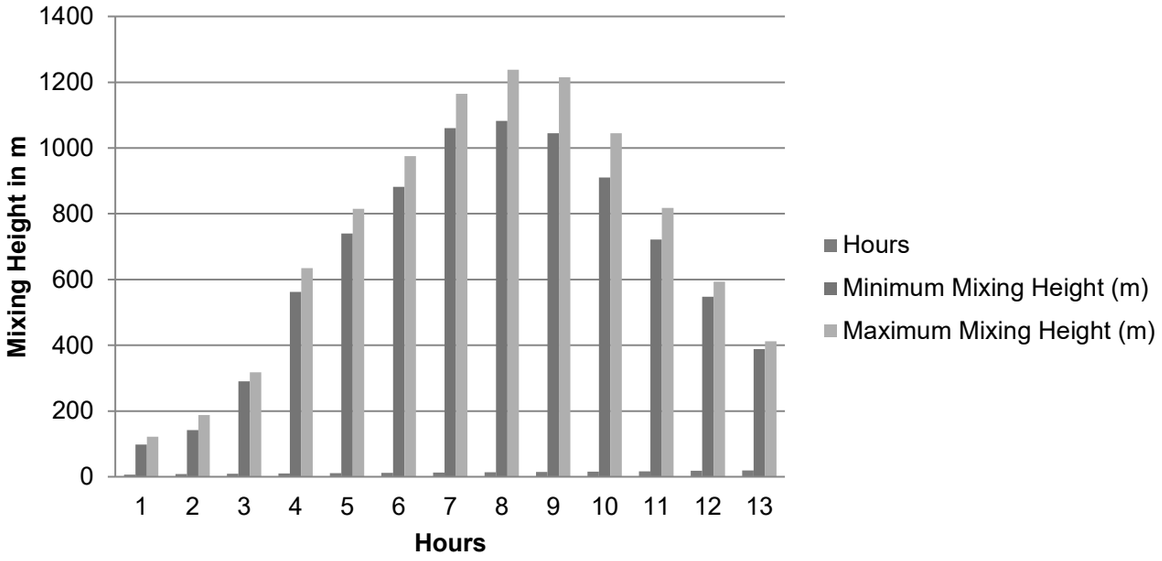


Fig 4.2- Graph showing Max. & Min. Mixing Height

4.3.4 Dispersion modeling

The AERMOD 9.9.6 software platform was used for the modeling exercise. The period GLC's of the air pollutant, namely PM10, PM2.5, from the source operations have been computed. AERMET view has been used to create the SURFACE file (.SFC) and PROFILE file (.PFL). After filling all the details, software was run and following output have been generated by AERMOD VIEW.

The computed ground level concentrations (GLCs) for PM_{10}, $PM_{2.5,}$ SO_2 and NOx at various receptor locations after implementation of the proposed project (Controlled and Uncontrolled) are presented in the following **Table No. 4.16 & 4.18** respectively and Isopleths of the pollutant concentration are shown in **Figure No.- 4.3 to Figure No. 4.13.**

The maximum background concentration has been taken for the monitoring period October to December 2021.

Table 4.16- Incremental Concentration at the AAQ Monitoring Locations (Controlled)

Station ID	Location Name	PM_{10} Concentration (ug/m^3)	$PM_{2.5}$ Concentration (ug/m^3)	SO_2 Concentration (ug/m^3)	NOx Concentration (ug/m^3)	CO Concentration (mg/m^3)
AAQ-1	At Project Site	2.17	1.46	2.25	1.27	0.03
AAQ-2	Near Approach Road Close to the Project Site	0.83	0.56	1.18	0.66	0.03
AAQ-3	Badbahal Village	0.78	0.52	1.33	0.74	0.03
AAQ-4	Nuagan Village	0.24	0.16	0.45	0.25	0.02
AAQ-5	Kapanda Village	0.24	0.16	0.45	0.25	0.02
AAQ-6	Bagiabahal Village	0.14	0.09	0.28	0.16	0.01
AAQ-7	Budhikutuni Village	0.22	0.14	0.39	0.22	0.01
AAQ- 8	Rajamunda Village	0.08	0.05	0.16	0.09	0.01

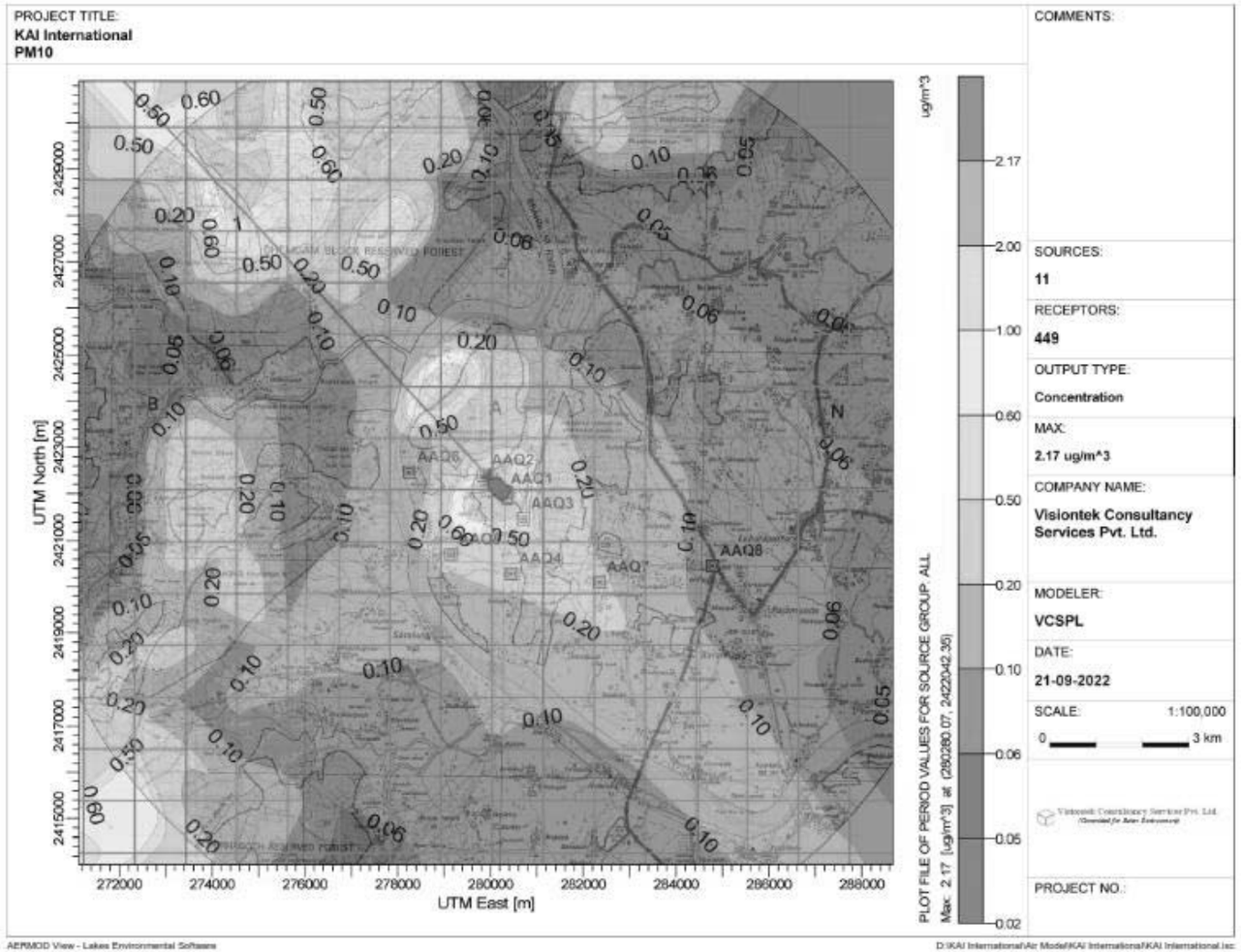


Fig. 4. 3- PM_{10} Concentration Controlled Scenario

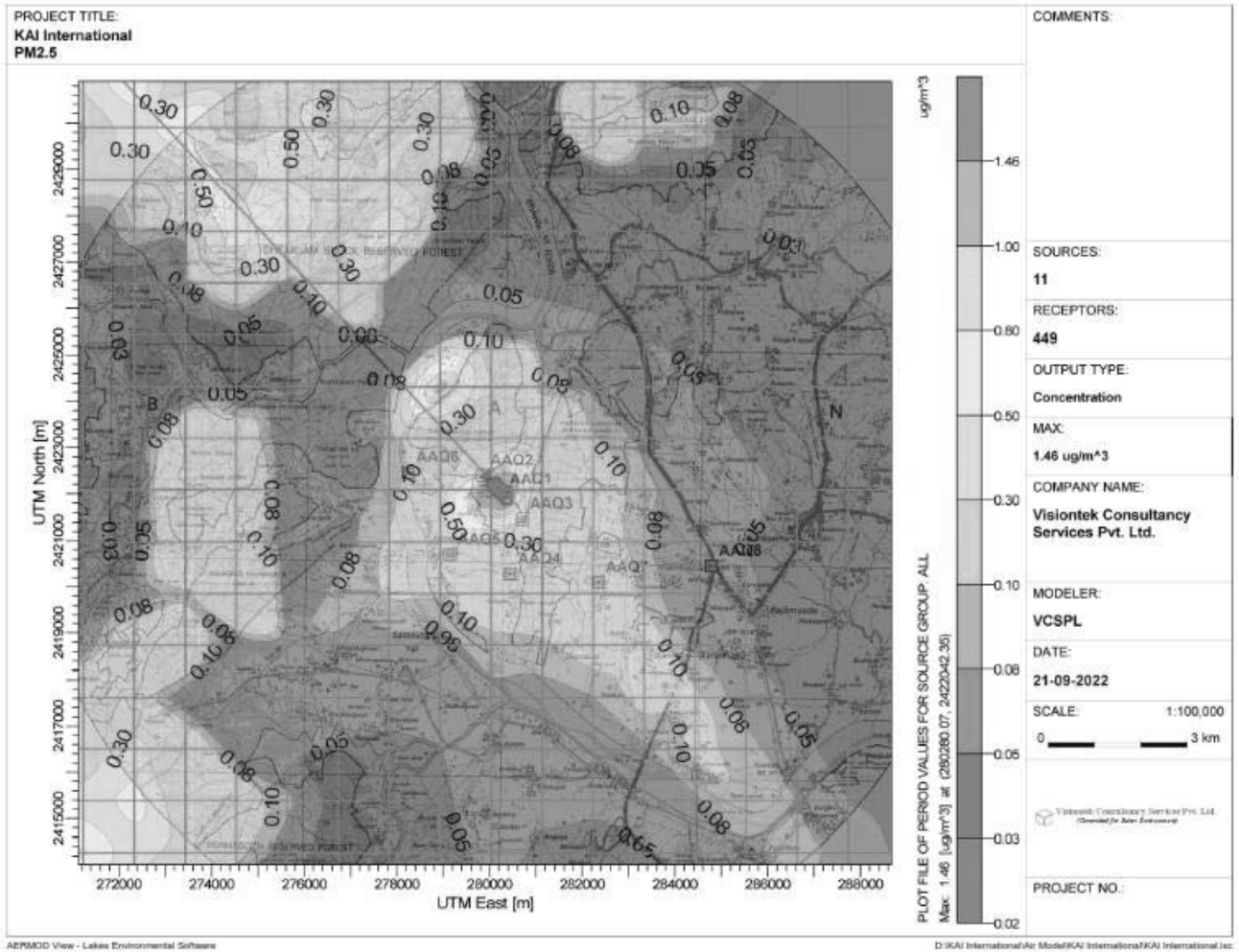


Fig. 4. 4- PM $_{2.5}$ Concentration Controlled Scenario

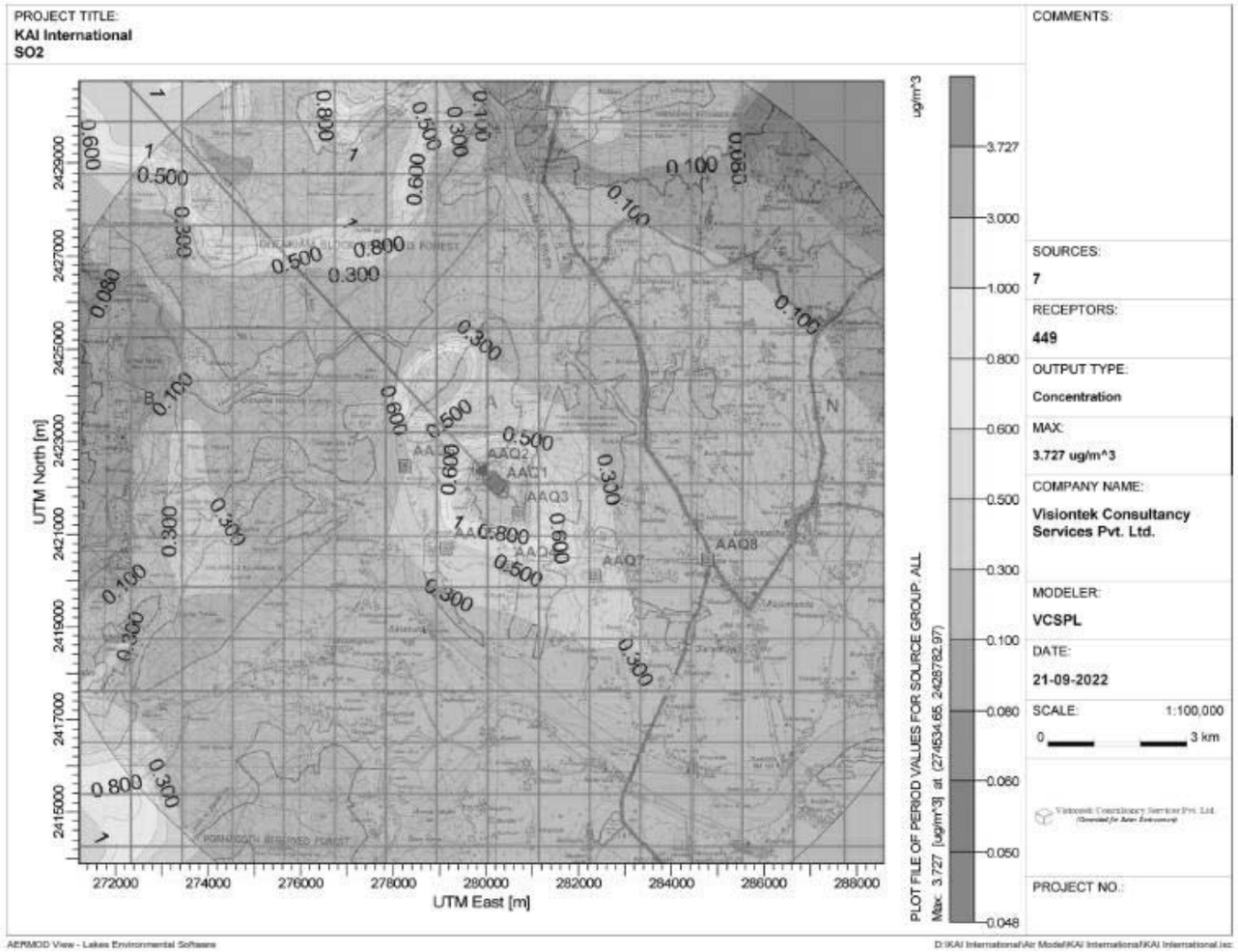


Fig. 4. 5- SO_2 Concentration Controlled Scenario

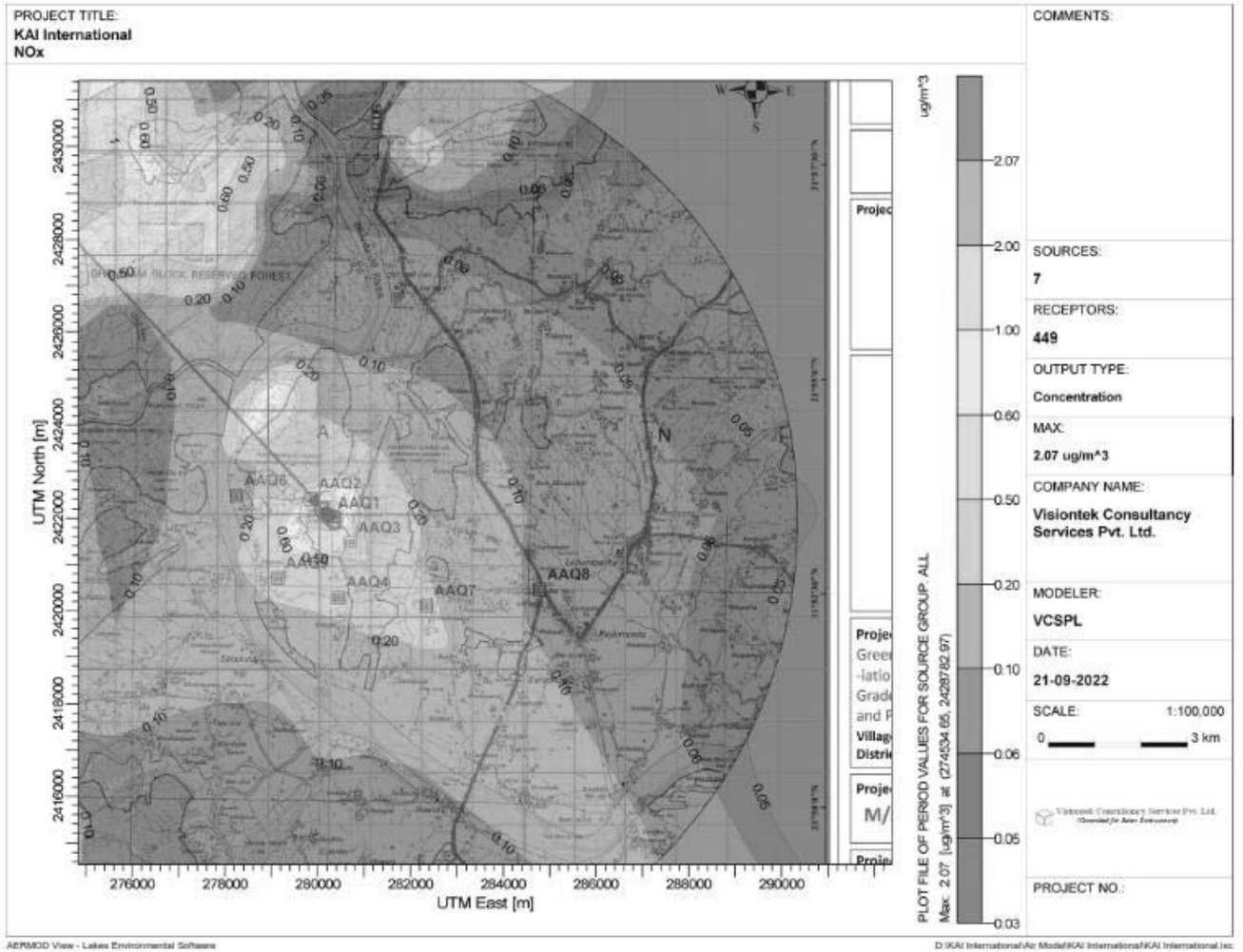


Fig. 4. 6- NO_X Concentration Controlled Scenario

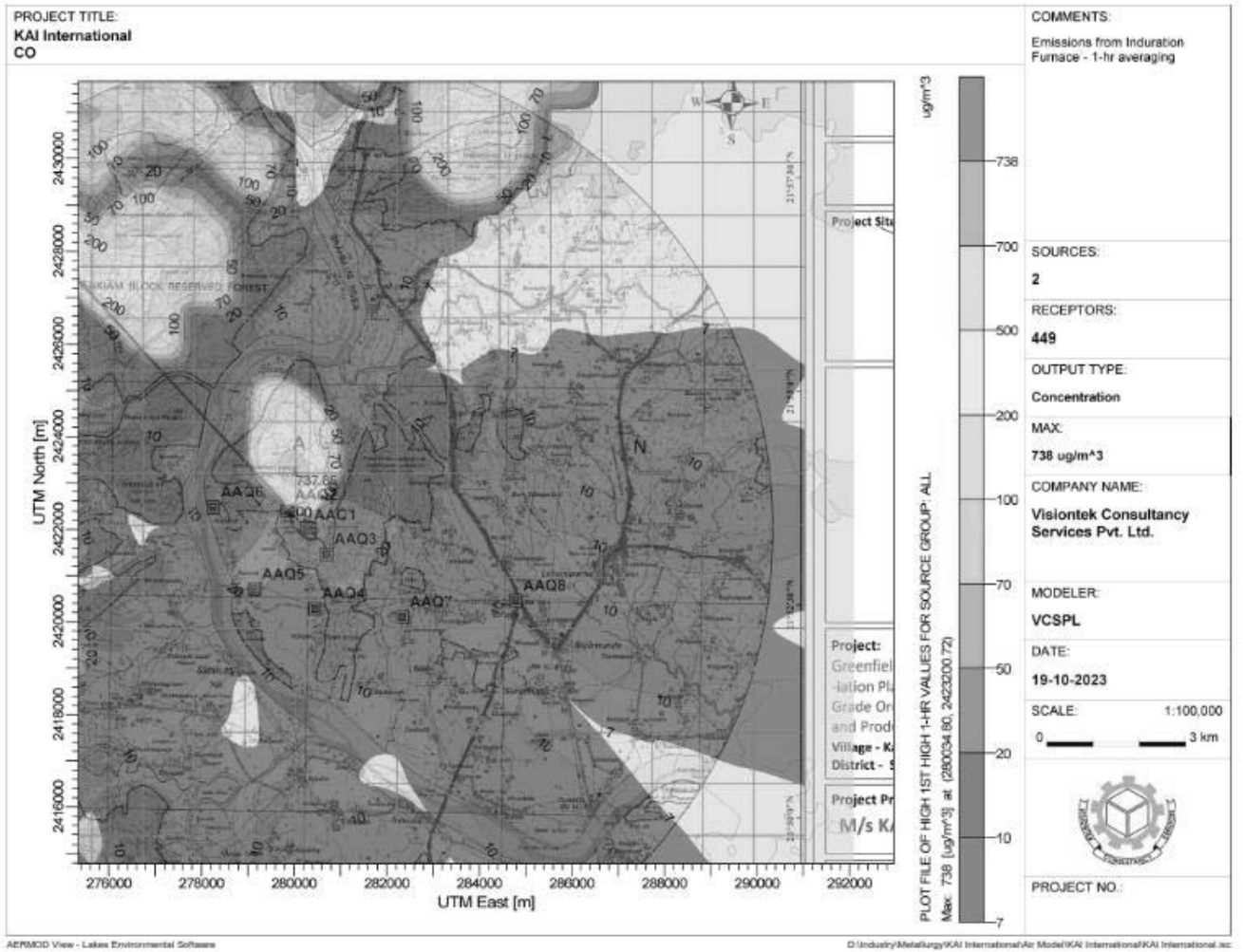


Fig. 4. 7- CO Concentration Controlled Scenario

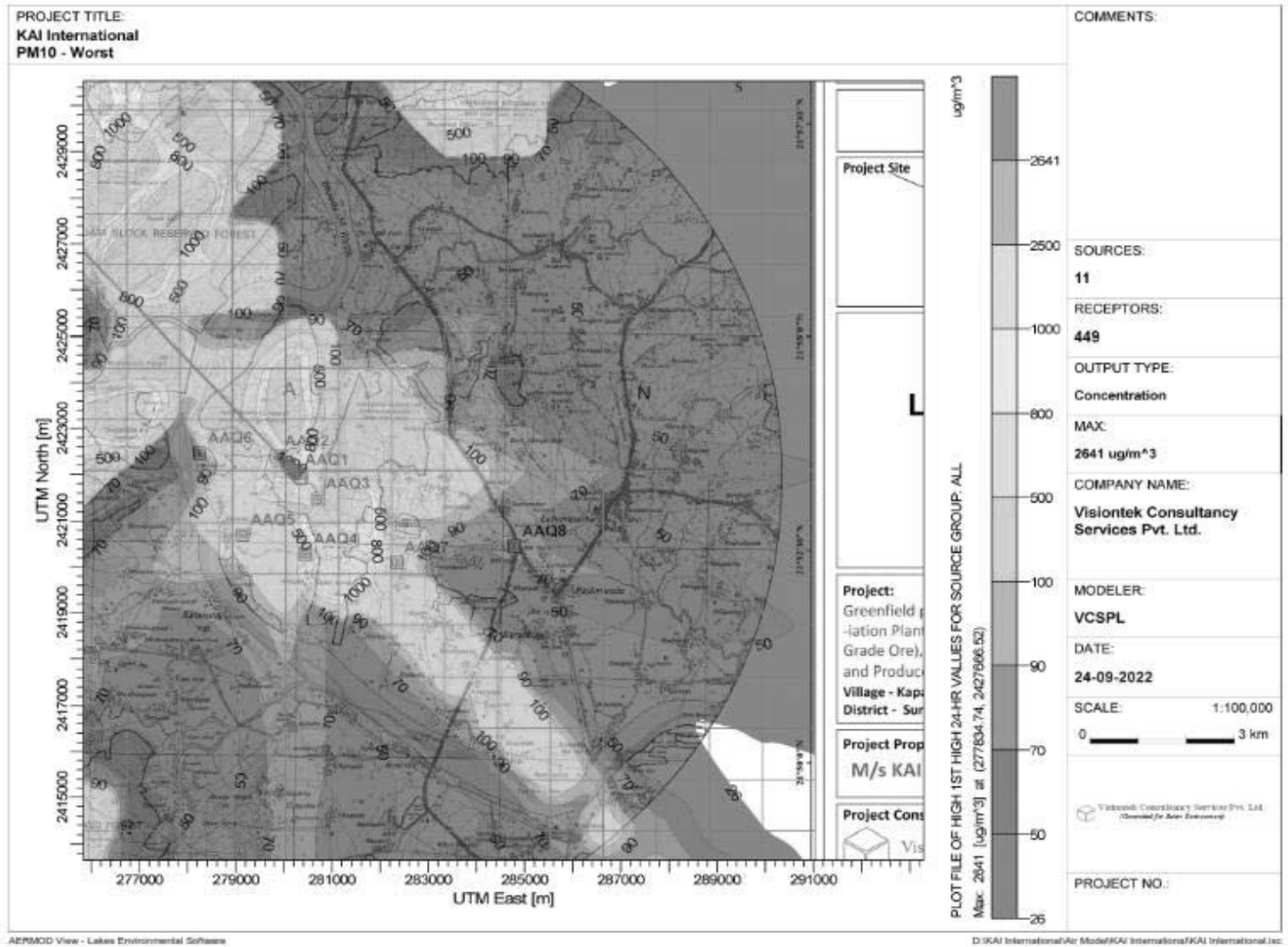


Fig. 4.8- Isopleths of PM_{10} (worst case)

1512

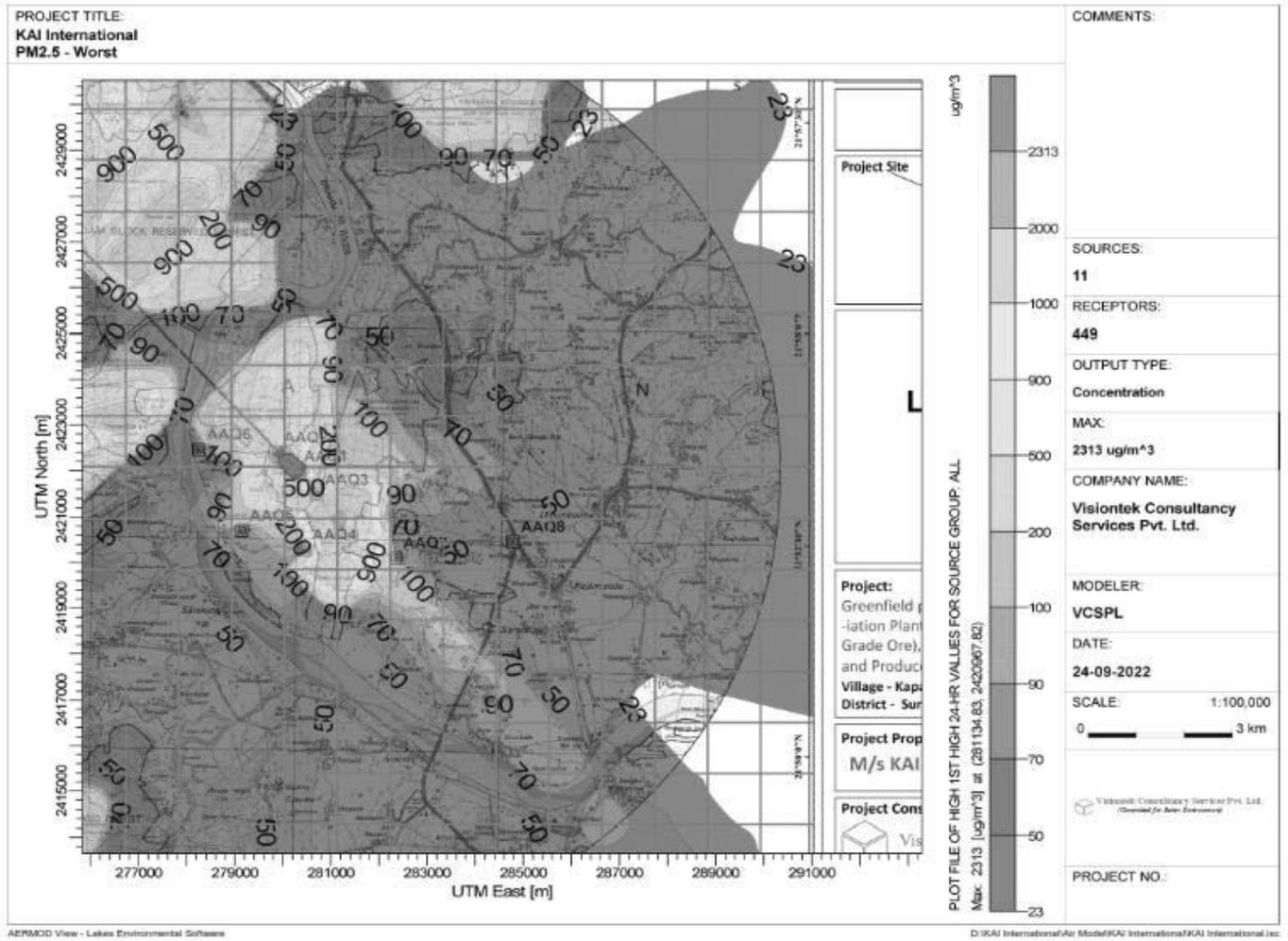


Fig 4.9- Isopleths of $PM_{2.5}$ (worst case)

1513

Table 4.17- Resultant Concentration at the AAQ Monitoring Locations (Controlled)

Location ID	PM_{10} in µg/m^3			SO_2 in µg/m^3			NOx in µg/m^3			$PM_{2.5}$ in µg/m^3			CO in mg/m^3		
	Baseline (98%tile)	Incremental	Resultant	Baseline (98%tile)	Incremental	Resultant	Baseline (98%tile)	Incremental	Resultant	Baseline (98%tile)	Incremental	Resultant	Baseline (98%tile)	Incremental	Resultant
AAQ-1	42.1	2.17	44.27	5.5	2.25	7.75	11.7	1.27	12.97	22.8	1.46	24.26	0.17	0.03	0.2
AAQ-2	52.5	0.83	53.33	7.5	1.18	8.68	13.8	0.66	14.46	27.9	0.56	28.46	0.18	0.03	0.21
AAQ-3	55.6	0.78	56.38	6.9	1.33	8.23	14.1	0.74	14.84	29.9	0.52	30.42	0.20	0.03	0.23
AAQ-4	50.5	0.24	50.74	6.6	0.45	7.05	13.2	0.25	13.45	27.2	0.16	27.36	0.16	0.02	0.18
AAQ-5	54.6	0.24	54.84	8.0	0.45	8.45	14.5	0.25	14.75	29.6	0.16	29.76	0.18	0.02	0.2
AAQ-6	50.5	0.14	50.64	5.9	0.28	6.18	12.4	0.16	12.56	26.6	0.09	26.69	0.18	0.01	0.19
AAQ-7	50.4	0.22	50.62	6.6	0.39	6.99	12.1	0.22	12.32	27.0	0.14	27.14	0.17	0.01	0.18
AAQ-8	80.4	0.08	80.48	14.0	0.16	14.16	24.5	0.09	24.59	43.6	0.05	43.65	0.42	0.01	0.43
NAAQ Standard	100 µg/m^3			80 µg/m^3			80 µg/m^3			60 µg/m^3			2 mg/m^3		

It is concluded from the dispersion modelling that the Resultant GLC after implementation of the proposed project will be limited within NAAQS.

Table 4.18- Resultant Concentration at the AAQ Monitoring Locations (Uncontrolled)

Location ID	Locations	PM_{10} in µg/m^3			$PM_{2.5}$ in µg/m^3		
		Baseline	Incremental	Resultant	Baseline	Incremental	Resultant
AAQ-1	At Project Site	42.1	349.48	391.58	22.8	264.02	286.82
AAQ-2	Near Approach Road Close to the Project Site	52.5	149.87	202.37	27.9	108.68	136.58
AAQ-3	Badbahal Village	55.6	150.55	206.15	29.9	108.02	137.92
AAQ-4	Nuagan Village	50.5	45.75	96.25	27.2	31.92	59.12
AAQ-5	Kapanda Village	54.6	46.06	100.66	29.6	32.06	61.66
AAQ-6	Bagiabahal Village	50.5	28.71	79.21	26.6	19.85	46.45
AAQ-7	Budhikutuni Village	50.4	42	92.4	27.0	29.42	56.42
AAQ-8	Rajamunda Village	80.4	16.88	97.28	43.6	11.73	55.33

From the above table it is evident that in case of failure of APCD or uncontrolled condition, the AAQ of the area will be further degraded and values at all the stations will go up. The values at station AAQ-1,2,3 will go above the prescribed limits majorly and at other location it will be closer to the prescribed standard. Thus, the high efficiency APCD and control measure with preventive maintenance is mandatory for project operation.

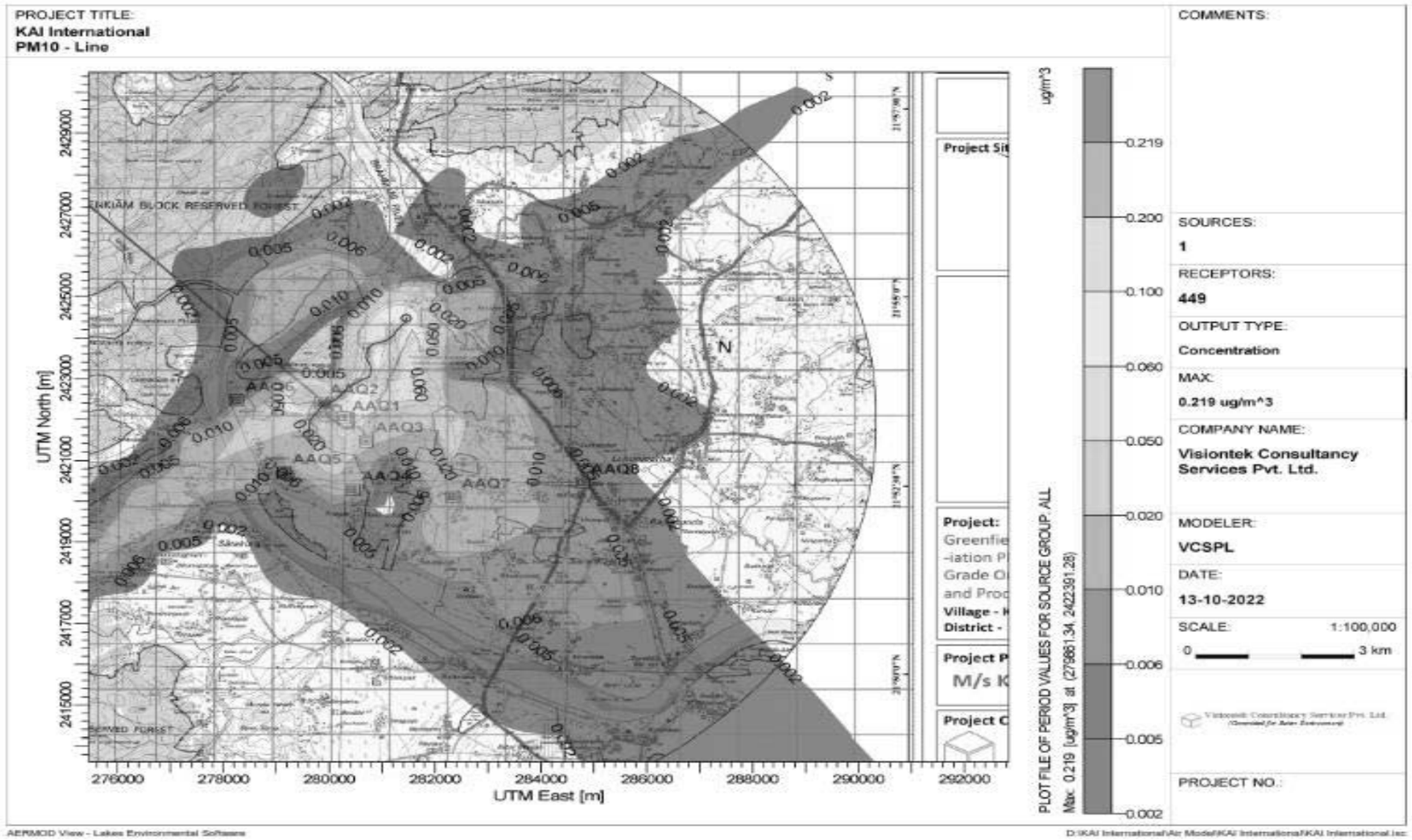


Fig. 4.10- Isopleth of PM_{10} (Line Source)

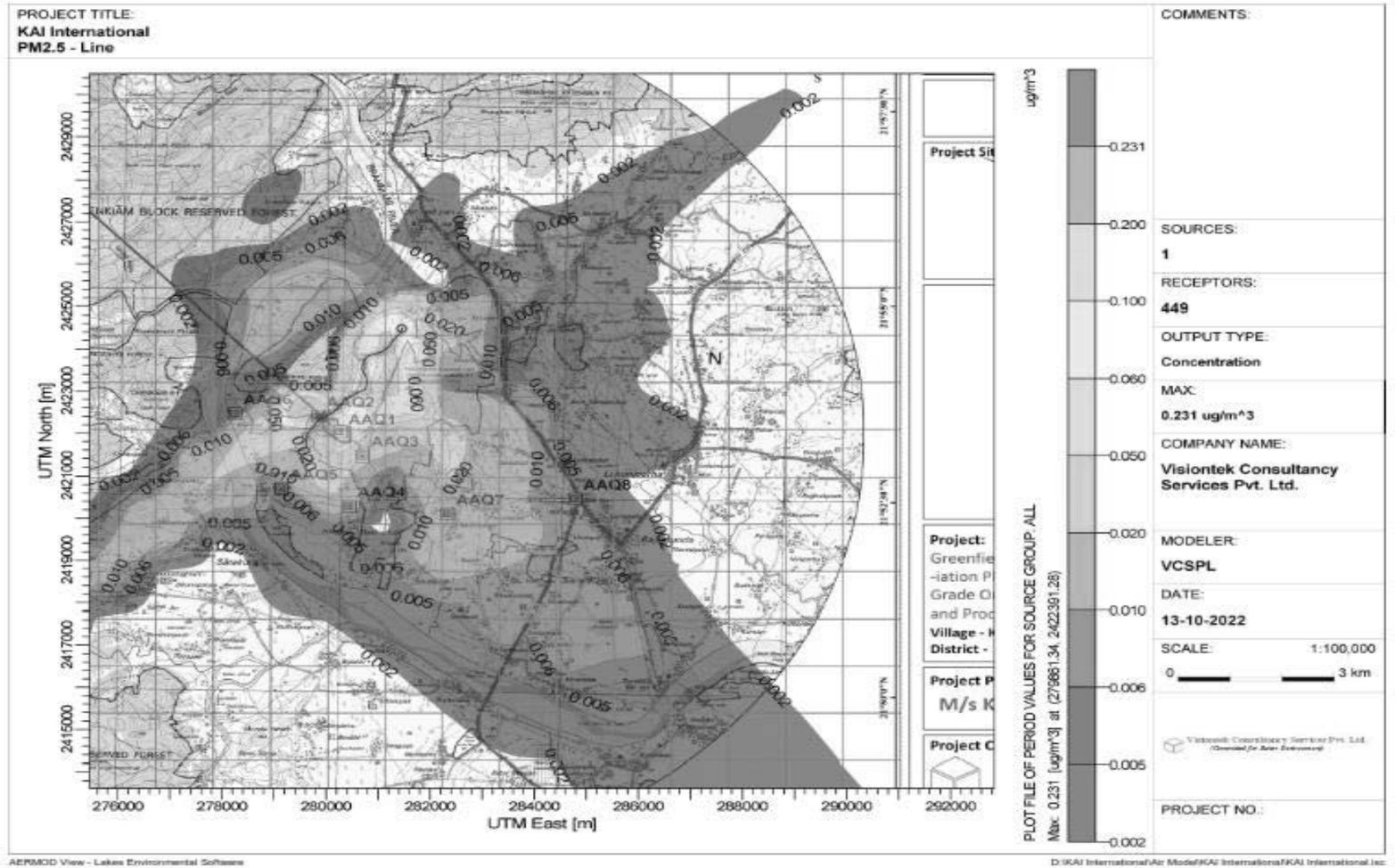


Fig. 4.11- Isopleth of $PM_{2.5}$ (Line Source)

15517
15517

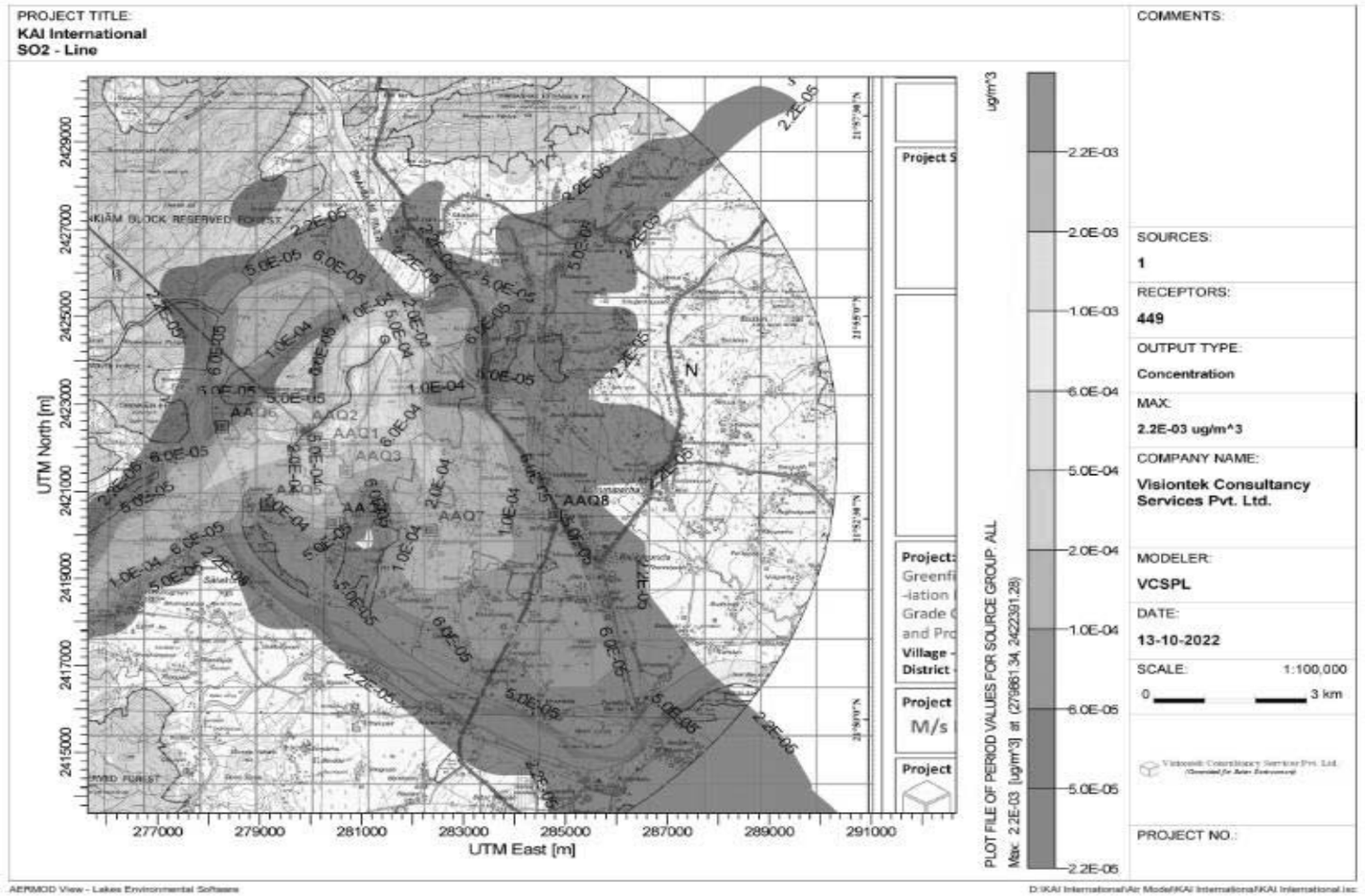


Fig. 4.12- Isopleth of SO_2 (Line Source)

1518

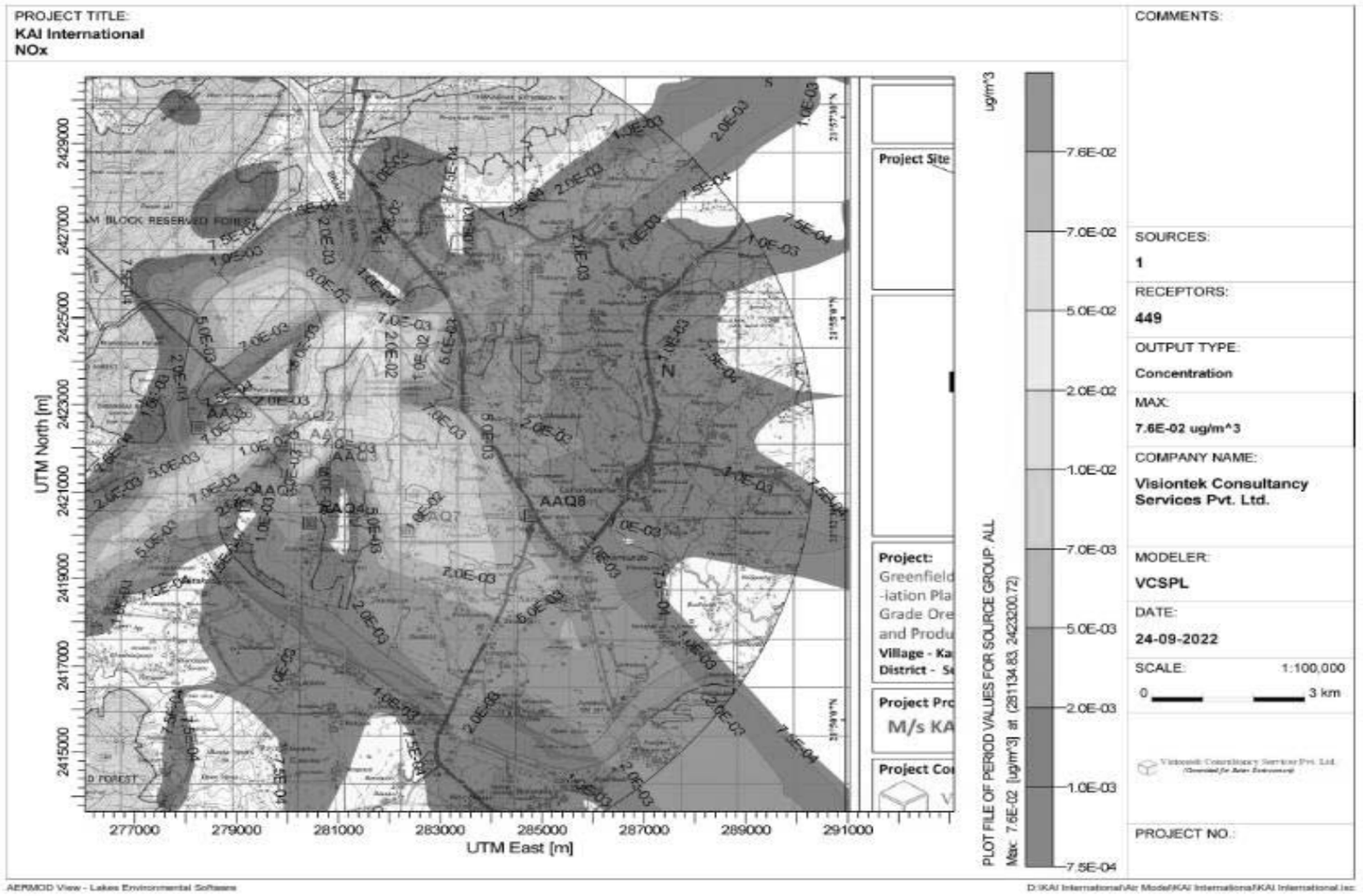


Fig. 4.13- Isopleth of NOx (Line Source)

4.3.5 Air Quality Index

It is used to identify the impact of pollution on one's health. It basically measures health effects for a short time. The Environmental Protection Agency (EPA) calculates the AQI for five major air pollutants. The national air quality standards have been created based on the same.

