BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 165/2020
[Earlier OA No. 122/2015 (WZ)]

Samita Rajendra Patil — Applicant

Vs

Jindal Steel Works Ltd. & Ors. — Respondent(s)

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(Nazimuddin)
Scientist-F
Central Pollution Control Board,
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Place: Delhi
Date: 30.01.2023

FINAL REPORT OF THE JOINT COMMITTEE

IN THE MATTER OF

ORIGINAL APPLICATION NO. 165/2020 TITLED "SAMITA RAJENDRA PATIL VS JINDAL STEEL WORKS LTD., & ORS."

IN COMPLIANCE WITH

ORDER DATED 27/05/2021 & 04/03/2022 OF THE HON'BLE NGT, PRINCIPAL BENCH, NEW DELHI

FOR SUBMISSION TO

THE HON'BLE NGT, PRINCIPAL BENCH, NEW DELHI

BY

CENTRAL POLLUTION CONTROL BOARD

EXECUTIVE SUMMARY

Directions of Hon'ble NGT orders dated 27/05/2021 & 04/03/2022 and their compliance status on each of such aspects are summarized as follows. As per the Hon'ble NGT order dated 27/05/2021, the joint committee was directed to look into the issues raised by the Applicant in the aforesaid order dated 27/05/2021 including compliance of the Water and Air Acts and HoWM Rules, destruction of mangroves and damage to agriculture, if any; status of scientific disposal of solid waste. It may also estimate the extent of environmental damage and the amount of compensation required and restitution plan (in case of non-compliance). If the violations are found, the joint committee may also suggest the amount of compensation to be recovered apart from other restoration measures. In compliance to the Hon'ble NGT order dated 27/05/2021, the joint committee also considered the separate representation on additional issues received from the applicant through MPCB during September, 2021 w.r.t. alleged dumping of waste materials at additional four villages and loss in fish catch productivity in the Dharamtar Creek. However, the project proponent has not submitted any representation to the joint committee during 2021.

The Hon'ble Tribunal vide order dated 04/03/2022, considered the progress report of the joint committee submitted in January, 2022 and also objections filed by the applicant. Further, directed the joint committee to verify the factual position as pointed out by the applicant w.r.t. management & disposal of waste material and discharge of untreated effluent from coke oven plant into Dharamtar Creek. Also, the Hon'ble Tribunal issued additional directions to the joint committee for compliance w.r.t. remedial action for restoration of mangroves and its buffer zones, the creek, compliance of EC as well as CRZ conditions, point source of waste dumping at villages mentioned by the applicant, environmental impact of industrial activities in the surroundings with reference to habitation, agricultural fields, sea shore and creek hydrology. In compliance to the Hon'ble NGT order dated 04/03/2022, the joint committee also considered the separate representation on additional issues received from the applicant during the joint committee visit in April, 2022 w.r.t. citing criteria of land & its acquisition where expansion activities are carried-out, non-compliance w.r.t. green belt development, illegal construction of bridge, inadequate storage facility for handling waste material (slag) & its dumping at thirteen villages, repairing of damaged kharbandisti bhand using slag etc. In compliance to the Hon'ble NGT order dated 27/05/2021, the joint committee also heard the representation given by the project proponent during the joint committee visit in April, 2022 w.r.t. earlier court cases filed by the same applicant & its judgment, various initiatives taken by the project proponent for improvement of existing environmental management system and proposed best available technologies to be implemented in various processes to achieve towards sustainability.

The joint committee deliberated in detail about each aspect of the alleged issues and identified various assessment/studies to be carried out through respective concerned agencies viz. National Centre for Sustainable Coastal Management (NCSCM), Maharashtra Remote Sensing Applications Centre (MRSAC), DC-Raigad, Land Revenue Dept., SDO-Pen, MoEF&CC, District Health Officer (DHO), Mangrove Cell, Agriculture Dept., Khar Land Dept., Fisheries Dept., Maritime Board etc. Accordingly, an action plan was also formulated along with Terms of Reference in order to comply with the Hon'ble NGT order dated 27/05/2021. Further, a revised action plan was also formulated in order to comply with the Hon'ble NGT order dated 04/03/2022. Based on the various assessment/studies reports submitted by the respective agencies as per the action plan & ToR of the joint committee and subsequent deliberations during review meetings, the following table depicts the compliance status of each of the alleged issues as per the Hon'ble NGT order dated 27/05/2021.

Table: Directions of Hon'ble NGT order dated 27/05/2021, 04/03/2022 & representation given by the applicant to the joint committee and their compliance status on each of the aspects

S. no.	Issues raised by the Applicant as per Hon'ble NGT order dated 27/05/2021	Compliance status
1.	Destruction of mangroves of Dharamtar creek due to M/s JSW & its associated activities	Based on the time-series analysis of satellite images during 2011 to 2021 followed by superimposition of land revenue records and field validation, total loss of mangrove areas due to M/s JSW & its associated activities is 1.89 ha.
2.	Destruction of mangroves of Dharamtar creek due to dumping of municipal solid waste below the conveyor belt	Based on the time-series analysis of satellite images during 2011 to 2021 followed by superimposition of land revenue records and field validation, total loss of mangrove areas due to dumping of municipal solid waste by Gram panchayats viz. Dolvi & Wadkal is 0.71 ha.
3.	Loss of natural creek area due to M/s JSW & its associated activities	Based on the time-series analysis of satellite images during 2011 to 2021 followed by superimposition of land revenue records and field validation, total loss of natural creek area due to M/s JSW & its associated activities is 0.77 ha.
4.	Adverse effects due to emissions from coke oven plant	• Source emission monitoring of stacks attached to the coke oven plant viz. common stack attached to coke oven battery-I & II (coke oven plant-1) and common stack attached to coke oven battery charging & pushing side (Ground de-dusting system of coke oven plant-1) reveals concentration of PM in both the monitored stacks were exceeding the MPCB prescribed norms i.e. 52 > 50 mg/Nm^3 and

		140 > 25 mg/Nm^3. Similarly, concentration of particulate matter in the stack attached to kiln of lime calcination plant-2 (600 TPD) was exceeding the MPCB prescribed norms i.e. 119 > 100 mg/Nm^3. Concentration of monitored parameters as per CTO in other potential stacks were observed within the MPCB prescribed norms. • Analysis results of fugitive emission monitoring near coke oven plant-1 reveals monitored parameters as per CTO viz. PM during coke pushing in coke in coke oven, PM during quenching operation in coke oven, B(a)P near other units in coke oven plant and CO near other units in coke oven plant are within the standards for emission of air pollutants as per CTO issued by MPCB. • Analysis results of fugitive visible emission monitoring near coke oven plant-1 reveals monitored parameters as per CTO viz. PLD, PLL and PLO are within the standards for emission of air pollutants as per CTO issued by MPCB and also within the standards for fugitive visible emission for integrated iron & steel plant as per G.S.R. 277(E) MoEF Notification vide dated 31/03/2012. • Analysis results of the ambient air quality monitoring for PM_{10} at all the three monitored locations were exceeding the National Ambient Air Quality Standards (NAAQS), 2009 i.e. PM_{10} (169 > 100, 403.67 > 100 and 145.67 > 100 µg/m^3). Concentration of reaming monitored parameters viz. $PM_{2.5}$, SO_2, NO_2 and CO were within NAAQS, 2009. • Analysis results of grab effluent collected from the outlet of ETP of coke oven plant reveals concentration of all the monitored parameters are within the standards prescribed by MPCB, except for BOD: 38 > 30 mg/L and TDS: 2384 > 1500 mg/L. The treated effluent confirming to the prescribed standards is recycled & reused in the process, cooling tower, quenching as per the CTO issued by MPCB. • M/s JSW to augment & ensure periodic maintenance of installed APCD's so as to achieve the notified emission standards – Ground de-dusting system of

		coke oven plant-1, lime calcination plant-2 and product discharge end & product sinter sizing house (sintering plant-1). • Based on the non-compliances of consent conditions w.r.t. exceedance of source emission monitored parameter i.e. PM to that of prescribed standards; exceedance of treated effluent monitored parameter i.e. BOD & TDS to that of prescribed standards and exceedance of ambient air quality parameter i.e. PM_{10} to that of NAAQS, 2009; MPCB has issued show cause notice to M/s JSW vide no. BO/RO-Raigad/SCN/TB-2211180031, dated 18/11/2022 under the provisions of the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981 and the Hazardous and Other Wastes (Management and Transboundary Movement) Amendment Rules, 2016.
5.	Dumping of by-products/waste products i.e. slag generated by M/s JSW on mangrove areas, natural drains/nalas and agricultural lands at thirteen villages and environmental impacts on agricultural fields	• As per the information based on Form-V i.e. environmental statement of M/s JSW during 2009 to 2021; ❖ Total slag generation from HSM plant is 91,85,903 MT. ❖ 1,31,325.76 MT (after metal recovery) is reused in sinter & HSM as per CTO. ❖ 77,34,333.6 MT (non-metallic slag) is used in landfilling in low lying area (jetty, industry premises) as per CTO. ❖ 12,60,980.406 MT is used in landfilling outside industry on private land (46.538 ha) at 17 villages based on the consent of beneficiary(s). ❖ 59, 263.234 MT has been stored within the industry premises. • Analysis results of slag samples of HSM plant (electric arc furnace and ladel furnace), stored within the industry premises and also slag samples collected from thirteen alleged villages reveals TCLP/characteristics analysis of Sc. II listed relevant parameters within limit given under HOWM Rules, 2016 – Not qualify as “hazardous waste” as defined under Rule 3 (17) of the HOWM Rules, 2016. Also, it is listed as non-hazardous as per CTO (HSM slag: metal recovery & reuse in process, non-metallic slag-landfilling in low lying areas within industry & rest disposed outside on pvt. land for landfilling based on consent of farmers). BF slag is 100%

		reused in captive cement plant (after granulation) as per CTO. • No dumping of slag was reported on mangrove areas, natural drains and creeks. • During field validation studies, it is observed that M/s JSW had obtained consent from farmers of 12 villages (60.787 ha of Pvt. land). Total 19,64,791.458 MT of slag is dumped on 56.3447 ha (out of which, 13.68 ha is agricultural land, where no cultivation is done since last 15 years). • As per revenue records, total cultivable area of the 12 villages is 1,222.11 ha, only 229.97 ha is under cultivation, 56.34 ha is used for dumping of slag based on consent of farmers and the remaining area (935.8 ha) is not under cultivation due to ingress of salty creek water. • Analysis results of soil samples (54 from alleged villages & 14 reference locations) – soil has become highly alkaline, pH and EC levels have been increased beyond normal levels due to continuous inflow of salty creek water into agriculture lands. No direct correlation due to the activities of M/s JSW. • Average crop productivity of concerned mandals with respect to taluka productivity average – productivity of rice crop of the mandals is less by 2 to 5 quintals per hectare since 2018-19 & productivity decreased by 10 to 20% as compared with Taluka and District. Increased pH and EC levels due to inadequate repair & maintenance of Kharbandisti bhands, resulted in ingress of salty creek water into adjoining agricultural lands. No direct correlation due to the activities of M/s JSW. • Agriculture Dept., Govt. of Maharashtra may calculate compensation amount i.e. assistance to crop damage based on crop productivity of the concerned revenue mandal and minimum support price of rice in that year. Such amount to be given by Khar Land Dept. to the beneficiaries.
6.	Damage of Kharbandisti bhand (if any) due to activities of M/s JSW	• The damage caused to Machela Chirbi & Jui Habbas Kharland Schemes bhands are mainly due to excessive rains & high tides resulting in breaches of

		bhands, damage to sluice gate. Lack of periodic maintenance of bhands resulted in ingress of saline water in the adjoining agricultural lands. • Damage of Kharbandisti bhands is not due to pressure of water created by cargo ships of M/s JSW in Dharamtar Creek, declared as an Indian Waterway. Barges of other companies are also navigating in the said creek. Dredging in carried-out only in 135 m wide navigation channel, permission is obtained from MMTB. No direct correlation due to cargo ships of M/s JSW. • To submit time bound action plan along with budgetary estimate for repairing of damaged Kharbandisti bhands along the Dharamtar creek and ensure periodic maintenance to contain ingress of creek water into adjoining agriculture fields.
7.	Violations of provisions of Environmental Clearance Notifications in development/expansion of jetty	Based on the justification/clarification submitted by PP in compliance to the show-cause notice issued by MoEF&CC on 11/11/2014, subsequent hearing was conducted for the PP followed by sub-committee visit during January, 2015 and re-consideration in 35th EAC (Industry-1) meeting, MoEF&CC has granted EC & CRZ clearance for expansion of jetty from 331.5 to 1,750 m on 26/11/2015. Further, amendment in expansion of jetty facility was granted by MoEF&CC on 26/03/2016 & 10/01/2020 respectively.
8.	Non-compliances of Environmental Clearance & CRZ clearance conditions in development/expansion of jetty	Total 06 no. of non-compliances observed during 2010 to 2021 for EC and CRZ clearance conditions. M/s JSW has complied with all the points, except for study to be conducted through CWPRS/NCSCM/NIO demonstrating the fact that scour protection is not necessary for the project and no shoreline changes are envisaged. It is observed that aforesaid study is under progress, issued work order to NCSCM to undertake the studies.
9.	Violations of provisions of CRZ Rules and CRZ clearance conditions w.r.t. construction of conveyor belt and development/ expansion of jetty in mangrove buffer areas	Permission for construction of conveyor belt in mangrove buffer area were valid after obtaining prior leave from Hon'ble HC order 09/07/2020 & submission of undertaking thereto (which is based on the MCZMA letter dated 31/12/2019). However, time-series analysis of satellite images during 2011 to 2021, shows construction activities were started i.e. expansion of conveyor belt was observed during 2015 to 2018 & 2021 in the 50 m mangrove buffer areas which is a violation of the MCZMA letter dated 31/12/2019.

10.	Compliance status w.r.t. conditions of The Water Act, 1974, The Air Act, 1981 and HOWM Rules, 2016 of existing 5 MTPA, phase-I & 10 MTPA, phase-II	M/s JSW has complied CC&A conditions w.r.t. conditions of The Water (Prevention and Control of Pollution) Act, 1974 i.e. i.e. establishment of requisite effluent treatment system, installation requisite OCEMS & its connectivity to MPCB & CPCB servers; conditions of The Air (Prevention and Control of Pollution) Act, 1981 i.e. installation of requisite no. of stacks and associated air pollution control devices installed for management of source emission, installation of requisite OCEMS & its connectivity to MPCB & CPCB servers, and conditions of Hazardous & Other Wastes (Management & Transboundary) Rules, 2016 of existing 5 MTPA (Phase – I) and 5 to 10 MTPA (Phase – II) respectively.
11.	Compliance status of reported non-compliances w.r.t. discharge of effluent, and emission for phase-I & II	M/s JSW was observed to be non-complied w.r.t. various environmental issues and accordingly, directions were issued by MPCB during 2014 to 2022 under the provisions of The Water Act, 1974 & The Air Act, 1981. Major non-compliances were observed w.r.t. delay in installation of requisite OCEMS and its connectivity for uploading data to CPCB & MPCB serves, non-operational of ground de-dusting system of coke oven plant, non-operation of APCD of HSM plant and inadequate management of quenching effluent and inadequate secondary air emission control system of HSM plant. In compliance to the aforesaid directions, M/s JSW had submitted action taken reports and complied with the various directions issued therein.
12.	Health impact assessment on residents nearby to the plant premises	Initial health impact assessment mentions that the no. of respiratory diseases, acute eye disorders, skin diseases and other acute chronic diseases found in vicinity of M/s JSW Ltd., and non-industrial area are remarkably the same. Health records of 499 employees working in coke oven plant was collected and analysed. Out of 499 employees, PFT of 457 employees were within the normal range (PFT > 80%) and PFT of 42 employees were not within the normal range (PFT < 80%), and all were tobacco chewers and cigarette smokers. Random health assessment of 50 employees was carried-out. PFT of 42 employees were within the normal range (PFT > 80%) and PFT of 08 employees were not within the normal range (PFT < 75%), and all were tobacco chewers and cigarette smokers.

		Reassessment of 08 no employees with PFT (<75%) was carried-out. It was found that 06 out of 08 employees was observed with PFT (< 75%) and uses tobacco (04 tobacco smokers & 02 tobacco chewers). The aforesaid report mentions that as per available literature smoking is independent risk factor which can lead to abnormal PFT. To evaluate either industrial activities or smoking as cause for abnormal PFT, study by higher centre/institution where facility for chemical analysis may be carried-out.
13.	Loss in fish catch/productivity due to navigation of ships in the Dharamtar creek	Total revenue generation in eight out of eleven fisheries co-operative societies near Dharamtar creek in Raigad District were declined. Whereas, revenue generation in three out of eleven fisheries co-operative societies have progressively and slightly increased during 2015-16 to 2019-20. However, definite cause in the decline of fish availability in the remaining eight out of eleven fisheries co-operative societies couldn't be ascertained whether it is due to pollution from M/s JSW or movement of ships/barges.
14.	Status of compliance of order dated 6th October, 2005 of the Hon'ble Bombay High Court	• Points mentioned in the Hon'ble High Court order are about conservation of mangroves & action taken therein and regulation on protection of mangroves in the state of Maharashtra. • Status of declaration of mangrove reserved area under Indian Forest Act,1927 by the DC-Office are as follows: in Alibag & Pen Taluka total 409.2916 ha and 242.1230 ha has been notified as protected forest under Section 20 of the Indian Forest Act, 1927. Similarly, DC-Office has submitted a proposal under Section 4 of the Indian Forests Act, 1927 to Hon'ble Divisional Commissioner, Kokan for publishing in the Govt. Gazette for declaration of mangrove reserved area in Alibag & Pen Taluka is 721.1531 ha & 72.9441 ha. • Criminal case number no. 85/2020, dated 05/10/2020 has been filed before Hon'ble Chief Judicial Magistrate Raigad-Alibag against M/s JSW Ltd., Dolvi, under section 19 of the Environment (Protection) Act, 1986 for illegal destruction of mangroves (0.5 ha) in land bearing survey no. 50/D situating at Village: Jui Bapuji, Tal: Alibag without taking any prior permission from the competent authority. However, the said case is pending before the Hon'ble Court.

15.	Basis for grant of EC to M/s JSW as the area on which the proposed expansion activities is under CRZ-I, II & III	As per the approved CRZ Map of 2011 and drawings approved by the Additional Director, Town Planning-Alibag and the Collector Raigad, the phase-II plant (expansion) is not falling with in the CRZ area.
16.	M/s JSW has not developed adequate green belt	As per amended environmental clearance (EC), dated 16/06/2020, M/s JSW was directed to carry-out green belt development of 243 acres inside plant premises & 502 acres outside plant premises. In compliance to the EC conditions, M/s JSW has carried-out green belt development of 84 acres out of 243 acres (on going) & 890 acres against mandated of 502 acres (124 acres in forest & 766 acres' mangrove plantation).
17.	M/s JSW is carrying out repairing activities of damaged Kharbandisti bhand using waste slag materials	• Khar Land Dept., has requested M/s JSW to repair the damaged Machela Chirbi & Jui Habbas Kharland Schemes bhands. M/s JSW has carried-out repairing activities through their CSR fund. • During 2019 to 2020 repairing of the damaged Machela Chirbi from Ch. 0 to 3,500 m (out of total 5,000 m length) was carried-out; total qty. of slag used is about 19,000 m^3. • Similarly, during 2021-22 repairing of total length of 4,820 m of the damaged Jui Habbas was carried-out; total qty. of slag used is about 48,400 m^3.
18.	Illegal constriction of the bridge abetting to village Kharmachela	Necessary permission form Hon'ble High Court vide order dated 15/10/2019 is given to M/s JSW for construction of bridge which is also duly recommended by MCZMA & SEIAA. The construction of bridge was started and the said construction is in company's land at survey no.93 of village Kharmachela and survey no.68 of village Kharkaravi.
19.	Additional acquisition of land by M/s JSW in 2012 without following due procedure and permission	M/s JSW erstwhile Ispat Industries Ltd, Nippon Denro Ispat Ltd. has obtained the permission from the Development Commissioner, Directorate of Industries, Government of Maharashtra for purchase of land.
20.	Remedial action for restoration of mangroves and its buffer zones, the creek and its banks, canals	• As per CRZ Notification, 2011 s. no. ii of V of paragraph 8, five times the number of mangroves destroyed/cut during the construction process shall be replanted. Accordingly, about 9.45 ha (1.89 x 5) of area to be replanted with mangroves by M/s JSW under the supervision of Mangrove Cell (Govt. of Maharashtra) and District's Revenue Department. • M/s JSW under the supervision of NCSCM, Forest Department – Mangrove Cell (Govt. of Maharashtra)

		and District's Revenue Department, should submit time bound action plan for restoration of natural creek area of 0.77 ha, lost due to various industrial activities including remedial measures. • As per CRZ Notification, 2011 s. no. ii of V of paragraph 8, five times the number of mangroves affected or destroyed due to dumping of municipal solid waste shall be replanted. Accordingly, about 3.55 ha (0.71 x 5) of area to be replanted with mangroves by the Zila Parishad-Raigad under the supervision of Mangrove Cell (Govt. of Maharashtra). If the area under conveyor belt is not adequate/feasible for compensatory mangrove plantation, suitable area may be identified for compensatory mangrove plantation of 3.55 ha under the supervision of Mangrove Cell (Govt. of Maharashtra) and District's Revenue Department.
21.	Environmental impact of industrial activities in the surroundings with reference to sea shore and creek	• As per specific condition no. v and specific condition no. xviii of EC dated 26/11/2015, M/s JSW has to carry-out a study through CWPRS/NCSCM/NIO demonstrating the fact that scour protection is not necessary for the project and no shoreline changes will be envisaged due to the project activity. It is observed that M/s JSW has engaged NCSCM, MoEF&CC, Govt. of India to undertake the studies w.r.t. impacts on sea shore line. • As per specific condition no. xvi of EC dated 26/11/2015 M/s JSW has carried-out Numerical Model Study of Hydrodynamics and Siltation and Wave Tranquility Study for the Navigation of the Dharamtar Creek (Amba River) through Central Water and Power Research Station (CWPRS), Ministry of Water Resources, River Development and Ganga Rejuvenation, Govt. of India. Based on the modelling studies, the proposed development would have no or negligible impact on the river/coastal morphology of the creek and the flow hydrodynamics.
22.	Environmental compensation: in terms of valuation of mangroves services cost; as damages for contravening mandatory provisions of environmental laws and for various non-	a. Environmental compensation in terms of valuation of mangroves services cost for destruction of mangroves of 1.89 ha due to various activities of M/s JSW during assessment period 2011 to 2021 is worked-out to be (considering the average inflation rate of 6.1454%) Rs. 3,28,99,438 /-.

	compliances of directions issued under the provisions of the Water Act, 1974 & Air Act, 1981	b. Environmental compensation as damages for contravening mandatory provisions of environmental laws i.e. violations provisions of Environmental and CRZ clearance in term of the provisions of the Environment Impact Assessment Notification, 2006 and CRZ Notification, 2011 under the Environment (Protection) Act, 1986 i.e. construction of conveyor belt in mangrove buffer area before obtaining prior leave from Hon'ble HC & submission of undertaking thereto (in compliance to the MCZMA letter dated 31/12/2019) is worked-out to be Rs. 5,89,50,000/- c. Environmental compensation for various non-compliances of directions issued under the provisions of the Water Act, 1974 & Air Act, 1981 is worked out to be Rs. 1,60,80,000/- Hence, total environmental compensation as applicable on M/s JSW w.r.t. a to c, as above is worked-out to be Rs. 10,79,29,438/- d. Environmental compensation in terms of valuation of mangroves services cost for destruction of mangroves of 0.71 ha due to dumping of municipal solid waste by gram panchayat's viz. Dolvi & Wadkal of the Zill Parishad-Raigad during assessment period 2011 to 2021 is worked-out to be (considering the average inflation rate of 6.1454%) Rs.1,23,59,048/-. Hence, total environmental compensation as applicable on the Zilla Parishad-Raigad is worked-out to be Rs.1,23,59,048/-.

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REPORT OF THE JOINT COMMITTEE IN COMPLIANCE WITH HON'BLE NATIONAL GREEN TRIBUNAL (NGT) PRINCIPAL BENCH (PB) ORDER DATED 27/05/2021 & 04/03/2022 IN OA NO. 165 OF 2020 [EARLIER OA NO. 122 OF 2015 (WZ)] TITLED AS SAMITA RAJENDRA PATIL VS JINDAL STEEL WORKS LTD., & ORS.

1.0 Background

Grievance in the original application No. 165/2020 (PB), titled Samita Rajendra Patil Vs Jindal Steel Works Ltd., & Ors, as per order dated 27/05/2021 of the Hon'ble NGT, is against violation of environmental norms in running the industrial operations by M/s Jindal Steel Works Ltd., at Villages: Dolvi, Karawi, Gadab, Kharkaravi, Kharmachela and Jui Bapuji and other surrounding areas, District Raigad near Mumbai. The allegations mentioned by the applicant in the aforesaid Hon'ble NGT order is summarized as;

- The industry is violating the environmental norms.
- Causing adverse effects on human health and agricultural land due to emissions from coke oven.
- The industry adjoins the Dharamtar creek and other villages covered by mangroves, which were destructed during the various expansion activities of integrated iron & steel plant and jetty.
- The unscientific handling and disposal of waste/by-products on mangrove areas, natural drains/nalas, agricultural lands had resulted in the damage to kharbandisti bhand, thereby affected the soil fertility and crop productivity around the industry under reference.
- Violations of CRZ Notification and existing jetty was expanded without obtaining prior environment clearance from Ministry of Environment, Forest & Climate Change.
- The destruction caused to the mangroves due to construction of coke oven plant.

Hon'ble NGT directed vide Order dated 27/05/2021 (copy of Hon'ble NGT Order, dated 27/05/2021 is given at **Annexure-1** for kind reference) and relevant operative part is reproduced as below:

"…13. we are of the view that an updated status report is required by an independent and credible Committee to determine whether any further remedial action is necessary.

(….)

14. Accordingly, we constitute a five Members Joint Committee, to be headed by an officer of the rank of Joint Secretary, MoEF&CC, nominated by the Secretary MoEF&CC and comprising the CPCB, the IIT Mumbai, the District Magistrate, Raigad, the State PCB as Members. The Committee may look into the issues raised by the Applicant summed up above including compliance of the Water and Air Acts and HoWM Rules, destruction of Mangroves and damage to Agriculture, if any, status of scientific disposal of solid waste. It may also estimate the extent of environmental damage and the amount of Compensation required and restitution plan (in case of non-compliance). The Committee will be at liberty to take assistance from any other Expert Institution or individual and conduct proceedings online, except for site visit, if necessary. The CPCB and the State PCB will facilitate the functioning of the Committee and act as nodal agency for coordination and compliance. The applicant as well as the project Proponent will be at liberty to represent their respective versions to the Committee through the State PCB. If the violations are found, the Committee may also suggest the amount of compensation to be recovered apart from other restoration measures. The Committee may give its report to the Tribunal as far as possible within four months by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF. The first meeting of the Committee may be held preferably within one month to take stock of situation and plan further course of action. While giving a report to this Tribunal, its copies be given to the applicant as well as the Project Proponent for their response, if any, before the next date…."

2.0 Approach

Central Pollution Control Board (CPCB) requested Maharashtra Pollution Control Board (MPCB) to issue the committee constitution order for compliance of the aforesaid Hon'ble NGT Order and accordingly, MPCB constituted a joint committee

vide office order no. MPCB/MS/B-25, dated 07/07/2021 which comprises of the following members:

1. Shri Jigmet Takpa, Joint Secretary, MoEF&CC, Govt.of India
2. Shri Nishchal C., Scientist 'D', CPCB – Regional Directorate – Pune
3. Prof. Anurag Garg, IIT Bombay, Powai, Mumbai
4. Mrs. Nidhi Chaudhari, District Magistrate, Raigad
5. Shri V. V. Killedar, I/c Regional Officer, MPCB, Raigad

CPCB requested MPCB to provide a background note on the aforesaid industry along with relevant details [viz. chronology of events, copy of consent to establish (CTE), consent to operate (CTO), environmental clearance (EC), production details and associated environment management system installed for control of pollution etc.] for deliberating the issues during the proposed joint committee meeting. Accordingly, MPCB vide e-mail communication dated 13/07/2021 provided the background note on the aforesaid industry.

The joint committee under the Chairmanship of Shri Jigmet Takpa, Joint Secretary, MoEF&CC convened its first meeting through video conferencing on 04/08/2021. The joint committee deliberated in detail on various alleged issues mentioned in the Hon'ble NGT order dated 27/05/2021 w.r.t. non-compliances of Water & Air Acts, HOWM Rules, destruction of mangroves/creeks/natural channels/nalahs, damage to agriculture fields and unscientific disposal of slag by M/s Jindal Steel Works Ltd., Dolvi and directions passed by the Hon'ble NGT to the committee. Representative from National Centre for Sustainable Coastal Management (NCSCM) was also invited to participate in the meeting. After detailed discussions, the joint committee decided;

a. that various assessment studies w.r.t. damage of mangroves, creeks/natural channels/nalahs, soil, agricultural land, kharbandisti bhand and violation of CRZ Notification due to developmental activities of the industry under reference, required to be carried out along with the concerned agencies by formulating the action plans
b. that assessment of violations of provisions of Environment Clearance Notifications and Environment Clearance conditions may be done by the MoEF&CC's Regional Office, Nagpur.

After detailed discussions, various assessment/studies were identified to be carried out through respective concerned agencies and an action plan was also formulated in order to comply with the aforesaid order of the Hon'ble NGT.

Further, in compliance with paragraph 14 of the aforesaid Hon'ble NGT order, the joint committee has also considered the separate representation received from the applicant through MPCB. Accordingly, the additional issues mentioned in the aforesaid representation of the applicant has also been forwarded to the concerned agencies for submission of factual status and compliance reports. The additional concerns /allegations made by the Applicant is as below:

a. Illegal dumping of by-products/waste products i.e. slag generated from hot strip mill, blast furnace etc. on agricultural land/private land/Govt. land in the villages (viz. Gadab, Beneghat, Khardombi, Kharjambhela and Kharghat).
b. Loss in fish catch/productivity due to navigation of ships in the creeks around M/s Jindal Steel Works Ltd., Dolvi and destruction of kharbandisti.

Further, a revised office order was issued by Maharashtra Pollution Control Board vide office order no. MPCB/MS/B-29, dated 08/09/2021 w.r.t. constitution of joint committee and comprised of the following officials:

1. Shri Jigmet Takpa, Joint Secretary, MoEF&CC, Govt. of India*
2. Shri Nishchal C., Scientist 'D', CPCB – Regional Directorate – Pune
3. Prof. Anurag Garg, IIT Bombay, Powai, Mumbai
4. Mrs. Nidhi Chaudhari, District Magistrate, Raigad#
5. Shri P. K. Mirashe, Asstt. Secretary (Tech), MPCB, Mumbai^
6. Shri N.N. Gurav, RO (HQ), MPCB, Mumbai
7. Shri V. V. Killedar, I/c Regional Officer, MPCB, Raigad

*Shri Jigmet Takpa, Joint Secretary, MoEF&CC, Govt. of India after relieving from MoEF&CC, Dr. Sujit Kumar Bajpayee, Joint Secretary, MoEF&CC, Govt. of India has been nominated to head the joint committee vide MoEF&CC letter dated 05/09/2022.

#Mrs. Nidhi Chaudhari, District Magistrate, Raigad after transfer from Raigad, has been replaced by Dr. Mahendra Kalyankar, District Collector-Raigad.

^Shri P. K. Mirashe, Asstt. Secretary (Tech), MPCB, Mumbai who superannuated from the service of MPCB on 28/02/2022 and subsequently replaced by Dr. Y. B. Sontakke, Joint Director (Water), MPCB-Mumbai

Upon receipt of various assessment/studies reports from concerned agencies (viz. NCSCM-Chennai, MoEF&CC-Nagpur, MPCB, District Collector-Raigad, Khar Land Department, Agriculture Department and District Health Officer) during October, 2021, the joint committee made detailed deliberations on findings/gaps in the assessment/studies reports during second meeting held on 19/11/2021 through video conferencing. Accordingly, the concerned agencies were requested vide email communications during November, 2021 to January, 2022 to execute/validate as per the aforesaid action plan and ToR therein and submit time target to the joint committee for completion of the same.

Also, as decided during the second joint committee meeting held on 19/11/2021, a team of committee members/officials from MoEF&CC, CPCB and MPCB carried-out site inspection of M/s JSW during 29/12/2021 to 30/12/2021. A meeting with the various concerned agencies were also held during the said site visit to assess the status/progress of various assessment studies and field survey on 29/12/2021, followed by meeting with the District Collector, Raigad and District Range Forest Officer – Mangrove Cell on 30/12/2021 to discuss the status and way forward of the action plan, ToR and timely compliance of the Hon'ble NGT order. During the said meeting on 29/12/2021, locations and parameters for monitoring of ambient air quality, fugitive emission and source emission were decided.

Thereafter the joint committee submitted the progress report to the Hon'ble NGT through the nodal agency (CPCB) on 21/01/2022, titled as "Progress report of the joint committee in compliance with Hon'ble NGT order OA no. 165 of 2020 (PB) [Earlier OA no. 122 of 2015 (WZ)], Samita Rajendra Patil vs Jindal Steel Works Ltd., & Ors. Copy of the progress report submitted to the Hon'ble Tribunal vide dated 21/01/2022 is given at **Annexure-2** for kind reference. Following are the observations and findings of the joint committee made during the preliminary inspection & submitted to the Hon'ble Tribunal:

i. Sporadic and haphazard dumping of municipal solid waste within the 50 m mangrove buffer zone of the conveyor belt area of M/s JSW i.e. from the stretch between Maharashtra Maritime Board jetty till the approach road of the Alibaug-Mumbai highway.

ii. The land where sporadic & haphazard dumping of solid waste observed is Govt. owned and it has been dumped illegally by the nearby gram panchayats viz. Dolvi and Wadkal within the 50 m mangrove buffer area.
iii. Fugitive emissions (secondary emissions) from steel melting shop-1, reportedly due to the replacement activities of dilapidated enclosure sheets.
iv. De-silted sludge from the natural creek, passing through the industrial premises has been haphazardly dumped along the natural creek, leading spillage back into the natural creek. The industry has not identified the designated storage area for handling and storage of de-silted sludge. Also, the industry is not having the management and utilization plan for the same.
v. Raw material handling & storage area and slag storage area were devoid of adequate wind breaking walls, such inadequate containment measures may contribute to area sources of air pollution during transportation/handling of raw materials and slag.

Further, considering the quantum of works to be completed, no. of State Govt. agencies & research institutes involved for carrying out various field validation/assessment/studies, as per decisions taken during first & second meeting of the joint committee, the joint committee through the nodal agency (CPCB) had submitted its progress report to the Hon'ble NGT and also prayed for extension of time period of three months for submitting its report in compliance with aforesaid order dated 27/05/2021.

As per order dated 04/03/2022, the Tribunal considered the progress report of the joint committee and also objections filed by the applicant, directed the joint committee to verify the factual position as pointed out by the applicant, i.e.;

i. To verify the dumping of waste material by M/s JSW for reclaiming the land below the conveyor belt and the jetty area within 50 m mangrove buffer area, which was observed by MCZMA in their reply filed in 2016.
ii. Discharge of untreated effluent from the coke oven pant in to the Dharamtar Creek, resulting in death of aquatic life i.e. fish.
iii. Illegal constriction of the bridge abetting to village Kharmachela by dumping the waste material on mangroves.

Further, the Tribunal vide para 8 of the aforesaid order dated 04/03/2022 has issued the following directions to the joint committee;

i. To verify the latest compliance status and suggest further remedial action for restoration of mangroves and its buffer zones, the creek and its banks;
ii. To verify the status of compliance of EC conditions as well as CRZ conditions, 2011 and CC&A conditions;
iii. To verify the point source of waste and purpose of dumping. The scientific dumping of hazardous waste and slag and remedial action may also be dealt with – already covered in the action plan of the joint committee;
iv. Villages named by the applicant in para 13 of the objections (Kharmachela, Kharchilbi, Kharghat, Wave, Wadkal, Kolve, Dolvi and the surrounding area up to Alibaug and Nagothne on Mumbai- Goa highway) may also be subjected to verification for dumping of waste materials;
v. Environmental impact of industrial activities in the surroundings with reference to habitation, agricultural fields, sea shore and creek hydrology and remedial measures with cost of restoration;
vi. Liberty has been granted by the Tribunal to the applicant to make any further representation to the joint committee.

Third meeting of the joint committee was held on 11/04/2022 at District Collector's Office: Alibagh-Raigad under the Chairmanship of Shri Jigmet Takpa, Joint Secretary, MoEF&CC, to discuss the progress on action plan formulated during its second meeting held on 19/11/2021 and also to deliberate on the way forward for compliance of operative directions of Hon'ble NGT order dated 04/03/2022. The joint committee deliberated on the submissions made by the concerned agencies w.r.t. various assessment studies on the each of the activities of the detailed action plan decided in previous meetings vis-à-vis progress status, findings and draft gaps/issues and way forward. Copy of the minutes of third meeting of the joint committee is given at **Annexure-3** for kind reference.

In compliance to the order of the Tribunal dated 04/03/2022, the joint committee heard the representation from the applicant. Various submissions made by the applicant(s) before the joint committee are as follows;

i. Basis for grant of EC to M/s JSW as the area on which the proposed expansion activities is under CRZ-I, II & III and covered with mangroves. The applicant submitted and relied on the Google images of the area under reference.
ii. As per compliance condition of EC dated 25/08/2015, M/s JSW has not developed adequate green belt.
iii. Dumping of waste material by M/s JSW for reclaiming the land below the conveyor belt and the jetty area within 50 m mangrove buffer area and its destruction thereof. Requested to verify the status of reported destruction of mangroves from MCZMA Report of 2016. No permission is obtained by M/s JSW Ltd., or construction of conveyor belt.
iv. Compliance of Hon'ble High Court is not being followed w.r.t. conservation of mangroves.
v. M/s JSW has not having provision of adequate & designated storage area for dumping of chemical/waste materials, such wastes have been dumped in 13 no. of villages reportedly the SMS slag is dumped and covered with blast furnace slag.
vi. M/s JSW is carrying out repairing activities of damaged kharbandisti bandh using waste slag materials without permission from the concerned authority.
vii. Illegal constriction of the bridge abetting to village Kharmachela by dumping the waste material on mangroves and its destruction thereof. Also, proposed illegal construction of 02 no. of bridges at survey no. 94.
viii. Additional acquisition of land by M/s JSW in 2012 without following due procedure and permission from the concerned authority.
ix. Damage caused to kharbandisti band due to dredging activities carried-out by M/s JSW Dharamtar Port Pvt. Ltd., in Dharamtar Creek.
x. Loss in fish catch/productivity due to navigation of ships by M/s JSW in Dharamtar Creek.

Further, in compliance to the earlier order of the Tribunal dated 27/05/2021 the joint committee heard the representation from the project proponent and the project proponent made a submission of point-wise presentation on the various alleged issues mentioned in the Hon'ble NGT order dated 27/05/2021 before the joint committee.

The joint committee requested concerned agencies to carry out field validation to verify the compliance of points submitted/representation made by the applicant before the joint committee as given above, besides the operative directions of the Tribunal as per order dated 04/03/2022 and submit its report to CPCB & MPCB at the earliest.

As decided during the second meeting of the joint committee, CPCB & MPCB has jointly carried-out source, fugitive emission monitoring of the coke oven plant and ambient air quality monitoring at 03 alleged locations. Also, effluent monitoring (based on the objections filed and latest representation made by the applicant) for the consented parameters (criteria parameters) as per CC&A during 04/05/2022 to 05/05/2022.

Fourth meeting of the joint committee was held on 14/06/2022 through video conference under the Chairmanship of Shri Jigmet Takpa, Joint Secreatry, MoEF&CC, to discuss the progress on action plan formulated during its second meeting held on 19/11/2021, to deliberate on the additional issues discussed during third meeting held on 11/04/2022 and further way forward for compliance of additional operative directions of Hon'ble NGT order dated 04/03/2022. Copy of the minutes of fourth meeting of the joint committee is given at **Annexure-4** for kind reference.

As per the decisions taken during the previous joint committee meetings, the concerned agencies submitted their report to CPCB during 14/07/2022 and 19/07/2022. However, upon examination of summited reports, it is observed that action taken report on few points is yet to be submitted by DC Office-Raigad. Meanwhile, MPCB also requested CPCB to make suitable arrangements for deliberating before the joint committee about rationale for calculation of environmental compensation for the reported non-compliances by M/s JSW. On 25/08/2022 DC Office-Raigad submitted report on additional points to CPCB. Thereafter, MoEF&CC vide letter dated 05/09/2022 informed to CPCB that Shri Jigmet Takpa, Joint Secretary heading the joint committee has been relieved from the Ministry. Accordingly, as replacement to Shri Jigmet Takpa, Shri Sujit Kumar

Bajpayee, Joint Secretary is nominated to head the joint committee in the aforesaid Hon'ble NGT matter. Copy of MoEF&CC letter 05/09/2022 is attached as **Annexure-5** for kind reference.

Fifth meeting of the joint committee was held on 12/09/2022 through video conference under the Chairmanship of Dr. Sujit Kumar Bajpayee, Joint Secretary, MoEF&CC, to discuss the progress on decisions taken during previous meetings of the joint committee, review the draft report of the joint committee and further way forward for compliance of Hon'ble NGT orders dated 27/05/2022 and 04/03/2022. After detailed deliberation, the joint committee opined that updated information about the loss of mangroves due to activities of M/s JSW & its associated activities (jetty, conveyor belt & other industrial activities etc.) may be jointly worked-out by MRSAC, RFO-Mangrove Cell and NCSCM in coordination with District Collector-Raigad, various action taken by MoEF&CC for reported violations of EIA Notification, 2006 & non-compliances of EC & CRZ clearance conditions, quantification of slag material used for repairing of damaged kharbandisti bandh and calculation of environment compensation amount for the reported non-compliances etc. Copy of the minutes of fifth meeting of the joint committee is given at **Annexure-6** for kind reference.

Sixth meeting of the joint committee was held on 16/11/2022 through video conference under the Chairmanship of Dr. Sujit Kumar Bajpayee, Joint Secretary, MoEF&CC, to discuss the progress on decisions taken during previous meeting of the joint committee, review the updated report submitted by various agencies viz. DC-Office, MoEF&CC & MPCB, review the draft report of the joint committee and further way forward for compliance of Hon'ble NGT orders dated 27/05/2021 and 04/03/2022. After detailed deliberation, the joint committee opined MoEF&CC to provide the details of subsequent actions taken by the Ministry on the clearances provided. Copy of the minutes of sixth meeting of the joint committee is given at **Annexure-7** for kind reference.

3.0 About the industry

M/s JSW Steel Ltd., Dolvi Works, Tal. Pen, Dist. Raigad is an integrated iron & steel plant located at Dolvi village, 7 km from pen and 85 km from Mumbai, located adjacent to the Mumbai – Goa Highway (National Highway NH – 17 and State

Highway SH – 87 near Wadkal) towards Goa. The major production process includes Coke oven-Pelletization- Sintering-BF-SIP-CONARC–LF–VD/VOD degasser slab caster HSM. The plant is equipped with Coke Oven Plant, Pellet Plant, Sinter Plant, Blast Furnace, Sponge Iron Plant, Continuous casting facility etc. M/s JSW Steel Ltd., Dolvi Works is having different CTO for various process units which are located within the same premises and also, few units i.e. coke oven plant and metal recovery plant is having different CTO under the name of M/s Amba River Coke Ltd., and M/s Harsco India Metal Pvt. Ltd., which are located within the same premises. Also, having the captive jetty facility and having separate CTO under the name of M/s JSW Dharamtar Port Pvt. Ltd., Since all of the above units including its associated units are located within the same premises and part of the integrated iron & steel plant, for ease of referring, hereinafter in the joint committee report it is referred as "M/s JSW". The chronology of events of various statutory clearances obtained by the industry w.r.t. establishment of integrated iron & steel and jetty plant and various statutory clearances obtained by industry are depicted in the below Table-1.

Details of Consent to Operate (CTO) issued by MPCB to the industry for 5 MTPA (steel plant, coke oven plant & jetty etc.) - Phase I and for 5 – 10 MTPA integrated iron & steel plant - Phase II is depicted in Table-2 & 3 respectively.

Table-1: Chronology of events and various statutory clearances obtained by M/s JSW.

