BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI
ORIGINAL APPLICATION NO. 1394 OF 2024

IN THE MATTER OF:

News item titled 'The Environmental Crisis in Odisha" appearing in around Odisha. ..... Applicant

VERSUS

Ministry of Environment & Climate Change & Ors. ..... Respondents

AFFIDAVIT ON BEHALF OF THE RESPONDENT NO. 3 FOR PLACING ON RECORD THE JOINT COMMITTEE REPORT

PAPER BOOK

(KINDLY SEE INDEX INSIDE)

ADVOCATE FOR RESPONDENT NO. 3:
MANORANJAN PAIKARAY

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

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INDEX

N.D.H.: 05.08.2025

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New Delhi
Dated: 03.08.2025

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI
ORIGINAL APPLICATION NO. 1394 OF 2024

02 AUG 2025

IN THE MATTER OF:

News item titled 'The Environmental Crisis in Odisha" appearing in around Odisha. ..... Applicant

VERSUS

Ministry of Environment & Climate Change & Ors. ..... Respondents

AFFIDAVIT ON BEHALF OF THE RESPONDENT NO. 3 (STATE POLLUTION CONTROL BOARD, ODISHA)

I, Smt. Uma Nanduri, IFS, wife of Sri Prem Kumar Jha, IFS aged around 58 years, at present working as Member Secretary, State Pollution Control Board, having my office at Paribesh Bhawan, A/118, Nilakantha Nagar, Unit-VIII, P.O. Nayapalli, Bhubaneswar, Dist – Khurda, Odisha-751012, do hereby solemnly affirm and state as under:

1. I am the Member Secretary of the Respondent No. 3 Board and as such, am well acquainted with the facts and circumstances of the case and hence competent to swear this affidavit.

2. That this Hon'ble Tribunal has Suo-Motu registered the aforesaid case on the basis of News item titled 'The Environmental Crisis in Odisha" appearing in Around Odisha dated 24.12.2024 and vide their Order dtd.13.01.2025 has been

NOTARY M.K. PRADHAN BHUBANESWAR REGD. NO.ON-71/09 DATE OF EXPIRY 07.03.2029 GOVT. OF ODISHA (INDIA)

pleased to form a Joint Committee headed by (1) Director, NEERI, Nagpur and comprising of (2) Joint Secretary, MoEF & CC to be nominated by Secretary, MoEF & CC, (3) representative of Member Secretary, CPCB, (4) Regional Officer, MoEF & CC, Bhubaneswar, (5) Member Secretary, Odisha State Pollution Control Board (OSPCB), (6) Principal Chief Conservator of Forests (PCCF), Odisha. The Hon'ble Tribunal further directed that the Member Secretary, OSPCB will act as the nodal agency in this matter. Further in the said order it is also directed that the committee will ascertain the truthfulness of the facts revealed in the news item, the mines which are operating in violation of environmental norms and in violation of clearance conditions, and the impact of these violations on the water bodies, forests, other natural resources and human health. The committee will undertake the site visit and will identify the violators and will submit the report before the Tribunal within 8 weeks.

3. That in compliance to the direction dtd. 13.01.2025 of the Hon'ble National Green Tribunal, the Respondent No. 3 Board vide its letter No. 2652 dtd. 10.02.2025 has intimated the other members of the Joint Committee about the nomination of the Member Secretary, OPCB as the nodal agency in this matter and requested for compliance of the order of the Hon'ble Tribunal.

True copy of the letter No. 2652, Dtd.10.02.2025 issued by the Respondent No. 3 Board to other members of the Joint Committee is annexed to this affidavit and marked as **ANNEXURE-R3/1.**

4. That this Hon'ble Tribunal vide their order dtd. 02.04.2025 has been pleased to allow the Respondent No. 3 Board to file the report of the joint committee within 8 weeks and adjourned the matter to 05.08.2025.

5. That it is further humbly submitted that in the meantime the report of the Joint Committee is received by the Respondent No. 3 Board and the Respondent No. 3 Board is filing the Joint Committee Report along with this present Affidavit.

   A copy of the said report of the Joint Committee along with its annexures is annexed to this affidavit and marked as **ANNEXURE-R3/2.**

6. That contents of the above paragraphs are true and correct to the best of my knowledge, as derived from the official records which have been placed on records of this Hon'ble Tribunal and that nothing material has been concealed therefrom

DEPONENT
Member Secretary
State Pollution Control Board
Odisha, Bhubaneswar

VERIFICATION:

I, the above named deponent, do hereby verify that the contents of the above affidavit are true and correct to the best of my knowledge, as derived from official records, and that nothing material has been concealed therefrom.

Verified at Bhubaneswar on this the 2nd day of August, 2025.

SWORN BEFORE ME

DEPONENT
Member Secretary
State Pollution Control Board
Odisha, Bhubaneswar

ANNEXURE-R3/1

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STATE POLLUTION CONTROL BOARD, ODISHA

[DEPARTMENT OF FOREST AND ENVIRONMENT, GOVERNMENT OF ODISHA]
Paribesh Bhawan, A/118, Nilakanthanagar, Unit – VIII,
Bhubaneswar – 751 012, INDIA

No. 2652
VII – L – Misc – 1174

Date:- 10/02/2025

E-mail / Speed Post

To

Dr. S.K.Goyal
Chief Scientist
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E-mail: sk_goyal@neeri.rs.in

The Joint Secretary
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The Principal Chief Conservator of Forests
Odisha.
E-mail: pccfodisha@gmail.com
pccf.hoff@odisha.gov.in

Sub: OA No.1394/2024 – News item titled "The Environmental Crisis in Odisha" appearing in Around Odisha dated 24.12.2024.

Sir,

The Hon'ble NGT, PB, New Delhi suo motu on the basis of a paper clipping indicated above has registered a case vide OA No.1394/2024 and while adjudicating the same vide their order dtd.13.01.2025 at para-11 have formed a joint committee headed by (1) Director, NEERI, Nagpur and comprising of (2) Joint Secretary, MoEF&CC to be nominated by Secretary, MoEF&CC; (3) Representative of Member Secretary, CPCB; (4) Regional Officer, MoEF&CC, Bhubaneswar; (5) Member Secretary, OSPCB and (6) Principal Chief Conservator of Forests, Odisha as member of the committee. The MS of

this Board will act as the Nodal Agency in this matter. Further it is clarified that it will be open to the committee to involve any other expert or institution, if required.

In between the Director, NEERI vide e-mail dtd.28.01.2025 has been pleased to nominate Dr.S.K.Goyal, Chief Scientist and Chair for CSIR-NEERI Zonal Centre, New Delhi to lead the committee on his behalf. Now, the Board has also nominated Er.Nihar Ranjan Sahoo, Chief Environmental Engineer(M) (Mob-9861031605), who is dealing with issue raised in the case on behalf of the Member Secretary, who will also act as the Nodal Officer in this case for compliance of the direction of the Hon'ble Tribunal. Copy of order dtd.13.01.2025 received from the Consultant Judicial, NGT, PB, New Delhi along with paper clippings and copy of e-mail dtd.28.01.2025 of the Director, NEERI are enclosed for your information and necessary action.

Yours faithfully,

Encl: As above.

Member Secretary

Memo No. 2653 / Date: 10/02/2025

Copy along with copy of enclosure forwarded to Er.N.R.Sahoo, CEE(M), SPC Board, Odisha, Bhubaneswar for information and necessary action.
Encl: As above.

Member Secretary

//TRUE COPY//

ANNEXURE-R3/2

REPORT OF THE COMMITTEE

CONSTITUTED

BY

HON'BLE NATIONAL GREEN TRIBUNAL (PB)

(Order Dated 13.01.2025, in the matter of OA No.1394/2024)

Composition of Committee

1	Dr. S. K. Goyal Chief Scientist and Chair CSIR-NEERI Zonal Center, New Delhi	:	Chairman
2	Dr. S. Kerketta Scientist - G Ministry of Forest, Environment & Climate Change (MoEF&CC), Government of India, New Delhi	:	Member
3	Sri M. K. Biswas Regional Director Central Pollution Control Board (CPCB), Kolkata	:	Member
4	Sri M. R. Prasad Scientist - C Regional Office Ministry of Forest, Environment & Climate Change (MoEF&CC), Government of India Bhubaneswar	:	Member
5	Sri Ashwini Kumar Kar, IFS CCF (Nodal) Office of Principal Chief Conservator of Forest (PCCF), Government of Odisha, Bhubaneswar	:	Member
6	Dr. N.R. Sahoo Chief Env. Engineer Odisha Pollution Control Board (OPCB), Bhubaneswar	:	Member

Declaration

This report has been prepared in compliance with the Order of the Hon'ble National Green Tribunal Dated 13th January 2025, in the matter of O.A. NO.1394/2024(PB). A committee was constituted to visit the mining areas of Odisha to make an assessment of correctness of the issues raised in the news article, which was taken up by the Hon'ble NGT *Suo moto*.

The Committee conducted field visits in two phases to evaluate the situation in the area of concern, viz. Talcher coal mine area, Sukinda chromite mine area and Iron ore and manganese mines in Keonjhar and Sundergarh districts to make a thorough assessment of the issues raised in the news article.

During the report preparation, the expert committee utilized its professional expertise to make rational assumptions for environmental assessment.

Content

Report of the Committee Constituted as per the order of NGT in the matter of OA No.1394/2024

1.0 Background:

A news item detailed "The Environmental Crisis in Odisha" appeared in a local newspaper in its 24th December 2024 issue. The article raised several issues of environmental pollution in Odisha, particularly in the industrial and mining intensive area of

1. Talcher Coal Mine area
2. Sukinda Valley Area, and
3. Iron ore mining areas of Keonjhar and Sundargarh District

Hon'ble National Green Tribunal (NGT) took suo-moto cognizance of the matter raised in article and decided to constitute a committee under the chairmanship of Director, NEERI to visit the representative areas to verify the correctness of the matters raised in the news article.

Hon'ble National Green Tribunal (NGT) in its order dated 13.01.2025 Constituted Joint Committee headed by (i) Director, NEERI comprising of (ii) Jt. Secretary, MoEF&CC (iii) Representative of Member Secretary, Central Pollution Control Board, (iv) Regional Officer, MoEF&CC, Bhubaneswar, (v) Member Secretary, State Pollution Control Board, Odisha and (vi) Principal Chief Conservator of Forest Odisha. In this background Director, NEERI nominated Dr. S. K. Goyal, Chief Scientist, CSIR-NEERI to head the Committee. Respective Departments also nominated officers to form the Committee to visit the areas of interest. The Committee visited Talcher Coalfield area and Sukinda Mining area from 21.04.2025 to 24.04.2025 and visited the iron and manganese mining area from 06.05.2025 to 09.05.2025.

The article particularly points out the weakness in the monitoring and evaluation mechanism of Environmental Clearance (EC). It highlights that Environmental Clearance and Mining Plan have become meaningless formalities. The promises made in the EC are far from realities, irrespective of whether it is a private-run or state-run company. To make matters worse, as the Article alleges, mining through Mine Developers and Operators (MDOs) focuses on production and the environmental aspect of mining are largely ignored. Though the article explains that the shortcomings rising across all mines, it has specifically highlighted the environmental issues in,

i) Talcher coal mine area of Angul District,
ii) Sukinda chromite area of Jajpur District, and
iii) Iron ore mine area of Sundargarh and Keonjhar Districts.

The visit was primarily conducted, in these three areas, to examine the contents of the news item, more specifically,

1. Status of Environmental Clearance to the mining projects
2. Monitoring programs of the SPCB to evaluate the environment quality
3. The environmental quality of these areas, that includes air and water quality.

The team members examined the article, evaluated the monitoring programs of SPCB and visited the concerned mining areas mentioned in the article in the month of April and May-2025 to evaluate the environmental issues raised in the article. After visiting the above areas, the report is prepared for submission before the Hon'ble NGT in the matter of OA No.1394/2024. The Committee has evaluated the concerns raised in the news article based on the observations made by the visiting team and examination of the reports of monitoring.

2.0 Brief Description of Talcher Coal Mine Area:

Talcher is known for its rich coal reserves, having a population of 40,841 as per the 2011 Census. Talcher Coalfield is one of India's largest repositories of power-grade coal, covering approximately 1,800 sq. km area. It is geographically situated between latitudes 20°53' to 21°12' N and longitudes 84°00' to 85°23' E. The coalfield has a strike length of about 80 km in the east-west direction and a north-south width of approximately 26 km. The terrain is undulating, accommodating numerous villages and fertile agricultural lands.

The coalfield is home to numerous large-scale coal mine operations, including underground and open-cast mining and most of them are managed by Mahanadi Coalfields Limited (MCL), a subsidiary of Coal India Limited. Currently, there are 15 operating mines with a consented production capacity of 162.315 MTPA of coal. Out of these, 11 of them are managed by MCL and the remaining 4 are operated by private and other Government owned companies. Five mines - Subhadra OCP, Utkal-C Coal Mine, M/s JSPL, Utkal B-1 Coal Mine of M/s JSPL, Utkal-D & Utkal-E Coal Mines of M/s NALCO Ltd. and Naini Opencast Coal Mine of M/s Singareni Collieries Company Limited are MDO operated. The list of mines containing names, name of lessee company, consented capacity and engagement of MDO is given in **Table-1**. The capacity approved in CTO (Consent to Operate) is based on the capacity approved in Environmental Clearance (EC) of the Mines. The location of coal mines of M/s MCL is shown in **Figure-1**.

The production achieved by MCL during the last 10 years in Talcher Coalfield is summarized in **Table-2**.

Table-1: Details of Coal Mines in Talcher Coalfield

Sl. No.	Name & Address	Consented Capacity (in MTPA)	CTO Validity	Ownership	Whether operated by MDOs
1	Balaram OCP of M/s. MCL, Hingula Area, At/PO-Danara, Talcher, Angul	15	31.03.2026	MCL	No
2	Bhubaneswari OCP (MCL), Jagannath Area, At/PO-Dera, Dist-Angul-759103	30	01.03.2026	MCL	No
3	Talcher Colliery (MCL), Angul	0.27	31.03.2028	MCL	No
4	Nandira Colliery (MCL), At-Nandira, PO-NS Nagar, Angul	0.175	31.032026	MCL	No
5	Bharatpur OCP of MCL, At-N.S.Nagar, Bharatpur, Talcher, Angul	15	31.032026	MCL	No
6	Lingaraj OCP (MCL), Angul	20	31.03.2026	MCL	No
7	Hingula OCP of M.s, MCL, At/PO-Gopalprasad, Talcher, Angul	15	31.03.2026	MCL	No
8	Jagannath Colliery of M/s.MCL, Jagannath Area, PO-Southbalanda, Dist-Angul-759116	7.5	31.03.2026	MCL	No
9	Kaniha OCP (MCL), At-Telisingha, PO-Jarada, Angul	14	31.03.2026	MCL	No
10	Ananta OCP of MCL, At/PO-Dera, Talcher, Angul-759103	24	31.03.2026	MCL	No
11	Utkal-C Coal Mine, Jindal Steel & Power Ltd., Raijharan, Chhendipada, Angul	3.37	31.03.2026	OMC	Yes
12	Utkal B-1 Coal Mine of M/s Jindal Steel and Power Ltd., Angul	5.0	31.03.2026	JSPL	Yes
13	Utkal-D & Utkal-E Coal Mines of M/s NALCO Ltd., (Coal Mine Division) At-Raijharan, Nandichhor, Kosla & Similisahi, Chhendipada, Dis-Angul	4	31.07.2025	NALCO	Yes
14	Naini Opencast Coal Mine of M/s Singareni Collieries Company Limited, At- Chhendipada and Mandal village, Dist-Angul	5	31.03.2026	Singareni Collieries	Yes
15	Subhadra OCP of MCL, At-Kankarei, Tahasil-Talcher & Chhendipada, Dist-Angul	4	31.03.2026	MCL	Yes
	Total	**162.315**			

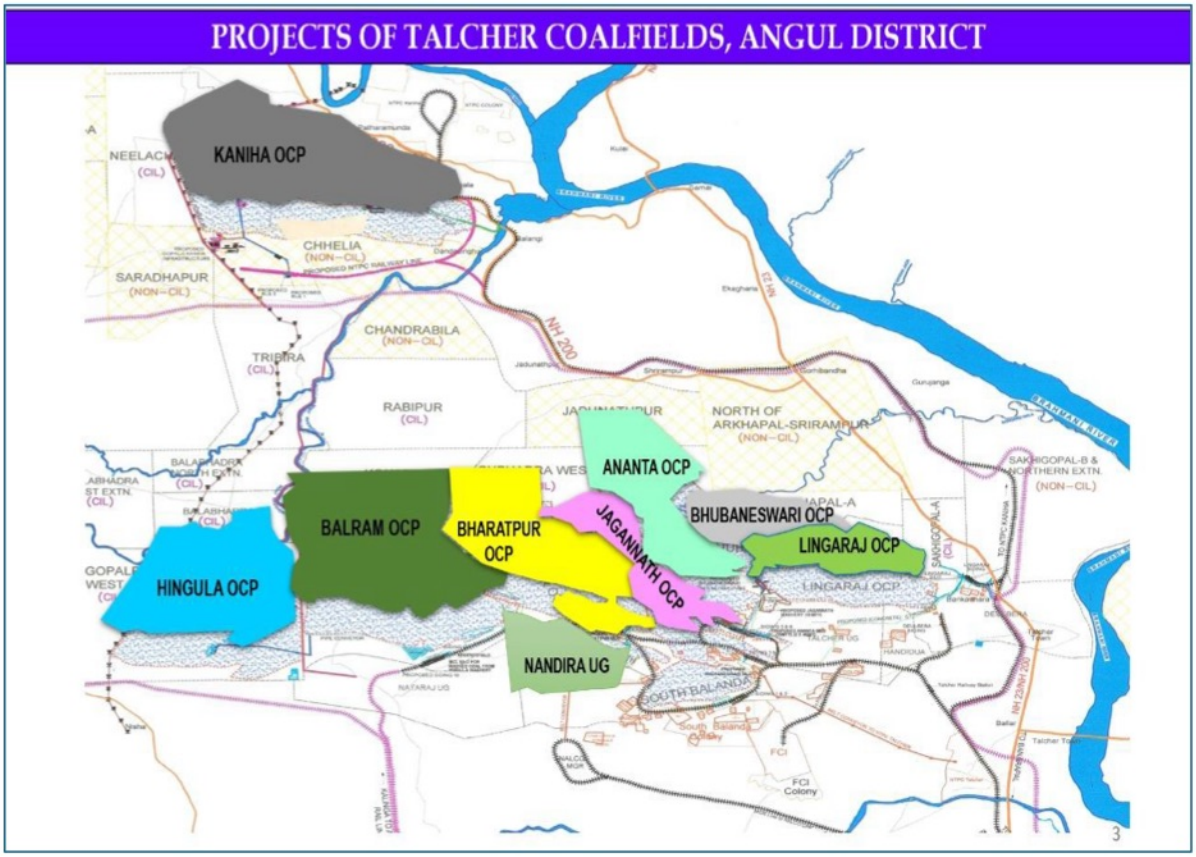

Figure-1: Projects of MCL in Talcher Coal fields, Angul District

Table-2: Coal Production by MCL mines in Talcher Coalfield

Year	Operating mines	Total Production (in MTPA)	Total Despatch (in MTPA)	Despatch through Rail+MGR+ Belt (in MTPA)	Despatch through Road (in MTPA)
2015-16	Ananta OCP Exp, Jagannath OCP Exp, Bhubaneswari OCP Expn, Bharatpur OCP Expn, Balram OCP, Hingula-II OCP, Lingaraj OCP Expn, Kaniha OCP, Nandira UG	80.6	83.1	64.7	18.4
2016-17		79.9	79.5	58.3	21.2
2017-18		81.8	77.6	58.5	19.1
2018-19		82.0	80.8	57	23.8
2019-20		80.6	77.5	53	24.5
2020-21		83.8	78.2	63.5	14.7
2021-22		96.7	101.4	76.3	25.1
2022-23		112.6	113.2	78.2	35.0
2023-24		113.0	113.3	75.1	38.2
2024-25		107.9	110.2	77.1	33.1

It may be seen from the above table that about one third of the coal is transported by road. Coal transportation through public road causes a lot of inconvenience to locals and also has significant impact on local air quality due to generation of fugitive dust. As far as practicable coal transportation to the consumers through rail is the top priority and preference, because one single rake transports approximately 3,800 tons of coal causing less pollution. Otherwise, for transporting the same quantity of 3,800 tons of coal, approximately 250 trucks will be required, which will cause significant air pollution. However, to cater to the coal demand of local Industries, the principle of minimum possible truck transportation is required. In Talcher coalfields around 30% of coal is transported through trucks during the year 2024-25.