Calculation

AQI is calculated using the formula below:

$$I = \left(\frac{I_{high} - I_{low}}{C_{high} - C_{low}}\right)(C_{high} - C_{low}) + I_{low}$$

Where,

I = Air Quality Index
C = Pollutant Concentration
C_{low} = Concentration breakpoint that is ≤ C
C_{high} = Concentration breakpoint that is ≥ C
I_{low} = Index breakpoint corresponding to C_{low}
I_{high} = Index breakpoint corresponding to C_{high}

AQI has been categorized into Good, Satisfactory, Moderately Polluted, Poor, Very Poor and Severe.

Table 4.19- AQI Categories (Source: SPCB)

NAQI Category & Range	PM_{10}(µg/m^3)	$PM_{2.5}$(µg/m^3)	SO_2(µg/m^3)	NOx(µg/m^3)	CO(mg/m^3)	O_3(µg/m^3)
Good (0-50)	0-50	0-30	0-40	0-40	0-1	0-50
Satisfactory (51-100)	51-100	31-60	41-80	41-80	1.1-2.0	51-101
Moderately Polluted (101-200)	101-205	61-90	81-380	81-180	2.1-10	101-168
Poor (201-300)	251-350	91-150	381-800	181-280	10.1-17	169-208
Very Poor (301-400)	351-430	151-250	801-1600	281-400	17.1-34	209-748
Severe (401-500)	>430	>250	>1600	>400	>34	>748

Source: CPCB Website (https://app.cpcbccr.com/AQI/)

Table 4.20- Health Statements for AQI Categories

NAQI Category & Range	Associated Health Impacts
Good (0-50)	Minimal Impact
Satisfactory (51-100)	May cause minor breathing discomfort to sensitive people
Moderately Polluted (101-200)	May cause breathing discomfort to the people with lung disease such as asthma and discomfort to people with heart disease, children and older adults
Poor (201-300)	May cause breathing discomfort to people on prolonged exposure and discomfort to people with heart disease with short exposure
Very Poor (301-400)	May cause respiratory illness to the people on prolonged exposure. Effect may be more pronounced in people with lung and heart diseases
Severe (401-500)	May cause respiratory effects even on healthy people and serious health impacts on people with lung/heart diseases. The health impacts may be experienced even during light physical activity

Table 4.21: AQI at each location for concerned pollutants

Site	AQ Index	Category
AAQ-1	42	Good
AAQ-2	53	Satisfactory
AAQ-3	57	Satisfactory
AAQ-4	51	Satisfactory
AAQ-5	55	Satisfactory
AAQ-6	51	Satisfactory
AAQ-7	50	Satisfactory
AAQ-8	80	Satisfactory

Based on the baseline data collected and the above formula, the AQI of the study area comes out to be good to Satisfactory.

4.4 CONCLUSION

4.4.1 Incremental Ground Level Concentrations

Table 4.22- Incremental Ground Level Concentrations

SL. No.	Pollutants	Remarks
1.	PM_{10}	Max. GLC- 2.17 µg/m^3 in Project Site
2.	$PM_{2.5}$	Max. GLC- 1.46 µg/m^3 in Project Site
3.	SO_2	Max. GLC- 3.72 µg/m^3 in Project Site
4.	NOx	Max. GLC- 2.07 µg/m^3 in Project Site
5.	CO	Max. GLC- 0.73 mg/m^3 in Project Site

- A high efficiency (99.5%) electrostatic precipitator (ESP) will be installed in the induration Furnace section.
- Dust collected in ESP will be reused for pellet manufacturing.
- Dust extraction with Bag house to be installed at following locations:

  ✓ Raw material handling
  ✓ Coal grinding
  ✓ Proportioning
  ✓ PCI.

Table 4. 23- Action plan to limit the dust emission from pellet plant below 30 mg/Nm^3

Activity/Equipment	Proposed Action
Control of emission through the stack	Design details of ESP, Bag Filters are furnished in **Table 4.24** below to control emission norms of PM <30 mg/Nm^3.
Various Air Pollution Control Devices (APCD) are installed at a different location to control fugitive emission.	Dust extraction with Bag house to be installed at following locations: • Raw material handling • Coal grinding • Proportioning • PCI
Design data of all Stack i.e height and dimensions (ID, flow rate, temperature, exit velocity etc.)	Details of Stack are provided in **Table 4.12 & 4.14**

Table 4. 24- Design Details of Air Pollution Control Devices

ESP attached to Induration Furnace Exhaust		
Item	**Unit**	**Value**
Inlet Gas Analysis		
Flow rate (Design)	Am^3/min	13400
Flow rate (Normal)	Am^3/min	10720
Temp.	^0C	135
Pressure (Design)	mmWC	~300 to 400
Dust Loading	mg/Nm^3	1500 (Max.2000 for 2 Hrs)
Bulk Density	kg/m^3	2100 to 2400
Moisture	wt%	0 to 2
Type of ESP	-	Dry Plate Type
No of Fields	-	4
Specific Collection Area	$m^2/m^3/s$	~60
Gas Velocity through ESP	m/sec	1.55
Efficiency	%	99.5
Outlet Dust Concentration (With 1 field out of service)	mg/Nm^3	25
Pressure Drop	mmWC	30

Aspect Ratio		1.5
No of ESP	1	
Exit velocity	m/sec	14
Stack height	m	65
Diameter of stack	m	6.8 (Bottom)
		4.0 (Top)
Bag filter attached to Kiln Discharge End		
Inlet gas		
Dust loading	mg/Nm^3	211
Temp.	^0C	50
Flow Rate	Am^3/min	1020
Bulk Density	T/m^3	1.1 to 1.3
Air to Cloth Ratio	$m^3/min/m^2$	<= 1
Outlet Dust Concentration	mg/Nm^3	<30
Pressure drop across Bag Filter	mmWC	150
Exit velocity	m/sec	13
Diameter of stack	m	2 (Bottom)
		1.5 (Top)
Stack of Height	m	30
Bag filter attached to Cooler Discharge end		
Inlet gas		
Dust loading	mg/Nm^3	211
Temp.	^0C	75
Flow Rate	Am^3/min	1020
Bulk Density	T/m^3	1.1 to 1.3
Air to Cloth Ratio	$m^3/min/m^2$	<=1
Outlet Dust Concentration	mg/Nm^3	<30
Pressure drop across Bag Filter	mmWC	150
Exit velocity	m/sec	13
Diameter of stack	m	2 (Bottom)
		1.5 (Top)
Stack of Height	m	30
Bag filter attached to Coal grinding		
Inlet gas		
Dust loading	mg/Nm^3	1200
Temp.	^0C	40
Flow Rate	Am^3/min	180
Bulk Density	T/m^3	1.1 to 1.3
Air to Cloth Ratio	$m3/min/m^2$	<=1
Outlet Dust Concentration	mg/Nm^3	<30
Pressure drop across Bag Filter	mm WC	150
Exit velocity	m/sec	15.35
Diameter of stack	m	0.6 (Bottom)

		0.5 (Top)
Stack of Height	m	30
Bag filter attached to Transfer point of Conveyor		
Dust loading	mg/Nm^3	1200
Temp.	^0C	45
Flow Rate	Am^3/min	180
Bulk Density	T/m^3	1.1 to 1.3
Air to Cloth Ratio	$m^3/min/m^2$	<=1
Outlet Dust Concentration	mg/Nm^3	<30
Pressure drop across Bag Filter	mmWC	150
Exit velocity	m/sec	15.35
Diameter of stack	m	0.6 (Bottom)
		0.5 (Top)
Stack of Height	m	30
Bag filter attached to Proportioning System		
Dust loading	mg/Nm^3	1200
Temp.	^0C	45
Flow Rate	Am^3/min	180
Bulk Density	T/m^3	1.1 to 1.3
Air to Cloth Ratio	$m3/min/m^2$	<=1
Efficiency	%	96-98
Outlet Dust Concentration	mg/Nm^3	<30
Pressure drop across Bag Filter	mmWC	150
Exit velocity	m/sec	15.58
Diameter of stack	m	0.6 (Bottom)
		0.5 (Top)
Stack of Height	m	30
Bag filter attached to PCI		
Dust loading	mg/Nm^3	190
Temp.	^0C	75
Flow Rate	Am^3/min	1140
Bulk Density	T/m^3	1.1 to 1.3
Air to Cloth Ratio	$m3/min/m^2$	<=1
Outlet Dust Concentration	mg/Nm^3	<30
Pressure drop across Bag Filter	mmWC	150
Fabric type	Mixed felt (50% homlopolymer polyacrylonitrile + 50% polyester) with SS fiber, anti-static water repellency finish.	
Exit velocity	m/sec	14
Diameter of stack	m	2 (Bottom)
		1.5 (Top)
Stack of Height	m	30

Note: However, the final designing of all APCD will be decided before procurement.

Source: KIPL

4.4.2 Control of Particulate Emission from Stack

Major air pollutants in any pellet plant are dust and gases like sulphur dioxide, nitrogen oxide etc. Mitigation measures for industrial areas have been laid down by Central Pollution Control board (CPCB).

ESP will be installed to minimize particulate matter to be generated from the flue gas from the furnace. The collected particulate matter will be recycled in the pelletization process. Electrostatic gas cleaner is a particulate collection device that removes super fine particles from a flowing gas using the force of an induced electrostatic charge. It is highly efficient filtration device that minimally impede the flow of gases through the device, and easily remove fine particulate matter such as dust and smoke from the gas stream. During operation, the gas passes through a chamber containing a central high-voltage (70KV) negative electrode. A corona discharge is formed around the central electrode, which imparts a negatively charge to all particles and droplets. The negatively charged particles then migrate to the positive electrode. Suitable stack height shall be provided for the effective dispersion of the pollutants.

Suitable dust extraction system followed by adequate capacity bag houses shall be provided at ball mill, grinding units and raw material handling facilities to control the primary fugitive particles and prevent them becoming air borne.

4.4.3 Control of Fugitive Emissions

Fugitive emissions arise due to various process and non-process related activities. Process activities like handling of raw materials or finished products and transfer operations. Non-process activities include vehicle movement, material storage and movement of personnel.

Standard practices like covering the raw materials in storage yard and in transport vehicles will be followed. Covered sheds for storage of materials is in place. Plantation along the plant boundary has been undertaken. Gap plantation will be enforced to further reduce effects fugitive emissions.

Table 4.25- Action plan for controlling fugitive emissions

Action Plan	Activity/Equipment	Proposed Action
For fugitive emission control	Transportation of Raw materials	Raw Materials will be transported in trucks/dumpers covered with tarpaulin.
	Process Controls	Dust extraction with Bag house to be installed.
	Transportation of product	The finish product will transport from plant via trucks with covered tarpaulin.
	Raw materials storage	Additives like Bentonite, limestone and coal will be under covered storage area.
	Raw materials handling	Dust Suppression System and Dry Fogging System will be installed at all the junction houses/transfer points.
	Reduction of surface fugitive dust	Water sprinklers along the internal roads and, raw material yard and product storage yard will be installed.

4.4.4 Action Plan to follow NAAQS

M/s KAI International shall appoint one reputed accredited consultant in Environmental Monitoring. As per statuary requirement environmental monitoring report will be submitted to State Pollution Control Board. The concerned laboratory will be NABL / MoEF&CC certified.

4.5 Impact on noise & vibration environment

4.5.1 Construction phase

During construction phase, noise will mainly be due to civil work activities, construction of internal road, installation of machineries etc. Other activities which will contribute to ambient noise level will be movement of vehicles for transportation of construction material, equipment & also for manpower. But this will be temporary in nature & will not last for too long.

4.5.2 Operation Phase

During Operation Phase the sources of noise & vibration include running equipment viz. Exhaust fans, vibratory screens, compressors, pumps, cooling towers, etc. It may be due to poor lubrication, worn out parts, loosened nuts/ bolts, improper foundation and its mountings, flattened springs support etc. The noise can also be generated due to other ancillary activities and movements of vehicles on roads, highways etc.

The Noise Level near the machinery will be maintained below 85 dB (A) and the expected noise levels at the project boundary will be maintained below 75 dB (A) during day time & 70 dB (A) during night time.

Vibrations are generated in the machines due to moving / rotating parts.

4.6 MITIGATION MEASURES FOR NOISE & VIBRATION ENVIRONMENT

4.6.1 CONSTRUCTION PHASE

- Personal Protective Equipment (PPE) such as earplugs, earmuffs etc. will be provided to construction personnel exposed to high noise levels as preventive measures by contractors and will be strictly adhered to minimize / eliminate any adverse impact.
- It will be ensured that all the construction equipment and vehicles used are in good working condition, properly lubricated and maintained to keep noise within the permissible limits and engines turned off when not in use to reduce noise.

4.6.2 OPERATIONAL PHASE

- Silencers will be provided in the machineries generating high noise.
- Green belt/plantation will be developed all along the project boundary.
- Regular monitoring of noise level is carried out and corrective measures in concerned machinery will be adopted accordingly.

- The overall aim towards control of noise pollution is not only to restrict the ambient and work zone noise within the specified norms but also to have minimum noise above the prevailing ambient noise levels in the vicinity of the pellet plant.

The following control measures will be adopted in the plant to minimize the impacts due to vibrations:

- Procurement of less vibration generating machines/equipment.
- Periodic preventive maintenance of all the machines/equipment.
- Provision of suitable hand gloves & safety shoes to operators.
- Use of vibration dampeners for all the equipment.
- Provision of vibration absorbing seats in transportation and other heavy vehicles.
- Periodic training to operators on how to prevent health problems caused by vibration.
- Job rotation and frequent rest breaks to workers exposed to high vibration jobs.
- Periodic medical examination of the workers.
- Periodic vibration monitoring at major equipment, where operators are directly exposed to vibrations.

4.7 IMPACT ON LAND ENVIRONMENT

▪ Construction Phase

The company has already acquired land. The project site is a barren flat land. Thus there will be not much cutting or filling required. Also, the company has allocated one third of the project area towards green belt development as per the statutory requirement. It will plant indigenous species relevant to the locality which will further enhance the local ecology. Therefore, no significant adverse impact is expected with respect to land use pattern. Since the project is a Greenfield project, the land use pattern of the area will be converted to Industrial Land.

▪ Operation Phase

During operation phase there is a possibility of soil contamination due to storage of raw materials, oil and grease and end products because of leaching.

Mitigation measures for land environment

Apart from change in land use, no adverse impact is envisaged. Proposed construction work will have minimal effect on the topography. Pollution control measures for air and water would ensure low risk of land contamination. Materials will be stored on concrete floor or floor with impervious liners. Garland drains in the Material storage area will collect the surface run-off and will be routed to clari-flocculator and then reused.

4.8 Impact on Water Environment

4.8.1 Construction phase

Surface Water

Surface water runoff problem will be the sole impact which can affect the water quality

through washing off excavated soil or soil erosion. Only oil and grease due to vehicle movement during construction phase may impact the surface water bodies. Adequate drainage system for runoff water will be provided to overcome such problem.

The impacts on water quality during construction phase mainly arise due to site cleaning, leveling, excavation, storage of construction material etc. Leveling and excavation activity normally increases the level of suspended solids in the surface water runoff. However, for the proposed plant, no large scale leveling is required. Excavation will also be limited. During the monsoon season, storm water run-offs will contain large amounts of suspended solids. Efforts will be made to reduce the suspended solids content of storm water run-offs by routing the storm water drains through catch pits.

Ground Water

- The water requirement during the construction phase will be low and will be met from the Brahmani River. Thus, no ground water extraction is envisaged.
- Therefore, it is most unlikely that construction phase will not bring any significant modification in the ground water regime of the area.

4.8.2 Operation phase

- Stacking off raw materials in stock Yard may mix with run-off water
- Runoff water may be contaminated with inorganic materials, such as oil, grease and other lubricants.

4.9 Mitigation measures for Water Environment

4.9.1 Construction phase- Control of water pollution

- Quality of construction wastewater emanating from the construction site will be controlled through the drainage system with sediment traps (silting basin as water intercepting ditch) for arresting the silt / sediment load before its disposal.
- All the construction material will be stored under sheds or enclosed space by fencing it with brick or earth in order to prevent spillage into the drainage network, so that the same does not find its way into the surface water runoff.
- The sediment traps and storm water drainage network will be periodically cleaned and especially before monsoon season.
- Efforts will be made to reduce the suspended solids content of storm water run-offs by routing the storm water drains through catch pits.
- However, for the proposed plant, no large scale leveling is required. Excavation will also be limited.

4.9.2 Operation phase- Control of Water pollution

- The raw material required for the plant i.e the iron ore fines, is non –toxic in nature, hence there will not be any contamination with soil and water. Raw material will be stored with appropriate bund and surrounded by garland drains connecting to settling pond.
- Systematic drainage system for diverting the surface run-off during monsoon.

- Regular monitoring and analyzing the quality of water.
- Domestic waste water of around 16 KLD will be generated which will be treated in STP of 20 KLD capacity.
- Phenolic sludge from ETP will be fired in producer gas plant.
- As the project is proposed to have Zero Liquid Discharge (ZLD), no negative impact is envisaged on any surface water bodies in nearby areas.

4.10 Sewage Treatment Plant

Sewage Treatment Plant of capacity 20 KLD will be installed to treat the 16 KLD effluents generate from domestic uses. This treated will be recycled and reused in the process.

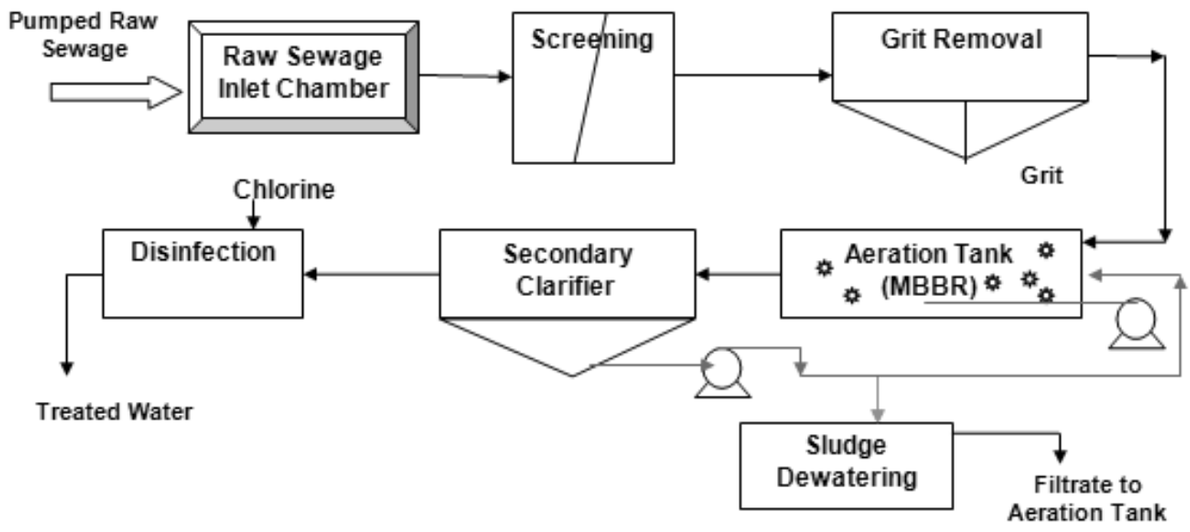


Fig. 4.14- Schematic diagram of STP with MBBR Technology

Process of Sewage Treatment Plant

- **Screening-** Removal of fine/ medium/ coarse solids by mechanically. Whereas coarse screening 20mm clear spacing in bars and 6mm clear spacing in bars.
- **Grit Removal-** Removal of inorganic solids e.g. Sand & silt to protect moving mechanical equipment. In this process gravity separation effective size 0.15 mm for specific gravity 2.65. Mechanism is based upon screw classifier/ reciprocating classifier.
- **Moving Bed Bio Reactor (MBBR) Process-** It is based on the bio-film of organisms developed on carrier elements. This media is floating in the Aeration tank and kept floating by air from diffusers which are placed at the bottom of Aeration tank. The process is intended to enhance the activated sludge process by providing greater biomass in tank and thus by reducing volume of the tank.
- **Secondary Clarifier:** Settling media is specially oriented inside the clarifiers for efficient removal of sludge from the water.
- **Disinfection:** The water coming out from the Clarifiers has limited organic load and can be discharged to drains/ water bodies after suitable disinfection by chlorine.

- **Sludge Conditioning and Handling:** The sludge generated is fully digested, i.e. no odour, and is dewatered for subsequent handling with the help of filter press or centrifuge.

4.11 Effluent Treatment Plant

Effluent Treatment Plant of capacity 60 KLD will be installed to treat the 50 KLD effluent. About 48.3 KLD will be recycled and reused in the process. Treated water of 48.3 KLD will be reused for dust suppression & Fire fighting.

Dedicated ETP within the gasification unit (capacity 10 KLD) will be provided for treatment of blow down water coming from PGP process. Treated water about 7.5 KLD will be reused in pellet plant process.

The water treatment for the proposed plant is mostly for cooling purposes with a small part of the requirement being for drinking and other direct process needs. To minimize the freshwater drawn from the source, a recirculation system has been adopted. The effluents discharged from the plant will be fully neutralized before discharging into natural resources.

Process wastewater treatment:

There will be no wastewater generation from the proposed plants as a Closed Circuit Cooling system will be adopted. Boiler blow down and DM plant regeneration wastewater will be treated in a Neutralization tank and will be mixed in a Central Monitoring Basin (CMB). The treated effluent from CMB will be utilized for dust suppression, ash conditioning and green belt development.

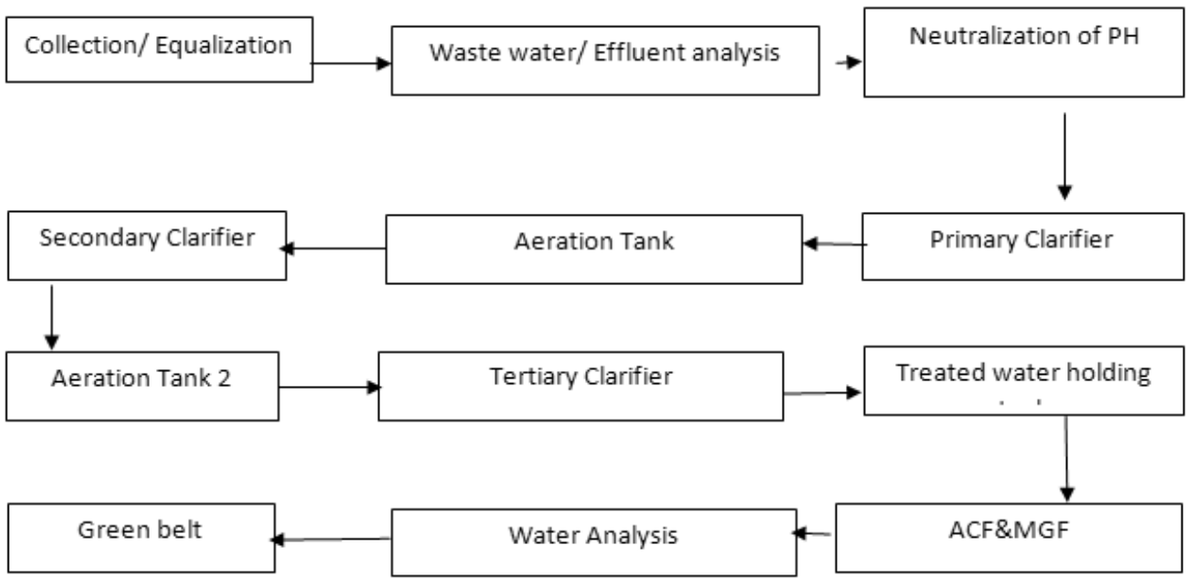


Fig. 4.15- Operational ETP flow-chart

- The process wastewater/ Effluents pumped into Collection cum Equalization tank after sterilization process.
- Neutralization of pH of process wastewater / Effluent by commercial-grade dosing agents

- Further, the neutralized wastewater is pumped to the primary clarifier for clarification/settlement of suspended solids.
- From the Primary clarifier, the wastewater passes to Aeration Tank by gravity force.
- The wastewater passes from Aeration Tank to Secondary Clarifier for clarification/ settlement.
- In the Aeration tank, the HRT is calculated as 48 hours for maximum reduction of BOD.
- The wastewater passes from the Secondary Clarifier to the Secondary Aeration tank for aeration
- From there it passes to Tertiary Clarifier for clarification.
- The clarified water from Tertiary Clarifier passes to Treated Water Holding Tank.
- The water from Treated Water H
- Holding Tank is pumped to Treated Water Tank through ACF MGF (Activated Carbon Filter & Multi Grade Filter); ACF & MGF are installed for better treatment.
- The outlet water from ACF & MGF is collected for analysis in ETP Lab.
- If the treated water characteristics are below the Odisha State Pollution Control Board Standards/ Central Pollution Control Board, then the water is used for the Green belt.

The sludge from the Primary, Secondary & Tertiary Clarifiers is pumped to Sludge Drying Beds; To maintain the sufficient cell concentration in the aeration tank, a part of the sludge from the Sludge Beds tank is recycled. The remaining sludge is transferred to a Pollution Control Board Authorized Treatment & Storage Disposal facility.

4.12 Rain Water Harvesting

To study the harvesting potential of the project site of KIA international Pvt. Limited. The study area is located in the village – Kapanda, Tehsil – Lahunipara of Sundargarh District of Odisha State. The objectives to this study are as follows:

- To prepare water harvesting plan of the project site,
- The potential impacts of the proposed rainwater harvesting to the ground water resources. It has imagined as an integral part of development and planning aimed towards minimizing water resources degradation with positive approach towards the enhancement of ground water recharge.
- To assess & predict the possible impact due to the Project upon groundwater recharge through artificial recharge within selected study zone.
- To propose mitigation measures, to ensure that the potential adverse impacts of the project development on the aquifer environment will be slight and neutral.

To bring off above objectives, below mentioned environmental frameworks has been studied within core (47.74 Acres or 19.32 Ha or 0.1932 Sq.km) from available documents and information.

In order to assess the impacts of mining on Ground water and social environment, the studies with different approaches has done on the present scenario of the area by collecting information on the following five important parameters:

- Rainfall. - Meteorology
- Local geology, rock type, etc. - Geological
- Available recharge in the project premises - Water

Nature of Problem

As indicated earlier, hydro geologically the area is composed of Alluvium with the base of hard rock and for artificial ground water recharge wells with the depth upto; unconfined aquifer will be most feasible recharge technique. This will help in augmenting the groundwater storage around the tube wells so that they can sustain in long term.

For the areas as that of M/s KAI International Private Limited, the artificial ground water recharge is subject to its physiography and geomorphology. As the study area, is a hilly terrain with valley fills and with nala & rivers with a continuous decreasing elevation towards outside the plant boundary. Plain surface area is approx. 40%-50% only in the buffer zone, and plain area as seen in the core zone is very few as the plant is covering the hilly part also, the artificial recharge in the plant area will be of limited scope.

- Injection/recharge wells can be a good option to fulfill the idea of recharging in the rainy season as the water table is not much deep due to the Brahmani river Basin,
- Recharge Ponds will suit the idea of artificial recharge in the hilly terrain of the study area.

Rainwater Harvesting Measures

Rainfall is the only source of water in the area; rainfall & Evapo-transpiration are two major factors controlling the quantum of rainwater available for recharge. The investigated area receives rainfall for 60 to 90 days in a year, 120 days considered as rainfall period aka monsoon season. Not only the total rainfall but also its availability is confined to few days as one forth comparing to the whole year, during which entire water resources planning needs to be done. The other important factors controlling the natural recharge to groundwater are rainfall intensity, hydrogeology & depth of water level. It is observed that maximum rainfall occurs in 3-5 major storms lasting for few hours. Some of the water, which infiltrates during the rainy period, is entrapped in the soil. This water is ultimately lost due to potential Evapotranspiration. Thus, any artificial recharge by indirect techniques should be such that most of the water stored on a surface is put to groundwater within the shortest possible time to avoid losses. This will help in augmenting the groundwater storage around the tube wells and open wells so that they can sustain in summer also.

Methods of Rainwater Harvesting System

Rainwater runoff available from the rooftop, paved and open land shall be used for direct recharge to groundwater aquifer by constructing Recharge wells with de-silting and filter pits.

Rooftop Rainwater Runoff

The industrial roofs are of RCC finished with cement sand mortar. Most of the water can be collected with roof drains hence 95% rainwater can be available. About 5% of water is lost in evaporation and particles entrapment etc. In this process the water is collected through rainwater drains from rooftop. The roof should be finished to avoid percolation and should be cleaned every year before rains. The roof top rainwater & surface runoff rainwater shall be collected through rainwater drains.

Surface Runoff of Rainwater

The subsurface reservoirs are technically feasible alternative for storing surplus monsoon runoff. Wide spectrums of techniques are in vogue to recharge ground water reservoir. The artificial recharge techniques vary widely depending upon hydro geological studies of the area. The detailed hydro geological studies were carried out and it was found that water table of area is 0.45m to 5.0m below ground level in the post monsoon season and 1m to 7-8 m below ground level in pre-monsoon season.

The maximum rate at which water can enter the soil at particular point depends upon infiltration capacity. The infiltration capacity depends upon soil type, moisture content, organic matter, vegetative cover, season, air entrapment, etc. The infiltration and percolation capacity are closely related. The infiltration takes place due to gravity but capillary force diverts gravity water.

Design of Roof Top Rainwater and Surface Runoff Harvesting System

The infiltration capacity of land formation is suitable for surface percolation system hence for recharge of ground water reservoir, the recharge wells and recharge pits/ponds can be proposed. This system will improve both quality & quantity of water. Runoff coefficient for the study area can be taken as 15%. Similarly, for cemented/RCC area, it has been taken as 65% and for Rooftop area; it can be taken as 85%.

Table 4.26- RWH Calculation for Monsoon Season

S. No.	Particulars	Area (Sq.m)	Rain fall (m)	Runoff Coefficient*	Quantum of Run off available (Cum/Mon-soon)
	1	2	3	4	5 (2*3*4)
1	Roof Top of building/Shed	22490	1.1656	0.85	22282.19
2	Road/Paved area	20300	1.1656	0.65	15380.09
3	Open Land	41100	1.1656	0.2	9581.23
4	Green Belt	109300	1.1656	0.15	19110.01
5	**Total (Sq.m)**	**193190**		**Total Quantum of available runoff (cum/Mon-soon)**	**66354**

**** Ref: Manual of Artificial Recharge of Ground Water, (CGWB)***

Total Rainfall (Source-IMD) = 1347.7 mm / year
Rainfall in Monsoon Season (June-Sep) = 1165.6 mm
Total days in Monsoon = 122 days
Run off / day in Monsoon = 66354/122= **544 KLD**
Out of which ground water Recharge = 100 KLD, Reuse = 544 - 100 = **444 KLD**

Table 4.27- RWH Calculation for Non- Monsoon Season

S. No.	Particulars	Area (Sq.m)	Rain fall (m)	Runoff Coefficient*	Quantum of Runoff available (Cum/Mon-soon)
	1	2	3	4	5 (2*3*4)
1	Roof Top of building/Shed	22490	0.1821	0.85	3481.11
2	Road/Paved area	20300	0.1821	0.65	2402.81
3	Open Land	41100	0.1821	0.2	1496.86
4	Green Belt	109300	0.1821	0.15	2985.53
5	**Total (Sq.m)**	193190		Total Quantum of available runoff (cum/Non-Monsoon)	**10366**

**** Ref: Manual of Artificial Recharge of Ground Water, (CGWB)***

Total Rainfall (Source-IMD) = 1347.7 mm / year
Rainfall in Non-Monsoon Season (Rest 8 months) = 182.1 mm
Total days in Non-Monsoon = 243 days
Run off / day in non-Mon-soon season= 10366/243= **43 KLD**

Total Run-off / Year = Monsoon run off + Non-monsoon run off
= 66354 + 10366=**76720 KL / Annum**

Capacity of Water Reservoir = 0.19 Ha X Depth 8m = 1900 m^2 X 8m=15200 KL
Daily Evaporation loss from Water Reservoir= 1900 m^2 X 6mm/day evaporation loss
= 1900 m^2 X 0.006
= 11.4 KL evaporation loss/ day

Net harvested water in Monsoon = 444 – 11.4 = 432.6 KLD for reuse
Net harvested water in Non- Monsoon = 43 – 11.4= 31.6 KLD ~ 32 KLD for reuse

Schematic Drawing for proposed Rain Water Harvesting Structures

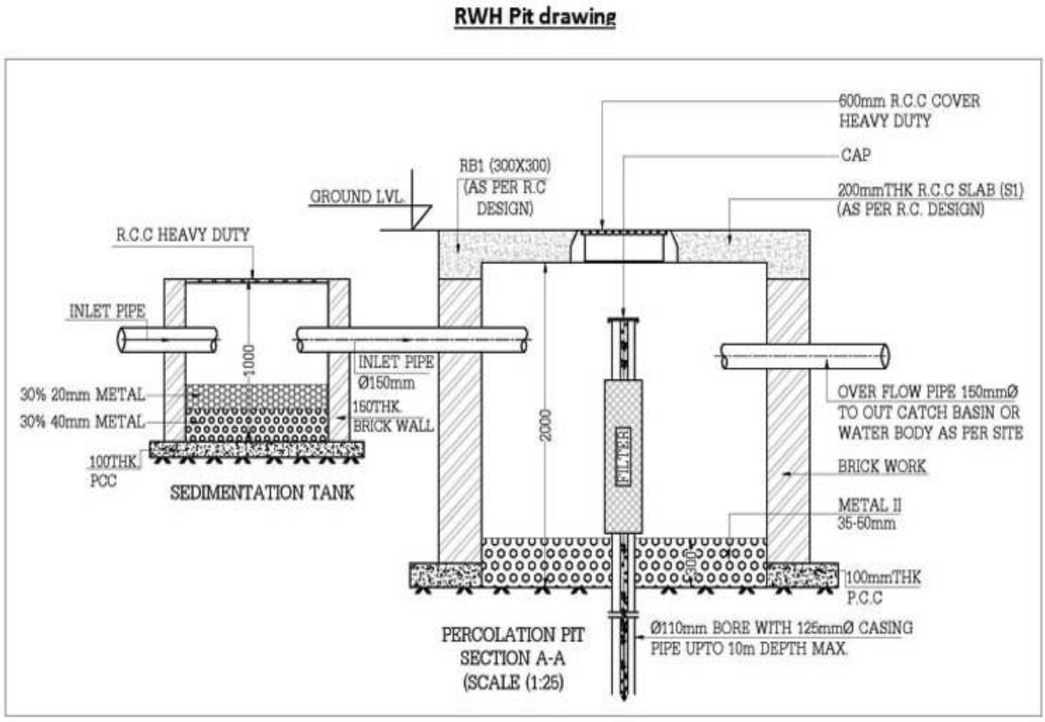


Fig. 4.16- Rainwater harvesting design for KAI International Limited

4.13 Impact on Soil Environment

4.13.1 Construction phase

The soil at the project site is sandy clay loam (as per the sample analysis report from laboratory). Sandy clay loam is a type of soil used for gardening. This soil type is normally made up of sand along with varying amounts of silt and clay The construction activities will lead to loss of plantation within plant site due to pre-constructional clearing of site which will further lead to removal of topsoil to some extent. Apart from such Temporary & localized construction impacts, no adverse impacts on soil in the surrounding area are anticipated.

4.13.2 Operation Phase

The soil of the area may get affected due to operational activities if proper care is not taken.

- Changes in soil texture due to settling of air borne dust or due to wash off of solid particulates by surface water. This will lead to change in porosity, permeability and other physical characteristics of soil of the area.
- Changes in soil chemistry due to addition of foreign material from polluted air and water due to plant activities in the area.

4.14 Mitigation measures for soil environment

Proper mitigative measures like use of efficient pollution control systems, proper stack height, and use of top soil in plantation results in no significant impact on soil of the core zone. There will be no impact on soil of the study area located beyond the working area of the proposed project. Soil samples will be collected and tested at regular intervals from the nearby areas. This will help in mitigation of any harmful impact on soil due to the project activity, if any.

4.15 Solid & Hazardous waste Management

No demolition work is required. During operation phase following wastes are envisaged to be generated-

- Tailings will be generated from the proposed Iron ore Beneficiation Unit. These rejects will be given to nearby Cement Industries, brick manufacturers etc.
- Fines collected from ESP/Bag filters will be re-used in pellet plant.
- Ash from PGP will be supplied to ash brick manufacturer.

Details of Solid waste generation & Management has been given in below Table;

Facility	Waste	Quantity(TPA)	Management
Solid Waste			
Beneficiation	Tailings/Slime	3,40,000	Dewatered and stored in slime/tailing storage area, then disposed to construction contractors for road & construction filings. And the collected water will be recycled in process.
Pellet Plant	ESP Dust	45,927	Recycle in Pellet Plant (used in house)
	Pellet Fines		
PGP Plant	Tar	2828	Sold to Authorized Coal tar processing units MoU has been signed with UITC (India)Pvt. Ltd.
	Ash	28,286 (70713 TPA Coal X 40% ash)	To road construction contractors / masonry blocks manufacturing MoU has been signed with Sudhir Kumar Harichandan, manufacturer of Maa Brand Fly Ash Bricks.

Hazardous waste generation will be primarily due to Tarry waste generation & Phenolic water from PGP. Used oil and wastes containing oil are the other Hazardous wastes that will be generated. The management for these wastes has been provided in Table below.

Hazardous Waste			
Waste Description	**Category as per HWM Rules, 2016**	**Quantity**	**Mode of Disposal**
Used oil	Cat. 5.1	1.5 KL/yr	Stored and disposed to Authorized recyclers as per MoU has been signed with UITC (India) Pvt. Ltd
Oily Sludge	Cat. 4.1	0.25 KL/yr	Stored and disposed to Authorized recyclers/CHWTSDF as per norms.
The residue of the oil Storage tank	Cat. 5.2		
Phenolic Water from PGP	Cat. 19.1	6.42 TPA	Dedicated system will be provided to reuse wastewater in PGP and sprinkling in Pellet plant cooler section.

4.16 Impact due to traffic and its management

At the location i.e. Kapanda – Fatjharan village road (near Entry Gate of Project Site), the LOS of the village road is found to be very good (B) most of time. At intersection of Santikayatpali Road to NH-23 and at Gudihali (Intersection of NH-143 & NH-520), the LOS of the road is found to be very good (B) most of the time. But, the LOS of road at Gudihali (Intersection of NH-143 & NH-520), is found to be good (C) sometimes during peak hour traffic.

After the initiation of the project, it is envisaged that traffic volume from the Project area will increase the existing traffic volume. Due to increase in traffic volume, there will increase the impact load on the road network. The increase in vehicles from the plant area will be mainly HMV.

Taking worst case scenario, around 40 PCU/hr will add up to the existing PCU.

Total Material movement per Annum = 31,53,541 T
Material movement per day = 31,53,541/330 = 9,556 T
No. of Trucks plying per day = 9,556/20 = 477
Average no. of trucks plying per hour = (477/24)*2 = 39.75 = 40 (say)

Kapanda – Fatjharan village road (Near Entry Gate of Project Site)

C = Two way two-lane road carrying capacity – 1400 PCU/hr
V = 310 + 40 = 350
V/C = 350/1400 = 0.25 (LOS-B)

Near Intersection of Santikayatpali Road to NH-143

C = Six-Lane two-way (divivded) road carrying capacity – 5400 PCU/hr
V = 1820 + 40 = 1860
V/C = 1860/5400 = 0.34 (LOS-B)
Gudhiali (Intersection of NH-143 & NH-520)

C = Six-Lane two-way (divivded) road carrying capacity – 5400 PCU/hr

V = 2187 + 40 = 2227
V/C = 2227/5400 = 0.41 (LOS-C)

Taking the worst-case scenario after initiation of the Project, it can be seen that even during peak hour the LOS at all the locations remains same.

The summary of predicted Traffic from Plant is presented below-

Table 4.18- predicted Traffic from Plant

Sl No.	Description	Remarks
1	No. of trips per day for transporting raw materials	954
2	Addition in PCU count from transportation of raw material/end products	40PCU/hr
3	Traffic Study Area	• Kapanda-Fatjharan village road (Near Entry gate of project site), • Near intersection of Santikayatpali Road to NH-23 • Gudhiali (Intersection of NH-143 & NH 520)
4	Type of Vehicle	2-Axel, 3-Axel & Multi-axel
5	Frequency of vehicles for transportation of materials	477 no. of trucks per day
6	Additional traffic conditions due to proposed project	As mentioned in below table
7	Parking arrangement	Parking facilities will be provided inside the plant premises.

Table 4.19- Additional traffic due to proposed project

Locations	Existing LOS	LOS after Project Implementation
	Peak Hourly Load	Peak Hourly Load
Kapanda-Fatjharan village road (Near Entry gate of project site),	B	B
Near intersection of Santikayatpali Road to NH-143	B	B
Gudhiali (Intersection of NH-143 & NH 520)	C	C

The addition of PCU will not impact present LOS slightly. The following observations were derived from the broad assessment made during the reconnaissance survey are as follows:-

- The Rajamunda Square is found to be the most critical junction among the three monitored locations. There is continuous movement of heavy vehicles/trucks through the junction. The condition of NH- 143 & NH- 520 is good to handle the existing traffic load at the junction. Still the parking of empty trucks by the roadside is still a prevailing issue.

- There is frequent movement of heavy trucks as compared to other transports due to the presence of various industries in the vicinity.
- There is no time period fixed for NO ENTRY enforcement.

Recommendations

The following recommendations are proposed based on the results of the various field inventories and traffic studies and results obtained from these studies.

- Upgradation of internal connectivity roads from existing carriageway to two-lane roads with paved shoulder.
- It is recommended that quick development of road condition, proper street lights and parking area near to the main road are of utmost importance for the safety of life as well as development of nearby villages/towns.
- Road sings and road markings are main guiding factors for the road users which is essentially required to be adequate and placed at appropriate places on the road. In all most all intersections road markings not provided/dilapidated condition. Hence it is immediate requirement to install the signboards and markings at all intersections/junctions.
- Maintenance of existing roads of good condition like the Rajamunda Square junction is highly recommended to keep the traffic flow smooth.

4.17 Occupational Health And Safety Management

4.17.1 Construction phase

Impacts

During construction, major risks to safety and health of workers are due to Dust, gas cutting, welding, bruises, cuts, and abrasions because of manual handling, accidents due to common reasons like fall from height and entrapment of limbs in machinery.

KAI is committed to use best practices during construction and include occupational and safety aspects of workers in the tender itself. System for work permit system shall be implemented strictly and PPE for workers shall be made compulsory. Only trained workers shall be allowed for critical job works.

Mitigation Measures

- Due care shall be taken to maintain continuous water supply in the water spraying system and all efforts will be made to suppress the dust generated by material/solid waste handling system by water spraying at appropriate points;
- Any worker found to develop symptoms of dust related diseases will be changed over to other jobs in cleaner areas;

General Safety Measures

- Shield guards or guard railings will be installed at all belts, pulleys, gears and other moving parts;

- Electrical equipment will be grounded, well insulated and conform with applicable codes;
- Employees will be provided with helmets, safety boots, eye and ear protection, and snug fitting gloves as appropriate;
- Masks and dust-proof clothing will be provided to personnel working in areas with high dust levels;
- Work permit system shall be strictly implemented; and
- Procedures will be strictly enforced for the storage, handling, and transport of explosives, flammable and hazardous materials.

General Health Measures

- Sanitary facilities will be well equipped with supplies and employees will be encouraged to wash frequently, particularly those exposed to dust, chemicals or pathogens;
- Pre-employment medical examinations of all personnel will be made mandatory for contractor.

4.17.2 Operational phase

During operational stage occupational hazards may be in the form of-

- Fire hazards
- Heat radiations
- Air pollution
- Noise level

Exposure problems to noise, dust are the major occupational hazards. Noise induced hearing loss and dust related problems are the notified occupational hazard. The employees working in dusty environment will be subjected to regular health check-up. The workers will be diagnosed for respiratory functions at periodic intervals and during specific complaints for lung function test, sputum test, X-ray test, etc.

It will be ensured that workers are not exposed above the threshold noise limits prescribed by OSHAS and Factories Act through suitable administrative controls. Personal Protective Equipment like earplugs and muffs will be provided and administrative pressure applied for using them. Auditory examination by qualified doctors upon the first employment and thereafter periodic examination will be conducted.

Following measure shall be taken up by company towards occupational health safety viz.

- Pre-medical examination of all new employee as per statutory provision.
- Periodic Health Check-up of all employees.
- Providing Hygienic canteen and drinking water for all employees.
- Provision of medical treatment for employees.
- Emergency Occupational Health Facility: A well and good dispensary shall be set up with one doctor (medicine Specialist), one staff nurse, one attendance & four pharmacists. The dispensary will be well maintained and well equipped.
- Undertaking adequate Safety Measures: shall implement the following safety measures to reduce the health risk of workers in the Company Premises.

- Communicate the risks to the workers and steps for prevention and control through audio-visual presentation, pamphlets, posters etc.
- Educating worker, or person about any hazard in the work and training is being given to that worker for handling, storage, use, disposal and transport of any equipment, substances, tools, materials etc.
- Taking every precaution reasonable in the circumstances for the protection of a worker. A Safety Committee is constituted for emergency purposes headed by the factory manager.
- The cost of tests and treatment of occupational illness is being borne by the company and the medical allowance shall be given for the non-occupational illness as per the pay structure and norms of compensation set by labour department.
- A corpus fund for compensation in case of injury or loss of life shall be maintained separately.
- Health check-up records shall be maintained for 5 years for reference purpose and further necessary.
- Adopted proven safe technology and strive at all times for up-gradation of safety and health standards,
- Continuously monitor and improve working conditions to prevent ill health & injury. Formulate safe operating procedures (SOP) and standard maintenance procedure (SMP) for different processes to provide and sustain a healthy working environment.
- Comply with all the prevailing statutory rules and regulations in force in respect with safety and health of workers,
- Develop among persons under the control of the organization an awareness of occupational health & safety responsibility and adherence to safe work practices.

4.18 Impact on Socio-Economic Environment & Management

4.18.2 Construction phase

There will be no displacement of local population and consequently no need for any rehabilitation scheme. Thus, general impact on local economy and quality of life is likely to be appreciably beneficial. But potential of local workers getting affected by dust laden atmosphere within the plant will be relatively high and may cause impact on the health status of the local populace, which will have taken care of in peripheral development and community welfare. Hence, there will be overall positive impact on Socio-economic Environment due to this project.

Generation of employment both, direct and indirect (350 Nos.) will have beneficial effect on the local populace. Thus, general impact on local economy and quality of life is likely to be appreciably beneficial. Project will have positive impact on socio-economic status of the area because of following:

- Preference will be given to local people for temporary, direct and indirect employment;
- Local suppliers for machineries and construction materials will be given preference; and
- Local transporters will be preferred for transportation of machinery/ materials.