S. No	Activity	Year	Name of the plants under the EC/CTO
1	Environmental Clearance Obtained for Sponge Iron Plant vide letter ENV NOC)1090/784/CR-157	02/07/1992	Sponge Iron Plant (1.2 MTPA)
2	Sponge Iron Plant (SIP) at Dolvi, under the name of M/s. Nippon Denro Ispat Ltd to M/s. Ispat Industries Ltd.	1994	Sponge Iron Plant (1.2 MTPA
3	The Environmental Clearance for the Jetty was obtained from MoEF in the name Nippon Denro Ispat Ltd (vide' letter no. J16011/6/94-IA.III, dated 04th January, 1995).	04/01/1995	Jetty
4	Consent to Establish for 3 MTPA steel plant from MPCB obtained vide BO/KON/1041/C-1079.	12/07/1995	1) Hot Strip Mill (3 MTPA) 2) Lime Calcination Plant 1 & 2 (600 TPD) 3) Oxygen Plant 1260 TPD and 100 TPD 4) Blast Furnace (2.8 MTPA)

			5) Sinter Plant 2.8 MTPA
5	Environment Clearance received for 3.0 MTPA integrated Steel Plant at Raigad District, Maharashtra by M/s. Nippon Denro Ispat Ltd. vide letter No No J-11011/4/ 96 – IA–II,	31/12/1996	1) Hot Strip Mill (3 MTPA) 2) Lime Calcination Plant 1, 2 (600 TPD) 3) Oxygen Plant 1260 TPD and 100 TPD 4) Blast Furnace (2.8 MTPA) 5) Sinter Plant 2.8 MTPA
6	Further the jetty was expanded to 331.5m for which the Environmental Clearance was obtained from Ministry of Surface Transport in the name Nippon Denro Ispat Ltd vide letter no. J16011/6/94-IA.III/PD.IV, dated 12 January 1997).	12/01/1997	Jetty (331.5 Meter length)
7	Changed its name to M/s ISPAT Industries Limited	1997	Steel plant
8	Hot Strip Mill Plant (HSM) was started with the capacity of 3 MTPA	1998	Hot Strip Mill (3 MTPA) Lime Calcination Plant I & II (600 TPD) Oxygen Plant 100 TPD
9	Blast Furnace (BF) had been commissioned by the ISPAT group of industries under the name of M/s. ISPAT Metallic India Ltd. at Dolvi.	May 2000	Blast Furnace (2.8 MTPA)
10	Consent to establish (CTE) from MPCB for ARCL – Coke Oven I – vide letter No. BO/RO (P & P) /EIC RD -0513-06/E/CC-364	02/09/2008	Coke Oven Plant 1 (1 MTPA) at Amba River Coke Ltd
11	EC received for 1.0 MTPA Coke Oven Plant of M/s. Amba River Coke Ltd. at Geetapuram, Village Dolvi, Tehsil Pen, District Raigad in Maharashtra vide MoEF Letter - F No J-11011/286/2007-IA-II(I)	12/01/2009	Coke Oven Plant- I (1 MTPA) at Amba River Coke Ltd
12	JSW Ispat Steel limited had applied for the ToR for expansion of jetty to 1741 m and the ToR was granted in February 2009. The owners executed some preliminary testing activities then in assumption of acquiring the environmental Clearance. However, project was not executed then due to technicalities and the validity of the ToR being expired in February 2011.	01/07/2012	Jetty
	The jetty was transferred to JSW Steel only in 01/07/2012. M/s JSW Dharamtar Port Pvt. Ltd. applied afresh for TOR for expansion of existing jetty from 331.5 m to **1750 m** on 28/11/2013.	28/11/2013	
	Dharamtar Port Private Limited is a Special Purpose Vehicle established by	16/12/2013	

	JSW Infrastructure Limited for operation and maintenance of the jetty		
	M/s JSW Dharamtar Port Pvt. Ltd. received TOR for expansion of existing jetty from 331.5 m to **1750 m** as recommended by the Expert Appraisal Committee, Infrastructure, Construction, Misc. projects and CRZ.	26/12/2013	
13	JSW (Ispat) Steel Ltd has Dolvi Works had been granted Environmental Clearance (EC) for expansion of its integrated steel plant capacity from 3 MTPA to 5 MTPA of finished product vide letter vide letter J-11011/166/2011-IA-II (I).	21/11/2012	1) Sponge Iron Plant (1.2 to 2 MTPA Expansion) 2) Blast Furnace (2.8 to 3.5 MTPA expansion) 3) Hot Strip Mill (3 to 3.5 MTPA expansion) 4) Billet Caster & Bar Mill 1.5 MTPA) 5) Lime Calcination plant 3 & 4 (1200 TPD) 6) Oxygen plant 1000 TPD 7) Captive power plant (55 MW – Gas based)
14	JSW Ispat Steel Limited was taken over and renamed as JSW Steel Limited.	03/05/2013	Steel Plant
15	Transfer of Pellet Plant Capacity 4 MTPA from JSW Steel Ltd to Amba River Coke Ltd, vide Letter No MoEFCC Letter - F No J-11011/166/2011-IA-II(I)	21/10/2013	Pellet Plant- I (4 MTPA) under Amba River Coke Ltd
16	Name changed for all ECs to JSW Steel Ltd from MoEFCC vide letter F.No J-11011/76/2013-IA II (I)	30/07/2015	Steel Plant
17	JSW Steel Ltd, Dolvi Works had been granted Environmental Clearance (EC) for expansion of its integrated steel plant from 5 MTPA to 10 MTPA of finished product vide letter no J-11011/76/2013-IA II (I) dated 25th Aug, 2015.	25/08/2015	**Plants included in the EC** 1. DR1 (Gas based Mega Module) 2.0 MTPA 2. Pellet Plant 9.0 MTPA 3. Coke Ovens including By-product plant 2.5 MTPA 4. Sinter Plant 4.0 MTPA 5. Blast Furnace including Pig casting 4.5 MTPA 6. SMS -BOF 6.0 MTPA 7. Ladle Furnace (LF) 2X300t 8. VD/VOD & RH-TP 2x300t 9. Conventional Slab Caster 2x2 strands (5.72 MTPA) 10. Billet Caster 1x6 Strands 11. CRM (Hot Rolled Skin Pass + Cold Rolled Full Hard Coil + Hot Rolled Pickled & Oiled Coil) 1.5 MTPA 12. Lime/Dolo Plant 1800 TPD 13. Oxygen Plant 3500 TPD

			14. Hot Rolling Mill with shearing & slitting line 5.0 MTPA 15. Bar Mill 1.4 MTPA 16. Slag & Clinker Grinding Unit 10 MTPA 17. Captive Power Plant 300 MW 18. Township 150 acres
18	M/s JSW Dharamtar Port Pvt. Ltd. received Environmental Clearance and CRZ clearance for expansion of Dharamter Jetty Facility from 331.5 meters quay to 1750 meters from MoEFCC vide letter F.No.11-79/ 2013-IA .III	26/11/2015	Jetty
19	The EC letter was further amended to exclude the proposed 1.0 MTPA & 2.5 MTPA coke oven units and transfer of the same to Dolvi Coke Projects Limited (A Sister Company) and 10 MTPA Slag and clinker grinding unit to JSW Cement Limited (A Sister Company). Environmental Clearance for 3.5 MTPA Coke Oven Plant at Dolvi Coke Projects Ltd. vide letter No F.No. IA-J-11011/497/2017-IA-II(I) dated 01/02/2018. (Company name changed from M/s. Dolvi Coke Projects Ltd to JSW Steel Ltd.).	01/02/2018	Coke Oven Plant 2 (3.5 MTPA)
20	Consent to establish received from MPCB vide Consent No: Format 1.0/BO/ CAC-Cell/UAN No. 0000022288-17/CAC-1802000254	07/02/2018	**Plants as per the CTE** 1.Calcinated Lime/Dolomite (LCP 5,6,7), 1800 TPD 2. Pellet plant II - 4 MTPA 3. Crude Steel (SMS-BOF and LF) 6.2 MTPA 4. HR Coil/HR plate/ HR Sheet/SLIT/Coil - 5 MTPA 5. Sinter Plant III- 8 MTPA 6. Liquid Metal/Pig Iron(Blast Furnace II) - 4.5 MTPA 7. Captive Power Generation (Gas Based) 150 MW 8. Township. 150 Acres
21	CTE from MPCB for amendment of Power plant II capacity from 150 MW to 245 MW (175 MW Gas based+ 70 MW CDQ) vide Consent No Format 1.0/CAC/UAN No 0000052973/CE-2003001407	19/03/2020	Power plant II - 245 MW (175 MW Gas based+ 70 MW CDQ)
22	CTE from MPCB for amendment of Pellet plant II capacity from 4 to 9 MTPA vide consent No Format 1.0/CAC/UAN	08/05/2020	Pellet plant II (9 MTPA)

	No 0000058371/CE-2005000207		
23	Changes in Plant configuration for proposed expansion of Integrated Steel Plant from 5 to 10 MTPA by M/s JSW Steel Limited at Dolvi, Tehsil Pen, District Raigarh in Maharashtra vide Environmental Clearance for changes in configuration Sinter Plant capacity 4 MTPA and Pellet Plant Capacity 9 MTPA vide EC letter No J-11011/76/2013-IA-II(I)	16/06/2020	Obtained EC for Pellet Plant 2 (Change in configuration for Capacity from 4 to 9 MTPA)
24	CTO from MPCB for Integrated Steel Plant Capacity 5 to 10 MTPA at JSW Steel Ltd vide consent No Format 1.0/CAC/UAN No 0000108919/CO 2109000621.	17/09/2021	**Plants as per the CTO** 1.Calcinated Lime/Dolomite (LCP 5,6,7), 1800 TPD 2. Pellet plant II - 9 MTPA 3. Crude Steel (SMS-BOF and LF) 6.2 MTPA 4. HR Coil/HR plate/ HR Sheet/SLIT/Coil - 5 MTPA 5. Sinter Plant III- 8 MTPA 6. Liquid Metal/Pig Iron (Blast Furnace II) - 4.5 MTPA 7. Captive Power Generation 245 MW 8. Incinerator 250 KG/hr

Table-2: Details of CTO for Existing 5 MTPA (steel plant, coke oven plant & jetty etc.) - Phase I

S. no.	Name of the plants	Capacity	Consent to operate no.	Consent status / Validity
1	Sponge Iron Plant	2 MTPA	Format 1.0/ BO/ CAC - Cell/ UAN No. 0000034884 - 17 / CAC - 1804000346 dated 07/04/2018	31-12-2022
2	Hot Strip Mill Plant	3.5 MTPA	Format 1.0/ BO/ CAC - Cell/ UAN No. 0000045821 - 18 / CAC - 1811000099 dated 02/11/2018	30-04-2023
3	Billet Caster & Bar Mill	1.5 MTPA	Format 1.0/ BO/ CAC - Cell/ UAN No. 0000024109 - 17 / CAC – 1802000263 dated 07/02/2018	31-05-2022 (applied for renewal of CTO on 11-04-2022, which is pending with MPCB)
4	Blast Furnace Plant	3.5 MTPA	Format 1.0/ BO/ CAC - Cell/ UAN No. 0000035084 - 17 / CAC - 1804000347 dated 07/04/2018	31-12-2022
5	Lime Calcination plant (3)	600 TPD	Format 1.0/ BO/ CAC - Cell/ UAN No. 0000044416 - 18 /5 th CAC - 1812001827 dated	30-09-2022

			31/12/2018	
6	Lime Calcination plant (4)	600 TPD	Format 1.0/ BO/ CAC - Cell/ UAN No. 0000046342 - 18 / CAC - 1810001260 dated 23/10/2018	31-03-2023
7	Sinter Plant-I & II	SP 1 2.8 MTPA SP 2 – 2.5 MTPA (5.3 MTPA)	Format 1.0/ BO/ CAC - Cell/ UAN No. 0000056996 - 18 / 8 th CAC - 1901000685 dated 10/01/2019	31-12-2023
8	55 MW Captive Power Plant	55 MW	Format 1.0/ BO/ CAC - Cell/ UAN No. 0000025212 - 17 / CAC - 1803000005 dated 01/03/2018	31-08-2022
9	Coke Oven Plant (Amba River Coke Ltd.,)	1 MTPA	Fomat 1.0/ BO/ CAC - Cell/ UAN No. 0000024004 - 17 / CAC - 1803000008 dated 01/03/2018	31-05-2022
10	Pellet Plant 1 (Amba River Coke Ltd.,)	4 MTPA	Fomat 1.0/ BO/ CAC - Cell/ UAN No. 0000045570 - 18 / CAC - 1811000098 dated 02/11/2018	30-09-2022
11	Harsco India Metals Pvt. Ltd., (Slag processing Plant	a) Metallic arising 68000 T/M b) Slag arising 852000 T/M c) Large steel scrap 14400 MT/M	BO/JD(APC)/EIC No RD-3239-16/O-CC-9447 dated 26/07/2016	31-12-2022
12	Ready Mix Concrete Plants (RMC)	823680	SRO-Raigad II /Consent/1708000670 dated 22/08/2017.	31-01-2026
13	Jetty (JSW Dharamter Port Pvt. Ltd.,)	Total length 1045.5 Meters Material Handling Capacity (32 MTPA) i.e. 26,06,666 MT/M	Format 1.0/ BO/ CAC - Cell/ UAN No. 75788/ CAC – 2002001100 dated 25/02/2020	31-08-2024

Table-3: Details of CTO for Facilities at 10.0 MTPA - Phase II

S. no.	Name of the plants	Capacity	Consent to operate no.	Remarks/Consent status / Validity
1	**Integrated steel plant – Phase II capacity from 5-10 MTPA**	**5 MTPA**	Format 1.0/CAC/ UAN No. 0000108919 /CO 2109000621 dated 17/09/2021	30-04-2022 (applied for renewal of CTO on 11-04-2022, which is pending with
Products				

A	Calcinated Lime (LCP 5,6,7	1800 TPD		MPCB)
B	Pellet Plant II	9000000 MT/A		
C	Crude steel Slab Caster	6200000 MT/A		
D	Hot Rolled Coil (Hot Strip Mill)	5000000 MT/A		
E	Blast Furnace (Liquid metal/Pig iron)	4500000 MT/A		
F	Power generation	245 MW		
By Products				
A	LD Gas from SMS 2	442260 MT/A		
B	Steam	393120 MT/A		
C	Slag from SMS 2	930000 MT/A		
D	Granulated Slag from Blast Furnace	2172000 MT/A		
E	Electrical power from BF To gas recovery turbine	37.25 MW		
F	Blast Furnace Gas	800000 M3/Hr		
2	Coke Oven Plant- 2 Battery, A & B	1.5 MTPA	Format 1.0/CAC/UAN No. MPCB-CONSENT-0000101988/CR-2110000975 DATED 21/10/2021	31/12/2022
3	Coke Oven Plan – 2 Battery, D	0.75 MTPA	Format 1.0/CAC/UAN No 0000105537/CO-2109000620 DATED 17/09/2021	31/12/2021 (Renewal Application for Battery D and 1st CTO for Battery C submitted and pending with MPCB)

4.0 Observations and findings as per action plan for execution of Hon'ble NGT order dated 27/05/2021

The details of action plan formulated for compliance of Hon'ble NGT order dated 27/05/2021 is given in the below Table-4. The compiled information received from concerned agencies and sub-committee are compiled and discussed in the subsequent paragraphs.

Table-4: Assessment on various activities/studies for execution and compliance of the Hon'ble NGT order dated 27/05/2021

S. no.	Assessment on various activities/studies	Responsible agency/ Sub-committee
1.	Destruction of mangroves of Dharamtar creek and within & around M/s JSW premises (w.e.f. September, 2010 to May, 2021) due to various developmental/ expansion activities carried-out by M/s JSW.	NCSCM & MRSAC. The sub-committee headed by the District Collector-Raigad, with representatives from Mangrove Cell (Govt. of Maharashtra), NCSCM, MRSAC, and the District Revenue Department
i.	Valuation of services losses due to encroachment/loss/destruction of mangroves areas including required remedial measures, restitution plan and estimated cost thereto.	Joint committee
2.	Status of encroachment of natural creeks and channels with details due to various developmental/ expansion activities carried-out by M/s JSW including jetty areas (w.e.f. September, 2010 to May, 2021).	NCSCM & MRSAC. The sub-committee headed by the District Collector-Raigad, with representatives from Mangrove Cell (Govt. of Maharashtra), NCSCM, MRSAC, and the District Revenue Department
i.	Valuation of services losses due to encroachment/ loss of Natural Creek areas including required remedial measures, restitution plan and estimated cost thereto.	Joint committee
3.	Assessment of adverse effects due to emissions from coke oven plant.	
i.	Source emission monitoring of stack attached to cove oven plant and other potential stacks.	MPCB and CPCB
ii.	Fugitive emission monitoring near coke oven plant.	
iii.	Ambient air quality monitoring at 03 locations at about 120º inside & outside the plant premises, preferably at alleged locations.	
iv.	Effluent monitoring of ETP of coke oven plant.	
4.	Assessment on illegal dumping of by-products/waste products i.e. slag generated by M/s JSW on mangrove areas, natural drains/nalahs and also on agriculture lands in & around alleged villages (viz. Kharmachi, Kharkaravi, Juibapuji, Dolvi, Kharchirbi, Wadkal, Vave, Kolve etc. situated within Taluka Pen). Also, on agricultural land/private lands/Govt. lands in & around alleged villages (viz. Gadab, Beneghat, Khardombi, Kharjambhela and Kharghat), (w.e.f. September, 2010 to May, 2021).	
i.	Inventorization of various by-products/waste products, their management as per CC&A conditions, status of	MPCB

	management of the same w.r.t. disposal and utilization details.	
ii.	Assessment of illegal dumping of by-products/waste products i.e. slag generated by M/s JSW on mangrove areas, natural drains/nalahs and agricultural lands in the aforesaid alleged villages.	The aforesaid sub-committee having representative from Agriculture Department (Govt. of Maharashtra).
iii.	Collection of soil samples from various locations of the above areas and also suitable reference soil samples (from unaffected area) and their analysis for relevant parameters including Boron and Sodium.	District Collector, Raigad through Agriculture Department (Govt. of Maharashtra).
iv.	Compilation of year wise crop productivity data and assessing its trend (w.e.f. September, 2010 to May, 2021). In case, the aforesaid areas affected in terms of soil fertility/ agricultural productivity, then estimation of extent of environmental damage, remedial measures & restitution plan and the amount of compensation as applicable;	District Collector, Raigad through Agriculture Department (Govt. of Maharashtra).
v.	Collection of various slag samples stored within the industry and TCLP/STLC analysis for parameters Arsenic, Barium, Cadmium, Chromium, Copper, Cyanide, Lead, Manganese, Mercury, Nickel, Selenium, Silver and Zinc as per Hazardous & Other Wastes (Management & Transboundary) Rules, 2016 and also Broron & Sodium.	MPCB.
5.	Assessment on damage of kharbandisti bandh (if any) due to activity of M/s JSW. Also, status report including extent of salt level in the agricultural fields and areas affected, and estimation of extent of land damage, remedial measures & restitution plan and the amount of compensation (w.e.f. 1990 till May, 2021 or afterwards).	The aforesaid sub-committee having representative from Khar Land Dept. (Govt. of Maharashtra) also.
i.	Examining alleged incidence of 03/01/2015 by the Tahasildar, Pen, as referred at Para 2 at page no. 4 of the order dated 27/05/2021 of the Hon'ble NGT.	The aforesaid sub-committee having representative from Khar Land Dept. (Govt. of Maharashtra) and Maharashtra Maritime Board (Govt. of Maharashtra).
ii.	Status report including extent of salt level in the agricultural fields and areas affected	District Collector through Agriculture Dept. (Govt. of Maharashtra).
6.	Assessment of violations of provisions of Environmental Clearance (EC) Notifications and EC conditions in development/expansion of jetty (w.e.f. September, 2010 to May, 2021).	MoEF&CC, IRO Nagpur.
7.	Assessment of violations of provisions of CRZ Rules and	NCSCM.

	CRZ clearance conditions by M/s JSW w.r.t. construction of conveyor belt and development/ expansion/ operation of jetty (w.e.f. September, 2010 to May, 2021).	The sub-committee headed by the District Collector-Raigad, with representatives from Mangrove Cell (Govt. of Maharashtra), NCSCM, MRSAC, and the District Revenue Department.
i.	In case of violations of provisions of CRZ Rules and CRZ clearance conditions w.r.t. construction of conveyor belt and development/expansion/operation of jetty, estimation of amount of compensation (w.e.f. September, 2010 to May, 2021).	Joint committee
8.	Compliance status w.r.t. conditions of the Water, Air Acts & HOW Rules.	
i.	Compliance status w.r.t. conditions of The Water (Prevention and Control of Pollution) Act, 1974 (w.e.f. September, 2010 to May, 2021).	MPCB.
ii.	Compliance status w.r.t. conditions of The Air (Prevention and Control of Pollution) Act, 1981 (w.e.f. September, 2010 to May, 2021).	MPCB.
iii	Compliance status w.r.t. conditions of The Hazardous & Other Wastes (Management & Transboundary Movement) Rules, 2016 (w.e.f. September, 2010 to May, 2021).	MPCB.
iv.	Compliance status of reported non-compliances w.r.t. discharge of effluent, emission and conditions of HW for phase-I & II and estimation of environmental compensation for the reported non-compliances, as applicable.	MPCB.
9.	Health impact assessment on residents nearby to the plant premises within 5 Km based on the health records due to industrial activity especially w.r.t. particulate matter and gaseous emissions (SO_2, NOx, PM, CO and BaP) (w.e.f. September, 2010 to May, 2021).	District Collector through District Health Officer.
10.	Loss in fish catch/productivity due to navigation of ships in the Dharamtar creek around M/s JSW: Compilation of year wise fish catch/productivity data and assessing its trend (w.e.f. September, 2010 to May, 2021).	District Collector, Raigad, through Department of Fisheries (Govt. of Maharashtra) of their own or engaging a reputed Govt. Fisheries Science College/ Institute/ University.
11.	Status of compliance of order dated 6th October, 2005 of the Hon'ble Bombay High Court in a group of Petitions bearing W.P. No. 3246 of 2004;	District Collector, Raigad.

4.1 Destruction of mangroves of Dharamtar creek and creeks within & around M/s JSW premises (w.e.f. September, 2010 to May, 2021) due to various developmental/ expansion activities carried-out by M/s JSW

As per the decisions taken during joint committee meeting dated 11/04/2022, NCSCM and MRSAC has jointly carried-out assessment on destruction of mangroves, creek and mangrove buffer areas within the purview of M/s JSW. During the assessment, high resolution satellite data of June, 2011 prepared by MRSAC has been considered as baseline data for change analysis with respect to mangroves and creeks in and around M/s JSW jetty and conveyor belt. The mapping of mangroves and creeks has been done for the year 2021 and change analysis in GIS carried out with respect to the same classes mapped for the year 2011 to work out the loss of mangroves and creek. As per the assessment carried-out, total loss of creek area is 0.59 ha and mangroves are 2.25 ha. Detailed assessment report w.r.t. destruction of mangroves and creek area as per the joint report of NCSCM and MRSAC is given at **Annexure-8** for kind reference.

As per the updated report of District Collector-Raigad vide dated 25/10/2022 (Copy of the report dated 25/10/2022 given at **Annexure-23** for kind reference) that the loss of mangrove area due to activities of M/s JSW & its associated activities (Jetty Conveyor belt & other industrial activities etc.) were thoroughly examined by actual ground truthing (GPS) & data /report of MRSAC & NCSCM. Wherein, the actual loss of mangroves was 2.6 ha (including mangroves loss of 0.71 ha below the conveyor belt area due to dumping of solid waste by three gram panchayats). The total loss of creek area is 0.77 ha.

4.2 Status of encroachment of natural creeks and channels due to various developmental/ expansion activities carried-out by M/s JSW including jetty areas

The report of Sub Divisional Officer, Alibag vide dated 17/01/2022 received through District Collector-Raigad vide dated 08/07/2022 (Copy of the report given at **Annexure-9** for kind reference) mentions about joint inspection by circle officer poynad, talathi saza Shahabaj and representatives of the forest department regarding illegal soil filling in natural creeks and channels by M/s JSW As per the

aforesaid report in village Jui Bapuji, Tal Alibag, there are private lands belonging to two families. The land bearing survey no.2/1/A belongs to Ramesh Sitaram Mhatre and there is a pond in said land, there was no soil filling or mangroves were found in said lands. Similarly, another land bearing survey no. 11/4 is mutated in the name of Keshav Changu Mokal and family which is a barren land. Neither any mangroves nor any cultivation is found in the said land. As per the report of Forest Department, M/s M/s JSW has previously encroached and filled soil in land bearing survey no. 50/D. In said area the industry has illegally destroyed mangroves, filled soil and extended its area, carried out construction of conveyor belt. In this regard, an offence bearing no. E-02/2019 -20, dated 03/02/2020 has been registered at Tinvira Police Station. However, as per the aforesaid report Sub Divisional Officer, Alibag vide dated 17/01/2022 there are no such reported encroachment of natural creeks and channels due to various developmental/ expansion activities of M/s JSW.

4.3 Assessment of adverse effects due to emissions from coke oven plant

4.3.1 Source emission monitoring of stack attached to coke oven plant and source emission monitoring of stacks attached to potential processes

Source emission monitoring of potential stacks attached to the coke oven plant viz. common stack attached to coke oven battery-I & II (Coke oven plant-1) and common stack attached to coke oven battery charging & pushing side (Ground de-dusting system of coke oven plant-1) were carried-out on 04/05/2022 for consented parameters viz**.** PM, SO_2 and NOx. Besides, source emission monitoring of coke oven plant; source emission monitoring of other potential stacks viz. stack attached to kiln of lime calcination plant-2 (600 TPD), stack attached to sinter machine & de-dusting (sintering plant-1), stack attached to product discharge end & product sinter sizing house (sintering plant-1). Analysis results of source emission monitoring of stacks are given in Table-5 and copy of the same is given at **Annexure-10** for kind reference. Also, operational parameters of monitored stacks w.r.t. quantity of raw material utilization & product manufactured, recorded from central control room during the source emission monitoring is given at Table-6 for kind information. Also, concentration of prescribed parameters of OCEM as per as per CPCB directions dated 05/02/2014 &16/08/2019 recorded from the OCEM panel is given in Table-7 for kind information.

Table-5: Source emission monitoring results of stacks.

S. no.	Stack identity	Concentration of parameters as per Consent to operate issued by MPCB			24 hr avg. concentration of parameters from OCEMS panel		
		PM, mg/Nm^3	SO_2, mg/Nm^3	NOx, mg/Nm^3	PM, mg/Nm^3	SO_2, mg/Nm^3	NOx, mg/Nm^3
1.	Common stack attached to coke oven battery-I & II (Coke oven plant-1)	52	15	13.6	30.21	23.45	Data unavailable during monitoring
MPCB prescribed standards		**50**	**800**	**500**	**50**	**800**	**500**
2.	Common stack attached to coke oven battery charging & pushing side (Ground de-dusting system of coke oven plant-1)	140	--	--	0.64	OCEMS Not prescribed	OCEMS Not prescribed
MPCB prescribed standards		**25**	--	--	**25**	--	--
3.	Stack attached to kiln of lime calcination plant-2 (600 TPD)	119	--	10	12.91	27.88	OCEMS Not prescribed
MPCB prescribed standards		**100**	--	**100**	**150**	--	**100**
4.	Stack attached to sinter machine (sintering plant-1)	18	--	--	35.73	90.86	OCEMS Not prescribed
5.	Stack attached to product discharge end & product sinter sizing house (sintering plant-1)	65	--	--	65.3	OCEMS Not prescribed	OCEMS Not prescribed
MPCB prescribed standards		**50**	--	--	**50**	--	--
6.	Stack attached to furnace of pellet plant-I (4 MTPA)	52	--	--	OCEMS Not prescribed	OCEMS Not prescribed	OCEMS Not prescribed
7.	Common stack attached to de-dusting system-1 & 2 of pellet plant-I (4 MTPA)	88	--	--	OCEMS Not prescribed	OCEMS Not prescribed	OCEMS Not prescribed
MPCB prescribed standards		**150**	--	--	**150**	--	--

Note: -- indicates particular parameter & its standard has not specified in the consent to operate issued by MPCB.

Table-6: Operational parameters of stacks during source emission monitoring.

S. No.	Stack attached to	Name of Air Pollution Control System	Control System Details	Date of monitoring	Design Flow	Height of the Stack (m)	Designed production Capacity, MT/Hr	Actual Production during the monitoring period, MT/Hr	Designed raw material feed rate, MT/Hr	Raw material used during monitoring period, MT/Hr
1.	Common stack attached to coke oven battery-I & II (Coke oven plant-1)	Natural Draft	Not applicable	04.05.2022	550000 Nm^3/Hr	145	114	Coke-88.75	163	Coal-128.19
2.	Common stack attached to coke oven battery charging & pushing side (Ground de-dusting system of coke oven plant-1)	Bag Filter	Pulse Jet Bag filter Dia of Bag-164 mm Bag Length-6000mm Total No. of Bags-1512	04.05.2022	350000 Nm^3/Hr	31	114	Coke-88.75	163	Coal-128.19
3.	Stack attached to kiln-2 of lime calcination plant-2 (600 TPD)	Bag Filter	Pulse Jet Bag filter Dia of Bag-149 mm Bag Length-4260 mm Total No. of Bags-532	04.05.2022	44900 Nm^3/Hr	48.7	12.5	9.47	15.44	15.46
4.	Stack attached to sinter machine (sintering plant-1)	ESP	Main ESP - 6 Fields Secondary KV rating 1St and 2nd Field-90 KV(P) DC (Three Phase Transformer) 3rd to 6th Field-70 KV(P) DC(Two	05.05.2022	1110000 Nm^3/Hr	140	319	293	14.89	15.03

			Phase Transformer). Secondary Current Rating- 1St Field to 6th Field- 800mA DC							
5.	Stack attached to product discharge end & product sinter sizing house (sintering plant-1)	ESP	Discharge End ESP - 3 Secondary KV rating 1St Field-90 KV(P)DC 2nd & 3rd Field-75 KV(P) DC Secondary Current Rating-1St Field 2nd & 3rd Field- 800mA DC	04.05.2022	631000 Nm^3/Hr	60	319	293	14.89	15.03
6.	Common stack attached to de-dusting system-1 & 2 of pellet plant-I (4 MTPA)	Bag Filter	Pulse Jet Bag filter Dia of Bag-150 mm Bag Length-4500 mm Total No. of Bags-450	05.05.2022	59000 Nm^3/Hr	30.5	456.63	444.38	527.028	525.69
7.	Stack attached to furnace of pellet plant-I (4 MTPA)	ESP	Wind Box ESP - 8 Electrical Fields having Secondary KV rating for 1St Field to 8th Field - 111 KV(P)DC. Secondary Current Rating for 1St Field to 8th Field- 1200mA DC	05.05.2022	2200000 Nm^3/Hr	100	456.63	444.38	527.028	525.69

Table-7: Average concentration of parameters of all stacks displayed at OCEM panel during monitoring period.

S. no.	Stack identity	Avg. concentration of parameters displayed at OCEMS panel									Remarks*
		PM, mg/Nm^3			SO_2, mg/Nm^3			NOx, mg/Nm^3			
		Min	Max	GM	Min	Max	GM	Min	Max	GM	
1.	LHF Billet Caster	10.82	11.46	11.07	72.42	72.62	72.47	-	-	-	Not prescribed
2.	Sinter Plant-2 MESP	5.75	32.17	13.99	23.46	68.98	43.95	-	-	-	Installed required OCEM sensor i.e. PM
3.	Hot Strip Mill- SMS1 GCP2	5.49	6.43	5.86	300.22	337.43	309.36	-	-	-	Installed required OCEM sensor i.e. PM
4.	Hot Strip Mill- SMS1 GCP1	6.55	8.54	7.7	300.26	337.51	309.04	-	-	-	
5.	Lime Calcination Plant- Kiln-4	1.39	1.76	1.54	5.64	28.08	11.02	-	-	-	Not prescribed but installed OCEM sensor i.e. PM
6.	Lime Calcination Plant- Kiln-3	3.76	13.26	5.36	0	0	0	-	-	-	
7.	Lime Calcination Plant- Kiln-1	6.46	7.51	6.99	5.25	68.66	27.03	-	-	-	
8.	Bar Mill RHF	0	0	0	0	131.35	19.59	-	-	-	Not prescribed
9.	Blast Furnace-1 Stove	3.17	3.18	3.17	22.18	31	27.1	8	12.1	9.85	Installed required OCEM sensors i.e. PM, SO_2 & NOx
10.	Hot Strip Mill- Tunnel Furnace 2B	8.17	8.21	8.19	0	493.94	176.98	-	-	-	Not prescribed
11.	Hot Strip Mill- Tunnel Furnace 1B	9.97	9.98	9.97	203.81	489.84	307.98	-	-	-	Not prescribed
12.	Hot Strip Mill- Tunnel Furnace 2A	4.59	5.93	5.54	64.79	189.41	135.52	-	-	-	Not prescribed
13.	Hot Strip Mill- Tunnel Furnace 1A	11.72	11.94	11.84	13.39	83.5	55.18	-	-	-	Not prescribed
14.	55 MW CPP Boiler	0.09	0.27	0.15	-	-	-	2.63	20.23	10.05	Not prescribed
15.	Lime Calcination Plant- Kiln-2	10.86	13.33	12.91	5.5	67.86	27.88	-	-	-	Not prescribed, but installed OCEM sensor i.e. PM
16.	Coke Oven Plant-1 Main Battery A&B	19.35	52.5	30.21	19.08	41.68	23.45	-	-	-	Installed required OCEM sensors i.e. PM, SO_2 & NOx
17.	Coke Oven Plant-1 Pushing GDS	0.33	1.36	0.64	-	-	-	-	-	-	Not prescribed, but installed OCEM sensor i.e. PM
18.	Sinter Plant-1 Main ESP	27.81	53.21	35.73	0	153.25	90.86	-	-	-	Installed required OCEM sensor i.e. PM
19.	Sinter Plant-1 Sizing & Discharge End ESP	46.19	97.5	65.3	-	-	-	-	-	-	
20.	ARCL Pellet Plant-1, Main ESP	11.89	13.14	12.76	0	462.67	149.32	-	-	-	Not prescribed

Note: * indicates OCEM sensors required to be installed as per CPCB directions dated 05/02/2014, further directions issued on 16/08/2019 and as per clarifications on online monitoring issued by CPCB as on 25/02/2021.

4.3.2 Fugitive emission monitoring near coke oven plant-1

Fugitive emissions were monitored parallelly during source emission monitoring of coke oven plant-1 on 04/05/2022 for particulate matter during coke pushing & quenching operation in coke oven, Benzo (a) Pyrene and carbon monoxide near other units in coke oven plant respectively at coke oven palnt-1 as per prevailing notification of CTO condition of coke oven plant-1. Analysis results of monitored parameters are given in Table-8 and copy of the same is given at **Annexure-11** for kind reference.

Table-8: Analysis results of fugitive emission samples near coke oven plant-1.

S. no.	Parameters	Concentration of monitored parameters	MPCB prescribed standard as per CTO of coke oven plant-1
1.	Particulate matter during coke pushing in coke oven	1.4948 gm/MT of coke produced	**5 gm/MT of coke produced**
2.	Particulate matter during quenching operation in coke oven.	4.1479 gm/MT of coke produced	**50 gm/MT of coke produced**
3.	BaP near other units in coke oven plant	0.00499 µg/m^3	**2 µg/m^3**
4.	Carbon monoxide near other units in coke oven plant	0.002847 Kg/MT of coke produced	**3 Kg/MT of coke produced**

Analysis results of fugitive emission monitoring near coke oven plant-1 reveals that the monitored parameters viz. PM during coke pushing in coke in coke oven is 1.4948 < 5 gm/MT of coke produced; PM during quenching operation in coke oven is 4.1479 < 50 gm/MT of coke produced; BaP near other units in coke oven plant is 0.00499 < 2 µg/m^3 and CO near other units in coke oven plant is 0.002847 < 3 Kg/MT of coke produced are within the standards for emission of air pollutants as per CTO issued by MPCB vide dated 01/03/2018.

4.3.2.1 Fugitive Visible emission monitoring

Fugitive visible emissions were monitored parallelly during source emission monitoring of coke oven plant-1 on 04/05/2022 for leakage from door as percent leaking doors (PLD), leakage from charging lids as percent leaking lids (PLL) and leakage from AP covers as percent leaking off-takes (PLO) respectively at coke oven palnt-1 as per prevailing notification of CTO condition of coke oven plant-1. Analysis

results of monitored parameters are given in Table-9 and copy of the same is given at **Annexure-11** for kind reference.

Table-9: Analysis results of fugitive visible emission samples near coke oven plant-1.

S. No.	Location	Parameters			
		PLD, %	PLL, %	PL0, %	Charging emissions (in seconds/charge)
1.	Coke oven plant-1 (Battery A & B)	3.63	0.9	0.9	44.5
Standards for emission of air pollutants as per CTO issued by MPCB vide dated 01/03/2018		**5**	**1**	**4**	**Not specified**
Fugitive visible emission standards for integrated iron & steel plant as per G.S.R. 277(E) MoEF Notification vide dated 31/03/2012		**10***	**1**	**4**	**75**

Note: * for existing batteries

Analysis results of fugitive visible emission monitoring reveals that the monitored parameters viz. PLD: 3.63 < 5 %; PLL: 0.9 < 1 % and PLO: 0.9 < 4 % respectively are within the standards for emission of air pollutants as per CTO issued by MPCB vide dated 01/03/2018 and also within the standards for fugitive visible emission for integrated iron & steel plant as per G.S.R. 277(E) MoEF Notification vide dated 31/03/2012. Similarly, charging emissions from coke oven plant-1 (Battery-A & B) is 44.5 < 75 seconds/charge is within the standards for fugitive visible emission for integrated iron & steel plant as per G.S.R. 277(E) MoEF Notification vide dated 31/03/2012.

4.3.3 Ambient air quality monitoring

Ambient air quality monitoring locations were carried-out at three locations at about 120º inside & outside the industry premises, near to residential areas. The monitoring locations were selected on the basis of decision taken during joint committee meeting, preliminary survey, predominant wind direction, accessibility to locations for 24 hr monitoring and availability of power connection etc. Ambient air quality monitoring for Particulate Matter (size less than 10 µm) or PM_{10}, for Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$, Sulphur Dioxide (SO_2) and Nitrogen Dioxide (NO_2) were carried out for 24 hours during 04/05/2022 & 05/05/2022 at three locations simultaneously whereas Carbon monoxide (CO) was

carried-out for 01 hour on 05/05/2022. The details of monitoring locations are as follows:

- **Location No. 1 (AAQM - 1):** Near labour colony of M/s JSW (North-eastern side of M/s JSW), Village Dolvi.
- **Location No. 2 (AAQM - 2):** On roof top of residence of Shri Dilip Kothekar (South-eastern side of M/s JSW), Village Gadab.
- **Location No. 3 (AAQM - 3):** Premises of K.E.S. Madhyamik Vidyamandir (Western side of M/s JSW), Village Shahabaj.

Analysis results of ambient air quality of the aforesaid parameters are given in **Table-10** and copy of the same is given at **Annexure-11** for kind reference.

Table-10: Analysis results of ambient air quality monitoring

Location	Coordinates		Parameters				
	Latitude	Longitude	PM_{10}, µg/m^3	$PM_{2.5}$, µg/m^3	SO_2, µg/m^3	NO_2, µg/m^3	CO, mg/m^3
Near labour colony of M/s JSW (North-eastern side of M/s JSW), Village Dolvi	18^{0}41'56.061"	73^{0}2'45.974	169	31	2.33	6.83	0.48
On roof top of residence of Shri Dilip Kothekar (South-eastern side of M/s JSW), Village Gadab	18^{0}40'45.933"	73^{0}3'36.397	403.67	28	1.16	8.16	0.38
Premises of K.E.S. Madhyamik Vidyamandir (Western side of M/s JSW), Village Shahabaj	18^{0}41'15.227"	73^{0}0'9.855	145.67	24	2.5	6.67	0.54
National Ambient Air Quality Standards vide Notification dated 18/11/2009			**100**	**60**	**80**	**80**	**4**

Analysis results of the ambient air quality monitoring carried-out at location no. 1 (AAQM-1) i.e. near labour colony of M/s JSW (North-eastern side of M/s JSW), Village Dolvi reveals that all the monitored parameters viz. $PM_{2.5}$: 31 < 60 µg/m^3; SO_2: 2.33 < 80 µg/m^3; NO_2: 6.83 < 80 µg/m^3 and CO: 0.48 < 4 mg/m^3 respectively are within the National Ambient Air Quality Standards vide Notification dated 18/11/2009, except PM_{10}: 169 > 100 µg/m^3 which is found exceeding the National Ambient Air Quality Standards vide Notification dated 18/11/2009.

Similarly, analysis results of the ambient air quality monitoring carried-out at location no. 2 (AAQM-2) i.e. on roof top of residence of Shri Dilip Kothekar (South-eastern side of M/s JSW), Village Gadab reveals that all the monitored parameters viz. $PM_{2.5}$: 28 < 60 µg/m^3; SO_2: 1.16 < 80 µg/m^3; NO_2: 8.16 < 80 µg/m^3 and CO: 0.38 < 4 mg/m^3 respectively are within the National Ambient Air Quality Standards vide Notification dated 18/11/2009, except PM_{10}: 403.67 > 100 µg/m^3 which is found exceeding the National Ambient Air Quality Standards vide Notification dated 18/11/2009.

Similarly, analysis results of the ambient air quality monitoring carried-out at location no. 3 (AAQM-3) i.e. premises of K.E.S. Madhyamik Vidyamandir (Western side of M/s JSW), Village Shahabaj reveals that all the monitored parameters viz. $PM_{2.5}$: 24 < 60 µg/m^3; SO_2: 2.5 < 80 µg/m^3; NO_2: 6.67 < 80 µg/m^3 and CO: 0.54 < 4 mg/m^3 respectively are within the National Ambient Air Quality Standards vide Notification dated 18/11/2009, except PM_{10}: 145.67 > 100 µg/m^3 which is found exceeding the National Ambient Air Quality Standards vide Notification dated 18/11/2009.

24-hour average results of continuous ambient air quality for the parameters viz. PM_{10}, $PM_{2.5}$, SO_2, NO_2 and CO from the continuous ambient air quality monitoring stations (CAAQM) installed in & around the industry premises by M/s JSW were also collected during the ambient air quality monitoring period from 04/05/2022 to 05/05/2022. Compilation of average results of continuous ambient air quality monitoring stations during 04/05/2022 to 05/05/2022 are given in Table-11. Google imagery depicting the locations of ambient air quality monitoring stations established & monitored during 04/05/2022 to 05/05/2022 and locations of continuous ambient air quality monitoring stations installed by M/s JSW is given below.

Google imagery depicting the locations of AAQM and CAAQM stations in & around M/s JSW Ltd.,

Legend:

A1 : Near labour colony of M/s JSW (Northern-eastern side of M/s JSW Ltd.,), Village Dolvi
A2 : On roof top of residence of Shri Dilip Kothekar (South-eastern side of M/s JSW), Village Gadab
A3 : Premises of K.E.S. Madhyamik Vidyamandir (Western side of M/s JSW), Village Shahabaj
C1 : Near coke oven plant of M/s JSW
C2 : Near MSEB Substation
C3 : Near Goa gate of M/s JSW
C4 : Near Dolvi Village
C5 : Near Kasumata Temple

Table-11: 24-hour average results of continuous ambient air quality monitoring

Name of CAAQM station	Coordinates		Parameters				
	Latitude	Longitude	PM_{10}, µg/m^3	$PM_{2.5}$, µg/m^3	NOx, µg/m^3	CO, mg/m^3	SO_2, µg/m^3
Near coke oven plant of M/s JSW	N18°40'52.7"	E73° 1'51.8"	138.2	42.86	16.01	0.52	4.41
Near MSEB Substation	N18°40'40.4"	E73° 2'49.3"	Data is unavailable, due to maintenance activity during 4th to 5th May, 2022.				
Near Goa gate of M/s JSW	N18°41'22.1"	E73° 2'57.6"	74.27	20.34	35.34	2.26	10.42
Near Dolvi Village	N18°41'51.0"	E73° 2'43.8"	115.37	46.62	15.22	0.36	2.71
Near Kasumata Temple	N18°41'35.1"	E73° 1'49.5"	44.53	11.8	9.51	16.49	1.72

Wind rose diagram of the area i.e. near M/s JSW indicating the pre-dominant wind direction along with wind speed during monitoring period i.e. 04/05/2022 to 05/05/2022 is depicted in the below images for kind reference.

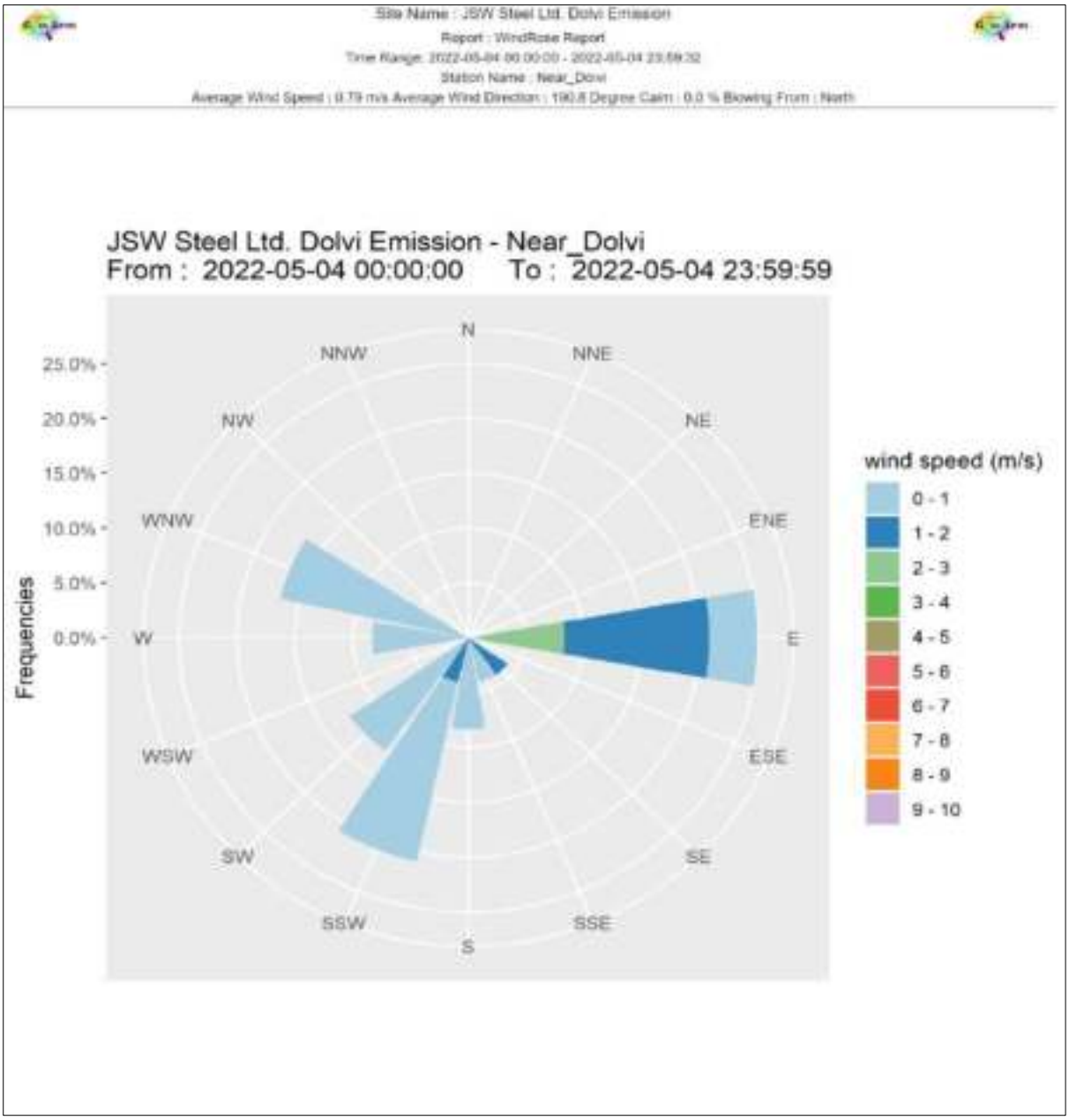

Image-1: Wind rose daigram of the area i.e. M/s JSW on 04/05/2022.

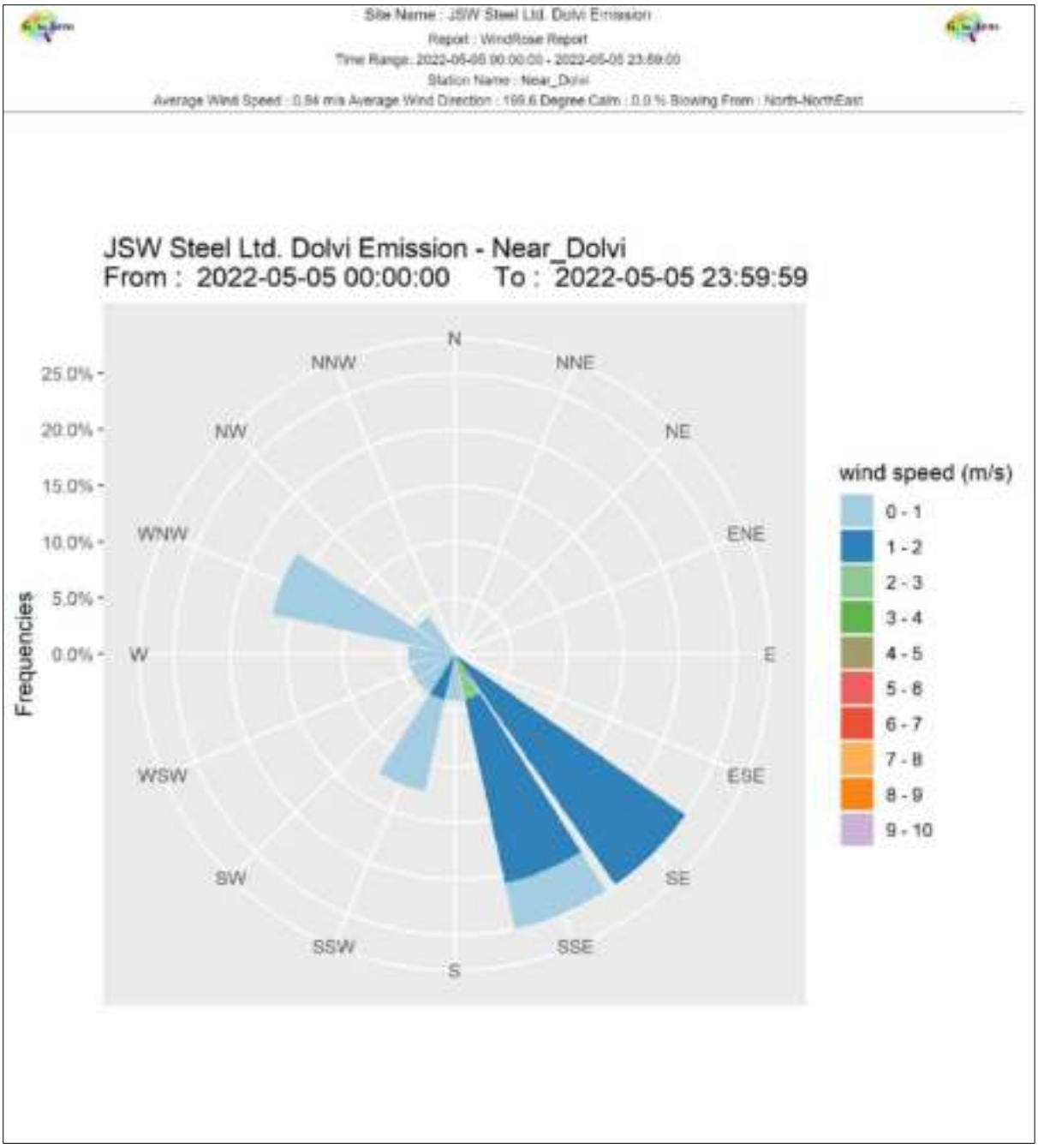

Image-1: Wind rose daigram of the area i.e. M/s JSW on 05/05/2022.

4.3.4 Effluent monitoring of ETP of coke oven plant-1

Grab effluent samples were collected from the inlet & final outlet of ETP of coke oven plant and analyzed for consented parameters viz. pH, suspended solids, BOD, COD, Oil & grease, TDS, ammonical nitrogen, cyanide and phenol. The industry has provided ETP based on biological oxidation of de-phenolization plant of reported design capacity of 140 m^3/hr to treat the effluent of coke oven plant. Various unit operations & processes of ETP of coke oven plant is depicted below:

Raw effluent collection tank → Tilted plate interceptor for oil & grease removal → Air floatation (addition of anionic polyacrylamide) → Regulating tank (addition of NaOH) → Anaerobic tank → Anoxic tank → Aerobic tank →Intermediate settling tank → Contact oxidation tank → Coagulation (addition of polyferric sulfate & anionic polyacrylamide) → Final settling tank → Supernatant collection tank → Pressure sand filter → Treated effluent collection tank → Reused in process, as per conditions stipulated under the Water (Prevention & Control of Pollution) Act, 1974.

Sludge from the intermediate settling tank and final settling tank is processed in filter press. Sludge/filter cake is re-used in coke making process, instead of disposal into CHWTSDF as per conditions stipulated under the H&OW (M & TM) Rules, 2016.

Besides effluent monitoring at coke plant, grab water sample was collected from the mouth of natural creek, confluenceing with Dharmtar creek (i.e. estuarine zone of Amba River) and analyzed for various parameters viz. pH, suspended solids, BOD, COD, ammonical nitrogen, phenol, phosphate, chromium, iron and zinc. Analysis results of effluent samples collected from inlet & outlet of ETP of coke oven plant and analysis results of creek water sample are given in Table-12 and 13. Copy of the same is given at **Annexure-12** for kind reference.

Table-12: Analysis results of effluent monitoring of ETP of coke oven plant.