A dedicated coal corridor of 22.58 km is constructed from Balram OCP to NH-23 near Lingaraj MGR siding through the mining leases for transportation of coal, bypassing the habitation.

In the recent past, the mines have also switched over from conventional dumper-shovel method to surface miner for coal excavation. Similarly, the air pollution control measures are also reinforced by deploying high-capacity mobile water tanker of 28 KL, mobile/static fog canons and enhanced rail dispatch of coal.

This apart, M/s. MCL has established 4 nos. of CAAQMS in Talcher coalfields to monitor the cumulative impact of all its mines in the surrounding areas. These stations are at the following locations:

1. Near Intake Complex of Brahmani River, Lingaraj OCP
2. Near Deulbera Siding, Lingaraj OCP
3. Near Nandira Substation, Bharatpur OCP
4. Near BCML Shelter, Bhubaneswari OCP

2.1 Ambient Air Quality Status in Talcher Area:

The State Pollution Control Board operates two Continuous Ambient Air Quality Monitoring Stations (CAAQMS), one each in Talcher and Angul. These CAAQMS are located at Regional Office, Angul and Dera, Talcher. The results of the CAAQMSs (air quality in terms of PM_{10} and $PM_{2.5}$), for the period from January 2024 to May 2025 are shown in the **Figure-2 & Figure-3**.

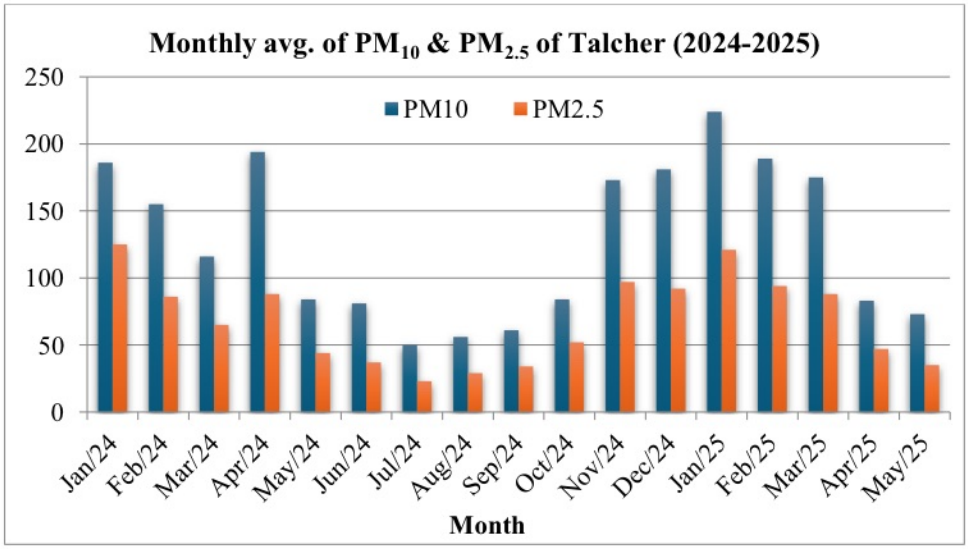

Figure-2: Monthly Average of PM_{10} and $PM_{2.5}$ in Talcher

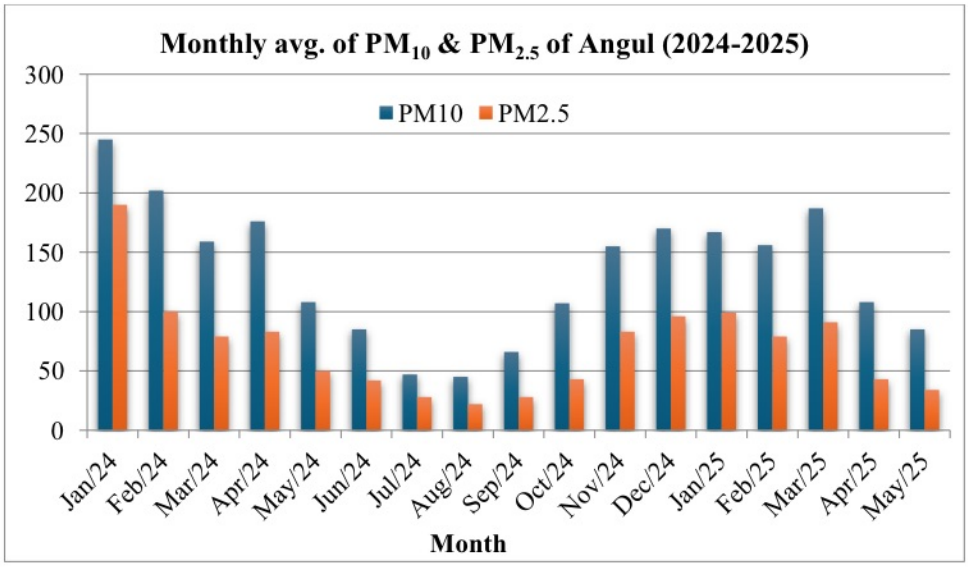

Figure-3: Monthly Average of PM_{10} and $PM_{2.5}$ in Angul

It is observed that the Respirable Particulate Matter (size less than 10 µm), PM_{10} values in both the area remained within the air quality standard of 250 µg/m^3 stipulated for the coal mining area, but is way above the ambient air quality standards for PM_{10} as per the National Ambient Air Quality Standard for residential area (Annual Average – 60 µg/m^3 and daily Average – 100 µg/m^3).

The poor ambient air quality in Talcher area, is primarily due to industrial emissions and vehicular pollution, as the region is home to power plants, steel industries, and mining activities, which contribute significantly to air pollution. Additionally, construction work and road dust further worsen the air quality.

Talcher is a mixed-use area where the mining, commercial and residential areas are indistinguishable. The MoEF & CC prescribed standards for coal mining areas (as per G.S.R. 742 (E), dated 25.09.2000) and National Ambient Air Quality (vide G.S.R. 826(E), dated 16.11.2009) for 24 hourly mean value of PM_{10} are 250 $\mu g/m^3$ for mining areas and 100 $\mu g/m^3$ for residential and commercial area.

Whereas this standard being 2.5 times higher than the residential and commercial standard and the air quality levels monitored at CAAQMS suggested that most of the time the PM_{10} Concentration exceeds the air quality standards for residential and commercial areas.

2.2 Coal Transport in Talcher Area:

Maximum coal is being dispatched through rail mode i.e. through railway sidings and through silos. Two nos. of silos having rapid loading system are installed for loading of coal into railway wagons. The coal is transported from Truck Receiving Hopper (TRH) located at pit head and from Coal Handling Plants (CHP) located inside the pit to silos through closed conveyor belts. This system of despatch of coal through conveyor belt eliminates the need of transportation of coal from pit head to sidings through tippers. A dedicated coal corridor has been constructed in Talcher Coalfields through different mines for the movement of road sale trucks. The coal corridor patch of Lingaraj OCP lies between end point of coal corridor of Bhubaneswari OCP and NH-149. Dust suppression on coal corridor of Lingaraj OCP is being carried out by 4 nos. of contractual mobile water tankers (20 KL capacity). All the trucks are covered with tarpaulin and pass through wheel washing system integrated with complete recirculation system before leaving the mine premises. Fixed water sprinklers and a contractual mobile water tanker (4 KL capacity) are provided for dust suppression on internal roads. Two nos. of mechanical road sweepers have been deployed for mechanical sweeping of NH-149 (from Bankadhar Chowk to Pabitramohan Chowk) which is located adjacent to Lingaraj OCP. Manual cleaning of shoulder of NH-149 (from Bankadhar Chowk to Pabitramohan Chowk) is also carried out for removal of dust. A mobile water tanker of 4 KL capacity is also deployed by Lingaraj OCP for spraying of water on the above-mentioned portion of NH-149.

2.3 Water Quality in Talcher Area:

The river system in Talcher area is primarily dominated by the Brahmani River, which flows through the region and serve as crucial water source. Several smaller rivers and streams contribute to the area's hydrology, including Nandira river, Kisinda jhor, Lingira river,

Banguru nallah Singhda jhor, Tikira River, Banguru-singada Jhor. State pollution Control Board Odisha regularly monitors the water quality of these seven streams at 10 locations. Similarly, Brahmani River water quality is also monitored by the Board. For the purpose of our analysis, water quality of six stations was collected which are in close vicinity of Talcher mining areas. The water quality of the streams and Brahmani River are presented as **Annexure – I and Annexure – II.**

The monitoring results suggest that the water quality in Talcher region conforms to the water quality norms for Class – C river water. However, at some locations, concentration of Fluoride is found to be higher than the Standard of 1.5 mg/l.

The Ground water is monitored at 9 locations in Angul District. Since, the ground water is mostly used for drinking purpose, the ground water quality was compared with the drinking water quality standards of IS 10500. The ground water quality results for the year 2024 are presented in **Table-3**.

Table-3: Ground Water Quality Status (Tube Well) in Angul District during 2024

Monitoring Station	Month of Monitoring	pH	BOD, mg/L	COD, mg/L	Turbidity, NTU	TDS, mg/L	Fluoride, mg/L
District: Angul (9 stations)							
Angul (2 Stations)							
1. Angul Township (20.838611 N, 85.098333 E)	April	6.8	0.7	7.8	2.3	604	0.28
	Oct	7.3	<1.0	7.5	6.0	740	0.31
2. NALCO Township (20.8425 N, 85.148611 E)	April	7.2	0.9	7.8	1.6	388	0.25
	Oct	7.8	<1.0	7.5	10.0	560	0.29
Talcher (7 Stations)							
3. Mahanadi Coal Field Area 20.950278 N, 85.192222 E)	April	6.2	0.8	7.8	2.7	364	0.19
	Oct	7.7	<1.0	7.5	12.0	400	0.22
4. Kaniha (21.08 N, 85.078333 E)	April	7.2	0.5	7.8	1.9	368	0.32
	Oct	7.5	<1.0	7.5	6.0	364	0.17
5. Talcher Town (20.9325 N, 85.200556 E)	April	5.8	0.7	7.8	1.5	76	0.28
	Oct	7.5	<1.0	7.5	13.0	220	0.19
6. Meramundali Area (20.802778 N, 85.304444 E)	April	7.1	0.7	7.8	2.3	864	0.35
	Oct	7.5	<1.0	7.5	6.0	528	0.25
7. Talcher Thermal Area (20.904444 N, 85.217222 E)	April	7.1	0.6	7.8	7.8	804	0.38
	Oct	7.6	<1.0	7.5	31.0	640	0.18
8.Banarpal (20.8425 N, 85.214722 E)	April	6.6	0.8	7.8	1.8	684	0.21
	Oct	7.3	<1.0	7.5	10.0	656	0.25
9. Kulad (20.838333 N, 85.166944 E)	April	6.9	1.1	7.8	2.5	556	1.19
	Oct	7.4	<1.0	7.5	5.0	592	1.19
Drinking Water Specification (IS : 10500 (2012)							
Acceptable Limit		**6.5-8.5**	**-**	**-**	**1**	**500**	1.0
Permissible limit		**No relax**	**-**	**-**	**5**	**2000**	1.5

* IS: 10500 (2012) Amendment No.1 dated 01.6.2015

** IS: 10500 (2012) Amendment No.2 dated 02.9.2018

3.0 Brief Description of Sukinda Mining Area:

Sukinda Valley, located in Jajpur district, Odisha, India, is known for its vast deposits of chromite ore, accounting for about 97% of India's total chromite reserves. The valley is home to most of the open-cast chromite mines, making it a significant hub for mining activities. Damsala Nallah originates from Mahagiri / Daitari range and flows through Sukinda Valley before joining river Brahmani at Dayanbil in upstream of Bhuban. The locations of Chromite Mines in Sukinda Valley Area are shown in **Figure-4**.

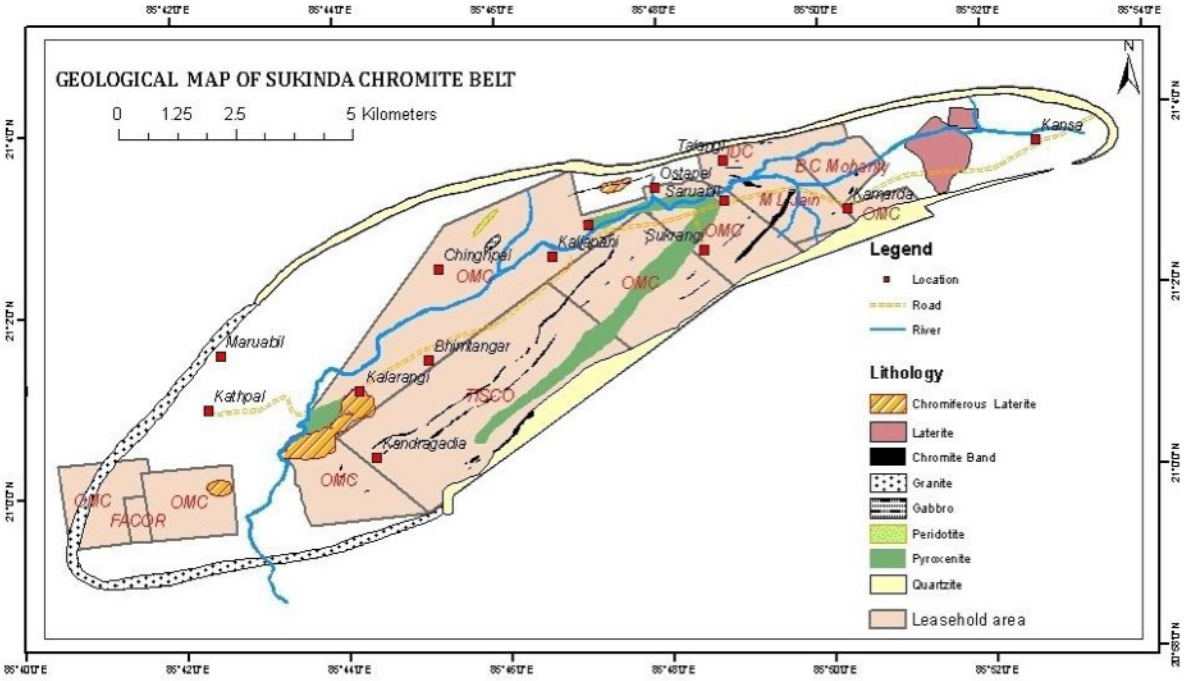

Figure-4: Chromite Mines in Sukinda Valley Area

3.1 Water Quality Status in Sukinda Valley Area:

Damsala nallah, a small rivulet flows through the valley and meets Brahmani River. There are seventeen chromite mines in valley which discharge their effluent into Damsala Nallah (the list is enclosed as **Annexure-III**). Out of these, nine mines are currently in operation. The water from these mines naturally contains hexavalent chromium as a pollutant. In order to control Hexavalent Chromium concentration in Damsala Nallah, the State Pollution Control Board had conducted a study in the year 2012, through IIT, Kharagpur to make an assessment of the then prevailing treatment system. The study by IIT, Kharagpur found that the treatment plants were inadequate to treat hexavalent chromium to maintain the water quality of Damsala Nallah below the tolerance limit of 0.05 mg/l. Accordingly, it was

suggested to upgrade the treatment plants of all the mines. As recommended by IIT, Kharagpur, the OSPCB directed all the mines to upgrade their treatment system for Hexavalent Chromium. All the Mines upgraded their ETP and completed it by December 2017. The list of mines having ETPs is enclosed as **Annexure-IV**.

To ensure to operate the upgraded ETP regularly, the Board has given direction to all the mines to install Continuous Effluent Quality Monitoring System, which is connected to the State Pollution Control Board Server. This apart, Board also conducts monitoring of treated water from the ETP on fortnightly basis. The concentration of hexavalent chromium in treated water is presented in **Annexure-V** for the period 2024-25. The results show that the effluent after treatment mostly conforms to the standard.

The State Pollution Control Board monitors the water quality of Damsala Nallah at nine locations every month to ensure that the water quality of Damsala Nallah. The annual average concentration of Hexavalent Chromium from 2018-2024 is presented in **Table-4** and also shown in **Figure-5**.

Table-4: Annual average concentration of Cr^{+6} in Damsala Nallah

Year	Annual Average of Hexavalent Chromium Cr^{+6} (mg/l)
2018	0.083
2019	0.082
2020	0.066
2021	0.023
2022	0.033
2023	0.020
2024	0.018

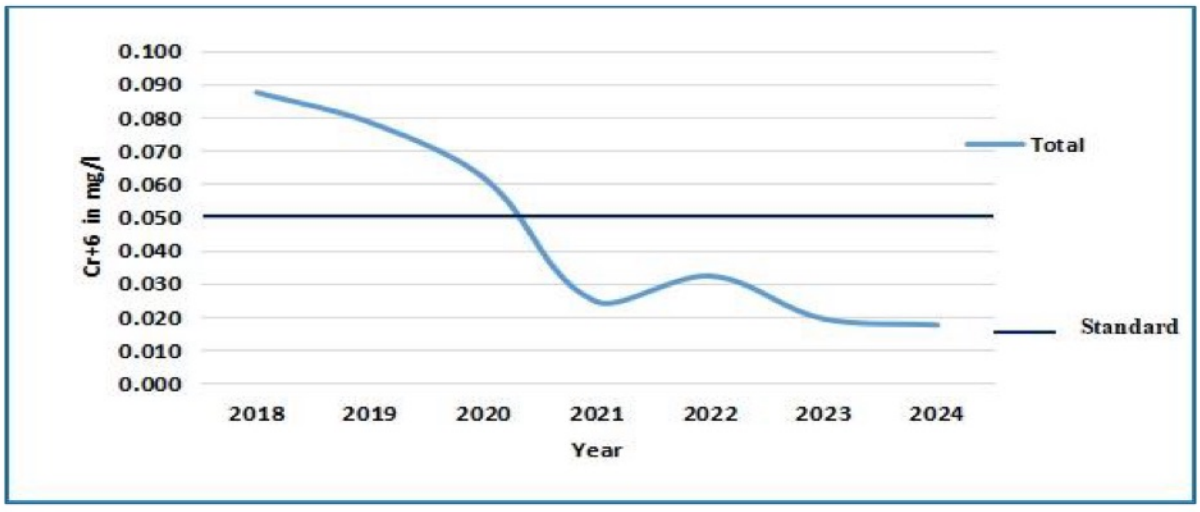

Fig-5: Annual Average Concentration of Cr^{+6} from 2018 to July, 2024 in Damsala Nallah

The State Pollution Control Board directed M/s Tata Steel Limited and M/s OMC Limited to install Continuous Water Quality Monitoring Station in Damsala Nalla to regularly check its water quality. M/s OMC Limited has already installed the Continuous Water Quality Monitoring Station in Damsala Nallah at the minor irrigation project.

Damsala Nalla meets river Brahmani in the upstream of Bhuban in Dhenkanal district. The water quality of Brahmani at this location indicates that it conforms to the Standard of Class – C river, meant for drinking water source after treatment and disinfection. The water quality is presented in **Table-5**.