4.18.3 Operation phase

Considering the Socio-economic data mentioned, the impacts are being depicted in both positive and negative forms. However, KAI's initiatives are duly mentioned which shall strengthen the Socio-

economic Parameters through development:

Sl. No	Impact Parameter	Positive Impact (Predicted)	Negative Impact (Predicted)
1.	Human Settlement	• No displacement of people or habitations would occur as land acquisition for the plant is not carried out. • Additional land requirement does not arise at this juncture.	• NIL
2.	Livelihood	• No loss of existing livelihoods. • Additional non-agricultural livelihood opportunities are expected both directly and as spinoffs. • Most of the workers are employed from local areas only.	• A moderate influx of people in project construction and operation phases.
3.	Employment Generation	• No loss of existing employment due to this proposed project is expected. • Total Direct employment opportunities for 280 persons and 220 indirect employments are expected. • Local people will be given preference. • Indirect employment during construction as a consequence of increase in income and induced growth during construction and operation phases of the project.	• NIL
4.	Incomes and Revenues	• Improvement of incomes of locals engaged in tertiary businesses by an average 10-15 % through induced spending. • The successful commissioning and running of the proposed expansion project will attract more industrial investments which in turn will benefit the community.	• NIL
5.	Demographics	• The population levels of the Study villages are not likely to change in any significant manner. • The lifestyles of people are expected to improve as a consequence of the rise in incomes and improvement in infrastructural facilities. • The skills of the local residents are expected to improve in keeping with	• NIL

Sl. No	Impact Parameter	Positive Impact (Predicted)	Negative Impact (Predicted)
		the emerging employment opportunities.	
6.	Community Health	• Health of people residing in buffer zone/Study area is not likely to be impacted adversely considering the nature of emissions and the state-of-the-art Emission control systems planned. • Health Initiatives and Environment Management Plan are planned and will be executed for well-being of the peripheral villages.	• If mitigation measures pertaining with Pollution are not appropriately carried out or addressed, it may raise community health issue. • Adequate health care facilities without adequate health workers make the community vulnerable.
7.	Education	• Initiatives pertaining with Education shall be promoted partnering with Govt. of Odisha flagship project under Mo School Abhiyaan or Sarva Shikshya Abhiyan or Madhyamik Shikshya Abhiyan.	• Child Labour. • School Drop-out ratio may increase.
8.	Physical Infrastructure	• Road and power network in the area is expected to be strengthened as a consequent upon industrial development around. • Provision for Drinking Water and Community Centre for development may be some of the Socio-Economic development initiatives of Ms. KAI International.	• If massive Increase in vehicular traffic, that may lead to higher incidence of road accidents. • If influx of workers from outside areas then there will be an increased pressure on water supply and sanitation in the neighborhood during construction phase.
9.	Social Infrastructure	• Improvement in housing and educational facilities may be expected in the long run as industrialization in the area gains acceleration. • Quality of Life (QoL) is considered to get improved.	• NIL

4.19 MITIGATION MEASURES FOR ECOLOGY & BIODIVERSITY

COMPLIANCE OF OBSERVATIONS AS PER SUB- COMMITTEE VISIT REPORT

As per the Sub-Committee visit report **(Annexure- M)** here will not have any significant impact on Wildlife, Forest, Environment & nearby River by adoption suitable mitigation as detailed in above sections of report.

In compliance to above, Wildlife Conservation Plan has been prepared with a budget of Rs. 55.871 lakhs to be implemented in 5 years and the plan submitted to PCCF (Wildlife) vide memo no. no. 7846/4 F (Misc.), dated 20.09.2022 for approval

As mentioned in the Sub-Committee visit report, an Eco-restoration Plan in terms of Forest Conservation Plan is also prepared and submitted to Office of PCCF (Wildlife) vide memo no. no. 7843/4 F (Misc.), dated 20.09.2022 for approval.

Mitigation measures suggested in Forest Conservation Plan

- Kukia RF is adjacent to Project area and as per condition no 15(iii) of specific the following interventions are proposed for protection of forest patches situated adjacent to the project site.

1. SMC Structures:

It has been proposed to do SMC (Soil Moisture Conservation) Structures like Loose Boulder Concrete Dam (LBCD), Wire mesh Iron Gabion, and contour trenches etc as per site requirement to arrest soil erosion, improve moisture retention, reduce surface runoff and assist regeneration etc.

2. Fire Line Creation:

Fire lines to be maintained at compartment lines in Kukia RF. If compartment lines are not available, foot paths to be made as fire line. 20 Man days per Km are spared for Fire line creation and it is proposed to create and maintain 16 Km of Fire Line with proposed expenditure of 1.0432 Lakhs.

3. Creation of Awareness:

Awareness shall be created around the project area, in the villages, Schools, Colleges, Eco Clubs, and Vana Sarankshana Samiti (VSS) etc. The suggested activities are: Essay and Debate Competition, Padayatra, display of Hoardings and Posters, Vana Mahostava etc. The DFO will take up the activities in the selected areas under supervision and involvement of local Staff. For these activities Rs 2.50 lakhs is provided.

Mitigation measures for WL conservation plan

- Creation of Water Harvesting Structures for wild animals in Kukia RF to address scarcity of water during stress period.
- Creation of saltlicks near water bodies in Kukia & Dhangha RF for use by wild animals required for intake of minerals for better immune system.

- Eradication of invasive alien species in Kukia RF for growth of natural indigenous species & planted seedlings.
- Creation of water holes in Dhanghar & Kukia RF for preventing drying up in wells during heat stress.
- Deployment of forest/wildlife protection squad for protection of forest & wildlife.
- Purchase of trap camera to keep a tab on movement & availability of wild animals as well as their behavior.

CHAPTER- 5
ANALYSIS OF ALTERNATIVES

5.1 ALTERNATIVE ANALYSIS

Alternative analysis has been done for site selection, process technology and pollution control facilities. The most feasible option meeting the standard norms and desirable product quality has been selected for the project.

5.2 SITE SELECTION ALTERNATIVES

Three sites were considered for the construction of the proposed project. An assessment to identify the most suitable site out of the three alternate sites was carried out. The Site Suitability Analysis was undertaken for these three sites:

For identification of the most suitable Site for the development of the Facilities, the assessment was carried considering the following aspects:

- Physical settings
- Environmental Considerations and
- Social Considerations

Table 5.1- Alternate Sites Analysis

Sl. No	Parameter	Option- 1 (Kapanda, Dist.-Sundergarh, State-Odisha)	Option- 2 (Raikela, Dist.-Sundergarh, State-Odisha)	Option- 3 (Lauposh, Dist.-Sundergarh, State-Odisha)
1.	Total Land area	47.74 Acres 19.32 Ha.	47.12 Acres 19.06 Ha.	47.94 Acres 19.40 Ha.
	Forest Land	Nil	Nil	Nil
2.	Coordinates	21°53'20.21"N 84°52'25.52"E	21°53'4.41"N 85° 5'33.89"E	21°55'26.45"N 85° 0'21.63"E
3.	Total number of Trees present in the site	3,972	23,467	15,442
	Trees to be Transplanted/Felled	260	9,000 (approx.)	5,000 (approx.)
4.	Land use	Barren with slightly undulating	Dense mixed jungle	Open jungle
5.	Project Affected Families (PAF)	Nil	Nil	Nil
	Project Displaced Families (PDF)	Nil	Nil	Nil
6.	Nearby habitations/villages	• Daldali Sai- 0.5 Km (SW) • Nuagan- 1.3 Km (S)	• Raikela- 1.6 km (SW) • Koida- 2.2 km (SE)	• Bhaliadihi Village- 0.2 km (W) • Lauposh Village- 0.77 km (SW)
7.	Nearby Protected Forest/Reserve Forest	**Protected Forest:** • Samaradari Juniani PF - 0.41 Km (E) **Reserve Forest:** • Kukia RF- 0.12 Km (NW) • Dhenkiam RF- 2.6 Km (W) • Nalghati Rajabasa RF- 3.3 Km (SW)	**Reserve Forest:** • Torha RF – 1.0 Km (E) • Amarurhi RF – 2.5 Km (W)	**Reserve Forest:** • Amarurhi RF – 1.1 Km (E) • Thelakudar RF – 6.5 Km (NW) • Torha RF – 7.3 Km (E) • Dhanaghar Extension RF – 7.4 Km (NW) • Purunapani Budhikutuni PF – 8.8

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		• Dhenkiam Block RF- 3.7 Km (NW) • Bhagoth RF- 6.6 km (SSW) • Dhanaghar Extension RF- 6.9 Km (NNE) • Gurundia RF- 7.9 Km (SW)		Km (W)
8.	Nearby Water bodies	• Brahmani River- 1.6 Km (W) • Amrurhi Nala- 3.1 Km (NNE) • Katangamunda Nala- 3.4 Km (NW) • Rukura River- 4.3 Km (S)	• Kurhari Nala – 0.9 Km (N) • Brahmani River- 13.4 km (SW)	• Brahmani River- 9.8 km (SWS) • Kurhari Nala – 3.85 Km (E) • Kurhari Canal – 0.55 Km (W)
9.	Power connectivity	Purunapani Sub-station- 3.7 km, (ESE)	OMC Power GRID- 2.6 km (SW)	OMC Power GRID- 8.3 Km (SE)
10.	Road Connectivity	• NH – 149- 3.1 km (E) • Kapanda-Fatajharan Road - 0.1 km (NW)	• NH 215- 15.4 Km (W) • SH 10A- 11.3 Km (W) • Koida Rd- 0.7 Km (SE)	NH 215- 4.6 Km (NW)
11.	Nearest Town/ City	Rourkela	Bolani	Rourkela
12.	Railway Connectivity	Patasahi Railway Station- 12.9 Km, (NE)	Barsuan Railway Station- 4.9 Km (SE)	Gaganaposh Railway Station- 3.1Km (E)
13.	Distance from nearby Merchant Iron Ore Mines	Koida- 12 Km (E)	Koida- 14 km (E)	Koida- 22 km (E)
14.	National Parks, Wildlife Sanctuaries, and Biosphere Reserves	None	None	None
15.	Critically / Severely polluted area as identified by CPCB	No	No	No

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Feasibility criteria for selecting the Site 1:

- The total number of trees present within the plant boundary is near to 3972 in site 1 from which 260 no of trees to be transplanted, 1500 trees has been cut and the rest will be retained as it is.
- The Brahmani River which will be the source of water is adjacent (1.6 Km) to the site.
- National Highway- 149 is 3.1 Km from the site.
- Power Grid (Purunapani sub-station) is 3.7 Km.

Rejection criteria for not selecting Site 2 & Site 3:

In site 2:

- Trees present within the plant boundary is 23,467 no.,
- Trees coming in main plant area is more.
- The land is hilly terrain area (MSL 370 m – 444 m) and dense forest.
- NH & SH are more than 10 km from the site.

In site 3:

- Habitations are near to plant boundary,
- Trees present in boundary 15,442 no. (MSL 209 m – 289 m)
- OMC Power GRID is 8 km from the site.
- Distance from Koida Iron ore mine 22 km.

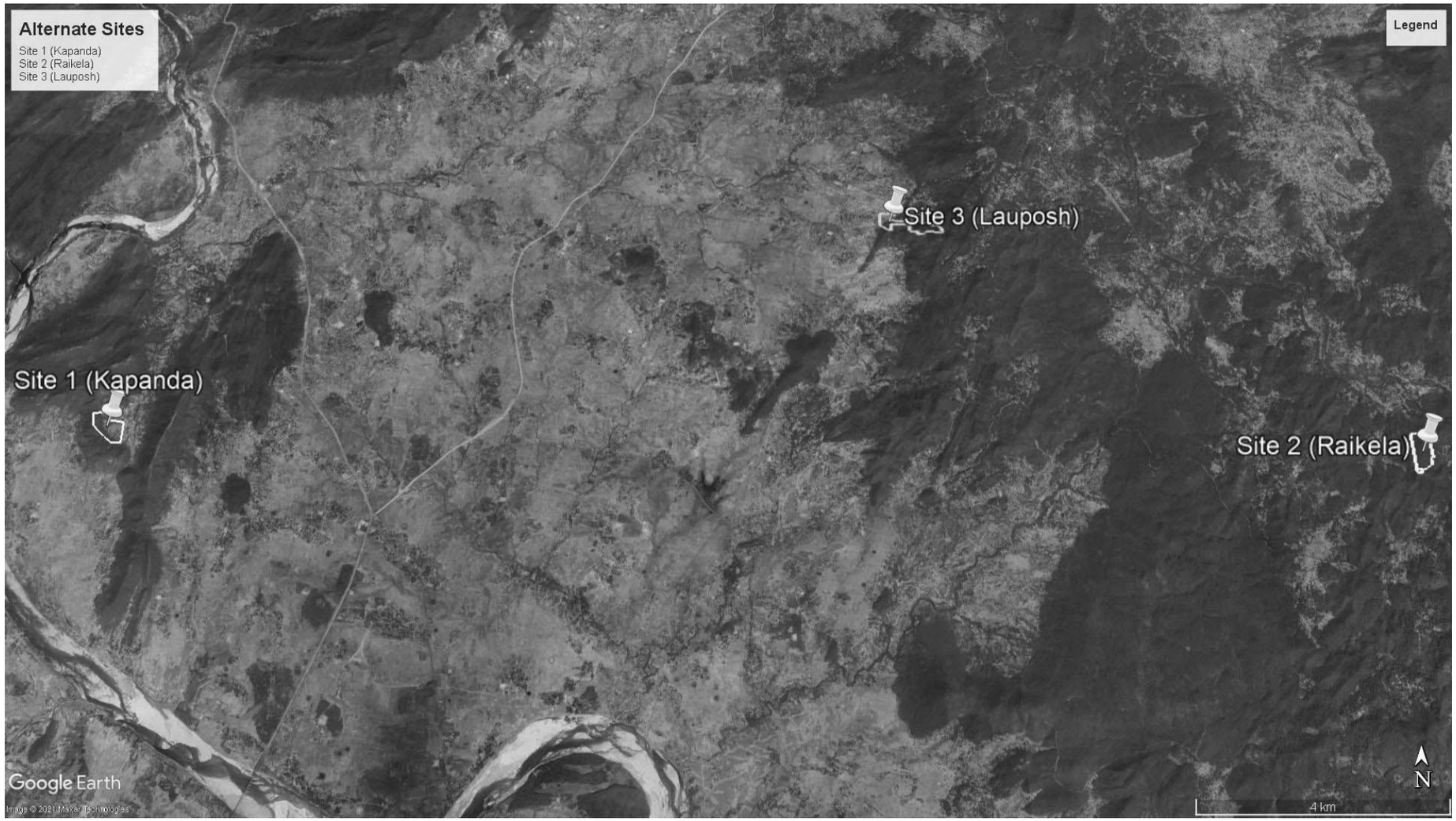


Fig No. 5.1: Google Earth Images of alternate sites

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5.3 SELECTION OF TECHNOLOGY

A. Iron Ore Beneficiation

The beneficiation process of ore results in a more concentrated form of the product. It will be used for the preparation of iron ore fines for pelletization. The raw iron ore fines of the grade 55-58% Fe from various mines will be beneficiated to obtain the product with > 63% Fe for use in the in-house pellet plant.

The low grade iron ore is available in plenty in the locality i.e. in the Sundergarh as well as nearby districts. The low grade ore will be purchased and will be converted to high grade iron ore fines. This will be economically viable for the establishment of the plant.

Process Technology Alternatives

Table 5.2- Comparison between various beneficiation mythologies

Parameters	Magnetic Separation	Gravity Separation	Flotation	Dense Media Separation	Roasting and Magnetic separation	Hydrometallurgical Techniques
Principle	Utilizes the magnetic properties of iron ore minerals to separate them from the non-magnetic gangue materials	Utilizes the density difference between iron ore minerals and gangue materials to separate them through gravity-based methods such as jigging, shaking tables, or spiral concentrators.	Utilizes the hydrophobic and hydrophilic properties of iron ore minerals to separate them by selectively attaching air bubbles to the desired mineral particles	Utilizes the density difference between iron ore minerals and dense media (e.g., ferrosilicon or magnetite) to separate them through sink-float methods	Involves heating iron ore to induce chemical and physical changes, followed by magnetic separation to remove impurities or improve iron ore quality	Utilizes chemical leaching or solvent extraction methods to selectively dissolve or extract iron ore minerals from the ore matrix
Operating Cost	Low	Low	High	Very High	High	Very High
Emissions	Only PM	Only PM	PM, Heavy metals, water effluents	Disposal of dense media an issue	Harmful gaseous emissions	Disposal of reagent, effluent generation
Area Required	Small	Medium	Medium	Large	Large	Medium
Limitations	Limited applicability for non-magnetic or weakly magnetic iron ores, sensitivity them through gravity-based	Inefficient for fine particles, may require multiple stages of processing for high-grade concentrate production, and limited	Higher reagent and operating costs, sensitive to variations in ore mineralogy and particle size distribution,	Higher capital and operating costs, complexity of the process, and potential environmental concerns related to the use and disposal of	Higher energy consumption, potential for emission of harmful gases during roasting, and limited applicability for certain	Higher reagent and operating costs, potential environmental concerns related to chemical usage and waste disposal, and process complexity

Parameters	Magnetic Separation	Gravity Separation	Flotation	Dense Media Separation	Roasting and Magnetic separation	Hydrometallurgical Techniques
	methods such as jigging, shaking tables, or spiral concentrators	applicability for low-density ores	and potential environmental concerns due to reagent usage	dense media	iron ore types and impurities	
Advantages	Effective for the concentration of strongly magnetic iron ores, relatively simple operation and low operating costs	Effective for coarse to medium-sized particles, simple equipment requirements, and low operating costs	Effective for separating finely ground iron ore particles, flexible process for different ore types, and capability to produce high-grade concentrates	Effective for pre-concentration or upgrading of low-grade ores, ability to process a wide range of particle sizes, and capability to produce high-grade concentrates	Effective for removing certain impurities (e.g., sulphur) and upgrading low-grade ores, ability to enhance magnetic properties for better magnetic separation efficiency	Effective for treating specific iron ore types, ability to recover iron from low-grade or complex ores, and capability to handle fine particle sizes

Magnetic Separation method

Based on the table above and the project feasibility, Magnetic separation ~ High Gradient Magnetic Separation (HGMS) was selected as the working technology due to its low operation cost, low environmental impacts, and ease of operation.

B. Tailing Dam

Table 5. 1- Tailing Disposal Technology Comparison

Conventional Wet Disposal	Disposal in Paste Form	Disposal after filter press
Pros: • Traditional but tested • Suitable in rolling topography with bowl shaped land area for containment. • Major Part of water can be recovered for recycling. **Cons:** • Requires bund or dyke to	**Pros:** • Suitable if topography does not support containment. • Eliminates chances of slope failure. **Cons:** • Requires a large area for	**Pros:** • Can be easily re-handled and the cakes dumped in a demarcated area. • Contains around 9% moisture, so there is no chance of contamination of groundwater. **Cons:** • Currently available filtering

Conventional Wet Disposal	Disposal in Paste Form	Disposal after filter press
contain the slurry. • Possibility of contamination of groundwater • Can cause hazard in downstream direction if retaining dyke gets breached.	spread & dump of paste. • Technology not yet proven for Indian iron ore beneficiation scheme because of the presence of Kaolinite in tailing. • Designing of deep cone thickener, pipeline diameter & pressure of pumping of paste is very critical for success of scheme and is site specific.	units are showing low efficiency compared to the same when used for concentrate filtration. • High capex & opex due to low efficiency. • For large capacity plants, multiple units are required.

In the proposed project, tailings will be disposed after filter pressing. This is because of the ease of handling of cakes. Also, the plant will produce a relatively less quantity of tailings therefore filter pressing is feasible.

C. Iron Ore Pelletization

Taking into consideration, the present market scenario & existing product demand in the DRI Kilns, the company has decided to adopt Grate Kiln Technology (GKT) for the proposed pellet plant.

Environmental Performance

The main air pollutants of concern are dust, sulphur dioxides (SO_2), nitrogen oxides (NOx GKT technologies use state-of the-art dust cleaning systems like electrostatic precipitators and dust scrubbers to meet the regulated emission levels. SO_2 emissions can be controlled by using low sulphur raw materials and fuels for the induration exhaust gases if required by environmental regulations. In principle, NOx emissions can be reduced through low-NOx burners in practice.

Greenhouse gas production, particularly CO_2 is directly related to the amount of fuel combusted and the calcination of fluxes. GKT is way to minimize GHG emissions from either pelletizing process.

Process Technology Alternatives

Table 5.4- Comparison between GKT & STG Technology

S.No.	Comparison under Head	Grate Kiln Technology	Alternative Technology
			Straight Travelling Grate Technology
1.	Heat Input Required through the Fuel	2,90,000 Kcal/Ton of Pellet	2,40,000 Kcal/Ton of Pellet
2.	Process Units	Drying, Preheating, Induration and Cooling Cycle are carried out in different unit.	Drying, Preheating, Induration and Cooling Cycle are carried out in single unit.

3.	Hindrance to Pellets	Entire process takes place in three equipment's namely travelling grate, rotary kiln and circular cooler hence pellets transfer takes place	Green Pellets remain undisturbed during the process
4.	Fines Generation	Same	
5.	Process availability	On an average, of Grate Kiln can operate 320-330 days in a year and rest 35-45 days will be non-operative due to maintenance.	On an average, of Straight Grate Kiln can operate 330-350 days in a year and rest 15-35 days will be non-operative due to maintenance. i.e. require less maintenance in comparison to GKT.
6.	Refractory Consumption	Grate Kiln has slightly higher refractory consumption as the pellets come in direct contact with the refractory lining.	Travelling Grate has slightly lower refractory consumption
7.	Thermal Energy Consumption	Thermal energy consumption in GKT is Lower due to similar process fans.	Thermal energy consumption in GKT is Higher due to different process fans.
8.	CCS (Cold Crushing Strength) Quality of Pellets	• Due to circular movement of rotary kiln, there is even combustion and results in higher strength. • 280-330 CCS (Which can further be used in Gas based DRI route for steel making.)	• Due to stable and almost unmoving bed, combustion is not uniform across the bed-height of pellets and results in lower strength. • 240-250 CCS (Which can further be used in Blast Furnace route for steel making.)
9.	Dust Emission	Nearly same in both the process technology	
10.	Investment Cost	Same	
11.	Maintenance	Same	
12.	Product Quality	More Fines due to more uniform pellet firing condition.	Less fines

Grate Kiln Technology (GKT)

The technology consists of drying and preheating the pellets. Material moves on straight travelling grate till it attains the temperature in the range of 800 °C to 1000 °C. After that, the material is transferred to refractory lined rotary kiln for induration where the temperature is further raised in the range of 1250 °C to 1300 °C. At 800 °C, the FeO of the magnetite iron ore gets converted into Fe_2O_3 in an exothermic reaction. The liberated heat hardens the green balls which is helpful to withstand the tumbling impact due to the rotation of the rotary kiln. A Circular cooler is used for cooling of the fired pellets.

Due to circular movement of rotary kiln, there is even combustion and results in higher strength of around 280-330 CCS, which is an optimal raw material for Coal/Gas based DRI route for steelmaking – the target market for the company. Thus, the Grate Kiln Technology is the chosen technology for this unit.

5.4 POLLUCTION CONTROL TECHNOLOGY ALTERNATIVES

Air Pollution Control Devices Alternatives

There are many Air Pollution Control Devices APCDs used in steel plants to control emission of dust and other pollutants into the atmosphere. The particle size, the dust loading, flow rate, moisture content and the temperature of the gases determine the type dust collectors to be used.

Following table enlists the air pollution control devices proposed for this project.

Table 5.5- Details of APCD proposed in different units

Probable Pollution Source	Mitigation Measures
Loading/unloading of raw materials and dispatch of materials	Water Sprinkling/ dry fog system will be installed. Materials will be transported in covered conveyor.
Mixing Area	Bag Filters will be used to de-dust the transfer points for powdery material.
Induration Area	Electrostatic precipitators will be used for cleaning the furnace exhaust gases before releasing them to the environment through the process stacks. Also, dedusting will be done through the use of Bag filters for feed end, discharge end.
Additive Grinding	Bag filters will be used at all fine material transfer points for efficient de-dusting.

5.5 Water Pollution Control Devices

For treating the Phenolic water of about 8 KLD generated from Producer Gas Plant (PGP) will be treated in Dedicated Effluent Treatment Plant (ETP) of 10 KLD capacity & treated water will be reused in the process. Blow down water from pellet plant of about 50 KLD will be treated in Effluent Treatment Plant (ETP) of 60 KLD capacity which will be re-circulated in the system.

The Sewage Treatment Plant (STP) for treating the wastewater generated. A total of 16 KLD will be sent to the Sewage Treatment Plant of 20 KLD Capacity. The treated water will be used in greenbelt development & dust suppression.

5.6 CONCLUSION

Based on the above discussion, it is evident that the proposed site and technologies are best suited for proposed pellet plants which shall contribute to the growing demand of market for steel. As the project proposal is prepared keeping in view of socio-economic, health and environmental aspects, the project shall result in overall socio-economic development of the area and the country in general with controlled adverse effects on environment.

CHAPTER- 6
ENVIRONMENTAL MONITORING PROGRAM

6.1 OBJECTIVE OF ENVIRONMENTAL MONITORING

The monitoring and evaluation of the management measures envisaged are critical activities in implementation of the Project. Monitoring involves periodic checking to ascertain whether activities are in accordance with the plans. It provides the necessary feedback for project management to keep the program on schedule. The purpose of the environmental monitoring plan is to ensure that the envisaged purpose of the project is achieved, and results have desired benefits.

A large part of the sampling and measurement activity with long term monitoring is aimed at providing an early warning of any undesirable changes or trends in the natural environment that could be associated with the plant's operation. To ensure the effective implementation of the proposed mitigation measures, the broad objectives of monitoring plan are:



Fig. 6. 1- Environment Monitoring Workflow (Source: enviromonitoring.net)

- To evaluate the performance of mitigation measures proposed in the EIA.
- To suggest improvements in the Environmental management plan, if required.
- To enhance environmental quality.
- To implement and manage the mitigative measures defined in EMP.
- To undertake compliance monitoring of proposed project operation and evaluation of mitigative measure.
- Control of activities inside the plant, until the environmental problem has been corrected.
- Suitably respond to emergency situations. Provide details of the emergency and the actions taken to the top management
- Suitably make modifications or alterations in the plant to meet regulatory standards as amended from time to time.

6.2 PERFORMANCE MONITORING SCHEDULE FOR POLLUTION CONTROL DEVICES

Air Pollution Control Devices

Table 6. 1- Bag Filter monitoring schedule

Bag Filters	
Frequency	**Procedure**
Daily	• Check Pressure drop. • Observe stack (visually or with opacity meter).

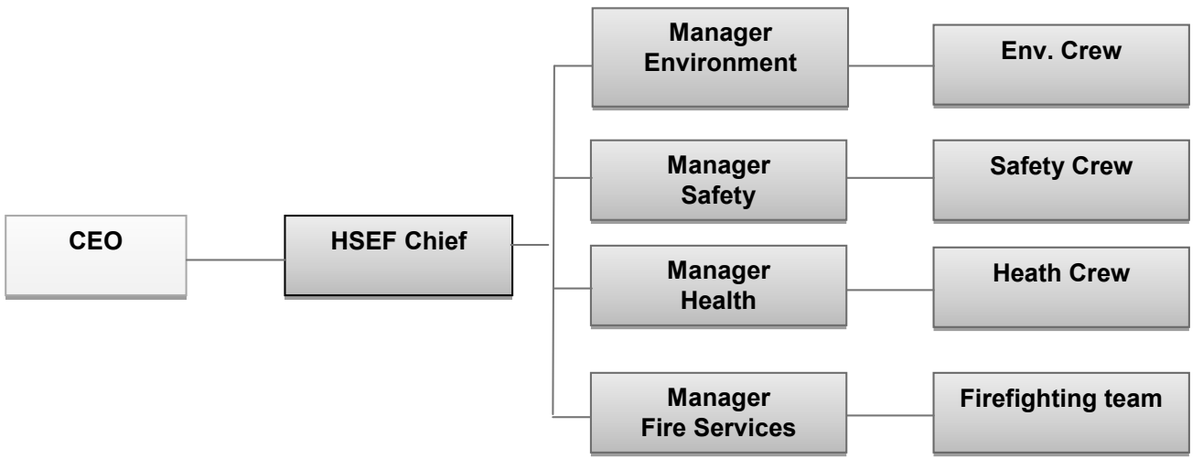
Bag Filters	
Frequency	**Procedure**
	• Walk through system, listening for proper operation. • Check for unusual occurrences in process. • Observe control panel indicators. • Check compressed-air pressure. • Assure that dust is being removed from system.
Weekly	• Inspect screw-conveyor bearings for lubrication. • Check packing glands. • Operate damper valves. • Check compressed-air lines, including line filters and dryers. • Check that valves are opening and closing properly in bag-cleaning sequence. • Verify accuracy of temperature-indicating equipment. • Check pressure-drop-indicating equipment for plugged lines.
Monthly	• Check all moving parts in shaker mechanism. • Inspect fans for corrosion and material buildup. • Check drive belts for wear and tension. • Inspect and lubricate appropriate items. • Spot-check bag tension. • Spot check for bag leaks. • Check hoses and clamps. • Check accuracy of indicating equipment. • Inspect housing for corrosion.
Quarterly	• Inspect baffle plate for wear. • Inspect bags thoroughly. • Check duct for dust buildup. • Observe damper valves for proper seating. • Check gaskets on doors. • Inspect paint, insulation, etc. • Check screw conveyor for wear or abrasion. • Check fan belts.
Annually	• Check welds. • Inspect hopper for wear.

Effluent Treatment Plant

Table 6. 2- ETP Monitoring Schedule

Frequency	Parameters to Monitor
Daily	• pH
Weekly	• TDS • TSS • COD
Monthly	• BOD
Quarterly	• Heavy Metals

6.1.2 STRUCTURE OF ENVIRONEMNT MANAGEMENT CELL (EMC)



6.2 METHODOLOGIES OF MEASUREMENT

6.2.1 AMBIENT AIR MONITORING

Monitoring of ambient air quality will be done for PM_{10}, $PM_{2.5}$, SO_2, NOx, NH_3, O_3, Pb, Ni, As, C_6H_6, BaP and CO. Locations of monitoring stations will be determined based on the receptors in the airshed, and a network of monitoring stations will be set up to determine the exposure levels. Test method adopted for monitoring result analysis will be Gravimetric method (IS 5182: Part 23), Gravimetric (EPA 1998), Improved West & Geake method (IS 5182 Part 2 RA2017), Modified Jacob & Hochheiser method (IS 5182 Part 6 RA 2017), AAS method after sampling on EPM 2000 Filter Paper IS 5182 (Part-22):2016, Absorption & Desorption followed by Gas Chromatography, Solvent Extraction followed by Gas Chromatography, and Non-Dispersive Infrared method (IS 5182 Part 10: 1999) respectively.

6.2.2 SURFACE WATER MONITORING

Like Ambient Air Monitoring, monitoring locations and stations will be set up to determine the quality. But the number of parameters to be observed will be higher in case of Surface water. A battery of tests will be performed for various parameter which have been listed below:

Table 6. 3- Surface Water monitoring parameters with Testing Methods

S. No.	Parameter	Testing Methods
1.	Colour	Visual Comparison Method APHA 23RD Ed,2017: 2120 B, C
2.	pH at 250°C	pH Meter APHA 23RD Ed,2017 4500H+ B
3.	Dissolved Oxygen (min)	Modified Winkler Method APHA 23RD Ed,2017: 2540 C
4.	Turbidity	Nephelometric Method APHA 23RD Ed,2017: 2130 B

S. No.	Parameter	Testing Methods
5.	Chloride (max)	Titrimetric Method APHA 23RD Ed,2017: 4500Cl- B
6.	Total Dissolved Solids	Gravimetric Method APHA 23RD Ed,2017: 2540 C
7.	Oil & Grease (max)	Gravimetric Method (Solvent Extraction) APHA 23RD Ed,2017:5520-B
8.	BOD (3) days at 270°C (max)	Oxygen Depletion Method IS 3025(P-44): 1993 RA 2003
9.	Chemical Oxygen Demand (COD)	Open Reflux Method APHA 23RD Ed,2017: 5220 C
10.	Arsenic as As	By AAS Method APHA 23RD Ed,2017: 3114 B
11.	Lead as Pb	By AAS Method APHA 23RD Ed,2017 3111 B
12.	Cadmium as Cd (max)	By AAS Method APHA 23RD Ed,2017: 3111 B
13.	Copper as Cu (max)	By AAS Method APHA 23RD Ed,2017: 3111 B
14.	Zinc as Zn(max)	By AAS Method APHA 23RD Ed,2017: 3111 B
15.	Selenium as Se (max)	By AAS Method APHA 23RD Ed,2017: 3500 Se C
16.	Cyanide as CN (max)	Distillation followed by Spectrophotometric Method. APHA 23RD Ed,2017: 4500 CN- C, D
17.	Fluoride as F (max)	Distillation followed by Spectrophotometric Method. APHA 23RD Ed,2017: 4500F- C
18.	Sulphates (SO4) (max)	Turbidimetric Method APHA 23RD Ed,2017: 4500 SO42- E
19.	Phenolic Compounds as C_6H_5OH (max)	Chloroform extraction by Colorimetric Method APHA 23RD Ed,2017: 5530 B, D
20.	Iron as Fe (max)	By AAS Method APHA 23RD Ed,2017: 3500Fe, B
21.	Nitrate as NO_3 (max)	By UV-Screen Method APHA 23RD Ed,2017: 4500 NO3- E
22.	Anionic Detergents (max)	Anionic Surfactants as MBAS APHA 23RD Ed,2017: 5540 C
23.	Total Coli form	By Multiple Tube Fermentation Technique APHA 23RD Ed,2017: 9221 B
24.	Hexavalent Chromium (Cr+6)	Diphenyl Carbazide Method APHA 23RD Ed,2017: 3500Cr B

6.2.3 GROUND WATER MONITORING

Monitoring for Ground water will also be done in a very comprehensive manner to avoid contamination of aquifer. Parameters and testing methods are tabulated below:

Table 6. 4- Ground Water monitoring parameters with Testing Methods

S. No.	Parameter	Testing Methods
1.	Colour	Visual Comparison Method APHA 23RD Ed,2017: 2120 B, C
2.	pH at 250°C	pH Meter APHA 23RD Ed,2017 4500H+ B
3.	Odour	Threshold Odour Test APHA 23RD Ed,2017 :2150 B
4.	Taste	Flavor Threshold Test APHA 23RD Ed,2017: 2160 C
5.	Turbidity	Nephelometric Method APHA 23RD Ed,2017 :2130 B
6.	pH at 250C	pH Meter APHA 23RD Ed,2017: 4500H+ B
7.	Total Hardness (as CaCO3)	EDTA Titrimetric Method APHA 23RD Ed,2017: 2340 C
8.	Iron (as Fe)	By AAS Method APHA 23RD Ed,2017: 3111, B
9.	Chloride (as Cl)	Argentometric Method APHA 23RD Ed,2017: 4500Cl- B
10.	Residual Free Chlorine	Iodometric Method APHA 23RD Ed,2017: 4500Cl, B
11.	Total Dissolved Solids as TDS	Gravimetric Method APHA 23RD Ed,2017: 2540 C
12.	Calcium as Ca	EDTA Titrimetric Method APHA 23RD Ed,2017: 3500Ca B
13.	Magnesium as Mg	Calculation Method APHA 23RD Ed,2017: 3500Mg B
14.	Copper as Cu	By AAS Method APHA 23RD Ed,2017: 3111 B
15.	Manganese as Mn	Persulfate Method APHA 23RD Ed,2017: 3500Mn B
16.	Sulphate as SO4	Turbidimetric Method APHA 23RD Ed,2017: 4500 SO42- E
17.	Nitrate as NO3	By UV-Screen Method APHA 23RD Ed,2017: 4500 NO3- E
18.	Fluoride as F	Distillation followed by Spectrophotometric Method. APHA 23RD Ed,2017: 4500F- C
19.	Phenolic Compounds as C6H5OH	Chloroform extraction by Colorimetric Method APHA 23RD Ed,2017: 5530 B, D
20.	Mercury as Hg	AAS Method APHA 23RD Ed,2017: 3112 B
21.	Cadmium as Cd	AAS Method

S. No.	Parameter	Testing Methods
		APHA 23RD Ed,2017: 3111 B
22.	Selenium as Se	By AAS Method APHA 23RD Ed,2017: 3500 Se C
23.	Arsenic as As	By AAS Method APHA 23RD Ed,2017: 3114 B
24.	Cyanide as CN	Distillation followed by Spectrophotometric Method. APHA 23RD Ed,2017: 4500 CN- C, D
25.	Lead as Pb	By AAS Method APHA 23RD Ed,2017 3111 B
26.	Zinc as Zn	By AAS Method APHA 23RD Ed,2017: 3111 B
27.	Mineral Oil	Partition-Gravimetric Method APHA 23RD Ed,2017: 5520 B
28.	Alkalinity	Titration Method APHA 23RD Ed,2017:2320 B
29.	Aluminium as Al	AAS Method APHA 23RD Ed,2017: 3111 D
30.	Boron	Curcumin Method APHA 23RD Ed,2017: 4500B, B

6.2.4 NOISE MONITORING

Noise monitoring will be done only for Ambient Noise levels. Noise levels will be measured in dB (A) on an hourly basis for 24 hours. Noise level exposure for workers will also be monitored quarterly to assess the compliance with statutory norms.

6.3 PERFORMANCE MONITORIING

Environment monitoring Programme during construction & operation phase are given below;

Table 6. 5- Construction Phase Monitoring Parameters

Sl. No.	Component	Parameter	Locations	Frequency		Responsibility
1	Ambient Air	PM_{10}, $PM_{2.5}$. SO_2, NOx, CO	3 locations at the boundary of plant premises	24 hourly samples, (8 hrs for CO). Twice in a week	Monthly	Project Manager through third party laboratory
2	Wastewater	pH, TDS, SS, BOD_3, COD, Oil & grease, and Heavy metals	Inlet & Outlet of Proposed STP (20 KLD)	Once in a month		
3	Noise Level	Hourly Leq dB(A)	3-4 locations within the plant premises	Continuously during working hour.	Weekly	

6.3.2 MONTIRONG SCHEDULE DURING OPERATION PHASE

Table 6. 6- Operational Phase Monitoring Parameters

Sl. No.	Particulars	Monitoring Frequency	Duration of Sampling	Important Monitoring Parameters	Responsibility
1.	**Air Pollution and Meteorology**				
	A. Ambient Air Quality				
	6 locations (1 location in upwind side, 2 in downwind / impact zone, 1 at other nearby receptors) 2 locations at the plant boundary	Twice a week	24 hr continuously	Parameters as per NAAQS	EMC I/c through third party laboratory
	B. Stack Monitoring (OCEMS)				
	• 12 Nos. of stacks & Performance evaluation of APCDs	Continuous	As per CPCB norms (Continuous monitoring)	Temperature, Velocity, Particulate Matter, SO_2, & NO_x.	EMC I/c through third party laboratory
	C Fugitive Emissions				
	• Transportation route Raw material & Additive Handling areas • Processing area and Product handling area.	Monthly	8 hr continuously	PM_{10} & $PM_{2.5}$	EMC I/c through third party laboratory
	D Meteorology				
	Meteorological data to be monitored at project area	Every Season	Continuous monitoring	Wind speed, direction, temperature, relative humidity, and rainfall	EMC I/c
	E CAAQMS				

1563

1563

Sl. No.	Particulars		Monitoring Frequency	Duration of Sampling	Important Monitoring Parameters	Responsibility
		Continuous ambient air monitoring system to be installed within plant	Continuous	As per CPCB norms (Continuous monitoring)	PM_{10}, $PM_{2.5}$, SO_2, NOx & CO	EMC I/c
2.	**Water and Wastewater Quality**					
	A	**Industrial**				
	1.	Effluent Treatment Plant (Inlet & Outlet)	Monthly	Grab	Oil & Grease, pH, TDS, TSS, BOD, COD	EMC I/c through third party laboratory
	2.	Performance of WPC system/equipment	Annually			EMC I/c through third party laboratory
	3.	Sewage treatment plant (Inlet & Outlet)	Monthly	Grab	Oil & Grease, pH, TSS, BOD, COD, Total Coliform	EMC I/c through third party laboratory
	B	**Water Quality in the study area**				
	1.	Ground Water (Level & Quality) - 2 locations in plant area & 4 locations in Buffer area	Quarterly (Pre-monsoon & Post-monsoon)	Grab	As per the parameters specified under IS:10500 and as per OSPCB listed parameters	EMC I/c through third party laboratory
	2.	Surface Water - 8 locations in buffer zone.	Quarterly (Pre-monsoon & Post-monsoon)	Grab	Parameters specified under Class – C & E and as per OSPCB consents	EMC I/c through third party laboratory
3.	**Noise Levels**					
	Industrial Noise					
	1.	Major noise generating sources (Machineries) – 4 locations	Quarterly	Through integrated noise level meter	Noise level in dB(A)	EMC I/c through third party laboratory
	2.	Transportation road inside the boundary- 2	Quarterly	Through integrated noise level meter	Noise level in dB(A)	EMC I/c through third party laboratory
4.	**Ambient Noise level**					

1564

1564

Sl. No.	Particulars		Monitoring Frequency	Duration of Sampling	Important Monitoring Parameters	Responsibility
	1.	4 locations in nearby villages	Quarterly	24 hr continuous with 1 hr interval	Noise level in dB(A)	EMC I/c through third party laboratory
5.	**Flora & Fauna**					
	1.	Inventory of flora and fauna	Once in 3 years	For a week	List of all the flora and fauna in the project impact area	EMC I/c

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6.4 OCCUPATIONAL HELATH & SAFETY MONTIRONG

- Accident prevention and control including ensuring the use of safety appliances.
- Occupational health & Safety training and detection will be organized once a year.
- Qualified medical personnel will be engaged in the same.
- Carrying out health and safety surveys for identifying unsafe working condition/practices, which causes accident.
- Occupational health & Safety training and detection will be organized once a year. Qualified medical personnel will be engaged in the same.
- Conducting periodical health checkup for all employees (Direct & Indirect) to ensure free from occupational ailment.

6.5 ACCIDENT AND DISEASE MONITORING

Although, all the advised safety measures will be followed, there are always chances of accidents occurring in a workplace. Slips, falls from height, unguarded machinery, falling objects, engulfment, working in confined spaces, moving machinery, exposure to energy sources, inhalable agents, contact with hot metals, noise and vibration, fire and explosion, extreme temperatures, electrical burns, etc. are most common causes of injury in the iron and steel industry. Following monitoring measures have been proposed:

- **Moving Machinery -** Isolation, locking or pinning all energy sources will be done before any machinery is accessed.
- **Working at heights –** Regular training, appropriate harnessing and checking will be in place when working at height.
- **Falling objects –** Regular checking will be undertaken to reduce the risk of falling objects.
- **On-Site Traffic -** All traffic on the site will be operated safely, including road, rail and pedestrians. All the unnecessary traffic will be removed. Proper signals & speed limits will be displayed at critical points.
- **Process Safety Incidents -** All potential process safety hazards that could cause explosion or fires, like spillage of flammable material, hot material etc. will be identified and proper training will be provided to operator. Precautionary measures will be taken to reduce the chances of incident.
- **Unsafe Act and Work:** Identifying the unsafe and/or unhealthful act & working condition. Bringing to the knowledge of Dept. Head and Management for adoption and implementation of immediate corrective and preventive measure.

KAI International Pvt. Ltd. shall establish procedures and systems for reporting and recording:

- Occupational accidents and diseases; and
- Dangerous occurrences and incidents.

The system will enable workers to report to their immediate supervisor immediately for any situation that they believe presents a danger to life or health. The system shall further enable and encourage workers to report all:

- Occupational injuries and near misses.

- Suspected cases of occupational disease; and
- Dangerous occurrences and incidents.

KIPL with the assistance of a competent person investigate all reported occupational accidents, occupational diseases, dangerous occurrences, and incidents together with near misses. The investigation shall encompass the following as far as possible:

- Establish what happened.
- Determine the cause of what happened; and
- Identify measures necessary to prevent recurrence.

Distinction will be made between fatal and non-fatal injuries. The two main categories are divided into three sub-categories according to time of death or duration of the capacity to work. The total number of man-days and hours worked during the reporting period must be stated.

6.5 ENVIRONMENTAL LABORATORY

Third party monitoring will be carried out by the NABL accredited consultancy organization for regular monitoring of Environmental Parameters.

The main analytical instruments / equipment's will be:

- Micro Meteorological Station
- Respirable Dust Sampler (RDS)
- Fine Particulate Matter Sampler (FPS)
- Stack Monitoring Kit
- Sound Level Meter
- Water Level Indicator, etc.

Besides adequate glassware & other laboratory equipment and chemicals will be indented.

6.7 Cost of Environmental Monitoring

Environmental monitoring work will be outsourced from third party accredited environmental laboratory. Estimated Cost of monitoring work is given in following table.

Table 6.7- Estimated Cost of Environment Monitoring Plan

Sl. No.	Particulars	Total (in Rs. Lakhs)	
		Capital	Recurring per annum
1	Cost of monitoring of environmental parameters for Air, Water and Noise (Separate air, water & noise)	40	38.0
2	Occupational Health & Safety (Surveillance of H&S and monitoring of Worker's health)	20	6.0
3	Plantation (Monitoring)	-	1.5
4	Performance evaluation of Pollution Control Equipment	10	12.0
Total		**70**	**57.5**

CHAPTER- 7
ADDITIONAL STUDIES

7.1 PUBLIC CONSULTATION

The basic purpose of Public participation/ Consultation is to promote productive use of inputs and perceptions from private and public interest group in order to improve the quality of environment decision making. Interest group includes those representatives of industry, development, conservation and preservation. Public participation is required in environmental decision making by the regulation in environment clearance process.

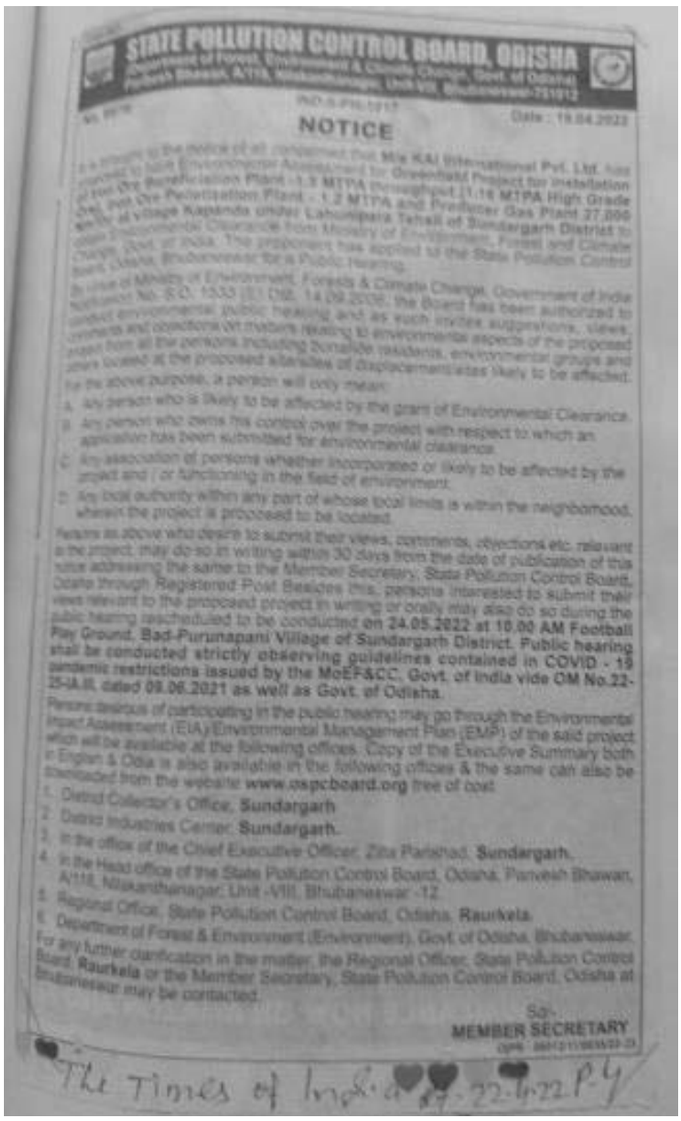
The proposal was presented before the Expert Appraisal Committee (EAC) meeting held on 11.11.2021. EAC granted ToR for the proposed project vide F. No IA-J-11011/59/2021-IA-II(I) Dated: 20th November, 2021. In response to ToR, draft EIA was prepared covering Base Line Data (1st Oct 2021 to 31st Dec 2021) and an application was submitted on 06th April, 2022 to Odisha State Pollution Control Board (OSPCB) to conduct public hearing. The Collector & Distict Magistrate, Sundargarh issued letter vide no. 109/XV-13/2022, on 13th April, 2022 for declared notice for conducting public hearing (Copy is attached **Annexure- H**). This Public Hearing was a part of Environmental Clearance from Ministry of Environment, Forest and Climate Change, Govt. of India.