S. no.	**Parameters**	**Sampling location and concentration**		**Standards as per CTO issued by MPCB**
		Inlet to ETP	Outlet of ETP	
1.	pH	8.4	5.6	5.5 – 9.0
2.	Suspended solids	38	36	100
3.	BOD_3 @ 27 ^0C	260	38	30
4.	COD	704	88	250
5.	Oil & grease			10
6.	TDS	11731	2384	1500
7.	Ammonical nitrogen as N	12.2	1.15	50
8.	Cyanide as CN	--	BDL	0.2
9.	Phenol	3	0.88	1.0

Note: Concentration of all parameters is expressed in mg/L, except pH.

Analysis results of grab effluent collected from the outlet of ETP of coke oven plant reveal that concentration of all the monitored parameters are within the standards prescribed by MPCB, except for BOD: 38 > 30 mg/L and TDS: 2384 > 1500 mg/L which is exceeding the standards prescribed by MPCB. The treated effluent confirming to the above prescribed standards is recycled & reused as per the consent to operate issued by MPCB i.e. in the process, cooling tower, quenching purpose.

Table-13: Analysis results of water sample collected from the natural creek

S. no.	Parameters	Sampling location and concentration	General standards for discharge of environmental pollutants, part A: Effluents (Marine coastal area) as per The Environment (Protection) Rules, 1986
		Mouth of natural creek, confluenceing with Dharmtar creek (i.e. estuarine zone of Amba River	
1.	pH	9.1	5.5 – 9.0
2.	Suspended solids	12	100
3.	BOD_3 @ 27 ^0C	15	30
4.	COD	72	250
5.	Ammonical nitrogen as N	0.45	50
6.	Phenol	0.11	1.0
7.	Phosphate (total)	0.05	Not specified
8.	Chromium	0.01	2
9.	Iron	0.19	3
10.	Zinc	0.02	15

Note: Concentration of all parameters is expressed in mg/L, except pH.

4.4 Assessment on illegal dumping of by-products/waste products i.e. slag generated by M/s JSW on mangrove areas, natural drains/nalas and also on agriculture lands in & around alleged villages (viz. Kharmachi, Kharkaravi, Juibapuji, Dolvi, Kharchirbi, Wadkhal, Vave, Kolve etc. situated within Taluka Pen). Also, on agricultural land/private lands/Govt. lands in & around alleged villages (viz. Gadab, Beneghat, Khardombi, Kharjambhela and Kharghat), (w.e.f. September, 2010 to May, 2021)

4.4.1 Inventorization of various by-products/waste products, their management as per CC&A conditions, status of management of the same w.r.t. disposal and utilization details

As per the compiled information submitted by MPCB vide dated 04/07/2022 (Copy of MPCB report dated 04/07/2022 id given at **Annexure-13** for kind reference) total quantity of slag generated as per Environmental Statement submitted by M/s JSW from the hot strip mill plant during 2009 to May, 2021 is 91,85,903 MT, out of which 91,26,639.766 MT is reused in various purposes as outlined below:

- Reused in EAF and Sinter plant (after processing) – 1,31,325.76 MT
- Landfilling in Jetty premises, hospital site and industry premises (304.5 Acres) – 77,34,333.6 MT
- Landfilling on Private land (115.43 acres) – 12,60,980.406 MT
- Stored within the industry premises – 59, 263.234 MT

Similarly, as per the compiled information submitted by MPCB (kindly refer **Annexure-13**) total quantity of slag generated (granulated slag) as per Environmental Statement submitted by M/s JSW from the blast furnace plant during 2009 to May, 2021 is 99,66,369.22 MT, which is 100% used in M/s JSW Cement Ltd., (sister concern unit of M/s JSW) as a raw material for manufacturing of portland slag cement/ground granulated blast furnace slag cement.

Details of slag disposal based on consent of beneficiary (slag generated from hot strip mill plant) on private land at 17 villages along with survey numbers of land of each beneficiary is given at **Annexure-13** for kind reference. As per the information submitted, it is observed that the total 12,60,980.406 MT of slag has been disposed on the total area admeasuring 115.43 acres (46.538 ha) at 17 different villages.

As informed by M/s JSW, various studies have been carried-out on steel slag characteristics and reported that the leaching effects of steel slag is negligible and can be utilized in construction purposes. As per Hazardous & Other Waste Rules, 2016 "*The high volume low effect wastes such as fly ash, Phosphogypsum, red mud, jarosite, Slags from pyrometallurgical operations, mine tailings and ore beneficiation rejects are excluded from the category of hazardous wastes*". Separate guideline on

the management of these wastes is under preparation at Central Pollution Control Board level. However, MPCB has sought guidance from Technical Committee, MoEF&CC about the scientific disposal of such type of slag. Further, as informed M/s JSW has proposed to manufacture river sand from the steel slag for future utilization for Construction purpose. Also, GOI, Ministry of Road Transport also recommended for use of steel slag in Road construction of Highways.

4.4.2 Assessment of illegal dumping of by-products/waste products i.e. slag generated by M/s JSW on mangrove areas, natural drains/nalas and agricultural lands in the aforesaid alleged villages

Assessment of illegal dumping of by-products/waste products i.e. slag on agricultural lands at villages (viz. Kharmachi, Kharkaravi, Juibapuji, Dolvi, Kharchirbi, Wadkhal, Vave, Kolve etc. situated within Taluka Pen) and also, on agricultural land/private lands/Govt. lands in & around alleged villages (viz. Gadab, Beneghat, Khardombi, Kharjambhela and Kharghat) were carried-out through Sub Divisional Officer, Pen ad District Superintendent of Agriculture, Raigad.

The report of Sub Divisional Officer, Pen vide dated 19/01/2022 and 26/05/2022 mentions that nodal officers from Revenue Department, Agriculture Department and Forest Department have been nominated for carrying out assessment of dumping of by-products/waste products i.e. slag on mangrove areas, natural drains/nalas and agricultural lands. As per the report of Revenue Department, total 3,85,707 brass of slag filling was carried-out by M/s JSW on private lands with the consent of farmers. Details of village wise slag filling along with the total area of land is given in the below Table-14.

Table-14: Details of slag filling by M/s JSW at various villages.

Name of village	Total area, ha	Total area of filling, ha	Total volume in Brass
Kharkaravi	0.47	0.47	3710
Karav	2.62	1.8610	9919
Kharjambhela	2.494	2.494	28469
Kharchirbi	0.575	0.575	8140
Kharmachela	2.7050	2.7050	14707
Wave	29.768	26.3457	187965
Vadkhal	5.1370	4.8760	42702
Beneghat	17.018	17.018	90093
Dolvi	--	--	--
Khardhombi	--	--	--

Kharghat	--	--	--
Kolve	--	--	--
Total	**60.787**	**56.3447**	**3,85,705**

As per the report of Agriculture Department, total 13.68 ha of area in the aforesaid 12 villages have not observed with cultivation since last 15 years. It is attributed due to account of sea water entering in the said land, loss of area is on account of deposition made by sea water ingress as khar bandh is damaged.

As per the report of District Superintendent of Agriculture, Raigad vide dated 06/07/2022 received through District Collector-Raigad vide dated 08/07/2022 (Copy of report dated 08/07/2022 is given at **Annexure-9** for kind reference), the total cultivable area of the aforesaid villages is 1,222.11 ha (as per revenue records). Out of total cultivable area of 1,222.11 ha, dumping has been done by M/s JSW in 56.34 ha with the consent of farmers. The aforesaid report mentions that as per Talathi's 7/12 records, no cultivation has been observed in Kharjambhela , Kharghat, Khardombi and Kharmachi villages of Pen Taluka since 2018. The cultivated (Pik Pera) area of these 12 villages in year 2021-22 is 229.97 ha. The remaining 935.80 ha area is affected due to salty creek water out of which 13.68 ha area is highly affected due to continuous tide water and the remaining 922.12 ha area is also similarly affected due to salty creek water. The aforesaid report concludes that the affected area due to salt water ingress under alleged 12 villages are not under cultivation at present.

Further, in Juibapuji village of Alibag Taluka about 98.708 ha land is owned by M/s JSW and only 01 ha land (including one farm pond) is owned by individual (2 owners) farmer and this agriculture land is severely damaged due to high and frequent tide water and hence rice cultivation is not done since 2006-07.

4.4.3 Collection of soil samples from various locations of the above areas and also suitable reference soil samples (from unaffected area) and their analysis for relevant parameters including Boron and Sodium

As per the report of District Superintendent of Agriculture, Raigad vide dated 06/07/2022 received through District Collector-Raigad vide dated 08/07/2022 (Copy of report dated 08/07/2022 is given at **Annexure-9** for kind reference), total 68 no. of

soil samples are collected from alleged 12 no. of villages Pen Taluka out of which reference soil samples are collected from 14 no. of locations where dumping of slag were not observed/the areas which are unaffected. The soil samples were collected from the aforesaid 68 no. of locations and analyzed in District Soil Survey Testing Laboratory, Raigad- Alibag for various parameters viz. pH, electrical conductivity, fertility index (organic carbon, nitrogen & potassium) including boron and sodium. Copy of the analysis results is given in the below Table-15 for kind reference.

Table-15: Revised average village wise fertility index level

S. No.	Block name	Village name	No. of sample	pH		EC (us/cm)		Fertility index				Fertility index level				Boron	Sodium
								Organic carbon	Nitrogen (kg/h)	Phosphorus (kg/h)	Potassium (kg/h)	Organic carbon (%)	Nitrogen (kg/h)	Phosphorus (kg/h)	Potassium (kg/h)		
1	Pen	Kolave	No of sample of affected area -12	8.019	Highly alkaline	10.096	Harmful to all crops	2.336	115.69	25.61	1750.96	Very high	Very low	Moderately high	Very high	High	medium
			Reference sample-5	6.73	Neutral	7.69	Harmful to all crops	0.53	176.61	168.71	1397.09	Medium	Low	Very high	Very high	High	Medium
2		Vave	No of sample of affected area -13	8.01	Moderately alkaline	10.67	Harmful to all crops	0.61	98.03	14.166	1527.89	Medium	Very low	Medium	Very high	Medium	Low
			Reference sample-3	5.78	Moderately acidic	0.2	Suitable for alkali sensitive crops	0.7433	148.85	10.56	346.53	Moderately high	Low	Low	Very high	High	Low
3		Dolavi	No of sample of affected area -6	8.01	Moderately alkaline	12.93	Harmful to all crops	1.068	126.065	18.018	1713.43	Very high	Very low	Medium	Very high	High	Medium
			Reference sample-2	7.01	Neutral	9.03	Harmful to all crops	0.56	153.66	51.09	1010.77	Medium	Low	Very high	Very high	High	Medium
4		Kharchirbi	No of sample of affected area -6	8.147	Moderately alkaline	7.97	Harmful to all crops	1.091	118.95	36.17	1559.377	Very high	Very low	High	Very high	High	Low
5		Kharmachela	1	8.16	Moderately alkaline	14.46	Harmful to all crops	0.97	87.81	7.52	1656.98	High	Very low	Low	Very high	Medium	Medium
6		Kharjambhela	2	8.12	Moderately alkaline	9.48	Harmful to all crops	1.07	126.065	25.34	1512.33	Very high	Very low	Moderately high	Very high	High	Medium
7		Khardhombi	6	7.83	Moderately alkaline	7.8	Harmful to all crops	1.2	160.98	28.38	1566.43	Very high	Low	Moderately high	Very high	High	Low

8		kharkaravi	1	8.48	Highly alkaline	8.58	Harmful to all crops	1.87	144.26	15.84	1333.58	Very high	Low	Medium	Very high	mediu m	Low
9		Kharghath	1	8.36	Highly alkaline	2.37	Harmful to all crops	0.82	156.8	13.86	2089.75	High	Low	Low	Very high	High	Low
		Karav	Referenc e sample-4	6.18	Slightly acidic	0.27	Suitable for alkaline sensitiv e crops	0.745	180.32	69.65	445.11	Moderatel y high	Low	Very high	Very high	High	Low
10		Beneghat	3	8.2	Moderatel y alkaline	18.73	Harmful to all crops	1.65	173.94	34.32	1583.287	Very high	Low	High	Very high	High	Mediu m
11		Vadkhal	1	8.03	Moderatel y alkaline	4.53	Harmful to all crops	1.15	115.4	22.18	1595.83	Very high	Very Low	Moderatel y high	Very high	Mediu m	Low
12	Aliba g	Jui bapuji	2	8.53	Highly alkaline	1.265	Suitable for alkaline sensitiv e crops	0.76	130.45	4.355	620.14	High	Very low	Very low	Very high	Mediu m	Low

As per the aforesaid report of District Superintendent of Agriculture, Raigad, it mentions that the soil has become alkaline at most of the places due to continuous inflow of salty creek water into agriculture land wherein pH and EC levels have been increased beyond normal levels. Such alkaline condition is harmful to all type of crops. It also shows that the availability of nitrogen in this soil is reduced by 25-60 Kg/ha, availability of phosphorus and potash in affected area is at par with reference soil samples. It also shows that Boron and Sodium levels are highly increased in all areas which adversely affect plant growth.

4.4.4 Compilation of year wise crop productivity data and assessing its trend (w.e.f. September, 2010 to May, 2021). In case, the aforesaid areas affected in terms of soil fertility/ agricultural productivity, then estimation of extent of environmental damage, remedial measures & restitution plan and the amount of compensation as applicable;

As per the report of Taluka Agriculture Officer, Pen received through office of District Collector-Raigad vide dated 08/07/2022 (Copy of report dated 08/07/2022 is given at **Annexure-9** for kind reference), the Agriculture department has Taluka wise crop productivity data of Pen and Alibag Taluka since the year 2000, wherein it is mentioned that the crop productivity data of the specific villages is not available. However, the data of revenue mandals wherein these villages are coming under i.e. (Pen –Kasu Washi mandal) and (Alibag - Poynad mandal) is available since 2014-15. The aforesaid report mentions that as crop cutting experiments are done at mandal level, no specific conclusion can be drawn about village wise productivity. However, the comparison of average productivity of concern mandals with respective taluka productivity average shows that the productivity of rice crop of the mandals is less by 2 to 5 quintals per hectare since 2018-19.

Further, the aforesaid report mentions about comparison of analysis of soil samples, which showed that due to increased pH and EC levels have made the soil alkaline in nature and hence unfertile for rice cultivation. The comparison of crop productivity data shows that it has reduced the productivity by 10 to 20% as compared with taluka and district respectively. Detailed report of the District Superintendent of Agriculture, Raigad vide dated 06/07/2022 is given at **Annexure-14** for kind reference.

Remedial measures mentioned in the aforesaid report are outlined below:

i. The construction or scheduled repairs and maintenance of bhands must be done, so that tide water will not affect agriculture lands in adjoining areas.
ii. Promotion of plantation of citronella, babhhol, bamboo, lemon grass and medicinal plants , mangroves and Cypress (Suru) plantation.
iii. Promotion of farm ponds for fish, crab and other marine produce promotion rearing and of their processing units.

Restitution measures mentioned in the aforesaid report are outlined below:

i. As the frequent tides will further keep affecting adjoining agriculture lands, the construction or scheduled repairs and maintenance of bhands must be done.

Further, aforesaid report mentions about the Govt. of Maharashtra resolution dated 13.05.2015 for assistance to crop damage due to Natural Calamity, which is given at the rate of Rs. 6800 per ha. However, the aforesaid report mentions about assistance should be fixed on basis of crop productivity of concerned revenue mandal and minimum support price of rice in that year.

4.4.5 TCLP analysis of blast furnace slag and steel melting shop (i.e. from electric arc furnace and ladel furnace) slag samples

Samples of slag generated from steel melting shop (i.e. from electric arc furnace and ladel furnace), stored within the industry premises were collected during 20/10/2021 and analysed for specific gravity, pH, flash point, LOD @ 105^0 C, LOI @ 550^0 C, calorific value, water soluble inorganics (viz. organic halogens, total chlorides, ammonia, nitrate, reactive sulphide & reactive cyanide) and TCLP analysis for parameters (viz. Arsenic, Barium, Cadmium, Chromium, Copper, Cyanide, Lead, Manganese, Mercury, Nickel, Selenium, Silver and Zinc) including boron & sodium. The said slag samples were analysed at M/s Mumbai Waste Management Ltd., Taloja an NABL certified and MoEF&CC accredited environmental laboratory. Analysis results of slag samples were compared with the concentration limits specified for the constituents in class A (Based on leachable concentration limits [Toxicity Characteristic Leaching Procedure (TCLP) or Soluble Threshold Limit

Concentration (STLC)]) of Schedule II of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.

Analysis results of blast furnace slag and steel melting shop (i.e. from electric arc furnace and ladel furnace) are given in Table-16 and 17. Copy of the same is given at **Annexure-15** for kind reference.

Table-16: Analysis results of blast furnace slag sample.

S. no.	Parameters	Unit	Results	Concentration in mg/l as per Schedule II of the H&OW (M & TM) Rules, 2016
1.	Solid sample color	--	Black	Not specified
2.	Specific gravity/ bulk density	g/cm^3	1.19	Not specified
3.	pH (at room temperature)	-	6.15	≤ 2 or $\geq 12.5^{\#}$
4.	Flash point	^0C	> 65	< 60*
5.	LOD @ 105 ^0C	%	12.95	Not specified
6.	LOI @ 550 ^0C	%	1.93	Not specified
7.	Calorific value	Cal/g	< 50.0	Not specified
8.	Water soluble inorganics (WSI)	%	0.55	Not specified
9.	Organic halogens	mg/kg	BDL	Not specified
10.	Sulphate as SO_4	mg/kg	28.12	Not specified
11.	Total chlorides as Cl^-	mg/kg	169.26	Not specified
12.	Ammonia as NH_3-N	mg/kg	BDL	Not specified
13.	Nitrate as NO_3^-	mg/kg	BDL	Not specified
14.	Reactive sulphide	mg/l	0.07648	5 mg/l
15.	Reactive cyanide	mg/l	<0.001	20 mg/l
16.	Arsenic as As (TCLP)	mg/l	BDL	5
17.	Lead as Pb (TCLP)	mg/l	0.0046	5
18.	Total chromium as Cr (TCLP)	mg/l	0.1207	5
19.	Nickel as Ni (TCLP)	mg/l	0.0821	20
20.	Mercury as Hg (TCLP)	mg/l	BDL	0.2
21.	Zinc as Zn (TCLP)	mg/l	0.0957	250
22.	Manganese as Mn (TCLP)	mg/l	2.657	10
23.	Copper as Cu (TCLP)	mg/l	0.0085	25
24.	Cadmium as Cd (TCLP)	mg/l	0.0008	1
25.	Silver as Ag (TCLP)	mg/l	BDL	5
26.	Boron as B (TCLP)	mg/l	0.0833	Not specified
27.	Barium as Ba (TCLP)	mg/l	0.4196	100

Note: # indicates if a sample is not aqueous and, when mixed with an equivalent weight of water, produces a solution having a pH less than or equal to 2 or greater than or equal to 12.5 as per Class C2: Corrosive of Schedule II.

*** indicates wastes otherwise classified on account of their dangerous characteristics, which give off a flammable vapour at temperature less than 60° C as per Class C1: Flammable of Schedule II.**

Table-17: Analysis results of steel melting shop (i.e. from electric arc furnace and ladel furnace) slag sample.

S. no.	Parameters	Unit	Results	Concentration in mg/l as per Schedule II of the H&OW (M & TM) Rules, 2016
1.	Specific gravity/ bulk density	g/cm^3	2.20	Not specified
2.	pH (at room temperature)	-	8.20	< 2 or > 12.5#
3.	Flash point	^0C	> 65	< 60*
4.	LOD @ 105 ^0C	%	4.44	Not specified
5.	LOI @ 550 ^0C	%	0.81	Not specified
6.	Calorific value	Cal/g	< 50.0	Not specified
7.	Water soluble inorganics (WSI)	%	0.36	Not specified
8.	Organic halogens	mg/kg	BDL	Not specified
9.	Sulphate as SO_4	mg/kg	29.72	Not specified
10.	Total chlorides as Cl^-	mg/kg	124.07	Not specified
11.	Ammonia as NH_3-N	mg/kg	BDL	Not specified
12.	Nitrate as NO_3^-	mg/kg	BDL	Not specified
13.	Reactive sulphide	mg/l	0.1192	5 mg/l
14.	Reactive cyanide	mg/l	<0.001	20 mg/l
15.	Arsenic as As (TCLP)	mg/l	BDL	5
16.	Lead as Pb (TCLP)	mg/l	BDL	5
17.	Total chromium as Cr (TCLP)	mg/l	0.0154	5
18.	Nickel as Ni (TCLP)	mg/l	0.0051	20
19.	Mercury as Hg (TCLP)	mg/l	BDL	0.2
20.	Zinc as Zn (TCLP)	mg/l	0.0436	250
21.	Manganese as Mn (TCLP)	mg/l	0.0139	10
22.	Copper as Cu (TCLP)	mg/l	0.0075	25
23.	Cadmium as Cd (TCLP)	mg/l	BDL	1
24.	Silver as Ag (TCLP)	mg/l	BDL	5
25.	Boron as B (TCLP)	mg/l	0.134	Not specified
26.	Barium as Ba (TCLP)	mg/l	0.3350	100

Note: # indicates if a sample is not aqueous and, when mixed with an equivalent weight of water, produces a solution having a pH less than or equal to 2 or greater than or equal to 12.5 as per Class C2: Corrosive of Schedule II.

*** indicates wastes otherwise classified on account of their dangerous characteristics, which give off a flammable vapour at temperature less than 60° C as per Class C1: Flammable of Schedule II.**

Analysis results of blast furnace and steel melting shop (i.e. from electric arc furnace and ladel furnace) slag samples reveal that concentration of monitored parameters are found within the concentration as per Schedule II, Class C2: Corrosive and Class C1: Flammable characteristics of the H&OW (M & TM) Rules, 2016. Hence, the aforesaid slag samples not qualify the criteria of “hazardous waste” as per Rule 3 (17) of the H&OW (M & TM) Rules, 2016. Moreover, as per conditions of consent to operate of blast furnace plant vide dated 07/04/2022, which is valid till 31/12/2022

the slag generated from blast furnace i.e. granulated slag is listed under the category of by-product. Further, as per the information provided by the industry the blast furnace slag after granulation is being used as raw material in cement manufacturing process at their sister concern unit located within the premises of M/s JSW, having valid consent to operate (valid till 31/07/2026) to manufacture portland slag cement/ground granulated blast furnace slag cement.

Similarly, slag generated from hot strip mill plant/ steel melting shop (i.e. from electric arc furnace and ladel furnace) is listed under the category of non-hazardous wastes. Such slag generated from hot strip mill plant/ steel melting shop is being processed in captive metal processing plant for recovery of metallic slag. As per conditions of consent to operate of hot strip mill plant/ steel melting shop vide dated 02/11/2018, which is valid till 30/04/2023 and conditions stipulated under s. no. 6 i.e. conditions about non-hazardous wastes, the metallic slag after processing to be used in hot strip mill/ steel melting shop and sinter plant as raw material. Whereas, non-metallic slag to be used for internal road making, landfilling in low lying area and stored in designated place for its use in the on-going expansion of the industry.

Besides sampling of slag i.e. blast furnace slag and steel melting shop (i.e. from electric arc furnace and ladel furnace) stored within the premises of M/s JSW total 05 no. of samples are also collected at various alleged villages where reported dumping of such slag have been observed. Slag samples were collected after excavating the top soil surface/overburden up to 1.5 feet depth. The collected slag samples were analysed for specific gravity, pH, flash point, LOD @ 105^0 C, LOI @ 550^0 C, calorific value, water soluble inorganics (viz. organic halogens, total chlorides, ammonia, nitrate, reactive sulphide & reactive cyanide) and TCLP analysis for parameters (viz. Arsenic, Barium, Cadmium, Chromium, Copper, Cyanide, Lead, Manganese, Mercury, Nickel, Selenium, Silver and Zinc) including boron & sodium. The said slag samples were analysed at M/s Mumbai Waste Management Ltd., Taloja an NABL certified and MoEF&CC accredited environmental laboratory. Analysis results of slag samples were compared with the concentration limits specified for the constituents in class A (Based on leachable concentration limits [Toxicity Characteristic Leaching Procedure (TCLP) or Soluble Threshold Limit Concentration (STLC)]) of Schedule II

of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.

Analysis results of slag samples collected at various alleged villages are given in Table-18. Copy of the same is given at **Annexure-15** for kind reference.

Table-18: Analysis results of slag samples collected at various alleged villages

S. No.	Parameters	Sample Locations					Concentration in mg/l as per Schedule II of the H&OW (M & TM) Rules, 2016
		Sr. No 41/4, Vill. Vave, Tal. Pen, Dist. Raigad	Sr. No 173/1, Vill. Vave, Tal. Pen, Dist. Raigad	Sr. No 16/5, Vill. Wadkhal, Tal. Pen, Dist. Raigad	Sr. No 169/2, Vill. Dolvi, Tal. Pen, Dist. Raigad	Sr. No 29, Vill. Karav, Tal. Pen, Dist. Raigad	
1.	Solid sample color	Light brown	Light brown	Blackish brown	Blackish grey	Light brown	Not specified
2.	Bulk Density (g/cm^3)	1.53	1.4	1.46	1.44	1.29	Not specified
3.	pH (at room temperature)	10.48	9.96	10.44	9.93	10.03	≤ 2 or $\geq 12.5^{\#}$
4.	Flash Point (^oC)	> 65.0	> 65.0	> 65.0	> 65.0	> 65.0	< 60*
5.	LOD @ 105°C (%)	14.82	20.7	9.04	15.26	16.06	Not specified
6.	LOI @ 550°C (%)	24.51	8.62	7.64	7.65	9.42	Not specified
7.	Calorific Value (cal/g)	<50.0	<50.0	<50.0	<50.0	<50.0	Not specified
8.	Water Soluble Inorganics (WSI) (%)	0.59	0.62	0.38	0.03	0.10	Not specified
9.	Organic Halogens (mg/kg)	BDL	BDL	BDL	BDL	BDL	Not specified
10.	Reactive Sulphides (mg/l)	0.00368	0.00736	0.01104	0.0184	0.02208	5
11.	Sulphate as SO_4 (mg/kg)	8.43	2.6	BDL	BDL	BDL	Not specified
12.	Total Chlorides as Cl (mg/kg)	556.22	536.08	263.71	302.55	365.52	Not specified
13.	Cyanide as (WLT) (mg/l)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	20
14.	Ammonia as N (WTL) (mg/l)	163.80	162.96	178.36	112.08	150.92	Not specified
15.	Nitrate (WLT) (mg/l)	27.72	21.75	23.72	16.46	17.20	Not specified
16.	Arsenic as As (TCLP) (mg/l)	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	5

S. No.	Parameters	Sample Locations					Concentration in mg/l as per Schedule II of the H&OW (M & TM) Rules, 2016
		Sr. No 41/4, Vill. Vave, Tal. Pen, Dist. Raigad	Sr. No 173/1, Vill. Vave, Tal. Pen, Dist. Raigad	Sr. No 16/5, Vill. Wadkhal, Tal. Pen, Dist. Raigad	Sr. No 169/2, Vill. Dolvi, Tal. Pen, Dist. Raigad	Sr. No 29, Vill. Karav, Tal. Pen, Dist. Raigad	
17.	Lead as pb (TCLP) (mg/l)	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	5
18.	Cadmium as Cd(TCLP) (mg/l)	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	1
19.	Chromium as Cr (TCLP) (mg/l)	< 0.05	< 0.5	< 0.5	< 0.5	< 0.5	5
20.	Copper as Cu (TCLP) (mg/l)	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	25
21.	Nickel as Ni (TCLP) (mg/l)	BDL	BDL	BDL	BDL	BDL	20
22.	Zinc as Zn (TCLP) (mg/l)	< 0.05	0.06	< 0.05	0.090	0.1613	250
23.	Cobalt as CO (TCLP) (mg/l)	BDL	BDL	BDL	0.0002	0.0007	80
24.	Iron as Fe (TCLP) (mg/l)	< 0.1	0.176	3.447	0.1694	1.431	Not specified
25.	Mercury as Hg (TCLP) (mg/l)	BDL	BDL	BDL	BDL	BDL	0.2
26.	Manganese as Mn (TCLP) (mg/l)	BDL	0.170	0.10	0.1392	0.2779	10

Note: # indicates if a sample is not aqueous and, when mixed with an equivalent weight of water, produces a solution having a pH less than or equal to 2 or greater than or equal to 12.5 as per Class C2: Corrosive of Schedule II.

*** indicates wastes otherwise classified on account of their dangerous characteristics, which give off a flammable vapour at temperature less than 60° C as per Class C1: Flammable of Schedule II**

Analysis results of slag samples collected at various alleged villages reversals that concentration of monitored parameters are found within the concentration as per Schedule II, Class C2: Corrosive and Class C1: Flammable characteristics of the H&OW (M & TM) Rules, 2016. Hence, the aforesaid slag samples not qualify the criteria of “hazardous waste” as per Rule 3 (17) of the H&OW (M & TM) Rules, 2016.

4.5 Assessment on damage of Kharbandisti bhand (if any) due to activity of M/s JSW. Also, status report including extent of salt level in the agricultural fields and areas affected, and estimation of extent of land damage, remedial measures & restitution plan and the amount of compensation (w.e.f. 1990 till May, 2021 or afterwards)

4.5.1 Examining alleged incidence of 03/01/2015 by the Tahasildar, Pen, as referred at Para 2 at page no. 4 of the order dated 27/05/2021 of the Hon'ble NGT

As per the report of Executive Engineer, Kharland Survey Department, Pen vide dated 07/07/2022 received through District Collector-Raigad vide dated 08/07/2022 (Copy of the report dated 08/07/2022 is given at **Annexure-9** for kind reference) the alleged incidence of 03/01/2015 is related to Machela Chirbi & Jui Habbas Kharland Scheme. The damage caused to Machela Chirbi & Jui Habbas Kharland Schemes bhands are mainly due to excessive rains & high tides resulting in breaches of bhands and damage to sluice gate and lack of proper maintenance due to insufficient funds resulting in ingress of saline water in the adjoining agricultural land. It further mentions that the concerned department also takes works under CSR funds for restitution & remedial measures of such bhands. Also, as per the request of villagers, the repair work of Machela Chirbi Kharland Scheme has been completed by M/s JSW in year 2020 through CSR funds.

As per the report of Regional Port Officer, Mora Port Group Thane, Maharashtra Maritime Board vide dated 05/01/2022 submitted through the District Collector-Raigad that there is no navigation of ships and barges at villages Machela Chirbi and Jui Habbas. Also, no excavation for navigation purpose is being carried out for increasing/maintaining depth of creek channel. Further, the report mentions that no such incidence or circumstances observed w.r.t. damage of khar bandhs due to pressure of water created by cargo ships of M/s JSW. The report mentions that the excavation is not carrying out in entire Dharamtar Creek but only in 135 m wide navigation channel as per the guidelines of the government issued for the purpose of easing navigation channel, for which the permission from Maharashtra Maritime Board has been taken from time to time. It also mentioned that the Dharamtar Creek is declared as Indian Waterway. Apart from self-controlled jetty of the M/s JSW Dharamtar Port Pvt Ltd., the navigation of Barges, MBC's from Dharmatar Creek and

handling of cargo/goods is also done through the multipurpose jetty of M/s PNP Maritime Services Ltd.,

4.5.2 Status report including extent of salt level in the agricultural fields and areas affected

As per the report of District Superintendent of Agriculture, Raigad vide dated 06/07/2022 received through District Collector-Raigad vide dated 08/07/2022 (Copy of the report dated 08/07/2022 given at **Annexure-9** for kind reference), about 935.80 ha area is affected due to salty creek water out of which 13.68 ha area is highly affected due to continuous tide water and the remaining 922.12 ha area is also similarly affected due to salty creek water. As per the aforesaid report of District Superintendent of Agriculture, Raigad, it mentions that the soil has become highly alkaline due to continuous inflow of salty creek water into agriculture land wherein pH and EC levels have been increased beyond normal levels. Such alkaline condition is harmful to all type of crops. It also shows that the availability of nitrogen in this soil is reduced by 25-60 Kg/ha, availability of phosphorus and potash in affected area is at par with reference soil samples. It also shows that Boron and Sodium levels are highly increased in all areas which adversely affect plant growth. The aforesaid report concludes that the affected area due to salt water ingress under alleged 12 villages are not under cultivation at present.

4.6 Assessment of violations of provisions of Environmental Clearance Notifications and Environmental Clearance conditions in development/expansion of jetty

The assessment of violations of provisions of Environmental Clearance (EC)/ Environment Impact Assessment Notification, 2006 and non-compliances of EC & CRZ conditions in development/expansion of jetty (w.e.f. 2010 till May, 2021 or afterwards) was verified through MoEF&CC, New Delhi. Copy of MoEF&CC letter vide no. IA-J-11014/6/2021-IA-I (I.A. Division), dated 07/03/2022 mentioning about various non-compliances of EC & CRZ clearance conditions in development/expansion of jetty along with point wise action taken report submitted by M/s JSW is given at **Annexure-16** for kind reference. The observations and

findings w.r.t. non-compliances of EC and CRZ clearance conditions are summarized below:

i. The report of the study to be conducted through CWPRS/NCSCM/NIO demonstrating the fact that scour protection is not necessary for the project and no shoreline changes are envisaged has not been submitted (Specific condition no. v and Specific condition no. xviii of EC dated 26/11/2015).

ii. No report of the study carried out by CWPRS suggesting negligible impact on river morphology and flow hydrodynamics due to development of jetty has been submitted (Specific condition no. xvi of EC dated 26/11/2015).

iii. Detailed EMP depicting implementation of dust control measures has not been submitted (Specific condition no. xx of EC dated 26/11/2015).

iv. Action taken report retaining to issues raised in the public hearing, six monthly compliance reports and action plan for works to be carried-out under CER has not been submitted (Specific condition no. xxiv, General condition iii of EC dated 26/11/2015, Specific condition no. ii of EC dated 10/01/2020).

v. Copy of compliance report, EC and environment statement was not uploaded on project website (General condition no. ix, General condition no. xii and General condition no. xiii of EC dated 26/11/2015).

vi. The advertisement of EC accorded to the unit was not published in newspaper within 7 days of time (General condition no. vii of EC dated 26/11/2015).

Copy of letter addressed to MoEF&CC vide dated 28/03/2022 along with the compiled list of point-wise action taken report submitted by M/s JSW is given at page no. 442 to 556 of **Annexure-16** for kind reference. It is observed from the letter communicated from M/s JSW to MoE&CC vide dated 28/03/2022 that the project proponent has submitted point-wise action taken report to the aforesaid non-compliances. Wherein, it is observed that the project proponent has complied with all the aforesaid points, except for the study to be conducted for demonstrating the facts

that scour protection is not necessary for the project and no shoreline changes are envisaged due to jetty activities (Specific condition no. v and Specific condition no. xviii of EC dated 26/11/2015). Compliance of the same is under progress and the project proponent has engaged National Centre for Sustainable Coastal Management (NCSCM), MoEF&CC, Govt. of India to undertake the studies for shoreline changes & scour protection.

Subsequent updated information w.r.t. violations of provisions of Environment Impact Assessment Notification, 2006 i.e. EC & CRZ clearance of jetty expansion as provided by MoEF&CC vide email communication dated 22/11/2022 is given at **Annexure-16 A** for kind reference. Observations and findings w.r.t. violations of provisions of Environment Impact Assessment Notification, 2006 are summarized below:

i. Terms of Reference (TOR) for the Expansion of integrated Steel Plant from 5 to 10 MTPA and power plant from 300 to 600 MW (Gas Based) at Geethapuram, Village-Dolvi, Tehsil District-Raigarh in Maharashtra by M/s JSW Ispat Steel Limited was granted by the Ministry, vide letter no J-11011/76/2013-IA.II(I), dated 28/05/2013.

ii. The PP has submitted the EIA/EMP report along with PH and requested the Ministry for consideration of proposal for Environmental Clearance.

iii. PP has also forwarded certified compliance report (CCR) obtained from Regional Office of Ministry, Bhopal for the existing environmental clearances. The Ministry has examined the CCR and observed certain noncompliance of existing ECs with regard to Jetty, Extension of validity of Coke oven EC, Density of green belt plantation etc. As per the practice, the Ministry has examined the issues and issued a Show Cause Notice to the PP on 11/11/2014 based on these non-compliances and inter-alia sought the reasons from the PP as to why the EC accorded should not be kept in abeyance.

iv. The PP, vide letter dated 22/11/2014, submitted the justification/clarification on the SCN and on request of PP, a hearing was also conducted for the PP

on 04/12/2014. Based on the justification provided by the PP, the Ministry has forwarded the proposal along with all facts to the EAC for consideration and to make suitable recommendation.

v. The Proposal was deliberated in the 31st EAC (Industry 1) held during 8th- 9th January 2015 wherein the EAC sought additional information and decided that a sub-committee of EAC shall visit the plant.

vi. Based on the recommendations of the EAC, the Sub-committee had conducted the site visit on 9th March, 2015 and submitted a detailed report.

vii. The matter was re-considered in 35th EAC (Industry 1) meeting held on 26th – 27th March, 2015. The EAC has deliberated on the project along with the site visit report of the sub-committee and deliberated all the issues in details. After detailed deliberations, the EAC has recommended the project for grant of environmental clearance for the expansion project and also stipulated various environment safeguard and other mitigative measures in form of the conditions. Further, the EAC has duly deliberated on the issues w.r.t. compliances and accordingly made recommendations for grant of the EC for the expansion project.

viii. Based on the recommendations of EAC, the Ministry has granted the EC to M/s JSW Steel Limited on 25th August 2015 for Expansion of integrated Steel Plant from 5 to 10 MTPA and power plant from 300 to 600 MW (Gas Based) at Geethapuram, Village Dolvi, Tehsil District Raigarh in Maharashtra.

ix. Initially the EC for the jetty was obtained from MoEF vide no. J-16011/6/94-IA.III dated 4.01.1995 in the name of the owner Nippon Denro Ispat Ltd.

x. Further, the proposal of Expansion of the Dharamtar Jetty facility at Dolvi, Raigad, Maharashtra by M/s JSW Dharamtar Port Private Ltd was submitted to the Ministry online on 23rd Feb 2015 at Infra-2 division for expansion in EC and CRZ clearance of the existing EC along with the self-certified EC compliance report dated 22nd December, 2014. The proposal, was considered by the Expert Appraisal Committee (EAC-Infra-2) in its meetings

held on 23rd-24th April, 2015 and 24th-26th June, 2015. The Expert Members of the EAC have found the proposal is in order and have recommended granting EC Clearance along with stipulation of certain additional specific conditions over and above the Standard EC conditions stipulated by the Ministry for this category of project.

xi. Ministry granted Environmental & CRZ Clearance vide letter no. F. No. 11-79/2013 -IA III to M/s JSW Dharamtar Port Private Ltd. on 26/11/2015 for Expansion of the Dharamtar Jetty facility at Dolvi, Raigad, Maharashtra with the certain conditions. Further, amendment in expansion of jetty facility was granted by MoEF&CC on 26/03/2016 & 10/01/2020 respectively.

4.7 Assessment of violations of provisions of CRZ Rules and CRZ clearance conditions w.r.t. construction of conveyor belt and development/ expansion/ operation of jetty (w.e.f. September, 2010 to May, 2021)

As per the joint report of NCSCM & MRSAC, following violations of provisions of CRZ Rules and CRZ clearance conditions were observed;

i. In the CRZ recommendation (s. no. iii of specific condition) issued by Maharashtra Coastal Zone Management Authority (MCZMA) for expansion of the existing jetty facility, vide their letter No. CRZ-2014/CR-41/TC-4 dated 24/02/2015, it is stipulated that Prior High Court permission should be obtained if the project activities involve clearing/destruction of mangroves due to the project and if the project activities fall in 50 m mangrove buffer zone area.

ii. Further, the aforesaid condition has been reiterated at s. no. (xii) of specific conditions of the Environment and CRZ Clearance issued by the Ministry of Environment, Forest and climate Change dated 26/11/2015, for expansion of the Dharamtar Jetty facility i.e. “All the conditions stipulated by the MCZMA vide No. CRZ-2014/CR-41/TC-4 dated 24/02/2015, shall be strictly complied with”.

iii. The amended Environment and CRZ Clearance was issued by MoEFCC for construction of additional conveyor belts/streams in respect of expansion of

the Dharamtar Jetty facility, vide MoEF&CC OM No. F. No. 11-79/2013-IA-III dated 10.01.2020. The condition imposed in para 3 of the said EC & CRZ clearance is that the said activities (conveyor belt and transmission line) should not be proposed in mangroves or its 50 m buffer zone. The same condition is given in the recommendation of MCZMA issued under MCZMA letter No. CRZ-2018/CR-293/TC-4 dated 16/02/2019, citing 17th September, 2018 High Court order in PIL 87/2006, that no activities should be carried out in mangroves or its 50 m buffer zone. Further, as per the CRZ Notification, 2011, the 50 m mangrove buffer zone area is classified as CRZ-IA.

iv. It is observed from the MCZMA vide letter dated 31/12/2019 that (refereeing to the decisions taken in its 142nd meeting), MCZMA has decided to modify condition no. ii in their recommendation dated 16/02/2019. Relevant paragraph is outlined as "to the extent that no construction should be carried in mangrove areas but as regards the buffer zone, the proposed activity was recommended for permission to be carried out, subject to leave being obtained by the Petitioner No.1 from this Hon'ble Court".

v. It is observed that the M/s JSW in the matter of WP (ST) No. 4894 of 2020, titled M/s JSW Dharamtar Port Pvt. Ltd., vs Union of India & Ors. has filed a petition before the Hon'ble High Court of Judicature at Bombay for seeking permission/to obtain leave from the Hon'ble Court prior to execution of the project, as the proposed activity (i.e. construction of additional conveyor belt) is being affected by the 50 m mangrove buffer zone. The Hon'ble High Court order dated 09/07/2020 vide para 12 (i) & (ii) passed the following order and the is reproduced as below:

"…12 We, accordingly, pass the following order:-

(i) The Petition is allowed in terms of prayer clause (a), which reads thus:-

" This Hon'ble Court be pleased to issue a Writ of Mandamus or any other appropriate writ or order or direction in the nature of mandamus under Article 226 of the Constitution of India, thereby directing the Respondent authorities to permit the

Petitioners to execute the said project being augmentation of the existing conveyor streams by construction of additional conveyor streams between the the integrated steel plant of the Petitioner No.1 and the jetty facility of the Petitioners No.2 and grant leave as contemplated in condition no. ii of the recommendation granted by the Respondent No.2 on 16th February, 2019, as modified by the Respondent No.2, in its 142nd meeting held on 31st December, 2019, in terms of paragraph 83 (viii) of the Judgment and Order dated 17th September, 2018 in PIL No. 87 of 2006, in view of the public importance of the project.."

(ii) The aforesaid order is subject to the condition that the responsible officer of the Petitioners' files an undertaking before this Court within a period of one week from the date of uploading of this order that, the Petitioners shall strictly comply with the conditions as imposed in the permissions/clearances granted by the various authorities such as- Ministry of Environment, Forest and Climate Change, Maharashtra Coastal Zone Management Authority, Chief Conservator of Forest (Mangrove Cell), Forest Department and other authorities – that have granted permission/ clearance…"".

vi. Accordingly, M/s JSW has submitted notarized undertaking dated 14/07/2020 to the Hon'ble Bombay High Court in compliance to the aforesaid order dated 09/07/2020 that the petitioner shall abide by all terms and conditions of the permissions/clearances granted by the various authorities.

Further, based on the analysis of the satellite images, it is seen that the conveyor belt has been constructed in the mangrove areas as well as in the 50 m buffer zone around mangroves. The mangrove buffer areas have also been utilised for other development/ expansion/operation of jetty. Further, based on the time series analysis of satellite images, the progress of construction of conveyor belt was observed during 2015 to 2018 and 2021, with part of the conveyor belt falling in mangrove as well as 50 m mangrove buffer area. As per the assessment, total loss of mangrove buffer areas during construction of the conveyor belt and jetty over the mangrove buffer area, during the years 2011 – 2021 is estimated about i.e. extent of

conveyor belt over mangrove buffer area is 1.52 ha and extent of jetty area over mangrove buffer area is 0.79 ha. Detailed assessment report about construction of conveyor belt and development/ expansion/ operation of jetty in the mangrove areas as well as in the 50 m buffer zone around mangroves w.e.f. September, 2010 to May, 2021 is given at **Annexure-8** for kind reference.

As per the updated report of District Collector-Raigad vide dated 25/10/2022 (Copy of the report dated 25/10/2022 given at **Annexure-23** for kind reference) that the area of extent of elevated conveyor belt and extent of jetty area over the mangrove buffer area is 1.52 ha & 0.79 ha respectively.

4.8 Compliance status w.r.t. conditions of The Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act, 1981 and Hazardous & Other Wastes (Management & Transboundary) Rules, 2016 of Existing 5 MTPA, Phase-I & 10 MTPA, Phase-II

Compliance status of CC&A conditions issued under the Water (Prevention and Control of Pollution) Act, 1974 (w.r.t. effluent discharge/ZLD i.e. establishment of requisite effluent treatment system, installation of OCEMS; compliance status of CC&A conditions issued under the Air (Prevention and Control of Pollution) Act, 1981 (installation of requisite no. of stacks and associated air pollution control devices installed for management of source emission, installation of OCEMS; and compliance status of CC&A conditions issued under the Hazardous & Other Wastes (Management & Transboundary) Rules, 2016 (w.r.t. listing, quantification and their management details of various hazardous wastes generated by the industry and their compliance status w.r.t. HoWM Rules, 2016 and authorization conditions were verified through Regional Office of MPCB, Raigad. MPCB has verified and reported the plant-wise status of compliance of aforesaid Acts and Rules.

As per the plant-wise compiled status report submitted by MPCB on the compliance of CC&A conditions w.r.t. conditions of The Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act, 1981 and Hazardous & Other Wastes (Management & Transboundary) Rules, 2016 of existing 5 MTPA (Phase – I) and 5 to 10 MTPA (Phase – II) that M/s JSW has complied w.r.t.

conditions for discharge of effluent, air emissions and hazardous & non-hazardous wastes respectively.

The observations and findings w.r.t. plant-wise status of compliance of aforesaid Acts and Rules are given at **Annexure-17 and 18** for kind reference.

4.8.1 Compliance status of reported non-compliances w.r.t. discharge of effluent, and emission for phase-I & II and estimation of environmental compensation for the reported non-compliances, as applicable

MPCB vide email dated 17/11/2022 has submitted revised report on Environmental Compensation calculation, considering various non-compliances of consent condition violations, directions etc. issued by MPCB from time to time. Copy of MPCB email dated 17/11/2022 along with the revised report on EC calculation is given at **Annexure-19** for kind reference. The EC is calculated based on report of CPCB titled, "Report of the CPCB In-house Committee on Methodology for Assessing Environmental Compensation and Action Plan to Utilize the Fund", which outlines a formula for imposing environmental compensation on industrial units for violation of directions issued by regulatory bodies listing the instances for taking cognizance of cases fit for violation and levy environmental compensation. The same has also been referred by the Hon'ble NGT in its order (para 14 to 16) dated 28/8/2019 in the matter of Original Application No. 593/2017 titled Paryavaran Suraksha Samiti & Anr. Versus Union of India & Ors. The instances considered for levying Environmental Compensation (EC) in the said report are:

a) Discharges in violation of consent conditions, mainly prescribed standards / consent limits.
b) Not complying with the directions issued, such as direction for closure due to non-installation of OCEMS, non-adherence to the action plans submitted etc.
c) Intentional avoidance of data submission or data manipulation by tampering the Online Continuous Emission / Effluent Monitoring systems.
d) Accidental discharges lasting for short durations resulting into damage to the environment.
e) Intentional discharges to the environment - land, water and air resulting into acute injury or damage to the environment.
f) Injection of treated/partially treated/ untreated effluents to ground water.

The formula takes into account of number of days violation took place, pollution index of unit, scale of operation, location factor based on population and an amount factor in Rupees.

Environmental Compensation (EC) in Rupees as mentioned in the aforesaid CPCB report = PI x N x R x S x LF

Where,

EC is Environmental Compensation in Rupees

PI = Pollution Index of industrial sector/Project

N = Number of days of violation took place

R = A factor in Rupees for EC

S = Factor for scale of operation

LF = Location factor

PI = Pollution Index of industrial sector/project. *The industrial sectors have been categorized into Red, Orange and Green based on their pollution index in the range of 60-100, 41-59 and 21-40 respectively. It was suggested that the average pollution index of 80, 50 and 30 may be taken for calculating the Environmental Compensation for Red, Orange and Green Categories of industries respectively. Considering the project under Red category as per CTO issued by MPCB. Hence, PI = 80.*

N = Number of days of violation *took place for which violation took place is the period between the day of violation observed and the day of compliance verified by CPCB/SPCB.*

R = A factor in Rupees, which *may be a minimum of 100 and maximum of 500. The aforesaid report also suggests to consider R as 250, as the Environmental Compensation in cases of violation. Hence, R = 250.*

S = Factor for scale of operation. *For small S = 0.5, For medium S = 1 and larger unit S = 1.5. As per CTO, the said project is LSI. Hence, S=1.5.*

LF = Location factor. *It is based on the population of the city/town and location of the industrial unit on the location of the industrial unit. For the industrial unit located within municipal boundary or upto 10km distance from the municipal boundary of the city/town, following factors (LF) may be used. Calculation of Location Factor based on population (million)*

Sl. No.	Population (in million)	Location Factor (LF)
1.	1 to < 5	1.25
2.	5 to < 10	1.5
3.	10 and above	2

Note: #LF will be 1.0 in case unit is located >10km from municipal boundary and LF is presumed as 1 for city/town having population less than one million. For notified Ecologically Sensitive areas, for beginning, LF may be assumed as 2.0.