Table-5: Water Quality of Brahmani River at Bhuban

Month	pH	DO, mg/L	BOD, mg/L	COD, mg/L	FC, MPN/ 100 ml	Total Hardness $CaCO_3$, mg/L	Sulphate, mg/L	Flouride, mg/L	TSS, mg/L	TDS, mg/l	Turbidity, NTU
Apr	6.6	7.8	1.3	7.8	330	60	21.40	0.49	22	96	5
May	7.5	8	1.2	8	220	56	13.00	0.32	19	104	7.9
June	7.4	7.5	1.2	8	490	56	8.90	0.43	24	96	8.4
July	7.1	7.8	1.2	7.8	330	88	21.10	0.79	28	164	5
Aug	7.6	7.3	1.4	12	790	56	14.10	0.18	148	96	75
Sep	7.4	7.1	1.7	7.8	700	48	16.20	0.26	48	88	12
Oct	7.7	7	1.8	15	1300	48	9.60	0.39	119	80	60
Nov	7.6	6.4	2.1	7.9	490	56	25.54	0.29	24	96	10
Dec	7.5	6.9	1.4	7.5	330	76	14.02	0.35	40	124	19
Jan	7.4	7	1.4	7.9	700	80	25.92	0.30	17	116	7
Feb	7.7	6.9	1.6	8	790	92	18.35	0.21	<10	128	3
March	7.2	7.1	1.7	7.8	1300	68	20.49	0.42	11	112	5

3.2 Air Quality Status in Sukinda Valley Area:

The air quality in Sukinda valley is monitored by the SPCB at regular intervals. The air quality monitoring has been conducted from January 2024 and July 2025 for 35 times, and out of this, it was observed to be within the Standard for 26 times, as per National Ambient Air Quality Standard (NAAQS). The results of the air quality monitoring are attached as **Annexure-VI** to this report.

4.0 Iron and Manganese mines in Keonjhar and Sundargarh District:

Iron Ore mining in Odisha began as early as in 1906 by TISCO and subsequently lease was granted in 1920. Mines of public and private sectors commenced operations from early 1960s. The major mining activity is concentrated in Joda-Barbil, Koira and Gorumahisani / Suleipat / Badampahar sector which constitute about 80% of the total production, i.e., in three districts namely Keonjhar, Sundargarh and Mayurbhanj.

There are 94 nos. of iron ore and manganese mining leases in Keonjhar district. Out of which, 39 nos. of mines are in working condition. The other leases are not in operation due to want of statutory clearances. Similarly, 29 nos. of mines are working, out of 55 nos. of iron ore and manganese leases in Sundargarh district. The status of EC and approved capacity and its granting authority (SEIAA, Odisha/MoEF&CC, Govt. of India) is annexed as **Annexure-VII.** The nos. of mines and total production quantity in Joda, Keonjhar and Koira mining circle are shown below in **Table-6, 7 and 8**.

Table-6: Iron and Manganese Mines in Keonjhar and Sundargarh Districts

Sl. No.	District	Iron	Iron and Manganese	Manganese	Total
1	Keonjhar	56	21	17	94
2	Sundargarh	27	10	18	55
	Total	**83**	**31**	**35**	**149**

Table-7: Mineral wise status of Mines in Keonjhar District

Sl. No.	Name of Mineral	Nos. of working Mines	Total lease area in Ha	EC capacity in MTPA	
				Iron Ore	Manganese Ore
1	Iron Ore	28	9219.97	149.39	0
2	Manganese Ore	6	3259.61	15.67	1.27
3	Iron & Manganese	5	3853.94	0	1.13
	Total	**39**	**16333.52**	**165.06**	**2.40**

Table-8: Mineral wise status of Mines in Sundargarh District

Sl. No.	Name of Mineral	Nos. of working Mines	Total lease area in Ha	EC capacity in MTPA	
				Iron Ore	Manganese Ore
1	Iron Ore	22	6199.12	101.22	0
2	Manganese Ore	4	545.05	0	0.07
3	Iron & Manganese	3	597.05	6.70	0.10
	Total	**29**	**7341.22**	**107.92**	**0.17**

Depending upon the reserves and grades available, shape and size of the explorable iron and manganese ore, mines are mostly small and large open cast. These mines are being regulated in mining circles of the Director of Mines, Govt. of Odisha.

Starting from ore excavation involving drilling and blasting, ore handling, ore processing to market demand and transportation to end user involves air polluting activities. Site specific air pollution control measures are being taken for control of air emissions from various activities as summarised below.

1. Wet drilling, controlled blasting and dry fog or high-pressure water spray system at crushing plants.
2. Mines do take initiatives to reduce fugitive dust on haul roads within the leasehold premises by sprinkling water. To prevent fugitive dust generation on roads outside the mine leasehold area, the mining companies are regularly sprinkling water on the approach roads and transportation roads passing through habitation areas.
3. The ores carrying vehicles leaving the mining premises are being covered with tarpaulin sheets to prevent spillage during transportation.
4. The ore carrying vehicles also pass through mechanized wheel washing facility to remove the dirt and mud from the tyres. Mechanised road sweepers are also being deployed by major mine operators to suppress dust on the transportation road.

The mining area is well connected with road infrastructure. NH-215 (Keonjhar-Rajamunda) and Joda-Palaspanga Express Highway are the two major roads passing through the region used as major mineral transportation. There are many arterial roads connecting the individual mines & villages. Bhubaneswar, capital of Odisha is about 300 km from Joda. Joda and Barbil are also connected with rail from Jamshedpur and Keonjhar, respectively. The road network is shown in **Figure-6** and **Figure-7**.

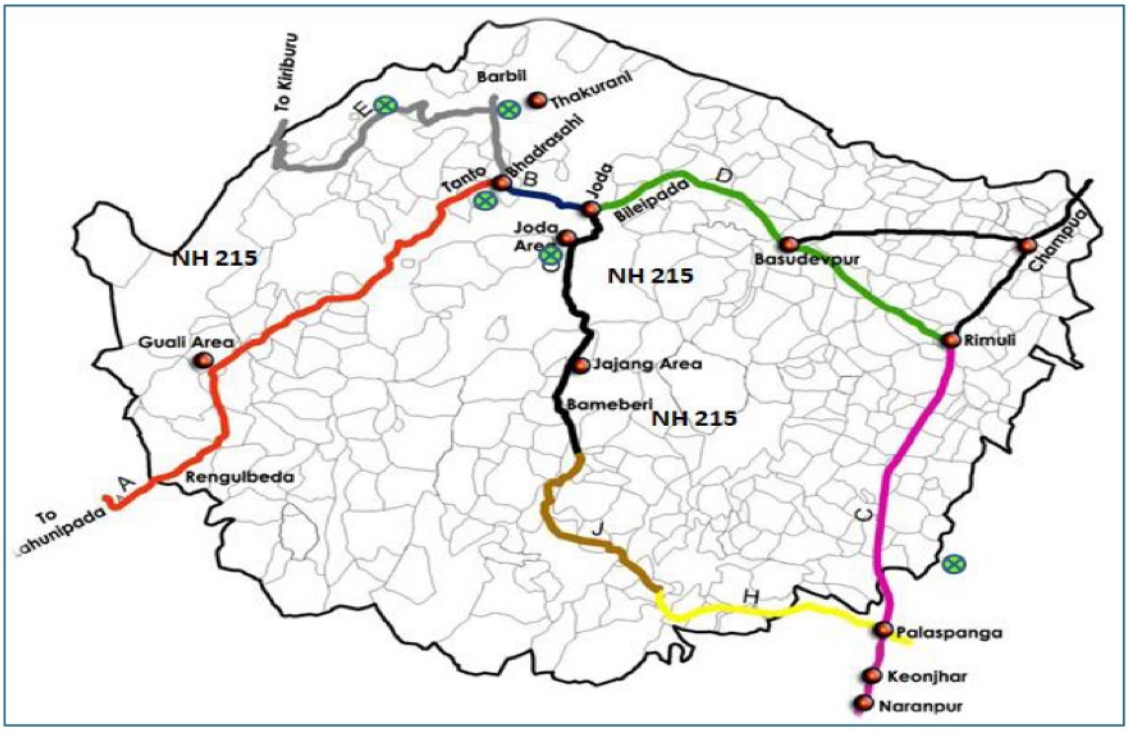

Figure-6: Road Network in Joda-Barbil Area

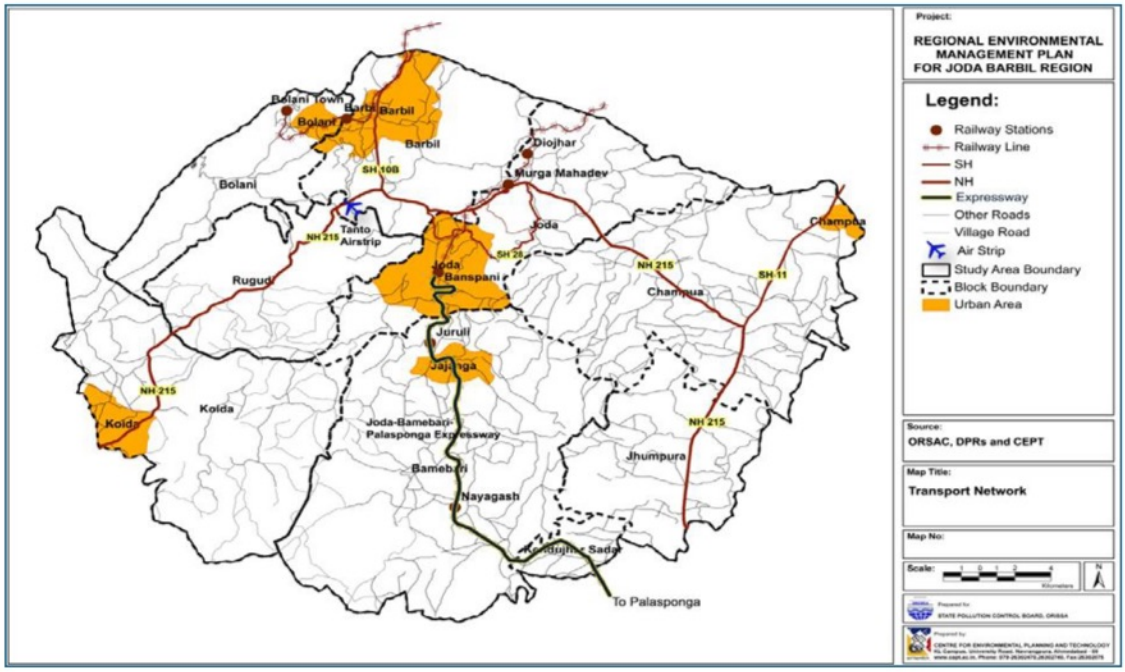

Figure-7: Road Network of Sundargarh District

From the compliance reports submitted to MoEF&CC, it is noted that in Koira and Joda Sectors, the projects are complying with many of the conditions. However, it is viewed that transportation of iron ore from the mines by rail mode/conveyor belt may be worked out by the project proponents.

The mines in Koira sector fall under Suggested Ore Transport Mode (SOTM)-1 as per 2018 CSIR-NEERI Report. One of the suggestions was to transport 100% ore by private railway siding or through pipeline for captive mines & 70% for non-captive mines. From the reports submitted by the project proponents, it is noted that there is no dedicated public railway siding nearby to handle the entire ore dispatched from the mine to different destinations. The public Railway sidings are located at far away distances i.e. Barbil Railway siding - 37 kms, Bolani Railway siding - 42 kms and Barsua Railway siding - 35 kms away from the mine.

It is very difficult to connect conveyor belts to all public railway siding to cater to the requirements of end use plants or consumers strategy which are multi-directional. It is also noted that, it is not permissible under OMPTS (Amendment) Rules, 2021 to stack ore outside lease area and also to these public sidings which permit loadings of rakes by dump and load basis. The difficulties in implementing / installation of conveyor belts connecting to all railway sidings area; the topography of the path to Railway sidings surrounding the mining leases in Koira sector would cross undulating/hilly terrain having high altitudes which

technically doesn't permit laying conveyor belts and that is the reason that no conveyor belt system or railway siding could come up in any of the existing mine.

As suggested in point no. 16 of CSIR NEERI report, a new railway network connecting Barsua (Koira sector) to Barbil & Nayagarh (Joda Sector) is proposed to be laid by the Ministry of Railways which is expected to pass alongside mine blocks located in Tensa, Koira, Guali, Gonua & Sanindpur. This would provide the critically required lateral connectivity of Koira and Joda Sector mines to the main line.

With the new mining leases in the area coming up with the proposal for mining in years to come, this issue needs to be addressed to by developing adequate infrastructure for road transport as well as railway sidings accessible to the mine leases in the area.

4.1 Air Quality Status:

The major air pollutant in the area is Particulate Matter (PM) generated from mines, industries and vehicular transport. According to the carrying capacity study report prepared by CSIR-NEERI for iron ore mining areas of Keonjhar- Sundargarh –Mayurbhanj districts in 2018, haul road transportation (55-75%) and ore unloading (7- 26%) are the major dust generation activities and need to be controlled to the extent possible. Besides sprinkling of water, the number of trips for transportation of ore and waste material should be reduced in each mine by using high-capacity dumpers. This will reduce dust emissions significantly.

The Board has installed Continuous Ambient Air Quality Monitoring Stations (CAAQMS) at major strategic locations along the mineral transportation route to assess the impact of ore transportation though road on the air quality.

The monitoring results show that PM_{10} and $PM_{2.5}$ concentrations from the road-side monitoring stations often exceed the Standards except during the monsoon season. The reports of the air quality monitoring of these stations maintained by the Board are enclosed as **Annexure-VIII**. Whereas the ambient air quality (in terms of PM_{10} and $PM_{2.5}$) within the mine lease area is found to be better than the road-side air quality.

4.2 Water Quality Status:

The drainage of Joda area is controlled by river Baitarani and its tributaries (Kundra nallah / Sona nallah etc.). Kundra nallah / Sona nallah flows from South-West towards North-East and joins river Baitarani. The drainage pattern is shown below in **Figure-8**.

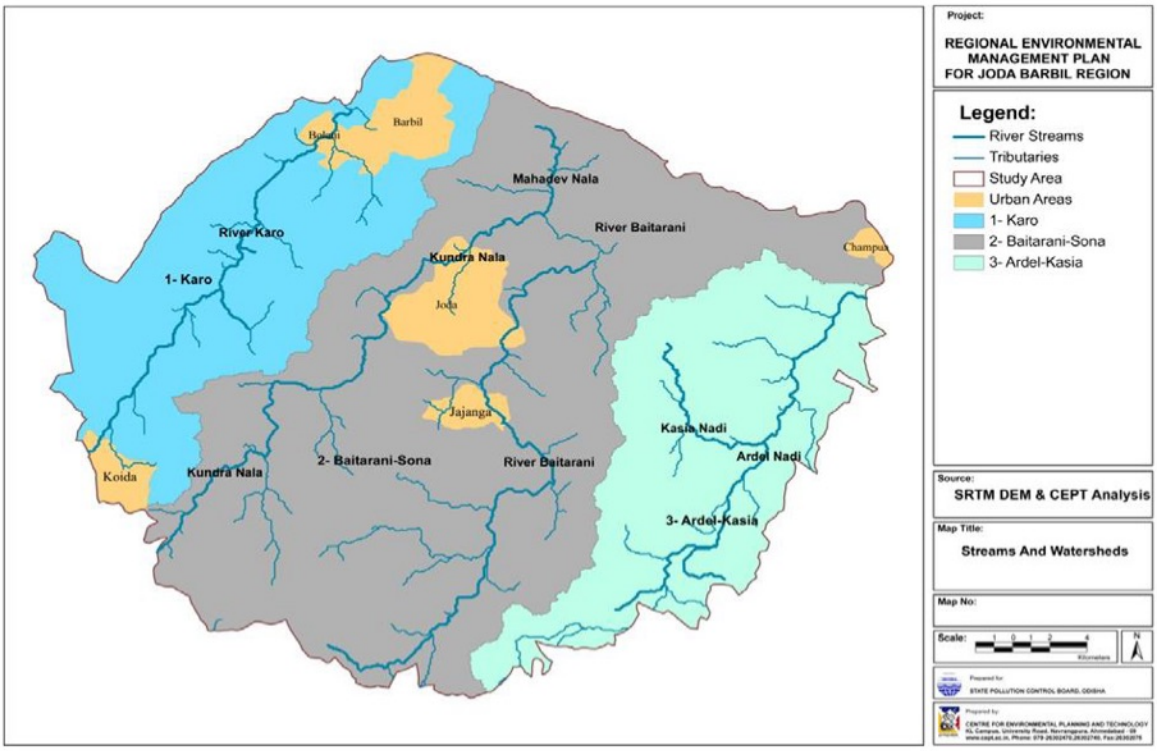

Figure-8: Watershed of the Joda-Barbil Area

In Koira area, the drainage is through Kuradihi nallah, a major tributary of river Brahmani and Karo nallah. Karo originates in Koira area and flows to Jharkhand passing through Barbil region.

The monitoring results show that the water quality of the rivers and nallahs mostly complies with the prescribed standard and the impact on water bodies are insignificant. The reports of water quality monitoring of the rivers and nallahs flowing in the iron and manganese mining areas of Keonjhar and Sundargarh district are attached as **Annexure-IX.**

5.0 Health Survey Status:

To examine the status of public health, data of patients were collected from major hospitals in Angul, Jajpur and Keonjhar. The status report is enclosed as **Annexure-X**. From the report, no significant concerns were noticed in terms of environmental pollution related public health issue.

6.0 District Mineral Foundation:

In order to ensure sustainable development in mining areas, a District Mineral Foundation (DMF) Trust has been established in each mineral bearing Districts. The mining companies make contribution to the fund being operated by the Trust in proportion to the

mineral extracted by the respective mine. This fund is utilised by the District Authorities to develop social infrastructure for sustainable development within the district. The details of DMF fund allocation and expenditure were collected from the DMF website and the summary of the data so collected for last 10 years, from 2015 to 2025, is presented in **Table-9**.

Table-9: Summary of DMF Fund Allocation and Expenditure

District	Allocation (Rs. Cr.)	Expenditure (Rs. Cr.)
Angul	124.49	0.84
Keonjhar	2195.59	328.24
Jajpur	2202.27	334.64
Sundargarh	10235.45	112.98

NB: The data were extracted from the DMF website as accessed on 20.06.2025

The detailed data, both district-wise and year-wise, of the DMF Fund are attached as **Annexure-XI**.

7.0 Forest Status of Odisha:

In recent years Odisha has shown an increase in forest coverage. Forest Cover Assessment (2011-2023) data shows that the total forest coverage of Odisha has increased from 48,907 Sq km to 52,426.5 Sq km, which has now become 33.67% of the total geographical area. The forest and tree cover together at 37.63% of the Geographical Area. The details of the forest cover starting from the year 2011 to 2023 are given in **Table-10**.

Table-10: Forest Cover details of Mining Areas (2011 to 2023)

Sl No	District	Geographical area in Sq kms	Forest Cover in Sq kms						
			2011	2013	2015	2017	2019	2021	2023
1	Angul	6375	2667.30	2701.72	2704.27	2755.27	2782.68	2783.32	2773.76
2	Jajpur	2899	231.92	295.99	296.86	302.95	306.13	309.61	312.51
3	Sundargarh	9712	4051.85	4148.00	4154.79	4235.80	4273.28	4268.42	4248.03
4	Keonjhar	8303	3216.17	3210.77	3208.28	3211.60	3221.56	3219.07	3631.73
	Odisha	**155707**	**48907.57**	**50340.07**	**50355.64**	**51352.17**	**51616.87**	**52161.85**	**52426.55**

8.0 Summary of Observations & Suggestions:

Consequent upon the site visits and reviewing the reports and records the committee makes the following, pointwise, observations particularly on the suggestions made by the author of the news item. A copy of the news article and the Order of the Hon'ble NGT dated 13.01.2025 are enclosed as **Annexure-XII** and **Annexure-XIII** respectively for ready reference. Photographs taken during the visit are enclosed as **Annexure-XIV**. The Committee has also made recommendations for further improvement, wherever it was felt necessary to improve the sustainability of mining activities.

8.1 Strong Enforcement of Regulations:

Enforcement of environmental regulation, specifically Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 largely vested with the State Pollution Control Board. The Odisha PCB has an enforcement mechanism consisting of appraisal, inspection and Consent as per the Act. From the visit to the different mining areas, it appeared that the compliance level of individual mines is satisfactory. However, the cumulative impact within a cluster may be a matter of concern, since the regulatory framework within Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 are mostly individual unit specific. Similarly, activities such as road transport, though has significant impact on air quality, remain outside the regulatory scope.