Post consultation with OSPCB, District Administration and People's representatives, the Notice for conducting the public consultation was published in the daily Newspapers– The Samaja (Local newspaper) and The Times of India on 22th April 2022. Newspaper clippings are given in **Fig. 7.1**. The Public hearing was held on the scheduled date i.e. 24.05.2022 (11:00 AM) at Bad-Purnapani, Football Playground Block- Lahunipada, Sundargarh district. The proceeding of the public hearing along with list of attendees is attached as **Annexure- I**

The committee facilitating the Public hearing consisted of Shri Shri Pradeep Dang, Sub-Collector, Bonai Sub Division, Sundargarh and Shri Bonid Bihari Dash, Regional Officer, Odisha State Pollution Control Board, Rourkela, Odihsa. Shri Dash elaborated the need for public hearing with views, comments and opinion of public for availing Environmental Clearance.

On behalf of the project proponent, Shri Hemanta Kumar Pati, Manager (HR), KAI International attended the Public Hearing. Shri Jena addressed the committee members and participants with a presentation on the salient features of the proposed project, environment management, pollution control measures, waste management and various other socio-economic development activities envisaged in the proposed project. A total 270 persons attended the public hearing proceedings. However, the panel received 89 nos. of written representation of local people demanding different facilities in the locality during public hearing, which is enclosed as **Annexure- I**. Shri Hemanta Kumar Pati, also mentioned that No direct Project Affected Families are identified as land losing families as Land Acquisition is not involved. No PAF would be losing home or land or both under the project.

It can be concluded that the overall views and opinions of the Public during this meeting was in favor of M/s KAI International Pvt. Ltd. without any agitation. Moreover, KIPL assured of adequate support and addressing the aspiration of the local community appropriately as laid in the deliberation.



STATE POLLUTION CONTROL BOARD, ODISHA

NOTICE

Date : 19.04.2022

This is to inform to the notice of all concerned that M/s KAI International Pvt. Ltd. has proposed to set Environmental Assessment for Greenfield Project for installation of Iron Ore Beneficiation Plant - 1.5 MTPA throughput (1.16 MTPA High Grade Ore), Iron Ore Pelletization Plant - 1.2 MTPA and Producer Gas Plant 27,000 Nm3/hr at village Kapanda under Lahunipara Tehsil of Sundergarh District to obtain Environmental Clearance from Ministry of Environment, Forest and Climate Change, Govt. of India. The proponent has applied to the State Pollution Control Board, Odisha, Bhubaneswar for a Public hearing.

In view of Ministry of Environment, Forests & Climate Change, Government of India Notification No. S.O. 1533 (E) Dtd. 14.09.2006, the Board has been authorized to conduct environmental public hearing and as such invites suggestions, views, comments and objections on matters relating to environmental aspects of the proposed project from all the persons including bonafide residents, environmental groups and people located at the proposed site/sites of displacement/sites likely to be affected.

For the above purpose, a person will only mean:

a. Any person who is likely to be affected by the grant of Environmental Clearance.

b. Any person who owns his control over the project with respect to which an application has been submitted for environmental clearance.

c. Any association of persons whether incorporated or likely to be affected by the project and / or functioning in the field of environment.

d. Any local authority within any part of whose local limits is within the neighborhood, wherein the project is proposed to be located.

Persons as above who desire to submit their views, comments, objections etc. relevant to the project may do so in writing within 30 days from the date of publication of this notice addressing the same to the Member Secretary, State Pollution Control Board, Odisha through Registered Post Besides this, persons interested to submit their views relevant to the proposed project in writing or orally may also do so during the public hearing rescheduled to be conducted **on 24.05.2022 at 10.00 AM Football Play Ground, Bad-Purunapani Village of Sundargarh District. Public hearing shall be conducted strictly observing guidelines contained in COVID - 19 pandemic restrictions issued by the MoEF&CC, Govt. of India vide OM No.22-25-IA.III, dated 09.06.2021 as well as Govt. of Odisha.**

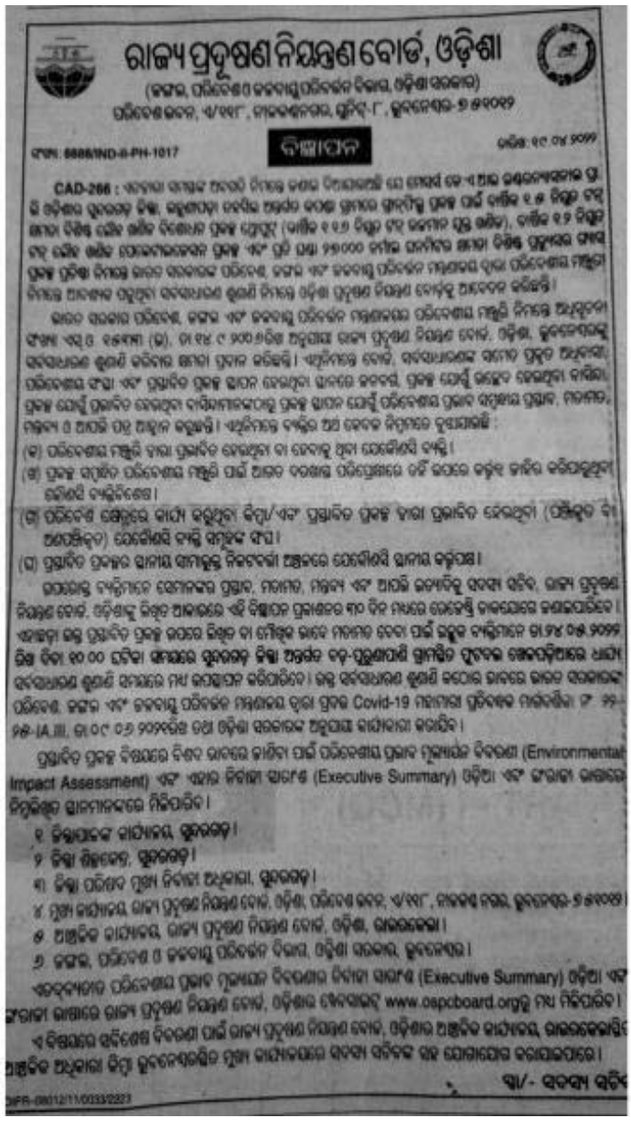
Persons desirous of participating in the public hearing may go through the Environmental Impact Assessment (EIA)/Environmental Management Plan (EMP) of the said project which will be available at the following offices. Copy of the Executive Summary both in English & Odia is also available in the following offices & the same can also be downloaded from the website **www.ospcboard.org** free of cost.

1. District Collector's Office, **Sundargarh**
2. District Industries Center, **Sundargarh.**
3. In the office of the Chief Executive Officer, Zila Parishad, **Sundargarh.**
4. In the Head office of the State Pollution Control Board, Odisha, Paryavesh Bhawan, A/118, Nilakanthanagar, Unit -VIII, Bhubaneswar -12
5. Regional Office, State Pollution Control Board, Odisha, **Raurkela.**
6. Department of Forest & Environment (Environment), Govt. of Odisha, Bhubaneswar.

For any further clarification in the matter, the Regional Officer, State Pollution Control Board, **Raurkela** or the Member Secretary, State Pollution Control Board, Odisha at Bhubaneswar may be contacted.

Sd/-
MEMBER SECRETARY

The Times of India 27-22-4-22 P-4



ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡ଼ିଶା

(ପରିବେଶ, ପରିବେଶ ଓ ଜଳବାୟୁ ପରିବର୍ତ୍ତନ ବିଭାଗ, ଓଡ଼ିଶା ସରକାର)

ପରିବେଶ ଭବନ, ଏ/୧୧୮, ନୀଳକଣ୍ଠନଗର, ୟୁନିଟ୍-୮, ଭୁବନେଶ୍ୱର-୭୫୧୦୧୨

ଫାଇଲ୍ ନଂ. 6886/IND-II-PH-1017

ବିଜ୍ଞାପନ

ତାରିଖ: ୧୯.୦୪.୨୦୨୨

CAD-266 : ଏତଦ୍ଦ୍ୱାରା ସାଧାରଣ ଅବଗତି ନିମନ୍ତେ ଜଣାଯାଉଛି ଯେ ମେସର୍ସ କେ ଏ ଆଇ ଇଣ୍ଟରନ୍ୟାସନାଲ ପ୍ରା. ଲି. ଓଡ଼ିଶାର ସୁନ୍ଦରଗଡ଼ ଜିଲ୍ଲା, ଲହୁନିପାରା ତହସିଲ ଅନ୍ତର୍ଗତ କପଣ୍ଡା ଗ୍ରାମରେ ପ୍ରସ୍ତାବିତ ପ୍ରକଳ୍ପ ପାଇଁ ଜାରିଛ ୧.୫ ମିଲ୍ଲିୟନ ଟନ୍ ପ୍ରତି ଜାରା ବିଶିଷ୍ଟ ଲୌହ ବିଶୋଧନ ପ୍ରକଳ୍ପ ଯୋଗାଇ (ଜାରିଛ ୧.୧୬ ମିଲ୍ଲିୟନ ଟନ୍ ପ୍ରତି ଜାରା ବିଶିଷ୍ଟ ଲୌହଆକରିକ ପ୍ରକଳ୍ପ ଏବଂ ପ୍ରତି ଘଣ୍ଟା ୨୭,୦୦୦ ନମ୍ବାର ଘନମିଟର କ୍ଷମତା ବିଶିଷ୍ଟ ପ୍ରଯୁକ୍ତର ଗ୍ୟାସ ପ୍ରକଳ୍ପ ପ୍ରତିଷ୍ଠା ନିମନ୍ତେ ଭାରତ ସରକାରଙ୍କ ପରିବେଶ, ବଣ ଏବଂ ଜଳବାୟୁ ପରିବର୍ତ୍ତନ ମନ୍ତ୍ରାଳୟର ଦ୍ୱାରା ପରିବେଶଗତ ମଞ୍ଜୁରୀ ନିମନ୍ତେ ଆବଶ୍ୟକ ପବ୍ଲିକ୍ ହେରିଙ୍ଗ ସମ୍ପାଦନ କରିଥିବା ନିମନ୍ତେ ଓଡ଼ିଶା ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡକୁ ଅନୁରୋଧ କରିଛନ୍ତି।

ଭାରତ ସରକାର ପରିବେଶ, ବଣ ଏବଂ ଜଳବାୟୁ ପରିବର୍ତ୍ତନ ମନ୍ତ୍ରାଳୟରେ ପରିବେଶଗତ ମଞ୍ଜୁରି ନିମନ୍ତେ ଅନୁରୋଧ ପତ୍ରର ଏସ.ଓ. ୧୫୩୩ (ଇ), ତା ୧୪.୯.୨୦୦୬ରିଖ ଅନୁଯାୟୀ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡ଼ିଶା, ଭୁବନେଶ୍ୱରକୁ ଜନଶୁଣାଣି କରିବାର କ୍ଷମତା ପ୍ରଦାନ କରିଛନ୍ତି। ଏଥିମଧ୍ୟରେ ବୋର୍ଡ, ସର୍ବସାଧାରଣଙ୍କ ସମ୍ମୁଖରେ ପ୍ରସ୍ତାବିତ ଅଞ୍ଚଳର ପରିବେଶର ସଂରକ୍ଷା ଏବଂ ପ୍ରସ୍ତାବିତ ପ୍ରକଳ୍ପ ଯୋଗୁଁ ଉଦ୍ଭୂତ ହେଉଥିବା ସମସ୍ୟା, ପ୍ରକଳ୍ପ ଯୋଗୁଁ ପ୍ରଭାବିତ ହେଉଥିବା ବାସିନ୍ଦାମାନଙ୍କଠାରୁ ପ୍ରକଳ୍ପ ସ୍ଥାପନ ଯୋଗୁଁ ପରିବେଶର ପ୍ରଭାବ ସମ୍ବନ୍ଧରେ ପ୍ରସ୍ତାବ, ମତାମତ, ମନ୍ତବ୍ୟ ଓ ଆପତ୍ତି ଥିଲେ ତାହାକୁ ଜଣାଇବା ଉଦ୍ଦେଶ୍ୟରେ ଏହି ଜନଶୁଣାଣି ଅନୁଷ୍ଠିତ ହେଉଛି। ଏଥିନିମନ୍ତେ ନିମ୍ନରେ ଅଞ୍ଚଳ ଭିତ୍ତିରେ ଦୁଇଥରିଆ ଜନଶୁଣାଣି ହେବାକୁ ଧାର୍ଯ୍ୟ ହୋଇଛି :

(କ) ପରିବେଶର ମଞ୍ଜୁରି ବାବଦ ପ୍ରସ୍ତାବିତ ଲୋକମାନେ ବା ସେମାନଙ୍କୁ ଆଣ ଯୋଗାଁଉଥିବା ବ୍ୟକ୍ତି।

(ଖ) ପ୍ରକଳ୍ପ ସମ୍ପାଦିତ ପରିବେଶର ମଞ୍ଜୁରି ପାଇଁ ଆବେଦନ କରିଥିବା ପରିପ୍ରେକ୍ଷୀରେ ଯେଉଁ ଉପରେ କର୍ତ୍ତୃତ୍ୱ ଜାହିର କରିପାରୁଥିବା ବ୍ୟକ୍ତିବିଶେଷ।

(ଗ) ପରିବେଶ କ୍ଷେତ୍ରରେ କାର୍ଯ୍ୟ କରୁଥିବା ବିମ୍ବାର୍ଥ/ଏବଂ ପ୍ରସ୍ତାବିତ ପ୍ରକଳ୍ପ ହାରା ପ୍ରଭାବିତ ହେଉଥିବା (ପରିକଳ୍ପିତ ବା ଅଧୋଗତିକୃତ) ସେବୋଭିଭି ବାକ୍ତି ସମୂହକ ସଂଘ।

(ଘ) ପ୍ରସ୍ତାବିତ ପ୍ରକାର ସ୍ଥାନୀୟ ସୀମାକୁକୁ ନିକଟବର୍ତ୍ତୀ ଅଞ୍ଚଳରେ ସେବୋଭିଭି ସ୍ଥାନୀୟ କର୍ତ୍ତୃପକ୍ଷ।

ଉପରୋକ୍ତ ବ୍ୟକ୍ତିମାନେ ସେମାନଙ୍କର ପ୍ରସ୍ତାବ, ମତାମତ, ମନ୍ତବ୍ୟ ଏବଂ ଆପତ୍ତି ଇତ୍ୟାଦିକୁ ସବପ୍ରଥମ ଲିଖିତ, ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡ଼ିଶାକୁ ନିମ୍ନୋକ୍ତ ଆଡ୍ରେସରେ ଏହି ବିଜ୍ଞାପନ ପ୍ରକାଶରେ ୩୦ ଦିନ ମଧ୍ୟରେ ରେଜେଷ୍ଟ୍ରି ଡାକଯୋଗେ ଜଣାଇପାରିବେ। ଏତଦ୍ଭିନ୍ନ ଉକ୍ତ ପ୍ରସ୍ତାବିତ ପ୍ରକଳ୍ପ ଉପରେ ନିଜର ବା ଗୋଷ୍ଠିଗତ ଭାବେ ମତାମତ ଦେବା ପାଇଁ ଇଚ୍ଛୁକ ବ୍ୟକ୍ତିମାନେ ତା.୨୪.୦୫.୨୦୨୨ ତାରିଖ ବୁଧବାର ସକାଳ ୧୦.୦୦ ଘଟିକା ସମୟରେ ସୁନ୍ଦରଗଡ଼ ଜିଲ୍ଲା ଅନ୍ତର୍ଗତ ବଡ଼-ପୁରୁଣାପାଣି ସ୍ଥାନସ୍ଥିତ ଫୁଟବଲ ଖେଳପଡ଼ିଆରେ ଧାର୍ଯ୍ୟ ହୋଇଥିବା ଜନଶୁଣାଣି ସମୟରେ ମଧ୍ୟ ଉପସ୍ଥାପନ କରିପାରିବେ। ଉକ୍ତ ଜନଶୁଣାଣି କରୋନା ଭାଇରସ Covid-19 ମହାମାରୀ ପ୍ରତିକାର ମାର୍ଗଦର୍ଶିକା ଓ ୨୨-୨୫-IA.III, ତା.୦୯.୦୬.୨୦୨୧ରିଖର ଭାରତ ସରକାର ଅନୁସରଣ କରିବାକୁ ହେବ।

ପ୍ରସ୍ତାବିତ ପ୍ରକଳ୍ପ ବିଷୟରେ ବିଶଦ ଭାବରେ ଜାଣିବା ପାଇଁ ପରିବେଶୀୟ ପ୍ରଭାବ ମୂଲ୍ୟାୟନ ବିବରଣୀ (Environmental Impact Assessment) ଏବଂ ଏହାର ନିର୍ଯାସ ସାରାଂଶ (Executive Summary) ଓଡ଼ିଆ ଏବଂ ଇଂରାଜୀ ଭାଷାରେ ନିମ୍ନଲିଖିତ ସ୍ଥାନମାନଙ୍କରେ ମିଳିପାରିବ।

୧. ଜିଲ୍ଲାପାଳଙ୍କ କାର୍ଯ୍ୟାଳୟ, ସୁନ୍ଦରଗଡ଼।

୨. ଜିଲ୍ଲା ଶିଳ୍ପକେନ୍ଦ୍ର, ସୁନ୍ଦରଗଡ଼।

୩. ଜିଲ୍ଲା ପରିଷଦ ମୁଖ୍ୟ ନିର୍ବାହୀ ଅଧିକାରୀ, ସୁନ୍ଦରଗଡ଼।

୪. ମୁଖ୍ୟ କାର୍ଯ୍ୟାଳୟ, ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡ଼ିଶା, ପରିବେଶ ଭବନ, ଏ/୧୧୮, ନୀଳକଣ୍ଠନଗର, ୟୁନିଟ୍-୮, ଭୁବନେଶ୍ୱର-୭୫୧୦୧୨।

୫. ଆଞ୍ଚଳିକ କାର୍ଯ୍ୟାଳୟ, ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡ଼ିଶା, ରାଉରକେଲା।

୬. ବଣ, ପରିବେଶ ଓ ଜଳବାୟୁ ପରିବର୍ତ୍ତନ ବିଭାଗ, ଓଡ଼ିଶା ସରକାର, ଭୁବନେଶ୍ୱର।

ଏତଦ୍ବ୍ୟତୀତ ପରିବେଶର ପ୍ରଭାବ ମୂଲ୍ୟାୟନ ବିବରଣୀର ନିର୍ଯାସ ସାରାଂଶ (Executive Summary) ଓଡ଼ିଆ ଏବଂ ଇଂରାଜୀ ଭାଷାରେ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡ଼ିଶାର ୱେବସାଇଟ୍ www.ospcboard.orgରୁ ମାଗି ନିଆଯାଇପାରିବ।

ଏ ବିଷୟରେ ଅଧିକ ସ୍ପଷ୍ଟୀକରଣ ପାଇଁ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, ଓଡ଼ିଶାର ଆଞ୍ଚଳିକ କାର୍ଯ୍ୟାଳୟ, ରାଉରକେଲାସ୍ଥିତ ଆଞ୍ଚଳିକ ଅଧିକାରୀ କିମ୍ବା ଭୁବନେଶ୍ୱରସ୍ଥିତ ମୁଖ୍ୟ କାର୍ଯ୍ୟାଳୟରେ ସଦସ୍ୟ ସଚିବଙ୍କ ସହ ଯୋଗାଯୋଗ କରାଯାଇପାରେ।

ସ୍ୱା/- ସଦସ୍ୟ ସଚିବ

DIPR-0801211/0033/2227

Fig. 7. 1- Public Hearing Notice in Times of India Newspaper & Local Newspaper (Dharitri)

	Final EIA/EMP Report for Greenfield project of Iron Ore Beneficiation Plant- 1.5 MTPA throughput (1.16 MTPA High Grade Ore), Iron ore Pelletization Plant- 1.2 MTPA and Producer Gas Plant – 27,000 Nm^3/hr located at village- Kapanda, Tehsil– Lahunipara, District- Sundergarh, Odisha of M/s KAI International Private Limited.	

Public Hearing Photographs:

















Summary of Public Consultation (Hearing):

Sl. No.	Issues raised by Public	Comments of the Project Authority
1.	**Environment:** • Air & Water pollution control • Control of dust pollution in the locality due to transportation. • Fruit bearing trees plantation in vacant government land • Damage of agricultural land due to establishment of industry • Generation of Toxic gases like Ethane, Methane etc. which will leads to global warming.	• Company will provide adequate air pollution control measures like ESP, Bag Filters and other dust suppression system. Company will also provide waste water treatment system to control water pollution. • Company will provide water sprinkling system mobile water tankers in transporting road and dust suppression system as well as inside the plant premises to control dust pollution. • Company will carried out plantation in co-ordination with Forest Department, & road development authority, Govt. of Odisha.
2.	**Employment:** • Priority on employment to local tribal people in the company on priority basis and employment to local educated youth as per their qualifications.	• Employment opportunity will be there as per the skill and qualification. Local public will be given priority for employment.
3.	**Peripheral Development**	
	a) Education: Emphasize on tribal people education and development of school infrastructure.	Company will support for financial assistance to the school for infrastructure development and assistance for qualified teacher deployment in the school to be made as per recommendation of school & village committee.
	b) Road Development: Connecting road improvement from Tikayatpali to Kapanda village main plant gate.	Company will take up the matter by pursuing the matter through Govt. of Odisha for the improvement on road condition and its maintenance.
	c) Supply of drinking water facility Drinking water facility at nearby local villages	Company will provide bore well with Syntax tank for drinking water facility as per requirement through CSR activities.
	d) Health and medical facility: ➢ ESI Hospital in Bonai area ➢ Free ambulance facility	Company will provide ambulance for the emergency medical treatment and Regular health camp for the nearby village will be conducted by Company authority.
	e) Electrification of street lights:	Electrification as well as renovation work will be conducted by company as per requirement through village committee.

		Wherever possible, solar light will be provided.
	f) Club House	Company will constructed club house in the local villages as per requirement & consultation with village committee.
	g) Compensation to land losers	
	h) Financial assistance for local cultural events	Company will provide financial assistance to village committee for the cultural & social activity.
	i) Facility for the displaced family (R&R)	The land has provided by provided by IDCO, Govt. of Odisha and in propose project there will not be any families for displacement.
	j) Road condition improvement	Necessary repair and revamping of connecting road would be taken up as per the consultation of Govt. Department.

7.1.1 ACTION PLAN AS PER MOEF&CC O.M DATED 30.09.2020 FOR THREE YEARS BUDGETARY PROVISION

Action plan prepared by M/s KIPL against the concerns of public during the PH meeting, are given in following table.

Table 7. 1- Issues raised and Action plan in Public Hearing

S. No.	Major activities	Description of Physical Target	Total Physical Targets	Physical Target along with CER Budget (Rs. In Lakhs)			Total Amount (Rs. In Lakhs)
				1st Year	2nd Year	3rd Year	
A	**Education**						
1	High School Transformational Project (smart class, science lab, etc.) partnering with Govt. of Odisha flagship project under Mo School Abhiyaan or Madhyamik Shikshya Abhiyan	Each School Shall be provided with the following- a) 8 nos. of Computers with Table & Chair @ Rs. 50,000/- b) 2 nos. of AC with inverters @ Rs. 60,000/- The 3 schools are- 1. Panchayat High School, Kapanda 2. Upper Graded Primary School, Kapanda 3. Upper Primary School, Tikayatpali	3 School	Rs. 5.2 (At Panchayat High School, Kapanda)	Rs. 5.2 (At Upper Graded Primary School, Kapanda)	Rs. 5.2 (Upper Primary School, Tikayatpali)	Rs.15.6
2	Retrofitting of Classrooms and Digital Classroom	Each year, 2 additional classrooms are proposed for retrofitting in Govt. Primary school with furniture's (1 nos. of Digital Classroom with Projector, digital interactive whiteboard systems, and its teaching software building blocks for digitally connected classroom and facilities @ Rs. 1,15,000/-	3 Schools	Rs. 2.3 (Panchayat High school, Kapanda)	Rs. 2.3 (At Govt. Primary School, Samardari, village-Tibupada)	Rs. 2.3 (At Gudhiali High School, Village-Rajamunda)	Rs.6.9
3	Improvement in basic amenities &	Each AWC shall be provided	6 AWCs	Rs. 1.6 (AWCs in	Rs. 1.6	2.5	Rs.5.7

1574

1584

S. No.	Major activities	Description of Physical Target	Total Physical Targets	Physical Target along with CER Budget (Rs. In Lakhs)			Total Amount (Rs. In Lakhs)
				1st Year	2nd Year	3rd Year	
	teaching learning materials in Anganwadi center (AWC)	with – a. Abacus with Teaching Learning Material and Furniture @ Rs.40,000/ b. Painiting and infrastruture Development with Drinking Water facility or Toilet facility and Utensils @ Rs. 40,000/- The List of AWCs are Kapanda-I, Kapanda-II, Darjing, Gaudiniposh-I Gaudiniposh-II & Thiaberna. c. Teaching materials @ 45,000 to each AWC in 3rd year.		Kapanda- I & Kapanda- II)	(AWCs in Darjing & Gaudiniposh- I)	(AWCs in Gaudiniposh- II & Thiaberna)	
4	Appointment of Private Teachers in Schools	Teachers in 4 Schools (2 Primary & 2 High school)	2 Primary & 2 High school	Rs. 3.4 (2 Primary School in Kapanda & Tikayatpali)	Rs. 1.7 (Panchayat high school)	Rs. 1.7 (Gudhiali High school	Rs.6.8
5	School Bus	2 School Bus for Panchayat High School & Tikayatpali Primary School. However, District Education Officer shall be consulted for finalizing the School.	3 School Bus	Rs. 8.1 Gudhiali High School	Rs. 8.1 Panchayat High School	Rs. 8.1 Tikayatpali Primary School	Rs.24.3
	Sub Total (Education)			**20.6**	**18.9**	**19.8**	**Rs. 59.3**
B	**Health**						
1	Ambulance	1 Ambulance serving the peripheral villages to be positioned at KAI Plant and 2 Ambulance at Kapanda GP & Nuwagan GP	3 Nos.	Rs.20.3	Rs.20.3	Rs. 20.3	Rs.60.9
2	Health camp	2 Health Camps per year with a focus on Kapanda,	6 health Camps	Rs. 2.1 2 Health Camps	Rs. 2.1 2 Health Camps	Rs. 2.2 2 Health Camps	Rs.6.4

1575

S. No.	Major activities	Description of Physical Target	Total Physical Targets	Physical Target along with CER Budget (Rs. In Lakhs)			Total Amount (Rs. In Lakhs)
				1st Year	2nd Year	3rd Year	
		Fatajharan, Tikayatpali,		Under Kapanda G.P,	Under Fatajharan GP.	Under Tikayatpali G.P	
3	Setting-up a Dispensary	Setting up a Dispensary serving Plant workers and local Community	3 Nos.	Rs. 29.1 Nearby Kapanda Village area	Rs. 29.1 Nearby Nuwagan Village area	Rs. 29.1 Nearby Tikayatpali Village area	Rs.87.3
	Sub Total (Health)			**51.5**	**51.5**	**51.6**	**Rs.154.6**
C	**Drinking Water**						
1.	Purified Drinking Water Facility at Public Places	In total 3 nos of Purified Drinking Water shall be installed at strategic public locations. Each Facility shall have a purifier machine. The locations are Kapanda Village, Fatajharan Village, Tikayatpali Village, Nuwagan & Talbahali. This location may change considering the number of floating population.	5 Nos	Rs. 8.9 (Kapanda & Fatajharan Village)	Rs. 8.9 (Tikayatpali & Nuwagan Village)	Rs. 4.5 (Talbahali Village)	Rs.22.3
2.	Installation of new Bore well & Hand Pump with sintex tank	In total 6 nos. of Hand pumps shall be installed at locations are Kapanda Village, Fatajharan Village, Tikayatpali Village, Nuwagan & Talbahali. This location may change considering the number of floating population.	5 village	Rs. 2.9 (Kapanda & Fatajharan Village,)	Rs. 2.9 (Tikayatpali & Nuwagan Village)	Rs. 1.4 (Talbahali Village)	Rs. 7.2
	Sub Total (Drinking Water)			**11.8**	**11.8**	**5.9**	**29.5**
D	**Environment**						
1	Rain Water Harvesting in Govt. Schools and Govt. Institutions	Rain Water Harvesting shall be taken-up in 30 schools/Govt Offices/Govt Institutions @ Rs. 28,000/-	30 Schools/ Institution/ Offices	Rs. 2.8 (10 Nos of schools/Govt Offices/Govt Institutions)	Rs.2.8 (10 Nos of schools/Govt Offices/Govt Institutions)	Rs. 2.8 (10 Nos of schools/Govt Offices/Govt Institutions)	Rs. 8.4

1576

1576

S. No.	Major activities	Description of Physical Target	Total Physical Targets	Physical Target along with CER Budget (Rs. In Lakhs)			Total Amount (Rs. In Lakhs)
				1st Year	2nd Year	3rd Year	
2	Plantation/Afforestation Drive (including sampling and protection like tree guard etc)	30 Schools or Govt. offices or Govt. Institution shall be covered within 3 years @80 trees in each school (Rs. 300/ trees)	30 Schools/ Institution/ Offices	Rs. 2.4 (10 Nos of schools/Govt Offices/Govt Institutions)	2.4 (10 Nos of schools/Govt Offices/Govt Institutions)	2.4 (10 Nos of schools/Govt Offices/Govt Institutions)	Rs. 7.2
3.	Garbage collection from villages and suitable disposal arrangement	Under Bharat Swachata Abhiyan 3 villages near plant locality & 3 schools provided plastic Dustbin @ Rs. 5000/- and Steel dumpster Garbage Container @ Rs. 55,000/-	3 Villages & 3 Schools	Rs. 0.8 (4 plastic dustbin & 1 dumpster Garbage container in Kapanda Village. 1 Plastic dustbin in Primary School in Kapanda)	Rs. 0.8 (4 plastic dustbin & 1 dumpster Garbage container in Nuwagan Village. 1 Plastic dustbin in Panchayat high school)	Rs. 1.0 (4 plastic dustbin & 1 dumpster Garbage container in Tikayatpali Village. 1 Plastic dustbin in Tikayatpali Primary school)	Rs. 2.6
	Sub Total (Environment)			**Rs. 6.0**	**Rs. 6.0**	**Rs. 6.2**	**Rs. 18.2**
E	**Livelihood**						
1	Promotion of Income Generation Activities- Tailoring & embroidery etc.	150 interested women beneficiaries within 10 SHG members of neighbouring GP shall be trained within 2 years i.e. 5 Group with 10 member in each group shall be trained every year	150 Women	Rs. 6.1 (50 Nos. of Under Nuwagan G.P)	Rs. 6.1 (50 Nos. of Under Kapanda G.P)	Rs. 6.1 (50 Nos. Under Tikayatpali G.P)	Rs. 18.3
2	Farmers input support for improving the yield for better return	200 interested and selective farmers shall be provided with inputs for 3 years	200 Farmers	Rs. 11.7	Rs. 11.7	Rs. 11.8	Rs. 35.2
	Sub Total (Livelihood)			**Rs. 17.8**	**Rs. 17.8**	**Rs. 17.9**	**Rs. 53.5**
F	**Infrastructure**						
1	Community Centre /youth club house		3 Nos.	11.3 (Kapanda Village)	11.3 (Nuwagan Village)	11.3 (Fatajharan Village)	Rs. 33.9
2	Village Solar Street Lights	Solar Streetlights at nearby villages @ 100 Street lights/	300 Solar Streetlights	Rs. 20.3	Rs. 20.3	Rs. 20.3	Rs. 60.9

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1584

S. No.	Major activities	Description of Physical Target	Total Physical Targets	Physical Target along with CER Budget (Rs. In Lakhs)			Total Amount (Rs. In Lakhs)
				1st Year	2nd Year	3rd Year	
		Year					
	Sub Total (Infrastructure)			Rs.31.6	Rs.31.6	Rs.31.6	Rs. 94.8
	GRAND TOTAL			Rs. 139.4	Rs. 137.7	Rs. 132.8	Rs. 409.9
Note- The Construction of Roads/repair & revamping of Road may be taken up post consultation with appropriate Government Promotion of Sports shall be taken up from the CSR funds							

Public Hearing compliance is approx. 1.2 % of total project cost.

1578

7.2 REHABILITATION & RESETTLEMENT PLAN

No rehabilitation or resettlement plan is proposed as there are no habitations in the proposed Plant site. During the due course of the Socio-Economic Assessment (SEA), No private Land Acquisition is proposed by M/s KAI International Pvt. Ltd. as the proposed plant will be established within the site land of 47.74 Acres/ 19.32 Ha. Moreover, the Site allotted by IDCO doesn't have any human settlement.

However, the Local people will be engaged for construction and operational activities. Proposed project will result in growth of the surrounding areas by increasing direct and indirect employment opportunities.

7.3 RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

7.3.1 RISK ASSESSMENT & DAMAGE CONTROL

The main objective of the Risk assessment to identify the potential hazard, assess the effect/consequence of all probable accidental releases and damage control measures to reduce hazard of the proposed facilities.

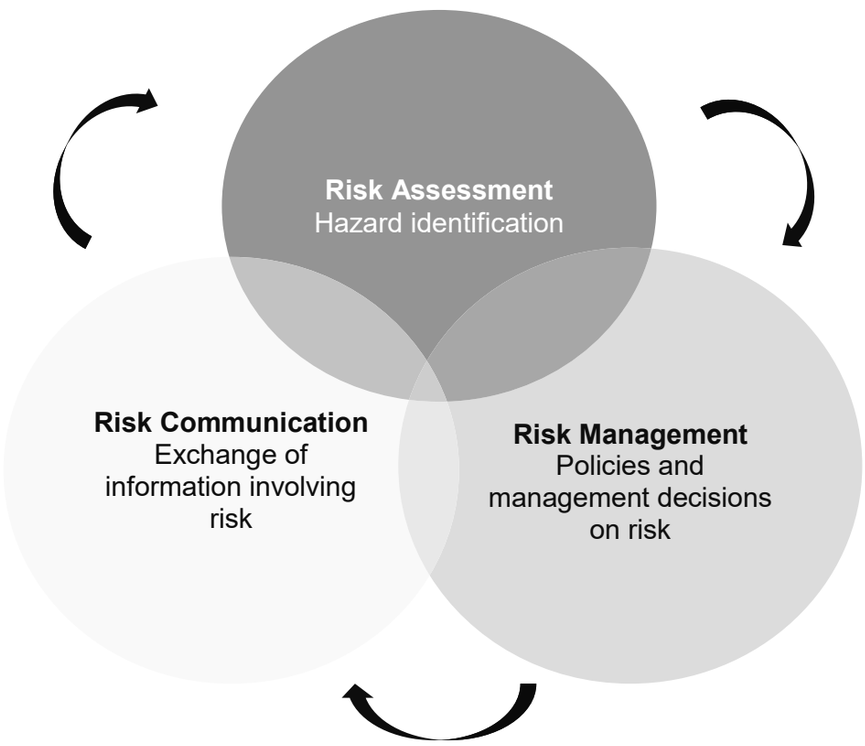


Fig. 7. 4- Risk Assessment

Damage control Measures in operational phase

- Gas holders should be provided to maintain a positive line pressure in gas network;
- The gas line pressure should be maintained by a floating piston;
- The level of holder should be monitored and recorded on hourly basis in the logbook;

- Fresh oil should be added to make up the losses due to contamination of oil;
- The seals of the gasholder (sealing oil level) should be checked on alternate day to ensure safety and recorded in the logbook;
- The safety device, such as limit switches, shut off bell along with other mechanical and electrical system should be inspected on weekly basis jointly with gas safety and electrical and recorded.
- The fire service facilities will be equipped with:
  - Smoke and fire detection alarm system.
  - Water supply
  - Fire hydrant and nozzle installation
  - Foam system
  - Water for sprinkler system
  - Mobile firefighting equipment
  - First aid appliances
- Smoke and fire detection, fire hydrant & nozzle installation etc. and shall be included as part of all major units at the proposed project.
- Periodic maintenance of all protective and safety equipment
- Periodical training/ awareness will be given to work force at the project as refresh courses to handle any emergency situation.
- Periodic mock drills will be conducted so as to check the alertness and efficiency of the DMP and corresponding records shall be maintained.
- Signboards including emergency phone numbers and no smoking signs should be installed at all appropriate locations.
- Plant shall have adequate communication system.
- All major units / equipment will be provided with smoke / fire detection and alarm system.
- 'No smoking zone' shall be declared at all fire prone areas.
- Fuel oil storage location will be selected at an isolated place with proper fencing and guarding.
- Dyke will be provided for Fuel oil storage tanks.
- Wind socks will be installed to check the wind direction at the time of accident and accordingly persons may be diverted towards opposite direction of wind.
- Naked flame, welding etc. will not be permitted in fuel oil storage area.
- To prevent the hazard of static electricity and recirculation, lines to the storage tanks will be discharged below the liquid level.

7.3.2 Hazard Identification & Risk Assessment (HIRA)

It is carried for identification of undesirable events that can lead to a hazard, the analysis of hazard of this undesirable event, that could occur and usually the estimation of its extent, magnitude and likelihood of harmful effects.

HIRA Operation

In Conceptual & construction detailed design, Commissioning, on-going operation, decommissioning or demolition.

Procedure for HIRA

At each stage in the work life cycle, a review team questions process experts about possible hazards and judges the risk of any hazards that are identified. The results of the review process are typically documented in a worksheet from, which varies details, depending on the stage of the work and the evaluation method used. Risk studies on operating process are typically updated or revalidated on a regular basis.

HIRA Process

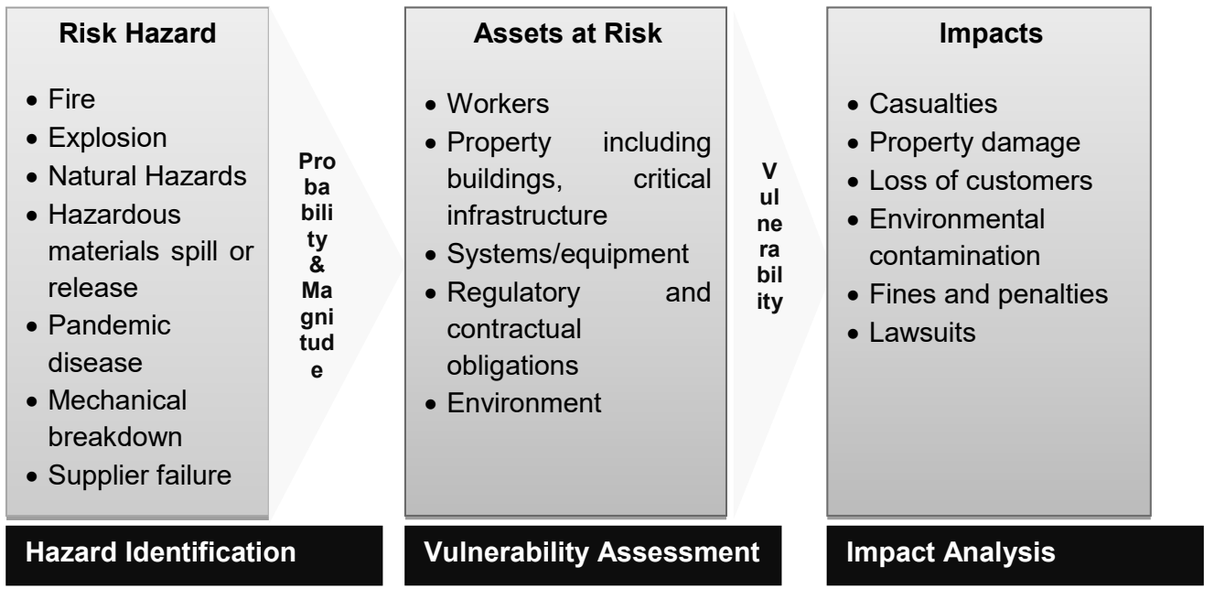


Fig. 7. 5- Risk Assessment & Mitigation process

Steps involved in Hazard identification and risk assessment:

Step 1: Identification of the Hazard

Hazard Identification is a critical step in Risk Analysis. Many aids are available, including experience, engineering codes, checklists, detailed process knowledge, equipment failure experience, hazard index techniques, What-if Analysis, Hazard and Operability (HAZOP) Studies, Failure Mode and Effects Analysis (FMEA), and Preliminary Hazard Analysis (PHA). In this phase all potential incidents are identified and tabulated. Site visit and study of operations and documents like drawings, process write-up etc are used for hazard identification.

Step 2: Assessment of the Risk

Consequence Estimation is the methodology used to determine the potential for damage or injury from specific incidents. A single incident can have many distinct incident outcomes. Likelihood assessment is the methodology used to estimate the frequency or probability of occurrence of an incident. Estimates may be obtained from historical incident data on failure frequencies or from failure sequence models, such as fault trees and event trees. Risks arising from the hazards are

evaluated for its tolerability to personnel, the facility and the environment. The acceptability of the estimated risk must then be judged based upon criteria appropriate to the particular situation.

Step 3: Elimination or Reduction of the Risk

This involves identifying opportunities to reduce the likelihood and/or consequence of an accident Where deemed to be necessary. Risk Assessment combines the consequences and likelihood of all incident outcomes from all selected incidents to provide a measure of risk. The risk of all selected incidents are individually estimated and summed to give an overall measure of risk. Risk-reduction measures include those to prevent incidents (i.e. reduce the likelihood of occurrence) to control incidents (i.e. limit the extent and duration of a hazardous event) and to mitigate the effects (i.e. reduce the consequences). Preventive measures, such as using inherently safer designs and ensuring asset integrity, should be used wherever practicable. In many cases, the measures to control and mitigate hazards and risks are simple and obvious and involve modifications to conform to standard practice.

The general hierarchy of risk reducing measures is:

- Prevention (by distance or design)
- Detection (e.g. fire and gas, Leak detection)
- Control (e.g. emergency shutdown and controlled depressurization)
- Mitigation (e.g. firefighting and passive fire protection)
- Emergency response (in case safety barriers fail)

The main objective of the Quantitative Risk Analysis (QRA) study is to identify the potential hazards, assess the effect/consequence of all probable accidental releases and risk mitigating measures to reduce hazards of the proposed facilities. The Quantitative Risk Analysis (QRA) study scheme is shown in **Fig. 7.6.**

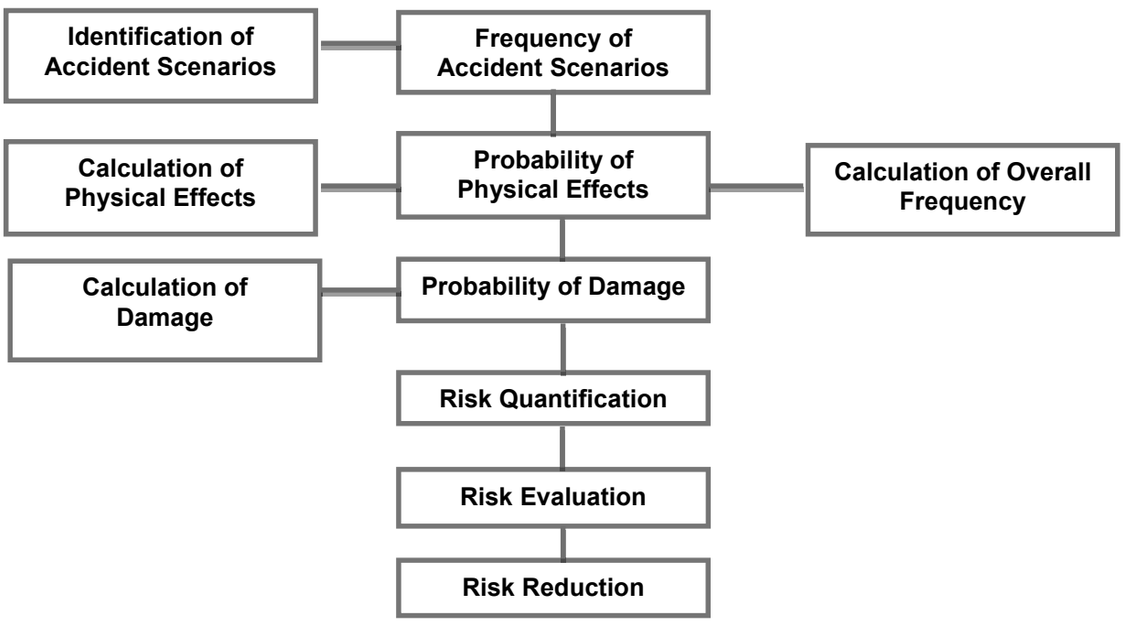


Fig. 7. 6- Flow chart of Quantitative Risk Analysis (QRA)

7.3.2.1 Process Hazard Analysis & Necessary Risk Control Measures

Table 7. 2- Risk Assessment in different phase with Control Measures

Construction Phase			
SL. No.	**Activities**	**Hazards**	**Risk Control Measures**
1.	**Site preparations**		
A.	Excavation work	Collapse without any warning	1. Excavation deeper than 2 m must be guarded by rails or barriers 2. Excavation work is inspected daily
B.	Crane Operation	Improper activities from crane operating	1. The weight of the load intended to be lifted by the crane must be carefully estimated 2. The crane must be fitted with an automatic safe load indicator 3. The crane must always work on a hard, level base 4. The load must be properly fixed and secured 5. The ropes, hooks, chains, slings etc. used in the lifting operations must be inspected regularly for their worn out.
C.	Electrical work	Shot-circuit through equipment's	1. Workers at the construction site understand the importance of electrical safety and recognize that abusing or misusing electrical equipment is an invitation to an accident. 2. The workers should also make sure that the work area is safe and free from all electrical hazards. 3. Provide necessary personal protective equipment in particular, electrical gloves & breathing apparatus.
Operational Phase			
SL. No.	**Equipment**	**Hazards**	**Risk Control Measures**

1.	Conveyors & Screens	Rotating parts of conveyor system, like head pulley, tail pulley, snub pulley, coupling guards etc.	1. Guarding of all rotating parts of conveyor system. 2. Pull chord in conveyors. 3. Emergency Switch.
		Spillage accumulation	1. Regular cleaning to be ensured 2. Engineering controls to be applied to arrest the spillage points
		Conveyor belt hazards/ Cleaning running conveyors	1. SOP (Standard Operating Procedures) for conveyor safety to be developed & followed strictly.
		Fall into raw material bins	Railings are provided around the bins
		Materials falling	Open-mesh walkways to prevent objects from falling through and causing injury to people.
		Releases of dust	1. Respiratory Protection dust mask. 2. Dust and fume collectors ESP/ multi-cyclone system
2.	Tramp Magnet	Electrical & Magnetic	Switch Off power before work.
3.	Charging bins/ Hoppers	1. Fine Dust 2. Electrical Drives 3. Noise 4. Confined space	1. Use of PPEs 2. Dust Extraction (DE) system 3. Guarding of all rotating parts of conveyor system 4. Pull chord in conveyors 5. Emergency switch 6. Display of Noise level at site 7. Adherence to electrical safety precautions.
4.	Ball Mill	1. Rotating Machineries 2. Confined space 3. Electrical Hazard 4. Noise	Adherence to shutdown system/ Permit to work (PTW) during maintenance

5.	Hot air generations	Fire and explosion	1. Training to employees on Operation and maintenance safety of Mechanical equipment's 2. Firefighting Engineering controls 3. Administrative (procedural) controls.
6.	Mixers	1. Rotating Machineries 2. Material	1. Guarding of all rotating parts 2. Use of Ear Plug
7.	Pelletizing disc	1. Rotating Machinery 2. Noise	Provide guarding
8.	Process Fans	1. Rotating Machineries 2. Confined space 3. Electrical hazard 4. Noise	Proper shutdown during maintenance
9.	Indurating Machine	1. Hot pellet 2. Conveyors 3. Rotating pulleys 4. Sox/NOx Generation 5. Fall from height 6. Pellet car loading 7. Contact with hot surface 8. Spillage (pellets) 9. Gas leakage	1. Training to employees on Operation and maintenance safety of Mechanical equipment's. 2. Guarding of rotator parts 3. Display of Hot area at site 4. Use of PPE 5. Adherence to electrical safety procedures 6. Proper care while loading of pellet cars 7. On-line gas detector on both sides of Indurating hood, portable gas detector 8. Ensure de-dusting suction Indurating machine discharge hood to avoid localized eating 9. Application of heat insulation at required places 10. House-keeping/cleaning of Indurating unit floors
10.	Rotary Kiln	Gas leakage	1. Installation on Online Gas monitor at strategic locations & use of Portable monitors to detect gas leakage. 2. Prohibition of unauthorized people going the kiln

			as there are chances of gas leakage. If at all, one needs to go, he should be accompanied a safety man with proper safety precautions under intimation to control room. 3. Training to employees on Operation and maintenance safety of Mechanical equipment's. 4. Guarding of rotator parts. 5. Display of Hot area at site.
		Shell Crack Corroded structure	Regular inspection & repair as per requirement.
		Fine Dust deposition	Installation of ESP & regular cleaning etc.
		Sound from Leakages	Plug the leakage points, use Ear Plugs
		Slip, Trip and fall hazards	Ensure proper housekeeping
		Material falling from height	1. Prevent materials or objects falling 2. Uses of appropriate PPE, such as helmets, Gloves, aprons and boots
		Fire and explosion	1. Fire fighting 2. Engineering controls & Administrative (procedural) controls.
11.	Annular Coolers	1. Rotating Machineries 2. Confined space 3. Electrical hazard 4. Noise	1. Proper shutdown during maintenance 2. Guarding of rotator parts
12.	Bucket elevators	1. Spillage accumulation 2. Water accumulation	1. Regular cleaning 2. Water draining system to be maintained 3. Regular inspection to be done 4. Conveyor belt hazards Development 5. Adherence to SOP
13.	Air Separators & Dust Collectors	1. Noise 2. Dust	1. Provide PPE 2. Improve housekeeping

1586

1586

		3. Slippery floor 4. Fall from height Hazard	3. Maintain work platforms 4. Provide adequate illumination 5. Monitoring working of dust disposal system from hoppers below dust collectors & corrective measures.
14.	Screen	1. Rotating machinery 2. Caught between rollers	1. Provide guards
15.	Thickeners and Agitators	1. Slippery floor 2. Fall from height Hazard 3. Water accumulation 4. Drowning Hazard	1. Provide PPE 2. Improve housekeeping 3. Maintain work platforms 4. Provide adequate illumination 5. Water draining system to be maintained. Regular inspection to be done
16.	ESP	1. Hot Flue Gas 2. Fine Hot dust 3. Electrical Transformers 4. High Electrical Voltages	1. Access Control 2. Use of dust mask 3. Monitoring working of dust disposal system from hoppers below dust collectors & corrective measures
17.	Main Step Down station/ Motor Control Center	1. Electrical Shock, 2. Electrical Flash, 3. Electrical Burn, Fire, 4. Slip/ Trip/ Fall, Hit/ Press/Cut hazard, 5. Fall of Person or materials from height etc.	1. Access Control 2. Use of PPE 3. Provide adequate illumination 4. Electrical Shock Charts 5. Emergency contact Numbers 6. Single line diagrams, First Aid Boxes
Others Events occur			
1.	Handling of Coal & Stock pile	• The coal will be received and stored in covered stockpile • The stock pile will be made in a way so that the wild strikes the width of stock pile and not the length. • Stacking in small heaps will be done and compacted in trapezoidal shape.	