Hence, LF is taken as 1, as the unit is located >10 km from municipal boundary.

Based on the aforesaid report of CPCB, MPCB has calculated EC based on the following non-compliances:

- Non-installation of OCEMS and its connectivity to CPCB & MPCB servers.
- Non-operation of air pollution control device attached to ground de-dusting system of coke oven plant, resulted in fugitive emissions.
- Inadequate air pollution control system of HSM plant, resulted in fugitive emissions.
- Overflow of slag cooling/quenching effluent from slag cooling effluent collection pit into storm water drain.
- Not setting up of secondary emission control system of SMS plant.

Based on the aforesaid non-compliances of directions issued under the provisions of the Water Act, 1974 & Air Act, 1981 MPCB has calculated EC of Rs. 1,60,80,000/- (Rupees One Crore Sixty Lakhs and Eighty Thousand Only).

4.9 Health impact assessment on residents nearby to the plant premises within 5 Km based on the health records due to industrial activity especially w.r.t. particulate matter and gaseous emissions (SO_2, NOx, PM, CO and BaP) (w.e.f. September, 2010 to May, 2021)

Preliminary report of District Health Officer, Alibag vide dated 21/09/2021 received through District Collector-Raigad vide dated 08/07/2022 (Copy of the report dated 08/07/2022 is given at **Annexure-9** for kind reference), mentions that health impact assessment survey on residents nearby to the plant premises within 5 Km based on the health records due to industrial activity was carried-out. Assessment was done by collecting health data of 2015 to 2021 from health management system from 4 no. of primary health care centres, two from Pen taluka i.e. PHC Gadab & PHC Washi

and two from Panvel taluka i.e. PHC Ajiwali & PHC Apta. Details of health assessment from the aforesaid 04 no. of PHC's are depicted in the below Table-19.

Table-19: Health impact assessment survey of 04 no. of PHC's.

Name of disease	PHC Gadab	PHC Washi	PHC Apta	PHC Ajiwali
Acute bronchitis	423	123	128	1045
Pneumonia	16	7	23	21
Acute eye disorder	560	423	516	1545
Acute dermatic disorder	877	810	3021	1435
Chronic obstructive pulmonary disease	773	60	13	1103
Asthma	107	33	85	122
Sinusitis	447	113	98	35
Allergic rhinitis	370	124	340	98
Allergic conjunctivitis	295	177	215	170
Hypertension	1317	417	716	549
Stroke	113	26	127	70
Angina/myocardial infarction	27	19	13	40
Diabetes mellitus	1976	970	2112	90
Anemia	2103	859	712	2020
Thyroid disease	21	10	10	25
Lung cancer	0	1	0	0
Mouth cancer	2	3	1	0
Colon cancer	0	0	0	0
Liver cancer	1	1	0	0
Breast cancer, female	3	2	6	2
Uterine cancer	0	0	1	0
Total	**9428**	**4171**	**8137**	**8370**

The health report mentions that the no. of respiratory diseases, acute eye disorders, skin diseases and other acute chronic diseases found in vicinity of M/s JSW and non-industrial area are remarkably the same. The aforesaid report also mentions that data from 1990 to 2015 was not related to this subject because at that time surveillance activity was mainly focused on diseases like Guinea worm disease, Measles, Rubella, Filaria, Leprosy etc. The aforesaid report concludes that the data derived from two primary PHC's which are within 5 kms radius from M/s JSW are not significant with above mentioned diseases including respiratory and allergic conditions.

4.9.1 Health assessment of employees working in the coke oven plant of the industry w.r.t. respiratory diseases

As per the health impact assessment report submitted by the District Health Officer, Alibag vide dated 18/01/2022 through the District Collector-Raigad (Copy of the report dated 18/01/2022 is given at **Annexure-9** for kind reference), the health assessment of about 499 employees working in coke oven plant of M/s JSW was performed. Initially, annual medical health check-up data of employees working in coke oven plant was collected and subsequently performed random medical examination of employees working in coke oven plant with respect to respiratory health hazards. It is inferred from the annual medical health check-up data of (2019) with respect to respiratory health hazards pulmonary function test (PFT) of 457 out of 499 (91.5 %) employees were within the normal range (PFT > 80%) and pulmonary function test of 42 out of 499 (8.5 %) employees were not within the normal range (PFT < 80%) and all were tobacco chewers and cigarette smokers.

Based on the random health assessment of employees working in coke oven plant of M/s JSW about 50 employees was performed with PFT, 42 out of 50 (84%) employees PFT were within the normal range (> 80%) and 8 (16%) employees PFT were not within the normal range (<75%). Further, based on the analysis of annual medical checkup data of employees from 2016 to 2021 and randomly selected medical examination data with respect to respiratory health hazards, it is observed that about (7.5%) rise in the health impact with respect to respiratory health hazards was found in those employees working in coke oven plant of M/s JSW when compared with the data of 2019. Copy of detailed health impact assessment report submitted by the District Health Officer, Alibag vide dated 18/01/2022 is given at **Annexure-20** for kind reference.

As per the updated report of District Collector-Raigad vide dated 25/10/2022 (Copy of the report dated 25/10/2022 given at **Annexure-23** for kind reference) that reassessment of 08 no employees with PFT (<75%) was carried-out. It was found that 06 out of 08 employees was observed with PFT (< 75%) and uses tobacco (04 tobacco smokers & 02 tobacco chewers). The aforesaid report mentions that as per available literature smoking is independent risk factor which can lead to abnormal

PFT. Coke oven emission & smoking can synergise the process of COPD (Chronic Obstructive Pulmonary Disease) in which abnormal PFT occurs. To evaluate either industrial activities or smoking as cause for abnormal PFT, in depth study may be required w.r.t. chemical characterization & analysis.

4.10 Loss in fish catch/productivity due to navigation of ships in the Dharamtar creek around M/s JSW: Compilation of year wise fish catch/productivity data and assessing its trend (w.e.f. September, 2010 to May, 2021)

As per the report submitted by the Assistant Commissioner of Fisheries vide dated 02/06/2022 through the District Collector-Raigad (Copy of the report dated 02/06/2022 is given at **Annexure-9** for kind reference) that there are 11 fisheries co-operative societies near Dharamtar creek in Raigad District. These organizations depend on fishing in Dharamtar creek. Under Govt. order Matsyavi-1113/ Pr.No.307/Padum-14, dated 09/07/2014 a committee has been set up to study the problems of Dharamtar creek fishermen in the Raigad district. The committee deals with the industrial projects near the creek and their effect on fish availability with specific functions to perform and suggest corrective measures for conservation of fish species. Revenue production reports of the aforesaid 11 no. of organizations of Dharamtar creek were assessed, the information was obtained from the offices of District Special Auditor Class-II, Co-operative Societies (ADF), Thane and related organizations. From the revenue production reports, it is concluded that revenue generation in eight out of eleven organizations were declined. Whereas, revenue generation of organization i.e. M/s Bahireswar Fisheries Co-operative Society has progressively increased during 2015-16 to 2019-20. Similarly, revenue generation of organizations viz. M/s Daryavarti Fisheries Co-operative Society and M/s Shri Ganesh Fisheries Co-operative Society have increased slightly. However, the aforesaid report of Assistant Commissioner of Fisheries vide dated 02/06/2022 mentions that it is not possible to give a definite cause in the decline of fish availability in eight out of eleven organizations due to pollution from companies or movement of companies' barges or any other reason. Copy of detailed report of Assistant Commissioner of Fisheries vide dated 02/06/2022 is given at **Annexure-21** for kind reference.

4.11 Status of compliance of order dated 6th October, 2005 of the Hon'ble Bombay High Court in a group of Petitions bearing W.P. No. 3246 of 2004

As per the report of Sub Divisional Officer, Alibag vide dated 01/10/2021 through the District Collector-Raigad (Copy of the report dated 01/10/2021 is given at **Annexure-9** for kind reference) that a Criminal case number no. 85/2020, dated 05/10/2020 has been filed before Hon'ble Chief Judicial Magistrate Raigad-Alibag against M/s JSW Dolvi, under section 19 of the Environment (Protection) Act, 1986 for illegal destruction of mangroves in land bearing survey no. 50/D situating at Village: Jui Bapuji, Tal: Alibag without taking any prior permission from the competent authority. The said area of 0.5 ha at the survey no. 50/D has been declared as Reserve Forest and area is in possession of Forest Department. Also, the final notification under section 20 of the Indian Forest Act, 1927 has been published in government gazette dated 05/03/2021 in this regard.

Further, the aforesaid report of Sub Divisional Officer, Alibag mentions that a review application has been filed by M/s JSW before the Tahasildar Alibag for praying for correction in record of rights pertaining to land bearing gut no. 50/D situating at Village: Jui Bapuji, Tal: Alibag and Tahasildar Alibag vide order dated 03/06/2021 has directed to close 7/12 extract of land bearing gut no. 50/D having area 1.84 ha and thereby creating 7/12 extract of land bearing 50/F having area 1.84 ha in the name of Khajan and Maharashtra Govt. reserved forest. Presently 7/12 extract of land bearing gut no. 50/D of area 1.84 ha is closed and out of land bearing gut no. 50/F area admeasuring 1.34 ha is mutated as Khajan land and area admeasuring 0.5 ha is mutated as Maharashtra Govt. reserved forest.

District Collector-Raigad submitted details of declaration of mangrove reserved area under Indian Forest Act, 1927 (village wise) in Pen and Alibag Taluka and status of their mangroves development. Details regarding area notified as mangroves in Pen and Alibag Taluka, Dist. Raigad by the Revenue and Forest Dept., Govt. of Maharashtra is given at **Annexure-23 (page no. 4)** for kind reference. As per the aforesaid report, notified as protected forest under Section 20 of the Indian Forest Act, 1927 in Alibag & Pen Taluka is 409.2916 ha and 242.1230 ha respectively. Besides, submitted a proposal Under Section 4 of the Indian Forests Act, 1927 to

Hon'ble Divisional Commissioner, Kokan for publishing in the Govt. Gazette (Alibag & Pen Taluka is 721.1531 ha & 72.9441 ha).

5.0 Observations and findings as per action plan for execution of Hon'ble NGT order dated 04/03/2022

The details of action plan formulated for compliance of Hon'ble NGT order dated 04/03/2022 is given in the below Table-20. The compiled information received from concerned agencies and sub-committee are compiled and discussed in the subsequent paragraphs.

Table-20: Assessment on various activities/studies for execution and compliance of the Hon'ble NGT order dated 04/03/2022

S. no.	Assessment on various activities/studies	Responsible agency/ Sub-committee	Remarks
1.	Applicants further representation to the committee		
i.	Basis for grant of EC to M/s JSW as the area on which the proposed expansion activities is under CRZ-I, II & III and covered with mangroves. The applicant submitted and relied on the Google images of the area under reference	District Revenue Department with the help of CRZ maps and submit its report to the District Collector.	Please refer section 5.1.1 of 5.1 of the report.
ii.	As per compliance condition of EC dated 25/08/2015, M/s JSW has not developed adequate green belt	MoEF&CC, IRO-Nagpur.	Please refer section 5.1.2 of 5.1 of the report.
iii.	Dumping of waste material by M/s JSW for reclaiming the land below the conveyor belt and the jetty area within 50 m mangrove buffer area and its destruction thereof. Requested to verify the status of reported destruction of mangroves from MCZMA Report of 2016. No permission is obtained by M/s JSW for construction of conveyor belt	Already covered in the earlier action plan of the joint committee (based on meeting dated 29/12/2021).	Please refer section 5.1.3 of 5.1 of the report.
iv.	Compliance of Hon'ble High Court is not being followed w.r.t. conservation of mangroves	Already covered in the earlier action plan of the joint committee dated 19/11/2021.	Please refer section 4.11 of the report.
v.	M/s JSW has not having provision of adequate & designated storage area for dumping of chemical/waste	Already covered in the earlier action plan of the joint	Please refer section 4.4.1 & 4.4.2 of 4.4 of the report.

	materials, such wastes have been dumped in 13 no. of villages reportedly the SMS slag is dumped and covered with blast furnace slag	committee dated 19/11/2021.	
vi.	M/s JSW is carrying out repairing activities of damaged Kharbandisti band using waste slag materials without permission from the concerned authority.	Khar Land Department to examine permissions if any; taken by M/s JSW and submit its report to the District Collector.	Please refer section 5.1.6 of 5.1 of the report.
vii.	Illegal constriction of the bridge abetting to village Kharmachela by dumping the waste material on mangroves and its destruction thereof. Also, proposed illegal construction of 02 no. of bridges at survey no. 94	District Revenue Department and NCSCM & MRSAC to submit their reports to the District Collector.	Please refer section 5.1.7 of 5.1 of the report.
viii.	Additional acquisition of land by M/s JSW in 2012 without following due procedure and permission from the concerned authority.	District Revenue Department to submit its report to the District Collector.	Please refer section 5.1.8 of 5.1 of the report.
ix.	Damage caused to Kharbandisti band due to dredging activities carried-out by M/s JSW in Dharamtar Creek	Already covered in the earlier action plan of the joint committee dated 19/11/2021.	Please refer section 4.5.1 of 4.5 of the report.
x.	Loss in fish catch/productivity due to navigation of ships by M/s JSW in Dharamtar Creek	Already covered in the earlier action plan of the joint committee dated 19/11/2021.	Please refer section 4.10 of the report.
2.	Committee may verify the latest compliance status and suggest further remedial action for restoration of mangroves and its buffer zones, the creek and its banks, canals	Already covered in the earlier action plan of the joint committee dated 19/11/2021.	Please refer section 6.0 (6.1 & 6.2) of the report.
3.	To verify the status of compliance of EC conditions as well as CRZ conditions, 2011	Already covered in the earlier action plan of the joint committee dated 19/11/2021.	Please refer section 4.6 & 4.7 of the report.
4.	To verify the point source of waste and purpose of dumping. The scientific dumping of hazardous waste and slag and remedial action may	Already covered in the earlier action plan of the joint committee dated	Please refer section 4.4.1 & 4.4.2 of 4.4 of the report.

	also be dealt with.	19/11/2021.	
5.	Villages named by the applicant in para 13 of the objections, quoted above, may also be subjected to verification	Already covered in the earlier action plan of the joint committee dated 19/11/2021.	Please refer section 4.4.2 of 4.4 of the report.
6.	Compliance status of the industry with reference to EC, CTO under the Water and Air acts and the Authorizations under EP rules with regard to the mode of utilization and disposal of waste generated	Already covered in the earlier action plan of the joint committee dated 19/11/2021.	Please refer section 4.4.1 of 4.4 & 4.8 of the report.
7.	Report of the committee to indicate environmental impact of industrial activities in the surroundings with reference to habitation, agricultural fields, sea shore and creek	Already covered in the earlier action plan of the joint committee dated 19/11/2021.	Please refer section 4.9 for impact on habitation; 4.4 (4.4.2; 4.4.3; 4.4.4 & 4.4.5) for impact on agricultural fields; 4.3.4 of 4.3 & 4.10 for impact on sea shore and 5.7.1 of 5.7 for impact on sea shore & creeks.

5.1 Representation by the applicant to the joint committee as per Hon'ble NGT order dated 04/03/2022

5.1.1 Basis for grant of EC to M/s JSW as the area on which the proposed expansion activities is under CRZ-I, II & III and covered with mangroves

As per the report of District Collector-Raigad vide dated 16/09/2022 (Copy of the report dated 16/09/2022 is given at **Annexure-22** for kind reference) that as per the approved CRZ Map of 2011 and drawings approved by the Additional Director, Town Planning-Alibag and the Collector Raigad, the phase-II plant (expansion) of the Company is not falling with in the CRZ area.

5.1.2 Non-compliance w.r.t. green belt development as per EC dated 25/08/2015

As per the specific condition mentioned in clause A (iii) of the EC issued by MoEF&CC vide F.No. J-11011/76/2013, dated 25/08/2015 for the expansion of integrated steel plant from 5 MTPA to 10 MTPA that the project proponent (M/s JSW) has committed for plantation of green belt to the tune of 65 acres. Further, as per the EAC meeting in October, 2019, MoEF&CC has recommended for green belt development inside the plant 16% (243 acres) and outside the plant 33% (502 acres), the same has been stipulated in the specific condition in clause A (i) of the

EC issued by MoEF&CC vide F. no. J-11011/76/2013-IA.II (I), dated 16/06/2020 for changes in plant configuration for the proposed expansion of integrated steel plant from 5 MTPA to 10 MTPA. Accordingly, in compliance to the aforesaid condition stipulated in the amended EC dated 16/06/2020 M/s JSW has carried-out green belt development and the details are given as below:

Plantation Details	Plan as per the EC	Present status
Inside plant premises (16 %)	243 acres	**84 acres (on going)**
Outside plant premises (33 %) including mangrove plantation	502 acres	124 acres (plantation in forest land)
		766 acres (mangroves plantation)
		890 acres (total plantation done in outside plant premises)
Total	**745 acres**	**974 acres**

It is observed that the details of mangrove planation has been communicated to by M/s JSW to the Range Forest Officer, Mangrove Cell vide dated 23/07/2021.

5.1.3 Dumping of waste material by M/s JSW for reclaiming the land below the conveyor belt and the jetty area within 50 m mangrove buffer area & its destruction and permission thereof

As per the updated report of District Collector-Raigad vide dated 25/10/2022 (Copy of the report dated 25/10/2022 given at **Annexure-23** for kind reference) that total mangrove destroyed due to dumping of solid waste is 0.71 ha. The foresaid report mentions that the waste was dumped by three Gram panchayats of nearby area. Because dumping of waste 0.71 ha of mangrove areas were affected and destructed. Also, the aforesaid report mentions that the affected area can be restored by removing solid waste and replantation of mangroves.

Further, the aforesaid report mentions that on the basis of evaluation of MRSAC maps and comparative ground truthing followed by field visit by Mangrove Cell, dense forest of mangroves near creek of Dolvi, Juibapuji, Kirki , Wave and Beneghat was observed. Also, with some newly formed mangrove parcel/mangrove area was evolved near M/s JSW premises but this area is outside the boundaries of M/s JSW.

As per the report of District Collector-Raigad vide dated 08/07/2022 (Copy of the report dated 08/07/2022 is given at **Annexure-9** for kind reference), that necessary instructions have been given by the Collector Office-Raigad to the Sub Divisional Officer-Pen to stop dumping of solid waste by 3 Grampanchayats. Also, Tahasildar-Pen has proposed 0.4 ha of new land at Mauje Karav, Tal:Pen, Dist: Raigad for Solid waste management of Village Dolvi and Wadkal. Further, the aforesaid report also mentions that obtaining NOC from various agencies viz. MPCB, GSDA, Archaeology, ADTP, Forest and Irrigation Departments are under progress.

5.1.4 Compliance of Hon'ble High Court w.r.t. conservation of mangroves

Kindly refer s.no. 4.11 of the report, as above w.r.t. compliance of order dated 6th October, 2005 of the Hon'ble Bombay High Court in a group of Petitions bearing W.P. No. 3246 of 2004.

5.1.5 Alleged dumping of wastes in 13 no. of villages

Kindly refer s.no. 4.4.2 of the report, as above w.r.t. report of Sub Divisional Officer, Pen vide dated 19/01/2022 and 26/05/2022 regarding assessment of illegal dumping of by-products/waste products i.e. slag generated by M/s JSW on agricultural lands in & around alleged villages (viz. Kharmachi, Kharkaravi, Juibapuji, Dolvi, Kharchirbi, Wadkal, Vave, Kolve etc. situated within Taluka Pen). Also, on agricultural land/private lands/Govt. lands in & around alleged villages (viz. Gadab, Beneghat, Khardombi, Kharjambhela and Kharghat).

5.1.6 Repairing activities of damaged kharbandisti bhand using waste slag materials without permission from the concerned authority

As per the report of District Collector-Raigad vide dated 16/09/2022 (Copy of the report dated 16/09/2022 is given at **Annexure-22** for kind reference) that in the year 2016, bhands of khar machela scheme was largely breached. As a result, beneficial area (reclaimed area) was substantially affected. Also, adjacent area of khardhombi & jui habbas were affected. Based on the representations from public representatives, residents and also based on the various meetings conducted at District Collector Office it was discussed/noted that as the funds were not available with Kharland Dept., it was directed that M/s JSW to carry out/ initiate the repairing

works under CSR Fund. Further, the aforesaid report mentions that M/s JSW has obtained permission from Kharland Dept., for repairing breached portion & repairing of entire bhand.

The aforesaid report also mentions that bhand restoration work from no. 0 m to 3320 m has been completed through M/s JSW and due to damage from chainage 3320 m to 4820 m, saline water is entering into benefit area, which is becoming barren. Also, mentioned that restoration of bhand from chainage 3320 m to 4820 m & restoration of CD work of chainage 3330 m & 3680 m should be done by M/s JSW from CSR fund and under the technical guidance of Kharland Dept.,

As per the updated report of District Collector-Raigad vide dated 25/10/2022 (Copy of the report dated 25/10/2022 given at **Annexure-23** for kind reference) that emergency repair works of the Machela Chirbi on Khar Land Scheme, Tal: Pen, Dist: Raigad was requested from M/s JSW by the Khar Land Dept. Accordingly, M/s JSW has completed repairing works of damaged bhands under CSR funds during 2019 to 2020, using slag material from Ch. 0 to 3500 m out of total 5000 m length and total quantity of slag used for repairing the bhand is about 19,000 m^3. Similarly, repairing works of Jui-Habbas Khar Land Scheme, Tal: Pen, Dist: Raidad was also done by M/s JSW under CSR funds during 2021-2022 using slag materials and total quantity of slag used for repairing the bhand is about 48,400 m^3.

Further, it is evident from the analysis results of samples of slag (**Kindly refer section 4.4.5 of the report**) collected within the industry premises and random slag samples collected from alleged villages where dumping of slag was reported by the sub-committee that the concentration of monitored parameters of aforesaid slag samples are found within the concentration as per Schedule II, Class C2: Corrosive and Class C1: Flammable characteristics of the H&OW (M & TM) Rules, 2016. Hence, the aforesaid slag samples not qualify the criteria of “hazardous waste” as per Rule 3 (17) of the H&OW (M & TM) Rules, 2016. The slag generated from hot strip mill plant/ steel melting shop (i.e. from electric arc furnace and ladel furnace) is listed under the category of non-hazardous wastes as per the CTO issued by MPCB. Further, it is evident from the various research & review papers (**Kindly refer section 6.3 of the report**) that slag material is being used for various environmental

applications viz. carbon sequestration, groundwater, acid mine drainage remediation, road construction, embankment fill and development of high-density geopolymer concrete/armour units for breakwaters i.e. for coastal protection.

5.1.7 Illegal constriction of the bridge abetting to village Kharmachela by dumping the waste material on mangroves and its destruction thereof

As per the report of the District Collector dated 08/07/2022 (Copy of the report dated 08/07/2022 is given at **Annexure-9** for kind reference) necessary permission form Hon'ble High Court Order dated 15/10/2019 was given to M/s JSW for construction of bridge which was also duly recommended by MCZMA & SEIAA. The construction of bridge was started and the said construction is in company's land at survey no.93 of village Kharmachela and survey no.68 of village Kharkaravi. Further, mentions that the other two bridges will be constructed after obtaining clearances from concerned regulatory authorities.

5.1.8 Additional acquisition of land by M/s JSW in 2012 without following due procedure and permission

As per the report of District Collector-Raigad vide dated 16/09/2022 (Copy of the report dated 16/09/2022 is given at **Annexure-22** for kind reference) that M/s JSW erstwhile Ispat Industries Ltd, Nippon Denro Ispat Ltd. has obtained the permission from the Development Commissioner, Directorate of Industries, Government of Maharashtra for purchase of land. The report mentions that the lands are purchased by executing the Sale Deeds for consideration and the said Sale Deeds are duly registered in the concerned Sub Registrar Offices.

5.1.9 Damage caused to Kharbandisti band due to dredging activities carried-out by M/s JSW in Dharamtar Creek

Kindly refer s. no. 4.5.1 of the report, as above w.r.t. report of Regional Port Officer, Mora Port Group Thane, Maharashtra Maritime Board vide dated 05/01/2022 regarding alleged damage caused to Kharbandisti band due to dredging activities carried-out by M/s JSW in Dharamtar Creek.

5.1.10 Loss in fish catch/productivity due to navigation of ships by M/s JSW in Dharamtar Creek

Kindly refer s. no. 4.10 of the report, as above w.r.t. report of Assistant Commissioner of Fisheries vide dated 02/06/2022 regarding status of loss in fish catch/productivity in Dharamtar Creek.

5.2 Verification of latest compliance status and suggest further remedial action for restoration of mangroves and its buffer zones, the creek and its banks, canals

Kindly refer section 6.0 (6.1 & 6.2) of the report, w.r.t. compliance status, remedial measures and restitution plan for mangroves.

5.3 Verification of status of compliance of EC conditions as well as CRZ conditions, 2011

Kindly refer s. no. 4.6 of the report as above, w.r.t. assessment of non-compliances of EC and CRZ clearance conditions in development/expansion of jetty facility and s. no. 4.7 w.r.t. assessment of violations of provisions of Environment Impact Assessment Notification, 2006 in development/expansion of jetty facility.

5.4 Verification of point source of waste and purpose of dumping including scientific dumping of hazardous waste and slag

Kindly refer s. no. 4.4.1 of 4.2 of the report, as above w.r.t. inventorization of various by-products/waste products, their management as per CC&A conditions, status of management of the same w.r.t. disposal and utilization details. S.no. 4.4.2 of 4.2 of the report, as above w.r.t. assessment of illegal dumping various by-products/waste products on agricultural lands etc. Also, kindly refer s. no. 4.4.5 of the report, as above w.r.t. TCLP analysis of blast furnace slag and steel melting shop (i.e. from electric arc furnace and ladel furnace) slag samples.

5.5 Verification of 13 no. of alleged villages w.r.t. dumping of wastes

Kindly refer section 4.4.2 of 4.4 of the report, as above w.r.t. report of Sub Divisional Officer, Pen vide dated 19/01/2022 and 26/05/2022 regarding assessment of illegal dumping of by-products/waste products i.e. slag generated by M/s JSW on

agricultural lands in & around alleged villages (viz. Kharmachi, Kharkaravi, Juibapuji, Dolvi, Kharchirbi, Wadkhal, Vave, Kolve etc. situated within Taluka Pen). Also, on agricultural land/private lands/Govt. lands in & around alleged villages (viz. Gadab, Beneghat, Khardombi, Kharjambhela and Kharghat).

5.6 Compliance status of the industry with reference to EC, CTO with regard to the mode of utilization and disposal of waste generated

Kindly refer s. no. 4.4.1 of 4.4 of the report, as above w.r.t. inventorization of various by-products/waste products, their management as per CC&A conditions, status of management of the same w.r.t. disposal and utilization details. Also, kindly refer s. no. 4.8. of the report, as above for the compliance status w.r.t. conditions of The Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act, 1981 and Hazardous & Other Wastes (Management & Transboundary) Rules, 2016 of existing 5 MTPA (Phase – I) and 5 to 10 MTPA (Phase – II).

5.7 Environmental impact of industrial activities in the surroundings with reference to habitation, agricultural fields, sea shore and creek

Kindly refer s. no. 4.9 of the report, as above w.r.t. health impact assessment on residents nearby to the plant premises within 5 Km based on the health records due to industrial activity and health assessment of employees working in the coke oven plant of M/s JSW.

Kindly refer s. no. 4.4.2, 4.4.3, 4.4.4 & 4.4.5 of s. no. 4.4 of the report, as above w.r.t. impact of industrial activities i.e. slag disposal on the agricultural land & its productivity.

Kindly refer s. no. 4.3.4 of 4.3 and 4.10 of the report, as above w.r.t. impact of industrial activities on sea shore i.e. discharge of coke oven plant effluent and movement of ships.

5.7.1 Environmental impact of industrial activities in the surroundings with reference to sea shore and creek

MoEF&CC has provided compiled information of assessment on violations of provisions of Environmental Clearance (EC)/ Environment Impact Assessment Notification, 2006 and EC & CRZ clearance conditions in development/expansion of jetty of M/s JSW Dharamtar Port Private Ltd., Wherein, it was observed that the project proponent has not conducted a study through CWPRS/NCSCM/NIO demonstrating the fact that scour protection is not necessary for the project and periodical study on shoreline changes including mitigation measures (Specific condition no. v and Specific condition no. xviii of EC dated 26/11/2015). Also, the project proponent has not submitted report on the study to be carried out by CWPRS suggesting negligible impact on river morphology and flow hydrodynamics due to development of jetty (Specific condition no. xvi of EC dated 26/11/2015). Accordingly, MoEF&CC vide letter no. F. No. IA-J-11014/6/2021-IA-I, dated 07/03/2022 and 30/06/2022 directed the project proponent to submit action taken report w.r.t. various observed non-compliances.

It is observed from the letter communicated from the project proponent to MoEF&CC vide dated 28/03/2022 that the project proponent in compliance to the Specific condition no. v and Specific condition no. xviii of EC dated 26/11/2015 has engaged National Centre for Sustainable Coastal Management (NCSCM), MoEF&CC, Govt. of India to undertake the studies for shoreline changes & scour protection and the aforesaid study is under progress.

Further, it is observed that the project proponent in compliance to the Specific condition no. xvi of EC dated 26/11/2015 has carried-out Numerical Model Study of Hydrodynamics and Siltation and Wave Tranquility Study for the Navigation of the Dharamtar Creek (Amba River) through Central Water and Power Research Station (CWPRS), Ministry of Water Resources, River Development and Ganga Rejuvenation, Govt. of India. The aforesaid report mentions that there is no wave effect near the proposed development as it is about 26 km from the sea mouth. Waves cannot enter the creek due to restriction of width and depth. Also, the model studies indicates no changes in the bank line of the river, as the eroding forces due

to the increase in the flow velocity due to the development is low. The proposed development would have no or negligible impact on the river morphology and the flow hydrodynamics. Copy of the aforesaid report of CWPRS is given at page no. 458 to 521 of **Annexure-16** for kind reference.

6.0 Valuation of services losses due to encroachment/loss/destruction of mangroves, creeks and mangrove buffer areas including required remedial measures, restitution plan and estimated cost thereto.

The joint committee initially deliberated on consideration of constitution of expert committee comprising representatives from NCSCM, Indian Institute of Forest Management (IIFM) Bhopal, Madras School of Economics, Mangrove Cell (Govt. of Maharashtra) and NEERI for the valuation of services losses due to encroachment/loss/destruction of mangroves areas including required remedial measures, restitution plan and estimated cost thereto. However, as the joint committee didn't get the assessment report on destruction of mangroves as per the schedule time period of action plan. Further, keeping in view of the timely submission of joint committee report as per the order dated 04/03/2022; it was deliberated that such valuation of services of mangroves and its cost may be assessed by considering the report titled "Assessment of Coastal and Marine Ecosystem Goods and Services – Linking Coastal Zone Management to Ecosystem Services in India – Mangroves" prepared by Integrated Social Sciences and Economics Division – National Centre for Sustainable Coastal Management, MoEF&CC (Copy of the aforesaid report prepared by NCSCM is given at **Annexure-24** for kind reference). Accordingly, an attempt has been made by the joint committee to calculate the valuation of services of mangroves. The aforesaid report outlines many economic studies to value the goods and services of mangrove ecosystem of the world. However, the aforesaid report utilize the benefit cost transfer method in which the values have been applied to estimate the economic benefits of India's mangrove patches. These values can be applied to estimate the economic loss of the damages caused on the mangrove ecosystems and these values shall provide primary values for various goods and services of mangrove at low cost and limited time. Such valuation of mangrove services includes identification of average quantities of mangrove goods & services and important goods & services. Various goods and services of mangrove ecosystem includes provisional (fishing, medicine, fuel & timer

and honey), regulating (coastal protection, water quality and carbon sequestration), cultural (tourism and education & research) and supporting services (nursery ground and nutrient cycling & stabilization).

According to the aforesaid report, ISE Division of NCSCM has estimated aggregated economic value of India's mangroves. The economic values of mangroves range between Rs. 92,622/ha/year (minimum) and Rs. 33,61,144/ha/year (maximum) with an average total economic benefit of goods and services of mangroves to be Rs. 9,58, 766/ha/year. Regulatory services of mangroves contribute maximum (avg. of Rs. 6,02,074/ha/year) followed by support service (Rs. 2,87,401/ha/year), provisional service (avg. of Rs. 36,908/ha/year) and cultural service (avg. of Rs. 32,383/ha/year). Hence, in view of the above an average TEV for the mangrove habitat is considered of Rs. 9,58,766/ha/year for valuation of services of mangroves in the present study i.e. for destruction of mangroves, creeks and mangrove buffer areas by various developmental activities carried-out by M/s JSW during 2011 to 2021.

The assessment of destruction of mangroves, creeks and mangrove buffer areas were carried-out using high resolution satellite data of June, 2011 prepared by MRSAC (considered as baseline data) and for analysis with respect to mangroves and creeks in and around M/s JSW plant, jetty and conveyor belt. The mapping of mangroves and creeks has been done for the year 2021 and change analysis in GIS carried out with respect to the same classes mapped for the year 2011 to work out the loss of mangroves and creek. As per the assessment carried-out, total loss of creek area is 0.59 ha and mangroves is 2.25 ha. Also, as per the assessment total loss of mangrove buffer areas during construction of the conveyor belt and jetty over the mangrove buffer area, during the years 2011 – 2021 is estimated about i.e. extent of conveyor belt over mangrove buffer area is 1.52 ha and extent of jetty area over mangrove buffer area is 0.79 ha. The aforesaid report doesn't specify about valuation of service cost of creeks and mangrove buffer areas.

As per the updated report of District Collector-Raigad vide dated 25/10/2022 (Copy of the report dated 25/10/2022 given at **Annexure-23** for kind reference) that the loss of mangrove area due to activities of M/s JSW & its associated activities (Jetty

Conveyor belt & other industrial activities etc.) were thoroughly examined by actual ground truthing (GPS) & data /report of MRSAC & NCSCM. Wherein, the actual loss of mangroves was 2.6 ha (including mangroves loss of 0.71 ha below the conveyor belt area due to dumping of solid waste by three gram panchayats). Hence, the total loss of mangrove areas due to M/s JSW & its associated activities (Jetty Conveyor belt & other industrial activities etc.) is 1.89 ha. Similarly, the total loss of creek area due to M/s JSW & its associated activities (Jetty Conveyor belt & other industrial activities etc.) is 0.77 ha.

Hence, considering the above assessed total destruction of mangroves using high resolution satellite data and considering the average total economic benefit out of goods and services of mangroves of Rs. 9,58,766/ha/year (with avg. inflation rate of 6.145454545 % w.e.f. 2011 to 2021), the valuation of mangroves services cost is tabulated below:

Valuation of mangroves services cost for the period 2011 to 2021

Particulars	Area, ha	TEV in 2011, Rs/ha/year	TEV in Rs/ha/year normalized for inflation till 2021	No. of years *	TEV value in Rs.
Mangrove	1.89	958766	1740711	10	32899438
Total TEV value in Rupees					3,28,99,438

Note: Average inflation from 2011 to 2021 (10 years) is 6.145454545%

*** No. of years is considered from the assessment (2011) year till Hon'ble NGT order (2021).**

In view of the above, valuation of mangroves services cost for the period 2011 to 2021 for the reported total destruction of mangroves is worked-out be Rs. 3,28,99,438 (Rupees Three Crore Twenty-Eight Lakhs Ninety-Nine Thousand Four Hundred Thirty-Eight Only) considering the average inflation rate of 6.1454% from 2011 to 2021.

6.1 Remedial measures and restitution plan for mangroves

Mangrove restoration is a management strategy to compensate for degraded and lost ecosystem goods and services. It has the potential to increase the mangrove resource base, provide employment to local populations, protect fragile tropical coastlines and enhance biodiversity and fisheries productivity. Mangrove restoration

has entailed direct planting of propagules, transplanting wildlings/saplings or nursery raised seedlings to the designated sites.

As per Coastal Regulation Zone Notification, 2011 s. no. ii of V of paragraph 8, five times the number of mangroves destroyed/cut during the construction process shall be replanted. Accordingly, about 9.45 ha of area to be replanted with mangroves by M/s JSW under the supervision of Mangrove Cell (Govt. of Maharashtra).

6.2 Approach for damages for contravening mandatory provisions of environmental laws

In view of the reported violations of provisions of CRZ Rules and CRZ clearance conditions, as outlined at section 4.7 of the above report (i.e. construction of conveyor belt during 2015 to 2018 & 2021 in the 50 m mangrove buffer areas without obtaining prior leave from the Hon'ble High Court in compliance to the condition of MCZMA vide letter dated 31/12/2019); an approach for damages for contravening mandatory provisions of environmental laws have been worked-out by considering the report of CPCB titled, "Report of the CPCB In-house Committee on Methodology for Assessing Environmental Compensation and Action Plan to Utilize the Fund", which outlines a formula for imposing environmental compensation on industrial units for violation of directions issued by regulatory bodies listing the instances for taking cognizance of cases fit for violation and levy environmental compensation. The same has also been referred by the Hon'ble NGT in its order (para 14 to 16) dated 28/8/2019 in the matter of Original Application No. 593/2017 titled Paryavaran Suraksha Samiti & Anr. Versus Union of India & Ors. The instances considered for levying Environmental Compensation (EC) in the said report are:

a) Discharges in violation of consent conditions, mainly prescribed standards / consent limits.
b) Not complying with the directions issued, such as direction for closure due to non-installation of OCEMS, non-adherence to the action plans submitted etc.
c) Intentional avoidance of data submission or data manipulation by tampering the Online Continuous Emission / Effluent Monitoring systems.
d) Accidental discharges lasting for short durations resulting into damage to the environment.

e) Intentional discharges to the environment - land, water and air resulting into acute injury or damage to the environment.
f) Injection of treated/partially treated/ untreated effluents to ground water.

Though such listed instances may not be directly applicable in the current matter for arriving at the damages amount for contravening mandatory provisions of environmental laws, an attempt is being made by this joint committee to assess the environmental compensation using the formula prescribed in the said CPCB report which may be taken as damages amount for contravening mandatory provisions of environmental laws i.e. violations provisions of Environmental and CRZ clearance in term of the provisions of the Environment Impact Assessment Notification, 2006 and CRZ Notification, 2011 under the Environment (Protection) Act, 1986. The formula takes into account of number of days violation took place, pollution index of unit, scale of operation, location factor based on population and an amount factor in Rupees.

Environmental Compensation (EC) in Rupees as mentioned in the aforesaid CPCB report = PI x N x R x S x LF

Where,
EC is Environmental Compensation in Rupees
PI = Pollution Index of industrial sector/Project
N = Number of days of violation took place
R = A factor in Rupees for EC
S = Factor for scale of operation
LF = Location factor
PI = Pollution Index of industrial sector/project. *The industrial sectors have been categorized into Red, Orange and Green based on their pollution index in the range of 60-100, 41-59 and 21-40 respectively. It was suggested that the average pollution index of 80, 50 and 30 may be taken for calculating the Environmental Compensation for Red, Orange and Green Categories of industries respectively. Considering the project under Red category as per CTE application made for the expansion of jetty from 331 to 1750 m. Hence, PI = 80.*

N = Number of days of violation *took place for which violation took place is the period between the day of violation observed and the day of compliance verified by CPCB/SPCB. Hence, in the absence of any other date of observation/reporting of the violation, the date of submission of application by M/s JSW Dharamtar Port Pvt. Ltd., to the MoEF&CC dated 21/02/2015 is taken as the date of reporting of the violation. Similarly, Hon'ble High Court order dated 09/07/2020 granting leave to execute the project i.e. construction of conveyor belt, being affected by the 50 m mangrove buffer area is taken as the date of confirmation, Thus, the number of days of violation (N) is taken from 21/02/2015 to 09/07/2020 and it works out to be* ***1,965 days.***

R = A factor in Rupees, which *may be a minimum of 100 and maximum of 500. The aforesaid report also suggests to consider R as 250, as the Environmental Compensation in cases of violation. Hence, R = 250.*

S = Factor for scale of operation. *For small S = 0.5, For medium S = 1 and larger unit S = 1.5. As per CTE application, the said project is LSI. Hence, S=1.5.*

LF = Location factor. *It is based on the population of the city/town and location of the industrial unit on the location of the industrial unit. For the industrial unit located within municipal boundary or upto 10km distance from the municipal boundary of the city/town, following factors (LF) may be used. Calculation of Location Factor based on population (million)*

Sl. No.	Population (in million)	Location Factor (LF)
1.	1 to < 5	1.25
2.	5 to < 10	1.5
3.	10 and above	2

Note: #LF will be 1.0 in case unit is located >10km from municipal boundary and LF is presumed as 1 for city/town having population less than one million. For notified Ecologically Sensitive areas, for beginning, LF may be assumed as 2.0.

Hence, LF is taken as 1, as the unit is located >10 km from municipal boundary.

Based on consideration of above, the environmental compensation calculation is depicted as below.

EC = PI*N*R*S*LF

PI	N	R	S	LF	**EC (in Rs.)**
80	1965	250	1.5	1	**5,89,50,000**

Based on above, the environmental compensation as damages for contravening mandatory provisions of environmental laws i.e. violations provisions of Environmental and CRZ clearance in term of the provisions of the Environment Impact Assessment Notification, 2006 and CRZ Notification, 2011 under the Environment (Protection) Act, 1986 is worked-out to be Rs. 5,89,50,000/- (Rupees Five Crore Eighty-Nine Lakhs and Fifty Thousand Only).

6.3 Review of applications of iron and steel slags for various uses

i. Utilization of blast furnace slag in manufacturing of Steel Slag-Based Cements[1]

- Granulated blast furnace slag has a vitreous structure and exhibits cementitious properties. Presently, ground granulated blast furnace slag is widely used as a cement replacement around the world. The concrete containing ground blast furnace slag usually has longer setting times, lower early strength, but shows higher later strength, denser microstructure and better durability compared with the Portland cement concrete. The potential cementitious properties of granulated blast furnace slag can be effectively activated by using alkaline activators. Researches have confirmed that clinkerless alkali-activated blast furnace slag cements can exhibit higher strengths, denser structure, and better durability than Portland cement.

- The air-cooled BF slag is crushed, screened and used mainly as road metal and bases, asphalt paving, track ballast, landfills and concrete aggregate[2]. The BF slag in India is used mainly in the cement manufacture and in other unorganised work, such as, landfills and railway ballast. Granulated BF slag is used as a pozzolanic material for producing portland slag cement. Slag cement has low heat of hydration, low alkali aggregate reaction, high resistance to chlorides and sulphate and it can substitute the use of 43 and 53 grades of ordinary Portland Cement. It is also used for soil conditioning. BF slag is used in making mineral wool for insulation purposes.

[1] Caijun Shi, Journal of Materials in Civil Engineering, 2004.16:230-236, American Society of Civil Engineers, DOI: 10.1061/(ASCE)0899-1561-(2004)16:3(230).

[2] Indian Minerals Yearbook 2015 (Part- II: Metals & Alloys), 54th Edition, Government of India Ministry of Mines Indian Bureau of Mines (October, 2016).

ii. Utilization of BOF, EAF and LD slag for carbon sequestration[3]

- Iron and steel slag (generated from BOF, EAF & LD) are very similar to natural minerals used in geologic carbon dioxide sequestration. Hence they can be used as a sustainable alternative for industrial-scale carbon capture and storage. Also, they possess properties that are conducive for remediation of soil and groundwater contaminated with heavy metals and other toxic chemicals. Further ongoing research on the use of steel slag along with the biochar-amended soil to develop a biogeochemical landfill cover to sequester fugitive gas emissions such as methane, carbon dioxide and hydrogen sulphide from MSW landfills and to attain zero-emissions landfill are promising.

- Steel slag has compositional similarity to natural minerals like olivine that are capable of fixing CO_2 in the form of stable carbonates in geologic sequestration technology. The steel slags with calcium-magnesium (Ca–Mg) silicate minerals, free lime (CaO) and portlandite ($Ca(OH)_2$) contents, alkaline pH and lower chemical stability is considered highly suitable mineral source for CO_2 sequestration. The iron and steel industry is exploring methods to utilize CO_2 sequestration capacity of steel slag in a technologically viable manner to control its high CO_2 emissions due to mineral feedstock availability at the point of CO_2 emission and technical simplicity of the reaction. Better understanding of properties of steel slag has also led to its use in several environmental engineering applications including contaminated site remediation, acid mine drainage remediation, storm water and wastewater treatment, and even as soil modifier in agriculture. The chemical composition and alkaline pH (~12) of steel slag are the major driving factors for increasing its utilization in environmental engineering applications.

- There are studies that enlightens the prospects of the applications of steel slag in carbon sequestration as well as environmental applications since last

[3] Krishna R. Reddy, Archana Gopakumar, Jyoti K. Chetri, Rev Environ Sci Biotechnol, "Critical review of applications of iron and steel slags for carbon sequestration and environmental remediation", Springer Nature B.V. 2019 (https://doi.org/10.1007/s11157-018-09490-W).

three decades apart from the applications of steel slag other than environmental applications such as in road construction, embankment fill, etc.

- Numerous alkaline waste from different industries including iron & steel industry, cement industry, paper mills etc. has been studied for carbon sequestration capacity. The iron and steel slag is characterized by highly alkaline nature and significant levels of metal ions, especially calcium. Iron and steel slag like Blast furnace (BF) slag, Basic oxygen furnace (BOF) slag, Electric arc furnace oxidizing (EAFO) slag, Electric arc furnace reducing (EAFR) slag, Argon oxygen decarburization (AOD) slag, Ladle furnace (LF) slag has been studied by researchers for their CO_2 sequestration capacities showing promise which can offer:
    a) Higher opportunity for CO_2 sequestration at lower economic burden.
    b) Cost-effective and energy-efficient method for industries as the feedstock mineral is near CO_2 emission point source, minimizing transportation.
    c) Reduce Environmental impact and energy dependency notably by avoiding mining for rock minerals.
    d) Simultaneously, demonstrate beneficial use of industrial waste and diversion from excess stockpiling and landfilling.

- Several studies around the world has been carried out on the above mentioned subject, following Table-1 provide some notable mentions about utilization of steel slag for carbonation mechanisms:

Table-1: Utilization of steel slag for carbonation mechanisms

Slags studied	References
Linz Donawitz (LD) steel slag	Huijgen et al. (2005)
Linz Donawitz (LD) steel slag	Huijgen and Comans (2006)
EAF and LF slag	Diener et al. (2010)
BOF slag	Yilmaz et al.(2013)
BF and steel-making (SM) slag	Kasina et al.(2015)

iii. Utilization of BOF, EAF and LD slag for environmental remediation

- Other than the construction field, the utility of steel slag has most widely been studied for environmental applications. In the case of environmental applications, the properties of steel slag like pH, carbon sequestration

capacity and mineralogy are relatively given more importance than the strength, soundness, and hardness. Recent studies have shown utilization of iron and steel slag in devising efficient, easy and comparatively inexpensive methods in various environmental applications. The most widely advocated environmental applications of steel slag include wastewater and storm water treatment, soil, sediment and groundwater remediation, sediment capping, and remediation of acid mine drainage. Moreover, use of it as fertilizer and soil modifier in agriculture and as a landfill cover material are also being proposed. Previous studies on applications of steel slag for environmental remediation can be summarized by below mentioned Table-2.

Table-2: Utilization of steel slag for environmental applications

References	Slag used	Applications
Baker et al. (1998)	BOF slag	Phosphorous removal by adsorption and precipitation in the form of calcium phosphate
Smith (2003)	Steel slag	Reactive barriers to remove Cr(VI) and TCE from wastewater
Ochola and Moo-Young (2004)	Modified steel slag	Reduction of Cr(VI) to Cr(III) in water
Wang and Cai (2006)	Steel slag	Fe fertilizer for agricultural land
Wang and Cai (2006)	Steel slag	10–20 g/kg addition resulted in increased corn yield
Bowden et al. (2009)	BOF slag	Phosphorous and phosphate removal along with pathogen removal from waste and storm water
Herrmann et al. (2010)	EAD and LD slag	Barrier material in sanitary landfill cover construction
Grubb et al. (2011)	BOF slag fines	As^{3+} and As^{5+} immobilization in reactive barriers
Grubb and Wazne (2011)	BOF slag fines	Heavy and toxic metal immobilization
Tsai et al. (2011)	BOF slag	Iron-mineral supplement in Fenton-like oxidation for enhanced TCE removal
Sarperi et al. (2014)	BOF slag	Raw biogas up-gradation to natural gas composition for vehicle fuel
Sheridan (2014)	BOF and stainless steel slag	Acid mine drainage remediation by replacing alkaline minerals with steel slag with better results from BOF slag
Ning et al. (2016)	Steel slag	Fe and Si fertilizer and modification of acidic soil for paddy cultivation
Ng et al. (2017)	BF slag	H_2S suppression by GGBS amended soil

- **Use for Soil, sediment and groundwater remediation**: The use of steel slag has been explored extensively in the revitalization of superfund sites, brownfields, and other contaminated sites. Environmental remediation is to be incorporated at such sites to prevent the leaching of heavy metals into groundwater and its contamination. Steel slag, being a by-product of steel industry, is available economically and abundantly which makes the use of steel slag a sustainable approach to achieve remediation goals.