In light of the persistent air quality concerns, it is recommended that the Odisha State Pollution Control Board (OSPCB) enhance its frequency and depth of surveillance in the mining region. This is essential to ascertain that air pollution control systems including water sprinklers, mist guns, fog cannons, wheel-washing systems, and mechanical sweepers are not only installed but are also functioning effectively as per the stipulated conditions.

8.2 Improved Wastewater Treatment:

Generally, wastewater from mining activities have two sources i.e. mine drainage water and surface runoff during rain. The Committee observed that in Talcher Coal Mine area, the mine drainage water and runoff are stored in mined out pits. These pits are used as reservoirs, and the stored water is used for water sprinkling for dust suppression in different areas of mining.

Similarly, in Sukinda Valley the ETPs of Chromite mines have been upgraded to meet a stringent standard, as set by the SPCB, for protection of water quality of Damsala Nallah. As discussed in the report earlier, substantial improvement in Damsala river water quality has been achieved in terms of hexavalent chromium.

In the iron ore mines of Sundargarh and Keonjhar districts, the mining is mostly being done above the water table either on hill tops or on the hill slope. Check dams and garland drains have been provided in the mines to control soil erosion and suspended solids in the surface run-off.

The overall observation is that the system of wastewater treatment exists and are also being maintained by the respective mines. However, whether it is truly effective in maintaining the water quality of the rivers within the area needs more extensive monitoring. In this regard, the Committee recommends as following:

With regard to monitoring the quality of water treatment facility at Sukinda valley, it is recommended that every project may inspect the water treatment facility through its in-house environment monitoring cell on all issues including the chemicals used, values of the untreated and treated water quality parameters and record them in their reports. These reports would be verified by the Officials from OSPCB, MoEF&CC and CPCB during their monitoring / inspections.

For optimum and effective use of water for dust control, especially in the mining areas, it is suggested that potable PM_{10} analyser with IoT (internet of things) provision, which are being used in the smart cities, may be installed at high dust prone areas so that based on the real time concentration of the particulate matter, weightage to the dust suppression measures may be implemented.

All coal mines in the Talcher region may also be directed to submit detailed monthly reports to the Regional Office of OSPCB, indicating water consumption and its utilization for dust suppression activities. This would help establish that dust control infrastructure is being operated at desired frequencies and coverage, particularly during dry seasons.

8.3 Community Engagement:

It has been suggested in the article that active community engagement in the decision-making process of the mining projects may be effective to ensure sustainable mining.

The MoEF&CC Notification No.15333, dated 14.09.2006 mandates public hearing and public consultation as an integral part of decision-making process for all the projects requiring Environmental Clearance (EC). Mining projects require EC either from the MoEF&CC and State Environmental Impact Assessment Authority (SEIAA). On examination of records, it was found that all the coal mines in Talcher of Angul district, iron and manganese mines in Keonjhar & Sundargarh districts and Chromite mines in Sukinda Valley of Jajpur district have obtained EC and conducted public hearing.

The EIA Notification 2006 details the procedure to be followed in conducting the Public Hearing. Since a robust system of community engagement exists within the EIA framework to discuss environmental matters of the mining project, it is not felt necessary to have further engagement. However, the MoEF&CC may examine the Public Hearing process and bring in further improvement, if felt necessary.

It is needless to mention that Talcher has been designated a non-attainment city under the National Clean Air Programme (NCAP), hence urgent and proactive interventions are warranted. Action should not be contingent on disbursement of central funds. Local stakeholders, including the mining companies, municipal bodies, and district authorities, must take initiative and lead efforts to address the identified pollution hotspots through immediate and coordinated remedial measures.

8.4 Promotion of Sustainable Mining:

Ensuring sustainable mining is the key objective of EIA process. Using better technology and adopting close loop water systems are undoubtedly the efforts in this direction. The Committee observed that in Talcher Coalfield area most of the mines are operated through surface miners instead of dumper-shovel combination. Using surface miner gets rid of blasting, and they being fitted with water sprinklers generate far less dust during mining. Presently, more than 90% of coal in Talcher Coalfield area are produced through surface miner in opencast mines.

Similarly, using mine drainage water for dust suppression is being practiced almost in all mines. There are a few examples of sustainable mining initiatives. However, many more avenues for sustainable mining initiatives may be explored in the context of local condition.

It is pertinent to mention that despite the absence of ongoing mining during the visit, the ambient air quality monitoring data for PM_{10} and $PM_{2.5}$ exhibited consistently high concentrations. This trend suggests that the elevated pollution levels cannot be attributed solely to coal transportation but also indicate a significant contribution from mining operations themselves and other activities. This underscores the necessity of strengthening dust control strategies at source.

This apart, it was observed during the visit to the Talcher, Sukinda, Keonjhar, Joda-Badbil and Koira areas that the issue of parking transport trucks remains a major concern. There are some truck parking plazas constructed and are in operation. However, the numbers are very less compared to the volume of materials being transported and trucks carrying the raw materials.

Therefore, trucks were parked on the side of the roads causing a lot of inconvenience in movement of trucks and vehicles as well as cleaning of the roads through surface vacuum cleaning, as envisaged in the CSIR-NEERI report (2018). The ultimate consequence results in high fugitive emissions all along the roads and nearby areas. The un-systematic parking of trucks in these areas also pose a serious risk to the lives of people living in the surrounding areas while commuting on the roads due to serious road accidents and loss of lives.

It is recommended that the existing infrastructural facilities like roads, construction of truck parking plazas may be taken up as a priority so that air quality as well as living conditions in the surroundings are improved.

8.5 Focus on Rehabilitation:

Rehabilitation of mining area involves stabilization of overburden dumps by plantation and rehabilitation of backfilled area. During the visit the team visited some rehabilitated area of coal mine area in Talcher. These are old dump sites which are stabilised with plantation. Similarly, the Committee also visited de-coaled mine pits used for fly ash filling as per the fly ash notification. However, making a comprehensive assessment of rehabilitative requires extensive survey, which may be taken up separately by a nationally reputed institute.

9.0 Conclusion:

The Committee constituted as per the order of Hon'ble NGT visited mining areas of Odisha namely Talcher, Sukinda, Joda-Barbil and Tensa-Barsuan, and made their observations in the context of news article, "The environmental crisis in Odisha" published in the newspaper Around Odisha dated 24.12.2024. The article raises some questions on environmental impact of mining activities in three mining areas of Odisha and failure of EIA process and Monitoring mechanism.

The observations made during the site visit and examination of the reports indicate that the EIA process imposes appropriate conditions for environmental protection.

Records show that coal mines in Talcher (Angul), iron and manganese mines in Keonjhar and Sundargarh, and chromite mines in Sukinda Valley (Jajpur) have obtained EC after due public hearing process. The concerns of the citizens are also taken into consideration through a well laid process of public hearing prior to grant of EC, and subsequently through carrying out Corporate Social Responsibility activities by the respective companies.

From the visit to the different mining areas, it appeared that the compliance level of individual mines is satisfactory. In Talcher Coalfield, runoff is stored in mined-out pits and reused for dust suppression. As a non-attainment city under NCAP, Talcher urgently needs locally driven pollution control, independent of central funding, with coordinated efforts from mines, municipalities, and district authorities. Over 90% of coal excavation is done by surface-miner fitted with water sprinkling system which reduces dust generation. However, even in the absence of active mining, PM_{10} and $PM_{2.5}$ levels remain high, pointing to broader pollution sources and emphasizing the need for stronger dust control at the origin.

In Sukinda Valley, ETPs of chromite mines have been upgraded to comply with SPCB's stricter norms to protect the Damsala Nallah's water quality. Although wastewater treatment systems are in place and maintained by the mines, but their actual effectiveness in preserving river water quality requires more rigorous monitoring.

The visit to Talcher, Sukinda, Keonjhar, Joda-Barbil, and Koira highlighted a major concern of inadequate truck parking facilities. While a few parking plazas exist, they are insufficient for the volume of transport, leading to roadside parking that disrupts traffic and hampers road cleaning. It is recommended that Prioritizing Road infrastructure and additional truck parking plazas is essential to improve both air quality and local living conditions.

It is recommended that SPCB, Odisha intensify surveillance in mining areas to ensure that air pollution control systems such as water sprinklers, mist guns, fog cannons, wheel-wash units, and mechanical sweepers are properly installed and operational as per stipulated norms. The monitoring system by the MoEF&CC and SPCB are in place. As a result, the environmental quality in the region, by and large, remains within the norms barring few exceptions. However, air quality is a matter of concern in Talcher region and the iron and manganese mine areas of Keonjhar and Sundargarh district, mainly along the transport routes.

Dr. S. Kerketta, MoEF&CC Member	Sri M. K. Biswas, CPCB Member	Sri M. R. Prasad, MoEF&CC Member
Sri Aswini Kar, CCF Member	Dr. N. R. Sahoo, SPCB Member	Dr. S. K. Goyal, NEERI Chairman

Annexure-I

Surface Water Quality of Major Nallahs in Angul district for the year 2024-25

Month	pH	DO, mg/L	BOD, mg/L	COD, mg/L	FC, MPN/ 100 ml	Total Hardness $CaCO_3$, mg/L	Sulphate, mg/L	Flouride, mg/L	TSS, mg/L	TDS, mg/l	Turbidity, NTU
Nandira U/S											
Apr	6.9	7.2	1.1	7.8	790	188	115.50	3.16	13	404	2
May	7.6	5.8	1.2	8	130	156	79.50	2.71	11	408	3.6
June	7.3	7.7	1.1	8	1700	148	28.45	2.23	40	316	23.0
July	7.2	7.7	1.2	7.8	170	200	29.95	2.00	19	408	4
Aug	7.8	6.1	1.5	7.8	330	220	32.88	1.05	13	308	4
Sep	7.2	6.9	2.5	19	700	188	30.10	0.27	24	316	23
Oct	7.8	8.3	2.3	15	330	192	34.30	1.07	17	328	8
Nov	7.8	6.9	1.3	7.9	330	176	15.76	1.20	12	312	6
Dec	7.4	6.5	1.3	7.5	460	208	49.13	1.21	16	368	7
Jan	7.5	6.2	1.5	7.9	170	200	35.63	1.39	25	356	12
Feb	7.6	7.1	1.7	8	790	208	25.15	1.72	<10	448	3
March	7.2	7.8	1.8	7.8	220	192	21.65	1.91	<10	376	3
Nandira D/S											
Apr	7.2	5	2.2	16	1100	232	109.50	2.87	14	472	2
May	7.8	5.2	2.3	16	330	184	105.50	2.58	<10	496	2.2
June	7.6	7.6	2.4	16	2300	168	47.00	2.52	<10	324	1.6
July	7.3	6.9	2.5	20	220	192	22.90	2.47	14	380	5
Aug	7.9	6.3	2.7	27	490	220	38.40	1.16	21	320	7
Sep	7.3	7.4	1.8	12	330	208	28.70	0.23	46	328	40
Oct	7.5	8	1.9	11	490	248	38.90	0.99	23	392	11
Nov	7.6	7.3	1.6	12	490	200	24.35	1.28	11	344	5
Dec	7.5	6.8	1.4	11	790	224	54.13	1.32	13	376	5
Jan	7.8	7.1	2.1	12	220	220	36.99	1.53	24	494	10
Feb	8.1	6.3	1.8	12	1300	224	23.69	1.52	23	424	11
March	7.5	7.3	1.9	7.8	230	220	24.95	1.38	<10	404	3
Kisindhajhor											
Apr	6.9	8	1.6	12	490	320	182.00	3.03	20	644	2
May	7.5	5.4	1.6	8	33	276	80.50	2.39	12	744	3.5
June	7.3	6.9	1.5	8	330	284	45.60	0.61	12	560	3.2
July	7.5	7.4	1.4	7.8	790	300	35.00	0.55	21	524	5
Aug	7.6	7.9	1.7	16	140	116	39.30	0.63	50	212	32
Sep	7.3	7.2	1.5	12	330	112	19.10	0.24	72	212	95
Oct	7.4	8.1	1.7	15	490	116	38.40	0.20	132	192	70
Nov	7.6	7.5	1.6	16	230	112	21.52	0.31	26	184	13
Dec	7.7	7	2	19	330	180	37.18	0.79	18	324	8
Jan	8	7.3	1.5	20	110	176	19.22	0.84	19	324	9
Feb	7.5	7.1	2	8	1700	180	19.22	0.91	<10	464	4
March	7.3	7.1	2.1	7.8	490	236	25.15	0.86	<10	436	3
Badhajhor											
Apr	7.1	7.8	1.3	7.8	330	128	21.30	0.42	22	224	2
May	8.5	6.6	1.2	8	460	132	21.90	0.29	14	236	6.9
June	7.7	7.4	1.3	8	2400	96	17.50	0.36	21	184	9.8
July	7.7	7.3	1.2	7.8	2300	168	15.90	0.46	36	260	7
Aug	7.6	7.8	1.6	12	790	88	11.05	0.22	64	136	40
Sep	7.5	7.5	2.2	19	940	112	8.90	0.32	153	164	7
Oct	7.4	8.5	2	7.5	1300	112	29.10	0.29	27	160	12
Nov	7.3	5.8	2.3	7.9	1700	116	22.72	0.39	24	172	11
Dec	8	7.4	1.4	15	1100	148	29.24	0.35	11	240	5
Jan	7.8	7.9	1.3	16	490	172	18.54	0.30	26	248	12
Feb	7.8	6.7	1.6	12	330	132	19.52	0.40	<10	212	3
March	7.6	6.9	1.7	12	1700	116	22.23	0.47	<10	188	3
Damsala at Dayanabil											
Apr	7.6	5.2	1.5	7.7	140	80	15.90	0.34	13	100	2
May	8.1	6.3	1.6	7.9	220	88	9.60	0.33	<10	116	1.6
June	8.3	9.5	1.5	7.3	790	112	15.82	0.33	13	136	3.6
July	8.1	5.8	1.6	12	130	68	12.50	0.37	19	104	4
Aug	7.2	7.3	1.5	11	2400	56	14.50	0.21	103	96	60
Sep	7.3	6.5	1.5	12	940	92	14.40	0.13	35	124	17

Month	pH	DO, mg/L	BOD, mg/L	COD, mg/L	FC, MPN/ 100 ml	Total Hardness $CaCO_3$, mg/L	Sulphate, mg/L	Flouride, mg/L	TSS, mg/L	TDS, mg/l	Turbidity, NTU
Oct	7.4	6.8	1.6	15	220	92	13.50	0.35	14	120	6
Nov	8.2	7.2	1.7	7.9	1700	72	15.33	0.28	26	108	13
Dec	7.9	7.8	1.8	15	460	92	20.54	0.29	11	128	5
Jan	7.7	7.7	1.6	16	460	92	19.71	0.39	12	124	5
Feb	7.9	7.7	1.7	12	490	88	28.06	0.35	28	128	13
March	8.1	7.3	1.6	12	330	84	12.52	0.54	19	124	9
Gonda nallah at Marthapur											
Apr	7.3	5.8	2.3	15	330	100	21.10	0.38	12	304	3
May	8	5.4	2.1	16	330	168	48.20	0.34	11	392	2.5
June	7.9	9.2	2	15	1100	320	125.00	0.25	12	620	3.3
July	7.7	6.5	1.9	16	230	272	29.10	0.32	13	420	3
Aug	7.7	6.2	1.8	15	790	232	125.00	0.19	16	376	5
Sep	7.4	7.3	1.9	12	330	108	20.30	0.18	81	176	40
Oct	7.3	6.3	1.7	11	330	140	17.02	0.29	30	208	13
Nov	7.8	7.1	1.8	12	1100	136	37.18	0.21	18	204	8
Dec	7.7	7.6	1.9	23	490	156	50.65	0.19	14	464	7
Jan	7.3	6.6	1.8	16	490	160	20.78	0.29	11	408	5
Feb	7.5	6.1	1.9	16	1300	160	23.79	0.39	18	276	7
March	7.6	7.8	1.8	15	220	140	23.88	0.46	12	368	6
Lingira U/S											
Apr	7.3	6	1.8	12	130	172	19.00	0.53	17	352	2
May	8.1	11.2	1.7	12	33	136	15.80	0.34	16	344	4.6
June	7.8	7.8	1.8	12	330	144	11.80	0.83	16	212	5.2
July	7.8	8.6	1.9	16	130	188	19.80	0.34	12	340	2
Aug	7.9	6.8	2	12	1300	136	18.40	0.38	68	228	20
Sep	7.7	7.4	2.4	7.8	790	184	15.10	0.23	15	304	8
Oct	7.6	9.4	2.2	11	700	180	36.80	0.28	<10	332	2
Nov	7.7	6.1	2.1	7.9	790	180	20.54	0.49	11	336	5
Dec	8.3	5.8	1.7	7.5	330	196	31.09	0.45	<10	280	3
Jan	8.3	7.6	1.8	7.9	490	192	18.06	0.34	14	284	7
Feb	8.2	6.6	1.5	8	330	144	17.28	0.24	<10	272	3
March	7.6	7	1.6	7.8	790	192	15.92	0.62	<10	304	3
Lingira D/S											
Apr	7.3	6.4	2	12	790	176	16.60	0.39	25	368	3
May	8.2	10.6	1.9	12	79	128	12.40	0.41	21	296	9.7
June	8.3	8.2	2	16	490	140	16.30	1.42	22	264	7.6
July	7.7	8.5	2.1	16	330	180	21.10	1.16	12	328	2
Aug	7.8	6.1	2.3	19	1700	132	21.40	0.88	46	228	25
Sep	7.8	7.1	1.5	7.8	1400	200	18.60	0.31	17	324	30
Oct	7.7	9.6	1.7	7.5	790	196	38.10	0.19	13	344	5
Nov	7.7	6.9	2.6	16	1100	180	21.31	0.84	11	332	5
Dec	8.2	7.6	1.7	11	330	200	32.07	0.33	25	284	12
Jan	7.9	6.7	2	12	940	208	32.62	0.41	25	316	12
Feb	8.1	8	1.7	12	2200	148	18.54	0.19	<10	276	3
March	7.9	6.6	1.8	12	1300	200	23.50	0.52	30	336	14
Ramiala near Kamakhyanagar											
Apr	6.9	7.4	1.4	7.8	230	68	11.10	0.38	18	92	3
May	8	7.6	1.5	8	130	52	18.40	0.25	13	104	4.7
June	7.5	7.4	1.6	12	330	40	12.60	0.19	21	76	8.9
July	7.4	6.8	1.7	12	330	60	12.20	0.39	18	88	4
Aug	7.2	6.6	2	19	1700	56	31.90	0.17	512	96	150
Sep	7.6	7.2	2.2	16	790	84	27.10	0.27	27	128	14
Oct	7.8	7.4	2.1	11	490	124	31.10	0.27	24	176	12
Nov	7.5	6	2.1	7.9	490	76	10.65	0.34	22	128	10
Dec	7.8	7.2	2.2	7.5	310	72	9.67	0.17	11	116	5
Jan	7.6	7.8	1.8	7.9	790	72	17.09	0.37	26	104	12
Feb	7.3	5.8	1.7	8	490	76	17.38	0.25	16	180	7
March	7.4	7.8	1.8	7.8	330	84	18.54	0.42	<10	112	4
Bangurunallah											
Apr	6.8	6.6	1.9	12	1100	288	215.00	0.31	16	544	3
May	6.9	6.8	1.8	12	220	480	241.00	0.27	12	804	4.6
June	7.3	7.3	1.8	12	1300	320	206.00	0.21	15	544	4.8
July	7.2	5.3	1.8	12	230	396	112.00	0.77	21	580	4