		• Each stockpile should be segregated into various segments for 'first-in-first-out' practice • The stockpiles will be checked at least once per day for science of heating • Stationary sprinklers will be provided around coal stockyard area for suppression of coal dust as well as to prevent fire. • Fire hydrants will be provided around the coal stockyard for lighting off fire in case it happens.
Hazardous substance		
1.	Storage and Handling of Furnace Oil	• Personal protective equipment: Canister type gas mask, PVC or Rubber. Goggles giving complete protection to eyes. Eye was fountain with safety shower. • Do not expose to heat and naked lights, Keep containers and valves closed when not in use
3.	Transformer oil	• Personal protective equipment: Canister type gas mask, PVC or Rubber. Goggles giving complete protection to eyes. Eye was fountain with safety shower. • Do not expose to heat and naked lights, Keep containers and valves closed when not in use

1588

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7.3.2.2 Exposure to High Temperature

The principal exposures to heat in this sector occurs operation of pillarization in Rotary Kiln & PGP unit. Recommended prevention and control techniques include the following:

- Shielding surfaces where workers' proximity and close contact with hot equipment is expected,
- Using personal protective equipment (PPE), as needed (e.g. insulated gloves and shoes);
- Minimizing the work time required in high temperature environments by implementing shorter shifts at these locations.

7.3.2.3 Physical Hazards

Injuries during Project operation are typically related to slips, trips, and falls; contact with falling / moving objects; and lifting / over-exertion. Other injuries may occur due to contact with, or capture in, moving machinery (e.g. dump trucks, front loaders, forklifts). Activities related to maintenance of equipment, including fans, coolers, and belt conveyors, represent a significant source of exposure to physical hazards. Such hazards may include the following:

- Falling / impact with objects
- Hot surface burns
- Transportation
- Contact with allergic substances.

Management measures to prevent the physical hazards in the plant are as follows:

- Any person working on equipment with moving parts will personally ensure the equipment is de-energized, isolated and locked/tagged out.
- Any person doing flame welding, cutting or brazing in the proximity of any flammable material will use PPE.
- Safety helmets to be used to protect workers below against falling material.
- Barriers like a toe boards or mesh guards will be provided to prevent items from slipping or being knocked off the edge of a structure.
- An exclusion zone will be created beneath areas where work is taking place.
- Danger areas shall be clearly marked with suitable safety signs indicating that access is restricted to essential personnel wearing hard hats while the work is in progress. In case of any accident immediate and proper medical care shall be provided at the plant site.

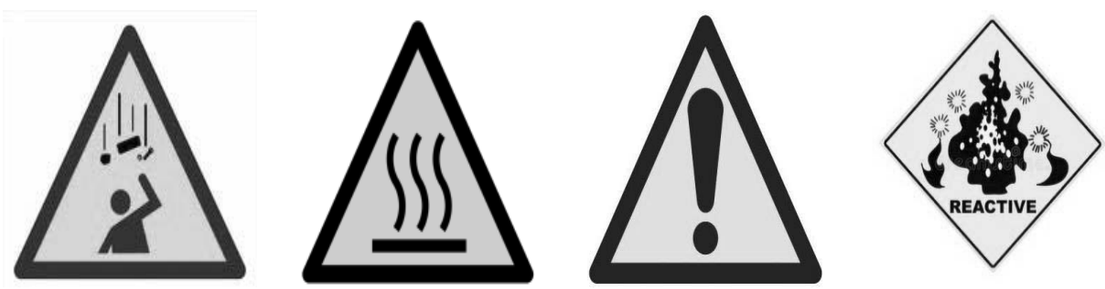


Fig. 7-7 – Hazard Signs

7.3.2.4 Risk analysis calculation

Risk Evaluation

Environmental risk assessment evaluates the quantitative and qualitative characteristics of the environment, in order to highlight the risk on environment and human health due to the potential presence or use of specific pollutants. Risk is a probability of an adverse direct or indirect effect, on the environment or human health. It is a combination of the probability of occurrence of an event and the possible extent of that event's adverse effects and consequences, in terms of adverse effects on the ecosystem and human injury.

Risk is defined as the probability of an event to occur, related to the seriousness and extent of its consequences. Risk is the determination of likelihood and severity of the credible accident/event sequences in order to determine magnitude and to priorities identified hazards.

Table 7. 3- The likelihood of occurrence & Severity of consequence

Likelihood(L)	Descriptions	Rating
Most likely	Expected in normal circumstances	5
Likely	Likely to occur in normal circumstances	4
Possible	May occur in normal circumstances	3
Unlikely	Remote chance of occurrence, but conceivable	2
Inconceivable	Not conceivable even in future	1
Severity (S)	Description	Rating
Catastrophic	Casualties, Major Damage, Losses to property (more than1000 Crores)	5
Major	Major injuries & Environmental damage, Losses to property(more than 100 Crores)	4
Moderate	Moderate injuries & Environmental damage, Losses toproperty (more than 10 Crores)	3
Minor	Minor injuries & some damage, Losses to property (> 1 Cr)	2
Insignificant	No injuries or damage, Losses to property (> 10 Lakhs)	1

For conducting qualitative Risk assessment using qualitative likelihood & severity as indicators, Risk Potential is calculated using the following formula and presented in form of a matrix below.

L x S= Risk Potential (R)

Likelihood (L)	Severity				
	1	2	3	4	5
5	5	10	18	20	28
4	4	8	12	16	20
3	3	6	9	12	16
2	2	4	6	8	10
1	1	2	3	4	5

The relative risk potential can be used to prioritize necessary actions to effectively manage hazards as per the risk value defined below:

Risk	Risk Priority	Action
15-25	High	Requires Immediate action
5-12	Medium	Requires planned approach for mitigation the risk
1-4	Low	No requirement of Immediate action but requires attention for attenuation to avoid future events

A summarized list of environmental risk potential for the likely events is presented in Table below:

Table 7. 4- Risk Potential of different likely events

Event	Nature of Hazard	Risk Ranking			Mitigation Measures
		L	S	RP	
Fire in LDO Tank	Fire	3	3	9	• Proper implementation of fire prevention methods and an appropriate firefighting service. • Maintain collection of data on accidents with a view to take corrective, remedial and preventive action. • Automatic fire detection- cum-
Fire in Furnace Oil Tank	Fire	4	3	12	
Fire in Transformer Oil Storage Tank	Fire	3	3	9	
Chemicals/Oil spillage	Corrosive	2	3	6	• Periodical inspection and testing to identify spillage. • Disaster Controller in plant to ensure inspection of affected areas to get first- hand knowledge of damages occurred.
Cloud burst/lightning	Fire	2	4	8	• Automatic fire detection- cum- alarm system shall be provided
Food poisoning	Health	3	3	9	• Facilities for immediate first aid.
Contamination by hazardous waste	Toxic	2	3	6	• Storage in containers over the concrete floor under- ventilated covered shed followed by sale to actual users having valid authorization from SPCB, Odisha.
Occurrence of fire	Fire	2	3	6	• Fire alarm & Foam based • Firefighting system

From the above table it can be concluded that there is a moderate risk potential associated with the activities.

7.3.2.5 Electrocution

Fatal Accident due to carelessness during working hours may lead to electrocution. Probable areas where chances prevail are enlisted in **Table-7.5.**

Table 7. 5- Possible Hazardous Locations onsite

Sl. No.	Hazardous Area	Likely Accident
1.	Electrical rooms	Fire and electrocution
2.	Transformer area	Fire and electrocution
3.	Cable tunnel	Fire and electrocution
4.	Storage yard	Sliding
5.	Pelletization unit	Fatal accident
6.	Chimney	Air pollution
7.	Coal/fuel storage area	Fire and spillage

7.3.2.6 NATURAL AND MANMADE CALAMITIES WHICH CAN LEAD TO EMERGENCY

A. Earthquake

The project site under Keonjhar district area falls under the seismic zone-II, which is the Low Damage Risk quake and may trigger in to a technological disaster, includes collapse of old structures, buildings leading to fire and explosion. Earthquake cannot usually be forecasted and therefore precautions immediately prior to such event are not usually possible. Apart from some of the counter-measures to be taken in foreseeable cases, emergency recovery plan has been considered by the emergency management team as per the situation and site conditions as follows:

Table 7. 6- Emergency recovery plan

Step	Activity	Action By
Preparedness	• Identify and constitute Emergency • Response Team • Identify ECC, if the identified ones are damaged • Control centers to be equipped with Communication facilities Emergency vehicles/ equipment • List of emergency contacts & suppliers • Medical facilities	Plant Key Person
Action during Effective period	• Do not panic. Raise alarm • Avoid standing near to windows, external walls • Stand near the columns or duck under sturdy furniture. • Assemble at emergency assembly point as there may be aftershocks	Individual(s)

B. Storm

The contingency actions during storm will be based on the weather forecasts obtained from meteorological stations and the local meteorological department. Some of the important actions to be carried out are as follows:

Prior to Storm

- Establish regular contact with the local meteorological department.
- Establish distances from storm in order to execute preparatory actions in a shorter time.
- Appraise the factory operations/installations and consider the consequences that the emergency might have on operations and personnel.
- Check the availability of tools, batteries, non-perishable foods and other materials that might be required.
- Review all operations carefully to ensure that systems in jeopardy are taken care of or shut down.
- Ensure the readiness of first aiders, emergency vehicles, medical Centre, medicines etc.
- Metallic sheets, loose materials, empty drums and other light objects shall be properly secured.
- Flush the drainage systems.

During Storm

- Remain calm.
- Do not go outdoors.
- Do not seal the office completely as the suction created by the difference in atmospheric pressure inside and outside can rip open a window or door by breaking window glass panes.

After the Storm

- Do not touch electric lines.
- Stay away from the disaster area.
- Take special precautions in driving vehicles since the under-pavement could cave in due to the weight of automobile.

C. Flood

High flood level data of last 29 years of river Baitarani at Champua location at 27 Km (NE) from project site collected from Baitarani Irrigation Division, Salpada. As per the data, maximum HFL is 378.95 m AMSL against site elevation of 419.5m to 422m AMSL.Thus, the project site will not be affected by any flood in the Baitarani River.

D. Air Raid

Air raid warning would be obtained from the District Emergency Authority or Defense Authorities, during which total blackout of the entire complex should be considered. Some of the contingency actions to be considered during an air raid are as follows:

- The Aviation Lights installed on highest point inside the factory should be switched off.

- All the lighting on the Streets should be put off.
- All the plant lighting should be put off.
- Brown curtains should be provided for all windows inside the building.
- Other emergency actions should be followed in addition as per the general procedure.

E. Food and Water Poisoning

Food and water poisoning to a number of persons, due to canteen food or other means, is another scenario which can leads to major emergency. In this case, Medical Officer should be informed immediately by the senior most person available at site and then to incident Controller(IC) and Site Main Controller (SMC). In such situation doctors will act and if situation demands additional help such as ambulances, doctors and medicine will be arranged from nearby factories and hospitals. For such situations SMC may decide whether siren is required to blow or not and arrange to inform key persons in the factory and if required set up Emergency Control Centre (ECC) at Hospital. Functional Head (FH) of HR should rush to ECC and assist SMC for informing nearby hospitals, doctors and govt. authorities in consultation with the doctor. Action plan to deal with food and water poisoning can be divided in following stages:

Table 7. 7- Action plan to deal with food and water poisoning

Step	Activity	Action By
Planning & Preparedness	• Maintain adequate inventory/ supply of medicines, saline water etc. and identify resources to obtain during emergency • Impart awareness training regarding food/ water poisoning	Medical Coordinator
Action during effective Period (Establish Emergency Control Center. Site Main Controller to direct all activities)	• Identify the contaminant source Seize contaminated material and keep out of circulation • Take preventive measures for avoiding recurrence • Inform all concerned Arrange to analyze samples Arrange alternate supplies • Arrange medical assistance to the	Site Main Controller, Medical coordinator and QC person
Action after effective Period	• Conduct detailed epidemiological investigation to identify the cause of contamination • Take appropriate preventive measures to avoid recurrence Follow up on causalities	Site Main Controller, Medical coordinator and HR

7.3.2.7 High Risk Categories and Preventive Measures

High Risk Categories and Preventive Measures are given in **Table -7.8.**

Table 7.8- High Risk Categories and Preventive Measures

High Risk Categories	Prevention
In- direct Causes	
Contractors	Contractor Safety Management
Young/Temporary Employees	Special Safety Induction Training
Direct Causes	
Traffic & Mobile Plant	Driver Training
Falls from Heights, Objects falling from Heights	✓ Safety Procedures for Work at Heights, ✓ Overhead Protection
Caught in Starting/Moving Equipment	Plant Isolation Procedures

7.3.2.8 Measures for Control of Occupational Health Hazards

- Dust Exposure level of shop floor workers is to be appropriately monitored.
- Check of the effectiveness of preventive and control measures on regular basis.
- Adequate supplies of potable drinking water are to be provided. Water supplied to areas of Plant food preparation or for the purpose of personal hygiene (washing or bathing) is to be according to drinking water quality standards.
- Where there is potential for exposure to harmful dusts, closed room arrangements are to be made for clean eating areas, where workers are not exposed to the hazardous or noxious substances.
- Periodic medical checks are to be performed on workers exposed to high noise levels.
- Provisions are to be made to provide OHS orientation training to all new employees to ensure that they are apprised of the basic site rules of work at / on the site and of personal protection and preventing injury to fellow employees.
- Contractors that have the technical capability to manage the occupational health and safety issues of their employees are to be hired, extending the application of the hazard management activities through formal procurement agreements.
- Ambulances and First aid treatment facilities are to be made available for any emergency situation.

7.4.3 Disaster Management Plan

7.4.3.1 Objective

Onsite Disaster management Plan objectives are-

- Provide necessary protective equipment, safety appliances e.g. safety helmet, goggles, welder's equipment for eye and face protection, earplugs, safety belt, hand gloves, safety shoes and clothing, and to ensure their proper use.
- Create awareness of employees about materials, equipment or processes used in their work, which are known to be potentially hazardous to health or safety.
- Keep all operations and methods of work under regular review for making necessary changes from the point of view of safety in the light of experience and up-to-date knowledge.
- Provide appropriate facilities for first aid and prompt treatment of injuries and illness.
- Proper implementation of fire prevention methods and an appropriate firefighting service.
- Maintain collection of data on accidents with a view to take corrective, remedial and preventive action.

Pre Emergency Preparedness Measures

Following emergency preparedness measures shall be implemented:

Internal Safety Audits

Internal safety audits will be conducted by a team specially formed for identification of various hazards during operation of proposed project and will check the following:

- Workability of personnel protective equipment's;
- Workability of various safety facilities available;
- Workability of firefighting facilities available;
- Workability of work permit system;
- Workability of maintenance system; etc.

7.4.3.2 Emergency Command Structure

Emergency command Structure as furnished below;

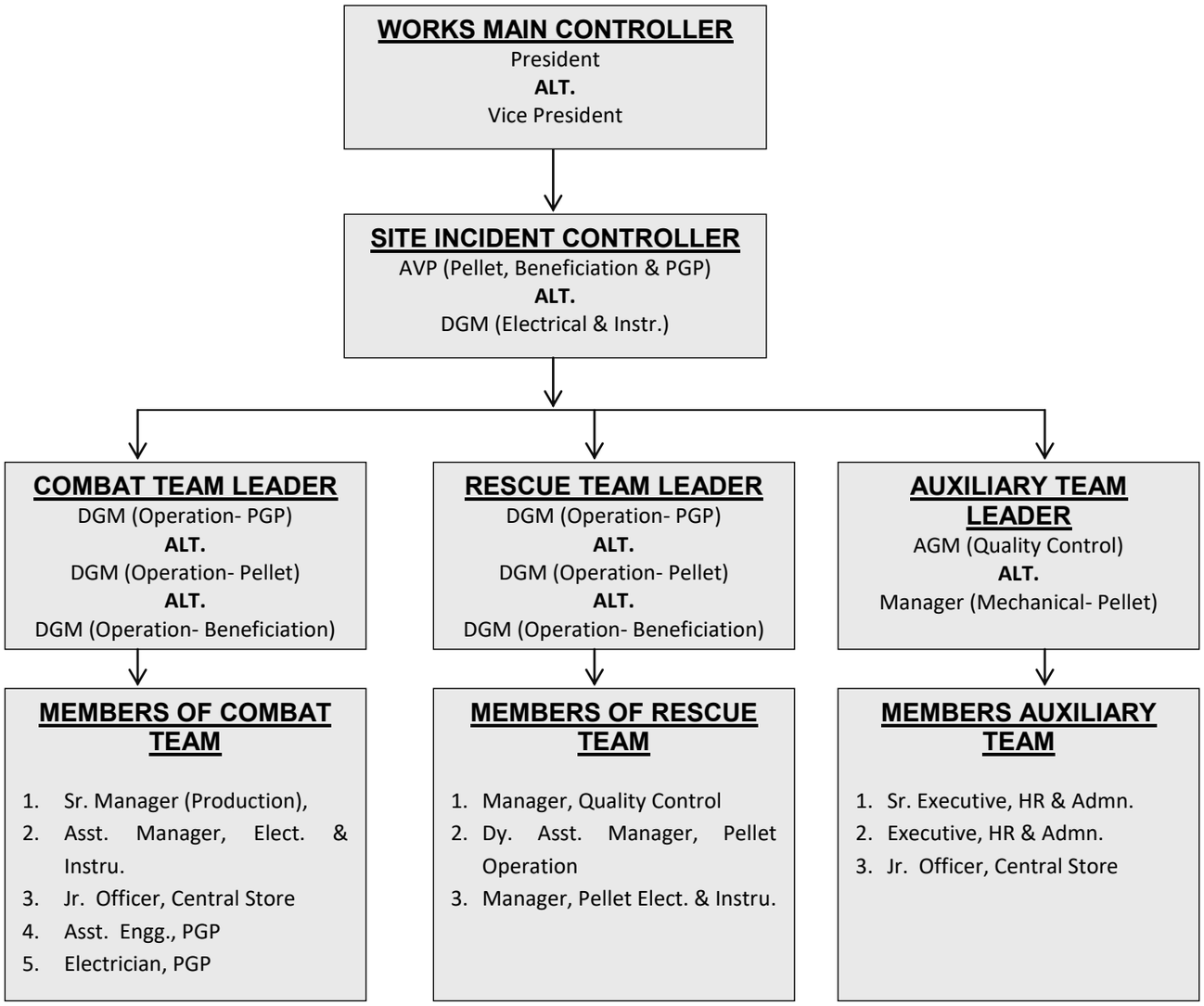


Fig. 7. 8- Emergency Command Structure

Role of Key Persons of Emergency command Structure

1. Works Main Controller (WMC)

- On being informed, rush to the Emergency Control Room and take overall charges of the situation
- Make quick assessment of the situation and decide declaration of emergency by blowing the siren in appropriate code (intermittent three times with half minutes interval)
- Make continuous review and assess the possible developments to determine the extent of damage to plant and human beings
- Ensure that casualties are receiving adequate attention
- Liaise with the fire services, police services and other statutory authorities

- Declare closure of the emergency by blowing the siren (only once long siren for 25 seconds)
- Issue the authorized statements to the media services
- Report all statutory authorities in the prescribed manned
- Communicate to employees about the mishap, measures taken and giving confidence to employees for avoiding recurrence of the incident by investigation and ordering preventive measures to be implemented

2. Site Incident Controller

- On hearing Emergency siren, rush to the scene and report to the works Main Controller
- Make quick assess about the gravity of the situation and appraises works main Controller
- Extend all sorts of help through different agencies to minimize the damage to human beings, plant, property and environment
- Report the development of the situation time to time to works Main Controller
- Provide the required information to the fire brigade team for fire fighting
- Preserve the evidences for the subsequent inquiries

3. Auxiliary Team Leader

- On hearing the emergency siren rush to the scene and report to the site incident controller
- Intimate statutory authorities over phone
- Intimate nearest Fire Station over phone
- Intimate mutual-aider over phone
- Keeps the first-aid and primary health center staff, equipment ready to take care of immediate medical needs
- Takes care of victims' family
- Make all arrangement like transport, other needs, arrange finance
- Ensure all casualties are shifted to hospital for medical treatment
- Keep records of casualties and provide information of the matter to works Main Controller

4. Auxiliary Team Members

- On hearing emergency sire, rush to the scene and report to the team leader
- Provide immediate first-aid treatment to the victims
- Ensure ambulance vehicle ready
- Coordinate with combat team, rescue team, statutory authorities and mutual-aid partners.

7.4.3.3 On-Site Emergency Control Plan (ECP)

Objectives of ECP are-

- Proper implementation of fire prevention methods and an appropriate firefighting service. Maintain collection of data on accidents with a view to take corrective, remedial and preventive action.
- Regular safety inspection by a competent person at suitable intervals of all buildings, equipment.
- Training to all occupiers for different type of emergencies.
- Periodic maintenance and checking of all equipment's.

Table 7. 9- Action taken for On-Site Emergency Control

SL. No.	Initiator	Action to Take
1.	The person noticing the emergency	• Inform the Security Gate and the concerned Shift-in- charge who in turn will inform works Main Controller immediately reading the fire hazard.
2.	Works Main Controller (WMC)	• Rush to Emergency site and observe the ongoing activities • Take stock of the situation in consultation with the SIC. • Move to Emergency Control Room • Take decision on declaration of emergency and ask for emergency wailing siren • Decide on declaration of normalcy of emergency after combating the situation • Ensure that the emergency operations are recorded chronologically
3.	Site Incident Controller (SIC)	• Rush to the emergency scene and take overall charges of the situation • Start firefighting operation with combat team • Shutdown the plant • Arrange to evacuate the unwanted persons and call for additional help • Time to time to pass information to the Works Main Controller (WMC) about the situation at site
4.	Combat Team	• To organize for trained personnel equipped with firefighting appliances and call for fire tender at the place of fire • To start combating, shutdown equipment's and taken steps to extinguish fire with fire fighting facilities • To find out the root cause of fire and to take necessary action for prevention of fire
5.	Rescue Team	• Shift the injured persons to hospital by ambulance after providing necessary first aid • To inform the Auxiliary Team Leader for necessary help from Mutual Aid Partners
6.	Auxiliary Team	• Inform about the emergency to Statutory Authorities depending upon the situation • Seek help of Mutual Aid Partners and Coordinate with Mutual Aid Partners to render their service if required • To take role call to find out the missing persons if any • Arrange to inform the relatives of Casualties • Take care of visit of the authorities to the Emergency Site
7.	Team Members	• Each of the team members should follow the instruction of concerned team leader to mitigate the emergency

The responsible officers of Disaster Control Group will assemble in the DCR and formulate control procedures as per the contingency plans. The functions of the various officers of the Disaster Control Group will be as follows:

Functions of Disaster Controller

- To declare "Disaster Emergency" after consulting the Sr. Officer available and inform Fire Station Control Room to sound the sirens accordingly and arrange to convey the message in public address system
- To report to DCR immediately.
- To receive messages from the communication Centre.
- To take decisions in consultation with the Commanding Officers of different services and convey them to the disaster point. - To be responsible for planning and provisions of assistance from township and from local authorities.
- To keep higher authorities informed about the situation.
- The decision of the Disaster Controller on any matter to meet the objective of disaster control plan will be final.

Functions of Officer In-charge:

Disaster Controller will nominate an officer whose functions will be as follows:

- To be responsible for the operation of DCR and for the dispatch of messages.
- To decide on the priority of dispatch of messages.
- To keep liaison with all activities and give up to date and accurate appreciation of the situation.
- To be responsible for the efficient organization of the Disaster Control Room.

Functions of Commanding Officers of various services:

- The Commanding Officers of various services are designated Coordinator (services), Coordinator (Operation) and Coordinator (external services).
- The following are their functions:
- To report to the Control Post immediately on hearing "Disaster Siren".
- To keep Disaster Controller posted with the up-to-date information regarding manpower and material available concerning their respective services.
- To advise Disaster Controller on all matters arising out of disaster.
- To assist Disaster Controller for provision of material and man power concerning his service.
- To convey message to his service teams through communication centre after consulting Disaster Controller.
- To consult between themselves on matters related to more than one service and to decide on the action to be taken.

Casualty services

The Commanding Officer of Casualty Services will be medical officer.

Functions:

- First aid service by first aid parties on the spot.
- Ambulance service for transport of casualties from the spot to township hospital and from township hospital to outside, if required.

7.4.3.4 Roles and Responsibility

A team of following Essential persons shall be taking necessary action during the event of emergency. The roles and responsibilities of these personnel are defined subsequently:

A. Head of the Department / Section In-charge or Incident Controller

- Quickly assess cause/source of the hazards and its effects.
- Discuss with the Site Controller and coordinate the necessary action required to control/contain the emergency situation.
- Continuously monitor the work of firefighting personnel and other persons engaged in the emergency actions so that all actions are carried out safely.

B. Site Controller –VP (Works)

- Responsible for the overall control of the emergency situation.
- Discuss with the Incident Controller about the situation and evaluate the Major Emergency situation. The initial assessment of the situation is done by the concerned HOD immediately after the incident happens.
  Ensure communication to the following authorities if necessary: -
- Fire Brigade
- Local Hospitals
- Civil Authorities
- Electricity Board
- Ensure communication to the neighboring industries of the incident, if required.
- Maintain a speculative continuous review of possible developments and assess these to determine most probable course of events.
- Ensure proper preservation of evidence for subsequent investigation. Inform the Company Officers at the Corporate Office.

C. Safety Officer

- Ensure overall safety of the Emergency Operations.
- Assist in controlling the Emergency.
- Keep Central Control Center (CCC) informed of the developments from time to time.
- Mobilize all available resources for controlling the incident.
- Help in carrying out search and rescue operations, if required.

D. Security Officer

- Ensure that unauthorized persons do not enter the emergency area.

- Ensure cordoning off the prohibited area.
- Ensure availability of the firefighting personnel.
- Act as per the instructions of the Incident Controller.

E. Process & Maintenance Personnel of Affected & Non-Affected Areas

- Persons of the unaffected area shall ensure the smooth operation of their own areas and shall not create a crowd at the emergency site. They are to extend their full co- operation to the staff fighting with the emergency, if the need arises.
- Persons of the affected area shall not create hue and cry and before arrival of the Security Staff, should initiate first aid action against the emergency. They shall extend help to the firefighting staff as per their requirement. The maintenance staff shall ensure availability of crane, gas cutting and welding facilities to meet any emergency requirement. The electrical staff shall ensure electrical isolation of the area, if required, and shall arrange emergency lights to lighten the area.
- Persons are to remove the materials from emergency area prone to fire / explosion etc.
- Conduct emergency control operations as per the instructions of the Incident Controller

F. Role of the Store Personnel

- The Store Department shall ensure that in emergency situation it is open to issue Personnel Protective Equipment (PPEs) and other materials required to tackle the emergency.

7.4.3.5 Evacuation Plan

A. General Building Evacuation Procedure

At recognition of Fire / hearing the shouting “Fire”, it is the responsibility of all building occupants to evacuate immediately and proceed to predetermined assembly points, away from the building. Building occupants are also responsible for ensuring that their visitors/customers follow the evacuation procedure described herein, and leave the building along with all other occupants. Designated essential personnel needed to continue or shut down critical operations, while an evacuation is underway, are responsible for recognizing and/or determining when to abandon the operation and evacuate themselves. Contract workers will be made familiar with the procedures outlined herein, and are expected to leave the building when the alarm sounds.

- **RELOCATE–** If it is safe to do so, Relocate people. Instruct others to report to their designated gathering areas. Be aware of persons who may need assistance.
- **ALARM –** Sought “FIRE” to alert all occupants. Move to a safe location. Call Security & Fire.
- **CONFINE-** Close all doors, windows and other openings to confine the fire, if this can be done safely.
- **EVACUATE -** Evacuate from building & assemble at assembly point.

B. Evacuation Instructions

On ringing of the building alarm or upon information of a general building emergency, following instructions are to be followed:

- Do not be panic.
- Do not ignore alarm.
- Leave the building immediately, in an orderly fashion.
- Follow quickest evacuation route from where you are (see posted floor evacuation diagram/map).
- Do not go back to your office area for any reason.
- Proceed to the designated emergency assembly point for your area. If the designated assembly point/area is unsafe or blocked due to the emergency, proceed to the alternate assembly point.
- Report to your Work Area Reporting officer at the assembly point to be checked off as having evacuated safely; also report any knowledge you may have of missing persons.
- Return to the building only after emergency officials or building monitors give the all-clear signal. Silencing the Alarm doesn't mean the emergency is over.

C. Emergency Evacuation Personnel

For the purpose of this Plan, Emergency Evacuation Personnel, and their alternates are regular employees who have been selected to ensure that building evacuation is carried out as planned, evacuated building occupants are directed to assigned assembly points where they will be accounted for, and persons needing assistance to evacuate are attended to. Building emergency evacuation personnel and their alternates shall be selected among building occupants and on a voluntary basis.

D. Third Party Survey/ Audit/ Study

The third party (i.e. external expert/ consultants) safety audit and study will be carried out, as and when required, to fulfill statutory obligations and also for the following:

- To study and re-identify various hazards associated with the premises;
- To check in-built safety systems for their adequacy;
- To suggest modifications/ additions in the system, if required; etc.

E. Safety/ Relief Valve Testing

- List of safety/ relief valves will be prepared and be readily available for reference;
- Periodical schedule for testing will be prepared & followed and records will be maintained; and
- Action plans will be made and implemented for repair and replacement of faulty or damaged materials.

F. Fire System Testing

- To prepare list of fire extinguishers and maintain record of the same;
- To prepare list of fire hydrants, fire system applications, fire pumps, water monitors, automatic fire alarms, smoke detectors and other available appliances and maintain a record of these;
- To draw testing schedules and record the findings;
- To replace/ modify defective equipment/ accessories;
- To periodically check fire pump capacities, delivery, pressure and auto–start/ stop systems; and
- To draw a schedule for testing the workability/ operability of the stand-by equipments, etc. used for fire fighting services.

7.4.3.6 Fire Fighting Equipment

All the fire extinguisher system will be controlled by the Security Department. Safety department will consist of qualified safety manager, safety officer and supporting staff.

- Portable fire extinguishers
- Fire Hydrant system
- Sprinkler system employed near fire prone areas
- Fire Buckets

Fire Extinguishers

Required types of fire extinguishers have been provided at different location of the plant as given below:

Table 7. 10- Location, Type & Capacity of Fire Extinguishers

S. No.	Location	Type	Capacity
1.	Mechanical Shop	Dry Chemical Powder	1 X 10 Kg
2.	Transformer Area	Dry Chemical Powder	1 X 10 Kg
3.	Panel Room	Dry Chemical Powder	1 X 10 Kg
4.	Electrical Control Room	CO_2 & Dry Chemical Powder	2 X 4.5 Kg & 1 X 10 Kg
5.	DG Room	Dry Chemical Powder	1 X 10 Kg
6.	Near Diesel Tank	Mechanical Foam	1 X 50 Liters
7.	Store	Dry Chemical Powder	1 X 10 Kg
8.	Work Shop	Dry Chemical Powder	1 X 10 Kg
9.	Gas Plant	Dry Chemical Powder	1 X 10 Kg
10.	Weigh Bridge	Dry Chemical Powder	1 X 10 Kg
11.	Diesel Filling station	Dry Chemical Powder	1 X 10 Kg
12.	Cooler Area	Dry Chemical Powder	1 X 10 Kg
13.	TG Kiln	Dry Chemical Powder	1 X 10 Kg
14.	Balling Disc	Dry Chemical Powder	1 X 10 Kg

Fire Buckets

Table 7. 11- Location& Numbers of Fire buckets

SL. No.	Location	Number
1.	Pellet Division	05
2.	132/ 33 KVA Sub-station	06
3.	HR & ADMN	03
4.	Central Stores	03
5.	Storage Lubricant Area	03
6.	PGP Office area	02

Fire Hydrant System

No. of Fire Hydrant Point: 5 Nos.
Size of the fire hydrant hose 06 inch

Fire Hydrant line pressure 07 Kg/cm^2

PPE (Personal Protective Equipment's) on Emergency

No. of Safety Helmets : 150 Nos.
No. of Safety Shoes : 150 Nos.
No. of Safety Self Breathing Apparatus : 10 Nos.
No. of Safety Showers : 15 Nos.
No. of Fire Jacket : Adequate no. Fire Jacket at each location.

7.4.3.7 Alarm System

A siren (with 5 km range) is provided under the control of time office in the plant premises to give warning. The warning signal for emergency follows:

- Emergency Siren: Intermittent three times with half minute interval
- Normal Factory siren: Continuous for 30 Secs
- All clear signal: Continuous for 3 Mins.

7.4.3.8 First Aid

First aid Centre with adequate facilities are provided. It is to be maintained round the clock by a compounder cum dresser and a doctor. An ambulance is to be made available for emergency scenario. It is to be used at site to carry affected people to hospital.

7.4.3.9 Mock Drill

As per the Industrial Major Accident Hazard Rules,

- The plant is to ensure that a mock drill of the on-site emergency plan is conducted every six months.
- A detail report of the mock drill conducted is to be made immediately available to all the concerned authority
- Onsite disaster mock drills are conducted once in six months.
- Also, Major Fire and Minor Fire mock drills are conducted once in three months and one month respectively.

Training

- On job training to the engineers on various stages of risk analysis and preparedness during emergency to reflect in the operation of terminal, especially from the safety stand point. The fire teams belonging to the firefighting department are to be intensively trained for the use of all equipment and in various firefighting methods for handling different types of fires.

7.4.3.10 Off-Site Emergency Planning

The main objectives of the off-site emergency plan are:-

- To save lives and injuries.
- To prevent or reduce property losses and
- To provide for quick resumption of normal situation or operation.

The off-site emergency plan is an integral part of any hazard control system. It is based on those accidents identified by the works management, which could affect people and the environment outside the works. Thus, the off-site plan follows logically from the analysis that took place to provide the basis for the on-site plan and the two plans therefore complement each other. The roles of the various parties that may be involved in the implementation of an off-site plan are described below. The responsibility for the off-site plan will be likely to rest either with the works management or with the local authority. Schematic representation of various organization involved during emergency is shown below in **Fig. 7.9.** Either way, the plan must identify an emergency coordinating officer who would take overall command of the off-site activities. Consideration of evacuation may include the following factors:

- In the case of a major fire but without explosion risk (e.g. an oil storage tank), only houses close to the fire are likely to need evacuation.
- If fire is escalating very fast, it is necessary to evacuate people nearby as soon as possible.
- In acute emergency people are advised to stay indoors and shield themselves from the fire.

District Disaster Management Plan will be linked to the plant disaster management.

7.4.3.11 Organization

The off-site emergency plan is an integral part of any major hazard control system. It is based on those accidents identified by the works management, which could affect people and the environment outside the works. Thus, the off-site plan follows logically after on-site plan and the two plans therefore should complement each other. The key feature of a good off-site emergency plan is flexibility in its application to emergencies other than those specifically included in the formation of the plan. The roles of the various parties that may be involved in the implementation of an off-site plan are described in this section. The responsibility for the off-site plan is likely to rest either with the works management or with the local authority.

Some of the aspects included in off-site emergency plan are as follows:

- Organizational details of command structure, warning systems, implementation procedures, emergency control centers include name and appointments of incident controller, site main controller, their deputies and other key personnel involved during emergency has been given in

Communications

- Identification of personnel involved, communication center, call signs, network, list of telephone numbers.

Special emergency equipment

- Details of availability and location of heavy lifting gear, bulldozers, specified firefighting equipment, fireboats.

Voluntary Organizations

- Details of organizers, telephone numbers, resources, etc.

Meteorological information

- Arrangements for obtaining details of weather conditions prevailing at the time and weather forecasts. The Environment Department will coordinate the same.

Humanitarian arrangements

- Transport, evacuation centers, emergency feeding, treatment of injured, first aid, ambulances, temporary mortuaries.

Public information

- Arrangements for dealing with the media-press office and informing relatives etc.

Assessment of effectiveness of the emergency plan

- Arrangements for collecting information on the causes of the emergency, reviewing the efficiency and effectiveness of all aspects of the emergency plan.

Role of the emergency co-coordinating officer

- The various emergency services shall be coordinated by an emergency coordinating officer (ECO).
- The ECO will liaise closely with the site main controller. Again depending on local arrangements, for very severe incidents with major or prolonged off-site consequences, the external control will be passed to a senior authority/ administrator.

Role of major hazard works management

- The role of works management in off-site emergency planning is to establish liaison with those preparing the plans and to provide information appropriate to such plans. Information will be provided by works management to all the outside organizations, which involve in handling the emergency off-site and which are familiarized with the technical aspects of the works activities, e.g. emergency services, medical departments etc.

Role of the Fire Extinction authorities

- The control of a fire is normally the responsibility of the senior fire brigade officer, on arrival at the site. The senior fire brigade officer also has a similar responsibility for other events, such as explosions and toxic releases. Fire authorities get familiarized with the location on site of all stores of flammable materials, water and foam supply point and fire-fighting equipment.

Role of the health authorities

- Health authorities, including doctors, surgeons, hospitals, ambulances and so on, have a vital part to play, following a major accident and they form an integral part of any emergency plan. For major fires, injuries will be the result of the effects of thermal radiation to a varying degree and the knowledge and experience to handle this is essential for all available nearby hospitals.

Role of the Government safety authority

- The factory inspector will visit and may check off-site plan and the arrangements made for handling all types of emergencies including major emergencies. The advice of factory inspector to be incorporated from time to time. The Disaster /Emergency Management Policy in the above lines shall be prepared.

Role of Police

The police may assist in controlling of the accident site, organizing evacuation and removing of any seriously injured people to hospitals:

- Co-ordination with the transport authorities and home guards
- Co-ordination with state fire services
- Arrange for post mortem of dead bodies
- Establish communication center with easy contact with ECC.

Role of Fire brigade

The fire brigade is to be organized to put out fires and provide assistance as required during emergency.

Role of Media

The media should have ready and continuous access to designated officials with relevant information, as well as to other sources in order to provide essential and accurate information to public throughout the emergency and to avoid commotion and confusion.

- Efforts are made to check the clarity and reliability of information as it becomes available, and before it is communicated to public.
- Public health authorities are consulted when issuing statements to the media concerning health aspects of any material/ chemical.
- Members of the media are to facilitate response efforts by providing means for informing the public with credible information about accidents involving hazardous substances.

Role of Health Care authorities

Hospitals and doctors must be ready to treat all type of injuries to causalities during emergency.

- Co-ordinate the activities of Primary Health Centers and Municipal Dispensaries to ensure required quantities of drugs and equipment’s.

- Securing assistance of medical and paramedical personnel from nearby hospitals/institutions.

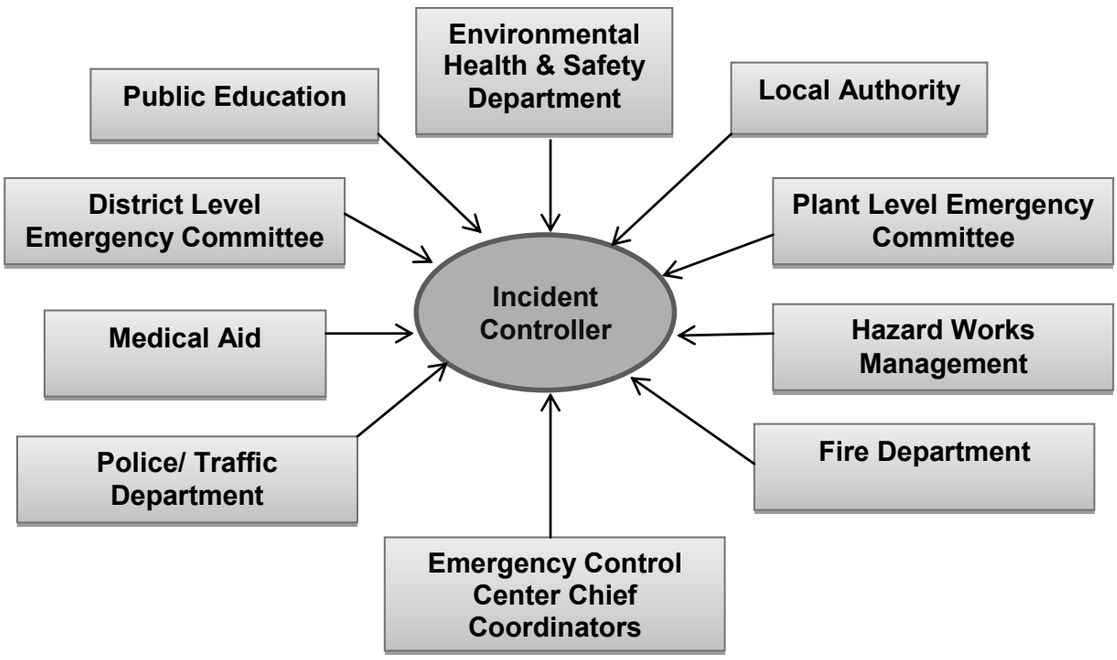


Fig. 7.9- Various Organizations Involved During Emergency

7.5 Occupational Health Study

7.5.1 Expected Occupational Hazards

Storage and Handling of Light Diesel Oil (LDO)-

- Impact- Fire may occur in case of direct contact with flame, heat or spark
- LDO is a flammable liquid as per schedule-1, Part-II (b) (v) having flash point of 52 º Celsius and auto ignition temperature of 257 º Celsius and explosive limit of 5-7% volume in air.

Storage and Handling of Furnace Oil (FO)

- Impact- Fire may occur in case of direct contact with flame, heat or spark.
- FO is flammable liquid as per schedule 1, Part – II (b) (v) having flash point of 66 degree Celsius and auto ignition temperature of 256º Celsius and explosive limit of 5-7% volume in air.

Transformer Oil in MRSS

- Impact- Fire may occur in case of electrical voltage surging / Fault/ short circuit.
- Transformer Oil is a less flammable liquid. Besides National Fire Prevention Association (NFPA) Flammability class is not applicable for this material as per its Material safety data sheet.

7.5.2 Hazards for Workmen from the Raw Material

- Physical activity like carrying raw materials from one place to another

- Dehydration
- Skin disorders
  - Dust Exposure
  - Noise

7.5.3 Hazards for workmen from process

Hazards may occur from various process-

- Storage & handling
- Balling, Induration and Cooling
- Finished Product Storage

7.6 Discussions & Recommendations for Prevention of Health Impacts

7.6.1 Pre-Employment Health Checkup & Schedule

Industrial Process	Examples of Jobs	Medical Examinations	Frequency of Examinations
Construction			
Site, decoration and maintenance work (exposure to noise)	• Renovation worker • Maintenance worker • Bar bender & fixer • Bricklayer • Leveller • Plumber • Carpenter • Metal worker • Pilling operator	• General examination, audiometric test.	• Once every 12 months (>90dB (A)) • Once every 24 months (85-8 dB(A))
Site work (exposure to dust and Noise)	• Driller/ Borer • Excavator • Earthmoving machinery • Operator • Concreter • Compressed air worker • Asphalter	• General examination chest X-ray • Audiometric test	• Once every 12 months (>90dB (A)) • Once every 24 months (85-8 dB(A))
Welding	• Welder	• General examination blood test/urine test • Audiometric test	• Once every 12 months (For worker exposed to lead- once every 6 months) • Once every 12 months (>90 dB (A)) • Once every 12 months (>90 dB (A)) • Once every 24

			months (85-89 dB(A))

7.6.2 Post-Employment Health Checkup & Schedule

Post-employment checkups are usually basic screening tests which gives a broad assessment of the worker's health status. Usually they include the following test, though such as-

1. Laboratory Investigations
   - ✓ Complete Blood Count
   - ✓ Blood Sugar Test (usually fasting)
   - ✓ Urine Routine & Microscopy
   - ✓ Blood Group & Rh Factor
2. X-Ray Chest
3. ECG
4. Lipid Profile
5. Kidney function test
6. Liver function test
7. Optional tests
   - ✓ HIV
   - ✓ HBsAg (Hepatitis)

Entry Medical Examination Format is attached as **Annexure- 22**.
Health Record will be maintained periodically and the format is attached as attached **Annexure- 23**.