- **Use for Acid mine drainage remediation (AMD)**: AMD is the acidic outflow from the abandoned metal mines that are abundant in sulfide minerals and metals such as Iron, Nickel, Copper, and Lead. It is formed upon the interaction of exposed sulfur containing minerals (pyrite) with groundwater and air forming sulfuric acid and dissolved iron. There are clear studies where Steel slag has been used for AMD remediation. As an example of field application of steel slag in AMD treatment, the poor quality of water in the 33.6 acres Huff Run Watershed area due to years of unregulated surface and deep mining was cleaned up under the Ohio Department of Natural Resources (ODNR) by installing passive treatment system using steel slag. The reclamation project included stablishing positive drainage and installing passive AMD treatment systems including alkaline ponds using steel slag and open limestone channels. Steel slag was utilized to supersaturate the relatively clean water and then interact with effluent AMD waters to neutralize the low pH.

- **Use as fertilizer and soil modifier in agriculture**: Researchers have deliberated the use of steel slag in agriculture as fertilizer and soil modifier in order to sustain plant growth in difficult soils. Steel slag has been used as an effective, inexpensive Fe fertilizer to treat calcareous soils that are deficient in Iron. Researchers conducted a pot experiment in a greenhouse to analyse the effectiveness of steel slag as Fe fertilizer and soil improvement for corn growth, at moderate application of steel slag as-is, an increase in the corn dry matter yield and Fe uptake was observed. Steel slag is abundant in Fe, K, Mn and P along with Cd and Pb within the desirable limits. Hence, it has been studied as a potential source for plant nutrients in China. It has shown

promising results in terms of higher yield in regions where plant iron chlorosis was a major problem. Steel slag has also been used for increasing rice yield in China due to the abundance of Si that is necessary for rice plant and as a fertilizer to modify acidic soil for paddy culture.

- **Use as Landfill cover material:** One of the requirements of the engineered landfills is a well-designed cover system meeting the requirements of infiltration, slope stability and long term strength. In the general practice, natural materials like sand, gravel and clay are used in the construction of landfill cover. With the increasing strain on the environment and the natural resources, alternative materials are sought. In this process, the use of steel slag as an alternative material in landfill cover is explored by various researchers. In a preliminary study on EAF and LD slags that consisted of particle size distribution, mixing and compaction tests, and hydraulic conductivity. The use of slag was found to be feasible in cover layers except vegetation layer with specific recommendations on mixing of EAF and LD slag to decelerate curing period, extend workability and a narrowed optimum water content range.

- Several studies that have been conducted confirmed the iron and steel slag, especially BOF slag, as one of the best alternate material. It is highly alkaline and possesses mineralogical similarity to natural minerals like olivine that is highly consumed for geologic carbon sequestration. Iron slag has been used profusely in the construction industry, although steel slags are only partially consumed as a construction material due to its higher iron and calcium oxide content. However, steel slag has been found to have a high potential for several environmental applications due to its unique chemical properties. It has been used in a wide range of projects including acid mine drainage remediation, phosphate removal, and sand capping in marine environment. It has also been used as a replacement for soil in landfill cover construction. The usual concerns of heavy metal leaching and pH effects has been studied to be within the desirable limits for its usage in construction and environmental applications.

- As per the outcome of research study carried-out by Aziz[4] et al., (2020) that steel furnace slag aggregate has been used for the development of high-density geopolymer concrete which is used for coastal protection structures. The results of the laboratory tests conducted by researchers on high-density concrete and subsequent microstructural analyses confirm that steel furnace slag aggregate geopolymer concrete can be a promising material in manufacturing high-density armour units for breakwaters. The high-density concrete developed in thier study satisfies the requirements of workability, density and strength in fabricating armour units. Further it was mentioned that using this material, there is a great potential to significantly reduce armour unit size keeping the structural performance constant, with a size reduction of as much as 30% for a density of 2500 kg/m^3, and 40% for a density of 2600 kg/m^3. This could allow the construction of new coastal structures with reduced material requirements, placement cost, and overall footprint, or the retrofitting of concrete armour structures to provide increased stability while retaining good interlocking with existing armours. Use of no cement in the concrete coupled with reduced material requirements has the potential to reduce the carbon footprint associated with manufactured breakwater armour units.

- Fisher and Barron[5] mention that the steelmaking slag is also potentially beneficial to the marine environment due to its high porosity and large surface area. For the aforesaid reason research into the marine applications of steelmaking slag has been increased significantly over the past few years. Following are the few examples of utilization of steelmaking slag in to the marine environment applications:
    a) Restoration of coral reefs: Coral reefs are a highly porous material made up of $CaCO_3$, similarly, the surface of steelmaking slag is also

[4] Aziz Hasan Mahmood, Stephen J. Foster, Arnaud Castel (2020), "Development of high-density geopolymer concrete with steel furnace slag aggregate for coastal protection structures", Construction and Building Materials 248 (2020) 118681 (https://doi.org/10.1016/j.conbuildmat.2020.118681)

[5] Lucy V. Fisher, Andrew R. Barron, The recycling and reuse of steelmaking slags — A review, Resources, Conservation & Recycling 146 (2019) 244–255, https://doi.org/10.1016/j.resconrec.2019.03.010

highly porous and made up of $CaCO_3$; therefore, steelmaking slag makes a very suitable artificial reef material. In the aforesaid review paper, it is mentioned that while testing the potential of using slag to create coral reefs, slag cubes (25 cm in diameter) were placed on the sea floor in an inland sea area in Hiroshima prefecture. After 3 months it was seen that marine plants and shellfish had begun to colonize the surface of the slag and were growing around the bottom of the slag blocks, the same green marine plants were also growing, suggesting that the slag block was having a positive effect on the surrounding environment. Further, it is mentioned that subsequent to the work in Japan at least 40 countries around the world have now adopted artificial reef technology. North America and Australia have begun to use their artificial reefs for recreational use such as diving and fishing.

b) Phytoplankton application: An innovative marine application of steelmaking slag has been its use for elution of iron-ions to stimulate phytoplankton to absorb CO_2. Phytoplankton are microscopic organisms that are an essential component of ecosystems in oceans around the world, which can sequester 2 kg/m^2 year of carbon, making them useful in the reduction of carbon.

iv. **Challenges for utilization of steel slag (generated from BOF, EAF & LD) in construction sector**

- Limited use of BOF slag and EAF slag is the prime challenge. In India, less than 30% of such slag is utilised in sinter plant as lime substitute. In advanced countries, the utilisation is 100% as construction material. The main reason for this is the presence of free lime which makes these slags unfit for construction industry due to its hydration and expansion after ageing. Steel slag with less than 5% free lime and a maximum of 5% expansion during steam testing is suitable as construction material.

- Development of BIS standard for utilisation of steel slag as a material for construction substituting natural resources such as aggregates and sand. Such Standards exist in China (Yi et al. 2012). Recently with initiatives (SAIL

2015) of SAIL, the Bureau of Indian Standards (BIS) has amended BIS: 383, permitting utilisation of iron and steel slag as a replacement of natural aggregate up to the extent as has been given in the BIS: 383 (Revision-III), 2016.

Some of the photographs taken during joint committee inspection are given at **Annexure-25** for kind reference.

7.0 Conclusions

i. Based on the time-series analysis of high resolution satellite images during 2011 to 2021 followed by superimposition of land revenue records and field validation studies carried-out by the sub-committee of NCSCM, MRSAC & Mangrove Cell, total loss of mangrove areas due to M/s JSW & its associated activities (jetty conveyor belt & other industrial activities etc.) is 1.89 ha. Similarly, based on the time-series analysis of high resolution satellite images during 2011 to 2021 followed by superimposition of land revenue records and field validation studies carried-out by the sub-committee of NCSCM, MRSAC & Mangrove Cell, total loss of natural creek area due to M/s JSW & its associated activities is 0.77 ha.

Based on the time-series analysis of high resolution satellite images during 2011 to 2021 followed by superimposition of land revenue records and field validation studies carried-out by the sub-committee of NCSCM, MRSAC & Mangrove Cell, total loss of mangrove areas due to dumping of solid waste by Dolvi, Wadkal gram panchayats) is 0.71 ha.

[**For details please refer section 4.1 of the report**.]

ii. As per the report of Forest Department, M/s JSW has illegally destroyed mangroves in the land bearing survey no. 50/D, wherein levelling was done and carried out construction of conveyor belt. Accordingly, an offence bearing no. E-02/2019 -20, dated 03/02/2020 has been registered at Tinvira Police Station. However, the said report doesn't mention about the present status of the case.

[**For details please refer section 4.2 of the report**.]

iii. Source emission monitoring of stacks attached to the coke oven plant viz. common stack attached to coke oven battery-I & II (Coke oven plant-1), common stack attached to coke oven battery charging & pushing side (Ground de-dusting system of coke oven plant-1) reveals that the concentration of particulate matter in both the aforesaid monitored stacks were exceeding the MPCB prescribed norms i.e. 52 > 50 mg/Nm^3 and 140 > 25 mg/Nm^3. Similarly, concentration of particulate matter in the stack attached to kiln of lime calcination plant-2 (600 TPD) was exceeding the MPCB prescribed norms i.e. 119 > 100 mg/Nm^3. Whereas, concentration of MPCB prescribed parameters viz. PM, SO_2 and NOx (as applicable) in other monitored stacks viz. Stack attached to kiln of lime calcination plant-2 (600 TPD), Stack attached to sinter machine (sintering plant-1), Stack attached to product discharge end & product sinter sizing house (sintering plant-1), Stack attached to furnace of pellet plant-I (4 MTPA) and Common stack attached to de-dusting system-1 & 2 of pellet plant-I (4 MTPA) were found within the MPCB prescribed norms. The % production during the monitoring period on 04/05/2022 & 05/05/2022 from the aforesaid complied stacks were observed as: 75.76, 91.84, 97.31 respectively.

It is observed that the industry has installed requisite pollution control devices to the aforesaid stacks as per the conditions stipulated under the Air (Prevention and Control of Pollution) Act, 1981. Also, installed requisite online continuous emission monitoring (OCEM) sensors (NOx sensor for coke oven battery & SO_2, NOx sensors for ground de-dusting system of coke oven plant) in compliance to the CPCB directions vide dated B-29016/04/06/PCI-I, dated 05/02/2014 and as per clarifications on online monitoring issued by CPCB as on 25/02/2021. Besides installation of requisite OCEM sensors, the industry has voluntarily installed additional OCEM sensors for remaining stacks.

[**For details please refer section 4.3.1 of 4.3 of the report**.]

iv. Analysis results of fugitive emission monitoring near coke oven plant-1 reveals that the monitored parameters viz. PM during coke pushing in coke in coke oven is 1.4948 < 5 gm/MT of coke produced; PM during quenching operation in coke oven is 4.1479 < 50 gm/MT of coke produced; BaP near

other units in coke oven plant is 0.00499 < 2 µg/m^3 and CO near other units in coke oven plant is 0.002847 < 3 Kg/MT of coke produced are within the standards for emission of air pollutants as per CTO issued by MPCB vide dated 01/03/2018.

Similarly, analysis results of fugitive visible emission monitoring near coke oven plant-1 reveals that the monitored parameters viz. PLD: 3.63 < 5 %; PLL: 0.9 < 1 % and PLO: 0.9 < 4 % respectively are within the standards for emission of air pollutants as per CTO issued by MPCB vide dated 01/03/2018 and also within the standards for fugitive visible emission for integrated iron & steel plant as per G.S.R. 277(E) MoEF Notification vide dated 31/03/2012. Similarly, charging emissions from coke oven plant-1 (Battery-A & B) is 44.5 < 75 seconds/charge is within the standards for fugitive visible emission for integrated iron & steel plant as per G.S.R. 277(E) MoEF Notification vide dated 31/03/2012.

[**For details please refer section 4.3.2 of 4.3 of the report**.]

v. Ambient air quality monitoring locations were carried-out at three locations at about 120º inside & outside the industry premises, near to residential areas. It is observed from the analysis results of the ambient air quality monitoring that the concentration of PM_{10} (169 > 100, 403.67 > 100 and 145.67 > 100 µg/m^3) was exceeding the National Ambient Air Quality Standards vide Notification dated 18/11/2009 at all the three monitored locations. Whereas reaming monitored parameters viz. $PM_{2.5}$, SO_2, NO_2 and CO were within the National Ambient Air Quality Standards vide Notification dated 18/11/2009 at all the three monitored locations.

It is inferred from the results of CAAQM stations that the average concentration of PM_{10} at two locations i.e. near Dolvi village and near coke plant was found exceeding the concentration of 100 µg/m^3.

Based on the analysis of wind rose diagram during ambient air quality monitoring period prima facie, it may be inferred that the higher particulate matter (PM_{10}) concentration at the ambient air quality monitoring location i.e.

A1 (Near labour colony of M/s JSW (North-eastern side of M/s JSW), Village Dolvi) & at the continuous ambient air quality monitoring location (C4) may be attributed to the nearby ongoing road expansion & allied construction activities adjacent to Alibag-Mumbai highway. Similarly, it may be inferred that the higher particulate matter (PM_{10}) concentration at the ambient air quality monitoring location i.e. A2 (South-eastern side of M/s JSW) location may be attributed to the nearby ongoing road expansion & allied construction activities adjacent to Mumbai-Goa highway, coupled with predominant Easterly & South-Easterly winds.

Whereas, the adjacent open storage yards of the nearby port operated by M/s PNP (located at an aerial distance of 2.35 Km) coupled with the predominant easterly winds in the locality might be the causative reason for higher particulate matter (PM_{10}) concentration at the ambient air quality monitoring location i.e. A3 (Western side of M/s JSW). The higher particulate matter (PM_{10}) concentration at the continuous ambient air quality monitoring location i.e. C1 (Near coke oven plant of M/s JSW Southern side) might be attributed to the industrial activities of M/s JSW (as the predominant Easterly & South-Easterly winds with the nearby coke oven plant-1 and SMS-2 plants activities might have led to higher PM_{10} concentration at C1).

[**For details please refer section 4.3.3 of 4.3 of the report**.]

vi. Analysis results of grab effluent collected from the outlet of ETP of coke oven plant reveal that concentration of all the monitored parameters are within the standards prescribed by MPCB, except for BOD: 38 > 30 mg/L and TDS: 2384 > 1500 mg/L which is exceeding the standards prescribed by MPCB. The treated effluent confirming to the above prescribed standards is recycled & reused as per the consent to operate issued by MPCB i.e. in the process, cooling tower, quenching purpose. The analysis results of grab water sample collected from the mouth of natural creek, confluenceing with Dharmtar creek (i.e. estuarine zone of Amba River) reveals that concentration of all the monitored parameters (except pH, which is not in range of 9.1 [5.5 - 9]) are within the concentration stipulated under general standards for discharge of

environmental pollutants, part A: Effluents (Marine coastal area) as per The Environment (Protection) Rules, 1986.

[**For details please refer section 4.3.4 of 4.3 of the report**.]

vii. Based on the non-compliances of consent conditions w.r.t. exceedance of source emission monitored parameter i.e. PM to that of prescribed standards; exceedance of treated effluent monitored parameter i.e. BOD & TDS to that of prescribed standards and exceedance of ambient air quality parameter i.e. PM_{10} to that of NAAQS, 2009; MPCB has issued show cause notice to M/s JSW vide no. BO/RO-Raigad/SCN/TB-2211180031, dated 18/11/2022 under the provisions of the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981 and the Hazardous and Other Wastes (Management and Transboundary Movement) Amendment Rules, 2016.

viii. As per the information submitted by MPCB, total slag generated from hot strip mill plant w.e.f. 2009 to May, 2021 is 91,85,903 MT; out of which 1,31,325.76 MT (after metal recovery) is reused in sinter & HSM and 77,34,333.6 MT (non-metallic slag) is used in landfilling in low lying area (jetty, industry premises) as per conditions stipulated under s. no. 6 of the CTO of hot strip mill plant, issued by MPCB vide dated 02/11/2018. Whereas, remaining 12,60,980.406 MT of slag has been disposed on private land with total area admeasuring 115.43 acres (46.538 ha) at 17 different villages based on the consent of beneficiary(s) and remaining 59, 263.234 MT of slag is stored within the industry premises. Similarly, as per the information submitted by MPCB total slag generation (granulated slag) from blast furnace plant w.e.f. 2009 to May, 2021 is 99,66,369.22 MT, which is 100% used in M/s JSW Cement Ltd., (sister concern unit of M/s JSW) as a raw material for manufacturing of portland slag cement/ground granulated blast furnace slag cement. The said slag from blast furnace plant is listed as by-product as per the conditions stipulated under s. no. 3 of the CTO of blast furnace plant, issued by MPCB vide dated 07/04/2018.

[**For details please refer section 4.4.1 of 4.4 of the report**.]

Whereas, the report of Sub Divisional Officer, Pen based on the ground reconnaissance survey mentions that total 3,85,707 brass (19,64,791.458 MT) of slag filling was carried-out by M/s JSW on private lands of 12 different villages with total area admeasuring 56.3447 ha (out of 60.787 ha) with the consent of farmers. Difference of 7,03,811.052 MT of slag to that of MPCB report may be due to the fact that the reported quantity on ground during reconnaissance survey is accounted from the inception of industry/prior reporting to the data being reported in Form-V by M/s JSW. Further, the aforesaid report also mentions that out of 56.3447 ha of private land, 13.68 ha land is observed to be agricultural land where no cultivation was observed since last 15 years. Hence, it is inferred that dumping of slag on the aforesaid private land and agricultural land located at 12 different villages was done based on the consent of farmers.

[**For details please refer section 4.4.2 of 4.4 of the report**.]

ix. As per the report of District Superintendent of Agriculture, Raigad the total cultivable area of the 12 villages is 1,222.11 ha (as per revenue records). Out of total cultivable area of 1,222.11 ha, dumping of slag has been done by M/s JSW in 56.34 ha with the consent of farmers. The cultivated (Pik Pera) area of 12 villages in year 2021-22 is only 229.97 ha. The remaining 935.80 ha area in the aforesaid 12 villages are affected due to ingress of salty creek water and not under cultivation at present. Similarly, 01 ha agricultural land (including one farm pond) near the premises of M/s JSW is owned by individual (2 owners) farmer and the said agriculture land is severely damaged due to high and frequent tide water ingress and hence rice cultivation is not done since 2006-07. Hence, it is inferred that out of 1,222.11 ha of total cultivable area in the 12 alleged villages, only 229.97 ha is under cultivation and the remaining area is not under cultivation. Further, the affected area due to salt water ingress under alleged 12 villages are not under cultivation at present.

[**For details please refer section 4.4.2 of 4.4 of the report**.]

x. Total 68 no. of soil samples are collected (including 14 no. of reference soil samples are collected where dumping of slag were not observed/the areas

which are unaffected) from the alleged 12 no. of villages in Pen Taluka where dumping of slag was observed. The soil samples were analysed for various parameters viz. pH, electrical conductivity, fertility index (organic carbon, nitrogen & potassium) including boron and sodium. The analysis results of collected soil samples reveal that the soil has become highly alkaline due to continuous inflow of salty creek water into agriculture land wherein pH and EC levels have been increased beyond normal levels. Also, boron and sodium levels are highly increased in all areas, which adversely affect plant growth. The availability of nitrogen in this soil is reduced by 25-60 Kg/ha whereas the availability of phosphorus and potash in affected area is at par with reference soil samples.

[**For details please refer section 4.4.3 of 4.4 of the report**.]

xi. The average crop productivity of concern mandals with respect to taluka productivity average shows that the productivity of rice crop of the mandals is less by 2 to 5 quintals per hectare since 2018-19. Further, based on the comparison and inference of analysis of soil samples collected in the alleged 12 no. of villages, which showed that due to increased pH and EC levels on account of inadequate repair & maintenance of kharbandisti bhands, which resulted in constant ingress of tidal water into the adjoining agricultural lands have made the soil alkaline in nature and hence it is unfertile for rice cultivation. Also, the comparison of crop productivity data shows that it has reduced the productivity by 10 to 20% as compared with taluka and district respectively. It is inferred that due to inadequate maintenance & repair of kharbandisti bhands has resulted in continuous inflow of salty creek water into agriculture lands and have made the soil alkaline in nature and hence unfertile for rice cultivation. Further, necessary crop assistance should be fixed on basis of crop productivity of concerned revenue mandal and minimum support price of rice in that year.

[**For details please refer section 4.4.4 of 4.4 of the report**.]

xii. Samples of slag generated from blast furnace and steel melting shop (i.e. from electric arc furnace and ladel furnace), stored within the industry premises and random slag samples were also collected from alleged villages

where dumping of slag was reported by the sub-committee and analysed for physicochemical and TCLP parameters. The analysis results of aforesaid slag samples were compared with the concentration limits specified for the constituents in class A (Based on leachable concentration limits [Toxicity Characteristic Leaching Procedure (TCLP) or Soluble Threshold Limit Concentration (STLC)]) of Schedule II of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. The analysis results of aforesaid slag samples collected from M/s JSW premises and alleged villages reveal that concentration of monitored parameters are found within the concentration as per Schedule II, Class C2: Corrosive and Class C1: Flammable characteristics of the H&OW (M & TM) Rules, 2016. Hence, the aforesaid slag samples not qualify the criteria of “hazardous waste” as per Rule 3 (17) of the H&OW (M & TM) Rules, 2016.

Further, slag generated from hot strip mill plant/ steel melting shop (i.e. from electric arc furnace and ladel furnace) is listed under the category of non-hazardous wastes as per the CTO issued by MPCB and being reused (about 86% of total generation) as per CTO conditions. Whereas, condition/permission for disposal of remaining slag outside the M/s JSW premises (private & agricultural land) has not been stipulated in the CTO issued by MPCB. Similarly, slag generated from blast furnace i.e. granulated slag is listed under the category of by-product and after granulation is being used as raw material in cement manufacturing process at their sister concern unit located within the premises of M/s JSW, having valid consent to operate (valid till 31/07/2026) to manufacture portland slag cement/ground granulated blast furnace slag cement.

[**For details please refer section 4.4.5 of 4.4 of the report**.]

xiii. The alleged incidence of damage to bandhs and ingress of saline water as mentioned in the Hon’ble NGT order dated 27/05/2021 is related to Machela Chirbi & Jui Habbas Kharland Scheme. The damage caused to aforesaid bandhs are mainly due to excessive rains & high tides resulting in breaches of bandhs, damage to sluice gate and lack of proper maintenance due to insufficient funds resulting in ingress of saline water in the adjoining agricultural lands.

Further, as per the report of Regional Port Officer, no such incidences were reported about the damage of Kharbandisti bandh due to pressure of water created by cargo ships of M/s JSW in Dharamtar Creek. Also, the report mentions that Dharamtar Creek is declared as Indian Waterway and apart from self-controlled jetty of the M/s JSW the navigation of barges, MBC's from Dharmatar Creek and handling of cargo/goods is also done through the multipurpose jetty of M/s PNP Maritime Services Ltd., Further, dredging activities is being carried-out only in 135 m wide navigation channel of Dharamtar Creek, as per the guidelines of the Govt. issued for the purpose of easing navigation channel, for which the permission from Maharashtra Maritime Board has been taken by M/s JSW from time to time.

[**For details please refer section 4.5 of the report**.]

xiv. The project proponent has submitted point-wise action taken report on the various non-compliances reported by MoEF&CC. Wherein, it is observed that the project proponent has complied with all the points, except for the study to be conducted for demonstrating the facts that scour protection is not necessary for the project and also no shoreline changes are envisaged due to jetty activities. Compliance of the same is under progress and the project proponent has engaged National Centre for Sustainable Coastal Management (NCSCM), MoEF&CC to undertake the studies for shoreline changes & scour protection. Further, w.r.t. violations of the provisions of Environment Impact Assessment Notification, 2006 (i.e. EC & CRZ clearance of jetty expansion), as per the updated report of MoEF&CC, based on the justification/clarification submitted by PP in compliance to the show-cause notice issued by MoEF&CC on 11/11/2014, subsequent hearing was conducted for the PP followed by sub-committee visit during January, 2015 and re-consideration in 35th EAC (Industry-1) meeting, MoEF&CC has granted EC & CRZ clearance for expansion of jetty from 331.5 to 1,750 m on 26/11/2015. Further, amendment in expansion of jetty facility was granted by MoEF&CC on 26/03/2016 & 10/01/2020 respectively.

[**For details please refer section 4.6 of the report**.]

xv. M/s JSW has started construction of conveyor belt during 2015 to 2018 & 2021 in the 50 m mangrove buffer areas without obtaining prior leave from the Hon'ble High Court in compliance to the condition of MCZMA vide letter dated 31/12/2019. Later, though the Petitioner has obtained permission from Hon'ble High Court vide dated 09/07/2020 for construction of conveyor belt, which being affected by 50 m mangrove buffer areas; it is evident from the time series analysis of satellite images by the sub-committee of NCSCM & MRSAC that that the progress of construction of conveyor belt was observed during the aforesaid years wherein part of the conveyor is belt constructed in 50 m mangrove buffer areas. As per the aforesaid assessment, total loss of mangrove buffer areas during construction of the conveyor belt and jetty over the mangrove buffer area, during the years 2011 – 2021 is estimated about i.e. extent of conveyor belt over mangrove buffer area is 1.52 ha and extent of jetty area over mangrove buffer area is 0.79 ha.

[**For details please refer section 4.7 & 6.2 of the report**.]

xvi. M/s JSW has complied CC&A conditions w.r.t. conditions of The Water (Prevention and Control of Pollution) Act, 1974 i.e. i.e. establishment of requisite effluent treatment system, installation requisite OCEMS & its connectivity to MPCB & CPCB servers; conditions of The Air (Prevention and Control of Pollution) Act, 1981 i.e. installation of requisite no. of stacks and associated air pollution control devices installed for management of source emission, installation of requisite OCEMS & its connectivity to MPCB & CPCB servers, in compliance to the CPCB directions vide dated B-29016/04/06/PCI-I, dated 05/02/2014 and conditions of Hazardous & Other Wastes (Management & Transboundary) Rules, 2016 of existing 5 MTPA (Phase – I) and 5 to 10 MTPA (Phase – II) respectively.

[**For details please refer section 4.8 of the report**.]

xvii. The health impact assessment survey on residents was carried-out due to the activities of M/s JSW the aforesaid survey was carried-out within 5 Km radius, based on the available health records from 04 no. of primary health care centres in Pen and Panvel taluka. The health impact assessment report mentions that the no. of respiratory diseases, acute eye disorders, skin

diseases and other acute chronic diseases found in vicinity of M/s JSW and non-industrial area are remarkably the same.

Annual medical health check-up data of about 499 employees working in coke oven plant was collected and analysed. It is inferred from the annual medical health check-up data of (2019) with respect to respiratory health hazards pulmonary function test (PFT) of 457 out of 499 (91.5 %) employees were within the normal range (PFT > 80%) and pulmonary function test of 42 out of 499 (8.5 %) employees were not within the normal range (PFT < 80%) and all were tobacco chewers and cigarette smokers. Similarly, random health assessment of 50 employees working in coke oven plant was performed with PFT, 42 out of 50 (84%) employees PFT were within the normal range (> 80%) and 8 (16%) employees PFT were not within the normal range (< 75%). Hence, it may be inferred from the annual health records of 2016 to 2021 and random health impact assessment survey report done in 2022 that though there is a rise of about 7.5% in the health impact w.r.t. respiratory health hazards in the employees working in coke oven plant, such rise is not directly related to the impacts associated with the activities of coke oven plant; as the outcome of results of PFT of employees (where the reported PFT < 80%) were found to be addicted to tobacco chewers and cigarette smokers. Further, in order to evaluate either industrial activities or smoking as cause for abnormal PFT, in depth study may be required w.r.t. chemical characterization & analysis.

[**For details please refer section 4.9 of the report**.]

xviii. The report of Assistant Commissioner of Fisheries mentions that total revenue generation in eight out of eleven fisheries co-operative societies near Dharamtar creek in Raigad District were declined. Whereas, revenue generation in three out of eleven fisheries co-operative societies have progressively and slightly increased during 2015-16 to 2019-20. The aforesaid report also mentions that it is not possible to give a definite cause in the decline of fish availability in the remaining eight out of eleven fisheries co-operative societies. Hence, it may be inferred from the aforesaid report that decline in fish catch in the remaining eight out of eleven fisheries co-operative

societies couldn't be ascertained whether it is due to pollution from M/s JSW or movement of ships/barges or any other reason thereof.

[**For details please refer section 4.10 of the report**.]

xix. M/s JSW has carried-out green belt development in compliance to the amended EC dated 16/06/2020 i.e. out of 243 acres 84 acres (on going) plantation has been done inside the plant premises. Similarly, 890 acres plantation (124 acres plantation in forest land & 766 acres mangrove plantation) has been done against mandated 502 acres as per amended EC. Hence, it is inferred that green belt development has been done in compliance to the amended EC dated 16/06/2020.

[**For details please refer section 5.1.2 of 5.1 of the report**.]

xx. As per the updated report of District Collector-Raigad total mangrove destroyed due to dumping of solid waste is 0.71 ha. The foresaid report mentions that the waste was dumped by three Gram panchayats of nearby area. Because dumping of waste 0.71 ha of mangrove areas were affected and destructed. The aforesaid report doesn't specify about reclamation of land below the conveyor belt due to dumping waste material i.e. slag and subsequent destruction of mangroves due to solid waste dumping.

[**For details please refer section 5.1.3 of 5.1 of the report**.]

xxi. Construction of bridge at survey no. 93 of village Kharmachela and survey no. 68 of village Kharkaravi is being done upon obtaining necessary permission from Hon'ble High Court and authorities.

xxii. Valuation of mangroves services cost for the period 2011 to 2021 for the reported total destruction of mangroves of 1.89 ha due to M/s JSW & its associated activities (Jetty Conveyor belt & other industrial activities etc.) is worked-out be Rs. 3,28,99,438/- (Rupees Three Crore Twenty-Eight Lakhs Ninety-Nine Thousand Four Hundred Thirty-Eight Only) considering the average inflation rate of 6.1454% from 2011 to 2021.

[**For details please refer section 6.0 of the report**.]

xxiii. The environmental compensation as damages for contravening mandatory provisions of environmental laws i.e. violations provisions of Environmental and CRZ clearance in term of the provisions of the Environment Impact Assessment Notification, 2006 and CRZ Notification, 2011 under the Environment (Protection) Act, 1986 i.e. construction of conveyor belt in mangrove buffer area before obtaining prior leave from Hon'ble HC & submission of undertaking thereto (in compliance to the MCZMA letter dated 31/12/2019) is worked-out to be Rs. 5,89,50,000/- (Rupees Five Crore Eighty-Nine Lakhs and Fifty Thousand Only).

[**For details please refer section 6.2 of the report**.]

xxiv. In view of non-availability of valuation of service cost of creek, the environmental compensation derived (as per section 6.0 & 6.2 of this report) as valuation of mangroves services cost and damages for contravening mandatory provisions of environmental laws i.e. violations provisions of Environmental & CRZ clearance in term of the provisions of the Environment Impact Assessment Notification, 2006 and CRZ Notification, 2011 under the Environment (Protection) Act, 1986 (construction of conveyor belt in 50 m mangrove buffer areas) may be utilised for restoration of natural creek of 0.77 ha.

xxv. For assessment of environmental impact of industrial activities in the surroundings with reference to sea shore, the project proponent i.e. M/s JSW in compliance to the Specific condition no. v and Specific condition no. xviii of EC dated 26/11/2015 has engaged National Centre for Sustainable Coastal Management (NCSCM), MoEF&CC to undertake the studies for shoreline changes & scour protection and the aforesaid study is under progress. Similarly, for assessment of environmental impact of industrial activities in the surroundings with reference to creek, the project proponent i.e. M/s JSW in compliance to the Specific condition no. xvi of EC dated 26/11/2015 has carried-out Numerical Model Study of Hydrodynamics and Siltation and Wave Tranquility Study for the Navigation of the Dharamtar Creek (Amba River) through Central Water and Power Research Station (CWPRS), Ministry of Water Resources, River Development and Ganga Rejuvenation, Govt. of

India. It is observed from the report that there is no wave effect near the proposed development of jetty, as it is about 26 km from the sea mouth. Also, waves cannot enter the creek due to restriction of width and depth and the model studies indicates no changes in the bank line of the river, as the eroding forces due to the increase in the flow velocity due to the development is low. The proposed development would have no or negligible impact on the river/coastal morphology of the creek and the flow hydrodynamics.

[**For details please refer section 5.7.1 of the report**.]

8.0 Recommendations

A. <u>For destruction of mangroves of 1.89 ha due to various industrial & its associated activities during assessment period 2011 to 2021</u>
In view of aforesaid violations:

i. M/s JSW may be directed to pay Rs. 3,28,99,438 (Rupees Three Crore Twenty-Eight Lakhs Ninety-Nine Thousand Four Hundred Thirty-Eight Only) considering the average inflation rate of 6.1454% from 2011 to 2021 as valuation of mangroves services cost.

ii. M/s JSW under the supervision of Forest Department – Mangrove Cell (Govt. of Maharashtra) and District's Revenue Department, should carry-out compensatory plantation of mangroves of 9.45 ha in the areas affected or destroyed or cut during the various activities. If the affected areas are not adequate/feasible for compensatory mangrove plantation, suitable area may be identified for compensatory mangrove plantation of 9.45 ha under the supervision of Forest Department – Mangrove Cell (Govt. of Maharashtra) and District's Revenue Department. The report on compensatory mangroves plantation along with necessary documentary evidences shall be submitted and be verified by the District Collector Office-Raigad.

[**For details please refer section 6.0 & 6.1 of the report**.]

B. <u>For loss of natural creek area of 0.77 ha due to various industrial activities of M/s JSW</u>

In view of the above:

i. M/s JSW under the supervision of NCSCM, Forest Department – Mangrove Cell (Govt. of Maharashtra) and District's Revenue Department, should submit time bound action plan for restoration of natural creek area of 0.77 ha, lost due to various industrial activities including remedial measures. The cost of restoration for natural creek may be utilized from the environmental compensation derived (as per section 6.0 & 6.2 of this report) as valuation of mangroves services cost and damages for contravening mandatory provisions of environmental laws. The report on restoration of natural creek along with necessary documentary evidences shall be submitted and be verified by the District Collector Office-Raigad.

[**For details please refer section 6.0 of the report**.]

C. <u>For violations provisions of Environmental and CRZ clearance in term of the provisions of the Environment Impact Assessment Notification, 2006 and CRZ Notification, 2011</u>

In view of aforesaid violations i.e. construction of conveyor belt & jetty in 50 m mangrove buffer areas prior obtaining leave from the Hon'ble High Court:

i. M/s JSW may be directed to pay environmental compensation of Rs. 5,89,50,000/- (Rupees Five Crore Eighty-Nine Lakhs and Fifty Thousand Only) as damages for contravening mandatory provisions of environmental laws.

[**For details please refer section 4.7 & 6.2 of the report**.]

D. <u>For various non-compliances of directions issued therein, non-compliances w.r.t. discharge of effluent, and emission under the Water (Prevention and Control of Pollution) Act, 1974 & Air (Prevention and Control of Pollution) Act, 1981</u>

In view of the aforesaid violations:

i. M/s JSW may be directed to pay environmental compensation of 1,60,80,000/- (Rupees One Crore Sixty Lakhs and Eighty Thousand

Only) for various non-compliances of directions issued under the provisions of the Water Act, 1974 & Air Act, 1981.

[**For details please refer section 4.8.1 of the report**.]

In view of the above w.r.t. A to D, total environmental compensation as applicable on M/s JSW is given below:

S. no.	**Various violations and non-compliances**	**Environmental Compensation in Rs.**
1.	Destruction of mangroves of 1.89 ha various industrial & its associated activities during assessment period 2011 to 2021 considering the average inflation rate of 6.1454%	3,28,99,438/-
2.	Construction of conveyor belt & jetty in 50 m mangrove buffer areas prior obtaining leave from the Hon'ble High Court	5,89,50,000/-
3.	Non-compliances w.r.t. directions issued under the provisions of the Water Act, 1974 & Air Act, 1981	1,60,80,000/-
Total Environmental Compensation in Rs.		**10,79,29,438/-**

Therefore, total environmental compensation in terms of valuation of mangroves services cost, damages for contravening mandatory provisions of environmental laws and non-compliances of directions issued under the provisions of the Water Act, 1974 & Air Act, 1981 as applicable on M/s JSW is worked out to be 10,79,29,438/- (Rupees Ten Crore Seventy-Nine Lakhs Twenty-Nine Thousand Four Hundred Thirty-Eight Only).

E. <u>For destruction of mangroves of 0.71 ha due to dumping of solid waste by Dolvi, Wadkal gram panchayats) during assessment period 2011 to 2021</u>
In view of aforesaid violations:

i. Zilla Parishad-Raigad may be directed to pay Rs. 1,23,59,048 (Rupees One Crore Twenty-Three Lakhs Fifty-Nine Thousand Forty-Eight Only) considering the average inflation rate of 6.1454% from 2011 to 2021 as valuation of mangroves services cost.

ii. Zilla Parishad-Raigad under the supervision of Forest Department – Mangrove Cell (Govt. of Maharashtra) and District's Revenue

Department, should carry-out compensatory plantation of mangroves of 3.55 ha in the areas affected or destroyed due to dumping of municipal solid waste. If the area under conveyor belt is not adequate/feasible for compensatory mangrove plantation, suitable area may be identified for compensatory mangrove plantation of 3.55 ha under the supervision of Mangrove Cell (Govt. of Maharashtra) and District's revenue department. The report on compensatory mangroves plantation along with necessary documentary evidences shall be submitted and be verified by the District Collector Office-Raigad.

iii. SDO-Pen should ensure that no further dumping of solid waste shall continue below the conveyor belt. Also, to expedite commissioning of new site for managing solid wastes in an environmentally sound manner in accordance with provisions stipulated under the Solid Waste Management Rules, 2016.

[**For details please refer section 6.0 & 6.1 of the report**.]

F. M/s JSW under the supervision of the Dist. Health Officer, Alibag to carry-out re-assessment w.r.t. characterization & analysis of 06 no. of employees (PFT< 75%) at reputed Govt. hospitals to evaluate whether industrial activities i.e. due to emissions of coke oven plant or smoking as causative factor for abnormal PFT (< 75%).

G. Kharland Department, Water Resource Department-Govt. of Maharashtra may be directed to submit time bound action plan along with budgetary estimate for repairing of damaged Kharbandisti bhands along the Dharamtar creek. Also, Kharland Department, Water Resource Department-Govt. of Maharashtra to ensure periodic maintenance of Kharbandisti bhands to prevent the ingress of saline water into adjoining areas including agricultural lands.

H. M/s JSW may be directed through MPCB to augment and also to ensure periodic maintenance air pollution control device i.e. pulse jet bag filter attached to common stack attached of coke oven battery charging & pushing

side (Ground de-dusting system of coke oven plant-1), Stack attached to kiln of lime calcination plant-2 and Stack attached to product discharge end & product sinter sizing house (sintering plant-1) to achieve the notified emission standards.

I. <u>For assistance to crop damage due to ingress of salty creek water into agricultural lands</u>
In view of the above:

i. Agriculture Dept., Govt. of Maharashtra may calculate the compensation amount i.e. assistance to crop damage based on crop productivity of the concerned revenue mandal and minimum support price of rice in that year. Such compensation amount as calculated by the Agriculture Dept., may be given to the beneficiaries by the Kharland Dept., Water Resource Department-Govt. of Maharashtra through the District Collector-Raigad.

[For details please refer section 4.4.4 of 4.4 of the report.]

(Dr. Sujit Kumar Bajpayee)
Joint Secretary, MoEF&CC,
Govt. of India

(Nishchal C.)
Scientist 'D',
CPCB, RD-Pune

(Prof. Anurag Garg)
IIT, Powai,
Mumbai

(Dr. Mahendra Kalyankar)
District Collector – Raigad
Govt. of Maharashtra

(Dr. Y. B. Sontake)
Joint Director
(Water), MPCB –
Mumbai

(N. N. Gurav)
Regional Officer
(HQ), MPCB –
Mumbai

(V. V. Killedar)
Regional Officer,
MPCB – Raigad

Date:26/12/2022

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Annexure-1

Item No. 04 (Court No. 1)

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

(By Video Conferencing)

Original Application No. 165/2020
(Earlier O. A. No. 122/2015 (WZ)
(M.A. No. 211/2015) & M.A. No.220/2015)

(With report dated 07.08.2020)

Samita Rajendra Patil Applicant

Versus

Jindal Steel Works Ltd. & Ors. Respondent(s)

Date of hearing: 27.05.2021

CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE MR. JUSTICE M. SATHYANARAYANAN, JUDICIAL MEMBER
HON'BLE MR. JUSTICE BRIJESH SETHI, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER

Applicant: Mr. Shriram S. Kulkarni and Mr. Aniruddha Kulkarni, Advocates

Respondent: Mr. T.N. Subramanian, Senior Advocate with Mr. Saket Mone, Advocate for R-1 and 2
Mr. Mukesh Verma, Advocate for MPCB and MCZMA

ORDER

1. Grievance in this application is against violation of environmental norms in running the industrial operations by respondents 1 and 2 - Jindal Steel Works Limited at Village Dolwi, Karawi, Gadab, KharKaravi, Kharmachela and Jui Bapuji and other surrounding areas, District Raigarh, near Mumbai.

2. The case set out in the application is that the location of the plant in question adjoins the creek up to village Dolvi. Kharmachela and other villages are covered by Mangroves which protect the environment in the area. Similarly, the Dharamtar creek has covered complete one side of

the plant. Even the large area of their plant was covered by the then existing mangroves. The respondent Company has also constructed the coke oven plant by destroying mangroves and construction of coke oven plant is in process. The Respondent is also causing expansion of the jetty. The respondents are using one conveyer belt. The company has not only destructed mangroves on a large scale within their company premises but also destroyed the natural water/creak water/ water channels in their activity. On 6th October, 2005 in a group of Petitions bearing W.P. No. 3246 of 2004, the Hon'ble Bombay High Court has issued various, directions including to the present Respondent authorities, for protection and reservation of the fast depleting mangrove forest. Mangrove area were directed to be identified including from privately owned land and declared/notified as forest. Similarly, no mapping of mangroves is done till date, within the knowledge of the applicants. On the contrary, the applicants are informed that respondents are not aware as to whether the conveyor belt is being constructed on the mangrove's area. Now the Respondent Company has encroached the natural creak channels, mangroves and destroyed the same and expanded their plant. The Respondent Company is having coke oven plant in the manufacturing of the Steel manufacturing plant. There is potential of adverse effect of coke plant on human health on account of noxious gases. Impact is also on the organism and/or via the food chain. Injurious heavy metals viz. lead, mercury, cadmium can enter the food chain. The plant is working and gases/smoke are generated on huge level which demonstrates that the Respondent Company has no concern with the environmental damage and human lives in the locality. The air pollution caused by the Respondent No. 1 Company has also destroyed the agricultural land, because the dust

carries the waste material of the company which gets settled on the agricultural field. The Respondent Nos. 1 and 2 have dumped the by-product/waste product in the surrounding area which has caused the air pollution, water pollution and soil pollution. Large area of village Kharmachi, Kharkaravi, Juibapuji, Dolwi, Kharchirbi, Wadkhal, Vave, Kolve etc. villages situated within Taluka Pen is covered by mangroves/kandalvan. It is useful for reproduction of the fishing activities and it maintains the natural balance of environment. It also controls the soil pollution. It also controls the creek water entering in the agricultural area. It is also useful for soil conservation. The huge waste material/by-product is generated in the manufacturing process of the respondent no. 1 and 2 activities which is illegally and dumped upon the mangroves spread over the large area of the villages referred hereinabove. Similarly, the said waste material is also dumped upon the Agricultural lands situated in the above said villages. The said by-product/hazardous material is dumped even in agricultural lands and it has also destroyed the fertility not only of those lands but also of the adjoining one. This by-/waste product has choked the natural drains/nalas and the rain water gets accumulated and either enters the agricultural fields with the said material or in the residential houses. Similarly, it destroys the aquatic flora and fauna and also affects their productivity. The salt level in the land has increased and it is dangerous to all types of crops. The Agricultural fields around salty water bodies are completely protected by a bandh which is popularly known as “Kharbandisti”. Kharbandisti protects the agricultural fields from sea water entering in them. This Kharbandisti is in existence since time immemorial. The respondent no. 1 and 2 have damaged the said Kharbandisti which has rendered the agricultural filed as unfertile. The factory premises as well as their village

and agricultural field are situated near creek which is popularly known as Dharmtar Creek. The natural canal of the creek water is passing East-West and situated on southern side of company premises. On the northern side of the field there is Kharbandisti. The Government has created a separate Khar Land Department which has to take the precaution to protect the agricultural land from the creek water and it is their duty to maintain the Kharbandisti. On 03.01.2015, the Tahasildar, Pen has informed the respondent no. 1 that the company has destroyed the Kharbandisti and the entire construction of the Bandh is incomplete between *Ughadi* No. 1 to *Ranchhoddas Ughadi* No. 4 and he called upon the report of the company about the action taken by them. The respondent Company has dumped the waste products in the mangrove areas, destroyed the mangroves of the large area and destroyed the aquatic life, in expansion of the Jetty. Fishing business has completely stopped and all the families of various villages referred hereinabove have lost their source of livelihood and the loss is enormous and beyond repairs, because once the sea water enters the agricultural field or if the soil is damaged by the bye products of the Respondent Company, it becomes infertile and then the villagers have no other option than to purchase the fertile land elsewhere and/or to shift from the said area forever in search of the livelihood.

3. The application was originally filed on 26.09.2015 before the Pune Bench and notice was issued on 01.10.2015 to the respondents which includes the Project Proponent, the Maharashtra State PCB, the Ministry of Environment, Forest and Climate Change (MoEF&CC) and the concerned authorities of the State of Maharashtra. Apart from the National Coastal Zone Management, the contesting respondents have filed their replies.

4. The State PCB in its reply filed on 22.12.2015 has stated that Environment Clearance has been granted for Jetty on 04.01.1995. The State PCB granted consent to operate and consent to establish to the predecessor of the respondent. On receiving a compliant about destruction of mangroves, the matter was referred to the District Collector, Raigad with regard to the EC conditions in constructing Jetty. It was found that additional length has been constructed without requisite EC. Further, air pollution control systems were inadequate for which show cause Notice was issued on 02.11.2015. A report was also sought about CRZ violations and adverse impact on health of villagers and the agricultural land. With regard to fish mortality, compensation was found to have been paid. The PCB has also directed taking of precautionary measures.

5. In the affidavit filed by the Project Proponent, apart from raising plea of limitation, it is stated that the Project Proponent is using latest technology of steel making and compact strip production (CSP) for producing hot rolled coils. The plant is also vital as it provides raw materials to feed the other JSW Steel cold rolling and downstream facilities at Vasind, Tarapur and Kalmeshwar. The plant also supplies steel to industries of national importance including the air and gas automotive and machinery industries, infrastructure and construction sectors, cold rollers industry, factories and consumers durables and steel production. In the year 1984 Nippon Denro Ispat Limited was established by its founding Chairman, Mr. M.L. Mittal with interests in Iron, Steel, mining, energy and manufacturing sectors and had set up various plans including the Dolvi Plant. This land has been declared as Industrial Zone by Government of Maharashtra as Nagothane Growth Centre as per

notification of Urban Development Department; Government of Maharashtra dated 04.07.1992. The plant of the respondent no. 1 was set up in the industrial zone duly notified by the Government of Maharashtra under a notification which is valid, legal and subsisting. On the issue of destruction of mangroves, it is stated that there is no destruction of mangroves by any of the activities carried out by the respondent no. 1 in the plant. Damage to the Khar Bandisti has also been denied. It is stated that respondent no. 1 has spent more than 2 crores for the repair and maintenance of the Khar Bandisti as a part of its Corporate Social Responsibility (CSR) activities and states that the Dharamtar creek is having around 25 kilometers of khar bandisti which is to be maintained by khar land Department of Government of Maharashtra. Respondent No. 1 has erected conveyor belt along sides the old conveyor belt. I further state that the land being used by the Respondent No. 1 is owned by the Maharashtra Maritime Board is enclosed by boundary wall. Hence, question of destruction of mangroves does not arise. On 05.05.2015, the Maharashtra Pollution Control Board has also issued consent to operate in favour of Amba River Coke Limited for running the Coke Oven Plant at Dolvi.

6. It is not necessary to refer to the pleadings filed by the other respondents.

7. Vide order dated 07.11.2017, in continuation of earlier directions, the Tribunal directed as follows:-

> *"Learned Counsel appearing on behalf of MPCB undertakes to produce copy of the investigative, scientific and laboratory analysis Reports in respect of various locations visited in connection with the said joint visit before us and give its suggestions in terms of prayer Clause 'b' of the Application in respect of pollution detected by them on 7.8.2016."*

8. On 30.01.2018, following further order was passed:-

> *"The Applicant's counsel could submit that MPCB as well as MCZMA have not complied with the direction of this Tribunal but submit a report making recommendations and suggestions which is factually incorrect. Mrs. Supriya Dangare, learned counsel for MPCB submits that based on the inspection appropriate recommendations and suggestions will be worked out and submit to the Tribunal. In the circumstances, we direct MPCB to prepare the report giving recommendations and suggestions and serve copy to the respondent industry for his response."*

9. On 28.07.2020, the matter was transferred to the Principal Bench. We have heard Learned Counsel for the applicant, the Project Proponent and the State PCB.