Month	pH	DO, mg/L	BOD, mg/L	COD, mg/L	FC, MPN/ 100 ml	Total Hardness $CaCO_3$, mg/L	Sulphate, mg/L	Flouride, mg/L	TSS, mg/L	TDS, mg/l	Turbidity, NTU
Aug	7.5	7.9	1.8	23	330	184	105.50	0.27	526	276	160
Sep	7.2	8.1	1.6	12	230	196	94.50	0.30	15	344	6
Oct	7.4	7.3	1.7	11	790	264	124.50	0.22	21	420	8
Nov	7.2	5.5	2.5	16	490	172	61.09	0.30	201	296	100
Dec	7.5	7	1.9	15	330	428	238.05	0.13	48	688	22
Jan	7.3	6.8	1.7	20	220	420	41.55	0.34	58	620	27
Feb	7.5	11	1.8	20	330	432	37.77	0.21	14	696	7
March	7.2	7.3	1.9	12	330	248	168.94	0.24	<10	432	3
Singadajhor											
Apr	7.1	5.8	1.5	7.8	330	192	95.50	0.19	33	308	9
May	7.1	5.6	1.6	12	130	100	21.50	0.28	19	196	6.9
June	7.5	6.8	1.7	12	230	156	26.98	0.29	13	244	4.3
July	7.5	6.5	1.6	12	130	80	17.20	0.61	14	124	4
Aug	7.6	7.8	1.8	7.8	1300	48	18.20	0.39	172	76	95
Sep	6.9	7.9	1.9	7.8	330	56	14.20	0.21	39	140	17
Oct	7.3	8	1.8	11	330	68	24.10	0.19	19	136	10
Nov	7.6	5.9	2.3	16	230	136	26.20	0.30	46	212	22
Dec	7.8	6.5	2.5	19	330	176	45.00	0.21	30	264	14
Jan	7.6	6.9	1.5	20	330	208	17.38	0.31	29	296	14
Feb	7.7	8.1	1.4	8	490	184	20.49	0.19	30	256	14
March	7.7	6.3	1.9	7.8	170	112	15.05	0.26	<10	188	4
Tikira at Kaniha U/S											
Apr	7.3	6.4	1.2	7.8	130	72	12.20	0.48	11	124	3
May	8.2	9.2	1.3	8	49	108	14.90	0.42	15	196	7.1
June	7.8	8.3	1.3	8	2200	88	22.40	0.35	18	136	4.8
July	7.8	7.1	1.3	7.8	1300	76	21.60	0.50	146	108	46
Aug	7.6	5.8	1.5	12	490	76	25.40	0.40	272	120	140
Sep	7.2	8.1	1.5	16	700	88	12.80	0.29	62	144	31
Oct	7.5	8.8	1.6	15	2200	92	24.50	0.27	21	136	8
Nov	7.7	7.3	1.8	12	490	88	22.94	0.39	<10	144	4
Dec	8.2	7	2.2	7.5	490	120	33.59	0.45	20	188	9
Jan	7.8	7.4	1.4	7.9	700	112	16.89	0.39	23	180	10
Feb	7.9	5.9	1.9	8	330	112	17.86	0.20	<10	168	4
March	7.7	7.5	2	7.8	490	96	18.35	0.29	<10	156	4
Tikira at Kaniha D/S											
Apr	7.4	5.2	1.1	7.8	330	96	14.50	1.05	15	148	3
May	7.7	8.2	1.2	8	1300	112	17.30	1.12	17	204	8.0
June	7.8	7.9	1.1	8	1100	96	21.10	0.54	26	148	11.0
July	7.6	6.9	1.2	7.8	2300	84	14.80	0.55	140	112	42
Aug	7.6	7	1.3	16	1100	88	22.90	0.42	261	136	130
Sep	7.1	8.2	2	16	790	100	19.40	0.32	169	160	85
Oct	7.3	8.4	2.2	7.5	2300	104	21.10	0.33	22	148	9
Nov	7.6	8.1	2.1	16	940	100	19.46	0.25	14	152	7
Dec	7.9	6.9	2	11	630	116	26.52	0.47	22	176	10
Jan	7.8	7	1.3	12	1100	108	19.62	0.26	22	172	10
Feb	8	6.8	1.5	16	490	108	18.84	0.21	13	156	6
March	7.5	6.8	1.6	16	790	108	20.87	0.32	<10	168	4
Bangurusingada jhor											
Apr	7.1	5.4	1.2	7.8	330	168	38.82	0.35	12	248	4
May	7.3	5.6	1.3	8	170	168	36.30	0.27	14	364	6.2
June	7.6	6.2	1.2	8	330	72	14.50	0.31	19	112	6.7
July	7.4	5.1	1.3	7.8	790	140	19.10	0.45	14	208	4
Aug	7.6	6.4	1.5	7.8	210	96	31.10	0.25	43	156	25
Sep	7.3	9.0	1.9	7.8	460	136	12.90	0.35	26	196	13
Oct	7.4	7.6	2.3	15	330	132	29.10	0.28	25	192	13
Nov	7.6	6.3	2.6	16	330	136	22.83	0.31	32	184	14
Dec	7.7	7	2	23	110	176	30.98	0.16	24	268	11
Jan	7.6	6.3	1.4	20	460	176	18.74	0.39	23	264	10
Feb	7.9	5.1	1.5	8	170	176	21.26	0.19	<10	228	3
March	7.4	6.9	1.7	7.8	230	156	15.73	0.33	<10	248	3
Standard	**6.5-8.5**	**4 and above**	**3 or less**	**-**	**-**	**-**	**400**	**1**	**-**	**1500**	**-**

Annexure-II

Surface Water Quality of Brahmani River in Angul district for the year 2024-25

Month	pH	DO, mg/L	BOD, mg/L	COD, mg/L	FC, MPN/ 100 ml	Total Hardness $CaCO_3$, mg/L	Sulphate, mg/L	Flouride, mg/L	TSS, mg/L	TDS, mg/l	Turbidity, NTU
Samal											
Apr	6.8	8.2	1.1	7.8	330	68	14.20	0.19	19	96	2
May	7.6	7.2	1.2	8	130	60	14.70	0.29	11	112	4.6
June	7.8	6.8	1.3	8	270	60	12.90	0.44	19	96	4.8
July	7.5	7.6	1.2	7.8	130	80	13.50	0.35	13	120	3
Aug	7.6	5.3	1.7	7.8	1100	56	10.40	0.16	110	96	75
Sep	6.8	8.1	1.8	16	700	64	18.90	0.24	38	96	21
Oct	7.3	7.3	1.7	11	1700	60	9.30	0.30	27	88	10
Nov	7.4	5.9	1.9	7.9	460	60	11.52	0.25	11	84	5
Dec	7.4	7	2.1	7.5	490	96	7.50	0.20	30	136	14
Jan	7.8	7.2	1.3	7.9	790	100	9.51	0.34	27	136	12
Feb	7.3	6.1	1.4	8	1300	92	12.76	0.39	25	132	12
March	7.2	6.9	1.5	12	790	52	15.44	0.20	<10	84	2
Talcher Further U/S											
Apr	6.8	7.6	1.3	7.8	220	64	15.20	0.18	11	92	2
May	7.5	7.4	1.3	8	330	60	15.20	0.35	15	104	6.8
June	7.8	7	1.3	8	11000	72	10.10	0.45	22	108	11.0
July	7.4	7.3	1.4	7.8	330	92	16.40	0.45	12	136	5
Aug	7.5	5.1	1.9	12	330	56	13.50	0.17	212	92	110
Sep	7.3	8.2	2.1	12	490	52	19.80	0.22	45	92	20
Oct	7.4	7	2.3	7.5	790	52	11.90	0.30	63	80	32
Nov	7.4	5.9	1.6	7.9	330	52	14.78	0.27	22	92	10
Dec	7.3	6.5	1.3	7.5	170	76	17.28	0.21	26	112	12
Jan	7.7	7.6	1.5	7.9	170	76	10.00	0.25	26	108	11
Feb	7.4	6.9	1.5	8	330	80	11.55	0.37	<10	120	3
March	7.1	7.1	1.6	16	330	64	16.31	0.21	16	96	7
Talcher U/S											
Apr	6.7	7.4	1.2	7.8	790	64	17.10	0.19	12	92	2
May	7.5	7	1.1	8	1700	56	17.30	0.37	18	108	7.9
June	7.7	7.1	1.2	8	1300	60	9.60	0.54	31	96	15.0
July	7.3	7.5	1.3	7.8	490	96	17.40	0.35	<10	144	4
Aug	7.6	5.6	2	12	490	52	16.50	0.16	220	96	120
Sep	7.4	7.2	2.1	12	490	104	21.90	0.12	42	144	25
Oct	7.5	5.9	1.9	7.5	790	108	14.40	0.26	124	144	65
Nov	7.7	6.1	1.3	7.9	790	100	16.09	0.31	18	136	8
Dec	7.4	6.7	1.7	7.5	230	84	19.35	0.32	22	116	10
Jan	7.5	8.2	1.4	7.9	330	84	11.94	0.26	24	120	10
Feb	7.5	8.3	1.4	12	1300	84	9.51	0.38	22	124	10
March	7.1	7.9	1.5	7.8	790	72	21.26	0.15	<10	104	3
Mandapal											
Apr	6.7	9.4	1.2	7.8	2200	56	10.40	0.38	15	84	2
May	7.2	7.2	1.1	8	330	60	12.40	0.34	28	108	12.0
June	7.4	6.9	1.2	8	49	56	11.40	0.55	32	96	15.0
July	7.3	7.9	1.3	7.8	1300	100	14.20	0.35	18	144	4
Aug	7.9	6.3	2.7	27	490	220	38.40	1.16	21	320	7
Sep	7.7	8.0	1.9	12	1700	64	17.10	0.20	51	112	31
Oct	7.6	7.3	1.8	7.5	1700	68	12.90	0.25	62	92	31
Nov	7.3	8.1	1.3	12	1700	60	25.44	0.29	21	104	9
Dec	7.3	6.3	1.4	11	490	76	16.96	0.41	34	116	16
Jan	7.5	6.2	1.4	7.9	1300	76	22.23	0.39	37	108	16
Feb	7.4	5.3	1.5	12	2200	72	16.21	0.29	<10	120	3
March	7.1	7.6	1.6	7.8	1700	60	20.00	0.22	<10	92	3
Talcher D/S											
Apr	6.8	8	1.7	12	1300	72	14.30	0.22	15	112	2
May	7.1	7.4	1.8	12	1700	60	18.90	0.19	26	112	13.0
June	7.4	6.7	1.9	12	220	72	14.60	0.39	38	116	17.0
July	7.2	7.1	1.8	12	790	100	9.80	0.41	14	160	5
Aug	7.7	6.1	2.3	16	1300	76	21.40	0.28	36	128	18

Month	pH	DO, mg/L	BOD, mg/L	COD, mg/L	FC, MPN/ 100 ml	Total Hardness $CaCO_3$, mg/L	Sulphate, mg/L	Flouride, mg/L	TSS, mg/L	TDS, mg/l	Turbidity, NTU
Sep	7.8	7.5	1.8	12	1700	68	23.10	0.16	50	112	27
Oct	7.6	6.4	2	11	1100	68	16.00	0.21	48	108	24
Nov	7.5	7.3	1.8	16	940	72	18.37	0.35	25	112	12
Dec	7.3	6.9	1.8	11	330	88	22.61	0.29	31	148	14
Jan	7.4	7.9	1.7	12	490	88	18.84	0.31	16	128	7
Feb	7.5	10.1	1.8	16	1700	84	8.45	0.42	<10	120	3
March	7.1	6.9	1.9	12	1300	80	18.35	0.25	<10	116	2
Talcher Further D/S											
Apr	6.9	7.4	1.6	12	490	64	9.70	0.31	16	92	2
May	7.1	6.6	1.5	8	330	60	7.80	0.19	33	104	15.0
June	7.6	6.8	1.6	12	130	64	12.80	0.48	42	104	21.0
July	7.2	7.5	1.7	12	220	144	7.80	0.30	26	228	3
Aug	7.7	6	1.6	12	330	80	24.50	0.34	40	136	20
Sep	7.2	7.6	1.7	12	330	52	18.20	0.19	55	104	26
Oct	7.7	6.6	1.9	7.5	490	52	12.20	0.19	35	96	16
Nov	7.3	7.9	1.6	20	490	56	23.81	0.30	29	108	14
Dec	7.2	6.2	1.7	15	130	84	21.41	0.34	30	136	13
Jan	7.5	6.8	1.6	16	130	80	20.78	0.44	22	128	10
Feb	7.4	5.1	1.7	8	790	84	16.60	0.39	13	132	7
March	6.9	7.2	1.8	7.8	490	72	15.15	0.20	<10	108	3
Dhenkanal U/S											
Apr	6.7	8.4	1.4	7.8	330	64	11.90	0.38	20	96	5
May	7.2	9.6	1.5	8	490	56	8.40	0.29	20	104	9.8
June	7.6	7.1	1.5	8	1100	60	7.80	0.33	16	92	5.8
July	7.3	8.1	1.6	12	230	96	15.90	0.42	21	160	6
Aug	7.4	6.9	1.8	7.8	330	56	14.20	0.20	44	96	22
Sep	7.6	6.8	2	12	330	52	16.50	0.24	63	88	30
Oct	7.5	7.6	2.1	15	490	52	14.90	0.41	152	80	80
Nov	7.4	5.4	1.2	7.9	330	68	20.54	0.26	25	104	12
Dec	7.3	7	1.7	7.5	170	84	16.41	0.32	14	140	6
Jan	7.6	7	1.5	7.9	490	84	29.22	0.29	19	120	8
Feb	7.5	7.1	1.6	8	490	88	17.09	0.18	<10	128	3
March	7.2	6.9	1.7	7.8	490	72	18.84	0.23	30	104	14
Dhenkanal D/S											
Apr	6.8	7.8	1.6	12	490	68	12.70	0.34	24	92	6
May	7.2	8	1.7	12	1300	60	11.80	0.49	24	108	11.0
June	7.6	7.3	1.8	12	1300	60	8.60	0.35	23	92	6.4
July	7.2	7.5	1.9	16	330	96	19.10	0.44	15	148	4
Aug	7.7	6.5	2.1	16	1700	60	12.00	0.20	42	100	20
Sep	7.5	6.9	1.6	19	490	48	18.05	0.29	62	92	24
Oct	7.4	7.4	2.3	15	790	48	16.90	0.31	165	84	85
Nov	7.5	5.9	1.5	16	790	72	19.67	0.29	24	108	11
Dec	7.5	7.3	1.5	11	220	72	18.26	0.29	44	112	21
Jan	7.4	7.9	1.8	12	790	72	27.28	0.40	27	112	13
Feb	7.5	8.4	1.9	12	490	84	13.98	0.18	11	124	5
March	7.3	6.8	2	12	790	72	21.26	0.35	<10	116	4
Bhuban											
Apr	6.6	7.8	1.3	7.8	330	60	21.40	0.49	22	96	5
May	7.5	8	1.2	8	220	56	13.00	0.32	19	104	7.9
June	7.4	7.5	1.2	8	490	56	8.90	0.43	24	96	8.4
July	7.1	7.8	1.2	7.8	330	88	21.10	0.79	28	164	5
Aug	7.6	7.3	1.4	12	790	56	14.10	0.18	148	96	75
Sep	7.4	7.1	1.7	7.8	700	48	16.20	0.26	48	88	12
Oct	7.7	7	1.8	15	1300	48	9.60	0.39	119	80	60
Nov	7.6	6.4	2.1	7.9	490	56	25.54	0.29	24	96	10
Dec	7.5	6.9	1.4	7.5	330	76	14.02	0.35	40	124	19
Jan	7.4	7	1.4	7.9	700	80	25.92	0.30	17	116	7
Feb	7.7	6.9	1.6	8	790	92	18.35	0.21	<10	128	3
March	7.2	7.1	1.7	7.8	1300	68	20.49	0.42	11	112	5
Kabatabandha											
Apr	7.8	7	1.2	7.7	490	64	18.90	0.21	16	96	2
May	8.5	6.9	1.3	7.9	220	96	34.30	0.28	128	128	24.0

Month	pH	DO, mg/L	BOD, mg/L	COD, mg/L	FC, MPN/ 100 ml	Total Hardness $CaCO_3$, mg/L	Sulphate, mg/L	Flouride, mg/L	TSS, mg/L	TDS, mg/l	Turbidity, NTU
June	8.5	6.1	1.2	7.3	790	68	12.50	0.38	22	96	9.6
July	8.2	6	1.1	7.8	220	68	24.40	0.19	68	116	12
Aug	7.5	7.6	1.5	11	790	60	33.10	0.19	218	112	120
Sep	8.3	7.2	1.6	16	490	92	14.90	0.21	108	120	60
Oct	7.5	6.3	1.7	11	330	88	9.10	0.29	32	120	15
Nov	8.2	5.8	1.6	12	790	68	20.44	0.29	30	112	15
Dec	7.6	8.2	1.7	11	330	84	15.54	0.20	12	124	5
Jan	7.1	7.6	1.6	7.9	490	84	17.09	0.37	14	128	6
Feb	7.7	7.2	1.6	7.8	790	88	18.84	0.29	28	136	13
March	8.5	6.8	1.4	7.7	490	88	18.84	0.19	20	120	9
Standard	**6.5-8.5**	**4 and above**	**3 or less**	**-**	**-**	**-**	**400**	**1**	**-**	**1500**	**-**

Annexure-III

List of Chromite Mines in Sukinda Valley

Sl. No.	Name of the Mines	EC Orders No. & Date	Approved Quantity in EC	Consent to Operate Validity	Working Status
1	Chingudipal Chromite Mines of IMFA Ltd.	No. J-11015/179/ 2007-IA. II (M), dated 03.06.2009	Chromite ore-11000 TPA	31.03.2011	Non-working.
2	Kalarangiata Chromite Mines of FACOR Ltd.	No. J-11015/183/ 2007-IA. II (M), dated13.05.2009	Chromite ore- 0.05 MTPA	31.03.2023	Non-working due to want of statutory clearance since 09.03.2023
3	Sukurangi Chromite Mines of OMC Ltd.	No. J-11015/ 348/2015-IA.II(M), dated 30.07.2020	Chrome Ore 0.3 MTPA	31.03.2026	Working
4	Kaliapani Chromite Mines of OMC Ltd.	No. J-11015/408/ 2008-IA. II (M), dated 20.07.2010	Chrome ore- 65000 TPA	31.03.2011	Non-working.
5	Jindal Chromite Mines of Jindal Stainless Ltd	i) No. J-11015/ 369/ 2009.IA.-II(M), dated 24.2.2016 ii) SIA/OR/MIN/ 37642/2000, dated 04.04.2022	i) Enhancement of COBP plant production capacity 36,000 TPA to 60,000 TPA ii) Chrome Ore-0.215 MTPA	31.03.2026	Working
6	Ostapal Chromite Mines of FACOR	SEIAA File No.460631/10-MIN/02-2024, dated 18/07/2024	Chrome Ore-0.1.5 MTPA (maximum excavation of 2.5 MTPA) and COB Plant from 0.1 MTPA to 0.8 MTPA	31.03.2026	Working
7	South Kaliapani Chromite Mines of OMC Ltd.	No. J-11015/407/ 2008-IA. II (M) dt.20.07.10	Chrome ore- 1.4 MTPA	31.03.2026	Working
8	Saruabil Chromite Mines of M/s. Tata Steel Ltd. [Formerly owned by Mishrilal Mines (P) Ltd.]	SIA/OR/MIN /78946/2020, dated 06.06.2023	Chrome Ore- 1.0 MTPA (ROM)	31.03.2027	Working
9	Sukinda Chromite Mine of IMFA	i)No. J-11015/346/ 2007-IA. II (M) dt.22.05.2012 ii)No.J-11015/346/2007-IA.II(M) dt.11.08.2014 (extension of previous EC up to 31.03.2026)	i) Chromite ore-3.51 LTPA ii)Chromite ore-3.51 LTPA (extension of EC up to 31.03.2026)	31.03.2026	Working

Sl. No.	Name of the Mines	EC Orders No. & Date	Approved Quantity in EC	Consent to Operate Validity	Working Status
10	Mahagir Chromite Mines of IMFA Ltd.	i) J-11015/345/ 2007-IA.II(M) dt. 29.12.2012 ii)J-11015/345/ 2007-IA.II(M) dt. 02.01.2013 iii)J-11015/345/ 2007-IA.II(M) dt. 17.03.2015 iv) EC23B001OR110107, dated 10/10/2023	i) Chromite 0.3 MTPA ii)Chromite 0.3 MTPA(Extension of EC upto 31.1.2015) iii) Extension of EC beyond 31.01.2015. iv) Chromite Ore - 0.6 MTPA	31.03.2026	Working
11	Kalarangi Chromite Mine of OMC	No EC		31.03.1998	Non-working.
12	Kaliapani Chromite Mines of Balasore Alloys Ltd.	No. J-11015/ 139/ 2012-IA. II (M) dt.22.08.14	Chromite ore-0.6 MTPA	31.03.2026	Working
13	Tailangi Chromite Mines of IDCOL	No. J-11015/211/ 2008-IA. II (M) dt.01.04.10	Chromite ore- 0.14 MTPA	31.03.2022	Non-working.
14	Kamarda Chromite Mines of Tata Steel Mining Ltd. [formerly owned by B. C. Mohanty & Sons Pvt. Ltd.]	EC23B001OR151640, 08.06.2023	Chrome Ore (ROM)-0.30 MTPA	31.03.2027	Working
15	Sukinda Chromite Mines of Tata Steel Ltd. [Formerly owned by Tata Steel Mining Ltd.]	i) No- J-11015/ 96/2011-IA.II(M) dt. 6.9.2013 ii) No- J-11015/ 96/2011-IA.II(M) dt. 26.9.2016	i) Chrome ore 2.4 MTPA, Pyroxenite ore 0.5 MTPA (ROM), Enhancement of chrome ore beneficiation production from 0.1 to 0.65 MTPA (Throughput) ii) Clarification to previous EC regarding enhancement of chrome beneficiation production from 0.1 MTPA to 0.65 MTPA.	31.03.2026	Non-working.
16	Kathpal Chromite Mines of FACOR	No. J-11015/43/ 96-IA. II (M) dt.06.11.97	Chromite ore-35000 TPA	31.03.2016	Non-working.
17	Kathapal Chromite Mine of OMC Ltd.	No EC		31.03.2003	Non-working.