Other Facilities of works:

- Pre-medical examination of all new joinee as per statutory provision.
- Providing Hygienic canteen and drinking water for all employees.
- Health checkup records shall be maintained for 5 years for reference purpose and further necessary.
- Educating worker or person about any hazard in the work and training is being given to that worker for handling, storage, use, disposal and transport of any equipment, substances, tools, materials etc.
- Taking every precaution reasonable in the circumstances for the protection of a worker. A Safety Committee is constituted for emergency purposes headed by the factory manager.
- The cost of tests and treatment of occupational illness is being borne by the company and the medical allowance shall be given for the non-occupational illness as per the pay structure and norms of compensation set by labor department.
- A corpus fund for compensation in case of injury or loss of life shall be maintained separately.
- Adopted proven safe technology and strive at all times for up-gradation of safety and health standards,
- Continuously monitor and improve working conditions to prevent ill health & injury. Formulate safe operating procedures (SOP) and standard maintenance procedure (SMP) for different processes to provide and sustain a healthy working environment.
- Comply with all the prevailing statutory rules and regulations in force in respect with safety and health of workers,

- Develop among persons under the control of the organization an awareness of occupational health & safety responsibility and adherence to safe work practices.

7.6.3 Measures for maintaining Occupational Health Safety (OHS)

The overall objective of the company will be to provide a system that is capable of delivering healthy and safe workplace. Following measures will be adopted for implementation of OHS standards.

- Annual contract with Occupational Health Centre with adequate paramedical staff
- Routine and special investigation related to occupational health
- Health surveillance and maintenance of health record
- Rules and procedure for effective implementation of Safety, Health and Environment policy and made to know all employees
- Round the clock Ambulance facility
- Sufficient number of First aid boxes
- Implementation of OHSAS 18001 for OHS Management System
- Implementation of ISO 14001 for Environment Management System
- Formulation of OHS implementation team/ cell
- Risk assessment of each and every activity
- Implementation of OHS management program
- Training, awareness program and work place talk
- Displaying the safety and health policy and instructions at various locations
- Display of safe operating procedure (SOP) at various locations
- Job safety analysis
- Carry out daily plant safety inspection by internal safety department
- Investigation of fatal, serious accidents and near miss accident- Investigation of reports of occupational diseases
- Monthly safety meeting of all employees and workers to discuss last month accident if any, reason and corrective measures taken
- Organize campaigns, competitions, contests etc. to promote safety
- Organize safety training, seminars for safe working and safe vehicle and traffic movement within the plant premises and regular training for safe driving outside the plant premises
- Prepare annual reports of accidents and occupational diseases. Preparation and updating of Onsite Emergency Plan
- Ensure use of PPEs according to the job like helmet, safety shoes, goggle, dust mask, ear plug and hand gloves etc.
- Display Material Safety Data Sheets (MSDS) for use of every hazardous substance
- There shall be a proper exhaust/ventilation system specifically in the raw material handling, grinding and product handling areas to ensure proper maintenance of Temperature and Ambient air. This facility may also be extended to the other areas of the plan.

7.7 Carbon Foot Print study

7.7.1 Aims and Objective

The aim is to quantify and analyse the carbon emissions in a manufacturing process all the stages i.e., material transportation, fuel consumption in production process and transportation and other associated activities.

- To study Carbon Emission of manufacturing phase,
- Daily energy demand and peak demand,
- The functions of the product system or, in the case of comparative studies,
- To set a system boundary for calculating the carbon footprint,
- Assumptions to be made.
- Carbon sequestering and Carbon arrest.

7.7.2 Methodology

The increasing concentration of GHGs in the atmosphere can accelerate climate change and global warming, it is very necessary to measure these emissions from our day-to-day activities. These steps include:

- For the calculation of CFP from different sources, data was gathered and tabulated. Calculating Carbon Footprint from Mobile Sources was undertaken by identifying the modes of transportation: Bicycle, Bus, motorbikes, and Car. The fuel used for these modes of transportation is Diesel and Petrol. The total number of workers is 280 and the approximate fuel consumption will be about 12.3 KL per Annum. The total CO2-e emission is calculated to be 38 Tons/year.
- Carbon Footprint from Waste Sources was assumed by identifying the sources of waste generated. Waste is generated in the form of Solid/Metal Waste, Organic waste, Plastic waste, C & D waste, Biomedical Waste, and E-Waste. The total quantity of waste generated is 57 Tons/Annum.
- Carbon footprint for Power Sources is calculated by identifying the sources of Power. Power of 12 MW/hr will be sourced from nearest GRID (WESCO) and the CO2-e emission is calculated to be 3,247 Tons/year.
- The calculation was assumed by identifying the types of Stationary sources. DG set of 750 KVA is used. Diesel is used as fuel with a quantity of 70 KL/Annum.

Carbon emission is calculated using the empirical formula including the emission factor as described in IPCC and INCCA Report 2007.

7.7.3 CFP as per ISO 14064

- ISO 14064 is a standard developed under processes of the International Standards Organization.
- ISO 14064 is an international standard for carbon emissions reporting.
- It builds on the approach outlined in the Greenhouse Gas Protocol.
- ISO 14064, ISO14067, PAS 2050 or GHG Protocol.

GHG Emission Calculation

GHG Emissions are calculated under 3 categories:

SCOPE-1

•Direct GHG emissions occurring from sources that are owned or controlled by the Company

SCOPE-2

•GHG emissions from the generation of purchased electricity consumed by the company

SCOPE-3

•All other indirect emissions which are optional in terms of reporting are considered under this category. the emissions under scope 3 would include the greenhouse gas emission from raw material transport to the factory, finished product transport from the factor, foreign business travels of employees, feed waste and water supply from the national supply etc.

7.7.3 Result based on data collection and inventory calculation in different scope

The cumulative CO2e emission in Tons per year is presented below from the individual Scopes.

Scope	TCO_2e/Annum
Scope-1	2,34,388
Scope-2	77,933
Scope-3	9,456
TOTAL	**3,21,777**

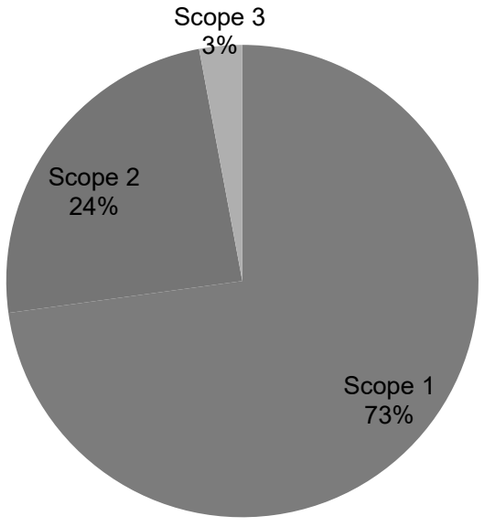


Fig. 7.10 - Gross CO_2e Emission

7.7.4 Carbon Sequestration Scheme

Net Emission

Carbon sequestration can be performed by tree plantation and indirectly the power consumption from the GRID can be reduced by utilizing the Solar Energy. The details are given in Carbon Foot Print Study Report attached as **Annexure- 26**.

So, the net emission can be interpreted as follows:

Sr. No.	Activity	Quantity (TCO_2e)
1	Gross Emission	321777
2	Carbon Sequestration by Plantation	871
3	Carbon Sequestration by Renewable Energy(Solar)	3247
	Net Emission	**317659**

7.7.5 Conclusion & Recommendations

Calculating and analyzing the carbon footprints of the M/s. KAI International Pvt. Limited has proven to be an informative and valuable exercise. We now have a granular understanding of the specific factors that contribute to overall carbon emissions. Based on the above report the net result of carbon emission is **317659** TCO_2e per year. In which from total carbon emission per annum in fuel consumption is 234383 TCO2e, Power sourcing 77933 TCO2e, waste production & Paper Consumption 7.03 TCO2e, and from material transport it is 9420 TCO2e. However, it must be stressed that the carbon footprints in this report capture the carbon emissions from the investment holdings in the KAI on annual basis, we will gain an understanding of the trend in the results, but it may take many years before any conclusions can be drawn. At the same time based on carbon

sequestration rate from the proposed green belt plan it is estimated that total carbon sequestrated is 3070 Tons from total 25000 (21700 effectively) trees in 5 years growth and energy saving through the solar energy utilization it is 3247 Tons from 500 KW solar panel.

Now, looking to the future, we expect that the availability and quality of emissions data will continue to improve, enabling better carbon footprint estimates in the future. We're also hopeful that reporting methodologies will become more standardized globally; we will monitor evolving best practices and adjust our reporting accordingly. This Carbon Footprint Report is just one initiative among many that KAI has undertaken as we pursue our commitment to responsible investing.

Recommendation for achieve the goal of Glasgow COP26:

In order to check the GHG emissions we are proposing the below mentioned points that we would like to adopt during the operational Phase of our plant.

- During the Monsoon period Rain Water Harvesting has been proposed which will save 330 kg/Annum CO2e emission as pumping of surface water from Baitarani will be reduced by this much.
- Use of electric vehicles inside the plant premise will reduce the Fossil Fuel consumption.
- While opting for instrument always state of art technology will be chosen for example all motor vehicles will be of BS-VI model.
- Awareness program to save Water & Energy inside as well as in the close proximity of the plant will be arranged periodically.
- Increase Scrap Utilization scheme.

CHAPTER- 8
PROJECT BENEFITS

8.1 INTRODUCTION

All industrial projects have both positive and negative effects on the environment due to its various construction and operational activities. This chapter highlights and focuses on those points which shall become beneficial to the surrounding area and community in terms of infrastructural and social development, boosting employment and other benefits.

8.2 BENEFITS OF THE PROJECTS

- Proposed unit shall fill the gap between demand and supply of desired products.
- Socio-economic benefit to the locals as it would provide both direct employment and indirect employment
- Job opportunities shall be generated during construction and operation of the plant (Increasing business opportunities for local people).
- Medical assistance to the local residing near to project site.
- Basic infrastructure development in the local area.
- This will contribute in achieving National Steel Production capacity targets. This will also improve the revenue generation for the Central and State exchequer.

8.3 IMPOVEMENT IN PHYSICAL INFRASTRUCTURE

Considering the discussion and demand of the people during the public hearing, it can be concluded that nearby schools shall be taken-up as Transformational Project; Dispensary shall be established with an Ambulance; Plantation and Rain Water Harvesting and appropriate drinking water facilities shall come up within the villages in Study Area as Physical infrastructure.

Road and power network in the area is expected to be strengthened as a sequel to industrial development around. Drinking Water facilities will be provided in the nearby villages and Community Centre will also be developed.

8.4 IMPROVEMENT IN SOCIAL INFRASTRUCTURE

M/s. KIPL has been aware of and concerned about the health and safety of not only its own employees and their families but also about the ecology and issues affecting society around M/s. KIPL and its stakeholders. As a corporate citizen it has always been the Endeavour of M/s. KIPL to take effective steps to tackle all these issues. The proposed project is expected to yield a positive impact on the socioeconomic environment. It shall help in sustainable development of this area including further development of physical Infrastructural facilities. The following physical infrastructure facilities will improve due to proposed project:

- Promoting Education
- Strengthening health care services

- Drinking water Facilities
- Environment (Plantation & Rain water Harvesting through Recharge)
- Livelihood (Income generation & Community Development)

Considering the Socio-economic data, the impacts are being depicted in both positive and negative forms. However, KIPL's initiatives are duly mentioned which shall strengthen the Socio-economic development of the area.

8.5 EMPLOYEMNT POTENTIAL- SKILLED; SEMI-SKILLED AND UNSKILLED

Employment Potential

The Governments always give major emphasis on the employment generation and social upliftment while sanctioning any project in their state. The proposed plant at Lahunipada Tehsil is also a result of such phenomenon. Employment is generated directly in the project while others are related with its associated activities. The employment in both these areas involves employment of two kinds of people viz. skilled and semi-skilled as well as unskilled labour force. These two types of employment are discussed below:

Skilled and Semi-skilled

There will be approximately 89 direct and above 150 indirect skilled & semi-skilled employment will be there. Over the years KAI has caused generation of income and employment opportunities the ancillaries and service units which came in the vicinity of the steel plant, specifically, in mining, ancillary, transport and manufacturing sectors. As also indicated in **Table 8.1** shows manpower requirement of the proposed project. Overall assessment of the employment and income effects indicates that the project has strong positive direct as well as indirect impact on employment and income generation of the area.

Un-Skilled:

Unemployment for un-skilled workers is quite common in the study area. However, KIPL has taken a major drive as social welfare initiative to impart training for developing technical skills of the villagers for enhancing economic strength. The proposed project has employment generation potential by way of recruiting local people directly for different activities of the project, specifically in the construction phase. It is expected that substantial portion of the investment in this project will trickle down to the local people in the form of employment and income.

Total number of workers (both marginal and main workers) will be raised, which indicates a rise in employment opportunities in and around the area of both temporary as well as permanent nature. The proposed Project of KIPL shall generate permanent employment opportunities of 220 people. However, other temporary construction workers will also be required, which will be sourced locally.

Table 8.1- Manpower Requirement

	Sr. Managerial	Middle & Junior Managerial	Services	Skilled & semiskilled	Unskilled
Beneficiation Plant	2	2	8	28	38
Pellet plant	2	2	8	32	43
Laboratory		1	2	5	9
Power distribution		1	2	4	38
Purchase & Stores		2	2	5	12
Finance & Accounts	1	1	2	10	1
Human Resources		1	2	3	2
Administration	1	2	2	2	2
Total	**6**	**12**	**28**	**89**	**145**
	280 (Direct)				
Indirect	**220**				

Source: KAI

Ecological Benefits

The proposed project will be established in the proposed land where no major habitation area is present. There are no national parks Wildlife Sanctuaries, Biosphere Reserves are present within 10 km radius. However, few reserved forest are present within the study area which are listed below.

Table 8.2- List of RF/PF within Study Area

Name of the RF, PRF, PF, etc.	Distance (km) & Direction
Kukia RF	0.12 km(NW)
Dhenkiam RF	2.6 km (W)
Nalghati Rajabasa RF	3.3 km (SW)
Dhenkiam Block RF	3.74 km (NW)
Bhagoth RF	6.68 km (SSW)
Dhanaghar Extension RF	6.9 km (NNE)
Gurundia RF	7.92 km (SW)

Conservation plan for the protection of Forest patches has been prepared and approved by Office of the Divisional Forest Officer Cum Wildlife Warden Rourkela Forest Division, Rourkela, Sundargarh, Odisha vide memo no. 7843/ 4F (misc.)/ Dtd. 20.09.2022 and the same has been attached as **Annexure- 20.**

Apart that Wildlife conservation plan for the Schedule- I fauna has been prepared and approved by Office of the Divisional Forest Officer Cum Wildlife Warden Rourkela Forest Division, Rourkela, Sundargarh, Odisha vide memo no. 7846/ 4F (misc.)/ Dtd. 20.09.2022 and the same has been

attached as **Annexure- 19.**

8.6 PERIPHERAL DEVELOPMENT ACTIVITIES

KAI International Pvt. Ltd. has identified certain areas, to be considered for imparting the peripheral development activities in the form of Public hearing compliance in the context of the local scenario of the area. The company fully understands and acknowledges that better education and health care facilities, road infrastructure and skill development are basic social amenities for better living standard of any human being. The above activities shall be initiated either by providing or by improving the facilities in the area, which will help in uplifting the living standards of social communities. Details of the proposed activities under Public hearing compliance has been discussed in **Chapter- 7 Section- 7.1.1** in this report.

Monitoring and Evaluation:

The monitoring and evaluation of the work proposed by the company shall be monitored through its dedicated staff engaged in the Admin Dept. Regular progress report of the activities of the work undertaken by the company shall be prepared and presented to the top management of the company for review. The team will review the progress of work on weekly basis. A monthly review meeting shall be held under the Plant head. Apart from this, the company will get monitoring and evaluation of the work proposed to be undertaken by a reputed external agency.

8.7 CONCLUSION

The company will generate a fair amount of direct and indirect employment in the study area. The local economy will receive a boost due to employment generated by the proposed project. The overall effect will help in improving the standard of living viz. better education, improved health and sanitation facilities, housing etc. This is envisaged as a major positive benefit, which will ultimately lead to the sustainable development of the surrounding area.

CHAPTER- 9
ENVIRONMENT COST BENEFIT ANALYSIS

As per EIA Notification 2006 & its subsequent amendments, preparation of this Chapter on the 'Environmental Cost Benefit Analysis' is applicable only if it is recommended at the Scoping stage.

The proposal for ToR was presented before the Expert Appraisal Committee (EAC) on 11.11.2021. MoEFCC granted ToR for the proposed project vides F. No. J-11011/59/2021-IA.II (I), dtd.: 29th November, 2021.

As per the ToR, Environmental Cost Benefit analysis is not recommended for the proposed project and hence details not included.

CHAPTER- 10
ENVIRONMENTAL MANAGEMENT PLAN

10.1 OBJECTIVES OF ENVIRONMENT MANAGEMENT PLAN

The objective of the Environmental Management Plan (EMP) is to identify administrative aspects for ensuring that mitigation measures are implemented, and their effectiveness is monitored. The EMP focuses on direct impacts, which are identified as having the potential to cause significant impacts on the environment and identifies the following objectives:

- Specific measures that will be taken to prevent, reduce or manage the environmental impacts during construction and operation; and
- Objective of EMP is to ascertain the level of environmental performance that is expected during the operation.

KAI International Pvt. Ltd. is committed to a comprehensive Environment Management Plan for environmental protection and conservation for the proposed project. Based on the evaluation of impacts and baseline conditions, an Environmental Management Plan (EMP) has been delineated to mitigate the adverse impacts on the environment of the area.

The environmental management plan consists of the set of waste minimization, impact mitigation, management, monitoring and institutional measures to be taken during implementation and operation to eliminate adverse environmental impacts or reduce them to acceptable levels. The present environmental management plan addresses the components of the environment affected during construction & operation of expansion project.

The objectives of EMP are:

- Overall conservation of the environment.
- Minimization of waste generation and pollution.
- Judicious use of natural resources and water.
- Safety, welfare and good health of the work force and populace.
- Ensure effective operation of all control measures.
- Vigilance against probable disasters and accidents.
- Monitoring of cumulative and longtime impacts.
- Ensure effective operation of all control measures.

Environmental Management Plan which will be implemented is detailed under the following heads:

- Air Environment Management
- Noise Environment Management
- Water Environment Management
- Land Environment Management
- Biodiversity management
- Solid Waste management

- Energy Conservation
- Socio Economics Environment
- Occupational Health and Safety Measures
- Greenbelt Development and Plantation Program

10.2 ENVIRONMENT MANGEMENT DURING CONSTRUCTION PHASE

Table 10. 1- Environment Management during Construction Phase

Components	Potential Sources of Pollution	Magnitude of Pollution	Control Measures	Responsibility	Timeframe	Monitoring
Air	• Movement of vehicles • Storage • Transport of construction materials	High	• Mobile Sprinklers • Wind Breakers • Fogging Machines • Water sprinkling on transportation & unloading areas	EMC	Through out construction period (25 months)	Twice a week
Noise & Vibration	• Movement of vehicle • Machinery operation • Unloading of materials	Moderate	• PPE kit for workers • Enclosures for equipment • Maintenance of machineries	EMC & Safety Department	Through out construction period (25 months)	Once a Month
Water	• Surface run-off • Oil Spills • Domestic Sewage	Moderate	• Drains • Rainwater harvesting • Septic tank - Soak Pit	EMC	Through out construction period (25 months)	Once in a Month
Solid Waste	• Excavated Soil • Domestic Solid Waste • C&D Waste	Moderate	• Drains • Backfilling/leveling • Will be composted and Used in greenbelt • C&D waste, if in excess – to be handled as per C&D Waste Management Rules,	EMC & Safety Department	2 Years	Once in six months

Components	Potential Sources of Pollution	Magnitude of Pollution	Control Measures	Responsibility	Timeframe	Monitoring
			2016			
Land Use	• Change of land use due to installation of instruments / equipment	Low	• Landscaping of site • Maintaining natural drainage to the extent possible • Soil Erosion Control • All constructions as per approved layout	-	-	-
Ecology & Biodiversity	• Vehicle Movement • Change in land use • Tree Felling etc.	Moderate	• Construction of boundary/fence • Educating locals • Outside plantation • Control of Noise and illumination in night time	EMC / Horticulturist	12 Months	Once in 2 years
Risk & Hazard	• Fire • Spillage • Fall	Low	• Firefighting measures • Regular checking of storage tanks • Safety permits & harness, use of PPEs	Safety Department & Occupational Health Officer	12 Months	Once in a month
Socio-economic	• Effect on health due to construction if not properly managed	Moderate	• Employment • Awareness • CSR • PH compliance	Medical & Occupational Health Officer / EMC	2 Years	Once a year

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10.3 ENVIRONMENT MANAGEMENT DURING OPERATION PHASE

Table 10. 2- Environment Management Plan during Operation Phase

Components	Potential Sources of Pollution	Magnitude of Pollution	Control Measures	Responsibility	Timeframe	Monitoring
Air	• Operation of DRI • Operation of Pellet plan, Power plant and other units • Movement of vehicles • Storage of raw material • Storage of Product • Transport of coal • Storage of oil • Unloading & loading of materials	High	• ESPs • Bag filters • Mobile Sprinklers • Stationary Sprinklers • Wind Breakers • Plantation • Fogging Machines • Covered transportation • Covered storage or in specified yard covered with tarpaulin • Greenbelt and plantation	EMC & Safety Department	Through out operation period	Twice a week
Noise & Vibration	• Movement of vehicle • Machinery operation • Loading & unloading	Moderate	• Plantation • PPE kit for workers • Enclosures for equipment • Maintenance of instruments	EMC & Safety Department	Through out operation period	Once a month
Water	• Oil Spills • Domestic Sewage • Effluent from various units	High	• Rainwater harvesting • ETP (Effluent Treatment Plant) • STP (Sewage Treatment Plant)	EMC & Safety Department	24 Months	Once in a quarter
Solid & Hazardous	• Process waste (e.g., ash, char, sludge etc.)	Moderate	• Process waste stored properly for reuse/recycle	EMC & Safety Department	12 Months	Once in six months

1626
1626

Components	Potential Sources of Pollution	Magnitude of Pollution	Control Measures	Responsibility	Timeframe	Monitoring
Waste	• Municipal Solid Waste • ETP & STP sludge		in-house or outside. • ETP properly stored & sent to TSDF • STP sludge will be used for plantation • Used oil to Authorized vendor for recycling			
Land Use	• Change in Land Use • No major land use change in operation phase	Low	• Plantation • Soil Erosion Control • Regular house keeping	EMC	12 Months	Once in six months
Ecology & Biodiversity	• Due to all the above components	Moderate	• Plantation inside the plant premises and in the local area • Construction of boundary/fence • Educating locals • Control of Noise and illumination in night time	EMC, Horticulturist	12 Months	Once in 3 year
Risk & Hazard	• Fire • Electrocution • Occupational Hazard • Fall due to working on heights	High	• Occupational safety plan • Isolation of inflammable materials • Firefighting equipment • Use of PPEs	Safety Department, Medical & Occupational Health Officer	12 Months	Once in a month
Socio-economic	• Effect on health due to operation of the plant if not properly managed	High	• All the above control measures • CSR • Public Hearing Compliances	EMC	3 Years	Once a year

1627

1847

Soil Conservation And Erosion Control Plan In The Plant Site

- The top soil excavated out for the built up area shall be stored safely in a designated place. This soil will be utilized for plantation activities in the project site.
- Soil storage mound shall be surrounded with a garland drain connecting to a silt arresting pit. This will help to arrest the loss of soil to riverine system.
- It shall be ensured that the height of Mound does not have steep slope and will be stored in a gentle slope less than 45^0.
- All the internal drainage system shall be connected to a silt arresting pit which would arrest any lose soil flowing out with rain water in drains.
- As far as possible the rain water collected from the project area drains will be stored in the water storage reservoir and will be utilized for plant purpose.
- Wherever the land is open and not paved there the land will be grassed to arrest erosion, i.e. adopting “greening and paving”.
- The project area open land will be well protected either by paver blocks or making it pucca. All such areas which are not concreted will be covered with green grass to avoid any soil erosion from project area i.e. Greening and paving.

Soil Conservation And Erosion Control Plan In The Water Shed Area:

- Farmers of the surrounding villages and land owners will be educated about the importance of the soil conservation and control of Erosion.
- The soils with high humous and high organic Carbon are less prone to erosion and give better yields for the crops. Awareness will be provided about importance of increasing Organic carbon in the soil.
- The unit will help in construction of Gully Plug and Gabion Wall in first order drain in the watershed to arrest silt from flowing on wards to II order drains.
- The arrested silt will be distributed to the farmers as it is more fertile soil.
- The unit will support green belt or orchard plantation by the farmers by in the vacant land which is not being cultivated.
- The unit will also provide free plants and technical guidance to the farmers for Orchard plantation.

Construction & Demolition (C& D) waste management

Construction & Demolition (C& D) waste generated from the plant can be reused as per the guideline of C& D Waste Management Rules, 2016.

- As it is a green field project no demolition activities involved.
- Construction waste like broken concrete materials will be recycled as aggregate and used in concrete.
- Ferrous metals generated from construction wastes are most profitable and recyclable material. These ferrous metals will be sold to scrap metal dealer at a specified price.
- Non-ferrous metals like aluminum and copper wastes are recyclable and are valuable resources.
- Other plastic & debris will be disposed to authorized parties or municipality for further disposal

Plastic & E-Waste Management

From the proposed project generation of plastic & electronic waste will be very less. Plastic waste will be supplied to the local vendors approved by nearest Municipal Corporation (Rourkela Municipal Corporation) and for E-Waste will be supplied to the authorized agencies approved by SPCB.

10.4 MANAGEMENT OF STORAGE FACILITY

Proper storage facilities will be established for Raw material Storage in the Plant. These are as given in below Table;

Table 10. 3- Proposed Storage Facilities of materials

S. No.	Type of Material	Proposed Storage Facility
1.	Iron Ore Fines	Covered Shed & Open bounded yard on impervious surface
2.	Coke Fines	Covered Shed
3.	Bentonite	Covered Shed
4.	Limestone	Covered Shed
5.	Coal	Covered Shed
6.	FO/LDO.	Tank

10.5 GREENBELT DEVEOPMENT AND PLANTATION PROGRAMME

The total plant area is 47.74 Acres (19.32 Ha.) In this area existing greenery already there in 15.50 Acres (6.27 Ha.). Additional Greenbelt proposed by KIPL in Northern & Eastern part is 6.19 Acres (2.50 Ha.). Hence, total area for greenbelt = 6.27 Ha. + 2.51 Ha. = 8.78 Ha. which is around 45.4% of the total pant area. Green belt will be also, developed uniformly around the roadside, office, building & open areas within the premises.

Local plant species will be preferred as per the CPCB guidelines in consultation with Local Forest Department. Green belt around the project site of KIPL will help to arrest the particulate matter & control the noise emissions in the area and hence attenuate the pollution to a great extent.

The following points will be taken into consideration while selecting plant species for green belt development and tree plantation.

- The tree species should be fast growing and resistant to biotic stress like insect and fungal attacks and abiotic stress like tolerance to variation in temperature & water requirement.
- They should be preferably evergreen type.
- Age of tree sapling should be more than two years.
- They should have thick canopy cover.
- The trees should maintain regional ecological balance and conform to soil and hydrological conditions.
- Indigenous species should be preferred.

Proposed Plantation Scheme

- Local and native species will be planted with a density of 2500 trees per hectare. A total no. of 21950 saplings will be planted and nurtured in 8.78 Ha in 3 years.
- About 85% survival rate will be maintained.
- The spacing between the trees will be maintained at 2x2m. Green belt will consist of at least 3 tiers as per CPCB/MoEF&CC, guidelines. Plantation will also be done in the local area.
- For internal road: 1 m from the toe of the embankment or 6m from the edge of the shoulders. Shrubs and trees will be planted in encircling rows around the project site.
- The short trees (5-7m height) will be planted in the first rows (towards plant side) of the green belt. The tall trees (7-10 m height) will be planted in the second row (away from plant side). The tall trees (> 10 m height) will be planted in the third row (away from plant side).
- Dimension of the pits shall be 1000mm X 1000mm X 1000 mm to promote immediate and appropriate roots establishment. This dimension of the pits is chosen to avoid heat shocks to the roots due to refractory nature of the soil and extreme climatic condition. Better pit dimension makes aeration better and it improves edaphic factors.
- Staggered trenched are to be provided within the rows for better moisture conservation.
- Major plantation will be done in the Monsoon Season.
- The estimated capital cost for this plantation program is Rs. 120.67 Lakh. Year wise plantation details with budget have been tabulated under at **Table- 10.3**

Post Planting Maintenance Operations:

- Regular watering as and when required. In summer season, watering frequency will be increased so as to maintain moisture level in the soil to save plants from water scarcity.
- Regular Watch & ward throughout the year.
- Planting density shall be 2500 plants per hectare.
- In a year, minimum 3- nos. of weeding, soil working backed by nutrient and fertilizer application is to be carried out for proper nourishment.
- Every year, there should be 100% casualty replacement as per field requirements.
- Plant Hygiene will be maintained round the year with proper care.
- Morbid plants will be treated as casualty and will be replaced every year along with casualty replacement.
- Officer in charge of environmental management will evaluate every month all planting and other Afforestation work.
- Appropriate textual and visual documentation will be maintained. Chronological log of the afforestation work is to be thoroughly maintained and preserved.

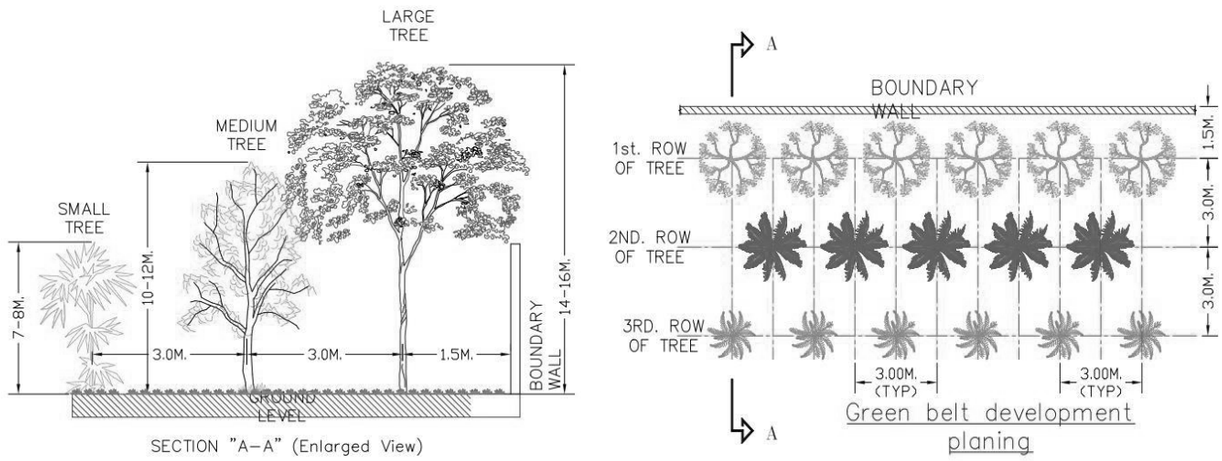


Fig. 10.1- Design of Greenbelt development

Table 10.4- Proposed Action plan for Greenbelt Development

SL. No.	Plan Period	Area (Ha.)	No. of Species to be Planted	Local tree species	
				Species Name	Scientific Name
1.	1st Year	3.89	9,725	**Trees**	
				Neem	*Azadirachta indica*
				Kusum	*Schleichera oleosa*
				Karnja	*Pongamia pinnata*
2.	2nd Year	2.7	6,750	Mango	*Mangifera indica*
				Dhaura	*Anogeissus latifolia*
				Palas	*Butea monosperma*
				Sissoo	*Dalbergia sissoo*
				Kendu	*Disospyros melanoxylon*
3.	3rd Year	2.19	5475	Rohini	*Soymida febrifuga*
				Amla	*Emblica officinalis*
				Asan	*Terminalia tomentosa*
				Radhachuda	*Peltophorum pterocarpum*
				Jamun	*Syzygium cumjni*
	Total	**8.78**	**21950**	**Shrubs / Herbs**	
				Anantamula	*Hemidesmus indicus*
				Arakha	*Calotropis procera*
				Baibidanga	*Embelia robusta*
				Basanga	*Adhatoda vasica*
				Dhatki	*Woodfordia fruticosa*

Existing trees available in the project site after felling 1500 nos. of trees= 3972-1500 = 2472

Hence trees for plantation = 21,950-2,472 = 19,478 nos. of trees
Budget = 19478 x Rs.350 = Rs.68,17,300/- ~ Rs.68.17 Lakhs

Compensatory Afforestation

In the proposed construction area for plant facilities, 1500 number of trees have been cut and 260 number of trees will be transplanted. As per guidelines, compensatory afforestation will be done in the ratio of 1:10 i.e. 15000 number. The proposed plantation will be developed as gap plantation within the plant site especially in the western region where the density of greenbelt is lesser.

Compensatory afforestation against tree felling of 1500 tress in ratio 1:10 = 15000 X Rs. 350 Nos. = Rs. 52,50,000/-

Hence total budget for green belt development = 68.17 Lakhs + 52.50 Lakhs = **120.67 Lakhs**

The total greenbelt and plantation area will be 8.78 ha (21.7 acres) i.e. 45.4% of the total plant area of 19.32 ha. (47.74 acres).

10.6 CORPORATE ENVIRONMENT POLICY

The company commits for the protection of environment. It is KIPL policy to maintain pollution free, healthy environment in its activity of manufacturing and handling of Iron pellet. The purpose is to outline the policy and procedures effective throughout the Company, concerning environmental protection.

10.6.1 ENVIRONMENTAL PRONCIPLES

Realizing that the world's natural resources are limited and fragile, the Company considers environmental protection to be consistent with its overall goals and values and an important consideration in its total activities. This commitment to environmental protection is reflected in the company's policies, programs and practices for conducting operations in an environmentally as well as economically responsible manner. Furthermore, the Company recognizes that an effective environmental management system can positively impact corporate profitability in several important ways. First, programs designed to make efficient use of natural resources often minimize operating costs. Second, environmental quality programs help sustain and enhance the Company's presence and reputation in domestic and international markets. Third, compliance programs minimize risk and potential legal liability. In these ways and more, environmental protection is viewed by the Company as important to the economic well-being of the Company.

In light of the above principles, the following corporate environmental policy has been established.

10.6.2 ENVIRONMENTAL POLICY STATEMENT

KIPL is committed to environmental stewardship and believes that environmental protection is a management responsibility as well as the responsibility of every employee of the Company. This policy concerning environmental protection addresses aspects of the Company's operations which can potentially impact the environment.

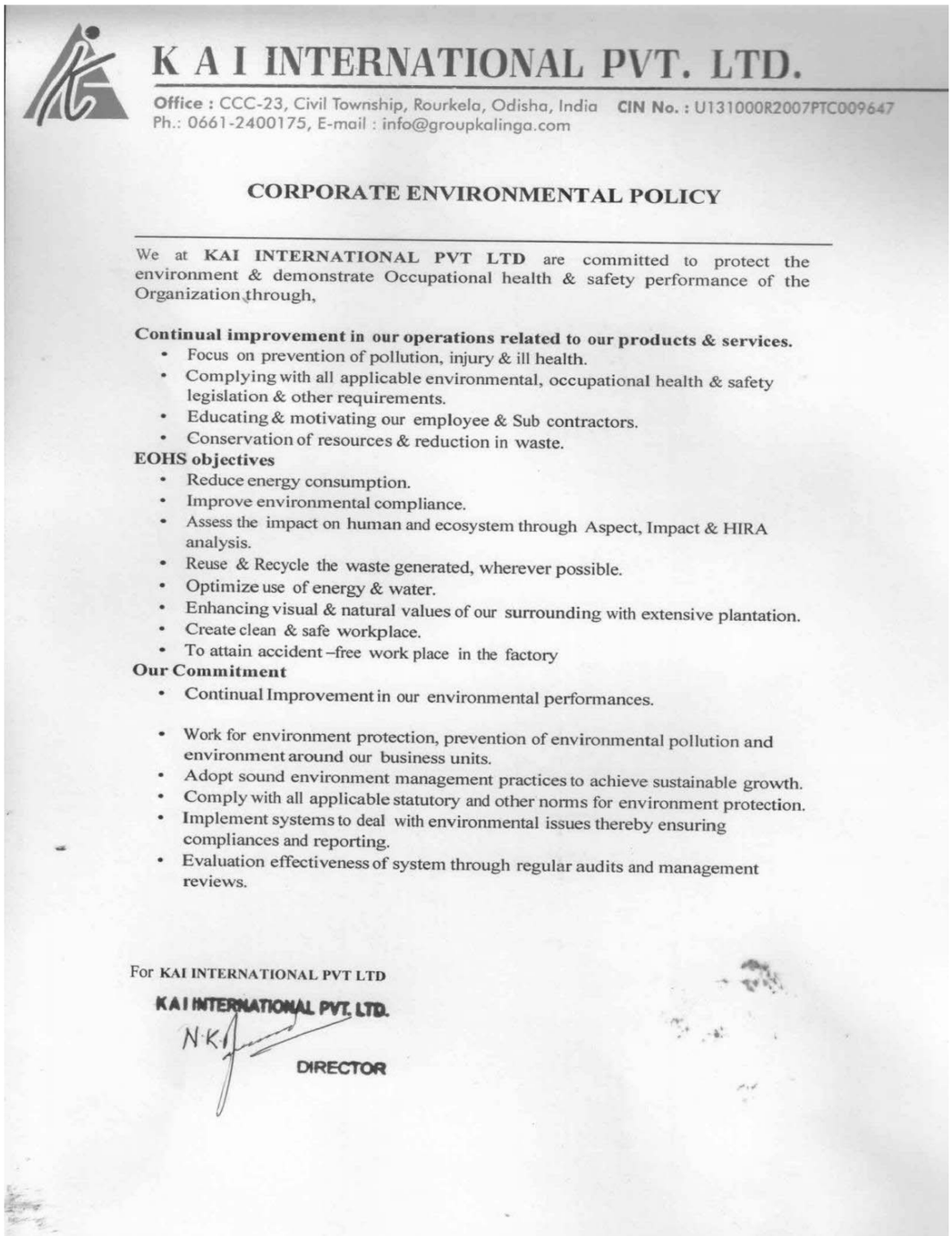
The Company shall seek to:

- Conduct its operations in compliance with applicable laws, regulations and standards concerning environmental protection and provide a mechanism for self-monitoring to ensure compliance and continual improvement.
- Establish corporate environmental objectives and targets relevant to the environmental impacts of its activities and a means to measure progress against these objectives. These objectives and targets shall be reviewed and revised as necessary on an annual basis.
- Continually improve our environmental management system and related policies, programs, and performance, based on the results of our periodic reviews and taking into account regulatory changes, technical developments, scientific understanding, and community expectations.
- Minimize the environmental risks to our employees and the communities in which we operate.
- Promote employee awareness of environmental concerns, actions and responsibilities.
- Operate facilities and conduct the Company's activities taking into consideration the efficient use of energy and materials.
- Reduce and where possible eliminate waste through recycling and handle and dispose of all waste through safe and responsible methods.
- Establish a better environment for future generations.
- To be prepared with fast responses for any emergency arising out of operations and posing risks to environment.
- Ensure that the Board of Directors is fully informed about pertinent environmental issues and the Corporation's environmental policy.

The corporate responsibility and sustainability activities are managed under the guidance of the chairman and CEO of KIPL. The corporate responsibility and sustainable committee comprises of all senior management, responsible for the company’s corporate responsibilities, policies and practices.

This policy will be made available to the public, all the stake holders and interested parties.

Corporate Environment Policy approved by the CEO is given below.



K A I INTERNATIONAL PVT. LTD.

Office : CCC-23, Civil Township, Rourkela, Odisha, India CIN No. : U131000R2007PTC009647
Ph.: 0661-2400175, E-mail : info@groupkalinga.com

CORPORATE ENVIRONMENTAL POLICY

We at **KAI INTERNATIONAL PVT LTD** are committed to protect the environment & demonstrate Occupational health & safety performance of the Organization through,

Continual improvement in our operations related to our products & services.

- Focus on prevention of pollution, injury & ill health.
- Complying with all applicable environmental, occupational health & safety legislation & other requirements.
- Educating & motivating our employee & Sub contractors.
- Conservation of resources & reduction in waste.

EOHS objectives

- Reduce energy consumption.
- Improve environmental compliance.
- Assess the impact on human and ecosystem through Aspect, Impact & HIRA analysis.
- Reuse & Recycle the waste generated, wherever possible.
- Optimize use of energy & water.
- Enhancing visual & natural values of our surrounding with extensive plantation.
- Create clean & safe workplace.
- To attain accident –free work place in the factory

Our Commitment

- Continual Improvement in our environmental performances.
- Work for environment protection, prevention of environmental pollution and environment around our business units.
- Adopt sound environment management practices to achieve sustainable growth.
- Comply with all applicable statutory and other norms for environment protection.
- Implement systems to deal with environmental issues thereby ensuring compliances and reporting.
- Evaluation effectiveness of system through regular audits and management reviews.

For KAI INTERNATIONAL PVT LTD

KAI INTERNATIONAL PVT. LTD.

N.K.

DIRECTOR

Fig. 10.2- Corporate Environment Policy of KIPL

10.7 INFRASTRUCTURE FACILITIES

Facilities like Rest room, drinking water, Primary health Centre, Canteen, Washroom etc. will be developed within the plant premise. Guest house and quarters will also be constructed for the employees. The health center will be manned all the time for any kind of emergency. First Aid Box will be provided at important sections of the plant for easy access.

A well-equipped laboratory will be established for testing the essential parameters. However, environmental monitoring and testing will be outsourced from a third party accredited environmental laboratory.

10.8 REPORTING OF NON- CONFORMANCE & MANAGEMENT REVIEW

10.8.1 ADMINISTRATIVE SET-UP

- The Executive Director will look after all the operations including implementation of various EHS & sustainability initiatives for the control of pollution and protection of environment and leading to achieve the sustainable goals as per Corporate Environment Policy (CEP). The day-to-day work is assisted by Head (Operation), who is also responsible for all operation, maintenance and project related activities.
- All HODs of Plant operation, Mechanical maintenance, Electrical maintenance, Head Environment will be reporting to ED. Issues related to Environment, Safety and associated compliances / deviations will be dealt by Head Environment.
- Head (Environmental Department) is responsible to monitor all environment related activities related to operation of plant. He is responsible for heading Environment Department and is also responsible for protection and control of pollution.
- Head (OHS) is responsible for all matter related to Health and Safety in Plant (Operation) and is reporting to Executive Director.
- All issues related to Environment, Safety and associated compliances/deviations thereof are appraised to ED, after discussion made with Head (Operations) & HODs of various departments.
- Weekly and Monthly management information system is sent from unit level to the apex management i.e. CEO and Directors of KIPL through Corporate Environment and Occupational Health & Safety Department for necessary review. For development and maintenance of jobs like drainage, settling tanks etc. assistance from the projects civil engineering department are taken.
- The organizational chart of Env Department (Proposed) at KIPL to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions, defined as per Corporate Environment.

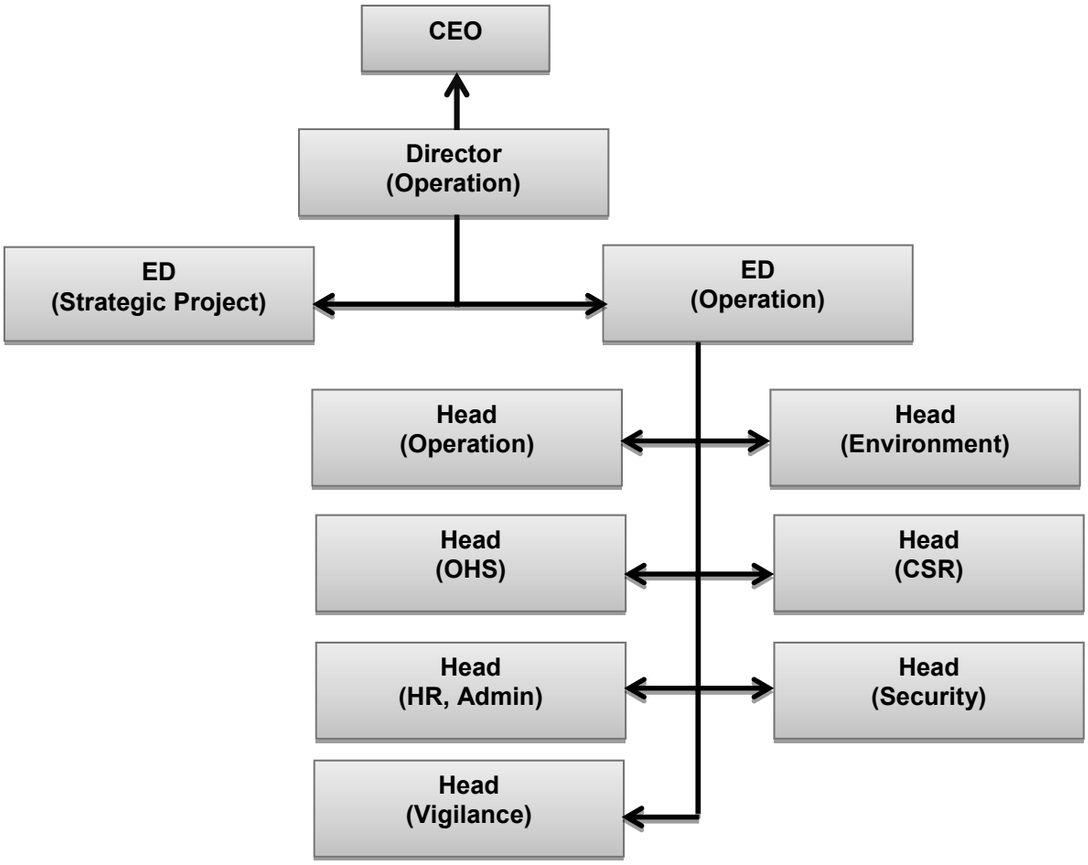


Fig. 10.3- Organizational Chart of Plant Operation including Environment & OHS Dept.

The elaborate system of handling non-compliances at KIPL has been detailed in subsequent paragraphs.

In order to take care of the administrative aspects for implementation of various mitigation measures, sustainable initiatives and monitor its effectiveness an Environmental Management Cell (EMC) will be constituted along with Environment Department under the Chairmanship of ED, Operation which will be strengthened further to take care of the proposed plant. Hierarchy of EMC: The manpower vis-à-vis Designation of the EMC is given in the following table.

Table 10.5- Constitution of Environmental Management Cell (EMC)

Sl. No.	Designation	Man-Power
1.	Head, Plant	1
2.	Head, Environment Department	1
3.	HOD (OH &FS)	1
4.	HOD (Medical Center)	1
5.	Environment Lab in-charge	1
6.	Environmental Lab Analyst	2
7.	STP & ETP operation	3
	Total	**10**

10.9 COST OF ENVIRONMENT MANAGEMENT PLAN

The sum total of environmental management plan has been tabulated below:

Table 10. 6- Environment Management Plan Budget

Estimated Cost of EMP			
Sr. No.	**Particulars**	**Estimated Capital cost in Rs. Cr.**	**Recurring cost in Rs. Cr./annum**
1.	Air Pollution Control	10.65	0.4
2.	Water Pollution Control	2.9	0.1
3.	Noise Pollution Control	1.2	0.1
4.	Environment Monitoring & Management	0.70	0.57
5.	Occupational Health	1.5	0.1
6.	EMS & Disaster Management	1.3	0.10
7.	Green Belt/plantation & Maintenance	1.21	0.04
Total		**19.46**	**1.41**

Source: KIPL

EMP Cost is about 5.69 % of the total project cost.

10.10 COMPLIANCE OF CREP GUIDELINES

Compliance to the CREP guidelines prescribed by CPCB for the integrated steel plant is given in **Table 10.7**.