10. We have accordingly heard learned Counsel for the Applicant, the project proponent and for the MPCB. After referring to the averments in the application, learned counsel for the Applicant has drawn our attention to the report filed by the State PCB on 07.08.2020 in compliance of order dated 30.01.2018, as follows:-

> *"In compliance of the said Hon'ble NGT Order dated 30.01.2018, the Maharashtra Pollution Control Board is filing its report as under:-*
>
> *1. The Respondent Board has granted Consent to Operate to M/s. JSW Steel Ltd (Formerly known as M/s. Jindal Steel Works Ltd.) an Integrated Steel Plant, located at Dolvi Raigad, Tal: Pen, Dist: Raigad for HSM and BFP Plants vide consents dated 07.04.2018 and 02.11.2018 respectively. As per the consent conditions, the slag's generated from hot strip mill and blast furnace plant are under the Non-Hazardous Waste category.*
> *2. The Respondent Board issued a letter dtd. 05.08.2020 incorporating the following suggestions & recommendations to the Respondent industry.*
>
> *i. The industry shall comply with all conditions prescribed in the consent issued by the Board and dispose off existing as well as proposed generated slags as per consent conditions at designated places in scientific manner.*
> *ii. The industry shall also explore the possibilities of utilization of slag in cement manufacturing, used as aggregates in civil & road construction and brick manufacturing activity including land reclamation and in marine applications as per CPCB guideline without violating of consent conditions.*

iii. *The industry shall strictly follow the guideline on handling and management of High Volume Low Effect Waste Slag from pyrometallurgical operations of Iron & Steel and Ferrous Alloy units prepared by CPCB.*
iv. *The industry shall take all precautionary measures to avoid any soil contamination, groundwater and surface water pollution also any adverse effect on environment and nearby villagers.*
v. *The industry shall strictly comply with all consent condition, CPCB guidelines and orders issued by Hon'ble NGT."*

11. It was submitted that though the report shows that there are non-compliances, the true status of compliance has not been set out with reference to the allegations in the application.

12. Learned Counsel for the project proponent - respondent nos. 1 and 2, has drawn our attention to the compilation of documents filed, list of which is as follows:-

"

Sr. No.	***Date***	***Particulars***	***Page No.***
		Judgments/Orders	
1.	*17.09.2018*	*Judgment and Order of Hon'ble Bombay High Court in PIL No. 87 of 2006*	***1-83***
2.	*13.11.2017*	*Order of Hon'ble Bombay High Court in PIL No. 102 of 2014*	***84-91***
3.	*15.10.2019*	*Order of Hon'ble Bombay High Court in WP No. 1643 of 2019*	***92-94***
4.	*09.07.2020*	*Order of Hon'ble Bombay High Court in WP (st.) No. 4894 of 2020*	***95-102***
5.	*23.05.2017*	*Order of this Hon'ble Tribunal in Appeal No. 30 of 2016*	***103-124***
		Clearances/Permissions	
6.	*24.02.2015*	*CRZ Recommendation issued by Maharashtra Coastal Zone Management Authority (Respondent No. 2) ("**MCZMA**") for expansion of the existing jetty facility.*	***125-128***
7.	*25.08.2015*	*Environment clearance for further expansion of integrated steel plant from 5 MTPA to 10 MTPA and power plant from 300 MW to 600 MW*	***129-137***
8.	*26.11.2015*	*Environment and CRZ Clearance issued by the Ministry of Environment, Forest and climate Change dated 26.11.2015for Expansion of the Dharamtar Jetty facility.*	***138-144***

9.	26.03.2016	*Amended Environment and CRZ Clearance issued by the Ministry of Environment, Forest and Climate Change amending the Environment and CRZ Clearance dated 26.11.2015, for expansion of the Dharamtar Jetty facility.*	**145-146**
10.	16.02.2019	*CRZ Recommendation by MCZMA for construction of additional conveyor belts/ streams in respect of expansion of the Dharamtar Jetty facility.*	**147-148**
11	10.01.2020	*Amended Environment and CRZ Clearance issued by MoEFCC for construction of additional conveyor belts/streams in respect of expansion of the Dharamtar Jetty facility.*	**149-151**
Compliance of Order dated 30.01.2018 passed by this Hon'ble Tribunal			
12	06.08.2020	*Letter issued by Respondent No. 1 to MPCB in response to MPCB's letter dated 05.08.2020*	**152-154**
13	07.08.2020	*Compliance Report of MPCB*	**155-157**
Miscellaneous Document(s)			
	Jan-March 2018	*Report on Mangrove Restoration prepared by Nature Environment & Wildlife Society*	**158-183**

"

13. Having regard to the nature of the violations alleged in the application, which have been denied by the Project Proponent, we are of the view that an updated status report is required by an independent and credible Committee to determine whether any further remedial action is necessary. Learned Counsel for the PP submitted that acquittal orders may be looked into but the same are not relevant. Standard of proof in a criminal trial is different from civil case. We have not expressed any opinion on merits of the violation as we leave the question to be gone into later. It is however made clear that acquittal in criminal cases is not final for the civil liability in environmental law.

14. Accordingly, we constitute a five Members Joint Committee, to be headed by an officer of the rank of Joint Secretary, MoEF&CC, nominated by the Secretary MoEF&CC and comprising the CPCB, the IIT Mumbai, the District Magistrate, Raigad, the State PCB as Members. The Committee may look into the issues raised by the Applicant summed up

above including compliance of the Water and Air Acts and HoWM Rules, destruction of Mangroves and damage to Agriculture, if any, status of scientific disposal of solid waste. It may also estimate the extent of environmental damage and the amount of Compensation required and restitution plan (in case of non-compliance). The Committee will be at liberty to take assistance from any other Expert Institution or individual and conduct proceedings online, except for site visit, if necessary. The CPCB and the State PCB will facilitate the functioning of the Committee and act as nodal agency for coordination and compliance. The applicant as well as the project Proponent will be at liberty to represent their respective versions to the Committee through the State PCB. If the violations are found, the Committee may also suggest the amount of compensation to be recovered apart from other restoration measures. The Committee may give its report to the Tribunal as far as possible within four months by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF. The first meeting of the Committee may be held preferably within one month to take stock of situation and plan further course of action. While giving a report to this Tribunal, its copies be given to the applicant as well as the Project Proponent for their response, if any, before the next date.

In view of above order, all pending M.A.s stand disposed of.

A copy of this order be forwarded to Secretary MoEF&CC, CPCB, State PCB, District Magistrate, Raigad and IIT Mumbai by email for compliance.

List for further consideration on 06.12.2021.

Adarsh Kumar Goel, CP

Sudhir Agarwal, JM

M. Sathyanarayanan, JM

Brijesh Sethi, JM

Dr. Nagin Nanda, EM

May 27, 2021
Original Application No. 165/2020
(Earlier O. A. No. 122/2015 (WZ)
(M.A. No. 211/2015) & M.A. No.220/2015)
SN

Item No. 06 (Court No.01)

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

(By Video Conferencing)

Original Application No. 165/2020
(Earlier O. A. No.122/2015 (WZ)

Samita Rajendra Patil Applicant

Versus

Jindal Steel Works Ltd. & Ors. Respondent(s)

Date of hearing: 04.03.2022

CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE PROF. A. SENTHIL VEL, EXPERT MEMBER
HON'BLE DR. AFROZ AHMAD, EXPERT MEMBER

Applicant: Mr. Shriram Kulkarni, Advocate

Respondents: Mr. Mukesh Verma, Advocate for MPCB
Mr. Pinaki Misra, Senior Advocate with Ms. Gauri Rasgotra, Advocate for R - 1 & 2

ORDER

1. Grievance in this application is against violation of environmental norms in running the industrial operations by the project proponents (PP), respondents 1 and 2 - Jindal Steel Works Limited at Village Dolwi, Karawi, Gadab, KharKaravi, Kharmachela and Jui Bapuji and other surrounding areas, District Raigarh, near Mumbai.

2. The matter has been examined and monitored by this Tribunal on several occasions in the last more than six years in the light of pleadings of the parties and reports of the regulators, furnished in pursuance of directions of the Tribunal. Since serious violations of environmental norms were found to be continuing, an updated status report was sought

vide last order dated 27.5.2021 from an independent fact finding committee after undertaking visit to the site and considering the versions of the stakeholders. The Committee was also to suggest remedial action for future and compensation on 'Polluter Pays' principle to cover the restoration cost for the past violations. Last order is quoted below in extenso for maintaining continuity:-

> **"***2. The case set out in the application is that the location of the plant in question adjoins the creek up to village Dolvi. Kharmachela and other villages are covered by Mangroves which protect the environment in the area. Similarly, the Dharamtar creek has covered complete one side of the plant. Even the large area of their plant was covered by the then existing mangroves. The respondent Company has also constructed the coke oven plant by destroying mangroves and construction of coke oven plant is in process. The Respondent is also causing expansion of the jetty. The respondents are using one conveyer belt. The company has not only destructed mangroves on a large scale within their company premises but also destroyed the natural water/creak water/ water channels in their activity. On 6th October, 2005 in a group of Petitions bearing W.P. No. 3246 of 2004, the Hon'ble Bombay High Court has issued various, directions including to the present Respondent authorities, for protection and reservation of the fast depleting mangrove forest. Mangrove area were directed to be identified including from privately owned land and declared/notified as forest. Similarly, no mapping of mangroves is done till date, within the knowledge of the applicants. On the contrary, the applicants are informed that respondents are not aware as to whether the conveyor belt is being constructed on the mangrove's area. Now the Respondent Company has encroached the natural creak channels, mangroves and destroyed the same and expanded their plant. The Respondent Company is having coke oven plant in the manufacturing of the Steel manufacturing plant. There is potential of adverse effect of coke plant on human health on account of noxious gases. Impact is also on the organism and/or via the food chain. Injurious heavy metals viz. lead, mercury, cadmium can enter the food chain. The plant is working and gases/smoke are generated on huge level which demonstrates that the Respondent Company has no concern with the environmental damage and human lives in the locality. The air pollution caused by the Respondent No. 1 Company has also destroyed the agricultural land, because the dust carries the waste material of the company which gets settled on the agricultural field. The Respondent Nos. 1 and 2 have dumped the byproduct/waste product in the surrounding area which has caused the air pollution, water pollution and soil pollution. Large area of village Kharmachi, Kharkaravi, Juibapuji, Dolwi, Kharchirbi, Wadkhal, Vave, Kolve etc. villages situated within Taluka Pen is covered by mangroves/kandalvan. It is useful for reproduction of the fishing activities and it maintains the natural balance of environment. It also controls the soil pollution. It also controls the creek water entering in the agricultural area. It is*

also useful for soil conservation. The huge waste material/by-product is generated in the manufacturing process of the respondent no. 1 and 2 activities which is illegally and dumped upon the mangroves spread over the large area of the villages referred hereinabove. Similarly, the said waste material is also dumped upon the Agricultural lands situated in the above said villages. The said by-product/hazardous material is dumped even in agricultural lands and it has also destroyed the fertility not only of those lands but also of the adjoining one. This by- /waste product has choked the natural drains/nalas and the rain water gets accumulated and either enters the agricultural fields with the said material or in the residential houses. Similarly, it destroys the aquatic flora and fauna and also affects their productivity. The salt level in the land has increased and it is dangerous to all types of crops. The Agricultural fields around salty water bodies are completely protected by a bandh which is popularly known as "Kharbandisti". Kharbandisti protects the agricultural fields from sea water entering in them. This Kharbandisti is in existence since time immemorial. The respondent no. 1 and 2 have damaged the said Kharbandisti which has rendered the agricultural filed as unfertile. The factory premises as well as their village and agricultural field are situated near creek which is popularly known as Dharmtar Creek. The natural canal of the creek water is passing EastWest and situated on southern side of company premises. On the northern side of the field there is Kharbandisti. The Government has created a separate Khar Land Department which has to take the precaution to protect the agricultural land from the creek water and it is their duty to maintain the Kharbandisti. On 03.01.2015, the Tahasildar, Pen has informed the respondent no. 1 that the company has destroyed the Kharbandisti and the entire construction of the Bandh is incomplete between Ughadi No. 1 to Ranchhoddas Ughadi No. 4 and he called upon the report of the company about the action taken by them. The respondent Company has dumped the waste products in the mangrove areas, destroyed the mangroves of the large area and destroyed the aquatic life, in expansion of the Jetty. Fishing business has completely stopped and all the families of various villages referred hereinabove have lost their source of livelihood and the loss is enormous and beyond repairs, because once the sea water enters the agricultural field or if the soil is damaged by the bye products of the Respondent Company, it becomes infertile and then the villagers have no other option than to purchase the fertile land elsewhere and/or to shift from the said area forever in search of the livelihood.

3. The application was originally filed on 26.09.2015 before the Pune Bench and notice was issued on 01.10.2015 to the respondents which includes the Project Proponent, the Maharashtra State PCB, the Ministry of Environment, Forest and Climate Change (MoEF&CC) and the concerned authorities of the State of Maharashtra. Apart from the National Coastal Zone Management, the contesting respondents have filed their replies.

4. The State PCB in its reply filed on 22.12.2015 has stated that Environment Clearance has been granted for Jetty on 04.01.1995. The State PCB granted consent to operate and consent to establish to the predecessor of the respondent. On receiving a compliant about

destruction of mangroves, the matter was referred to the District Collector, Raigad with regard to the EC conditions in constructing Jetty. It was found that additional length has been constructed without requisite EC. Further, air pollution control systems were inadequate for which show cause Notice was issued on 02.11.2015. A report was also sought about CRZ violations and adverse impact on health of villagers and the agricultural land. With regard to fish mortality, compensation was found to have been paid. The PCB has also directed taking of precautionary measures.

5. In the affidavit filed by the Project Proponent, apart from raising plea of limitation, it is stated that the Project Proponent is using latest technology of steel making and compact strip production (CSP) for producing hot rolled coils. The plant is also vital as it provides raw materials to feed the other JSW Steel cold rolling and downstream facilities at Vasind, Tarapur and Kalmeshwar. The plant also supplies steel to industries of national importance including the air and gas automotive and machinery industries, infrastructure and construction sectors, cold rollers industry, factories and consumers durables and steel production. In the year 1984 Nippon Denro Ispat Limited was established by its founding Chairman, Mr. M.L. Mittal with interests in Iron, Steel, mining, energy and manufacturing sectors and had set up various plans including the Dolvi Plant. This land has been declared as Industrial Zone by Government of Maharashtra as Nagothane Growth Centre as per notification of Urban Development Department; Government of Maharashtra dated 04.07.1992. The plant of the respondent no. 1 was set up in the industrial zone duly notified by the Government of Maharashtra under a notification which is valid, legal and subsisting. On the issue of destruction of mangroves, it is stated that there is no destruction of mangroves by any of the activities carried out by the respondent no. 1 in the plant. Damage to the Khar Bandisti has also been denied. It is stated that respondent no. 1 has spent more than 2 crores for the repair and maintenance of the Khar Bandisti as a part of its Corporate Social Responsibility (CSR) activities and states that the Dharamtar creek is having around 25 kilometers of khar bandisti which is to be maintained by khar land Department of Government of Maharashtra. Respondent No. 1 has erected conveyor belt along sides the old conveyor belt. I further state that the land being used by the Respondent No. 1 is owned by the Maharashtra Maritime Board is enclosed by boundary wall. Hence, question of destruction of mangroves does not arise. On 05.05.2015, the Maharashtra Pollution Control Board has also issued consent to operate in favour of Amba River Coke Limited for running the Coke Oven Plant at Dolvi.

6. It is not necessary to refer to the pleadings filed by the other respondents.

7. Vide order dated 07.11.2017, in continuation of earlier directions, the Tribunal directed as follows:-

> *"Learned Counsel appearing on behalf of MPCB undertakes to produce copy of the investigative, scientific and laboratory analysis Reports in respect of various locations visited in*

connection with the said joint visit before us and give its suggestions in terms of prayer Clause 'b' of the Application in respect of pollution detected by them on 7.8.2016."

8. On 30.01.2018, following further order was passed:-
"The Applicant's counsel could submit that MPCB as well as MCZMA have not complied with the direction of this Tribunal but submit a report making recommendations and suggestions which is factually incorrect. Mrs. Supriya Dangare, learned counsel for MPCB submits that based on the inspection appropriate recommendations and suggestions will be worked out and submit to the Tribunal. In the circumstances, we direct MPCB to prepare the report giving recommendations and suggestions and serve copy to the respondent industry for his response."

9. On 28.07.2020, the matter was transferred to the Principal Bench. We have heard Learned Counsel for the applicant, the Project Proponent and the State PCB.

10. We have accordingly heard learned Counsel for the Applicant, the project proponent and for the MPCB. After referring to the averments in the application, learned counsel for the Applicant has drawn our attention to the report filed by the State PCB on 07.08.2020 in compliance of order dated 30.01.2018, as follows:-

"In compliance of the said Hon'ble NGT Order dated 30.01.2018, the Maharashtra Pollution Control Board is filing its report as under:-

1. The Respondent Board has granted Consent to Operate to M/s. JSW Steel Ltd (Formerly known as M/s. Jindal Steel Works Ltd.) an Integrated Steel Plant, located at Dolvi Raigad, Tal: Pen, Dist: Raigad for HSM and BFP Plants vide consents dated 07.04.2018 and 02.11.2018 respectively. As per the consent conditions, the slag's generated from hot strip mill and blast furnace plant are under the Non-Hazardous Waste category.

2. The Respondent Board issued a letter dtd. 05.08.2020 incorporating the following suggestions & recommendations to the Respondent industry.

i. The industry shall comply with all conditions prescribed in the consent issued by the Board and dispose off existing as well as proposed generated slags as per consent conditions at designated places in scientific manner.
ii. The industry shall also explore the possibilities of utilization of slag in cement manufacturing, used as aggregates in civil & road construction and brick manufacturing activity including land reclamation and in marine applications as per CPCB guideline without violating of consent conditions.

iii. *The industry shall strictly follow the guideline on handling and management of High Volume Low Effect Waste Slag from pyrometallurgical operations of Iron & Steel and Ferrous Alloy units prepared by CPCB.*

iv. *The industry shall take all precautionary measures to avoid any soil contamination, groundwater and surface water pollution also any adverse effect on environment and nearby villagers.*

v. *The industry shall strictly comply with all consent condition, CPCB guidelines and orders issued by Hon'ble NGT."*

11. It was submitted that though the report shows that there are non-compliances, the true status of compliance has not been set out with reference to the allegations in the application.

12. Learned Counsel for the project proponent - respondent nos. 1 and 2, has drawn our attention to the compilation of documents filed, list of which is as follows:-

Sr. No.	***Date***	***Particulars***	***Page No.***
		Judgments/Orders	
1.	*17.09.2018*	*Judgment and Order of Hon'ble Bombay High Court in PIL No. 87 of 2006*	***1-83***
2.	*13.11.2017*	*Order of Hon'ble Bombay High Court in PIL No. 102 of 2014*	***84-91***
3.	*15.10.2019*	*Order of Hon'ble Bombay High Court in WP No. 1643 of 2019*	***92-94***
4.	*09.07.2020*	*Order of Hon'ble Bombay High Court in WP (st.) No. 4894 of 2020*	***95-102***
5.	*23.05.2017*	*Order of this Hon'ble Tribunal in Appeal No. 30 of 2016*	***103-124***
		Clearances/Permissions	
6.	*24.02.2015*	*CRZ Recommendationissued by Maharashtra CoastalZone Management Authority (Respondent No. 2) ("**MCZMA**") for expansion of the existing jetty facility.*	***125-128***
7.	*25.08.2015*	*Environment clearance forfurther ex*	***129-137***
8.	*26.11.2015*	*Environment and CRZ Clearance issued by the Ministry of Environment, Forest and*	***138-144***

9.	*26.03.2016*	*Amended Environment andCRZ Cle Change amending the Environment and CRZ Clearance dated 26.11.2015, for expansion of the DharamtarJetty facility*	***145-146***
10.	*16.02.2019*	*CRZ Recommendation by MCZMA fo construction of additional conveyor belts/ streams in respect of expansion of the Dharamtar Jetty facility.*	***147-148***
11.	*10.01.2020*	*Amended Environment and CRZ Clearance issued by MoEFCC for construction of additional conveyor belts/ streams in respect of expansion of the Dharamtar Jetty facility.*	***149-151***
Compliance of Order dated 30.01.2018 passed by this Hon'ble Tribunal			
12.	*06.08.2020*	*Letter issued by Respondent No. 1 to MPCB in response to MPCB's letter dated 05.08.2020*	***152-154***
13.	*07.08.2020*	*Compliance Report of MPCB*	***155-157***
Miscellaneous Document(s)			
14.	*Jan-March 2018*	*Report on Mangrove Restoration prepared by Nature Environment & Wildlife Society*	***158-183***

13. Having regard to the nature of the violations alleged in the application, which have been denied by the Project Proponent, we are of the view that an updated status report is required by an independent and credible Committee to determine whether any further remedial action is necessary. Learned Counsel for the PP submitted that acquittal orders may be looked into but the same are not relevant. Standard of proof in a criminal trial is different from civil case. We have not expressed any opinion on merits of the violation as we leave the question to be gone into later. It is however made clear that acquittal in criminal cases is not final for the civil liability in environmental law.

14. Accordingly, we constitute a five Members Joint Committee, to be headed by an officer of the rank of Joint Secretary, MoEF&CC, nominated by the Secretary MoEF&CC and comprising the CPCB, the IIT Mumbai, the District Magistrate, Raigad, the State PCB as Members. The Committee may look into the issues raised by the Applicant summed up above including compliance of the Water and Air Acts and HoWM Rules, destruction of Mangroves and damage to Agriculture, if any, status of scientific disposal of solid waste. It may also estimate the extent of environmental damage and the amount of Compensation required and restitution plan (in case of non-compliance). The Committee will be at liberty to take assistance from

*any other Expert Institution or individual and conduct proceedings online, except for site visit, if necessary. The CPCB and the State PCB will facilitate the functioning of the Committee and act as nodal agency for coordination and compliance. The applicant as well as the project Proponent will be at liberty to represent their respective versions to the Committee through the State PCB. If the violations are found, the Committee may also suggest the amount of compensation to be recovered apart from other restoration measures. The Committee may give its report to the Tribunal as far as possible within four months by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF. The first meeting of the Committee may be held preferably within one month to take stock of situation and plan further course of action. While giving a report to this Tribunal, its copies be given to the applicant as well as the Project Proponent for their response, if any, before the next date.***"***

3. In pursuance of above, report of the joint Committee dated 21.01.2022 has been filed through the CPCB. Even though the matter may have to be deferred in view of prayer of Committee for extension of time to complete the proceedings, we may make a brief reference to the report and objections of the applicants thereto.

4. The Committee conducted its proceedings online and required specified agencies to give their assessments about the ground situation to the Committee. Such assessments were further considered online by the Committee. Further information was sought from the concerned authorities/sub-committees. Third meeting of the Committee discussed the status with regard to haphazard dumping of waste in the mangrove buffer zone close to the conveyor belt of the PP. The Committee thought the source of the waste to be from Panchayats, which is disputed by the applicants. It also noted destruction of mangroves, apart from haphazard dumping of waste, industrial emissions, haphazard dumping of de-silted sludge along the creek, storing of slag and other material generated during industrial operations for which action was required to be taken by the State PCB. Since validation and final assessment of the ground situation was yet to be completed, further time has been sought.

5. In their response, the applicants have submitted that they had no notice of visit of representatives of the Committee and could not present their version. The PP is responsible for various violations found by the Committee and those pointed out by the applicants in their objections. The applicants have disputed the fact that the waste in the mangroves was municipal waste. According to them, the waste is dumped at the instance of the PP to reclaim the land. The waste is dumped not only at the site noticed but at various other sites specified in the objections. Apart from unscientific dumping waste, there is discharge of untreated hazardous effluent in the creek, adversely affecting aquatic life. There is also illegal construction of a bridge by dumping waste material and destroying the mangrove.

6. We may now reproduce the relevant observation from the report of the Committee as well of the applicants in their objections:-

Report of the Committee

> **"***The joint committee under the Chairmanship of Shri Jigmet Takpa, Joint Secretary, MoEF&CC convened its first meeting through video conferencing on 04/08/2021. The joint committee deliberated in detail on various alleged issues mentioned in the Hon'ble NGT order dated 27/05/2021 w.r.t. non-compliances of Water & Air Acts, HOWM Rules, destruction of mangroves/creeks/natural channels/nallahs, damage to agriculture fields and unscientific disposal of slag by M/s Jindal Steel Works Ltd., Dolwi and directions passed by the Hon'ble NGT to the committee. After detailed discussions, various assessment/studies were identified to be carried out through respective concerned agencies and an action plan was also formulated in order to comply with the aforesaid order of the Hon'ble NGT. Copy of such identified assessment/studies and respective concerned agencies are given in the minutes of first meeting of the joint committee is given at Annexure-1. Such concerned agencies were requested vide emails in August 2021 to submit assessment/studies reports as per the said action plan. Thereafter, follow ups were also carried out. Representations from applicant were also received and concerned agencies were also requested to incorporate such represented issues in their assessment/studies reports.*

Upon receipt of assessment/studies reports from concerned agencies (viz. NCSCM-Chennai, MoEF&CC-Nagpur, MPCB, District Collector-Raigad, Khar Land Department, Agriculture Department and District Health Officer) during October, 2021, the committee made detailed deliberations on findings/gaps in the assessment/studies reports during second meeting held on 19/11/2021 through video conferencing. Following are decisions in brief taken during the said second meeting:

(i) NCSCM to further carry-out assessment studies w.r.t. destruction of mangroves, loss/encroachment of natural creeks and mangrove buffer areas in terms of time-series maps.

(ii) Reporting of damages/loss/encroachment of mangroves/natural creeks/mangrove buffer areas taking into account of mapping of mangroves and natural creeks reported by Maharashtra Remote Sensing Application Centre (MRSAC);

(iii) A sub-committee headed by the District Collector-Raigad or his representative not below the rank of Add. District Magistrate, with representatives from Mangrove Cell (Govt. of Maharashtra), NCSCM, MRSAC and the District Revenue Department, to carry out field validation of damage/encroachment of mangroves/mangroves buffer zone/creeks as per satellite image report of NCSCM along with landownership of such premises & activities therein. Action plan for review including validation through field survey on various activities by the aforesaid sub-committee and concerned agencies, including Terms of Reference (ToR) were also prepared by the committee.

(iv) Various assessment studies/report to also include areas in & around 13 no. of alleged villages.

(v) The sub-committee to also co-ordinate with various other concerned organisations & evaluate (with field validation also) other damage assessment/reports of various agencies such as State Agricultural Dept., State Khar Land Dept., State Fisheries Dept. and State Maritime Board.

(vi) The said sub-committee to submit its target date,as expeditious as possible, to the joint committee for each of the activitiesto enable the committee in seeking necessary time extension by the Hon'ble NGT.

(vii) Upon receipt of the aforesaid sub-committee's report with field validations, wherever applicable, the joint committee shall carry-out site inspection wherein source/fugitive emission monitoring of the coke oven plant and ambient air quality monitoring shall also be carried out by MPCB and CPCB. Such monitoring & analysis may be carried out by MPCB Laboratory. In case, such facility is not available with MPCB Laboratory, MPCB may engage EPA approved or NABL accredited Laboratory for the same. Meanwhile, it was also felt prudent to have a field visit by a team comprising of Sh. Sundeep, Director, MoEF&CC, Sh. Bharat Sharma, Regional Director, CPCB RD Pune, Sh. Nishchal C., Sc. D, CPCB RD Pune, and senior officers of MPCB for further assessment of some of the findings apart from the scope defined for the sub-committee as the joint committee observed that the findings

and preliminary assessment are based either on secondary data or are have been provided by the concerned agencies.

(viii) Health record of employees working in the coke oven plant of the industry under reference for the assessment period w.e.f. September, 2010 to May, 2021, may also be assessed especially w.r.t. respiratory diseases by the District Health Officer. Report in this regard be submitted to the joint committee by the District Collector, Raigad through District Health Officer

(ix) With regard to valuation of services losses due to encroachment/loss/destruction of mangroves, natural creeks and mangroves buffer areas including required remedial measures, restitution plan and estimated cost thereto, an expert committee comprising of representative from NCSCM, Indian Institute of Forest Management-Bhopal, Madras School of Economics, Mangrove Cell (Govt. of Maharashtra) and NEERI has been decided to be constituted. The expert committee to deliberate and work out approach/methodology for such valuation/remedial measures/restitution plan and estimated cost which may be applied on validated encroachment/loss data to be worked out by the sub-committee.

Details of the aforesaid decisions/activities/action plan including ToR are given in the minutes of second meeting of the joint committee at Annexure-2.

Accordingly, the concerned agencies were requested vide email dated 30/11/2021, 10/12/2021 and 17/01/2022 to execute/validate as per the aforesaid action plan and ToR therein and submit time target to the joint committee for completion of the same.

Also, as decided during the second joint committee meetingheld on 19/11/2021, a team of committee members/officials from MoEF&CC, CPCB and MPCB carried-out site inspection of M/s JSW Ltd., during 29/12/2021 to 30/12/2021. A meeting with the various concerned agencies were also held during the said site visit to assess the status/progress of various assessment studies and field survey on 29/12/2021, followed by meeting with the District Collector, Raigad and District Range Forest Officer – Mangrove Cell on 30/12/2021 to discuss the status and way forward of the action plan, ToR and timely compliance of the Hon'ble NGT order.

During the said meeting on 29/12/2021, locations and parameters for monitoring of ambient air quality, fugitive emission and source emission were decided. During the field visit, the team observed sporadic and haphazard dumping of municipal solid waste within the 50 m mangrove buffer zone of the conveyor belt area of M/s JSW Ltd., i.e. from the stretch between Maharashtra Maritime Board jetty till the approach road of the Alibaug-Mumbai highway. It is gathered through the District Administration that the particular land is Govt. owned and the municipal solid waste has been dumped illegally by the nearby gram panchayats viz. Dolvi and Vadkhal in the 50 m mangrove buffer area. Satellite image depicting the destruction of mangroves and photographs depicting the destruction of mangroves

including sporadic and haphazard dumping of municipal solid waste is given at Photographs 1 to 4.

During the meeting, District Administration and Mangrove Dept. were requested to take suitable action against the village panchayat for destruction of mangroves, construction of illegal approach road and illegal dumping of municipal solid waste in the mangrove buffer area. It was also requested that appropriate remedial measures be taken and implemented for restoration of the reported damaged mangrove buffer areas.

The team also made the following observations:

i. *Emission from the stack attached to sintering plant was observed, it needs to be ascertained the cause of such emission and its frequency after analysis of the feed composition and adequacy of the pollution control system installed for control of emission from sinter plant.*
ii. *Fugitive emissions (secondary emissions) were observed during the visit from Steel melting shop-1. Reportedly, the dilapidated enclosure sheets were removed for installation of new enclosure sheets. As reported, replacement of enclosure sheets were under progress as routine maintenance work, however, due to lack of proper planning and scheduling of maintenance activities, such emission happens. Industry shall ensure that appropriate standard maintenance practices (SMP) is developed and adopted to avoid such episodes emissions.*
iii. *The industry has carried-out de-silting of natural creek, passing through the industrial premises. It is observed that the de-silted sludge was haphazardly dumped along the natural creek, leading spillage back into the natural creek. The industry has not identified the designated storage area for handling and storage of de-silted sludge. Also, not having the management and utilization plan for the same. Housekeeping and proper management plan for such de-silting waste from the creek channel may be developed by the industry in a tome bound manner.*
iv. *Slag generated from the steel melting shop is stored near the slag processing plant was devoid of wind breaking walls, such inadequate containment measures may contribute to area sources of air pollution during transportation, handling of slag and during winds.*
v. *Similarly, the raw material handling and storage area meant for storage of iron bearing material, carbon bearing material, fluxes and coal was also observed to be devoid of adequate wind breaking walls, such inadequate containment measures may contribute to area sources of air pollution during transportation/handling of raw materials and during winds.*

MPCB was requested to take necessary action against the industry. Accordingly, MPCB vide letter No. BO/RO-Raigad/TB-220103-FTS-0170, dated 03/01/2022 has directed the industry to submit the action plan along with time line for compliance of the points within a period of three days from the receipt of letter from MPCB.

*It is humbly submitted that work of field validation/assessment/studies as per the action plan and ToR by various agencies, as identified by the joint committee, are in progress. Further, considering the quantum of works to be completed, no. of State Govt. agencies & research institutes involved for carrying out various field validation/assessment/studies, as above and given at Annexure-2, and due to the present pandemic situation, the Hon'ble NGT may kindly grant extension of time period of three months to the joint committee for submitting its report in compliance with aforesaid order dated 27/5/2021.***"**

7. Action plan prepared in the meeting of the Committee has been annexed to the report is as follows:-

"Annexure – II

Action plan for compliance of Hon'ble NGT order and Terms of Reference of sub-committee constituted in meeting dated 19.11.2021

S. no.	Assessment on various activities/studies	Present status of assessment on various activities/studies	Terms of Reference for assessment on various activities/studies	Responsible agency/ Sub-committee
1.	Destruction of mangroves of Dharamtar creek and within & around M/s JSW premises (w.e.f. September, 2010 to May, 2021) due to various developmental/ expansion activities carried-out by M/s JSW.	As per the studies undertaken using satellite images and report submitted by NCSCM that during 1997 – 2021 the total loss of mangrove areas estimated at Site-1 is 12.4 ha and at Site-2 is 9.25 ha.	a. Compilation of three set of time-series satellite maps at Site-1 & Site-2 w.r.t. status of destruction of mangroves of Dharamtar creek and within & around M/s JSW viz. 1997 to August, 2010, September, 2010 to 2014 and 2015 till May, 2021, to delineate the present status. b. To examine mapping of mangroves reported by MRSAC and the same to be taken into account while reporting damages/ loss of mangroves areas, if any, in its report, c. After compilation w.r.t. a & b, at above, delineation of the area(s) under Site-1 and Site-2 with superimposition of land revenue map, to validate such reported loss/destruction of mangrove areas falling within M/s JSW	i. National Centre for Sustainable Coastal Management (NCSCM), Chennai. NCSCM to carry-out activity i.e. a & b of Col. No. 4 and submit its report to the sub-committee. ii. MPCB will make the maps of mangroves and natural creeks prepared by Maharashtra Remote Sensing Application Centre (MRSAC), available to NCSCM. iii. The sub-committee headed by the District Collector-Raigad, with representatives from Mangrove Cell (Govt. of Maharashtra), NCSCM, Maharashtra Remote Sensing Application Centre, (MRSAC), and the District Revenue Department to carry-out activity i.e. c & d of Col. No. 4 as per report provided by NCSCM and also gathering other information/ data/ report.

			premises, Govt. land and Pvt. Land if any; through reconnaissance survey including activities at such lands. d. Mapping reported damages of mangroves areas with activities (direct or indirect) of M/s JSW by field validation and relevant information collation.	
i	Valuation of services losses due to encroachment/loss/destruction of mangroves areas including required remedial measures, restitution plan and estimated cost thereto.	--	An expert committee to rationalize and propose approach/methodology for monetizing through valuation of services and cost for remedial measures / restitution plan and propose rationale / algorithm for estimating cost which may be applied on validated destruction/ encroachment/ loss of mangroves observed, if any.	Expert committee comprising representatives from NCSCM, Indian Institute of Forest Management (IIFM) Bhopal, Madras School of Economics, Mangrove Cell (Govt. of Maharashtra) and NEERI.
2	Status of encroachment of natural creeks and channels with details due to various developmental/ expansion activities carried-out by M/s JSW including jetty areas (w.e.f. September, 2010 to May, 2021).	As per the report of District Collector, Raigad; no encroachment or unauthorized construction has been done in natural creek or nala by M/s JSW. However, as per report of NCSCM; the total loss of area of Natural Creeks estimated at two locations viz. Natural Creek # 1 is 1.27 ha and at Natural Creek # 2 is 1.09 ha.	a. Compilation of three set of time-series satellite maps at Site-1 & Site-2 w.r.t. loss/encroachment of area of Natural Creeks and within & around M/s JSW viz. 1997 to August, 2010, September, 2010 to 2014 and 2015 till May, 2021, to delineate the present status. b. To examine and mapping of natural creeks reported by MRSAC and the same to be taken into account while reporting loss/encroachment of natural creeks areas in its report.	i. NCSCM to carry-out activity i.e. a & b of Col. No. 4 and submit its report to the sub-committee. ii. iii. MPCB will make the maps of mangroves and natural creeks prepared by Maharashtra Remote Sensing Application Centre (MRSAC), available to NCSCM. iv. The sub-committee headed by the District Collector-Raigad, with representatives from Mangrove Cell (Govt. of Maharashtra), NCSCM, Maharashtra Remote Sensing

			c. After compilation w.r.t. a & b, at above, delineation of the Natural Creek-1 & 2 with superimposition of land revenue map, to validate such reported loss/encroachment of area of Natural Creeks, caused due to activities (Direct/indirect) of M/s. JSW and identification as within/outside the premises of M/s JSW premises, Govt. land and Pvt. Land if any; through reconnaissance survey including present activities on such lands. d. Establishing reported loss/encroachment of Natural Creeks with the activities of M/s JSW by field validation and relevant information collation.	Application Centre, (MRSAC), and the District Revenue Department to carry-out activity i.e. c & d of Col. No. 4 as per report provided by NCSCM and also gathering other information/ data/ report.
i	Valuation of services losses due to encroachment/ loss of Natural Creek areas including required remedial measures, restitution plan and estimated cost thereto.	--	After completion of works w.r.t. a, b, c & d of above, and validation, submission of reports by the sub-committee, the expert committee to work out approach/methodology for such valuation/ remedial measures/ restitution plan and estimated cost which may be applied on validated encroachment/ loss of Natural Creek areas data being worked out by the sub-committee.	Expert committee comprising representatives from NCSCM, Indian Institute of Forest Management (IIFM) Bhopal, Madras School of Economics, Mangrove Cell (Govt. of Maharashtra) and NEERI.
3	Assessment of adverse effects due to emissions from coke oven plant.			
i	Source emission monitoring of stack attached to cove oven plant.	--	a. To carry-out source emission monitoring of stack attached to coke oven plant for the notified standards /parameters/ as per	W.r.t. (a to d): Jointly by MPCB and CPCB during joint committee visit.

			CC&A i.e.SO2, NOx, PM and CO. b. Fugitive emission for PM during coke pushing in coke oven and during quenching operation in coke oven. c. Fugitive emission for BaP near battery area and near other units in coke oven plant. d. Fugitive visible emissions (PLD, PLL & PLO) of Coke oven as per prevailing notification of CTO condition battery areas.	
ii	Ambient air quality monitoring.	--	To carry-out ambient air quality monitoring at 03 locations at about 120º inside & outside the plant premises, preferably at alleged locations, near to residential area shall be carried-out jointly by MPCB and CPCB during joint committee visit for the parameters viz. PM10, PM2.5, SO2, NO2, CO.	Jointly by MPCB and CPCB during joint committee visit.
4	Assessment on illegal dumping of by-products/waste products i.e. slag generated by M/s JSW on mangrove areas, natural drains/nalas and also on agriculture lands in & around alleged villages (viz. Kharmachi, Kharkaravi, Juibapuji, Dolwi, Kharchirbi, Wadkhal, Vave, Kolve etc. situated within Taluka Pen). Also, on agricultural land/private lands/Govt. lands in & around alleged villages (viz. Gadab, Beneghat, Khardombi, Kharjambhela and Kharghat), (w.e.f. September, 2010 to May, 2021).			
i	Inventorization of various by-products/waste products, their management as per CC&A conditions, status of management of the same w.r.t. disposal and utilization details.	As per report of MPCB, w.e.f. 2008 to 2021, M/s JSW has generated 95,14,831 MT of slag, out of which 92,12,044 MT has been either reused for captive utilization as RM, disposal in low-lying areas within premises as per CC&A and also on private	a. To provide the status/information on various parties to whom slags were handed over, slags intended use while handing over, nature of actual use of the slags by the parties, locations where used and land ownership details, MoU/ consent of individual(s) etc. taking into	W.r.t. (a and b): MPCB

		lands.	account of Environment Statement of M/s JSW also. b. Mass balance on generation, storage and disposal/transfer of slags during September, 2010 to May, 2021	
ii	Assessment of illegal dumping of by-products/waste products i.e. slag generated by M/s JSW on mangrove areas, natural drains/nalas in the aforesaid alleged villages.	As per the studies undertaken using satellite images and report submitted by NCSCM, the details of dumping of waste/by-products on the mangrove areas, natural drains/nalas could not be discerned/ established from satellite images.	To verify legal and illegal dumping (with estimated quantity) of by-products/ waste products i.e. slag generated by M/s JSW on mangrove areas, natural drains/nalas in the aforesaid alleged villages through reconnaissance survey.	The aforesaid sub-committee having representative from Agriculture Department (Govt. of Maharashtra) also.
iii	Assessment of illegal dumping of by-products/waste products i.e. slag generated by M/s JSW on agricultural lands in the aforesaid alleged villages.	Desired information yet to be provided by District Collector, Raigad through Agriculture Department (Govt. of Maharashtra).	To verify legal and illegal dumping (with estimated quantity) of by-products/ waste products i.e. slag generated by M/s JSW on agricultural lands in the aforesaid alleged villages through reconnaissance survey.	The aforesaid sub-committee having representative from Agriculture Department (Govt. of Maharashtra) also.
iv	Collection of soil samples from various locations of the above areas and also suitable reference soil samples (from unaffected area) and their analysis for relevant parameters including Boron and Sodium.	As per the information provided by District Collector, Raigad through Agriculture Department (Govt. of Maharashtra), soil sampling & analysis shall be done in rabi season.	Upon assessment of activity as at s. no. ii & iii of 4 above, collection of soil samples and analysis for relevant parameters (to be decided by Agriculture Dept. besides Boron and Sodium) in such places where, dumping of slag if any; or impact due to elsewhere dumping are expected/observed on the agricultural lands in the aforesaid alleged villages. The report shall also conclude about impact on crop productivity in such affected	District Collector, Raigad through Agriculture Department (Govt. of Maharashtra).

			agricultural lands.	
v	Compilation of year wise crop productivity data and assessing its trend (w.e.f. September, 2010 to May, 2021). In case, the aforesaid areas affected in terms of soil fertility/ agricultural productivity, then estimation of extent of environmental damage, remedial measures & restitution plan and the amount of compensation as applicable;	As per the information provided, in villages of Dolwi, Karavi, Gadab, Kharkarvi, Kharmathela, Juibapuji, no crop has been produced for last 15 years. However, w.e.f. 2014-15, paddy productivity is at par with that of taluka average.	Upon completion of activity as at s. no. iv of 4, above, compilation of year wise crop productivity data wise (w.e.f. September, 2010 to May, 2021) in the aforesaid alleged villages (viz. Kharmachi, Kharkaravi, Juibapuji, Dolwi, Kharchirbi, Wadkhal, Vave, Kolve, Gadab, Beneghat, Khardombi, Kharjambhela and Kharghat)	District Collector, Raigad through Agriculture Department (Govt. of Maharashtra).
vi	Collection of various slag samples stored within the industry and TCLP/STLC analysis for parameters Arsenic, Barium, Cadmium, Chromium, Copper, Cyanide, Lead, Manganese, Mercury, Nickel, Selenium, Silver and Zinc as per Hazardous & Other Wastes (Management &Transboundary) Rules, 2016 and also Broron& Sodium.	MPCB has collected slag samples generating from hot strip mill (EAF slag) and blast furnace slag on 25/10/2021. Slag samples were submitted to NABL/E(P)A approved laboratory for TCLP/STLC analysis of said parameters.	a. MPCB to submit the analysis results of slag samples. b. Suggesting environmental impact, if any, and remedial measures, as applicable	i. w.r.t. a: MPCB. ii. w.r.t. b: Joint committee.
5	Assessment on damage of Kharbandistibandh(if any) due to activity of M/s JSW. Also, status	As per the report submitted by Khar Land Dept., Exe. Eng. no such instances of damage to the Kharland	To examine the reports of Exe. Eng. of Khar Land Dept. and overall assessment of damage to Kharbandistibandh if any; due to	The aforesaid sub-committee having representative from Khar Land Dept. (Govt. of Maharashtra) also.

	report including extent of salt level in the agricultural fields and areas affected, and estimation of extent of land damage, remedial measures & restitution plan and the amount of compensation (w.e.f. 1990 till May, 2021 or afterwards).	Bund are observed due to any Industrial activity.	activity of M/s JSW with field validation/reconnaissance survey.	
i	Examining alleged incidence of 03/01/2015 by the Tahasildar, Pen, as referred at Para 2 at page no. 4 of the order dated 27/05/2021 of the Hon'ble NGT.	As per the report submitted by Khar Land Dept., EE & AEE, the alleged incidence is related to damage caused to the MachelaChirbi and JuiHabbasKharland scheme bunds, mainly to due excessive rains and high tide resulting in breaches in the bund and damage to slice gates that resulted in ingress of saline water in the adjoining agricultural land. Also, mentioned that due to traffic of barges and ships in Dharamtar Creek have caused speedy erosion of the bunds which can cause the breach of bund resulting in ingress of saline water in reclaimed area.	a. To provide detailed status report on damages to various bandhs of Dharamtar Creek, if any; due to activity of M/s JSW with field validation/ reconnaissance survey. Also, details on ingress of saline water into adjoining agricultural lands (survey no./ghat no. & location/villages name). b. b. To examine whether barges and cargo ships of M/s JSW are only being navigated in Dharamtar Creek. c. To provide status report on events of dredging activities had been carried-out in the Dharamtar Creek.	i. w.r.t. a: The aforesaid sub-committee having representative from Khar Land Dept. (Govt. of Maharashtra) also. ii. ii: w.r.t. b and c: The aforesaid sub-committee having representative from Maharashtra Maritime Board (Govt. of Maharashtra) also.