Annexure-IV

Status of Effluent Treatment Plants in Sukinda Valley

Sl. No.	Name of the mine	Existing ETP (Nos.)	Capacity of ETP in KL/Hr	Remarks
1.	Kamarda Chromite Mines of Tata Steel Mining Ltd.	1	200	Dismantled from January, 2025 and wastewater is being channelized to CETP of Saruabil Chromite Mine.
2.	Saruabil Chromite Mines of Tata Steel Mining Ltd.	2	380 (ETP) and 1200 (CETP)	Working.
3.	Tailangi Chromite Mines of IDCOL	1	250	Not working as mining operation is suspended since October-2018.
4.	Ostapal Chromite Mines of FACOR	1	600	Working.
5.	South Kaliapani Chromite Mines of OMC	2	1200 (D-Quarry), 300 (F-Quarry)	Working. Mine drainage water is also treated from Sukrangi Mine in F-Quarry ETP.
6.	Sukinda Chromite Mines of IMFA	1 (Common ETP)	1260	Working.
7.	Mahagiri Chromite Mines of IMFA			
8.	Kaliapani Chromite Mines of Balasore Alloys Ltd.	1	750	Working.
9.	Sukinda Chromite Mines of Tata Steel Mining Ltd.	1	4500	Mining operation stopped. ETP operated intermittently as per need.
10.	Kalarangiatta Chromite Mines of FACOR	1	400	Not working as mining operation suspended since 09.03.2023.
11.	Kaliapani Chromite Mines of Jindal Stainless Ltd.	1	250	Working.

Annexure-V

Monitoring Results (Cr^{+6} in mg/L) of ETP Outlets of different Chromite Mines of Sukinda, Jajpur conducted by Regional Office, Kalinganagar on fortnightly basis for the year 2024-25

Date	Kamarda Chromite Mines of M/s. Tata Steel Ltd.	Saruabil Chromite Mines of M/s. Tata Steel Ltd.		Sukinda Chromite Block of M/s. Tata Steel Ltd.	South Kaliapani Chromite Mines of M/s. OMC Ltd.		Mahagiri/ Sukinda Mines Chromite of M/s. IMFA Ltd.	Ostapal Chromite Mines of M/s. FACOR Ltd.	Kaliapani Chromite Mines of M/s. Jindal Stainless Ltd.	Kaliapani Chromite Mine of M/s Balasore Alloys Ltd.
		ETP	CETP		D-Quarry	F-Quarry				
15.04.2024	0.033	0.019	--	0.026	0.032	0.036	0.031	0.035	--	0.029
30.04.2024	0.029	0.042	--	0.006	0.039	--	0.013	--	--	0.036
15.05.2024	0.017	0.020	--	0.015	0.032	--	0.016	--	0.032	1.37
29.05.2024	0.028	0.023	--	0.012	0.038	--	0.026	--	0.044	0.036
12.06.2024	--	0.029	--	0.023	0.038	--	0.022	--	--	0.033
29.06.2024	0.041	0.039	--	0.017	0.035	--	0.028	0.032	0.026	0.039
19.07.2024	0.028	0.023	--	0.006	0.035	--	0.031	0.046	0.036	0.035
31.07.2024	0.032	0.025	--	0.009	0.035	--	0.010	0.038	0.039	0.035
14.08.2024	0.038	0.031	--	0.007	0.032	--	0.016	0.042	0.036	0.033
30.08.2024	--	0.025	--	0.012	0.035	--	0.020	--	0.031	0.035
13.09.2024	--	0.032	--	0.015	0.033	--	0.025	0.035	0.044	0.036
30.09.2024	0.028	0.023	--	0.013	0.026	--	0.031	0.035	0.032	0.039
14.10.2024	0.028	0.033	--	0.012	0.036	0.032	--	0.038	0.035	0.039
23.10.2024	--	--	--	--	--	--	--	--	--	0.038
12.11.2024	0.077	0.0286	--	0.020	0.015	--	0.026	0.184	--	0.041
22.11.2024	0.045	0.028	--	0.016	0.038	--	0.020	0.032	--	0.038
10.12.2024	0.012	0.033	--	--	--	--	--	--	--	--
23.12.2024	0.041	0.032	--	0.007	0.033	--	0.022	0.033	0.019	0.035
15.01.2025	0.038	--	--	0.006	--	0.022	0.020	--	0.038	0.033
28.01.2025	0.020	--	--	0.009	--	0.035	0.015	--	0.041	--
17.02.2025	--	--	0.031	0.023	--	--	0.020	--	0.039	0.032
24.02.2025	--	0.029	0.004	0.006	--	0.033	0.028	--	--	0.032
19.03.2025	--	0.028	0.016	0.013	--	0.038	0.023	--	--	0.036

Annexure-VI

AAQ Monitoring of Chromite Mines in Sukinda Valley from January, 2024 to March, 2025

Sl. No.	Name of the Lease & Lessee	Date of Monitoring	Location of Monitoring	PM_{10} ($\mu g/M^3$)
01	Kamarda Chromite Mines of M/s. Tata Steel Mining Ltd.	12.03.2024	On the roof of Mines office Building	94
			Near ETP Building	84
		24.02.2025	On the roof of Kamarda Mines Office	108
			Near Kamarda Old COB Plant	92
			AAQ Monitoring conducted near Old ETP	88
02	Saruabil Chromite Mines of M/s. Tata Steel Mining Ltd.	12.03.2024	Near Mechanical Garage	82
			Near ETP Building	95
			On the roof of office Building	116
		24.02.2025	Near CETP Building	91
			Near ETP Building	112
			Near Mechanical Garage	95
03	Ostapal Chromite Mines of M/s. FACOR Ltd.	28.01.2025	Near COB Plant	93
			Near North Dump (Inside Quarry)	91
			Near Dispensary	97
04	South Kaliapani Chromite Mines of M/s. OMC Ltd.	04.03.2024	Near ETP Building of D-Quarry	86
			N ear ETP Building of F-Quarry	81
		12.06.2024	Near ETP Building of D-Quarry	89
			Near ETP Building of F-Quarry	78
		19.03.2025	Near ETP Building of D - Quarry	90
			Near ETP Building of F - Quarry	182
05	Sukrangi Chromite Mines of M/s. OMC Ltd.	04.03.2024	Near Mines Office	88
			Near Ore Stock Yard	114
		23.10.2024	Near Transit House	171
			Near Ore Plot Site Office	149
		19.03.2025	In front of Mines Office	97
			Near Ore Plot site office adj. to Quarry Pit	171
06	Mahagiri Mines Chromite of M/s. IMFA Ltd.	05.01.2024	Near Admin. Building of MMC	73
			Near Decline Mouth	85
			Near Canteen Building	82
07	Sukinda Mines Chromite of M/s. IMFA Ltd.	02.05.2024	Near common ETP	81
			Near Electric Sub Station of Sukinda Mines Chromite of M/s. IMFA Ltd.	93
			Near 80 KLD STP at colony	89
08	Kaliapani Chromite Mines of M/s. Balasore Alloys Ltd.	23.10.2024	Near Automobile Office	266
			On the roof of Admin. Building	235
09	Kaliapani Chromite Mines of M/s. Jindal Stainless Ltd.	17.02.2025	Near Mines Office	77
			Near COB Plant	69
10	Sukinda Chromite Block of M/s. Tata Steel Mining Ltd.	13.03.2024	On the roof top of Chemical Laboratory	80
			Near Paradeep Gate	93
			Near Stack yard	109
			Prescribed standard by the Board	**100**

Annexure-VII

EC Status of Working Iron and Manganese Mine in Keonjhar District

Sl. No.	Name of the Mines	Lease Areas in Ha.	EC Approved by MoEF &CC	EC Approved by SEIAA	Approved Quantity in EC
1	Guali Iron Ore Mines of OMC Ltd {Previous lessee R P Sao}	365.026	No. J-11015 /1155/ 2007-IA.II(M) dt.17.07.2023		Iron Ore-12 MTPA
2	Unchabali (Mahaparbat) Iron Ore Mines of OMC Ltd.	68		9785/SEIAA, dated 26.11.2020	Iron Ore 1MTPA
3	Bagiaburu Iron Ore Mines of M/s Orissa Minerals Development Company Limited, At/PO:Thakurani, Barbil, Uliburu, Dist: Keonjhar, Pin-758035	21.521		No.23-205/2018-IA.III(V), dated 14.07.2023	Iron Ore (ROM)-3,60,000 TPA
4	Deojhar Iron Ore Mines of Tarini Minerals (P) Ltd.	34.368		i) SEIAA vide No. 26/09 dt. 27.11.2009 ii) SEIAA vide No. 3427/SEIAA dt. 30.05.2015	i) Iron Ore-1.5 MTPA ii) Extension of EC up to 30 years
5	Balda Block Iron Mines of Serajuddin& Co. (Lease expired. Again Lease auctioned to M/s. Serajuddin & Co.)	335.84	J-11015/18 /2012-IA.II(M) dt. 19.11.2013 (Vesting order issued order dated 10.06.2020 by Steel and Mines Deptt. with validity of two years)		Iron ore 15.15 MTPA (ROM)
6	Khandabandh Iron Ore Mines of OMC Limited	366.311	No. J-11015/1081/ 2007-IA.II(M) dt.15.12.2008		Iron Ore 1 MTPA
7	Banspani Iron Mines of OMC Ltd.	380.4	No. J-11015/ 1089/2007-IA.II. (M) dt. 8.5.2008		Iron Ore 1 MTPA
8	Tiringpahar Iron Ore Mines of OMC Ltd.	79.3	No. J-11015/ 1082/2007-IA.II(M) dt.12.06.2008		Iron Ore-0.328 MTPA
9	Katamati Iron Ore Mines of TATA Steel Ltd.	403.324	J-11015/63 2018-IA.II(M) dt.05.08.2021		Iron Ore-13.5 MTPA (Total excavation 15 MTPA)
10	Joda East Iron Mines of Tata Steel Ltd	671.093	No. J-11015/ 215/ 2008-IA.II(M) dt.13.04.2013		Iron Ore-19.5

Sl. No.	Name of the Mines	Lease Areas in Ha.	EC Approved by MoEF &CC	EC Approved by SEIAA	Approved Quantity in EC
11	Jaribahal Iron Ore Mines of M/s. Kashvi International Pvt. Ltd. [Formerly Patnaik Minerals Pvt. Limited]	106.534	No. J-11015/ 516/2007-IA.II(M) dt.25.7.2008 [Vested vide order dated 01.6.2020 and 17.2.2022]		Iron Ore-0.998 MTPA
12	Murgabeda Iron Ore Mines of D R Patnaik	15.378		i) SEIAA/342 dt. 04.09.2010 ii) SEIAA/3554 dt. 04.07.2015	i) IronOre 2 MTPA ii) Extension of EC up to 30 years
13	Baitarani Iron Ore Mines of Dr. Sarojini Pradhan	65.397		SEIAA/2262 dated 19.08.2021	Iron Ore 571600 TPA
14	Jururi Iron Ore Mines (73.228 Ha.) of M/s Jagat Janani Services (P) Ltd. (Previous Lessee Kalinga Mining Corporation)	73.228	No. J-11015/ 368/2009-IA.II(M) dt. 01.06.2012 (Vesting order issued dated 05.06.2020 by Steel and Mines Deptt. with validity of two years)		Iron Ore-2.1 MTPA & beneficiation plant 0.432 MTPA throughput capacity
15	Roida-II Iron Ore Mines of M/s. Narbheram Power & Steel Pvt. Ltd. [Formerly K. N. Ram and Co.}	74.867		Ref No. 6632/ SEIAA dated 18.04.2019[Vested vide order 30.5.2020]	Iron ore 3.5 MTPA
16	Nuagaon Iron Ore Mines of M/s JSW Steels Ltd [Formerly KJS Alhuwalia]	767.284	No. J-11015/1156/ 2007- IA.II (M) dt. 05.08.2021		Iron Ore (ROM) 7.99 MTPA alongwith existing beneficiation plant of capacity 2.0 MTPA
17	Thakurani Iron Ore Mines of M/s Arcelor Mittal India Pvt. Ltd.[Formerly Kaypee Enterprises]	228.04	J-11015/902/2007-IA.II(M) dt. 3.2.2012 [EC tranferred on 13.12.2021]		Iron Ore-5.5 MTPA
18	Jilling-Langolata Iron & Manganese Mines of OMC Ltd. [Formerly Essel Mining Industries Ltd.]	456.1	No.J-11105/ 959/2007-IA.II(M) dt. 07.05.2024		Iron Ore-9.9999 MTPA (Saleable Iron Ore-7.7723 MTPA & Mineral Rejects-2.2276 MTPA)
19	Gandhamardan Iron Ore Mines (Block-A) of OMC	618.576	No. J-11015/1088/ 2007-IA.II(M) dt.16.01.2009.		Iron Ore 0.35 MTPA

Sl. No.	Name of the Mines	Lease Areas in Ha.	EC Approved by MoEF &CC	EC Approved by SEIAA	Approved Quantity in EC
20	Gandhamardan Iron Ore Mines (Block-B) of OMC	1590.867	No. J-11015/ 1084/2007-IA.II(M) dt.03.02.2009		Iron Ore 9.12 MTPA
21	Daitari Iron Ore Mines of OMC Ltd.	190.2	i) No. 23-236/2018-IA.III(V) dated 12.07.2021 ii) No. EC24A 0000OR5978177N, Dated 9.8.2024		i) Iron Ore 6.0 MTPA ii) Iron Ore 6.0 MTPA (Extension of validity)
22	Kasia Iron & Dolomite Mines of M/s JSPL (Previous lessee Essel Mining Industries Ltd.)	134.733	No.J-11015 /960/207-IA.II(M) dt.29.11.2010 (Vested vide order dated 22.10.2021)		IronOre 7.5 MTPA & beneficialtion plant of 0.7 MTPA throughput capacity
23	Nayagarh Iron Ore Mines of KCP Iron Private Limited, Sri Sidharth Pradhan, Managing Director	24.57		SEIAA File No.56426/83-MINB1/03-2022, dt.22.09.2022	Iron Ore - 300135 TPA
24	Khandbandh Iron& Mn ore Mines of Sree Metaliks Ltd	35.77		File No.462225/08-MIN/02-2024 (SEIA File No.) dated 18.07.2024	Iron ore 1.8 MTPA
25	Sirkaguttu Iron & Manganese mines of M/s. Prakash Industries Ltd.	19.532	SEIAA/2401 dated 6.1.2017		Iron ore 1.325 MTPA
26	Siljora-Kalimati Iron & Manganese Mines of Debabrata Behera [Formerly Mangilal Rungta]	715.639	No. J-11015/ 691/2007-IA.II-(M) dt. 03.02.2009 [vested vide order dated 30.5.2020 and 17.2.2022]		Iron Ore-0.136035 MTPA, Manganese Ore 0.189657 MTPA
27	Jajang Iron and Manganese Mines of JSW Stells Ltd [Formerly Rungta Mines Ltd.]	666.15	No. J-11015/96/ 2012-IA.II(M) dt.13.03.2015		Iron Ore-16.5 MTPA
28	Roida -C Iron Ore Mines of OMC Ltd. Operated by IDC of Odisha LTd.	96.775	No.J-11015/106/2006-IA.II(M) dt.20.11.2006		Iron Ore-460000 TPA, Managanese 7000 TPA
29	Naibaga and Katupalli Iron& Mn ore Mines of Tarini Prasad Mohanty	47.219		No.2921/SEIAA, dt. 20.02.2015	Iron Ore-0.6 MTPA, Manganese Ore 0.025 MTPA

Sl. No.	Name of the Mines	Lease Areas in Ha.	EC Approved by MoEF &CC	EC Approved by SEIAA	Approved Quantity in EC
30	Unchabali Iron & Manganese Mines of Indrani Patnaik	106.113	i)No. J-11015/214/2008-IA. II(M) dt. 23.07.2009 (ii) No. J-11015/273/2009-IA.II(M) dated 31.05.2011 (For Beneficiation plant of capacity 2 MTPA throughput capacity)		i)Iron Ore-4 MTPA ii) Iron Ore-4 MTPA and Beneficiation plant of capacity 2 MTPA throughput capacity
31	Bolani Iron Ore Mines of SAIL (5.1 Sq. miles)	1321.45	i)No. J-11015/418/2008-IA.II(M) dt.21.12.2012ii. No.J-11015/418/2008-IA.II(M) dated 5.8.2021 and subsequently 19.09.2022iii. File no. J-11015/418/2008-IA.II(M) dated 13.09.2023		i) Iron ore 12 MTPA, a new beneficiation plant of throughput capacity 12 MTPA and pellet plant of 4 MTPA capacityii. Redistribution of mode of transport of mineral iii. redistribution of 12 MTPA for 02 years [8.5 MTPA ROM and 0.5 MTPA fines from mine , 3 MTPA from fines dump]
32	Bamebari Manganese Mines of Tata Steel Limited	464	No. J-11015/85/2003-IA.II(M) dt.17.11.2005		Manganese Ore 0.0832 MTPA
33	Joda West Manganese Mines of Tata Steel Limited	1437.715	No. J-11015/86/2004-IA.II(M) dt.13.09.2005.		Manganese Ore 0.18 MTPA
34	Khondbodh Iron& Mn ore Mines of Tata Steel Ltd	978	No. J-11015/888/2007-IA.II(M) dt.21.12.2011		Iron Ore 8 MTPA, Manganese Ore 0.1 MTPA and iron ore beneficiation plant of throughput capacity 8 MTPA