Table 10.7- Action Plan for Compliance with CREP for Integrated Iron and Steel Plants

S. No.	Unit	CREP Requirement	Action Plan
1.	Coke Ovens	To meet PLD, PLL, PLO of notified standard under EP (Act)	Not Applicable. This is proposed Greenfield project only for Beneficiation & Pelletization with combination of PGP. No coke ovens proposed.
2.	Steel Melting Shop	Fugitive emissions – to reduce 100% (including installation of Secondary de-dusting facility)	Not Applicable However, Water sprinkler at material loading and unloading section will be provided to check the fugitive emission.
3.	Blast Furnace	Direct injection of reducing agent	Not Applicable in Pelletization process
4.	Solid Waste/ Hazardous Waste Management	100 % utilization of Steel Melting shop (SMS)/Blast Furnace (BF) Slag	Not Applicable.
		Charge of tar sludge/ ETP sludge to Coke Oven	Not Applicable.
5.	Water Conservation/ Water Pollution	To reduce specific water consumption to 5 m^3/T for long products and 8 m^3/t for flat products To operate the Co-BP effluent treatment plant efficiently to achieve the notified effluent discharge standards	Treated water from ETP will be recirculated in the PGP Process. Treated water from STP will be used for green belt development. Rain water harvesting is also proposed for water conservation. The average specific water consumption per ton of product: For Beneficiation- 0.1 m^3/T of product For Pellet- 0.16 m^3/T of Product
6.	All major stacks	Installation of online stack monitoring & online ambient air quality monitoring stations	Online ambient air quality monitoring stations & online stack monitoring system will be installed & the data monitored will be connected to SPCB/CPCB servers as

1638

S. No.	Unit	CREP Requirement	Action Plan
			required.
7.	-	To operate the existing pollution -control equipment efficiently and to keep proper record of run hours, failure time and efficiency	Proposed pollution control equipment's will be operated efficiently and record will be maintained for run hours, failure time and efficiency.
8.	-	Implement the recommendations of Life Cycle Assessment (LCA)	Will abide if recommended.
9.	-	Industry will initiate the steps to adopt the following clean technologies measures to improve the performance of industry towards production, energy, and environment:	Latest technology will be adopted to improve the performance of industry towards production, energy and environment.
		• Energy recovery of top Blast Furnace (BF) gas	BF is not proposed.
		• Use of Tar- free runner linings.	Tar generation 2828 TPA, which will be supplied to an authorized coal tar processing units.
		• De- dusting of Cast house at tap holes, runners, skimmers ladle and charging points.	Not Applicable. However, APCDs will be installed at various sections of pelletization unit.
		• Suppression of fugitive emissions using nitrogen gas or other inert gas	Water sprinkler & dry fog system at material loading and unloading section will be provided to check the fugitive emission.
		• To study the possibility of slag and fly ash transportation back to the abandoned mines, to the abandoned mines, to fill up the cavities through empty railway wagons while they return back to the mines and its implementation.	Not Applicable However, bottom ash generated from the Producer Gas Plant will be given to road construction contractors /masonry blocks manufacturing units.
		• Processing of the waste containing flux & ferrous wastes through waste recycling plant.	Not Applicable

1639

S. No.	Unit	CREP Requirement	Action Plan
		• To implement rainwater harvesting	Rain Water Harvesting will be carried out to recharge the ground water and in use in plant operation.
		• Reduction Green House Gases by : - Reduction in power consumption - Use of by –products gases for power generation Promotion of Energy Optimization technology including energy/audit	• LED Lights to be used in office, streets & worksites. • All Ceiling Fans in the office will be Brushless DC (BLDC) fans. • Variable Frequency Drive Motors shall be fitted / Installed at suitable Industrial Fans. • Pumps shall be installed based on the System BEP (Best Efficiency Point) will be purchase for Future purpose. • Highly Efficient Motors based on NEMA Level 4 will be used wherever applicable.
		• To set targets for Resource Conservation such as Raw material, energy and water consumption to match International Standards.	Periodic research to adopt the latest proven technology will be done for resource optimization.
		• Up- gradation in the monitoring and analysis facilities for air and water pollution. Also to impart elaborate training to the manpower so that realistic data is obtained in the environmental monitoring laboratories	Monitoring and analyzing will be done by NABL accredited third-party. Regular training is important by safety dept. for improving overall housekeeping.
		• To Improve overall house-keeping	Will be complied
10.	**Sponge Iron Plants Guidelines/ Code of practice for pollution prevention for Sponge Iron Plants**	**1.1 Stack emission from kiln** II. Suitable Air Pollution Control System shall be installed to achieve the prescribed stack emission standards. III. All Pollution control equipment may be provided with separate electricity meter and totalizer for continuous recording of power consumption. The amperage of the ID	Not Applicable. However, APCDs will be installed in the proposed plant. Details given in **Chapter- 2, Section No. 2.14.1, Table- 2.24** Log book will be maintained for all APCDs.

S. No.	Unit	CREP Requirement	Action Plan
	1. Air Pollution	fan may also be recorded continuously. IV. Non-functioning of Pollution control equipment should be recorded in the same logbook along with reasons for not running the Pollution Control Equipment. V. The safety cap/emergency stack of rotary kiln type plant, which is generally installed above the After Burner Chamber (ABC) of feed end column should not be used for discharging untreated emission, bypassing the air pollution control device. VI. In order to prevent bypassing of emissions through safety cap and non-operation of pollution control device, software controlled interlocking facility should be provided on the basis of real time data from the plant control system, to ensure stoppage of feed conveyor, so that, feed to the kiln would stop automatically, if safety cap of the rotary kiln is opened or Air Pollution Control System is not in operation. The system should be able to take care of multiple operating parameters and their inter relations to prevent any possibility of defeating the basic objective of the interlock. The system should be foolproof to prevent any kind of tempering. The software based interlocking system, proposed to be installed by industry should be get approved by the concerned State Pollution Control Board, for its adequacy, before installation by the industry VII. Mechanical operated system for timely collection and removal of the flue dust generated in air pollution control device shall be installed. **1.2 Stack emission from de-dusting units**	Bag filters will have adequate stacks and stack monitoring will be carried out to confirm the emission within the norms.

1641

1641

S. No.	Unit	CREP Requirement	Action Plan
		I. All de-dusting units should be connected to a stack having a minimum stack height of 30 m. Sampling porthole and platform etc. Shall be provided as per CPCB emission regulation to facilitate stack monitoring.	
		1.3 Fugitive Emission The measurement may be done, preferably on 8-hour basis with high volume sampler.	Not Applicable • However, the stacks attached to the ESP of exhaust gas of Kiln (Pellet plant) is of height 65 meters and the stack height attached to bag filters at other sections are of height of 30 meters. • In water consumption ZLD will be followed and the effluent will be treated in closed loop ETP of capacity 60 KLD followed by recycle in the plant operation. • Generation of Char is not envisaged.
	2. Effluent Discharge	(i) All efforts should be made to reuse and re-circulate the water and to maintain zero effluent discharge. (ii) Storm water/ garland drain should be provided in the plant.	
	3. Noise control	The industry should take measures to control the Noise Pollution so that the noise level standards already notified for Industrial area are complied.	
	4. Solid waste Management	**Char** Char should be mixed with coal or coal washery rejects and used as fuel for generation of power. Char can be sold to local entrepreneurs for making coal briquettes. It can also be mixed with coal fines, converted to briquettes and used in brick kilns. The industry can explore other reuse/ recycling techniques for Char. Under no circumstances char should be disposed off in agricultural fields/other areas. Logbook for daily record, of Char production and usage must be maintained by the industry and the record shall be made available to officials of CPCB/SPCB/PCC during inspection.	
		Kiln accretions The kiln accretions are heavy solid lumps and can be used as sub- base material for road construction or landfill, after ascertaining the composition for its suitability and	

1642

1642

S. No.	Unit	CREP Requirement	Action Plan
		ensuring that it should not have any adverse environmental impact.	Captive Power Plant is not proposed in the proposal. However, bottom ash generated from the Producer Gas Plant will be given to road construction contractors / masonry blocks manufacturing units.
		Gas Cleaning Plant (GCP)/Scrubber Sludge The sludge should be compacted and suitably disposed off after ascertaining the composition for its suitability and ensuring that it should not have any adverse environmental impact.	
		Flue Dust The reuse/ recycling of the flue dust generated/ collected may be explored and suitably implemented.	
		Fly ash Fly ash is generated from Char/ Coal based Captive Power Plant, if any. Fly ash brick making plant may be install for fly ash utilization. Fly ash can be utilized in cement making by Cement industry also.	
		Bottom Ash Bottom ash is generated from Char / Coal based Captive Power Plant, if any. Bottom ash may have objectionable metallic compounds, therefore should be stored in properly designed landfills as per CPCB guidelines to prevent leaching to the sub-soil and underground aquifer.	
		General a) Solid waste management program should be prepared with thrust on reuse and recycling. Solid waste disposal site should be earmarked within the plant premises. The storage site of solid waste should be scientifically designed keeping in view that the storage of solid waste should not have any adverse impact on the air quality or water regime, in any way.	APCD dust, pellet fines and Broken Pellet will be reused in pellet plant. Bottom ash generated from the Producer Gas Plant will be given to road construction contractors / masonry blocks manufacturing units.

1643
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S. No.	Unit	CREP Requirement	Action Plan
		b) The various types of solid wastes generated should be stored separately as per CPCB guidelines so that it should not adversely affect the air quality, becoming air borne by wind or water regime during rainy season by flowing along with the storm water.	
	5. Raw Material handling and Preparation	(a) Unloading of coal by trucks or wagons should be carried out with proper care avoiding dropping of the materials from height. It is advisable to moist the material by sprinkling water while unloading. (b) Crushing and screening operation should be carried out in enclosed area. Centralized de- dusting facility (collection hood and suction arrangements followed by suitable de-dusting units such as bag filter or ESP or equally effective method or wet scrubber or any other de-dusting unit and finally discharge of emission through a stack) should be provided to control Fugitive Particulate Matter Emissions. The stack should confirm to the emission standards notified for de-dusting units. (c) Water sprinkling arrangement should be provided at raw material heaps and on land around the crushing and screening units. (d) Work area including the roads surrounding the plant shall be asphalted or concreted. (e) Enclosure should be provided for belt conveyors and transfer points of belt conveyors.	Not Applicable Water sprinkler at material loading and unloading section will be provided to check the fugitive emission. APCDs like ESP, bag filter will be used at respective sections of plant facilities (the details are mentioned in **Chapter 2; Section 2.14**, **Table- 2.22** Enclosure will be provided for belt conveyors and transfer points of belt conveyors.
	6. Waste Heat Recovery Boiler (WHRB)	Sponge Iron Plant of capacity more than 100TPD kilns may use Waste Heat Recovery Boiler (WHRB) for generation of power. Installation of Waste Heat Recovery Boiler (WHRB) may qualify	**Not Applicable** However, bag filter at the cooler discharge

S. No.	Unit	CREP Requirement	Action Plan
		the industry for CDM benefits.	end of pelletization unit will be implemented.
	7. Cooler Discharge and Product Separation Unit	Permanent and rigid enclosures shall be provided for belt conveyors and transfer points of belt conveyors. Dust extraction cum control system to arrest product loss in cooler discharge and product separation area may be installed.	
	8. Char based Power Plant	For plant having capacity of 200 TPD of cumulative kiln capacity, the power generation using char as a part of fuel, is a viable option. Power generation using char as a part of fuel may be implemented in a phased manner targeting for 100% utilization of char. Individual Sponge Iron Plants of capacity upto 100 TPD and located in cluster can install a common char based power plant collectively.	

1645

1645

CHAPTER- 11
SUMMARY & CONCLUSION

11.1 INTRODUCTION

Proposed Greenfield project of Iron Ore Beneficiation Plant- 1.5 MTPA throughput (1.16 MTPA High grade ore), Iron ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 Nm^3/hr (6 x 4,500 Nm^3/hr) located at village- Kapanda, Tehsil–Lahunipara, District- Sundergarh, Odisha of M/s KAI International Private Limited (KIPL).This is a standalone greenfield project and there are no interlinked or inter-dependent project with the proposal.

11.2 PROJECT DESCRIPTION

As per the EIA notification dated 14th Sep., 2006 and its amendments thereafter, it is a Category – A project which falls under schedule 2 (b), Mineral Beneficiation for iron ore beneficiation and 3(a), Metallurgical Industries (ferrous & nonferrous) for pellet plant.

The proposal for ToR was presented before the Expert Appraisal Committee (EAC) on 29.11.2021 and granted by the concerned authorities vide **F.No. J-11011/59/2021-IA.II (I), Dated: 29th November, 2021** for the proposed project.

Table 11.1—Configuration of the Proposed Project

SL. No.	Units	Product	Configuration	Capacity	End Use
1.	Iron Ore Beneficiation (Proposed)	Beneficiated Iron Ore	1 X 1.5 MTPA	15,00,000 TPA (throughput) 1160000 TPA (High grade ore)	Used in Iron Ore Pellet Plant
2.	Iron Ore Pellets (Proposed)	Iron ore Pellet	2 x 0.6 MTPA	12,00,000 TPA	Will be sold in the open market.
3.	Producer Gas Plant (Proposed)	Producer Gas	6 Nos. (5W+1S) 6 X 4,700 Nm^3/hr	27,000 Nm^3/hr	Captive use in Pellet Plant

Source: KIPL

No general and specific condition applicable to the project as specified in said notification. Public Hearing is applicable for this project and already conducted successfully on 24th May 2022. There was one litigation against the project and its site activities and final orders have been passed by Hon'ble NGT on the same, details have been presented in **Chapter-13** of this report.

Table 11.2- Environmental Setting of the Site

Sr. No.	Particulars	Details	Remarks
1.	Total land	Total land required – 19.32 ha. (47.74 Ac) Govt. Land – 19.32 Ha. (47.74 Acre) [IDCO Land], Agriculture- Nil, Grazing Land- Nil. No forest land involved.	Total Land: 19.32 Ha. (47.74 Acre) is IDCO land
2.	Land acquisition details as per MoEF&CC O.M. dated 7/10/2014	Acquired Land: 19.32 ha. (47.74 Acre) Total land is under possession.	Land use: Industrial Land provided by IDCO After payment all necessary charges as demand by IDCO, Bhubneswar. Land Agreement made between IDCO & KIPL as per land allotment letter no. IDCO:HO:P&A:LAE:7751/2019 dtd. 06.08.2021.
3.	Existence of habitation & involvement of R&R, if any.	There is no existence of habitants identified within the plant boundary.	R&R is not applicable.
4.	Latitude and Longitude of the project site	**Pillar No.(s) / Latitude / Longitude** 1 / 21°53'28.44"N / 84°52'15.80"E 2 / 21°53'25.49"N / 84°52'16.45"E 3 / 21°53'21.00"N / 84°52'17.41"E 4 / 21°53'17.11"N / 84°52'22.04"E 5 / 21°53'11.30"N / 84°52'29.12"E 6 / 21°53'11.40"N / 84°52'35.21"E 7 / 21°53'17.15"N / 84°52'35.23"E 8 / 21°53'22.78"N / 84°52'35.20"E 9 / 21°53'23.68"N / 84°52'30.77"E 10 / 21°53'23.86"N / 84°52'26.76"E 11 / 21°53'29.01"N / 84°52'26.29"E 12 / 21°53'28.77"N / 84°52'20.69"E	-
5.	Elevation of the project site	193 m to 252 m AMSL	High flood level data of last 26 years of river Brahmani at Gomlai location collected. The letter issued from Central Water Commission Mahanadi & Eastern River Organization, Bhubaneswar vide letter no. TD/905/CE/VI/202/257(H), dated 03.02.22. As per the data, maximum

			HFL is 147.660 m AMSL against site elevation of 193m to 252m AMSL.
6.	Involvement of Forest land if any	There is no forest land involved within the plant boundary.	As per joint field verification conducted on 08.02.23 by Forest and revenue dept. officials, entire land is non-forest land of kissam patit. Joint field verification report along with Vide Memo No. 8447/4F (Misc.) (PC- 1), dtd. 12.09.2023.
7.	Forest within 10 km buffer zone	**Protected Forest:** Samaradari Juniani PF (E)- 0.41 Km **Reserve Forest:** • Kukia R.F- 0.12 Km (NW) • Dhenkiam R.F- 2.6 Km (W) • Nalghati Rajabasa R.F- 3.3 Km (SW) • Dhenkiam Block R.F- 3.7 Km (NW) • Bhagoth R.F- 6.6 Km (SSW) • Dhanaghar Extension R.F- 6.9 Km (NNE) • Gurundia R.F- 7.9 Km (SW)	
8.	Water body exists within the project site as well as study area	**Study Area:** Brahmani River- 1.6 Km (W) Amrurhi Nala- 3.1 Km (NNE) Katangamunda Nala- 3.4 Km (NW) Rukura River- 4.3 Km (S)	
9.	Existence of ESZ /ESA/national park / wildlife sanctuary / biosphere reserve/ tiger/ elephant reserve etc. if any within the study area	No National Park / wildlife sanctuary / biosphere reserve / tiger reserve / elephant etc. within the study area.	-

11.2.1 Production Technology

Beneficiation Process by Magnetic Separation

Fe content of lean iron ore is improved by the Beneficiation process. Characteristics of ore fines govern the degree of fineness therefore grinding of ore to size 60-80% passing through 325 mesh (-0.044 mm) is necessary for the production of high strength green pellets.

Magnetic separation ~ High Gradient Magnetic Separation (HGMS) was selected as the working technology due to its low operation cost, low environmental impacts, and ease of operation. The overall plant yield would be average 77-78% depending on the feed quality of the incoming iron ore. Rejects may vary from 21-23%. Iron Ore feed fines are proposed to be used in beneficiation plant from various mines and the range of its chemical composition is envisaged as Fe%: 55.0 to 58.0, SiO_2: 1.7 to 3.8, Al_2O_3: 2.50 to 3.9 & Moisture: 8.0 to 10%.

The physical characteristics of the iron ore fines considered or designing the plant and associated facilities are as given below:

- Top size: 10 mm
- Specific gravity of solids: 4.5 - 4.6
- Bulk density: 2.4 - 2.6 Tons/cum
- Bond Work Index: 12 kWh/Ton
- Angle of repose: 35^o
- Moisture content: 8-10%.

Iron Ore Pelletization Process by Grate Kiln Technology

Production Steps:

- **Proportioning System & Mixture Machine** – 5 Bins and 1x100 TPH Mixture machine each for 2 X 0.6 MTPA production
  - Bin 1 & 2 (Capacity: 500 T each) – for iron ore,
  - Bin 3 (Capacity: 100 T) – for Limestone,
  - Bin 4 (Capacity: 100 T) – for Bentonite
  - Bin 5 (Capacity: 100 T) – for Coke
  - Belt conveyors and belt weigher placed under the bins.
- **Formation of Green Pellets –** Using Disc pelletizer
  - 6 balling discs, 6m diameter of design capacity 50 TPH on wet basis.
  - Practically these discs can only be loaded on continuous basis.
  - Critical amount of water varies from 8 to 10% depending upon the nature of feed material.
  - To ensure sufficient frictional resistance and good lifting effect for the pellet feed, a moist ore bed of about 3 to 10 cm thickness is layered on the bottom and is controlled by scrapers.

The degree of fineness of input materials, critical amount of water,amount of binder in the mix etc., are most important for production of green pellets with adequate compressive strength and size. The strength of green pellets results predominantly from capillary forces caused by wetting with water and mechanical consolidation effected by rolling action.

- **Indurations of Green Balls –** The green pellets of desired size are subjected to thermal treatment viz. drying, preheating, indurations and cooling: during which the pellets attain the adequate strength to withstand handling, transportation and charging into the furnace besides increased porosity, reducibility strength etc. In this Grate-Rotary Kiln-Annular Cooler process.

The effective length of two travel Grate machine is 42 m. Length of wind box is 2.8 m. The Travel Grate machine is divided into 4 zones, which are separately as drying zones I & II, preheating zone I & II.

- **Grate length -** 2.8 m X 42 m, Capacity- 125 TPH each. Bed Thickness: 160 mm to 180 mm, Speed: 1.4 m/min.
  - Effective surface area 117.6 m2.
  - Wind box: 14 Numbers.
  - DD Zone I: 2.8 m X8.4 m, Temp: 200~300 deg.C, Wind Box: 3 Nos.,
  - DD Zone II: 2.8 m X8.4 m, Temp: upto 500 deg.C, Wind Box: 3 Nos.,
  - DD Zone I: 2.8 m X5.6 m, Temp: upto 650 deg.C, Wind Box: 2 Nos.,
  - PH Zone II: 2.8 m X 16.8m, Temp: Above 1050 deg.C, Wind Box: 6 Nos.,

For 1.2 MTPA production of Iron ore pellet the production required is 76 TPH each. Whereas, the Travelling Grate Kiln Capacity is 125 TPH each.

- **Rotary Kiln -** After Pre-heating, the Pellets are discharged to the Rotary kiln where the roasting is done.
  - Pellets receive heat in the Rotary kiln evenly as Pellets are roasted while rotating.
  - Size- O4.0 m diameter X 30 m length, Capacity- 110 T/H, Slope- 4.25%, Rotating Speed Range- 0.47- 1.45 RPM.
  - Catch wheel Device is Hydraulic Thuster roller single Drive. Whereas rotating direction- Clockwise direction from head end to tail end.
  - The time of filling rate- 7 to 10% & induration time-30 to 35 min.
- **Annular Cooler -** A processing capacity of 106 TPH where maximum 120 TPH. Mean diameter of annular cooler is 125000 mm.
  - The fired and hot pellets at high temperature are discharged to annular cooler for cooling area 50 m2. The feeding Temperature is 1250 deg.C and Discharge Temperature is 150 deg.C
  - Effective cooling time is 25.6~ 76.9 min.
  - The annular cooler is equipped with big blowers for pumping cold air to the Annular Cooler. The heated air are recuperated in Preheating and Drying zone of Traveling Grate machine and
  - Finally, shall be exhausted from the furnace by Exhaust Fan through Electrostatic Precipitator. The dust particle shall be trapped in Electrostatic Precipitator and only clean gases will be let out through a chimney.
  - The cooled Pellets are discharged to the Conveying system to be taken away to the stockyard for storage.

11.2.2 Annual Raw Material Requirement

The raw material as per the required quality will be sourced from the nearby areas to reduce the transportation impact on the environment. The details are tabulated below:

Table 11.3- Raw Material Requirement

Sr. No.	Proposed Facility	Raw Material Required	Quantity	Source	Distance from site (Kms)	Mode of Transportation
1.	Iron Ore Beneficiation	Iron Ore Fines	15,00,000 TPA	KJS Ahluwalia, Guali/ Seven	55 km, 12 km, 58 km	Road/ Rail (Railway Siding:

	Plant (1.5 MTPA Throughput)			Hills Minerals, Barbil/ GM Iron & Sttel Company Ltd, Mayurbhanj (Iron Ore Trader)		Chandiposh 15.8 km NNW)
2.	Iron Ore Pellet Plant (1.2 MTPA)	High grade Iron ore Fines	11,60,000 TPA	From In-house Beneficiation Plant	In-house	Conveyor belts
		High grade Iron ore Fines	1,40,000 TPA	JSW Steel Ltd., Barbil/ M/s. T. P. Mohanty/ Indrani Patnaik, Rourkela	58 km	Road
		Bentonite	13,063 TPA	Rourkela	41 km	Road
		Lime Stone	13,063 TPA	Khatkurbahal limestone mine & other mines by E-auction	64 km	Rail/ Road
		Coke	3,575 TPA	Rourkela	41 km	Road
		LDO	2,400 KLA	Domestic Market	40 km	Road
3.	PG Plant (6 X 4500 Nm3/Hr) & PCI	Coal	95,513 TPA (PGP Coal-70713 TPA & PCI Coal-24800 TPA)	Open Auction MCL, Odisha & ECL/ Agarwal Coal Corporation Pvt. Ltd. (Coal Trader)	106 km	Rail/ Road

11.2.3 Water Requirement

The make-up water requirement for the proposed project is estimated as 1180 KLD. Water requirement will be met from Brahmani River. The allocation for drawl of 0.50 Cusec (1223.287 KLD) surface water is obtained from Department of Water Resources vide Lt. No. WS-IWS-781/22-2024 dated 21.01.2023.

The intake point is estimated to be approx. 1.65 Km aerial distance from the plant boundary. The length of the water pipeline will be approx. 4 Km.

11.2.4 Power Requirement

The total power requirement for the proposed project is estimated as 12.0 MW, which will be met from GRID (WESCO) at Purunapani Substation which is 3.7 Km (ESE) from the project site. However, permission for 12 MW will be taken during CTE period.

Whereas, there will be 1 no. of DG set of 750 KVA , for emergency/backup purpose.

11.2.5 Manpower Requirement

The employment generation from the proposed project is 500 Nos. (Direct: 280 Nos. & contractual: 220 Nos.; Preference will be given to local Public).

11.2.6 Project Cost

Total project cost is envisaged as Rs. 341.72 Cr.

Cost of EMP

Capital Cost Rs. 19.46 Cr. & Recurring Cost Rs. 1.41 Cr./Annum.

11.3 DESCRIPTION OF ENVIRONMENT

Meteorological Parameters

Sl. No.	Parameter	Min Value	Max. Value	Mean Value
1.	Temperature (°C)	9.4	36.4	22.9
2.	Wind Speed (m/s)	0.9	1.03	0.95
3.	Relative humidity (%)	40	99	68.96
4.	Solar Radiation (W/m^2)	4850	5300	5500
5.	Rainfall	**Total Rainfall (mm)**	**No. of rainy days**	**Average annual rainfall (mm)**
		27	4	146
6.	Predominant Wind direction	North-West (NW)		

Ambient Air Quality Monitoring (1 location in Core zone & 7 locations in Buffer zone)

Monitoring Location	Core Zone						
SL. No.	Criteria Pollutant	Unit	Observed Value		Mean Value	Prescribed Standard	Remarks
			From	To			
1.	PM_{10}	$\mu g/m^3$	32.4	42.2	38.3	100	-
2.	$PM_{2.5}$	$\mu g/m^3$	17.8	23.0	20.8	60	
3.	SO_2	$\mu g/m^3$	4.0	5.5	4.8	80	
4.	NOx	$\mu g/m^3$	9.0	11.7	10.5	80	
5.	CO	Mg/m^3	0.12	0.22	0.17	4	
Monitoring Location	Buffer Zone						
SL. No.	**Criteria Pollutant**	**Unit**	**Observed Value**		**Mean Value**	**Prescribed Standard**	**Remarks**
			From	**To**			
1.	PM_{10}	$\mu g/m^3$	39.8	81.3	51.7	100	The highest value observed near to Rajamunda Village (AAQ-8) which is near to Rajamunda Chock. Due to Transportation activities & Industrial cluster is present in this area. So, PM_{10}
2.	$PM_{2.5}$	$\mu g/m^3$	21.2	44.2	27.5	60	
3.	SO_2	$\mu g/m^3$	4.2	14.2	6.5	80	

4.	NOx	µg/m^3	9.5	25.2	12.9	80	recorded slightly high in this region. This location is 4.6 Km (ESE) from project site in downwind direction.
5.	CO	Mg/m^3	0.13	0.15	0.2	2	

Surface water Quality monitoring (11 locations in Buffer Zone)

Monitoring Location	Buffer Zone						
SL. No.	Criteria Pollutant	Unit	Observed Value		Standard as per IS: 2296-1982	CPCB Water Quality Criteria	
			From	To		Class	Standard
1.	BOD	Mg/l	2.0	2.9	3.0	C	3
2.	Chloride	Mg/l	0.02	0.35	600	C	-
3.	COD	Mg/l	6.1	8.4	-	C	-
4.	DO	Mg/l	4.6	7.6	4.0 (Min)	C	4
5.	Fluoride	Mg/l	0.02	0.35	1.5 (Max)	C	-
6.	Heavy Metal Fe	Mg/l	0.10	0.37	0.5	-	-
7.	pH	NA	7.25	8.0	6-9	C	6-9
8.	TDS	Mg/l	94	192	1500 (Max)	C	-
9.	Total Coliform	MPN/100 ml	11	47	5000 (Max)	C	5000
10.	Total Hardness	Mg/l	44	124	-	C	-

Ground water Quality monitoring (8 locations in Buffer Zone)

Monitoring Location	Buffer Zone					
SL. No.	Criteria Pollutant	Unit	Observed Value		Standard as per IS: 2296-1982	Standard as per IS:10500 Permissible Limits
			From	To		
1.	Chloride	Mg/l	11	179	250	1000
2.	Fluoride	Mg/l	0.03	0.28	1.0	1.5
4.	Heavy Metal Fe	Mg/l	0.1	0.1	1.0	1.0
5.	pH	NA	6.6	7.85	8.5	8.5
6.	TDS	Mg/l	92	78.7	500	2000
7.	Total Hardness	Mg/l	73	325	200	600

Ground water Level (Phreatic Surface)

Sl. No.	Monitoring Location	Range of Water Table Pre-monsoon Season (in m below ground level)		Range of Water Table Post-monsoon Season (in m below ground level) (m bgl)	
		From (Pre-monsoon)	To (Pre-monsoon)	From (Post-monsoon)	To (Post-monsoon)
1.	Core Zone	1.1	7.6	0.71	7.8

2.	Buffer Zone	1.3	11.5	0.71	8.48

Noise Level Quality monitoring (2 location in Core zone & 6 locations in Buffer zone)

Monitoring Location	Core Zone						
Category	Observed Noise Level (dB(A)), Day Time Level		Observed Noise Level (dB(A)), Night Time Level		Prescribed Standard (dB(A)), Day Time Level	Prescribed Standard (dB(A)), Night Time Level	Type of area
	From	To	From	To			
	43.7	56.9	37.3	45.6	55	45	Residential area

Monitoring Location	Buffer Zone						
Category	Observed Noise Level (dB(A)), Day Time Level		Observed Noise Level (dB(A)), Night Time Level		Prescribed Standard (dB(A)), Day Time Level	Prescribed Standard (dB(A)), Night Time Level	Type of area
	From	To	From	To			
	41.6	58.3	36.8	46.9	55	45	Residential area

Soil Quality Monitoring (1 location in Core zone & 5 locations in Buffer zone)

Physical Characteristics

Monitoring Location	Core Zone									
SL. No.	Soil Texture	Particle Size Distribution (%)									
		Sand		Silt		Clay		Water Holding Capacity (%)		Porosity (%)	
		From	To	From	To	From	To	From	To	From	To
1.	Sandy Clay Loam	28.9	28.9	0.3	0.3	70.8	70.8	51.96	51.96	55.09	55.09

Monitoring Location	Buffer Zone									
SL. No.	Soil Texture	Particle Size Distribution (%)									
		Sand		Silt		Clay		Water Holding Capacity (%)		Porosity (%)	
		From	To	From	To	From	To	From	To	From	To
1.	Sandy Clay Loam	25.3	41.54	0.26	0.42	58.04	74.23	42.98	57.96	50.94	55.47

Chemical Properties

Monitoring Location	Core Zone				
SL. No.	Criteria parameter	Unit	Observed value		Permissible standard
			From	To	
1.	Calcium	Mg/100 gm	30.5	30.5	-
2.	Carbon	%	0.48	0.48	1.0
3.	Magnesium	Mg/100 gm	43.2	43.2	-
4.	Nitrogen	Kg/ha	23.3	23.3	-
5.	Phosphorous	Kg/ha	9.97	9.97	-
6.	Potassium	Kg/ha	20.0	20.0	-
7.	Sodium Absorption Ratio	Mg/100 gm	1.22	1.22	

Monitoring Location	Buffer Zone				
SL. No.	Criteria parameter	Unit	Observed value		Permissible standard
			From	To	
1.	Calcium	Mg/100 gm	25.9	41	-
2.	Carbon	%	0.29	0.78	1.0
3.	Magnesium	Mg/100 gm	38.0	53.0	-
4.	Nitrogen	Kg/ha	17.45	40.71	-
5.	Phosphorous	Kg/ha	9.93	9.97	-
6.	Potassium	Kg/ha	13.0	33.0	-
7.	Sodium Absorption Ratio	Mg/100 gm	0.76	1.84	

Traffic Study

Traffic study has been conducted at 3 locations Kapanda-Fatjharan village road (Near Entry gate of project site), near intersection of Santikayatpali Road to NH-23 and at Gudhiali (Intesection of NH-23 & NH 215). Transportation of raw material, fuel & finished product will be done 50 % by road & 50% rail. Existing PCU details is given below-

Sl No.	Study Location	Details	Volume (PCU/hr)	*Capacity (PCU/hr)	Existing V/C ratio	**Level of Service (LOS)
1.	Kapanda – Fatjharan village road (near Entry Gate of Project Site)	Average Hour Load	294	1400	0.21	B
		Peak Hourly Load	310	1400	0.22	B
2.	Near intersection of Santikayatpali Road to NH-23	Average Hour Load	1642	5400	0.30	B
		Peak Hourly Load	1820	5400	0.33	B
3	Gudihali (Intersection of NH-23 & NH-215)	Average Hour Load	1794	5400	0.33	B
		Peak Hourly Load	2187	5400	0.40	C

IRC 106:1990

Ecology & Biodiversity Study

As per the secondary data taken from Wild life Conservation Plan, schedule- I species like Elephant, Leopard, Sloth Bear and Python are present. However, as per primary data Elephant, Sloth Bear and Python are available. Leopard is not reported during interaction with local people.

For conservation of the fauna, Wildlife Conservation Plan has been prepared and submitted to PCCF wildlife for approval vide memo no. 7846/ 4F (Misc.), dated 20.09.2022.

A budget of 55.871 Lakhs have been earmarked in the Wildlife Conservation for effective mitigation by Keonjar Forest Division. For conservation of flora species, Forest Conservation Plan is prepared and approved by DFO, Rourkela division vide memo no. 7843/ 4F (Misc.), dated 20.09.2022.

11.4 ANTICIPATED ENVIRONMENTAL IMPACT & MITIGATION MEASURES

Air Environment	
During Construction	
Potential impacts	**Mitigation measures**
Fugitive dust emissions from Open site construction activities like Operation of heavy vehicles excavation, dumping of earth materials etc.	• Construction materials will be stored in covered warehouses or bounded spaces. • Regular water sprinkling at vulnerable areas of construction site and roads. • BS-VI compliant vehicles shall be used in construction to reduce emissions.
During Operation	
Potential impacts	**Mitigation measures**
• Stack emissions have the potential to impact up to far distances from the plant. • Due to vehicular traffic during operation there can be an increase on ambient concentrations in nearby area.	• ESP shall be installed with 4 fields to reduce the emissions from the furnace. • Heat shall be used for drying of pellets to reduce energy consumption. • Centralized de-dusting system with common ESP will be provided. • Exhaust gas from drying and grinding systems to be cleaned using fans, suction hoods, cyclones, bag filters. • Water sprinkling through static nozzle type sprinklers. • Closed conveyors shall be used to reduce fugitive emissions.
Noise Environment	
During Construction	
Potential impacts	**Mitigation measures**

Increase in noise levels due to Operation of construction equipment & Vehicular traffic for carrying construction material.	• Less noisy instruments equipped with acoustic system will be selected for construction works. • No worker shall be exposed to noise levels > 85 dB(A) for a duration of >8 hours/day without hearing protection. • PPE like earplugs, earmuffs etc. will be provided to construction personnel exposed to high noise areas.
During Operation	
Potential impacts	**Mitigation measures**
• Main noise generating sources are much away from the boundary. The predicted incremental noise levels due to proposed units without considering the attenuation factor shows very marginal increase on the ambient noise levels. • Green belt to be developed along the boundary will attenuate the noise levels further.	• Use of Noise barriers. • Noise level at 1m from equipment will be limited to 85 dB (A). • The fans and ductwork will be designed for minimum vibration. • Timely maintenance will be done. • PPEs such as ear muffs will be provided to personnel working in high noise zones.
Water Environment	
During Construction	
Potential impacts	**Mitigation measures**
Increase in suspended solids from Storm water run-offs during heavy rain & flooding situations carrying loose soil/ construction material from site.	• Storm water drainage system with sediment traps for arresting the silt / sediment load • All construction material will be stored under sheds or enclosed space to prevent spillage into the drainage network. • Thick Greenbelt developed both side of the Nala.
During Operation	

Environmental Aspect	Impact Evaluation	Mitigation Measures
Surface Water Quality	• Effluents from plant may contaminate nearby water bodies.	• Domestic waste water of around 16 KLD will be generated which will be treated in STP of 20 KLD capacity. • Effluent Treatment Plant of capacity 60 KLD will be installed to treat the 50 KLD effluent. About 48.3 KLD will be recycled and reused in the process. Treated water of 48.3 KLD will be reused for dust suppression & Fire fighting. • Dedicated ETP within the gasification unit (capacity 10 KLD) will be provided for treatment of blow down water coming from PGP process. Treated water about 7.5 KLD will be reused in

		pellet plant process
Ground Water Resources	No impact on ground water is envisaged as no ground water will be used in the project.	New proposal for rainwater harvesting schemes will be developed which will assist in improvement of the overall groundwater regime.
Soil Environment		
During Construction		
Potential impacts		**Mitigation measures**
Pre-constructional clearing of site will lead to removal of topsoil		Topsoil will be stored for reuse in plantation.
During Operation		
Potential impacts		**Mitigation measures**
• Changes in soil texture due to settling of air borne dust or due to wash off of solid particulates by surface runoff water. This may lead to change in porosity, permeability and other physical characteristics of soil of the area. • Changes in soil chemistry due to addition of foreign material from polluted air and water due to plant activities in the area.		• To ensure restoration of land surface and landform consistent with the condition and contours prior to commencement of construction; • Fuel, lubricants and chemicals will be stored on impervious floor; • Litter, fuel, oil drums, used grease cartridges would be collected and disposed properly; • Dust bins will be placed at requisite locations; • To install and maintain effective run-off control, including siltation ponds, bunds so as to minimize erosion;
Solid & Hazardous waste Management		
During Operation		
Potential impacts		**Mitigation measures**
Hazardous waste generation will be primarily due to Tarry waste generation & Phenolic water from PGP		• Fines collected from ESP/Bag filters will be re-used in pellet plant. • Ash from PGP will be supplied to ash brick manufacturer. • Phenolic Sludge from ETP Fired in Producer Gas Plant (PGP)
Ecology & Biodiversity Environment		
During Construction		
Potential impacts		**Mitigation measures**
In the project site there are no major trees except some shrubs and bushes.		During construction activities some plantation activities will be started.

During Operation	
Potential impacts	**Mitigation measures**
• No major plant species are available within t proposed site except some shrubs and bushes. • Diversity value is almost nil within the core area. • No forest land is involved in the project area.	• A planned 3 year Afforestation scheme shall be developed over an area of 8.78 Ha. with 21950 saplings. • The maintenance such as suitable fencing, watering, replacement of dead plants etc. shall be done for better survival rate. • Dust suppression shall be done by regular water sprinkling to minimize the impact on plants. • Wildlife Conservation Plan has been prepared with a budgetary allocation of 55.871 Lakhs for 5 years.

11.41 Dispersion Modelling- Summary

Table 11.7- Results of Dispersion Modelling

SL. No.	Pollutants	Remarks
1.	PM_{10}	Max. GLC- 2.17 µg/m^3 in Project Site
2.	$PM_{2.5}$	Max. GLC- 1.46 µg/m^3 in Project Site
3.	SO_2	Max. GLC- 3.72 µg/m^3 in Project Site
4.	NOx	Max. GLC- 2.07 µg/m^3 in Project Site
5.	CO	Max. GLC- 0.73 mg/m^3 in Project Site

11.4.2 Traffic Assessment

Additional PCU load after proposed project will be 40 PCU/hr.

Sl No.	Study Location	#Volume after Proposed project (PCU/hr)	*Capacity (PCU/hr)	V/C ratio after Proposed project	**Level of Service (LOS)
1	Kapanda – Fatjharan village road (near Entry Gate of Project Site)	350	1400	0.25	B
2	Near intersection of Santikayatpali Road to NH-23	1860	5400	0.34	B
3	Gudihali (Intersection of NH-23 & NH-215)	2227	5400	0.41	C

 # Considering peak hour traffic at the three locations

Conclusion: The level of service will remain same even after including additional traffic due to proposed project.

11.5 ANALYSIS OF ALTERNATIVES

The following three alternative sites have been considered for the proposed plant before finalizing the site.

- Kapanda
- Raikela
- Lauposh

Feasibility criteria for selecting the Site- 1:

- The total number of trees present within the plant boundary is near to 3972 in site 1 from which 260 no of trees to be transplanted/felled.
- The Brahmani river which will be the source of water is adjacent (1.65 km) to the site.
- National Highway is 3.1 km from the site.
- Power Grid (Purunapani sub-station) is 3.70 km. `

Rejection criteria for not selecting Site- 2 & Site- 3:

In Site 2:

- Trees present within the plant boundary is 23,467 no.,
- A tree coming in main plant is more.
- The land is hilly terrain area (MSL 370 m – 444 m) and Dense forest.
- NH & SH is more than 10 km from the site.

In Site 3:

- Habitations are near to plant boundary,
- Trees present in boundary 15,442 no. (MSL 209 m – 289 m)
- OMC Power GRID is 8 km from the site.
- Distance from Koida Iron ore mine 22 km.

Analysis of Alternate technologies

- Travelling Grate & Grate-Kiln-Cooler are the universal processes for indurations of green pellets using hematite iron ores.
- Travelling grate technology will be adopted.

11.6 ENVIRONMENT MONITORING PROGRAMME

Parameters to be monitored during construction and operation of the unit

Attribute	Parameters proposed for monitoring	Mode of Monitoring	Frequency of Monitoring	Project phase in Monitoring	Monitoring Agency
Air Quality	PM_{10}, $PM_{2.5,}$ SO_2, NOx, CO	Online Continuous	Daily	Operation	In-house online
Air Quality	PM_{10}, $PM_{2.5,}$ SO_2, NOx, CO	Manual	Twice in a week	Construction	Third party
Noise Quality	Leq (Day), Leq(Night)	Manual	Once in a month	All phases	Third party
Water Quality	Parameters specified under IS:2295 and IS:10500	Manual	Monthly	Operation	Third party

Soil Quality	Physio-chemical parameters	Manual	Quarterly	Operation	Third party

11.7 ADDITIONAL STUDIES

Details of Advertisement	22nd April 2022
Date of Public consultation	24th May 2022
Venue	Village Bad-Purnapani, Football Playground Block- Lahunipada, Sundargarh District,Odisha
Presiding Officer	Shri Pradeep Dang, Sub-Collector, Bonai Sub Division, Sundargarh
Major issues raised	Employment, Health & Ambulance, Plantation, Peripheral Development, Road Construction

11.8 PROJECT BENEFITS

- A total employment will be generated is 500 Nos. (Direct: 280 Nos. & contractual: 220 Nos.; Preference will be given to local Public) which is approx. 90% of local people influence.
- Budget allocated against issue raised during public hearing Rs. 409.9 Lakhs which will benefit to the local peoples of the villagers.
- Improvement in physical infrastructure, Improvement In social Infrastructure Employment Potential- Skilled; Semi-Skilled and Unskilled
- Additional housing demand for rental accommodation will increase
- Cultural, recreation and aesthetic facilities will also improve.
- Improvement in communication, transport, education, community development and medical facilities.
- Overall change in employment and income opportunity.

11.9 ENVIRONMENT MANAGEMENT PLAN

11.9.1 Onsite Offsite Emergency Plan

- An onsite disaster management plan is prepared and furnished in EIA report
- Pre-Emergency preparedness measures will be taken & internal safety team will be constituted for management and implementation of safety measures
- Training to all employees to handle different type of emergencies.
- Fire hydrants will be available to combat fire if any.

11.9.2 Occupational Health & Safety Management Plan

- Pre-medical examination of all new employees as per statutory provision.
- Periodic Health Check-up of all employees.
- Providing Hygienic canteen and drinking water for all employees.
- Provision of first aid and onward medical treatment for employees.

11.9.3 Greenbelt Development Plan

Existing trees available in the project site after felling 1500 nos. of trees= 3972-1500 = 2472 Nos.

Hence trees for plantation = 21,950-2,472 = 19,478 nos. of trees
Budget = 19478 x Rs.350 = Rs.68,17,300/- ~ Rs.68.17 Lakhs

Compensatory Afforestation

In the proposed construction area for plant facilities, 1500 number of trees have been cut and 260 number of trees will be transplanted. As per guidelines, compensatory afforestation will be done in the ratio of 1:10 i.e. 15000 number. The proposed plantation will be developed as gap plantation within the plant site especially in the western region where the density of greenbelt is lesser.

Compensatory afforestation against tree felling of 1500 tress in ratio 1:10 = 15000 X Rs. 350 Nos. = Rs. 52,50,000/-

Hence total budget for green belt development = 68.17 Lakhs + 52.50 Lakhs = **120.67 Lakhs**

The total greenbelt and plantation area will be 8.78 ha (21.7 acres) i.e. 45.4% of the total plant area of 19.32 ha. (47.74 acres).

11.9.4 E- Waste Management Plan

- Give the discarded Electronic Equipment only at the authorized collection centers so that the same can be properly recycled.
- Information about the hazards of improper disposal or handling or improper recycling of the Electronic Waste.
- Drop the discarded Electronic Equipment only in the bins meant for the Electronic Waste
- Those Electronic items will be use if the retailer about the take back schemes.
- Consult the authorized service centre as to whether the Electronic Equipment can be repaired or not, before discarding the same.
- If the unwanted Electronic Equipment still work or can be repaired then consider work or can be repaired then consider donating them.
- Avoid to burning E-Waste caused air pollution.

11.9.5 Plastic Waste Management Plan

- Reducing use of plastic bags in plant area
- Periodic collection of plastic waste from plant area & disposed to appropriate authorized recycler.
- Ensuring that open burning of plastic waste does not take place
- Plastic scrap are sold to scrap dealers/ recyclers
- In plant premises place different colored bins for commercial & domestic plastic waste.
- To make all employers & Workers aware of the need to understand their legal and constitutional responsibility of engaging in plastic waste management.
- To encourage employers & Workers to do their utmost to align their thinking and actions for waste reduction at source, ruse and responsible disposal of segregated plastic waste to contribute to achieving zero Landfill.

11.9.6 Construction Waste Management Plan

- Reduce storage time for materials on site, and therefore risk of damage and wastage
- Return of returnable/ reusable/ recyclable packaging and surplus material to the manufacturer for reuse instead of generating waste onsite
- Reduce waste from the breaking out of the hard standing concrete materials.
- Reduce the volume of metal waste produced

EMPs	Estimated Capital cost in Rs. Cr.	Recurring cost in Rs. Cr./annum
Air Pollution Control	10.65	0.4
Water Pollution Control	2.9	0.1
Noise Pollution Control	1.2	0.1
Environment Monitoring & Management	0.70	0.57
Occupational Health	1.5	0.1
EMS & Disaster Management	1.3	0.10
Green Belt/plantation & Maintenance	1.21	0.04
Total	**19.46**	**1.41**

Source: KIPL

EMP Cost is about 5.69 % of the total project cost.

11.10 CONCLUSION

From the EIA study conducted it is safe to say that the proposed project will not likely to have any significant negative impact on the environment of the area since all adequate measures have been taken to mitigate the impacts. The company will bring about the development in the society by providing livelihood to the surrounding area.

CHAPTER- 12
DISCLOSURE OF CONSULTANTS ENGAGED

12.1 CONSULTANT'S PROFILE

Organization : Visiontek Consultancy Services Pvt. Ltd.
Address : Plot No-M-22 & 23, Chandaka Industrial Estate, Patia, Bhubaneswar-24 (Odisha)
Contact Person : P. Kumar Ranjan
Contact No : 9338772882
E Mail ID : p_kumar_ranjan@vcspl.org
Principal Field : Consulting Services

Visiontek Consultancy Services Private Limited is a pioneer consulting organization, specializing in Environmental Protection, Industrial Pollution Control & Engineering field. This is also rendering consultancy services for Geotechnical Investigations, Topographical Survey, Planning and Designs, Supervision, Quality Monitoring and Preparing detailed Project Reports. VCSPL assists a client in comprehensive environmental and engineering services ranging from conceptual planning and preliminary investigation to detailed engineering design. Local knowledge coupled with national and international experience of proven technical know-how and a strong commitment from our team of experts; enable VCSPL to assist in solving the clients environmental and engineering problems successfully with competence by first analyzing then visualizing and finally utilizing technically strong and dedicated skill.