		Dredging activity in Dharmatar Creek has resulted into the sliding of bund in the creek.		
ii	Status report including extent of salt level in the agricultural fields and areas affected	As per the report of AEE, Kharland Act 1979 doesn't have mandate to determine soil properties like salt level in the agricultural field, area affected, extent of land damage & remedial measures.	In case, incidence of ingress of salt water reported, then delineation of agricultural areas around the Dharmatar Creek and estimation of salt level, extent of land damage & remedial measures, as applicable.	District Collector through Agriculture Dept. (Govt. of Maharashtra).
6	Assessment of violations of provisions of Environmental Clearance (EC) Notifications and EC conditions in development/expansion of jetty (w.e.f. September, 2010 to May, 2021).	MoEF&CC's Regional Office, Nagpur has verified and reported the details of compliance of EC Notifications and conditions of Dharamtar jetty facility. M/s JSW Dharamtar Port Private Limited without obtaining prior EC, started the construction activity for expansion of existing jetty facility from 331.5 to 1,750 m. Hence, the industry was found violated the provisions of Environment Impact Assessment Notification, 2006 & its amendments. However, EC was granted in 2015.	MoEF&CC may provide information on post-facto consideration of EC and provide necessary comments to the joint committee.	MoEF&CC, IRO Nagpur.
7	Assessment of violations of provisions of CRZ Rules and CRZ clearance conditions by M/s JSW	As per the analysis of the satellite images and report submitted by NCSCM, it is observed that the conveyor	a. To provide probable month of loss of mangrove buffer areas visible from satellite images during construction of conveyor	i. w.r.t. a: NCSCM. ii. The sub-committee headed by the District Collector-Raigad, with representatives from Mangrove

	w.r.t. construction of conveyor belt and development/ expansion/ operation of jetty (w.e.f. September, 2010 to May, 2021).	belt has been constructed in the 50 m buffer zone around mangroves. The mangrove buffer areas have also been utilized for other industrial uses. The total area of mangrove buffer areas lost due to construction of conveyor belt in 50 m mangrove buffer areas and other constructions in 50 m mangrove buffer areas are 10.62 ha.	belt/ other constructions on mangrove buffer areas. Amended Environment / CRZ Clearance was issued for construction of additional conveyor belts/streams in respect of expansion of the Dharamtar Jetty facility, vide MoEF&CC OM No. F. No. 11-79/2013-IA-III dated 10.01.2020, based on recommendation dated 16/02/2019 by the MCZMA, with the condition that "no activity shall be carried out in mangroves or its 50 m buffer zone, as per 17th Sept. 2018 High Court order in PIL 87/2006". Thus, with regard to year/period (or closest date) of mangroves areas and demarcating the affected area, if any, of mangroves buffer areas thereto, NCSCM may provide a short brief on compliance status under relevant CRZ Notification, Env Clearance & CRZ clearance of 2015 as well as amended in 2020, as applicable. b. After submission of report w.r.t. a, at above, delineation of areas under reference to validate such reported loss of mangrove buffer areas through reconnaissance survey.	Cell (Govt. of Maharashtra), NCSCM, Maharashtra Remote Sensing Application Centre, (MRSAC), and the District Revenue Department to carry-out activity i.e. b of Col. No. 4 as per report provided by NCSCM and also gathering other information/ data/ report.
i	In case of violations of provisions of CRZ Rules	Based on the assessment on violations of provisions	After completion of works w.r.t. a & b of above, and validation,	Expert committee comprising representatives from NCSCM, Indian

	and CRZ clearance conditions w.r.t. construction of conveyor belt and development/expansion/ operation of jetty, estimation of amount of compensation (w.e.f. September, 2010 to May, 2021).	of CRZ Rules and CRZ clearance conditions, as above; NCSCM, has calculated the amount of environmental compensation based on the guidelines issued by the CPCB. The environmental compensation for the aforesaid violations is worked-out to be ` 14,216,000/- (Rupees One Crore Forty-two Lakhs Sixteen Thousand Only) (excluding loss of mangroves and natural creeks evaluation).	submission of reports by the sub-committee, the expert committee to work out the approach/methodology for such valuation/ remedial measures/ restitution plan and estimated cost which may be applied on validated encroachment/ loss of mangroves buffer areas data being worked out by the sub-committee.	Institute of Forest Management (IIFM) Bhopal, Madras School of Economics, Mangrove Cell (Govt. of Maharashtra) and NEERI.
8	Compliance status w.r.t. conditions of The Water (Prevention and Control of Pollution) Act, 1974 (w.e.f. September, 2010 to May, 2021).	MPCB has submitted plant-wise compiled status report on the compliance of CC&A conditions i.e. conditions under The Water (Prevention and Control of Pollution) Act, 1974 for discharge of effluent.	a. To submit compliance status of 55 MW Captive Power Plant and Harsco India Metals Pvt Ltd., (Slag processing Plant). b. To submit compliance status of reported for non-compliances w.r.t. discharge of effluent and estimation of environmental compensation for the reported non-compliances, as applicable. c. To submit compiled compliance status report on the compliance of CC&A conditions i.e. conditions under The Water Act, 1974 for Phase-II plant (5 – 10 MTPA) and compliance status reported for non-compliances w.r.t. discharge of effluent and estimation of environmental	w.r.t. (a, b & c): MPCB.

			compensation for the reported non-compliances, as applicable.	
9	Compliance status w.r.t. conditions of The Air (Prevention and Control of Pollution) Act, 1981 (w.e.f. September, 2010 to May, 2021).	MPCB has submitted plant-wise compiled status report on the compliance of CC&A conditions i.e. conditions under The Air (Prevention and Control of Pollution) Act, 1981 for discharge of emission.	a. To submit compliance status of 55 MW Captive Power Plant and Harsco India Metals Pvt Ltd., (Slag processing Plant). b. To submit compliance status of reported for non-compliances w.r.t. discharge of emission and estimation of environmental compensation for the reported non-compliances, as applicable. c. To submit compiled compliance status report on the compliance of CC&A conditions i.e. conditions under The Air Act, 1981 for Phase-II plant (5 – 10 MTPA) and compliance status reported for non-compliances w.r.t. discharge of emission and estimation of environmental compensation for the reported non-compliances, as applicable.	w.r.t. (a, b & c): MPCB.
10	Compliance status w.r.t. conditions of The Hazardous & Other Wastes (Management &Transboundary Movement) Rules, 2016 (w.e.f. September, 2010 to May, 2021).	MPCB has submitted plant-wise compiled status report on the compliance of CC&A conditions i.e. conditions under The Hazardous & Other Wastes (Management &Transboundary Movement) Rules, 2016.	a. To submit compliance status of 55 MW Captive Power Plant and Harsco India Metals Pvt Ltd., (Slag processing Plant). b. To submit compliance status of reported for non-compliances w.r.t. conditions of HW and estimation of environmental compensation for the reported non-compliances, as applicable. c. To submit compiled compliance status report on the compliance of CC&A conditions i.e.	w.r.t. (a, b & c): MPCB.

			conditions under The HW rules, 2016 for Phase-II plant (5 – 10 MTPA) and compliance status reported for non-compliances w.r.t. conditions of HW and estimation of environmental compensation for the reported non-compliances, as applicable.	
11	Health impact assessment on residents nearby to the plant premises within 5 Km based on the health records due to industrial activity especially w.r.t. particulate matter and gaseous emissions (SO2, NOx, PM, CO and BaP) (w.e.f. September, 2010 to May, 2021).	As per the report of DHO, health data analyzed from 04 PHC (02 within 5 Km of industry & 02 within Panvel Tal.) during 2015-2021. Submitted that respiratory diseases, acute eye disorders, skin diseases and other acute & chronic diseases found in vicinity of M/s Jindal Steel and non-industrial areas are remarkably the same. Data of 02 PHC within 5 Km of industry are not significant with above mentioned diseases including respiratory & allergic conditions. Surveillance activity prior to 2015 was mainly focused on diseases like Guinea worm disease, Measles, Rubella, Filaria, leprosy etc. Hence no data on the respiratory & allied diseases.	To verify and provide report on health record of employees working in the coke oven plant of the industry under reference for the assessment period w.e.f. September, 2010 to May, 2021, may also be assessed especially w.r.t. respiratory diseases.	District Collector through District Health Officer.

12	Loss in fish catch/productivity due to navigation of ships in the Dharamtarcreek around M/s JSW: Compilation of year wise fish catch/productivity data and assessing its trend (w.e.f. September, 2010 to May, 2021).	Desired information yet to be provided by District Collector, Raigad.	a. To identify the sources for loss in fish catch/productivity in the Dharamtarcreek, if any; b. To compile year wise fish catch/productivity data and assessing its trend in the Dharamtarcreek.	w.r.t. a & b: District Collector, Raigad, through Department of Fisheries (Govt. of Maharashtra) of their own or engaging a reputed Govt. Fisheries Science College/ Institute/ University.
13	Status of compliance of order dated 6th October, 2005 of the Hon'ble Bombay High Court in a group of Petitions bearing W.P. No. 3246 of 2004;			
i	Total freeze on the destruction and cutting of mangroves in the entire State of Maharashtra.	Pertains to the State of Maharashtra – as per NCSCM. As per the report of District Collector, Raigad M/s JSW has destructed mangrove area, encroached on Govt. land and constructed a protective wall at S. no. 50/D at MaujeJuibapuji without prior permission. Complaint lodged before Hon'ble CJM, Alibag in RCC no. 85/2020, dtd 05/10/2200 and it is pending.	Nil	The joint committee may report the said statement of District Collector in its report.
ii	All construction and rubble/garbage dumping on the mangrove areas shall be stopped forthwith.	As per the studies undertaken using satellite images and report submitted by NCSCM, the details of dumping of waste/by-products on the mangrove areas could not be discerned/ established	To verify legal and illegal dumping (with estimated quantity) of by-products/ waste products i.e. slag generated by M/s JSW on mangrove areas, natural drains/nalas in the aforesaid alleged villages through reconnaissance survey.	The sub-committee headed by the District Collector-Raigad, with representatives from Mangrove Cell (Govt. of Maharashtra), NCSCM, Maharashtra Remote Sensing Application Centre, (MRSAC), and the District Revenue Department.

		from satellite images.		
iii	Regardless of ownership of the land, all construction taking place within 50 metres on all sides of all mangroves shall be forthwith stopped.	As per the studies undertaken using satellite images and report submitted by NCSCM, it is observed that the conveyor belt has been constructed in the 50 m buffer zone around mangroves. The mangrove buffer areas have also been utilized for other industrial uses. The total area of mangrove buffer areas lost due to construction of conveyor belt in 50 m mangrove buffer areas and other constructions in 50 m mangrove buffer areas are 10.62 ha.	a. To provide probable month of loss of mangrove buffer areas visible from satellite images during construction of conveyor belt. b. b. After submission of report w.r.t. a, at above, delineation of areas under reference to validate such reported loss of mangrove buffer areas through reconnaissance survey.	i. w.r.t. a: NCSCM. ii. The sub-committee headed by the District Collector-Raigad, with representatives from Mangrove Cell (Govt. of Maharashtra), NCSCM, Maharashtra Remote Sensing Application Centre, (MRSAC), and the District Revenue Department to carry-out activity i.e. b of Col. No. 4 as per report provided by NCSCM and also gathering other information/ data/ report.
iv	No development permission whatsoever shall be issued by any authority in the State of Maharashtra in respect of any area under mangroves.	Pertains to the State of Maharashtra – as per NCSCM.	To provide the compliance status of permission if any; obtained by M/s JSW in the area under reference.	District Collector, Raigad through Mangrove Cell (Govt. of Maharashtra).
v	The Municipal Commissioner of Greater Mumbai shall forthwith issue the necessary directions to the Municipal Corporation of Greater Mumbai Building Proposals Department not to entertain any	Pertains to the Municipal Commissioner of Greater Mumbai / MCGM – as per NCSCM.	Nil	Not applicable for the present matter.

	applications for development (as defined in the Maharashtra Regional and Town Planning Act, 1966) on or in respect of the mangrove lands, regardless of the nature of ownership.			
vi	The State Government and the Maharashtra Coastal Zone Management Authority (MCZMA) are directed to file monthly report on the above action plan to this Court. The first report will be submitted within four weeks from today. The report shall specifically state, in addition to the progress/action taken, (a) the number of complaints received, if any, (b) the action taken thereon, if any, (c) the number of offenders named, and (d) the details of prosecutions/action launched/taken against such offenders.	Pertains to MCZMA – as per NCSCM.	To provide the status of grievance and redressal regarding cutting of mangroves reported if any; in the areas under reference.	District Collector, Raigad through MCZMA.
vii	The State of Maharashtra is directed to file in Court and furnish to the	Pertains to the State of Maharashtra – as per NCSCM.	Nil	Not applicable for the present matter.

	petitioners copies of the maps referred to in paragraph 10 of the affidavit dated 16th August, 2005, filed by Mr. GajanandVarade, Director, Environment Department, State of Maharashtra (Page 346 on the record), within four weeks from today.			
Viii	The areas shown as mangrove area in the satellite study report "Mapping of mangroves in the Maharashtra State using Satellite Remote Sensing" dated August, 2005, prepared by the Maharashtra Remote Sensing Application Centre (MRSAC) for the MCZMA which was submitted to this Court on 29th August, 2005, form part of Phase I of the mapping by MRSAC. The MRSAC will, in Phase-II, carry out mangroves study using high resolution for detailed mapping of mangroves with a view to identify more precisely mangrove areas in Mumbai and Navi	Pertains to MRSAC/MCZMA – as per NCSCM.	To examine mapping of mangroves reported by MRSAC and matching of the same to that assessed through satellite images by NCSCM. Also, the same to be taken into account while reporting damages/ loss of mangroves/ natural creeks areas in its report.	NCSCM. MPCB will make the maps of mangroves and natural creeks prepared by Maharashtra Remote Sensing Application Centre (MRSAC), available to NCSCM

	Mumbai. After receiving the said satellite data, transfer of mangrove details on city survey/village maps (cadastral map) will be carried out within a period of 6 months from today;			
ix	After the aforesaid process in clause (viii) is completed, the areas so identified which are government owned shall be declared and notified as "protected forests" in accordance with law after carrying out ground survey etc. The areas so identified that are privately owned shall be declared and notified as "forests" in accordance with law, after carrying out ground survey etc. The said declaration/notification will be completed within a period of 8 weeks of the completion of Phase-II mapping;	Pertains to the State of Maharashtra – as per NCSCM.	To provide status/information on identification and declaration of notified "protected forests" and identification and declaration of notified "forests" in the areas under reference.	District Collector, Raigad through District Revenue Department or concerned agency.
x	The mangrove areas that are on government owned lands will be handed over to the Forest Department	Pertains to the State of Maharashtra – as per NCSCM.	To provide the status/information on handing over of notified "protected forests" in the areas under reference (if any) to the Forest	District Collector, Raigad through District Revenue Department or concerned agency.

	within a period of 12 weeks from the declaration of the same as “protected forests”;		Department.	
xi	From the list of “mangrove areas” so identified, Government owned lands will automatically be declared/notified as “protected forests”. Likewise, privately owned lands from the list of mangrove areas so identified, the same will be declared/notified as “forests”;	Pertains to the State of Maharashtra – as per NCSCM.	To provide status/information on identification and declaration of notified “forests” in the areas under reference.	District Collector, Raigad through District Revenue Department or concerned agency.
xii	The Secretary, Revenue Department, shall from the said date of taking over possession of the Government owned land by the Forest Department, update all the revenue records to ensure that the said Government lands are shown as “protected forests” in the said revenue records within a period of 12 weeks from the same being declared as “protected forests”. In the case of lands that are private owned, the secretary, Revenue	Pertains to the State of Maharashtra – as per NCSCM.	To provide the status/information on updation of land records w.r.t. “protected forests” and “forests” in the areas under reference.	District Collector, Raigad through District Revenue Department or concerned agency.

	Department, shall update all the revenue records to ensure that the said private lands are shown as “forests” in the said revenue records within a period of 12 weeks of completion of the steps in clause (x) above;			
xiii	In respect of Government lands, the Forest Department and other authorities of the State of Maharashtra shall take the following necessary steps of protection, conservation and regeneration of the areas that would be declared/notified as “protected forests: in terms of clause (x) above; a. Removal of all obstructions that are impeding the growth of mangroves as also the impediments which restrict the flow of sea water in the mangrove areas; b. Wherever mangrove growth is found to be period of three months as per the instructions of the	Sub-paras (a), (b), (c) and (d) pertain to the State of Maharashtra – as per NCSCM.	To provide the status/information w.r.t. sub-paras (a to d) of col. no. 2 of the table in the areas under reference.	District Collector, Raigad through Mangrove Cell (Govt. of Maharashtra).

	Forest Department. These areas shall be rejuvenated with mangroves; c. On identification of the areas as forest, the Municipal Corporation of Greater Mumbai would remove garbage and debris within these areas within a period of three months as per the instructions of the Forest Department. These areas shall be rejuvenated with mangroves. d. The Forest Department is directed to take necessary action against the offenders in accordance with law for damaging or destroying mangroves.			

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Objections of the Applicant

"

5. *In reply I say and submit that since 2016 the company has dumped the hazardous waste material for reclaiming the land below the conveyor belt and the jetty, whereas the present progress report refers at last paragraph of the internal page 3 (Para 12)... "Similarly, during the field visit the team observed sporadic and haphazard dumping of municipal solid waste within the 50 in of mangrove buffer zone of the conveyor belt area of M/s JSIll Ltd. i.e from the stretch between the Ailaharashtra Maritime Board, Jetty till the approach road of A libaug-Mumbai Highway. It is gathered through the district administration that the particular land is government owned and the municipal solid waste has been dumped illegally by nearby gram panchayat viz. Dolvi and Vadkhal in the 50 in of Mangrove Buffer area. During the meeting, District Administration and Mangrove Dept. were requested to take suitable action against the village panchayat for destruction of mangroves, construction of illegal approach road and illegal dumping of municipal solid waste in the mangrove buffer area.*

6. *Thus, it is clear that the committee is misled by the local officials that they found municipal solid waste within 50 in of the mangroves buffer zone and mainly by Dolvi and Vadkhal grain panchayats. According to me the company has dumped their hazardous waste material on mangroves at the time of construction of conveyer belt and same is observed by MCZMA in there reply filed in 2016. Later on by passage of time municipal solid waste is dumped on it. Now the Company and Local Officials have misguided the Committee by showing dumped municipal solid waste. Therefore it was necessary to dig at that site and find out what material is beneath the garbage and which has originally been dumped on the mangroves. The said fact though is within knowledge still it is misrepresented that it is a municipal solid waste and for which not company but village panchayat is responsible.*

7. *In fact the Company has dumped its waste material at the time of construction of conveyor belt and later on it has been is a material dumped by the company by destructing the mangroves. I am enclosing herewith the photograph during the time when the construction of conveyor was commenced. The said photographs clearly shows that hazardous material is dumped by the company and the conveyor belt is constructed on the same. Photographs marked and annexed as Exhibit — "B"*

8. *The company has dumped the slag on the same hazardous material. These two facts are the matter of record. The company has thereafter put the slag and everything has been dumped on the mangrove. Mangroves were required to be protected by the company but instead of that, the company has permitted the locals for dumping of the municipal solid*

waste. The photographs of the municipal solid waste are shown to the committee obviously with an intention to cover up the misdeeds of the company and to misguide this Hon'ble Tribunal.

9. *This important fact is suppressed and twisted by this committee obviously to protect interest of the company and to avoid fixing of any responsibility by the committee. These so called agencies refereed in internal page 3 of the report are government agencies and they are doing their job, hand-in-gloves with the company. Hence it is necessary that the site visit should be arranged to some impartial agency and it should be held in the presence of the applicants so that such mischief can be avoided. In fact the committee should visit in presence of the applicants and collect physical date. Except holding video conferencing meetings, actual such visit are never held, else such bogus report would not have been placed in precise. Therefore let the large area of so called municipal solid waste be dug which will show actually what is dumped in real-time and same will show how these agencies are functioning. Secondly it is not committee appointed by tribunal but agencies of government submitted it in video conferencing meetings. The present report is based on it and not actual site visit.*

10. *Therefore, it is necessary that an independent and impartial officer of this Hon'ble Tribunal should be appointed to inspect the locations where the hazardous material is dumped at the various places.*

11. *I further say and submit that it is my specific case that on the large area spread over in kilometers, on both the sides of Bombay-Goa highway upto Alibaug and Nagothne, is used as a dumping ground by the Company to dump solid waste in haphazard manner on mangroves, agricultural fields, Govt. land etc. Therefore, it is necessary for us to accompany the committee whereby we will show to the committee where and how the waste material of the company is dumped. It has happened because of lethargic approach of the Government agencies.*

12. *Similarly, for quantifying the damage caused to the environment and for restoring the environment, it essential for the committee appointed by this Hon'ble Court to take us along for identifying the locations, otherwise there will be a complete eyewash on the hands of MPCB, CPCB the Collector, Raigad. According to me all the officers are full aware of this scenario. Many of the villagers have sold their agriculture fields to the company. The company has provided employment to some of them or has given different types of contract of civil works and many of them are used by the company for targeting the desired reports. Many at times I found these*

localites are accompanying the office bearers of the Collector office, SDO, Forest Department etc. and through them the reports are sabotaged or managed.

13. *It is also necessary to direct the committee appointed by this Hon'ble Tribunal to visit the following villages, Kharmachela, Kharchilbi, Kharghat, Wave, Vadkhal, Kolve, Dolvi and the surrounding area upto Alibaug and Nagothne on Mumbai- Goa highway. They should be directed to physically identify the locations shown by us wherever it is necessary, they can dig the existing ground to ascertain the dumping below municipal solid waste and to identify the destruction of mangroves.*

14. *Similarly, the villagers, agriculturists of different villages submitted a representation after the last order was passed requesting the committee to visit their respective agriculture fields to ascertain the damage caused by the company, to collect the samples for determining the agricultural fertility simultaneously the Applicants be permitted to collect the counter sample for the cross checking the same from the approved government laboratory of their choice.*

15. *Similarly, the untreated hazardous effluents of coke oven pant were discharged in the Dharamtar Creek and the aquatic life was affected and thousands of fishes died due to the same. This has happened on or about January 2022 and a complaint was lodged with the company by a local MLA by Mr. Hari Dalvi and he has also given us the copy as we are prosecuting the present Application. Therefore, these issues needs to be addressed by the committee. The company should be immediately prohibited from discharging the untreated hazardous effluents in the sea, creek, and natural water. I-Hereto annexed and marked as Exhibit-"C" is the photograph of dead fish. The letter dated 12.01.2022 issued by Local MLA and copy of the photograph showing the discharge of the waste material in creek is marked and annexed as Exhibit — "D". 1 crave and rely upon the video clip as and when required to be reproduced.*

16. *I further say and submit that the company has commenced the illegal constriction of the bridge abetting to village Kharmachela by dumping the waste material on mangroves and destroyed the same and constructed the creek channels. Therefore the complaints were also filed. 1 have a filed a criminal writ petition challenging the permission granted by the flontble High Court to the company. The company has obtained the said permission form the Hon'ble Court on the pretext that they want to lay a road on a private land. It was further informed to the Hon'ble High Court that it is a private*

road. It was further informed that no mangroves will be felled and on that pretext, on 15.10.2019 the Hon'ble High Court has granted the permission to execute the works by erecting the bridge. The said permission is granted on the permission that the mangrove will not be destroyed. However, at the site the mangroves are already destroyed and the mangroves will be further destroyed on the course of future construction. Hereto annexed and marked are photos of destruction of mangroves, natural creek etc.

17. *I have filed a petition in the Hon'ble High Court seeking various reliefs prayed in criminal WP no. 1107/2020. I have filed the petition in February 2020 and the Hon'ble High Court has clarified by way of interim arrangement that construction of the bridge will be subject to the outcome of petition. Hereto annexed and marked is the copy of memo of Criminal WP 1107 of 2020 and the order dated 06.03.2020 and the photographs of the bridge shows the destruction of mangroves and natural creek. Therefore, the committee should be asked to looked into this issue also in environmental point of view.*

18. *I say that agriculturists from different villages filed the representation with the committee after the order is passed by this I-lon'ble Tribunal informing that the damage is caused by the Company on account of destruction of Kharbandasti and dumping solid waste material. Therefore, it is necessary the soil testing of the land should be placed before the Hon'ble Tribunal and the same needs to be taken into the account by the committee appointed by this Hon'ble Tribunal while assessing the damages caused to the agriculturist. The said representation is signed by more than 200 agriculturist of Kharbandasti. Therefore, the damage caused to their lands including the lands of the Kharmanchela needs to be examined by the Committee appointed by the Hon'ble Tribunal. Hereto annexed and marked as the* ***Exhibit-"E"*** *is the copy of the representation letter sent to the committee through MPCB via email.*

19. *I say that during the pendency of the above said application, on 1' November, 2021, the Respondent Company had dumped the chemical waste upon the mangroves and therefore I have made a complaint against them with various authorities on 01.11.2021. Annexed hereto and marked as Exhibit "F" is the copy of the letter dated 1.11.2021 addressed to various authorities by the Applicant.*

20. *Thereafter I have received the letter from the Sub Divisional Officer, Pen and Forest ranger, Wadkal that they shall be doing the Panchnarna on 23rd November, 2021. Hereto*

annexed and marked as Exhibit- "G" is the copy of letter of Sub Divisional Officer, Pen and Forest ranger for preparing Panchnama.

21. *Accordingly I have gone to site at 11 am. On that date the officers from Revenue and Forest Dept. came there. During the course of Panchnama, around 7 to 8 vehicles came with people. Those people were not concerned with Kharmachela village, they were brought by the Respondent Company. Those people have abused and threatened us, I have duly noted the vehicle registration numbers which are as follows, MI-1.06.EW.30 I 1,MI-I.06.BW.1884, 1\414.06.BV.19,10, MI-I.06.BV.4544, and therefore the applicant was constrained to lodge the written Complaint to Vadkhal police station that her life is in danger. Annexed hereto and marked as Exhibit-"H" is the copy of letter dated 23.11.2021 received by the Vadkhal police station*

22. *On 23 November, 2021, the Panchnama was prepared by the forest officers. The said Panchnama was performed on the basis of my complainant by letter dated 18.11.2021. The said Panchnama further shows that at the spot near the creek where the company has dumped the waste material and slag. The said waste material is dumped upon the Kharbandasti and on both sides of the said dumped waste material mangroves are found. It is further mentioned that the said waste material is dumped on the old Kharbandasti to prohibit creek water from entering the agricultural fields, the Panchanma further shows that there is no new dumping on the said area. Hereto annexed and marked as Exhibit- "I" is the copy of the Panchnama dated 23.11.2021.*

23. *Similarly I have also submitted a complaint on 25th November, 2021 against the Panchnama which has been prepared, I say that the said Panchnama was already prepared in advance before the visit and merely signatures were demanded. It was specifically informed by me that while preparing the said Panchnama, instead of making the Panchnama of the actual spot, the Panchnama was made in respect of different location of dumping and as previously stated, the same are prepared before had only and signatures are obtained later on by the concerned department. I say that the Panchas have joined the hand of company, and making Panchnama of the spot mentioned by the company, accordingly I have made the complaint of the said Panchnama.*

*24. On the basis of the same I requested all the authorities as addressed in the email that construction of the bridge on north, south direction on survey no. 94 is ongoing. The waste material is dumped on the southern side and mangroves are destroyed and therefore it is necessary to remove the waste. Annexed hereto and marked as **Exhibit- "J"** is the copy of email complaint lodged by the petitioner in respect of bogus Panchnama*

25. I say that even one Mr. Mahesh Sudhakar Pore, the president of transport organization of MNS pen has also lodged the complaint on 21.10.2021. On 20.01.2022 I have also filed a complaint by email of the similar nature with Mr. Rakesh Pisat requesting him to remove the waste material to ascertain the destruction of mangroves annexed letter 20.01.2022.

*26. On 20.01.2022 I have also filed a complaint regarding bogus Panchnama which came to be prepared, and the abuse and threats caused by the various persons who are not the original residents of villages but the same are set up by Respondent Company and some of them have previously sold their lands to the Respondent Company and those persons are threatening me, according to me, the Government Officials, the Forest Officers, Officers of the Revenue Department, and the Respondent Company Officers along with some of the owners of the lands who have sold their land to the Respondent Company and who are also the contractors of the Respondent Company are now bringing goons to threaten me and other people and therefore I had requested the Ld. District Collector to take action on the same. Annexed hereto and marked as Exhibit- "K" is the copy of the complaint as made to the Ld. District Collector, Raigad Alibaug.***"***

8. We have heard learned Counsel for the parties and given due consideration to the issue. We find it appropriate to direct taking on record the report of the Committee and objections of the applicant, grant further time sought by the Committee and direct the PP to take remedial measures, in the light of recommendations of the Committee forthwith. We also direct the statutory regulators to fix responsibility of the PP for the past violations on 'Polluter Pays' principle in the light of judgements of Hon'ble Supreme Court *inter alia* in *M.C Mehta & Anr v. Union of*

India[1]*, Sterlite Industries (India) Ltd. v. Union of India* [2] *and Goel Ganga Developers India Pvt. Ltd. v. UoI*[3]. The compensation should cover the cost of remediation and should be deterrent having regard to the financial capacity of the PP and nature of violations. We also direct the Committee to verify the factual position as pointed out by the applicant. We permit the applicants to make any further representation to the Committee. The Committee may verify the latest compliance status and suggest further remedial action for restoration of mangroves and its buffer zones, the creek and its banks. The Committee may also verify the status of compliance of EC conditions as well as CRZ conditions, 2011 and steps required for restoration of the creek and canal. The Committee may verify the point source of waste and purpose of dumping. The scientific dumping of hazardous waste and slag and remedial action may also be dealt with. Apart from sites so far examined, the villages named by the applicant in para 13 of the objections, quoted above, may also be subjected to verification.

9. Further report of status as on June 30, 2022 be filed by the Committee by July 15, 2022 by email at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF which may also be uploaded on the website of CPCB. By way of clarification, we direct that the report may, in particular, cover compliance status of the industry with reference to EC, CTO under the Water and Air acts and the Authorizations under EP rules with regard to the mode of utilization and disposal of waste generated. The report may indicate environmental impact of industrial activities in the surroundings with reference to habitation, agricultural fields, sea shore and Creek

[1] (1987) 1 SCC 395
[2] (2013) 4 SCC 575
[3] (2018) 18 SCC 257

hydrology and remedial measures with cost of restoration. The report may also mention the action taken in pursuance of the present order. Any response to the report of the Committee may be filed by July 30, 2022.

List for further consideration on 24.08.2022.

A copy of this order be forwarded to the members of the Committee through CPCB by email for compliance.

Adarsh Kumar Goel, CP

Sudhir Agarwal, JM

Prof. A. Senthil Vel, EM

Dr. Afroz Ahmad, EM

March 04, 2022
Original Application No. 165/2020
(Earlier O. A. No.122/2015 (WZ)
AB

Annexure-2

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,

Principal Bench, New Delhi

Original Application No. 165 of 2020

(Earlier O.A. No. 112 of 2015 (WZ))

Samita Rajendra Patil — Applicant

Versus

Jindal Steel Works Ltd. & Ors. — Respondent(s)

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1.	**Progress Report** of the Joint Committee in compliance to Hon'ble NGT order dated 27.05.2021 in O.A No. 165 of 2020 [Earlier O.A No. 122 of 2015 (WZ)] titled as Samita Rajendra Patil Vs Jindal Steel Works Ltd. & Ors.	
2.	**Annexure 1**: A copy of minutes of the first meeting of the committee constituted by the Hon'ble NGT held on 04.08.2021.	
3.	**Annexure 2**: A copy of minutes of the second meeting of the committee constituted by the Hon'ble NGT held on 19.11.2021.	
4.	**Annexure 3**: A copy of Hon'ble NGT order dated 27.05.2021	

(Nazimmudin)
Scientist-F
Central Pollution Control Board,
Parivesh Bhawan, East Arjun Nagar,
Delhi- 110032

Place: Delhi
Date: 21.01.2022

PROGRESS REPORT OF THE JOINT COMMITTEE IN COMPLIANCE WITH HON'BLE NGT ORDER OA NO. 165 OF 2020 (PB) [EARLIER OA NO. 122 OF 2015 (WZ) TITLED AS SAMITA RAJENDRA PATIL VS JINDAL STEEL WORKS LTD., & ORS.

Grievance in the original application No.165/2020 (PB), titled Samita Rajendra Patil Vs Jindal Steel Works Ltd. &Ors, as per order dated 27/05/2021 of the Hon'ble NGT, is against violation of environmental norms in running the industrial operations by M/s Jindal Steel Works Ltd., at Villages: Dolwi, Karawi, Gadab, KharKaravi, Kharmachela and Jui Bapuji and other surrounding areas, District Raigad near Mumbai. The Hon'ble NGT in the aforesaid matter vide order dated 27/05/2021 constituted a five-member joint committee, to be headed by an officer of the rank of Joint Secretary, MoEF&CC, nominated by the Secretary MoEF&CC and comprising District Collector Raigad and representative of CPCB, IIT and MPCB. Directions of the Hon'ble NGT to the aforesaid joint committee in brief are as follows;

i. To look into the issues raised by the applicant summed up in the aforesaid order including compliance of the Water and Air Acts and HOWM Rules, destruction of mangroves and damage to agriculture, if any, status of scientific disposal of solid waste.
ii. To estimate the extent of environmental damage and the amount of compensation required and restitution plan (in case of non-compliance).
iii. The committee will have liberty to take assistance from any other expert institution or individual and conduct proceedings online, except for site visit, if necessary.
iv. If the violations are found, the committee may also suggest the amount of compensation to be recovered apart from other restoration measures.
v. The applicant as well as the project Proponent will be at liberty to represent their respective versions to the Committee through the State PCB.
vi. While giving a report to this Tribunal, its copies be given to the applicant as well as the project proponent for their response, if any, before the next date.

In compliance to the aforesaid Hon'ble NGT order dated 27/05/2021, joint committee has been constituted by MPCB vide office order no. MPCB/MS/B-25, dated 07/07/2021 as below:

1. Shri Jigmet Takpa, Joint Secretary, MoEF&CC, Govt.of India
2. Shri Nishchal C., Scientist 'D', CPCB – Regional Directorate – Pune
3. Prof. Anurag Garg, IIT, Powai, Mumbai
4. Mrs.Nidhi Chaudhari, District Magistrate, Raigad
5. Shri V. V. Killedar, I/c Regional Officer, MPCB, Raigad

Two more MPCB officials viz. Shr iP. K. Mirashe, Asstt. Secretary (Tech), MPCB, Mumbai and Shri N.N. Gurav, RO (HQ), MPCB, Mumbaihave also been added as members of the joint committee by MPCB. Sri Sundeep, Scientist F, Control of Pollution Division, MoEF&CC was also opted as an expert member to the joint committee.

The joint committee under the Chairmanship of Shri Jigmet Takpa, Joint Secretary, MoEF&CC convened its first meeting through video conferencing on 04/08/2021. The joint committee deliberated in detail on various alleged issues mentioned in the Hon'ble NGT order dated

27/05/2021 w.r.t. non-compliances of Water & Air Acts, HOWM Rules, destruction of mangroves/creeks/natural channels/nallahs, damage to agriculture fields and unscientific disposal of slag by M/s Jindal Steel Works Ltd., Dolwi and directions passed by the Hon'ble NGT to the committee. After detailed discussions, various assessment/studies were identified to be carried out through respective concerned agencies and an action plan was also formulated in order to comply with the aforesaid order of the Hon'ble NGT. Copy of such identified assessment/studies and respective concerned agencies are given in the minutes of first meeting of the joint committee is given at **Annexure-1**. Such concerned agencies were requested vide emails in August 2021 to submit assessment/studies reports as per the said action plan. Thereafter, follow ups were also carried out. Representations from applicant were also received and concerned agencies were also requested to incorporate such represented issues in their assessment/studies reports.

Upon receipt of assessment/studies reports from concerned agencies (viz. NCSCM-Chennai, MoEF&CC-Nagpur, MPCB, District Collector-Raigad, Khar Land Department, Agriculture Department and District Health Officer) during October, 2021, the committee made detailed deliberations on findings/gaps in theassessment/studies reports during second meeting held on 19/11/2021 through video conferencing. Following are decisions in brief taken during the said second meeting:

(i) NCSCM to further carry-out assessment studies w.r.t. destruction of mangroves, loss/encroachment of natural creeks and mangrove buffer areas in terms of time-series maps.

(ii) Reporting of damages/loss/encroachment of mangroves/natural creeks/mangrove buffer areas taking into account of mapping of mangroves and natural creeks reported by Maharashtra Remote Sensing Application Centre (MRSAC);

(iii) A sub-committee headed by the District Collector-Raigad or his representative not below the rank of Add. District Magistrate, with representatives from Mangrove Cell (Govt. of Maharashtra), NCSCM, MRSAC and the District Revenue Department, to carry out field validation of damage/encroachment of mangroves/mangroves buffer zone/creeks as per satellite image report of NCSCM along with landownership of such premises & activities therein. Action plan for review including validation through field survey on various activities by the aforesaid sub-committee and concerned agencies, including Terms of Reference (ToR) were also prepared by the committee.

(iv) Various assessment studies/report to also include areas in & around 13 no. of alleged villages.

(v) The sub-committee to also co-ordinate with various other concerned organisations & evaluate (with field validation also) other damage assessment/reports of various agencies such as State Agricultural Dept., State Khar Land Dept., State Fisheries Dept. and State Maritime Board.

(vi) The said sub-committee to submit its target date,as expeditious as possible, to the joint committee for each of the activitiesto enable the committee in seeking necessary time extension by the Hon'ble NGT.

(vii) Upon receipt of the aforesaid sub-committee's report with field validations, wherever applicable, the joint committee shall carry-out site inspection wherein source/fugitive

emission monitoring of the coke oven plant and ambient air quality monitoring shall also be carried out by MPCB and CPCB. Such monitoring & analysis may be carried out by MPCB Laboratory. In case, such facility is not available with MPCB Laboratory, MPCB may engage EPA approved or NABL accredited Laboratory for the same.

Meanwhile, it was also felt prudent to have a field visit by a team comprising of Sh. Sundeep, Director, MoEF&CC, Sh. Bharat Sharma, Regional Director, CPCB RD Pune, Sh. Nishchal C., Sc. D, CPCB RD Pune, and senior officers of MPCB for further assessment of some of the findings apart from the scope defined for the sub-committee as the joint committee observed that the findings and preliminary assessment are based either on secondary data or are have been provided by the concerned agencies.

(viii) Health record of employees working in the coke oven plant of the industry under reference for the assessment period w.e.f. September, 2010 to May, 2021, may also be assessed especially w.r.t. respiratory diseases by the District Health Officer. Report in this regard be submitted to the joint committee by the District Collector, Raigad through District Health Officer.

(ix) With regard to valuation of services losses due to encroachment/loss/destruction of mangroves, natural creeks and mangroves buffer areas including required remedial measures, restitution plan and estimated cost thereto, an expert committee comprising of representative from NCSCM, Indian Institute of Forest Management-Bhopal, Madras School of Economics, Mangrove Cell (Govt. of Maharashtra) and NEERI has been decided to be constituted. The expert committee to deliberate and work out approach/methodology for such valuation/remedial measures/restitution plan and estimated cost which may be applied on validated encroachment/loss data to be worked out by the sub-committee.

Details of the aforesaid decisions/activities/action plan including ToR are given in the minutes of second meeting of the joint committee at **Annexure-2.**

Accordingly, the concerned agencies were requested vide email dated 30/11/2021, 10/12/2021 and 17/01/2022 to execute/validate as per the aforesaid action plan and ToR therein and submit time target to the joint committee for completion of the same.

Also, as decided during the second joint committee meetingheld on 19/11/2021, a team of committee members/officials from MoEF&CC, CPCB and MPCB carried-out site inspection of M/s JSW Ltd., during 29/12/2021 to 30/12/2021. A meeting with the various concerned agencies were also held during the said site visit to assess the status/progress of various assessment studies and field survey on 29/12/2021, followed by meeting with the District Collector, Raigad and District Range Forest Officer – Mangrove Cell on 30/12/2021 to discuss the status and way forward of the action plan, ToR and timely compliance of the Hon'ble NGT order.

During the said meeting on 29/12/2021, locations and parameters for monitoring of ambient air quality, fugitive emission and source emission were decided. During the field visit, the team observed sporadic and haphazard dumping of municipal solid waste within the 50 m mangrove buffer zone of the conveyor belt area of M/s JSW Ltd., i.e. from the stretch between Maharashtra Maritime Board jetty till the approach road of the Alibaug-Mumbai highway. It is

gathered through the District Administration that the particular land is Govt. owned and the municipal solid waste has been dumped illegally by the nearby gram panchayats viz. Dolvi and Vadkhal in the 50 m mangrove buffer area. Satellite image depicting the destruction of mangroves and photographs depicting the destruction of mangroves including sporadic and haphazard dumping of municipal solid waste is given at **Photographs 1 to 4**.

Google imagery of 2018, depicting the destruction of mangroves and illegal construction of approach road and dumping of municipal solid waste in the 50 m mangrove buffer area.

Legend

1 : Mangrove near the bank of Dharmtar creek
2 : Destruction of mangrove and dumping of municipal solid waste within 50 m mangrove buffer area (Govt. owned land) by the grampanchayats viz. Dolvi and Vadkhal
3 : 2 gallery (6 conveyor belts in each gallery) conveyor belt system installed by M/s JSW Ltd., from Dharmtar jetty till the premises of M/s JSW Ltd.,
4 : Illegal approach road constructed for dumping of solid waste within the mangrove buffer area (Govt. owned land)

During the meeting, District Administration and Mangrove Dept. were requested to take suitable action against the village panchayat for destruction of mangroves, construction of illegal approach road and illegal dumping of municipal solid waste in the mangrove buffer area. It was also requested that appropriate remedial measures be taken and implemented for restoration of the reported damaged mangrove buffer areas.

Photograph-1: Municipal solid waste dumped along the conveyor belt, witin 50 m mangrove buffer area by the gram panchayats viz. Dolvi and Vadkhal.

Photograph-2: Aerial view depciting destruction of mangroves and illegal dumping of municipal solid waste by the gram panchayats viz. Dolvi and Vadkhal.

Photograph-3: Aerial view depciting destruction of mangroves and illegal dumping of municipal solid waste by the gram panchayats viz. Dolvi and Vadkhal.

Photograph-4: Aerial view depciting destruction of mangroves and illegal dumping of municipal solid waste by the gram panchayats viz. Dolvi and Vadkhal.

The team also made the following observations:

i. Emission from the stack attached to sintering plant was observed, it needs to be ascertained the cause of such emission and its frequency after analysis of the feed composition and adequacy of the pollution control system installed for control of emission from sinter plant.

ii. Fugitive emissions (secondary emissions) were observed during the visit from Steel melting shop-1. Reportedly, the dilapidated enclosure sheets were removed for installation of new enclosure sheets. As reported, replacement of enclosure sheets were under progress as routine maintenance work, however, due to lack of proper planning and scheduling of maintenance activities, such emission happens. Industry shall ensure that appropriate standard maintenance practices (SMP) is developed and adopted to avoid such episodes emissions.

iii. The industry has carried-out de-silting of natural creek, passing through the industrial premises. It is observed that the de-silted sludge was haphazardly dumped along the natural creek, leading spillage back into the natural creek. The industry has not identified the designated storage area for handling and storage of de-silted sludge. Also, not having the management and utilization plan for the same. Housekeeping and proper management plan for such de-silting waste from the creek channel may be developed by the industry in a tome bound manner.

iv. Slag generated from the steel melting shop is stored near the slag processing plant was devoid of wind breaking walls, such inadequate containment measures may contribute to area sources of air pollution during transportation, handling of slag and during winds.

v. Similarly, the raw material handling and storage area meant for storage of iron bearing material, carbon bearing material, fluxes and coal was also observed to be devoid of adequate wind breaking walls, such inadequate containment measures may contribute to area sources of air pollution during transportation/handling of raw materials and during winds.

MPCB was requested to take necessary action against the industry. Accordingly, MPCB vide letter No. BO/RO-Raigad/TB-220103-FTS-0170, dated 03/01/2022 has directed the industry to submit the action plan along with time line for compliance of the points within a period of three days from the receipt of letter from MPCB.

It is humbly submitted that work of field validation/assessment/studies as per the action plan and ToR by various agencies, as identified by the joint committee, are in progress. Further, considering the quantum of works to be completed, no. of State Govt. agencies & research institutes involved for carrying out various field validation/assessment/studies, as above and given at **Annexure-2**, and due to the present pandemic situation, the Hon'ble NGT may kindly grant extension of time period of three months to the joint committee for submitting its report in compliance with aforesaid order dated 27/5/2021.

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Annexure-1

MINUTES OF THE FIRST MEETING OF THE COMMITTEE CONSTITUTED BY THE HON'BLE NATIONAL GREEN TRIBUNAL (NGT) IN THE MATTER OF OA NO. 165 OF 2020 (PB) [EARLIER OA NO. 122 OF 2015 (WZ) TITLED AS SAMITA RAJENDRA PATIL VS JINDAL STEEL WORKS LTD., & ORS.

The Hon'ble NGT in the aforesaid matter vide order dated 27.05.2021 constituted a five-member joint committee, to be headed by an officer of the rank of Joint Secretary, MoEF&CC, nominated by the Secretary MoEF&CC and comprising the CPCB, the IITMumbai, the District Magistrate, Raigad, the State PCB as Members. Grievance in this application is against violation of environmental norms in running the industrial operations by M/s Jindal Steel Works Limited at Village Dolwi, Karawi, Gadab, KharKaravi, Kharmachela and Jui Bapuji and other surrounding areas, District Raigarh, near Mumbai. Copy of the said order dated 27/5/2021 of Hon'ble NGT is given at **Annexure-I**. The operative directions of the Hon'ble NGT to the aforesaid joint committee in brief are as follows;

i. To look into the issues raised by the applicant summed up in the aforesaid order including compliance of the Water and Air Acts and HoWM Rules, destruction of Mangroves and damage to Agriculture, if any, status of scientific disposal of solid waste.
ii. To estimate the extent of environmental damage and the amount of compensation required and restitution plan (in case of non-compliance).
iii. The committee will have liberty to take assistance from any other expert institution or individual and conduct proceedings online, except for site visit, if necessary.
iv. If the violations are found, the committee may also suggest the amount of compensation to be recovered apart from other restoration measures.
v. The applicant as well as the project Proponent will be at liberty to represent their respective versions to the Committee through the State PCB.

In compliance with aforesaid order of the Hon'ble NGT, the five-member joint committee has been constituted as below:

(i) ShriJigmetTakpa, Joint Secreatry, MoEF&CC, GOI - Chairman of the Committee
(ii) ShriNishchal C., Scientist 'D' – CPCB, Regional Directorate – Pune
(iii) Prof. AnuragGarg, Indian Institute of Technology, Powai, Mumbai
(iv) Mrs.NidhiChaudhari, District Magistrate – Raigad
(v) Shri V. V. Killedar, In-charge: Regional Officer – Raigad, MPCB

First meeting of the committee was held on 04.08.2021 through video conferencing under the Chairmanship of ShriJigmetTakpa, Joint Secreatry, MoEF&CC. Representative from National Centre for Sustainable Coastal Management (NCSCM) was also invited to participate in the meeting. List of participants present in the aforesaid joint committee meeting is given at **Annexure-II.**

Representative from CPCB, Regional Directorate-Pune, welcomed chairman and members of the joint committee and invitee participants. He briefed that agenda of the meeting has already been circulated to all members of the committee. Representative from MPCB will be making

presentation about the industry (i.e. M/s Jindal Steel Works Limited at Village Dolwi, District: Raigad) and various environmental issues followed by presentation from CPCB representative on proposed action plans for execution of compliance of tasks assigned to the committee by the Hon'ble NGT. Thereafter, the committee may discuss and deliberate including scheduling of the field visit and other items with permission of the chairman.

Chairman of the committee in his introductory remarks expressed that action plans and deliverables of the committee should be objective and scientifically addressed and evidence based as far as possible. With regard to assessment of destruction of mangroves, if any, it may be scientifically evaluated using satellite images of the area under reference. He also urged from all the committee members to actively participate during deliberations and discussion and give their suggestions.

Thereafter, Representative from MPCB, Regional Office – Raigad, made a presentation about the industry, environmental issues on the following aspects;

- Chronology of various clearances obtained by the industry.
- Details on various plants, process their capacity, status of CC&A.
- Pollution control system installed for abatement of emission, effluent and installation of OCEMS for emission & effluent and status of connectivity to CPCB and MPCB servers.
- Existing management practice of solid waste generated from various activities of integrated iron & steel plant.

Representative from CPCB, Regional Directorate-Pune, and made a detailed point-wise presentation onissues raised by the applicant summed up in the aforesaid Hon'ble NGT order vis-à-vis proposed action plans for execution of compliance of tasks assigned to the committee. With regard to the assessment of destruction of mangrove areas, natural creek and drains/nalas; Representative from National Centre for Sustainable Coastal Management, informed that compilation of time series maps of last two decades through toposheets and satellite images of the area under consideration can be plotted with high resolution images. With these high-resolution images, the destruction (if any) in the mangrove areas, natural creek and drains/nalas due to industrial activities can be evaluated including estimation of extent of environmental damage,amount of compensation and restitution plan (in case of damages). He, however, expressed the limitation in compiling time series maps beyond 1990 due to difficulty in obtaining the high-resolution images.

Representative from IIT-Bombay expressed that historical data i.e. baseline environmental information with respect to various environmental attributes may be obtained and analysed from the environment impact assessment reports of the industry wherever applicable and possible. With regard to allegation on effects of dumping of waste/by-product i.e. slag on agricultural fields, he also expressed that in addition to analysis of slag samples for relevant parameters listed in Schedule-II of the Hazardous Waste Rules, 2016 and its correlation w.r.t. crop productivity due to its hazardous characteristics, if any; presence of the boron and sodium (being non-hazardous in nature) in such slags and soils may also be taken into consideration as soil fertility and crop productivity may have effect also due toboron and sodium.

Decisions:

After detailed discussions, following decisions were taken by the committee:

(i) Action plan and various studies/activities require to be carried out along with the concerned agency, as finalised during the discussions, are given at **Annexure-III**. The concerned agencies,as given at the said **Annexure-III**, shall submit their respective report to CPCB and MPCB before 15/9/2021.

CPCB and MPCB may co-ordinate with the concerned agency and circulate the compiled report to the committee before next meeting of the committee.

(ii) Various assessment studies w.r.t. damage of mangroves, creeks/channels/nallahs, soil, agricultural land and Kharbandistibandh due to activities of the industry under reference, as outlined in **Annexure-III**, be carried out w.r.t. prior to establishment of the industry under reference i.e. 1990 as base period and till May 2021 or afterwards.

(iii) Source/Fugitive/Work zone emission monitoring of the coke oven plant and ambient air quality monitoring including sampling & analysis of slags, as given at **Annexure-III**, may be carried out by CPCB and MPCB after monsoon or during visit of the committee.

Such monitoring & analysis may be carried out by MPCB Laboratory. In case, such facility is not available with MPCB Laboratory, MPCB may engage EPA approved or NABL accredited Laboratory for the same.

(iv) Violations of provisions of Environmental Clearance Notifications and Environmental Clearance conditions may be assessed jointly by the MoEF&CC's Regional Office, Nagpur and MPCB.

(v) Next meeting of the committee be held on 27/09/2021 (at 11.30 hrs) to deliberate on the findings of the report.

(vi) Visit to the site may be carried out after the monsoon and as finalised in the next meeting scheduled on 27/09/2021.

(vii) MPCB to compile representations received from the applicant as well as the project proponent, if any, and present to the committee in the next meeting or during the site visit. Further, MPCB may co-ordinate in caseapplicant or the project Proponent makes any request to represent during the site visit of the committee.

The meeting ended with vote of thanks to the chair.

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Annexure- II

S. no.	Name of the participants	Department
1.	ShriJigmetTakpa, Joint Secretary, Chairman of the joint committee	MoEF&CC, GoI
2.	ShriNishchal C., Scientist 'D'	CPCB, Regional Directorate - Pune
3.	Prof. AnuragGarg	IIT Bombay, Powai, Mumbai
4.	Mrs.NidhiChaudhari, District Magistrate	District Magistrate, GoM
5.	Shri V. V. Killedar, In-charge: Regional Officer	MPCB, Raigad
6.	Dr. Ramesh Ramachandran, Director	National Centre for Sustainable Coastal Management
7.	Shri Bharat K Sharma, Regional Director	CPCB, Regional Directorate - Pune

Annexure – III

ACTION PLAN FOR EXECUTION OF HON'BLE NGT ORDER DATED 27.05.2021 IN THE MATTER OA NO. 165 OF 2020 [EARLIER O. A. NO. 122/2015 (WZ), SAMITA RAJENDRA PATIL VS JINDAL STEEL WORKS LTD., & ORS.