Sl. No.	Name of the Mines	Lease Areas in Ha.	EC Approved by MoEF &CC	EC Approved by SEIAA	Approved Quantity in EC
35	Dalpahar Block 'A' Iron and Manganese Mines of D.C. Jain	89.961		SEIAA/2260 dated 19.08.2021	Iron ore-0.31 MTPA, Manganese ore-0.094 MTPA
36	Katasahi Manganese Ore Mine of M/s Agrasen Sponge Pvt. Ltd. {Formerly Rungta Sons Pvt. Ltd.}	196.86	i) J-11015/588/2007-I & II (M), dated. 16.01.2009, ii)J-11015/588/2007-I & II (M), dated. 04.06.2009		i) Manganese Ore 18756 TPA, ii)Manganese Ore 19291 TPA
37	Dubna Sakradihi Iron and Manganese Ore Mines of M/s. OMC Ltd.	1332.019	23-241/2018-IA.III(V), dated 10.06.2022		Total Excavation of 7.01 MTPA {Iron Ore 6.160 MTPA [Iron:2.994 MTPA (ROM)+3.175 MTPA (Waste Rock)]} and [Mn 0.8500 MTPA [Mn: 0.0500 MTPA (ROM) + 0.800 MTPA (Waste Rock)]]
38	Tiringpahar Manganese Mines of Tata Steel Limited	169	J-11015/87/2004-I & II (M), dated. 17.11.2005		Manganese Ore 0.085 MTPA
39	Bolani Iron Ore Mines of SAIL (6.9 Sq. miles)	1586.36	No. J-11015/396/ 2008-IA. II (M) dt.21.12.2012		Manganese Ore 15000 TPA

EC Status of Working Iron and Manganese Mine in Sundargarh District

Sl. No.	Name of the Mines	Lease Areas in Ha.	EC Approved by MoEF &CC	EC Approved by SEIAA	Approved Quantity in EC
1	Tantra Iron Ore Mines of Korp Resources Pvt. Ltd.	72.56	No. J-11015/1008/ 2007 -IA.II(M) dt.04.06.2009		Iron Ore-0.12 MTPA
2	Kurmitar Iron Ore Mines of OMC Ltd.	1212.47	No. 23-237/2018-IA.III(V) dated 22.12.2020		Iron ore 6 MTPA
3	Bhanjipali Iron Mines of J.N. Patnaik	18		i. No. 3212/SEIAA dt.14.05.2015 ii. No. 8110/SEIAA dtd. 12.05.2020	i. Iron Ore 0.26 MTPA ii. Extension of validity of EC upto 31.03.2027 i.e. lease validity period
4	Raikela Iron Ore Mines of Geetarani Mohanty	67.586		SEIAA File NO. 64563/88-MINB1/05-2022 dated 27.12.2022	Iron ore - 4.99 MTPA
5	TRB Iron Ore Mines of Jindal Steel and Power Limited	297.848	No. J-11015/ 1154/2007-IA.II(M) dt.17.03.2009		Iron Ore-3.11 MTPA
6	Raikela & Tantra Iron Ore Mines of Penguin Trading & Agencies Ltd.	49.372		SEIAA File No.428620/69-MINB1/05-2023, dt.08.01.2024	Iron ore - 2.592 MTPA
7	Patabeda Iron Ore Mines (28.397 Ha) of MGM Minerals Ltd.	28.397		SEIAA/7722 dated 03.01.2020	Iron ore 1.5 MTPA (ROM)
8	Patabeda Iron Ore Mines (14.0 Ha) of M. G. Mohanty	14	No. J-11015/93/ 2004 -IA.II(M) dt.21.07.2005		Iron Ore-0.12 MTPA
9	Raikela IronOre Mines of National Enterprises	45.932		i) SEIAA vide No. 626/SEIAA dt. 17.11.2011 ii) SEIAA vide No. 1957/SEIAA dt. 08.09.2016	i) Iron Ore-502200 TPA ii) Iron Ore-502200 TPA[extension of validity period of EC dated 17.11.2011 for 30 years]

Sl. No.	Name of the Mines	Lease Areas in Ha.	EC Approved by MoEF &CC	EC Approved by SEIAA	Approved Quantity in EC
10	Oraghat Iron Ore Mines of Rungta Sons (P) Ltd.	82.966		Ref No. 6660/SEIAA Dated 29.04.2019	Iron ore-8.35 MTPA [7.35 MTPA ROM + dry screening and crushing of 1.0 MTPA of low grade ore from old dumps]
11	Raikela Iron Ore Mines, of Sri Prabodh Ku. Mohanty	18.315	No. J-11015/75/ 2006 -IA.II(M) dt. 15.01.2007		IronOre 0.3 MTPA
12	Barsuan-Taldih-Kalta Iron Ore Mines of M/s SAIL	2558.581	No.J-11015 /351/2006-IA.II (M), dated 28.04.2023		Iron Ore 16.0 MTPA (ROM), Handling of 2.0 MTPA Sub-grade dumps/Tailings (Dry Processing Plants of 7.0 MTPA for Taldih & 4.0 MTPA for Kalta and augmentation of existing 3.5 MTPA beneficiation plant at Barsuan)
13	Adaghat Iron Ore Mines of National Enterprises	15.074		SEIAA/ 405229/ 72/MINB1/07-2023 dated	Iron Ore of 0.7 MTPA
14	Sanindpur Iron & Bauxite Mines of Rungta Sons Pvt. Ltd.	147.1		EC24B0000OR597644IN, dt04/07/2024	22.935 MTPA (20.85 MTPA of ROM Iron Ore + handling of 2.085 MTPA of low grade ore from old stacks/dumps)
15	KJST (Jaldih) Iron Manganese& Bauxite Mines of Sri Prabodh Mohanty	188.523		EC24B0000OR5211682N, Dt.29.11.2024	Iron Ore 3.35 MTPA, Bauxite 0.13 MTPA

Sl. No.	Name of the Mines	Lease Areas in Ha.	EC Approved by MoEF &CC	EC Approved by SEIAA	Approved Quantity in EC
16	Nuagaon Iron & Manganese Mines of Sri Prabodh Mohanty	29.257		i) SEIAA vide No. 596 dt. 16.12.2010 ii) 2828/SEIAA dated 21.01.2015	i)Iron Ore-400000 TPA, Manganese Ore 25000 TPA ii) Extension of EC upto 19 years from 1.4.2011
17	Gonua Iron & Manganese Mines of JSW Steels Ltd [Formerly Pawan Kumar Ahluwalia]	86.886	No. 7685/SEIAA dt.21.12.2019[EC transferred in favour of new lessee on 13.12.2021]		Iron Ore-1.2 MTPA
18	Patabeda Iron & Manganese Ore Mines, (19.425 ha.) of M.G. Mohanty	19.425		SEIAA File No. 440752/113-MINB1/10-2023 dated 7.5.2024	Iron Ore-5,72,305 TPA
19	Sanindpur Iron and Manganese Mines of National Enterprises	70.917		EC24B007 OR140471, dated 28.02.2024	Iron ore-3 MTPA
20	Nadidih Iron Ore Block of M/s ESL Steel Ltd. (Previous lessee Bonai Industrial Co. Ltd.) (74.5 Ha)	74.5	No. J-11015/135/ 2012-IA.II(M) dt.18.06.2019 (Vesting order issued dated 22.10.2021)		Iron Ore 9 MTPA(8 MTPA ROM + 1 MTPA of low grade ore from old dumps) alongwith installation of iron ore beneficiation plant of throughput capacity of 1 MTPA

Sl. No.	Name of the Mines	Lease Areas in Ha.	EC Approved by MoEF &CC	EC Approved by SEIAA	Approved Quantity in EC
21	Nadidih Iron and Manganese Ore Mines of M/s ESL Steel Ltd. (Previous lessee Feegrade& Co. Pvt. Ltd.) (117.206 Ha)	117.206	No. J-11015/249/ 2016-IA.II(M) dt.11.09.2019 (Vesting order issued dated 22.10.2021)		Total Handling-Iron ore 7.451 MTPA (enhancement of production from 2.88 MTPA to 6 MTPA and reduction in dry processing-crushing and screening of low grade ore from old stack/dump from 4.571 MTPA to 1.451 MTPA)
22	Narayanposhi Iron & Manganese Ore Mines of JSW Steel Ltd [Formerly Aryan Mining & Trading Corporation Pvt. Ltd.]	349.254	No. J-11015/288/ 2008-IA.II(M) dt.18.06.2019[Vested vide order dtaed 30.5.2020 and 15.02.2022]		Iron Ore(ROM) 6 MTPA, Manganese Ore 0.036 MTPA and beneficiation plant of 2 MTPA
23	Ghorabuhrani-Sagasahi Iron Ore Block of M/s. Arcelor Mittal Nippon Steel India Limited	139.17	No. J-11015/192/ 2016-IA.II(M) dt.28.05.2020		Iron ore (ROM)-7.162538 MTPA alongwith crushing, screen and beneficiation plant of capacity 6.7 MTPA
24	Mithirda Iron Ore Mines of M/s. Neelachal Ispat Nigam Ltd	874.29	No. J-11015/55/ 2010-IA.II(M) dt.15.06.2018		Iron Ore 2 MTPA
25	Bandhal Manganese Mines of Kanakdhara Mining & Minerals Pvt. Ltd.	28.021	J-11015/104/2006-I & II (M), dated. 16.05.2008		Manganese Ore 8000 TPA

Sl. No.	Name of the Mines	Lease Areas in Ha.	EC Approved by MoEF &CC	EC Approved by SEIAA	Approved Quantity in EC
26	Patmunda Manganese Mines of Sun Alloys & Minerals Ltd.	43.532		SEIAA file No. 66728/90-MINB1/06-2022 dated 10.11.2023	Manganese ore 5509 TPA
27	Kanther-Koira Manganese Mines of M/s. P. M. Granite Export Pvt. Ltd. [Formerly Rungta Mines Ltd.}	73.653	J-11015/699/2007-I & II (M), dated. 02.01.2009[vested vide order dated 09.06.2020]		Manganese Ore 20025 TPA
28	Kolmong Manganese Mines of M/s Yazdani Steel and Power Ltd. (Previous Lessee Rungta Mines Ltd.)	218.538		SEIAA file no. 80992/735-MINB1/08-2022 dated 23.06.2023	Iron Ore-0.3 MTPA Manganese Ore-0.04 MTPA
29	Mahulsukha Manganese Ore Mines of M/s. Rungta Sons Private Limited [Formerly Patnaik Minerals Pvt. Ltd.]	399.839	J-11015/412/2005-I & II (M), dated. 05.04.2007 {Vesting order issued on 30.05.2022 and 07.03.2022]		Manganese Ore 40,000 TPA

Annexure-VIII

Road Side CAAQMS data of Sundargarh & Keonjhar from Apr-2024 to June-2025

Month	Barbil		Bileipada		Keonjhar		Nayagarh		Suakati		Tensa	
	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}
Apr-24	76	187	67	224	63	106	89	215	66	129	45	103
May-24	43	144	51	177	37	77	43	93	40	88	32	90
Jun-24	32	108	38	137	27	59	37	70	32	66	35	79
Jul-24	14	57	20	69	16	41	15	35	17	37	17	41
Aug-24	24	57	18	80	24	43	17	51	20	41	19	42
Sept-24	31	80	18	83	22	52	19	38	23	49	24	54
Oct-24	39	102	47	157	38	61	22	45	37	75	40	78
Nov-24	68	136	76	218	36	65	38	89	67	132	53	155
Dec-24	70	137	73	193	37	88	53	94	52	111	60	115
Jan-25	79	164	70	212	31	86	63	128	61	127	73	138
Feb-25	60	180	49	142	33	116	62	143	66	133	43	131
Mar-25	65	207	52	181	48	115	79	126	53	102	47	134
Daily Average	**60**	**100**	**60**	**100**	**60**	**100**	**60**	**100**	**60**	**100**	**60**	**100**

Annexure-IX

Water Quality Result of Baitarani River in Keonjhar district during the year 2024-25

Deogaon

Month	pH	DO, mg/L	BOD, mg/L	COD, mg/L	FC, MPN/ 100 ml	Total Hardness $CaCO_3$, mg/L	Sulphate, mg/L	Flouride, mg/L	TSS, mg/L	TDS, mg/L	Turbidity, NTU
Apr	8.2	7	1.6	11	1300	148	14.90	0.24	13	180	5
May	7.4	9.4	1.8	12	790	140	6.90	0.31	49	188	24.0
June	7.8	7.2	1.9	11	460	144	34.50	0.35	29	236	14.0
July	7.3	6.5	1.2	7.8	1300	68	11.10	0.25	22	96	8
Aug	7.2	7	1.5	15	1700	104	17.20	0.27	144	156	80
Sep	7.3	8	1.4	7.8	490	56	18.10	0.24	236	104	110
Oct	7.2	6.9	1.8	11	1300	60	18.40	0.26	13	96	6
Nov	8.2	7.1	1.6	7.9	940	60	13.91	0.39	16	92	4
Dec	7.8	6.9	1.9	7.9	220	128	9.46	0.26	13	180	6
Jan	7.5	7.3	1.7	7.8	490	156	19.61	0.24	<10	228	3
Feb	8.2	6.6	1.3	7.9	220	136	19.61	0.33	15	216	7
Mar	7.2	7.9	1.4	12	490	60	14.47	0.28	15	104	7

Baitarani at Naigarh

Month	pH	DO, mg/L	BOD, mg/L	COD, mg/L	FC, MPN/ 100 ml	Total Hardness $CaCO_3$, mg/L	Sulphate, mg/L	Flouride, mg/L	TSS, mg/L	TDS, mg/L	Turbidity, NTU
Apr	7.1	6.6	1.3	7.4	230	32	8.70	0.35	15	64	4
May	7.4	6.4	1.2	7.7	130	36	22.90	0.25	136	80	70.0
June	8.5	6.8	1.2	7.6	170	44	9.80	0.27	216	68	120.0
July	7.3	6.8	1.1	7.8	230	48	14.60	0.34	245	76	56
Aug	7.6	7.3	1.4	15	1300	52	18.90	0.34	486	88	170
Sep	7.2	6.7	1.3	7.8	1700	56	10.20	0.24	82	88	40
Oct	7.9	7.6	1.2	7.5	220	52	21.10	0.17	63	84	30
Nov	7.7	7.2	1.3	7.9	130	52	27.39	0.33	16	92	7
Dec	7.6	7.1	1.4	7.9	220	60	15.11	0.34	11	92	5
Jan	7.5	7	1.3	7.8	130	64	20.19	0.24	10	96	4
Feb	7.9	5.9	1.4	7.9	790	60	18.94	0.30	<10	88	3
Mar	7.2	7.9	1.5	12	110	64	10.87	0.86	14	92	6

Unchabali

Month	pH	DO, mg/L	BOD, mg/L	COD, mg/L	FC, MPN/ 100 ml	Total Hardness $CaCO_3$, mg/L	Sulphate, mg/L	Flouride, mg/L	TSS, mg/L	TDS, mg/L	Turbidity, NTU
Apr	7.3	6.9	1.5	7.4	130	36	11.40	0.31	16	68	5
May	7.2	6.6	1.6	12	110	32	17.10	0.33	91	76	45.0
June	8.3	6.6	1.7	11	130	48	7.50	0.25	244	72	130.0
July	7.3	5.7	1.6	12	330	60	13.30	0.41	54	88	13
Aug	7.4	8.2	1.6	19	2200	44	19.90	0.29	469	84	160
Sep	7.1	5.4	1.7	12	490	52	9.80	0.26	277	88	130
Oct	7.8	7.1	1.6	15	130	44	8.90	0.23	142	68	75
Nov	7.5	8.9	1.2	7.9	110	56	29.46	0.26	25	88	12
Dec	7.5	6.9	1.3	7.9	230	44	14.24	0.33	11	76	5
Jan	7.6	6.7	1.5	7.8	130	44	9.81	0.32	<10	72	4
Feb	7.7	7.9	1.6	7.9	790	60	21.26	0.18	<10	92	4
Mar	6.9	7.7	1.7	12	220	60	12.23	0.35	11	88	5

Champua											
Month	**pH**	**DO, mg/L**	**BOD, mg/L**	**COD, mg/L**	**FC, MPN/ 100 ml**	**Total Hardness $CaCO_3$, mg/L**	**Sulphate, mg/L**	**Flouride, mg/L**	**TSS, mg/L**	**TDS, mg/L**	**Turbidity, NTU**
Apr	7.4	7.2	1.9	11	1700	60	13.50	0.30	15	96	4
May	7.2	7	1.8	12	33	72	21.10	0.42	12	108	3.9
June	8	7.5	1.9	11	130	60	11.90	0.24	22	96	7.6
July	7.2	7.2	2	16	490	60	11.90	0.35	64	96	11
Aug	7.4	8	1.9	15	1300	64	22.20	0.17	188	104	100
Sep	6.9	6.0	2	12	400	48	14.10	0.25	142	84	75
Oct	7.7	6.8	1.7	7.5	330	68	10.40	0.29	108	92	55
Nov	7.6	6.5	1.2	7.9	330	64	20.54	0.33	23	92	10
Dec	7.5	6.9	1.4	7.9	230	84	25.22	0.38	20	116	9
Jan	7.6	6.9	1.6	7.8	170	84	7.77	0.37	11	108	5
Feb	7.7	7.4	1.7	7.9	330	64	16.60	0.29	<10	96	3
Mar	7.1	8	1.8	7.7	490	60	13.50	0.43	11	96	5
Tribindha											
Month	**pH**	**DO, mg/L**	**BOD, mg/L**	**COD, mg/L**	**FC, MPN/ 100 ml**	**Total Hardness $CaCO_3$, mg/L**	**Sulphate, mg/L**	**Flouride, mg/L**	**TSS, mg/L**	**TDS, mg/L**	**Turbidity, NTU**
Apr	7.6	6.9	1.3	7.4	330	64	18.20	0.19	33	100	15
May	7.3	7.5	1.3	7.7	23	76	24.90	0.29	23	120	8.4
June	8	7.4	1.2	7.6	490	64	20.80	0.27	14	108	3.9
July	7.3	7.2	1.3	7.8	110	80	21.10	0.41	105	112	32
Aug	7.5	8.4	1.6	11	1300	60	23.44	0.16	203	96	110
Sep	7.2	5.3	2.2	16	1300	64	12.90	0.28	280	100	140
Oct	7.8	7.4	1.3	7.5	490	52	11.90	0.25	96	76	45
Nov	7.7	5.9	1.6	7.9	490	72	26.63	0.27	13	112	6
Dec	7.6	7.2	1.5	7.9	330	80	16.09	0.47	11	108	5
Jan	7.6	6.6	1.4	7.8	130	80	12.52	0.34	20	112	9
Feb	7.8	7.6	1.4	7.9	330	68	16.31	0.26	<10	96	3
Mar	7.1	8.3	1.4	7.7	330	64	8.35	0.30	12	96	6
Baiatarani at Joda											
Month	**pH**	**DO, mg/L**	**BOD, mg/L**	**COD, mg/L**	**FC, MPN/ 100 ml**	**Total Hardness $CaCO_3$, mg/L**	**Sulphate, mg/L**	**Flouride, mg/L**	**TSS, mg/L**	**TDS, mg/L**	**Turbidity, NTU**
Apr	7.7	6.4	1.4	7.4	330	60	16.05	0.22	45	108	27
May	7.3	6.8	1.5	7.7	33	56	12.80	0.24	37	88	18.0
June	7.8	6.8	1.6	11	330	52	14.30	0.29	211	92	110.0
July	7.3	6.9	1.2	7.8	330	76	9.80	0.35	255	108	67
Aug	7.2	8	1.5	7.5	1300	48	19.30	0.25	346	76	160
Sep	7.2	5.4	2	12	790	56	20.30	0.23	284	96	140
Oct	7.1	7.4	1.3	11	490	48	12.90	0.37	124	76	65
Nov	7.5	8.1	1.9	7.9	1100	48	9.78	0.40	26	80	12
Dec	7.6	6.5	1.7	7.9	230	68	10.65	0.24	25	92	12
Jan	7.6	7.2	1.5	12	490	64	19.03	0.16	12	96	6
Feb	7.5	6.6	1.8	7.9	460	52	20.29	0.33	<10	88	3
Mar	7.2	8.3	1.9	15	130	68	11.07	0.35	23	104	10