VCSPL has successfully completed a wide range of multi-disciplinary assignments. VCSPL was founded in 2001 & has over more than 200 people working in our corporate office at Bhubaneswar, Orissa and branch office at Ranchi and Delhi, also at various industrial sites.

Vision:

- Build stability and success through sustainable growth and profit.
- Put clients and their needs back at the heart of business.
- Deliver more than just compliance with environmental, health & safety requirements.

Mission:

To continue to create value for its clients, shareholders and employees and to be considered as the leading global professional service provider of technical and environmental consulting services by its clients, employees and peers.

Environment Policy:

Good environment management is the central focus of our business activities. We extend this through our own operation and management, in order to reflect positively in our clients, shareholders and staffs. Visiontek takes its commitment to quality, health, safety & environmental management very seriously.

The organization:

Visiontek Consultancy Services Pvt. Ltd. is floated by the master brain of few former Chief Engineers of the State Government, Central Govt. and young Enthusiastic Engineers and Scientists. The Organization has Seven Divisions each headed by an eminent Engineer and allied laboratory and computerized services. The divisions are as follows:

- Planning project preparation and monitoring
- Infrastructure roads, highways & bridges
- Designs and Detailed Engineering
- Water Resource Management
- Industrial Pollution Control and Socioeconomic Study
- Construction management & Quality Control
- Survey and Investigation

12.2 INVOLVEMENT IN EIA

VCSPL has carried out a large number of assignments in Environmental Impact Assessment and Environmental Management Plans (EMP) in the following sectors:

- Mining of Minerals
- River Valley, Hydel, Drainage and Irrigation Projects.
- Thermal Power Plants.
- Coal Washeries.
- Mineral Beneficiation.
- Metallurgical Industries
- Cement Plants.
- Coke Oven Plants.
- Leather/Skin/Hide processing industry.
- Common Hazardous waste treatment, storage and disposal facilities.
- Building & Large construction projects.

The organization helps the Government bodies and other agencies in identifying and specifying EIA requirements. The task included highlighting environmental constraints, monitoring air & water qualities, determining soil characteristics, background noise levels for the identification of the projects impact on the environment. Impact on Flora, Fauna and Agriculture and impact on land use are then carried out. The organization is also undertaking post project impact studies.

12.3 ACCREDITATION OF VCSPL

VCSPL has been accredited as Cat. A organization by QCI- NABET, as per the NABET Certificate No. & Date of Issue: NABET/EIA/2023/RA 0209, dated 29.06.2021. – Valid up to 16th December, 2023.

VCSPL's Environmental Laboratory has been recognized under E (P) Act, 1986 by MoEF& CC. The laboratory was also accredited by NABL and certificate of accreditation and copy of recognition letter is provided below along with other credentials.

Quality Council of India

National Accreditation Board for Education & Training

CERTIFICATE OF ACCREDITATION

Visiontek Consultancy Services Pvt Ltd.

Plot No M-22&23, Chandaka Industrial Estate, Patia, Bhubaneswar-751024, Odisha

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 –

Sl. No.	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1.	Mining of minerals including opencast / underground mining	1	1 (a) (i)	A
2.	River Valley projects	3	1 (c)	A
3.	Thermal power plants	4	1 (d)	A
4.	Coal washeries	6	2 (a)	A
5.	Mineral beneficiation	7	2 (b)	A
6.	Metallurgical industries	8	3 (a)	A
7.	Cement plants	9	3 (b)	A
8.	Coke oven plants	11	4 (b)	B
9.	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes	31	7 (c)	B
10.	Common hazardous waste treatment, storage and disposal facilities (TSDFs)	32	7 (d)	A
11.	Bio-medical waste treatment facilities	32A	7 (d a)	B
12.	Highways	34	7 (f)	B
13.	Common Effluent Treatment Plants (CETPs)	36	7 (h)	B
14.	Common Municipal Solid Waste Management Facility (CMSWMF)	37	7 (i)	B
15.	Building and construction projects	38	8 (a)	B
16.	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC MoM dated March 26, 2021 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/21/1786 dated June 29, 2021. The accreditation needs to be renewed before the expiry Visiontek Consultancy Services Pvt Ltd, Bhubaneswar following due process of assessment.

Sr. Director, NABET
Dated: June 29, 2021

Certificate No.
NABET/EIA/2023/RA 0209

Valid till
Dec 16, 2023

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website.

Accreditation Certificate - NABET

F.No.15018/57/2017-CPW
Government of India
Ministry of Environment, Forest and Climate Change
(CP Division)

Agni-233, Indira Paryavaran Bhavan,
Jor Bagh Road,
New Delhi – 110 003.
Dated, the 23rd May ,2019

To

M/s Visiontek Consultancy Services Pvt. Ltd.
Plot No. M22 & M23
Chandaka Industrial Estate Patia
Bhubaneswar-751024, Odisha

Subject: - Recognition of M/s Visiontek Consultancy Services Pvt. Ltd., Plot No. M22 & M23, Chandak Industrial Estate Patia, Bhubaneswar-751024, Odisha as Environmental Laboratory under the Environment (Protection)Act. 1986.

Sir,

I am directed to refer to your application dated: 06.12.2017 for recognition of your laboratory under Environment (Protection) Act, 1986. Based on the recommendations of the Expert Committee for Recognition of Environmental Laboratories in its 59th meeting held on 22nd April, 2019 and your acceptance of the revised terms and conditions at Annexure-III & IV of the Guidelines for recognition of Environmental Laboratories, this Ministry approves the recognition of M/s Visiontek Consultancy Services Pvt. Ltd., Plot No. M22 & M23, Chandak Industrial Estate Patia, Bhubaneswar-751024, Odisha for five years, as shall be notified in the Gazette of India.

2. As sought in your aforementioned application M/s Visiontek Consultancy Services Pvt. Ltd., Bhubaneswar, Odisha may undertake the following tests:

I. **Physical Tests**: Conductivity, Colour, pH, Fixed & volatile solids, Total solids, Total dissolved solids, Total suspended solids, Turbidity, Temperature, Velocity & discharge measurement of industrial effluent stream, Flocculation test (Jar Test), Odour, Salinity, Settleable solids and Sludge volume index (SVI).

II. **Inorganic (General & Non-metallic)**: Acidity, Alkalinity, Ammonical nitrogen, Chloride, Chlorine residual, Dissolved oxygen, Fluoride, Total hardness, Total kjehldal nitrogen (TKN), Nitrite nitrogen, Nitrate nitrogen, Phosphate, Sulphate, Carbon dioxide, Sulphite, Silica, Cyanide and Sulphide.

III. **Inorganic (Trace metals):** Boron, Cadmium, Calcium, Chromium Total, Chromium Hexavalent, Copper, Iron, Lead, Magnesium, Mercury, Nickel, Potassium, Sodium, Sodium absorption ratio, Zinc, Arsenic, Aluminium, Barium, Manganese, Selenium and Cobalt.

IV. **Organics (General) and Trace Organics**: Bio-chemical oxygen demand (BOD), Chemical oxygen demand (COD), Oil & grease, Phenol, Pesticide ((Organo-chlorine, Organo nitrogen-phosphorous),Polynuclear aromatic hydrocarbon (PAH) each and Organic carbon (in solid).

V. **Microbiological**: Total coliform, Faecal Coliform, Faecal streptococci, E. coli and Total Plate Count.

VI. **Toxicological Tests**: Bioassay method for evaluation of toxicity using fish after 96 hrs and Measurement of toxicity factor using Zebra fish.

VII. **Biological Tests**: Benthic organism identification and Count, Saprobity Index and Chlorophyll.

VIII. **Hazardous Waste**: Preparation of Leachate (TCLP extract/water extract), Ignibility (Flash point), Reactivity and Measurement of heavy metals/pesticides in the waste/leachate.

IX. **Soil/ Sludge/ Sediment and Solid Waste**: Boron, Cation Exchange Capacity (CEC), Electrical Conductivity, Nitrogen available, Organic carbon/ matter (chemical method), pH, Phosphorous (available), Phosphate (ortho), Phosphate (total), Potassium, SAR in soil extract, Sodim, Soil moisture, TKN, Calorific Value, Ammonia, Bicarbonate, Calcium, Calcium carbonate, Chloride, Colour, Heavy metal, Magnesium., Mechanical soil analysis, Nitrate, Nitrite, Sulphate, TOC and Water holding capacity.

Recognition Letter – MoEF&CC

Certificate

Lab Name : VISIONTEK CONSULTANCY SERVICES PVT. LTD.

Address : PLOT NO. M-22 & M-23, CHANDAKA INDUSTRIAL ESTATE, PATIA
Bhubaneswar, Pin - 751024
Odisha , INDIA

Field	Testing	**Discipline**	Chemical
Certificate No.	TC-7944		
Issue Date	26/09/2023	**Valid Upto**	25/09/2025
Extend Upto	-	**Amendment date**	-

Discipline	Group	Sub Group
Chemical	Atmospheric Pollution	Ambient air
Chemical	Atmospheric Pollution	Ambient Noise Levels (Excluding Vibration)
Chemical	Atmospheric Pollution	Source Noise Levels (Excluding vibration) Particular Source to be specified
Chemical	Atmospheric Pollution	Stack emission
Chemical	Pollution & Environment	Soil/Sediments
Chemical	Pollution & Environment	Waste Water (Effluents/Sewage)
Chemical	Pollution & Environment	Wastes (Liquid/Slurry/Sludge/Solid/Semi-Solid)
Chemical	Residues in Water	Pesticide
Chemical	Residues in Water	Phenols
Chemical	Residues in Water	Polycyclic Aromatic Hydrocarbons
Chemical	Residues in Water	Trace Metal Elements
Chemical	Water	Construction Water
Chemical	Water	Drinking Water
Chemical	Water	Ground Water
Chemical	Water	Surface Water

Accreditation Certificate - NABL

12.4 QUALITY POLICY OF VCSPL

DNV

MANAGEMENT SYSTEM CERTIFICATE

Certificate no.: 159610-2014-AQ-IND-NABCB | Initial certification date: 20 July 2011 | Valid: 20 July 2023 – 19 July 2026

This is to certify that the management system of

Visiontek Consultancy Services Private Limited

IDCO Plot No. M22 & M23, Chandaka Industrial Estate, P.O. Patia, Bhubaneswar - 751024, Odisha, India

has been found to conform to the Quality Management System standard:

ISO 9001:2015

This certificate is valid for the following scope:

- Provision of consultancy in environmental management, civil engineering and infrastructure development
- Provision of environment monitoring & soil and material testing services
- GIS and Remote Sensing, DGPS, TS, LIDAR survey, UAS/UAV/Drone imaging services, HRSI photogrammetric imaging services, project management consultancy, third party inspection

Place and date: **Chennai, 16 July 2023**

For the issuing office: **DNV - Business Assurance ROMA, No. 10, GST Road, Alandur,Chennai - 600 016, India**

IAF NABCB QMS 001

Sivadasan Madiyath
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.

ACCREDITED UNIT: DNV BUSINESS ASSURANCE INDIA PVT. LTD., 3rd Floor, Tower 3 Unit 2B, Equinox Business Park, Lal Bahadur Shastri Marg, CTS 83, 83/1 to 19 Village Kurla,Kurla West, Mumbai, Mumbai Suburban, Maharashtra, 400070 - TEL: +91 22 61769000. assurance.dnv.com

ISO 9001:2015

DNV

MANAGEMENT SYSTEM CERTIFICATE

Certificate no.:	Initial certification date:	Valid:
149811-2014-AE-IND-RvA	19 March 2014	19 March 2023 – 18 March 2026

This is to certify that the management system of

Visiontek Consultancy Services Pvt. Ltd.

IDCO Plot No. M22 & M23, Chandaka Industrial Estate, P.O. Patia, Bhubaneswar - 751 024, Odisha, India

has been found to conform to the Environmental Management System standard:

ISO 14001:2015

This certificate is valid for the following scope:

Provision of consultancy in environmental management, civil engineering and infrastructure development
Provision of environmental monitoring & soil and material testing services

Place and date:
Chennai, 09 February 2023

For the issuing office:
DNV - Business Assurance
ROMA, No. 10, GST Road, Alandur,Chennai - 600 016, India

MGMT. SYS. RvA C 024

IAF

Sivadasan Madiyath
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.
ACCREDITED UNIT: DNV Business Assurance B.V., Zwolseweg 1, 2994 LB, Barendrecht, Netherlands - TEL: +31(0)102922689. www.dnv.com/assurance

ISO 14001:2015

KVQA

Certificate of Registration

(Occupational Health & Safety Management Systems)

KVQA CERTIFICATION SERVICES PVT. LTD.

This is to certify that the Occupational Health & Safety Management Systems of

VISIONTEK CONSULTANCY SERVICES PVT. LTD.

IDCO Plot No-M22&M23, Chandaka Industrial Estate, Patia-751024, Bhubaneswar, India

Has been found to be of the Occupational Health & Safety Management Systems Standard

ISO 45001:2018 (OH & S)

This certificate is valid for the following product or service range

- **Provision of Consultancy in Environmental Management, Civil Engineering & Infrastructure Development.**
- **Provision of Environmental Monitoring & Soil and Material Testing Service.**

Certificate No: KDACO202309008

1st Surveillance Due On: 22/08/2024: Done On:
2nd Surveillance Due On: 22/08/2025: Done On:

Date Of Issue: 22, September, 2023
Valid Until: 21, September, 2026*

Issued by
Authorised signatory KVQA

MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT IAF

eiaCI
مركز الإمارات العالمي للاعتماد
Emirates International Accreditation Centre
CB-OHSMS-045

To Check the Status of the Certification kindly log on to www.kvqa.in
F-300, Sector - 63, Noida U.P. India. Ph- 011 -22711940, 22711941
Email : delhi@kvqaindia.com
***Subject to successful completion of surveillance audits**

ISO 45001:2018 (OH & S)

12.5 QUALITY POLICY OF VCSPL

DOC. Name:	INTEGRATED MANAGEMENT SYSTEM MANUAL
DOC No.:	VCSPL/IMSM/001/02

QUALITY POLICY

Visiontek Consultancy Services Pvt. Ltd. is committed to enhance shareholders value and emerge as a global professional service provider by providing qualitative consultancy & monitoring services in the field of environment & engineering including Environmental Impact Assessment, Laboratory Analysis, Auditing, Design & Development, Due Diligence etc. by putting customer's need at the heart of our business while maintaining green, clean, safe & healthy working conditions in our activities.

POLICY STATEMENT

VCSPL is committed to ensure:

- **Understanding Customer requirements** & be responsive to their ever-changing needs, thus resulting in a successful relationship.
- Adopt innovative methods to provide cost effective & quality products with **timely delivery & services**.
- Encourage our people to continuously upgrade their skills and services to attain total **customer satisfaction** (such as clients, project affected people, regulatory & legal bodies and other stake holders).
- Involvement of personnel in quality related activities to ensure "**Continual improvement**" in all the functions of our organization.
- Complying with applicable statutory requirements, **international legislation** and classification society requirements related to the services provided
- Continual & consistent approach towards **public and customer safety**.
- Complying with the requirements of **ISO 9001, ISO 14001, OHSAS 18001** as well as continually improving its Management System
- Customer oriented & user-friendly approach for Investors, Regulatory Authorities & General Public, Employees & Suppliers.

QUALITY OBJECTIVES

The following are the Quality Objectives:

- To complete minimum 11 EIA Reports per year
- To achieve over 95% on-time completion of jobs.
- To increase the customer satisfaction above 85%.
- To ensure implementation of safety objectives of the company, restrict accidents below 5 per year.
- To Improve & update the knowledge and skills by imparting training to the In-house EIA Experts and Lab staff. Training period, minimum 15 man-days/year for newly appointed staff member and minimum 5-man days/years for existing staff members.

Date : 08.12.2021

Signature of Managing Director

Prepared & Issued by:	Approved by	Issue No.: 04	Date: 08.12.2021
(Management Representative)	**(Managing Director)**	Rev No..: 02	Date: 10.12.2021

12.6 TEAM INVOLVED IN THE EIA/EMP PREPARATION

Details of experts contributing to the EIA/EMP Study along with their period of involvement and task assigned are provided below.

	Name	Period of involvement	Approval Status as per QCI NABET Scheme
EIA Coordinator	Dr. Ashok Rathoure	Sept 2021 -Till date.	MoM Supple AC, May 20, 2022

Functional Area Experts:-

S. No	Functional Area	Name of the Expert/s	Involvement (Period & Task)	Approval Status as per QCI NABET Scheme
1	AP (Air pollution monitoring, prevention and control)	FAE (Cat. A): Dr. C.R.Panda	March 2021 – March 2023 Assessment of existing Air Quality, Identifying the sources of emissions, Evaluation of Ambient Air Quality Results, identification of Impacts, suggestions & finalization of mitigation measures.	RA AC MoM March 26, 2021
		TM: Bharat Sharma		Proposed
2	AQ (Meteorology, air quality modeling and prediction)	FAE (Cat. A): Dr. C.R.Panda	March 2021 – March 2023 Identification of air emission sources and their inventorisation, prediction of cumulative impacts due to all identified area and point sources. Air dispersion modeling for prediction of GLCS due to PM10, SO_2 and NOx. Finalization of mitigation measures.	RA AC MoM March 26, 2021
		TM: Siddhartha Sengupta		Proposed
		TM: Mr. Gangadhar Sahoo	Also, participated as Team EIA-coordinator.	Proposed
3	WP (Water pollution monitoring, prevention and control)	FAE (Cat. A): Dr. C.R.Panda	March 2021 – March 2023 Evaluation of Surface and Ground water quality results, impacts on Water environment and mitigations. Identification, Characterization of effluent streams and treatment thereof. Water balance and conservation measures.	RA AC MoM March 26, 2021
		TM: Bharat Sharma		

4	SHW (Solid and hazardous waste management)	FAE (Cat. A): B.K Mishra TM: Bharat Sharma	March 2021 – Till date Identification of potential Solid & hazardous waste generating sources and their invetorisation, finalization of waste management strategies, identification of impacts, suggestions & finalization of mitigation measures.	RA AC MoM March 26, 2021 Proposed
5	SE (Socio-economics)	FAE (Cat. A): Dr. Arati Nanda	March 2021 – Till date Field Survey, Assessment of Possible Changes due to proposed industrial activity, Determination of demographic profile, identification of impacts, suggestions & finalization of mitigation measures.	RA AC MoM March 26, 2021
6	EB (Ecology and biodiversity)	FAE (Cat. A): Dr. Ashok Rathoure	Sept 2021 -Till date Field Survey, Assessment of possible impacts on biological environment status in respect of terrestrial, aquatic flora & fauna. impacts, suggestions & finalization of mitigation measures	MoM Supple AC, May 20, 2022
7	HG (Hydrology, ground water and water conservation)	FAE (Cat. A): Prafulla Kumar Panda TM: Anupam Moitra	March 2021 – Till date Study of water bearing properties of formations, occurrences of ground water and depth to ground water level at the project site and study area. Rainwater Harvesting feasibility analysis, storm water management, surface runoff calculation. Recommendations for water conservation measures.	RA AC MoM March 26, 2021 Proposed
8	GEO (Geology)	FAE (Cat. A): Prafulla Kumar Panda TM: Anupam Moitra	March 2021 – Till date Study of Geological aspects, Topographical conditions, Natural drainage, Soil types and Geomorphology, Litho profile and geological succession of the project site and study area. Determination of hard rock foundation. Impacts of the project and Recommendations.	RA AC MoM March 26, 2021 Proposed
9	LU (Land use)	FAE (Cat. A): Dr. B.C.	March 2021 – Till date Analysis of data related to land use, Development of LULC Maps using GIS	RA AC MoM March 26, 2021

		Nagaraja	techniques, impact on Land environment with respect to land form change.	
		TM: Anupam Moitra		Proposed
10	RH (Risk assessment and hazard management)	FAE (Cat. A): Aprup A. Adwadkar	March 2021 – Till date Identification of hazard prone areas, major risks associated with and quantifying the extent. Development of Onsite/Offsite emergency plan and integration with local disaster management plan.	RA AC MoM March 26, 2021
11	NV (Noise and vibration)	FAE (Cat. A): Parag S. Khujnare	February 2021 – Till date Analysis of noise quality data, identification of impacts, suggestions & finalization of suitable mitigation measures. Also, participated as co EIA-coordinator for iron ore beneficiation units.	RA AC MoM March 26, 2021
12	SC (Soil conservation)	FAE (Cat. A): Rama C. Mohanty	March 2021 – March 2023 Analysis of Soil Quality Data, Identification of Impacts, Suggestions & finalization of suitable mitigation measures	RA AC MoM March 26, 2021

CHAPTER- 13
COURT CASES & ORDERS

13.1 PROJECT & SITE DETAILS

It is proposed to set up a Greenfield project of Iron Ore Beneficiation Plant- 1.5 MTPA throughput (1.16 MTPA High Grade Ore), Iron ore Pelletization Plant – 1.2 MTPA and Producer Gas Plant – 27,000 Nm^3/hr located at village- Kapanda, Tehsil– Lahunipara, District- Sundergarh, Odisha of M/s KAI International Private Limited over an area of 19.32 Ha (47.74 Acres) out of total 47.348 Ha (117 Acres) allotted by IDCO.

The proposed site is surrounded by Hillocks from three sides. The Kukia RF is located in the North western side of the project area at a distance of 0.12 km. In the other side there is a hillock which is on a higher elevation. The Brahmani River is located at about 2.0 km from the proposed site. The proposed site is not a part of any National Park, Wildlife Sanctuary, Critical wildlife habitat, Elephant or Tiger corridor. It is not within the Eco sensitive zone of any protected area. The nearest PA is Badrama Wildlife Sanctuary which is about 50 km from the proposed site.

Elevation of project site ranges from 193m to 252m and the hilly portion in the project site has been demarcated for greenbelt development and plantation only.

13.2 ACTVITIES CARRIED OUT AT SITE

Following activities were carried out at project site.

- 1500 trees have been felled after obtaining necessary permission from DFO cum Wildlife Warden, Rourkela Forest Division, Sundargarh, Odisha vide letter no. 5838/3F(Lease), dated 20.09.2021. Which was verified & passed with Govt. Seal by Forest Department, Odisha.
- A small portion of the project boundary (about 30%) is fenced with pillars & pre cast slabs.
- Levelling of temporary pathways only for movement of water tankers and tractors have been done.

13.3 BACKGROUND OF LITIGATION

The litigation set out by the Applicants in the Original Application No. 94/2021/EZ is that the Project Proponent, M/s K A I International Private Limited (Respondent No.9) proposes to set-up Iron ore Beneficiation Plant with production capacity of 1.5 Million Tons Per Annum (MTPA), Iron Ore Pelletisation Plant of 1.2 MTPA, Sponge Iron of 0.346 MTPA, Billet of 0.43 MTPA, Rolling Mil 0.417 MTPA, Captive Power Plant (CPP) of 75 MW, Producer Gas Plant 30,000 Nm3/hr. and SMS Slag Crushing Unit 60,150 TPA in Kapand Mouza of Lahunipada Tahasil in Sundergarh District. Its proposal for EC was considered by (Expert Appraisal Committee) EAC on 25-26 February, 2021. In view of high pollution potential, the proposal was returned. Still, the Project Proponent has felled large number of trees illegally which will adversely affect animal habitat and animal movement in the area. The area is contiguous to Kukia Reserve Forest which is also a habitat of wild animals with rare and endangered species. Other adjoining reserved forests are Kukia RF (NW) 0.4 km, Dhenkiam RF (W) 2.8 km, Dhenkiam Block RF (NW 4.3 km, Nalghati

Rajabasa RF (SWw) 5.2, km Dhanaghar Extension RF (NNE) 7.4km, Gurundia RF (Sww) 8.7 km, Bhagoth RF (SSW) 7.1 km. Complaint was filed with the DFO, Rourkela, on 01.10.2021 against illegal felling of trees but no action was taken. The Project Proponent is going ahead with the construction of the project without requisite EC.

As per the Original Application No. 94/2021/EZ (reference final NGT Order date 22.08.2023), it is stated that the applicant (Mr. Chittaranjan Mahanta & Others) alleged that:

"The allegation of the Applicants in the present Original Application is that Respondent No.9, M/s K A I International Private Limited, is setting-up an Iron Ore Pelletisation Plant with a production capacity of 1.5 million tonnes per annum without obtaining Environmental Clearance (EC) or Forest Clearance (FC). It is also stated that the Respondent No.9 is proposing to set-up a Steel Plant and allied activities such as Iron Ore Beneficiation Plant. It is further stated that for that purpose large scale felling of trees to the extent of almost 10,000 trees has been carried out and this area is contiguous to the Kukia Reserve Forest and many other reserve forests within a 10 Km radius which is the habitat of wild animals and endangered species of different flora and fauna of the area, illegally treating the area as 'non-forest' and the permission granted by the Divisional Forest Officer (DFO) is in violation of the law laid down, inter-alia, in T. N. Godavarman (1997) 2 SCC 267."

However, the unit had revised the proposal with change of configuration, reduction of land area and obtained permission from concerned department for the tree felling. The chronology of events is detailed below.

13.4 CHRONOLOGY OF PROJECT AND CASE

Sl. No.	Date	Description	Documents
1.	17.08.2019	Project Approved in state level single window	Letter approved by SLWCA, Odisha vide letter No.SJ/SLSWCA-217(2)/6467, dated 17.08.2019 (**Annexure- A**)
2.	06.08.2021	Land allotted by IDCO	IDCO allotted land for 47.348 Ha. Land vide letter no. IDCO/HO/PNA/LA/E/7751/2019-2/12687, dated 06.08.2021 (**Annexure- B**)
3.	26.02.2021	1st Applied for ToR for integrated steel plant which was returned by MOEF&CC.	MoM of EAC 31st Meeting held on 25th- 26th February, 2021 for return of proposal. (**Annexure- C**)
4.	20.09.2021	Tree cutting permission issued by DFO	DFO granted for felling of 1500 nos. of trees vide letter no.5838/3F(Lease), dated 20.09.2021(**Annexure- D**)
5.	21.10.2021	2nd Application for ToR with revised configuration only for Beneficiation and Pellet plant with land area limited to 47.74 acres only.	Applied for TOR vide Proposal No. IA/OR/IND/235042/2021 Dtd. 21.10.2021 (**Annexure- E**)
6.	29.11.2021	ToR issued by MoEF&CC	ToR issued by MoEF&CC vide letter no.IA-

			J-1101/59/2021-IA-II(I) dated 29.11.2021 (**Annexure- F**)
7.	21.04.2022	Land Deed between IDCO & KAI	Document No. 11722200143 dtd. 12.04.2022 (**Annexure- G**)
8.		Baseline Data Collected for EIA	1st October 2021 to 31st December 2021
Public Hearing Details			
9.	13.04.2022	Issued by District Magistrate to SPCB for conducting PH	Lt No. 109/XV-13/2022 Dtd. 13.04.2022 (**Annexure-H**)
10.	05.07.2022	Public hearing conducted	Public Hearing Proceedings issued by SPCB, Odisha vide letter no.11670/IND-II-PH-1017, dated 05.07.2022 (**Annexure- I**)
Allegation by local people at NGT for felling of trees			
11.	08.10.2021	NGT interim order for no further tree felling or any other activity at site till further orders.	NGT Order dtd. 08.10.2021(**Annexure-J**)
12.	10.12.2022	Final EIA submitted for grant of EC	Applied for EC vide online proposal no.IA/OR/IND1/410018/2022, dtd. 10.12.2022
13.	21.12.2022	EDS raised against final application of EC	EDS raised on dtd. 21.12.2022 by MoEF&CC (**Annexure- K**)
14.	07.02.2023	NGT order directs that EC proceedings will remain stayed till further orders. High Level Committee constituted by NGT	NGT Order dtd..07.02.2023 for stay on EC proceedings (**Annexure- L)**
15.	15.03.2023	Committee submitted field visit report	Lt N. 107-469/2022-EPE, Dtd.- 15.03.2023 (**Annexure- M**)
16.	22.08.2023	Final Order issued by NGT	Order Dtd. 22.08.2023 (**Annexure- N**)
17.	25.09.2023	MoEF&CC communicated to KIPL for submission of EC application within 3 months of final NGT Order	J-11011/524/2017-IA-II(I) dtd. 25.09.2023 (**Annexure- O**)

13.5 INTERIM ORDER OF NGT (BRIEF SUMMARY)

ORIGINAL APPLICATION NO.94/2021/EZ

Chittaranjan Mahanta & Ors [Applicant(s)] Versus State of Odisha & Ors.[Respondent(s)]

1st INTERIM ORDER DATE-08.10.2021

ORDER SUMMARY

Vide Point No.10:

All the respondents may file their counter affidavits within four weeks and shall exchange the same among themselves at least one week before the next date fixed.

Vide point no.11:

Considering the fact situation that so far Environmental Clearance has not been granted by the MoEF & CC, we (Hon'ble NGT) direct that no construction and felling of trees shall be made at the site in question by Respondent No.9, M/s KAI International Private Ltd. including boundary wall etc. till all necessary clearances are granted by the MoEF&CC and other authorities, till further order.

13.5.1 COMPLIANCE OF DIRECTION OF THE INTERIM ORDER

Interim Order Paragraph No.	Order Description	Compliance
10.	All the respondents may file their counter affidavits within four weeks and shall exchange the same among themselves at least one week before the next date fixed.	As per the direction of the Interim Order, M/s. KAI International Pvt. Ltd. has filed the counter affidavit dtd. 01.12.2021. Copy of the affidavit is enclosed as **Annexure- P**
11.	Considering the fact situation that so far Environmental Clearance has not been granted by the MoEF & CC, we (Hon'ble NGT) direct that no construction and felling of trees shall be made at the site in question by Respondent No.9, M/s KAI International Private Ltd. including boundary wall etc. till all necessary clearances are granted by the MoEF & CC and other authorities, till further order.	All the works have been stopped by KIPL with immediate effect i.e. 08.10.2021

2nd INTERIM ORDER DATE- 07.02.2023 FOR STAY OF EC PROCESS.

ORDER SUMMARY:

Vide point no. 14:

Interim Order Paragraph No.	Order Description	Compliance
14	A joint committee was constituted comprising of nominee of DG Forest, MoEF&CC (not below the rank of	The committee submitted field visited report on dtd. 10.05.2023 as per letter No. 107-469/21/EPE from the office of

	ADG), Integrated Regional Officer of MoEF&CC, Bhubaneshwar, PCCF (HoFF), Odisha, Chief Wildlife Warden, Odisha and the District Magistrate, Sundergarh. The Committee may undertake visit to the, ascertain impact of the project on the wildlife, forest and environment including the adjoining rivers and other environmentally sensitive areas. The Committee may meet within one month. It will be free to associate any other individual/institution/agency and interact with the stake holders. The nodal agency for coordination and compliance will be the Integrated Regional officer of MoEF&CC, Bhubaneshwar for coordination and compliance. The Committee may give its report within two months by email to the NGT Registrar, EZB by email with a copy thereof to the PP. The report may also be placed on the website of Integrated Regional Office of MoEF&CC for being accessed by the applicants or any other interested persons who will be free to respond to the report before the next date. The EC proceedings will remain stayed till further orders.	the Integrated Regional Office, MoEF&CC Bhubaneswar, Odisha.

13.6 FILED VISIT BY COMMITTEE (BRIEF SUMMARY)

Hon'ble National Green Tribunal, Eastern Zone, Kolkata, in its order dated 07.02.2022, in Original Application No. 94/2021/EZ has constituted a Joint committee comprising of nominee of DG Forest, MoEF&CC (not below the rank of ADG), Integrated Regional Officer of MoEF&CC, Bhubaneshwar,PCCF (HoFF), Odisha,Chief Wildlife Warden,Odisha and the District Magistrate, Sundergarh for conducting site visit. The committee had visited the site on 18.03.2023 and 28.04.2023.

The committee interacted with the villagers of village Kapanda (located 2 km away from the project site) and another village Patjharia (located near the site). During interaction, some of the villagers were apprehensive about the dust pollution because of smoke from chimney and water pollution because of polluted water from the plant. Some of the villagers were opposing because they are of the opinion that the black dust from the plant will act as layer in the leaves of the

vegetable crop they are growing and consequently the production will be reduced. They are also apprehensive that the polluted discharge from the plant will pollute the ground water as well as the surface water. Some of the villagers were in favour of the plant because they are of the opinion that they will get employment because of the plant. At the same time they were saying that the company should engage the local people in the plant.

OBSERVATION OF THE COMMITTEE

The proposed plant will not have any significant impact on wildlife and forests. There are no environmentally sensitive areas nearby. Like any other integrated Steel plant this will also have environmental concern, which can be addressed/ mitigated by the stipulations indicated (viz. Zero effluent discharge, provisions of ETPs, garland drains around the site, water harvesting structure etc.). These stipulations are indicative only and not exhaustive.

Further the plant should engage the local people by providing employment address the health issue of the villagers around the proposed site through regular medical checkup as well as treatment facilities and create a green belt all along the boundary of the proposed plant. Wildlife Conservation Plan, Eco restoration plan for the surrounding forests will also help in mitigating the adverse impact

13.7 FINAL ORDER OF NGT (BRIEF SUMMARY)

ORIGINAL APPLICATION NO.94/2021/EZ

Chittaranjan Mahanta & Ors [Applicant(s)] Versus State of Odisha & Ors.[Respondent(s)]

FINAL ORDER DATE- 22.08.2023

FINAL ORDER SUMMARY:

Paragraph No. 50.

In view of above, we (Hon'ble NGT) are of the view that the facts as they (KIPL) stand need to be examined by the Expert Appraisal Committee before whom the question relating to grant of Environmental Clearance to the Project Proponent is still pending and the question whether the Project Proponent is in violation of the Notification dated 19.08.2010 read with subsequent notification dated 29.03.2022 issued by the MoEF&CC, considering the fact that the Project Proponent has also deposited a sum of Rs. 62,77,740/- (Rupees Sixty-Two Lakhs Seventy-Seven Thousand Seven Hundred Forty only) towards royalty and replantation of the trees, is a matter which needs to be examined by the Expert Appraisal Committee. Question as to whether the Project Proponent, Respondent No.9, is liable for payment of Environmental Compensation for loss caused to the environment is also required to be considered by the MoEF&CC in totality of the facts and circumstances of the case and the judgments of the Hon'ble Supreme Court.

Paragraph No. 51.

Considering the totality of the case and the law laid down by the Hon'ble Supreme Court, we (Hon'ble NGT) dispose of the Original Application 94/2021/EZ with a direction to the Respondent No.8, MoEF&CC, to take a decision in the matter of grant of Environmental Clearance to the

Project Proponent, Respondent No.9 (KIPL), in accordance with law within a period of three months. The interim order granted by this 38 Court on 08.10.2021 shall continue to remain in operation and shall be subject to any final decision taken by the Respondent No.8 (MoEF&CC).

13.7.1 COMPLIANCE OF FINAL ORDER DIRECTION

Final Order Paragraph No.	Order Description	Compliance
51	Considering the totality of the case and the law laid down by the Hon'ble Supreme Court, we (Hon'ble NGT) dispose of the Original Application 94/2021/EZ with a direction to the Respondent No.8, MoEF&CC, to take a decision in the matter of grant of Environmental Clearance to the Project Proponent, Respondent No.9 (KIPL), in accordance with law within a period of three months.	A letter has been issued by MoEF & CC dated 25.09.2023 to submit the proposal on the Parivesh Portal to take a decision in the matter of grant of Environmental Clearance for the proposed project. Also, KIPL has replied to MoEF&CC on dated 12.10.2023 for submitting the Final EIA/EMP report within the stipulated time as per direction of Hon'ble NGT.
51	The interim order granted by this 38 Court on 08.10.2021 shall continue to remain in operation and shall be subject to any final decision taken by the Respondent No.8 (MoEF&CC).	No further activities have been carried out by KIPL at the proposed project site. Undertaking regarding the same submitted as **Annexure-Q.**

13.8 IDENTIFICATION OF VIOLATION AS PER NORMS, IF ANY

As per the provision of MoEF&CC OM dated 19.08.2010 and subsequent OM dated 29.03.2022, the following activities can be undertaken by the Project Proponent for securing the land. Copy of the above OMs are attached as **Annexure- R**

- Fencing of the project site by boundary wall using civil construction, barbed wire or precast/prefabricated components.
- Construction of temporary sheds using pre-fabricated/modular structure, for site office/guards and storing material and machinery.
- Provision of temporary electricity and water supply for site office/guards only.

The above activities shall be undertaken subject to following:

i. The land should be in the legal possession of the project proponent and all statutory approvals in respect of the project site should have been obtained.
ii. In case of involvement of any forest land, no activity shall be initiated at the site till the Stage II Forest Clearance is obtained under the relevant provisions of Forest (Conservation) Act, 1980.In case of applicability of Wildlife Clearance, necessary permission from standing Committee for national Board for wild life (SCNBWL) shall be obtained under the provisions of wildlife Protection Act,1972.

iii. In case of felling of trees if any, requisite permission from the forest Department/Statutory Authorities of the concerned State Government shall be obtained.
iv. The investment made by the project Proponent on the above, in anticipation of the applicable clearance under the relevant provisions of the Acts/Rules, shall be entirely at the cost and risk of the proponent.

As per provision of above notification mentioned vide para 3 (i) and para 4 (iii), KIPL has carried out following activities at the project site duly after allotment of land by IDCO land vide letter no. IDCO/HO/PNA/LA/E/7751/2019-2/12687, dated 06.08.2021.

- 1500 trees have been felled after obtaining necessary permission from DFO cum Wildlife Warden, Rourkela Forest Division, Sundargarh, Odisha vide letter no. 5838/3F(Lease), dated 20.09.2021. Which was verified & passed with Govt. Seal by Forest Department, Odisha.
- A small portion of the project boundary (about 30%) is fenced with pillars & pre cast slabs.
- Levelling of temporary pathways only for movement of water tankers and tractors have been done.

Therefore, aforesaid activities prior to grant of Environmental Clearance complies to the MoEF&CC OM dated 19.08.2010 read with subsequent OM dated 29.03.2022, as per Hon'ble NGT Order dated 22.08.2023.

Hence, it can be ascertained that no violation has been carried out by KIPL.

13.9 DAMAGE ASSESSMENT & PENALTY CALCULATIONS FOR VIOLATIONS, IF ANY

Not Applicable for this project as no violation has been carried by KIPL.

13.10 NATURAL & COMMUNITY RESOURCE AUGMENTATION PLAN AND MITIGATION MEASURE

Not Applicable for this project as no violation has been carried by KIPL.

13.11 DETAILS OF TREE FELLING & ACTION PLAN BY KIPL

- KIPL proposes for setting up its project for 1.5 MTPA Throughput Iron Ore Beneficiation (1.16 MTPA high grade iron ore), 1.2 MTPA Pellet plant along with 27000 Nm^3/hr (6 x 4500 Nm3/hr) Producer Gas Plant at village - Kapanda, Tehsil – Lahunipara, District - Sundergarh, Odisha over an area of 19.319 Ha (47.74 Acres).
- The land for total 47.348 Ha (117 Acres) has been allotted by IDCO to M/s KAI International Private Limited vide letter no. IDCO/HO/P&A-LA-E-7751/2019-21 Dated 6th Aug 2021.
- As per the land schedule, total land area is allotted by IDCO and is non-forest land and kissam of land is Patita (barren) land as per revenue record.
- Application submitted by concerned Tahasildar Lahunipara to DFO, Rourkela division vide its letter no. 486 , dated 04.03.2021 for tree enumeration.
- Joint verification & tree enumeration report submitted by DFO, Rourkela to Tahasildar Lahunipara on dated 12.06.2021 vide letter no. 3764/4F(Misc) and have identified 5856 nos. of trees available in total area of 117 Acres. The tree enumeration report is attached as **Annexure- S.**

- There are total 3972 trees within the proposed project boundary.
- Tahasildar Lahunipara requested to DFO Rourkela for assessment of cost of trees arises after joint verification & enumeration vide letter no. 1255 dtd. 23.06.2021
- DFO Rourkela intimated to Tahasildar Lahunipara regarding the assessment of cost of trees vide letter no. 3866/4F(Misc) dtd. 24.06.2021
- The land officer IDCO Bhubaneswar requested to M/s. KAI International Pvt. Ltd. To deposit of royality & cost of plantation of trees arises after joint verification & enumeration vide letter no. HO:P&A/LA-E-7751/19/11349 dtd. 14.07.2021 for depositing Rs. 62,77,740/-
- KIPL has deposited the total amount to IDCO as per letter no. Nil dtd. 14.07.2021
- The land officer IDCO has deposited the requisite amount to DFO Rourkela Division vide letter no. IDCO:HO:P&A:LAE:NO.7227/2017-21/12500 dtd. 03.08.2021.
- KIPL requested to DFO Rourkela vide its letter no. Nil, dated17.08.2021for felling of trees.
- After obtaining the permission for felling of trees from Office of the Divisional Forest Officer cum Wildlife Warden Rourkela Forest Division, Odisha vide letter number 5838/3F dated 20 Sep. 2021. 1500 nos. of trees have been cut by KIPL (during the period from 21.09.2021 to 30.09.2021).
- KIPL has reported to concerned DFO Rourkela after felling 1500 nos. of trees vide letter no. Nil dtd. 04.10.2021.
- The concerned Forest Ranger, Banki Range submitted the tree felling and passing report to DFO Rourkela on dtd. 30.09.2021, vide letter no. 1007.
- In the proposed construction area for plant facilities, 1500 number of trees have been cut and 260 will be transplanted.
- Rest trees will be retained which will act as an additional greenbelt to 33% greenbelt area.
- 45.4% of the total plant area i.e. 21.69 acres ~ 21.7 acres (15.5 acre existing vegetation area along the western boundary will be retained as green belt + 6.19 acre proposed green belt) out of 47.74 acres area will be developed as green belt/plantation all around the plant boundary, roadside, office , building & stretches open are within the premises.

Given Below are the Action plan for the proposed Green belt development & details of Proposed Plant species that will be grown at the site.

Table 13.1- Proposed Action plan for Greenbelt Development

SL. No.	Plan Period	Area (Ha.)	No. of Species to be Planted	Local tree species	
				Species Name	Scientific Name
1.	1st Year	3.89	9,725	**Trees**	
				Neem	*Azadirachta indica*
				Kusum	*Schleichera oleosa*
				Karnja	*Pongamia pinnata*
2.	2nd Year	2.7	6,750	Mango	*Mangifera indica*
				Dhaura	*Anogeissus latifolia*
				Palas	*Butea monosperma*
				Sissoo	*Dalbergia sissoo*
3.	3rd Year	2.19	5475	Kendu	*Disospyros melanoxylon*
				Rohini	*Soymida febrifuga*
				Amla	*Emblica officinalis*
				Asan	*Terminalia tomentosa*
				Radhachuda	*Peltophorum pterocarpum*
	Total	**8.78**	**21950**	Jamun	*Syzygium cumjni*
				Shrubs / Herbs	
				Anantamula	*Hemidesmus indicus*
				Arakha	*Calotropis procera*
				Baibidanga	*Embelia robusta*
				Basanga	*Adhatoda vasica*
				Dhatki	*Woodfordia fruticosa*

Existing trees available in the project site after felling 1500 nos. of trees= 3972-1500 = 2472

Hence trees for plantation = 21,950-2,472 = 19,478 nos. of trees
Budget = 19478 x Rs.350 = Rs.68,17,300/- ~ Rs.68.17 Lakhs

Compensatory Afforestation

In the proposed construction area for plant facilities, 1500 number of trees have been cut and 260 number of trees will be transplanted. As per guidelines, compensatory afforestation will be done in the ratio of 1:10 i.e. 15000 number. The proposed plantation will be developed as gap plantation within the plant site especially in the western region where the density of greenbelt is lesser.

Compensatory afforestation against tree felling of 1500 tress in ratio 1:10 = 15000 X Rs. 350 Nos. = Rs. 52,50,000/-

Hence total budget for green belt development = 68.17 Lakhs + 52.50 Lakhs = 120.67 Lakhs

The total greenbelt and plantation area will be 8.78 ha (21.7 acres) i.e. 45.4% of the total plant area of 19.32 ha. (47.74 acres).

ବନଖଣ୍ଡ ଅଧିକାରୀ ତଥା ବନ୍ୟପ୍ରାଣୀ ତତ୍ତ୍ୱାବଧାରକଙ୍କ କାର୍ଯ୍ୟାଳୟ, ରାଉରକେଲା

OFFICE OF THE DIVISIONAL FOREST OFFICER CUM WILDLIFE WARDEN
ROURKELA FOREST DIVISION, ROURKELA, SUNDARGARH, ODISHA
Phone No. 0661-2664637, Fax No. 0661-2664639, e mail- dforourkela@yahoo.co.in

Letter No. 5838 / 3F (Lease) Dt. 20.09.2021

To

The Director,
KAI International Pvt. Ltd.
CCC-23, Civil Township, Rourkela,
Dist.-Sundargarh

Sub:- Permission for tree felling of trees in Plot No.1104/P and 1107/P under Khata No.118(AJA) in village Kapanda.

Ref :- This Office letter No.5560 dtd.07.09.2021.

Sir,

With reference to the letter on the above captioned subject, you are hereby allowed to fell the following nos. of trees (as per tree enumeration list) from the plots as noted below. The conversion list of logs and firewood billets should be submitted to this office through the Range Officer, Banki for taking further course of action.

Sl No.	Name of the Village	Khata No.	Plot No.	Kisam of Land	Nos. of tree allowed for felling
1	Kapanda	118(AJA)	1104/P	Patit	1000
			1107/P	Patit	500

Yours faithfully,

20/9/21

Divisional Forest Officer,
Rourkela Forest Division.

Memo No. 5839 / 3F Dt. 20.09.2021

Copy forwarded to the Range Officer, Banki Range for information and necessary action. He is instructed to check the conversion list as submitted by the applicant and forwarded to this office for taking further course of action.

20/9/21

Divisional Forest Officer,
Rourkela Forest Division.

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Gmail

Priyanka Saha <0501priyanka@gmail.com>

(no subject)

1 message

Priyanka Saha <0501priyanka@gmail.com> Thu, Mar 12, 2026 at 1:32 PM
To: Sankar Pani <sankarprasadpani@gmail.com>

To
Mr. Sankar Prasad Pani,
Advocate
Counsel for the Petitioners

Subject: Service of Applications in Appeal No. 09/2024/EZ pending before the National Green Tribunal, Eastern Zone Bench, Kolkata
Dear Sir,
This is to inform you that Respondent No. 8 has engaged the undersigned counsel in the above-captioned matter in place of the erstwhile Advocate-on-Record.
We are enclosing herewith copies of the following applications filed on behalf of Respondent No. 8 before the Hon'ble National Green Tribunal, Eastern Zone Bench, Kolkata:
1. Application for Setting Aside the Ex-Parte Order dated 06.01.2026;
2. Application for Condonation of Delay; and
3. Vakalatnama
The same are being served upon you in advance in accordance with the applicable rules and practice of the Hon'ble Tribunal.
Kindly acknowledge receipt.
Yours faithfully,
Priyanka Saha
Advocate

6 IA for recalling of orders.pdf

2 attachments

9 Vakalatnama KAI.pdf
291K

7 IA for Condonation of Delay.pdf
731K

1688

167

Gmail

Priyanka Saha <0501priyanka@gmail.com>

Subject: Service of Applications in Appeal No. 09/2024/EZ pending before the National Green Tribunal, Eastern Zone Bench, Kolkata

1 message

Priyanka Saha <0501priyanka@gmail.com> Thu, Mar 12, 2026 at 7:11 PM
To: secy-moef@nic.in, csori@nic.in, fesec.or@nic.in, dm-sundergarh@nic.in, msobb@rediffmail.com, visiontekin@gmail.com

- 6 IA for recalling of orders.pdf
- 7 IA for Condonation of Delay.pdf
- 9 Vakalatnama KAI.pdf

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2. Application for Condonation of Delay; and
3. Vakalatnama

The same are being served upon you in advance in accordance with the applicable rules and practice of the Hon'ble Tribunal.

Kindly acknowledge receipt.

Yours faithfully,
Priyanka Saha