Anandpur											
Month	**pH**	**DO, mg/L**	**BOD, mg/L**	**COD, mg/L**	**FC, MPN/ 100 ml**	**Total Hardness $CaCO_3$, mg/L**	**Sulphate, mg/L**	**Flouride, mg/L**	**TSS, mg/L**	**TDS, mg/L**	**Turbidity, NTU**
Apr	7.6	6.8	1.2	7.4	330	72	14.80	0.20	27	112	8
May	7.3	8.2	1.3	7.7	490	72	9.80	0.20	12	108	3.8
June	7.9	7	1.4	7.6	790	72	15.40	0.34	14	108	3.8
July	7.3	7.4	1.3	7.8	490	56	11.70	0.27	20	96	5
Aug	7.1	7.2	1.8	15	790	52	24.20	0.19	148	88	85
Sep	7.4	8.9	2.4	16	790	56	19.10	0.21	106	96	50
Oct	7.3	7.3	1.6	7.5	790	72	12.10	0.41	23	96	12
Nov	7.6	7.5	1.5	7.9	330	76	20.44	0.38	11	104	5
Dec	7.5	7.4	1.5	7.9	130	56	18.70	0.18	24	88	11
Jan	7.6	7.1	1.7	12	490	56	18.35	0.15	11	92	5
Feb	7.8	7.4	1.7	12	2200	64	17.38	0.38	11	108	5
Mar	7.1	7.8	1.6	12	790	60	7.67	0.19	13	92	6

Water Quality Result of Kundra Nallah in Keonjhar district during the year 2024-25

Kundra nallah at Joda

Month	**pH**	**DO, mg/L**	**BOD, mg/L**	**COD, mg/L**	**FC, MPN/ 100 ml**	**Total Hardness $CaCO_3$, mg/L**	**Sulphate, mg/L**	**Flouride, mg/L**	**TSS, mg/L**	**TDS, mg/L**	**Turbidity, NTU**
Apr	7.4	6	1.1	7.4	170	64	11.40	0.19	16	92	5
May	7.2	6.4	1.2	7.7	220	64	11.90	0.19	13	96	4.1
June	7.9	7.1	1.2	7.6	7900	64	16.50	0.25	16	112	4.3
July	7.2	6.7	1.8	12	330	68	14.20	0.30	49	112	8
Aug	7.3	7.9	1.3	7.5	1400	64	19.10	0.18	127	96	75
Sep	7.3	7.3	1.2	7.8	1100	60	13.50	0.20	278	92	130
Oct	6.9	7.1	1.3	7.5	490	56	10.60	0.34	52	84	25
Nov	7.3	7.3	1.5	7.9	700	60	24.02	0.49	24	96	12
Dec	7.4	7.3	1.4	12	490	64	18.26	0.37	22	96	10
Jan	7.5	7	1.5	7.8	1300	60	14.37	0.25	14	96	6
Feb	7.5	8.1	1.8	7.9	1300	68	17.86	0.29	<10	108	3
Mar	6.9	7.6	2	12	1300	60	13.40	0.34	34	100	16

Water Quality Result of Karo River in Keonjhar district during the year 2024-25

Karo River at Barbil

Month	**pH**	**DO, mg/L**	**BOD, mg/L**	**COD, mg/L**	**FC, MPN/ 100 ml**	**Total Hardness $CaCO_3$, mg/L**	**Sulphate, mg/L**	**Flouride, mg/L**	**TSS, mg/L**	**TDS, mg/L**	**Turbidity, NTU**
Apr	8.2	7.1	1.4	7.4	790	76	9.20	0.34	12	104	3
May	7.4	7.2	1.5	7.7	330	80	22.40	0.22	13	116	4.6
June	8.1	7.8	1.4	7.6	790	88	21.40	0.27	21	136	7.3
July	7.1	6.1	1.4	7.8	130	76	13.25	0.22	31	112	5
Aug	7.3	7.3	1.6	15	1700	76	12.30	0.34	432	104	170
Sep	7.3	6.5	1.5	12	1700	64	11.10	0.28	27	104	11
Oct	7.8	6.9	1.3	7.5	170	84	18.50	0.19	19	116	9
Nov	7.5	7.1	1.1	7.9	130	80	20.54	0.29	28	140	14
Dec	7.5	7.4	1.2	7.9	130	100	18.15	0.24	12	136	6
Jan	7.5	6.8	1.4	7.8	1300	100	17.77	0.28	12	132	6
Feb	7.8	6.1	1.5	7.9	1700	92	18.35	0.29	41	124	20
Mar	7.1	8.1	1.6	7.7	490	72	9.32	0.66	12	108	6
Standard	**6.5-8.5**	**4 and above**	**3 or less**	**-**	**-**	**-**	**400**	**1**	**-**	**1500**	**-**

Annexure-X

Health Survey Status

Types of diseases	Sl. No.	Name of the Disease	Total Numbers of patients in Angul in the year		Total Numbers of patients in Jajpur the year		No. of Patients reported for the year in Keonjhar	
			2023-24	2024-25	2023-24	2024-25	2023-24	2024-25
Air Borne Diseases	1	Asthma	3178	2344	2162	2344	432	457
	2	Acute Respiratory infection	1028	20824	17383	20824	7445	7395
	3	Bronchitis	1252	1214	765	1214	374	368
	4	Cancer	4	0	0	0	545	575
Water Borne Diseases	5	Gastroenteritis	4522	11144	9095	11144	5253	5246
	6	Diarrhoea	2721	3816	3169	3816	428	443
	7	Renal diseases	580	145	59	145	15195	14998
	8	Cancer	14	0	0	0	41	58

Annexure-XI

DMF Fund Allocation and Expenditure, Angul, Odisha

Sl No.	Year	Total Allocation (In Crore)	Total Expenditure (In Crore)
1	2015-2016	0.73	0
2	2016-2017	5.48	0
3	2017-2018	30.93	0
4	2018-2019	8.71	0
5	2019-2020	12.27	0
6	2020-2021	20.96	0.84
7	2021-2022	23.19	0
8	2022-2023	4.05	0
9	2023-2024	7.08	0
10	2024-2025	11.09	0
	Total	**124.49**	**0.84**
N:B https://dmf.odisha.gov.in/district/ANUGUL/meeting as on Date 20.06.2025			

DMF Fund Allocation and Expenditure, Keonjhar, Odisha

Sl No.	Year	Total Allocation (In Crore)	Total Expenditure (In Crore)
1	2015-2016	0.00	0.00
2	2016-2017	8.61	3.32
3	2017-2018	21.71	0.10
4	2018-2019	397.17	111.99
5	2019-2020	87.89	42.39
6	2020-2021	64.31	3.96
7	2021-2022	344.26	128.83
8	2022-2023	99.70	20.66
9	2023-2024	1063.76	7.01
10	2024-2025	108.18	9.98
	Total	**2195.59**	**328.24**
N:B https://dmf.odisha.gov.in/district/keonjhar/contact_us as on Date 20.06.2025			

DMF Fund Allocation and Expenditure, Jajpur, Odisha

Sl No.	Year	Total Allocation (In Crore)	Total Expenditure (In Crore)
1	2015-2016		
2	2016-2017	8.61	3.32
3	2017-2018	21.71	0.26
4	2018-2019	398.66	114.10
5	2019-2020	87.92	42.50
6	2020-2021	64.31	3.98
7	2021-2022	344.26	132.83
8	2022-2023	99.70	20.66
9	2023-2024	1068.33	7.01
10	2024-2025	108.77	9.98
	Total	**2202.27**	**334.64**
N:B https://dmf.odisha.gov.in/district/jajpur/contact_us as on Date 20.06.2025			

DMF Fund Allocation and Expenditure, Sundargarh, Odisha

Sl No.	Year	Total Allocation (In Crore)	Total Expenditure (In Crore)
1	2015-2016		
2	2016-2017	55.27	2.20
3	2017-2018	854.42	3.27
4	2018-2019	505.77	23.67
5	2019-2020	350.9	21.56
6	2020-2021	831.26	31.01
7	2021-2022	6611.66	24.56
8	2022-2023	533.05	3.26
9	2023-2024	273.88	0.89
10	2024-2025	219.24	0.40
	Total	**10235.45**	**110.82**
N:B https://dmf.odisha.gov.in/district/sundargarh/contact_us as on Date 20.06.2025			

Annexure-XII

News Clippings

The Environmental Crisis in Odisha

Swarup Mohanty

Odisha, a state rich in mineral resources like coal, iron ore, bauxite, chromite, and manganese, has long been an industrial powerhouse. Its vast mineral wealth has powered economic growth, provided jobs, and fueled the country's steel, power, and manufacturing industries. Yet, this boom has come at a heavy price. The rapid and often recklessexpansion of mining activities has led to widespread environmental harm-damaging ecosystems, polluting water and air, and putting the health of local communities at serious risk.

Today, Odisha is home to more than 150 operational mines, spread across its districts. From the sprawling coal mines of Angul to the iron ore pits of Keonjhar and Sundargarh, both public and private sector companies, including Mahanadi Coalfields Limited (MCL), Tata Steel, JSW Steel, and Vedanta, have set up shop. These mines play a crucial role in the state's economy, but the heavy price of this industrial progress is increasingly hard to ignore.

Environmental Clearances: A Paper Tiger

A common thread runs through almost all of Odisha's mines: while environmental clearances and mining plans are obtained, they are often reduced to meaningless formalities. According to locals and experts, the reality is far from the promises made on paper. Whether it's a mine owned by a state-run company or renowned private companies, environmental conditions are frequently ignored.

What's even more troubling is the role of Mine Developers & Operators (MDOs)-companies that sub-contract the actual mining work. These contractors often focus solely on profits and take little regard for the environmental consequences. Despite laws meant to protect air, water, and land, many mining operations continue to operate with minimal oversight, knowing that the chances of facing serious penalties are slim.

In recent years, the Supreme Court of India cracked down on illegal mining following the Shah Commission's findings, but the visible change on the ground is subtle. While mines now secure environmental clearances, the conditions attached to these clearances are routinely violated. This is largely due to the weak enforcement by state pollution control boards and other regulatory bodies, who fail to follow through on their monitoring responsibilities.

In many mining areas, a simple walk through the local villages is enough to reveal the reality: air pollution, dust, and toxic fumes are the order of the day, while regulatory compliance is largely ignored.

Sukinda: A Toxic Legacy

If there's one place in Odisha that encapsulates the devastating environmental cost of mining, it's Sukinda. Located in Jajpur District, Sukinda holds 98% of India's chromite ore deposits, and is home to one of the world's largest open-cast chromite mines. The toll it has taken on both the environment and the health of local residents is harrowing.

Mines in Sukinda continue to discharge untreated or partially treated wastewater into the surrounding environment, poisoning nearby rivers, streams, and even the groundwater. The process used to treat the wastewater-using ferrous sulphate to convert hexavalent chromium (a highly toxic and carcinogenic substance) into a safer form-simply isn't enough. The volume of waste is too great, and the treatment process is inadequate, leaving much of the water still contaminated.

What makes things even worse is that the treatment process is often done on the cheap. Mine use low-grade ferrous sulphate, which is far less effective in removing chromium. This cuts costs but also makes the treatment process even less efficient, meaning that hexavalent chromium continues to seep into the environment, contaminating local water bodies and posing a direct health risk to residents.

Locals, who rely on these water sources for drinking, washing, and farming, say that almost every water body in Sukinda now shows signs of contamination. Tests conducted on the water often reveal dangerously high levels of hexavalent chromium, and this silent contamination is affecting the health of entire communities. Skin diseases, respiratory problems, and waterborne infections have become alarmingly common in the region.

For the people of Odisha, the environmental destruction caused by mining is not just a matter of abstract concern-it affects their daily lives. Local farmers are seeing their lands turn barren due to dust pollution, while villagers suffer from breathing difficulties and other ailments linked to airborne contaminants.

The rivers, once lifelines for communities, are now little more than channels for toxic waste. Drinking water is becoming increasingly scarce and polluted, forcing families to rely on contaminated sources. The impact is most severe on childrenand the elderly, who are more vulnerable to diseases caused by contaminated water and poor air quality.

A Call for Sustainable Mining

While Odisha's mineral wealth cannot and should not be ignored, it is clear that the current approach to mining is unsustainable. To ensure that the state continues to benefit from its resources while protecting the environment and public health, a major shift in mining practices is necessary.

1. Stronger Enforcement of Regulations: The state must ensure that environmental laws are enforced rigorously. This includes holding both public and private companies accountable for violations and conducting regular, transparent audits of mining operations.

2. Improved Wastewater Treatment: Mines, particularly those in Sukinda and other chromite-rich regions, need to invest in better treatment technologies. This would involve moving away from cheap, inefficient methods and adopting advanced filtration and treatment systems that can completely remove harmful toxins from wastewater before it is discharged.

3. Community Engagement: Local communities must be actively involved in decisions about mining projects that affect them. Transparent dialogues, proper compensation, and mitiatives to mitigate health impacts can help build trust and ensure that mining benefits everyone-not just the companies.

4. Promote Sustainable Mining: Odisha should encourage the use of green technologies in mining, such as closed-loop water systems and eco-friendly mining equipment. This would help reduce the environmental footprint of mining activities.

5. Focus on Rehabilitation: Rehabilitation of mined areas must be a priority. As mining depletes natural resources, companies must be obligated to restore affected land and provide alternatives for affected communities, including employment and agricultural support.

Odisha's mineral wealth is undeniably important, but it cannot come at the expense of the health and future of its people and the environment. A more sustainable and responsible approach to mining is urgently needed-one that balances economic growth with environmental stewardship. If we don't act now, the legacy of Odisha's mining industry will be one of pollution, displacement, and irreparable damage to both the land and its people.

Around Odisha dtd. 24.12.2024

Annexure-XIII

Item No. 04 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 1394/2024

News Item titled "The Environmental Crisis in Odisha" appearing in Around Odisha dated 24.12.2024

Date of hearing: 13.01.2025

CORAM: **HON'BLE MR. JUSTICE PRAKASH SHRIVASTAVA, CHAIRPERSON**
HON'BLE DR. A. SENTHIL VEL, EXPERT MEMBER

ORDER

1. This original application is registered *suo motu* on the basis of the news item titled "The Environmental Crisis in Odisha" appearing in Around Odisha dated 24.12.2024.

2. As per the said article, the State of Odisha has rich mineral deposits like Coal, Iron, Bauxite, Chromate and Manganese Ore which are used for industrial purposes. These are mined after environmental clearances. However, the environmental conditions are not followed. The environmental conditions are frequently ignored. Further, there is large-scale environmental destruction and health hazards due to chromite Mines, especially in Jagpur District, Sukinda mines. The discharge of untreated and partially treated chromite/ Hexavalent chromium which is highly toxic and carcinogenic is polluting water. The mines are using low grade treatment facility such as low-grade ferrous sulphate for treatment. Water bodies are getting contaminated causing health hazards such as skin disease, respiratory problems, waterborne infections etc. The local farmers have seen lands getting barren due to dust pollution.

3. The news item mentions the names of public and private sector companies at Keonjhar and Sundargarh such as Mahanadi Coalfields

Limited (MCL), Tata Steel, JSW Steel and Vedanta. It further states that though Environmental Clearance (EC) is granted to the mines, the conditions attached to these clearances are routinely violated and on account of such violations, air pollution, dust and toxic fumes have become the order of the day, while regulatory compliance is largely ignored. It also states that the rivers, once lifeline for communities, are now little more than channels for toxic waste. The drinking water is becoming increasingly scarce and polluted, forcing families to rely on contaminated sources and children and elderly are the worst affected. The news item states that if the action is not taken now, the legacy of Odisha mine industries will be one of pollution, displacement and irreparable damage to both the land and its people.

4. The news item mentions certain recommendations:

- Stronger enforcement regulation
- Improved water treatment
- Community engagement
- Promote sustainable mining.
- Focus on rehabilitation.

5. The above news item highlights serious environmental issues due to unregulated mining in the State of Odisha and the violation of environmental norms by those who are involved in mining and affecting local communities and their livelihood.

6. The news item raises substantial issue relating to compliance of the environmental norms.

7. Power of the Tribunal to take up the matter *suo-motu* has been recognized by the Hon'ble Supreme Court in the matter of *"Municipal Corporation of Greater Mumbai vs. Ankita Sinha & Ors." reported in 2021 SCC Online SC 897.*

8. Hence, we implead the following as respondents in the matter:

(1). Ministry of Environment, Forest and Climate Change (MoEFCC), Through its Regional Office, Regional Office MOEFCC, A/3, Chandersekharpur, Bhubaneswar – 751023.

(2). Central Pollution Control Board (CPCB), Through its Member Secretary, Parivesh Bhawan, East Arjun Nagar, Delhi-110032.

(3). Odisha Pollution Control Board, Through its Member Secretary Paribesh Bhawan, A/118, Nilakantha Nagar,Unit – VIII, Bhubaneswar – 751012, Odisha.

(4). Secretary, Forest, Environment and Climate Change, Government of Odisha, Kharavel Bhavan, Bhubaneswar, Odisha, India

9. Issue notice to the above respondents for filing their response/reply by way of affidavit before the Tribunal at least one week before the next date of hearing. If any respondent directly files the reply without routing it through his advocate, then the said respondent will remain virtually present to assist the Tribunal.

10. Though the news item discloses the name of some of the project proponents, but their full details are not available. The Respondents No. 3 and 4 are directed to disclose in their reply full details of these project proponents so that they can be impleaded and heard.

11. Having regard to the seriousness of the situation reflected in the news item, we also deem it proper to form a joint Committee headed by (1) Director, NEERI, Nagpur and comprising of (2) Joint Secretary, MoEF&CC to be nominated by Secretary, MoEF&CC, (3) representative of

Member Secretary, CPCB, (4) Regional Officer, MoEF&CC, Bhubaneshwar, (5) Member Secretary, Odisha Pollution Control Board (OPCB) and (6) Principal Chief Conservator of Forests (PCCF), Odisha. Member Secretary, OPCB will act as the nodal agency in this matter. It will be open to the Committee to involve any other expert or institution if required. The Committee will ascertain the truthfulness of the facts revealed in the news item, the mines which are operating in violation of environmental norms and in violation of clearance conditions, and the impact of these violations on the water bodies, forests, other natural resources and human health. The Committee will undertake the site visit and will identify the violators and will submit the report before the Tribunal within 8 weeks.

12. List on 02.04.2025.

13. Let a copy of this order be forwarded to Director, NEERI, Nagpur, Secretary, MoEF&CC, Member Secretary, CPCB, Regional Officer, MoEF&CC, Bhubaneshwar, Member Secretary, OPCB and PCCF, Odisha for compliance.

Prakash Shrivastava, CP

Dr. A. Senthil Vel, EM

January 13, 2025
Original Application No. 1394/2024
dv

Annexure-XIV

Visit to Talcher Coalfield Area in Angul district

Active coal mine quarry in Talcher

Overburden dump rehabilitation with Sal plantation in Talcher

Rehabilitate ash-filled mine void in Talcher

Surface miner employed for coal mining

Sukinda Mining Area in Jajpur District

Effluent Treatment Plant for removal of Chromium

ETP of Sukinda Chromite mines

Chromite mining quarry in Sukinda Valley

A view of Damsala nallh flowing through Sukinda Valley

Joda Barbil Koira iron and manganese mine areas of Keonjhar and Sundergarh district

Wheel washing facility in iron ore mines of Joda-Barbil area

A view of active mining in Joda-Barbil-Koida area

A view of iron ore mine on a hill slope in Joda-Barbil arae

Crushing and screening activities of iron ore mines

//TRUE COPY//

Proof of Service

Gmail

Adv. Manoranjan Paikaray <mpaikray@gmail.com>

Service of Affidavit on behalf of the Respondent No. 3 (SPCB, Odisha) for placing on record the Joint Committee Report in OA No. 1394 of 2024

1 message

Manoranjan Paikaray <mpaikray@gmail.com> Sun, Aug 3, 2025 at 5:44 PM
To: roez.bsr-mef@nic.in, mscb.cpcb@nic.in, fesec.or@nic.in

Dear Sir(s),

Please find the attached Affidavit on behalf of the Respondent No. 3 (SPCB, Odisha) for placing on record the Joint Committee Report in OA No. 1394 of 2024.

Thanking you,
Yours faithfully

Manoranjan Paikaray
Advocate for R-3 (SPCB, Odisha)

Final Affidavit dtd.02.08.2025 in OA No.1394 of 2024 PB.pdf