Table: Way forward for compliance of Hon'ble NGT order dated 27.05.2021

S. no.	Studies/activities require to be carried-out w.r.t. compliance of the Hon'ble NGT order dated 27.05.2021	Agency who will execute/provide the report to the joint committee	Time target for execution of action plan/providing information
1.	• Assessment of destruction of mangroves of Dharmtar creek and within & around the industry premises due to various developmental/expansion activities carried-out by the industry using CRZ Map, toposheets and satellite images (w.e.f. 1990 till May, 2021 or afterwards): i. In case destruction of mangroves are established, estimation of extent of environmental damage, remedial measures & restitution plan and the amount of compensation. (w.e.f. 1990 till May, 2021 or afterwards). ii. Status of compliance of order dated 6th October, 2005 of the Hon'ble Bombay High Court in a group of Petitions bearing W.P. No. 3246 of 2004.	W.r.t. (i) & (ii): National Centre for Sustainable Coastal Management (NCSCM)	15.09.2021
2.	Status of encroachment of natural creeks and channels with details due to various developmental/expansion activities carried-out by the industry including jetty areas (w.e.f. 1990 till May, 2021 or afterwards).	District Collector, Govt. of Maharashtra	15.09.2021
3.	• Assessment of destruction of natural creeks and channels around the industry premises including jetty areas due to various developmental/expansion activities carried-out by the industry using CRZ Map, toposheets and satellite images (w.e.f. 1990 till	National Centre for Sustainable Coastal Management (NCSCM)	15.09.2021

	May, 2021 or afterwards): i. In case destruction of natural creeks and channels, estimation of extent of environmental damage, remedial measures & restitution plan and the amount of compensation (w.e.f. 1990 till May, 2021 or afterwards).		
4.	• Assessment of adverse effects due to coke oven plant: i. Source emission monitoring of stack attached to cove oven plant for the notified standards/parameters and as mentioned in CC&A (SO_2, NOx, PM, CO and BaP). ii. Ambient air quality monitoring at 06 locations (03 locations at about 120º each within and outside the plant premises, preferably at alleged locations) for the parameters viz. PM_{10}, $PM_{2.5}$, SO_2, NO_2, CO and BaP. iii. In case non-compliances are established, estimation of environmental compensation and suggesting the remedial measures.	W.r.t. (i), (ii) & (iii): MPCB and CPCB	After monsoon or during visit of the committee
5.	• Assessment of illegal dumping of by-products/waste products i.e. slag generated from hot strip mill, blast furnace etc. on mangrove areas, natural drains/nalas shall be done as below: i. Inventorization of various by-products/waste products, their management as per CC&A conditions, status of management of the same w.r.t. disposal and utilization details (w.e.f. 1990 till May, 2021 or afterwards). ii. Assessment of illegal dumping of by-products/waste products i.e. slag on mangrove areas, natural drains/nalas in & around at alleged villages (viz. Kharmachi, Kharkaravi, Juibapuji, Dolwi, Kharchirbi, Wadkhal, Vave, Kolve etc. situated within Taluka Pen) with the help of toposheets and satellite images (w.e.f. 1990 till May, 2021 or afterwards). iii. In case of destruction of mangroves, natural creeks/nalas due to dumping of by-products/waste products, estimation	• MPCB • W.r.t.(ii) & (iii): National Centre for Sustainable Coastal Management (NCSCM)	• W.r.t. (i): 15.09.2021 • W.r.t. (ii) & (iii): 15.09.2021

	of extent of environmental damage, remedial measures & restitution plan and the amount of compensation (w.e.f. 1990 till May, 2021 or afterwards). iv. Visual observations of mangrove areas, natural drains/nalas in & around at alleged villages (viz. Kharmachi, Kharkaravi, Juibapuji, Dolwi, Kharchirbi, Wadkhal, Vave, Kolve etc. situated within Taluka Pen).	• Joint committee	• W.r.t. (iv): After monsoon or during visit of the committee
6.	• Assessment of illegal dumping of by-products/waste products i.e. slag generated from hot strip mill, blast furnace etc. on agricultural land in surrounding areas of the industry and in villages (viz. Kharmachi, Kharkaravi, Juibapuji, Dolwi, Kharchirbi, Wadkhal, Vave, Kolve etc. situated within Taluka Pen) i. Reconnaissance survey of the areas. ii. Collection of soil samples from various locations of the above areas and also suitable reference soil samples (from unaffected area) and their analysis for relevant parameters including Boron and Sodium. iii. Compilation of year wise crop productivity data and assessing its trend (w.e.f. 1990 till May, 2021 or afterwards). iv. Based on the analysis results of soil samples and the crop productivity data, assessment of areas affected in terms of soil fertility/ agricultural productivity in the above-mentioned areas. v. In case of effect on soil fertility/ agricultural productivity due to illegal dumping of by-products/waste products, estimation of extent of environmental damage, remedial measures & restitution plan and the amount of compensation (w.e.f. 1990 till May, 2021 or afterwards). vi. Collection of various slag samples stored within the industry and TCLP/STLC analysis for parameters Arsenic, Barium,	• W.r.t. (i) to (v): District Collector through Agriculture Dept. (Govt. of Maharashtra) of their own or engaging a reputed Govt. agriculture institute/university • W.r.t. (vi) and (vii): MPCB and CPCB	• W.r.t. (i) & (iii): 15.09.2021. • W.r.t. (ii), (iv) &(v): After monsoon or during visit of the committee. • W.r.t. (vi) & (vii): After monsoon or during visit of the committee

	Cadmium, Chromium, Copper, Cyanide, Lead, Manganese, Mercury, Nickel, Selenium, Silver and Zinc as per Hazardous & Other Wastes (Management &Transboundary) Rules, 2016 and also Broron and Sodium. vii. Based on the analysis results of slag samples, suggesting environmental impact, if any, and remedial measures, as applicable.		
7.	• Assessment on damage of Kharbandistibandh (if any) due to industrial activity. i. Examining alleged incidence of 03/01/2015 by the Tahasildar, Pen, as referred at Para 2 at page no. 4 of the order dated 27/05/2021 of the Hon'ble NGT. ii. In case of damage of the Kharbandistibandh due to the industrial activity: - status report including extent of salt level in the agricultural fields and areas affected, and; - estimation of extent of land damage, remedial measures & restitution plan and the amount of compensation (w.e.f. 1990 till May, 2021 or afterwards).	W.r.t. (i) & (ii): Khar Land Department, Govt. of Maharashtra	15.09.2021
8.	i. Assessment of violations of provisions of Environmental Clearance notifications and Environmental Clearance conditions in development/expansion of jetty (w.e.f. 1990 till May, 2021 or afterwards). ii. In case violations, estimation of extent of environmental damage, remedial measures & restitution plan and the amount of compensation (w.e.f. 1990 till May, 2021 or afterwards).	• W.r.t. (i): Regional Office of MoEF&CC. • W.r.t. (ii): Joint committee	15.09.2021
9.	• Assessment of CRZ Rules violations w.r.t. construction of conveyor belt and development/expansion/operation of jetty. i. Assessment of violations of provisions of CRZ Rules and	• W.r.t. (i) & (ii): National Centre for Sustainable Coastal Management (NCSCM)	15.09.2021

	CRZ clearance conditions (w.e.f. 1990 till May, 2021 or afterwards). ii. In case of violations, estimation of extent of environmental damage, remedial measures & restitution plan and the amount of compensation (w.e.f. 1990 till May, 2021 or afterwards).		
10.	• Compliance status w.r.t. conditions of The Water (Prevention and Control of Pollution) Act, 1974 shall be done as below: i. Compliance of CC&A conditions w.r.t. effluent discharge/ZLD i.e. establishment of requisite effluent treatment system, OCEMS installed, effluent monitoring of the industry, violations observed and actions taken, as applicable (w.e.f. 1990 till May, 2021 or afterwards). ii. In case non-compliances, estimation of extent of environmental damage, remedial measures & restitution plan and the amount of compensation (w.e.f. 1990 till May, 2021 or afterwards).	W.r.t. (i) & (ii): MPCB.	15.09.2021
11.	• Compliance status w.r.t. conditions of The Air (Prevention and Control of Pollution) Act, 1981 shall be done as below: i. Compilation of CC&A conditions w.r.t. installation of requisite no. of stacks and associated air pollution control devices installed for management of source emission, OCEMS installed, source emission monitoring of the industry, violations observed and actions taken, as applicable (w.e.f. 1990 till May, 2021 or afterwards). ii. Compilation of CC&A conditions w.r.t. installation and monitoring of manual/continuous ambient air quality monitoring stations within the industry premises, violations observed and actions taken, as applicable (w.e.f. 1990 till May, 2021 or afterwards). iii. In case non-compliances, estimation of extent of	W.r.t. (i), (ii) & (iii): MPCB	15.09.2021

	environmental damage, remedial measures & restitution plan and the amount of compensation (w.e.f. 1990 till May, 2021 or afterwards).		
12.	• Compliance status w.r.t. conditions of Hazardous & Other Wastes (Management &Transboundary) Rules, 2016 shall be done as below: i. Listing, quantification and their management details of various hazardous wastes generated by the industry and their compliance status w.r.t. HoWM Rules, 2016 and authorization conditions (w.e.f. 1990 till May, 2021 or afterwards). ii. In case non-compliances, estimation of extent of environmental damage, remedial measures & restitution plan and the amount of compensation (w.e.f. 1990 till May, 2021 or afterwards).	W.r.t. (i) & (ii): MPCB	15.09.2021
13.	Health impact assessment on residents nearby to the plant premises within 5 Km based on the health records due to industrial activity especially w.r.t. particulate matter and gaseous emissions (SO_2, NOx, PM, CO and BaP) w.e.f. 1990 till May, 2021 or afterwards.	District Collector through District Health Officer	15.09.2021

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Annexure – 2

MINUTES OF SECOND MEETING OF THE JOINT COMMITTEE CONSTITUTED BY THE HON'BLE NATIONAL GREEN TRIBUNAL (NGT) VIDE ORDER DATED 27/5/2021 IN THE MATTER OF OA NO. 165 OF 2020 (PB) [EARLIER OA NO. 122 OF 2015 (WZ) TITLED AS SAMITA RAJENDRA PATIL VS JINDAL STEEL WORKS LTD., & ORS.

Second meeting of the joint committee was held on 19/11/2021 through video conference under the Chairmanship of ShriJigmetTakpa, Joint Secreatry, MoEF&CC, to discuss the progress on action plan formulated during its first meeting held on 04/08/2021. List of participants present in the aforesaid joint committee meeting is given at **Annexure-I.**

Representative from CPCB, Regional Directorate-Pune, welcomed the Chairman and members of the joint committee and invitee participants. It was briefed that the joint committee in its first meeting held through video conference on 04/08/2021 deliberated in detail on the various alleged issues mentioned in the Hon'ble NGT order dated 27/05/2021 w.r.t. non-compliances of Water & Air Acts, HOWM Rules, destruction of mangroves/creeks/natural channels/nallahs, damage to agriculture fields and unscientific disposal of slag by M/s Jindal Steel Works Ltd., Dolwi. After detailed discussions, various assessment/studies were identified to be carried out through respective concerned agencies and an action plan was also formulated in this regard. Such concerned agencies were requested to submit reports and the same have been received on most of such assessment/studies. Representations from applicant were also received and concerned agencies were also requested to incorporate such represented issues in their reports. Status on the same along with draft gaps/issues shall be presented by CPCB representative for deliberations by all in this meeting.

It was also informed that MPCB vide office order no. MPCB/MS/B-29, dated 08/09/2021 has included its two more officials as members of the joint committee namely Shri P. K. Mirashe, Asstt. Secretary (Tech), MPCB, Mumbai and Shri N.N. Gurav, RO (HQ), MPCB, Mumbai.Sri.Sundeep, Scientist F and Director, Control of Pollution Division, MoEF&CC was co-opted as a member to the committee as an expert in Pollution Control in Integrated Iron & Steel Industries in the committee.

Chairman of the joint committee in his introductory remarks mentioned that most of the preliminary studies/reports on various assessment outlined in the action plan have been submitted by concerned agencies and appreciated the collective efforts made by various

agencies towards achieving compliance of the aforesaid order of the Hon'ble NGT. He urged that there is need to evaluate such findings and address gaps, if any, taking into account scientific based evidences followed by its field validation. He also urged all members of the committee and invitees to actively put forward their views and arrive to solutions with consensus of all. However, it shall also be endeavored to comply orders of the Hon'ble NGT expeditiously and in case more time is required the committee may seek time extension submitting progress made so far with period requirement to complete remaining tasks.

Thereafter, representative from CPCB made a detailed point-wise presentation on the each of the activities of the action plan decided in previous meeting vis-à-vis progress status, findings and draft gaps/issues and way forward.

The joint committee deliberated on the assessment period to be considered for assessing the destruction of mangroves, loss/encroachment of natural creeks and mangrove buffer areas due to various activities of the industry under reference and collectively decided that assessment, be carried out w.e.f. September, 2010 to May, 2021[1] also considering that most of the expansion & developmental activities of the industry was in progress during 2016 to 2021. Pre September, 2010 may also be helpful to understand trend/effect of damages due the natural process of any other activities. Representative from NCSCM expressed that better & high-resolution image may be available for the said assessment period which will help in high resolution mapping.

With regard to quantification and dumping of slag in the alleged areas (agricultural lands/low lying areas), the committee decided that ground verification of the satellite image based inferences, slag disposal information submitted by Industry to MPCB in past years, response of land owners where slag is found dumped, their acceptance with documentary support, status of ownership of land, consent of takers for utilization/dumping of slag should be verified. Further, soil sampling & analysis in alleged areas, ground water samples (as applicable), compilation of crop productivity trend and damage assessment & their monetary valuation, remedial measures/plan, as applicable; may also be worked-out by the subcommittee, based on field observations.

[1] Taking reference from Section 15, Sub-Section 3 of The National Green Tribunal Act, 2010 and to limit a period since when default/non-compliance is to be considered for assessing environmental damage and compensation, the period of default/non-compliance has been taken into account in the past five years prior to the day; OA no. 165 of 2020 (PB) [earlier OA no. 122 of 2015 (WZ)] was filed before Hon'ble NGT (i.e. 26.09.2015) and till the date of Hon'ble NGT (i.e. 27.05.2021) viz. 26.09.2010 to 27.05.2021.

Detailed status report was sought with regard to damage to various bhands of Dharmatar Creek, besides Kharbandistibandh, MachelaChirbi and JuiHabbasKharland scheme bunds, as there are multiple natural and manmade sources (navigation of barges/cargo ships, dredging activities etc.) were reported by the Khar Land Dept.

Decisions:

After detailed discussions, following decisions were taken by the joint committee:

(i) NCSCM to carry-out assessment studies w.r.t. destruction of mangroves, loss/encroachment of natural creeks and mangrove buffer areas due to various activities of the industry under reference, comparing with three set of time-series maps viz. 1997 to August, 2010, September, 2010 to 2014 and 2015 till May, 2021 as outlined in **Annexure-II**.NCSCM to examine mapping of mangroves and natural creeks reported by Maharashtra Remote Sensing Application Centre (MRSAC) and the same to be taken into account while reporting damages/loss/encroachment of mangroves/natural creeks/mangrove buffer areas in its report. MPCB will help in getting the maps of mangroves and natural creeks prepared by Maharashtra Remote Sensing Application Centre (MRSAC), available to NCSCM. Amended Environment / CRZ Clearance was issued for construction of additional conveyor belts/streams in respect of expansion of the Dharamtar Jetty facility, vide MoEF&CC OM No. F. No. 11-79/2013-IA-III dated 10.01.2020, based on recommendation dated 16/02/2019 by the MCZMA, with the condition that “no activity shall be carried out in mangroves or its 50 m buffer zone, as per 17th Sept. 2018 High Court order in PIL 87/2006”. Thus, with regard to year/period (or closest date) of mangroves areas and demarcating the affected area, if any, of mangroves buffer areas thereto, NCSCM may provide a short brief on compliance status under relevant CRZ Notification, Env Clearance & CRZ clearance of 2015 as well as amended in 2020, as applicable.

(ii) A sub-committee headed by the District Collector-Raigad or his representative not below the rank of Add. District Magistrate, with representatives from Mangrove Cell (Govt. of Maharashtra), NCSCM, MRSAC and the District Revenue Department, shall carry out field validation of damage/encroachment of mangroves/mangroves buffer zone/creeks as per satellite image report of NCSCM along with landownership of such premises & activities therein. Action plan for review including validation through field survey on various activities by the aforesaid sub-committee and concerned agencies, including Terms of Reference (ToR) are given at **Annexure-II.**

(iii) The various assessment studies/report given at **Annexure-II** shall also include areas in & around 13 no. of alleged villages and period of studies reporting shall be September, 2010 to May, 2021 except in case of destruction of mangroves, encroachment of natural creeks areas studies being conducted by NCSCM. Further, the sub-committee may also highlight its observation on adverse impact on mangroves creeks arising due to any direct or indirect activities of M/s JSW and its associated work activities.

(iv) The sub-committee shall also co-ordinate with various organisations in this regard & evaluate (with field validation also) other damage assessment/reports of various agencies such as State Agricultural Dept., State Khar Land Dept., State Fisheries Dept. and State Maritime Board, as outlined in **Annexure-II**, for the period September, 2010 to May, 2021, as given at **Annexure-II**, and submit its report to the joint committee. The said sub-committee shall submit its target date for each of the activities, as given at **Annexure-II**, for submitting its report to the joint committee considering as expeditious as possible. Such time target date for each of the activities, as given at **Annexure-II**, be submitted positively by 29/11/2021 to enable the committee in seeking necessary time extension by the Hon'ble NGT.

(v) With regard to valuation of services losses due to encroachment/loss/destruction of mangroves, natural creeks and mangroves buffer areas including required remedial measures, restitution plan and estimated cost thereto, an expert committee comprising of representative from NCSCM, Indian Institute of Forest Management-Bhopal, Madras School of Economics, Mangrove Cell (Govt. of Maharashtra) and NEERI may be constituted. The expert committee may deliberate and work out approach/methodology for such valuation/remedial measures/restitution plan and estimated cost which may be applied on validated encroachment/loss data to be worked out by the sub-committee. NCSCM may co-ordinate the activities of the said expert committee.

(vi) Upon receipt of the aforesaid sub-committee's report with field validations, wherever applicable, the joint committee shall carry-out site inspection wherein source/fugitive emission monitoring of the coke oven plant and ambient air quality monitoring at 03 alleged locations, as given at **Annexure-II**, shall also be carried out by MPCB and CPCB. Such monitoring & analysis may be carried out by MPCB Laboratory. In case, such facility is not available with MPCB Laboratory, MPCB may engage EPA approved or NABL accredited Laboratory for the same.

(vii) Health record of employees working in the coke oven plant of the industry under reference for the assessment period w.e.f. September, 2010 to May, 2021, may also be assessed

especially w.r.t. respiratory diseases by the District Health Officer. Report in this regard be submitted to the joint committee by the District Collector, Raigad through District Health Officer.

(viii) The joint committee observed that the findings and preliminary assessment discussed during the meeting are based either on secondary data or are have been provided by the concerned agencies. It was felt prudent to have a field visit by a team comprising of Sh. Sundeep, MoEF&CC, Sh. Bharat Sharma, RD, CPCB-Pune, Sh. Nishchal C., and senior officer of MPCB in next week for further assessment of some of the findings apart from the scope defined for the sub-committee constituted in this meeting, in order to expedite the work of the committee and prepare the progress report to be submitted before the next date of hearing before the Hon'ble NGT. MPCB may co-ordinate the site visit in association with the District Collector.

(ix) Progress report of the joint committee shall be submitted to the Hon'ble NGT before scheduled date of hearing, mentioning overall status, action plan formulated & agencies identified for assessment of various studies/activities, meetings conducted and progress made so far; so that the joint committee can seek extension of time period for submission of final report.

NCSCM shall submit budget proposal for conducting various studies, as at **Annexure-II**, by them including estimated expenses in co-ordinating the expert committee for valuation of damages, to the joint committee. The estimate Expenditure for completing the said work by NCSCM shall be submitted to CPCB for reimbursement. The cost estimated shall be limited to and on actual basis including deployed resource cost, lab Expenditure, data procurement (soft/satellite imaginary, TA&DA and other miscellaneous contingency expenses shall be reimbursed. NCSCM shall submit their financial proposal to CPCB-Pune for further reimbursement.

The meeting ended with vote of thanks to the chair.

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Annexure – I

S. no.	Name of the participants	Department
1.	ShriJigmetTakpa, Joint Secretary, Chairman of the joint committee	MoEF&CC, GoI
2.	ShriNishchal C., Scientist 'D'	CPCB, Regional Directorate - Pune
3.	Prof. AnuragGarg	IIT Bombay, Powai, Mumbai
4.	Dr.MahendraKalyankar	District Collector, RaigadGoM
5.	Shri P. K. Mirashe, Asstt. Secretary (Tech)	MPCB, Mumbai
6.	Shri N.N. Gurav, RO (HQ)	MPCB, Mumbai
7.	Shri V. V. Killedar, In-charge: Regional Officer	MPCB, Raigad
8.	Shri Bharat K Sharma, Regional Director	CPCB, Regional Directorate - Pune
9.	ShriSundeep, Director	MoEF&CC, GoI
10.	ShriSurehAdapa, Addl. Director	MoEF&CC, IRO-Nagpur
11.	Dr. Ramesh Ramachandran, Director	National Centre for Sustainable Coastal Management, Chennai
12.	Mrs.UjjwlaBankhele, District Agriculture Office, Raigad.	Agriculture Department, Alibag, Raigad.
13.	ShriJagdishPatil, Deputy Executive Engineer	Khar Land Departmen, Kharland Survey and Investigation Division
14.	ShriSudhakar More, District Health Officer, Raigad	District Health Office, Raigad

Annexure – II

Action plan for compliance of Hon'ble NGT order and Terms of Reference of sub-committee constituted in meeting dated 19.11.2021

S. no.	Assessment on various activities/studies	Present status of assessment on various activities/studies	Terms of Reference for assessment on various activities/studies	Responsible agency/ Sub-committee
1.	Destruction of mangroves of Dharamtar creek and within & around M/s JSW premises (w.e.f. September, 2010 to May, 2021) due to various developmental/ expansion activities carried-out by M/s JSW.	As per the studies undertaken using satellite images and report submitted by NCSCM that during 1997 – 2021 the total loss of mangrove areas estimated at Site-1 is 12.4 ha and at Site-2 is 9.25 ha.	a. Compilation of three set of time-series satellite maps at Site-1 & Site-2 w.r.t. status of destruction of mangroves of Dharamtar creek and within & around M/s JSW viz. 1997 to August, 2010, September, 2010 to 2014 and 2015 till May, 2021, to delineate the present status. b. To examine mapping of mangroves reported by MRSAC and the same to be taken into account while reporting damages/ loss of mangroves areas, if any, in its report, c. After compilation w.r.t. a & b, at above, delineation of the area(s) under Site-1 and Site-2 with superimposition of land	i. National Centre for Sustainable Coastal Management (NCSCM), Chennai. NCSCM to carry-out activity i.e. a & b of Col. No. 4 and submit its report to the sub-committee. ii. MPCB will make the maps of mangroves and natural creeks prepared by Maharashtra Remote Sensing Application Centre (MRSAC), available to NCSCM. ii. The sub-committee headed by the District Collector-Raigad, with representatives from Mangrove Cell (Govt. of Maharashtra), NCSCM, Maharashtra Remote Sensing Application Centre, (MRSAC), and the District Revenue Department to carry-out activity i.e. c & d of Col. No. 4

			revenue map, to validate such reported loss/destruction of mangrove areas falling within M/s JSW premises, Govt. land and Pvt. Land if any; through reconnaissance survey including activities at such lands. d. Mapping reported damages of mangroves areas with activities (direct or indirect) of M/s JSW by field validation and relevant information collation.	as per report provided by NCSCM and also gathering other information/ data/ report.
i.	Valuation of services losses due to encroachment/loss/destruction of mangroves areas including required remedial measures, restitution plan and estimated cost thereto.	--	An expert committee to rationalize and propose approach/methodology for monetizing through valuation of services and cost for remedial measures / restitution plan and propose rationale / algorithm for estimating cost which may be applied on validated destruction/ encroachment/ loss of mangroves observed, if any.	Expert committee comprising representatives from NCSCM, Indian Institute of Forest Management (IIFM) Bhopal, Madras School of Economics, Mangrove Cell (Govt. of Maharashtra) and NEERI.
2.	Status of encroachment of natural	As per the report of District	a. Compilation of three	i. NCSCM to carry-out activity

	creeks and channels with details due to various developmental/ expansion activities carried-out by M/s JSW including jetty areas (w.e.f. September, 2010 to May, 2021).	Collector, Raigad; no encroachment or unauthorized construction has been done in natural creek or nala by M/s JSW. However, as per report of NCSCM; the total loss of area of Natural Creeks estimated at two locations viz. Natural Creek # 1 is 1.27 ha and at Natural Creek # 2 is 1.09 ha.	set of time-series satellite maps at Site-1 & Site-2 w.r.t. loss/encroachment of area of Natural Creeks and within & around M/s JSW viz. 1997 to August, 2010, September, 2010 to 2014 and 2015 till May, 2021, to delineate the present status. b. To examine and mapping of natural creeks reported by MRSAC and the same to be taken into account while reporting loss/encroachment of natural creeks areas in its report. c. After compilation w.r.t. a & b, at above, delineation of the Natural Creek-1 & 2 with superimposition of land revenue map, to validate such reported loss/encroachment of area of Natural Creeks, caused due to activities (Direct/indirect) of M/s. JSW and identification as within/outside the premises	i.e. a & b of Col. No. 4 and submit its report to the sub-committee. ii. MPCB will make the maps of mangroves and natural creeks prepared by Maharashtra Remote Sensing Application Centre (MRSAC), available to NCSCM. iii. The sub-committee headed by the District Collector-Raigad, with representatives from Mangrove Cell (Govt. of Maharashtra), NCSCM, Maharashtra Remote Sensing Application Centre, (MRSAC), and the District Revenue Department to carry-out activity i.e. c & d of Col. No. 4 as per report provided by NCSCM and also gathering other information/ data/ report.

			of M/s JSW premises, Govt. land and Pvt. Land if any; through reconnaissance survey including present activities on such lands. d. Establishing reported loss/encroachment of Natural Creeks with the activities of M/s JSW by field validation and relevant information collation.	
i.	Valuation of services losses due to encroachment/ loss of Natural Creek areas including required remedial measures, restitution plan and estimated cost thereto.	--	After completion of works w.r.t. a, b, c & d of above, and validation, submission of reports by the sub-committee, the expert committee to work out approach/methodology for such valuation/ remedial measures/ restitution plan and estimated cost which may be applied on validated encroachment/ loss of Natural Creek areas data being worked out by the sub-committee.	Expert committee comprising representatives from NCSCM, Indian Institute of Forest Management (IIFM) Bhopal, Madras School of Economics, Mangrove Cell (Govt. of Maharashtra) and NEERI.
3.	Assessment of adverse effects due to emissions from coke oven plant.			
i.	Source emission monitoring of stack attached to cove oven plant.	--	a. To carry-out source emission monitoring of stack attached to coke oven plant for the notified	W.r.t. (a to d): Jointly by MPCB and CPCB during joint committee visit.

			standards /parameters/ as per CC&A i.e.SO_2, NOx, PM and CO. b. Fugitive emission for PM during coke pushing in coke oven and during quenching operation in coke oven. c. Fugitive emission for BaP near battery area and near other units in coke oven plant. d. Fugitive visible emissions (PLD, PLL & PLO) of Coke oven as per prevailing notification of CTO condition battery areas.	
ii.	Ambient air quality monitoring.	--	To carry-out ambient air quality monitoring at 03 locations at about 120º inside & outside the plant premises, preferably at alleged locations, near to residential area shall be carried-out jointly by MPCB and CPCB during joint committee visit for the parameters viz. PM_{10}, $PM_{2.5}$, SO_2, NO_2, CO.	Jointly by MPCB and CPCB during joint committee visit.
4.	Assessment on illegal dumping of by-products/waste products i.e. slag generated by M/s JSW on mangrove areas, natural drains/nalas and also on agriculture lands in & around alleged villages (viz. Kharmachi, Kharkaravi, Juibapuji, Dolwi, Kharchirbi,			

	Wadkhal, Vave, Kolve etc. situated within Taluka Pen). Also, on agricultural land/private lands/Govt. lands in & around alleged villages (viz. Gadab, Beneghat, Khardombi, Kharjambhela and Kharghat), (w.e.f. September, 2010 to May, 2021).			
i.	Inventorization of various by-products/waste products, their management as per CC&A conditions, status of management of the same w.r.t. disposal and utilization details.	As per report of MPCB, w.e.f. 2008 to 2021, M/s JSW has generated 95,14,831 MT of slag, out of which 92,12,044 MT has been either reused for captive utilization as RM, disposal in low-lying areas within premises as per CC&A and also on private lands.	a. To provide the status/information on various parties to whom slags were handed over, slags intended use while handing over, nature of actual use of the slags by the parties, locations where used and land ownership details, MoU/ consent of individual(s) etc. taking into account of Environment Statement of M/s JSW also. b. Mass balance on generation, storage and disposal/transfer of slags during September, 2010 to May, 2021	W.r.t. (a and b): MPCB
ii.	Assessment of illegal dumping of by-products/waste products i.e. slag generated by M/s JSW on mangrove areas, natural drains/nalas in the aforesaid alleged villages.	As per the studies undertaken using satellite images and report submitted by NCSCM, the details of dumping of waste/by-products on the mangrove areas, natural drains/nalas could not be discerned/ established from satellite images.	To verify legal and illegal dumping (with estimated quantity) of by-products/ waste products i.e. slag generated by M/s JSW on mangrove areas, natural drains/nalas in the aforesaid alleged villages through reconnaissance survey.	The aforesaid sub-committee having representative from Agriculture Department (Govt. of Maharashtra) also.
iii.	Assessment of illegal dumping of	Desired information yet to	To verify legal and illegal	The aforesaid sub-committee

	by-products/waste products i.e. slag generated by M/s JSW on agricultural lands in the aforesaid alleged villages.	be provided by District Collector, Raigad through Agriculture Department (Govt. of Maharashtra).	dumping (with estimated quantity) of by-products/ waste products i.e. slag generated by M/s JSW on agricultural lands in the aforesaid alleged villages through reconnaissance survey.	having representative from Agriculture Department (Govt. of Maharashtra) also.
iv.	Collection of soil samples from various locations of the above areas and also suitable reference soil samples (from unaffected area) and their analysis for relevant parameters including Boron and Sodium.	As per the information provided by District Collector, Raigad through Agriculture Department (Govt. of Maharashtra), soil sampling & analysis shall be done in rabi season.	Upon assessment of activity as at s. no. ii & iii of 4 above, collection of soil samples and analysis for relevant parameters (to be decided by Agriculture Dept. besides Boron and Sodium) in such places where, dumping of slag if any; or impact due to elsewhere dumping are expected/observed on the agricultural lands in the aforesaid alleged villages. The report shall also conclude about impact on crop productivity in such affected agricultural lands.	District Collector, Raigad through Agriculture Department (Govt. of Maharashtra).
v.	Compilation of year wise crop productivity data and assessing its trend (w.e.f. September, 2010 to May, 2021). In case, the aforesaid areas affected in terms of soil fertility/ agricultural	As per the information provided, in villages of Dolwi, Karavi, Gadab, Kharkarvi, Kharmathela, Juibapuji, no crop has been produced for last 15	Upon completion of activity as at s. no. iv of 4, above, compilation of year wise crop productivity data wise (w.e.f. September, 2010 to May, 2021) in the aforesaid	District Collector, Raigad through Agriculture Department (Govt. of Maharashtra).

	productivity, then estimation of extent of environmental damage, remedial measures & restitution plan and the amount of compensation as applicable;	years. However, w.e.f. 2014-15, paddy productivity is at par with that of taluka average.	alleged villages (viz. Kharmachi, Kharkaravi, Juibapuji, Dolwi, Kharchirbi, Wadkhal, Vave, Kolve, Gadab, Beneghat, Khardombi, Kharjambhela and Kharghat)	
vi.	Collection of various slag samples stored within the industry and TCLP/STLC analysis for parameters Arsenic, Barium, Cadmium, Chromium, Copper, Cyanide, Lead, Manganese, Mercury, Nickel, Selenium, Silver and Zinc as per Hazardous & Other Wastes (Management &Transboundary) Rules, 2016 and also Broron& Sodium.	MPCB has collected slag samples generating from hot strip mill (EAF slag) and blast furnace slag on 25/10/2021. Slag samples were submitted to NABL/E(P)A approved laboratory for TCLP/STLC analysis of said parameters.	a. MPCB to submit the analysis results of slag samples. b. Suggesting environmental impact, if any, and remedial measures, as applicable	i. w.r.t. a: MPCB. ii. w.r.t. b: Joint committee.
5.	Assessment on damage of Kharbandistibandh(if any) due to activity of M/s JSW. Also, status report including extent of salt level in the agricultural fields and areas affected, and estimation of extent of land damage, remedial measures & restitution plan and the amount of compensation (w.e.f. 1990 till May, 2021 or afterwards).	As per the report submitted by Khar Land Dept., Exe. Eng. no such instances of damage to the Kharland Bund are observed due to any Industrial activity.	To examine the reports of Exe. Eng. of Khar Land Dept. and overall assessment of damage to Kharbandistibandh if any; due to activity of M/s JSW with field validation/reconnaissance survey.	The aforesaid sub-committee having representative from Khar Land Dept. (Govt. of Maharashtra) also.
i.	Examining alleged incidence of 03/01/2015 by the Tahasildar, Pen, as referred at Para 2 at	As per the report submitted by Khar Land Dept., EE & AEE, the alleged incidence	a. To provide detailed status report on damages to various bandhs of	i. w.r.t. a: The aforesaid sub-committee having representative from Khar Land

	page no. 4 of the order dated 27/05/2021 of the Hon'ble NGT.	is related to damage caused to the MachelaChirbi and JuiHabbasKharland scheme bunds, mainly to due excessive rains and high tide resulting in breaches in the bund and damage to slice gates that resulted in ingress of saline water in the adjoining agricultural land. Also, mentioned that due to traffic of barges and ships in Dharamtar Creek have caused speedy erosion of the bunds which can cause the breach of bund resulting in ingress of saline water in reclaimed area. Dredging activity in Dharmatar Creek has resulted into the sliding of bund in the creek.	Dharamtar Creek, if any; due to activity of M/s JSW with field validation/ reconnaissance survey. Also, details on ingress of saline water into adjoining agricultural lands (survey no./ghat no. & location/villages name). b. To examine whether barges and cargo ships of M/s JSW are only being navigated in Dharamtar Creek. c. To provide status report on events of dredging activities had been carried-out in the Dharamtar Creek.	Dept. (Govt. of Maharashtra) also. ii: w.r.t. b and c: The aforesaid sub-committee having representative from Maharashtra Maritime Board (Govt. of Maharashtra) also.
ii.	Status report including extent of salt level in the agricultural fields and areas affected	As per the report of AEE, Kharland Act 1979 doesn't have mandate to determine soil properties like salt level in the	In case, incidence of ingress of salt water reported, then delineation of agricultural areas around the Dharmatar Creek and	District Collector through Agriculture Dept. (Govt. of Maharashtra).

		agricultural field, area affected, extent of land damage & remedial measures.	estimation of salt level, extent of land damage & remedial measures, as applicable.	
6.	Assessment of violations of provisions of Environmental Clearance (EC) Notifications and EC conditions in development/expansion of jetty (w.e.f. September, 2010 to May, 2021).	MoEF&CC's Regional Office, Nagpur has verified and reported the details of compliance of EC Notifications and conditions of Dharamtar jetty facility. M/s JSW Dharamtar Port Private Limited without obtaining prior EC, started the construction activity for expansion of existing jetty facility from 331.5 to 1,750 m. Hence, the industry was found violated the provisions of Environment Impact Assessment Notification, 2006 & its amendments. However, EC was granted in 2015.	MoEF&CC may provide information on post-facto consideration of EC and provide necessary comments to the joint committee.	MoEF&CC, IRO Nagpur.
7.	Assessment of violations of provisions of CRZ Rules and CRZ clearance conditions by M/s JSW w.r.t. construction of conveyor belt and development/ expansion/ operation of jetty (w.e.f. September, 2010 to May,	As per the analysis of the satellite images and report submitted by NCSCM, it is observed that the conveyor belt has been constructed in the 50 m buffer zone around mangroves. The	a. To provide probable month of loss of mangrove buffer areas visible from satellite images during construction of conveyor belt/ other constructions on mangrove buffer areas.	i. w.r.t. a: NCSCM. ii. The sub-committee headed

	2021).	mangrove buffer areas have also been utilized for other industrial uses. The total area of mangrove buffer areas lost due to construction of conveyor belt in 50 m mangrove buffer areas and other constructions in 50 m mangrove buffer areas are 10.62 ha.	Amended Environment / CRZ Clearance was issued for construction of additional conveyor belts/streams in respect of expansion of the Dharamtar Jetty facility, vide MoEF&CC OM No. F. No. 11-79/2013-IA-III dated 10.01.2020, based on recommendation dated 16/02/2019 by the MCZMA, with the condition that “no activity shall be carried out in mangroves or its 50 m buffer zone, as per 17th Sept. 2018 High Court order in PIL 87/2006”. Thus, with regard to year/period (or closest date) of mangroves areas and demarcating the affected area, if any, of mangroves buffer areas thereto, NCSCM may provide a short brief on compliance status under relevant CRZ Notification, Env Clearance & CRZ clearance of 2015 as well as amended in 2020, as applicable.	by the District Collector-Raigad, with representatives from Mangrove Cell (Govt. of Maharashtra), NCSCM, Maharashtra Remote Sensing Application Centre, (MRSAC), and the District Revenue Department to carry-out activity i.e. b of Col. No. 4 as per report provided by NCSCM and also gathering other information/ data/ report.

			b. After submission of report w.r.t. a, at above, delineation of areas under reference to validate such reported loss of mangrove buffer areas through reconnaissance survey.	
i.	In case of violations of provisions of CRZ Rules and CRZ clearance conditions w.r.t. construction of conveyor belt and development/expansion/operation of jetty, estimation of amount of compensation (w.e.f. September, 2010 to May, 2021).	Based on the assessment on violations of provisions of CRZ Rules and CRZ clearance conditions, as above; NCSCM, has calculated the amount of environmental compensation based on the guidelines issued by the CPCB. The environmental compensation for the aforesaid violations is worked-out to be ` 14,216,000/- (Rupees One Crore Forty-two Lakhs Sixteen Thousand Only) (excluding loss of mangroves and natural creeks evaluation).	After completion of works w.r.t. a & b of above, and validation, submission of reports by the sub-committee, the expert committee to work out the approach/methodology for such valuation/ remedial measures/ restitution plan and estimated cost which may be applied on validated encroachment/ loss of mangroves buffer areas data being worked out by the sub-committee.	Expert committee comprising representatives from NCSCM, Indian Institute of Forest Management (IIFM) Bhopal, Madras School of Economics, Mangrove Cell (Govt. of Maharashtra) and NEERI.
8.	Compliance status w.r.t. conditions of The Water (Prevention and Control of Pollution) Act, 1974 (w.e.f.	MPCB has submitted plant-wise compiled status report on the compliance of CC&A conditions i.e.	a. To submit compliance status of 55 MW Captive Power Plant and Harsco India Metals Pvt Ltd., (Slag	w.r.t. (a, b & c): MPCB.

	September, 2010 to May, 2021).	conditions under The Water (Prevention and Control of Pollution) Act, 1974 for discharge of effluent.	processing Plant). b. To submit compliance status of reported for non-compliances w.r.t. discharge of effluent and estimation of environmental compensation for the reported non-compliances, as applicable. c. To submit compiled compliance status report on the compliance of CC&A conditions i.e. conditions under The Water Act, 1974 for Phase-II plant (5 – 10 MTPA) and compliance status reported for non-compliances w.r.t. discharge of effluent and estimation of environmental compensation for the reported non-compliances, as applicable.	
9.	Compliance status w.r.t. conditions of The Air (Prevention and Control of Pollution) Act, 1981 (w.e.f. September, 2010 to May, 2021).	MPCB has submitted plant-wise compiled status report on the compliance of CC&A conditions i.e. conditions under The Air (Prevention and Control of Pollution) Act, 1981 for	a. To submit compliance status of 55 MW Captive Power Plant and Harsco India Metals Pvt Ltd., (Slag processing Plant). b. To submit compliance	w.r.t. (a, b & c): MPCB.

		discharge of emission.	status of reported for non-compliances w.r.t. discharge of emission and estimation of environmental compensation for the reported non-compliances, as applicable. c. To submit compiled compliance status report on the compliance of CC&A conditions i.e. conditions under The Air Act, 1981 for Phase-II plant (5 – 10 MTPA) and compliance status reported for non-compliances w.r.t. discharge of emission and estimation of environmental compensation for the reported non-compliances, as applicable.	
10.	Compliance status w.r.t. conditions of The Hazardous & Other Wastes (Management &Transboundary Movement) Rules, 2016 (w.e.f. September, 2010 to May, 2021).	MPCB has submitted plant-wise compiled status report on the compliance of CC&A conditions i.e. conditions under The Hazardous & Other Wastes (Management &Transboundary Movement) Rules, 2016.	a. To submit compliance status of 55 MW Captive Power Plant and Harsco India Metals Pvt Ltd., (Slag processing Plant). b. To submit compliance status of reported for non-compliances w.r.t. conditions of HW and	w.r.t. (a, b & c): MPCB.

			estimation of environmental compensation for the reported non-compliances, as applicable. c. To submit compiled compliance status report on the compliance of CC&A conditions i.e. conditions under The HW rules, 2016 for Phase-II plant (5 – 10 MTPA) and compliance status reported for non-compliances w.r.t. conditions of HW and estimation of environmental compensation for the reported non-compliances, as applicable.	
11.	Health impact assessment on residents nearby to the plant premises within 5 Km based on the health records due to industrial activity especially w.r.t. particulate matter and gaseous emissions (SO_2, NOx, PM, CO and BaP) (w.e.f. September, 2010 to May, 2021).	As per the report of DHO, health data analyzed from 04 PHC (02 within 5 Km of industry & 02 within Panvel Tal.) during 2015-2021. Submitted that respiratory diseases, acute eye disorders, skin diseases and other acute & chronic diseases found in vicinity of M/s Jindal Steel and non-industrial areas are remarkably the same. Data	To verify and provide report on health record of employees working in the coke oven plant of the industry under reference for the assessment period w.e.f. September, 2010 to May, 2021, may also be assessed especially w.r.t. respiratory diseases.	District Collector through District Health Officer.

		of 02 PHC within 5 Km of industry are not significant with above mentioned diseases including respiratory & allergic conditions. Surveillance activity prior to 2015 was mainly focused on diseases like Guinea worm disease, Measles, Rubella, Filaria, leprosy etc. Hence no data on the respiratory & allied diseases.		
12.	Loss in fish catch/productivity due to navigation of ships in the Dharamtarcreek around M/s JSW: Compilation of year wise fish catch/productivity data and assessing its trend (w.e.f. September, 2010 to May, 2021).	Desired information yet to be provided by District Collector, Raigad.	a. To identify the sources for loss in fish catch/productivity in the Dharamtarcreek, if any; b. To compile year wise fish catch/productivity data and assessing its trend in the Dharamtarcreek.	w.r.t. a & b: District Collector, Raigad, through Department of Fisheries (Govt. of Maharashtra) of their own or engaging a reputed Govt. Fisheries Science College/ Institute/ University.
13.	Status of compliance of order dated 6th October, 2005 of the Hon'ble Bombay High Court in a group of Petitions bearing W.P. No. 3246 of 2004;			
i.	Total freeze on the destruction and cutting of mangroves in the entire State of Maharashtra.	Pertains to the State of Maharashtra – as per NCSCM. As per the report of District Collector, Raigad M/s JSW	Nil	The joint committee may report the said statement of District Collector in its report.

		has destructed mangrove area, encroached on Govt. land and constructed a protective wall at S. no. 50/D at MaujeJuibapuji without prior permission. Complaint lodged before Hon'ble CJM, Alibag in RCC no. 85/2020, dtd 05/10/2200 and it is pending.		
ii.	All construction and rubble/garbage dumping on the mangrove areas shall be stopped forthwith.	As per the studies undertaken using satellite images and report submitted by NCSCM, the details of dumping of waste/by-products on the mangrove areas could not be discerned/ established from satellite images.	To verify legal and illegal dumping (with estimated quantity) of by-products/ waste products i.e. slag generated by M/s JSW on mangrove areas, natural drains/nalas in the aforesaid alleged villages through reconnaissance survey.	The sub-committee headed by the District Collector-Raigad, with representatives from Mangrove Cell (Govt. of Maharashtra), NCSCM, Maharashtra Remote Sensing Application Centre, (MRSAC), and the District Revenue Department.
iii.	Regardless of ownership of the land, all construction taking place within 50 metres on all sides of all mangroves shall be forthwith stopped.	As per the studies undertaken using satellite images and report submitted by NCSCM, it is observed that the conveyor belt has been constructed in the 50 m buffer zone around mangroves. The mangrove buffer areas have also been utilized for other industrial uses. The	a. To provide probable month of loss of mangrove buffer areas visible from satellite images during construction of conveyor belt. b. After submission of report w.r.t. a, at above, delineation of areas under reference to validate such	i. w.r.t. a: NCSCM. ii. The sub-committee headed by the District Collector-Raigad, with representatives from Mangrove Cell (Govt. of Maharashtra), NCSCM,

		total area of mangrove buffer areas lost due to construction of conveyor belt in 50 m mangrove buffer areas and other constructions in 50 m mangrove buffer areas are 10.62 ha.	reported loss of mangrove buffer areas through reconnaissance survey.	Maharashtra Remote Sensing Application Centre, (MRSAC), and the District Revenue Department to carry-out activity i.e. b of Col. No. 4 as per report provided by NCSCM and also gathering other information/ data/ report.
iv.	No development permission whatsoever shall be issued by any authority in the State of Maharashtra in respect of any area under mangroves.	Pertains to the State of Maharashtra – as per NCSCM.	To provide the compliance status of permission if any; obtained by M/s JSW in the area under reference.	District Collector, Raigad through Mangrove Cell (Govt. of Maharashtra).
v.	The Municipal Commissioner of Greater Mumbai shall forthwith issue the necessary directions to the Municipal Corporation of Greater Mumbai Building Proposals Department not to entertain any applications for development (as defined in the Maharashtra Regional and Town Planning Act, 1966) on or in respect of the mangrove lands, regardless of the nature of ownership.	Pertains to the Municipal Commissioner of Greater Mumbai / MCGM – as per NCSCM.	Nil	Not applicable for the present matter.
vi.	The State Government and the Maharashtra Coastal Zone Management Authority (MCZMA) are directed to file monthly report on the above action plan to this Court. The first report will be	Pertains to MCZMA – as per NCSCM.	To provide the status of grievance and redressal regarding cutting of mangroves reported if any; in the areas under reference.	District Collector, Raigad through MCZMA.

	submitted within four weeks from today. The report shall specifically state, in addition to the progress/action taken, (a) the number of complaints received, if any, (b) the action taken thereon, if any, (c) the number of offenders named, and (d) the details of prosecutions/action launched/taken against such offenders.			
vii.	The State of Maharashtra is directed to file in Court and furnish to the petitioners copies of the maps referred to in paragraph 10 of the affidavit dated 16th August, 2005, filed by Mr. GajanandVarade, Director, Environment Department, State of Maharashtra (Page 346 on the record), within four weeks from today.	Pertains to the State of Maharashtra – as per NCSCM.	Nil	Not applicable for the present matter.
viii.	The areas shown as mangrove area in the satellite study report "Mapping of mangroves in the Maharashtra State using Satellite Remote Sensing" dated August, 2005, prepared by the Maharashtra Remote Sensing Application Centre (MRSAC) for the MCZMA which was submitted to this Court on 29th August,	Pertains to MRSAC/MCZMA – as per NCSCM.	To examine mapping of mangroves reported by MRSAC and matching of the same to that assessed through satellite images by NCSCM. Also, the same to be taken into account while reporting damages/ loss of mangroves/ natural creeks areas in its report.	NCSCM. MPCB will make the maps of mangroves and natural creeks prepared by Maharashtra Remote Sensing Application Centre (MRSAC), available to NCSCM

	2005, form part of Phase I of the mapping by MRSAC. The MRSAC will, in Phase-II, carry out mangroves study using high resolution for detailed mapping of mangroves with a view to identify more precisely mangrove areas in Mumbai and Navi Mumbai. After receiving the said satellite data, transfer of mangrove details on city survey/village maps (cadastral map) will be carried out within a period of 6 months from today;			
ix.	After the aforesaid process in clause (viii) is completed, the areas so identified which are government owned shall be declared and notified as "protected forests" in accordance with law after carrying out ground survey etc. The areas so identified that are privately owned shall be declared and notified as "forests" in accordance with law, after carrying out ground survey etc. The said declaration/notification will be completed within a period of 8 weeks of the completion of Phase-II mapping;	Pertains to the State of Maharashtra – as per NCSCM.	To provide status/information on identification and declaration of notified "protected forests" and identification and declaration of notified "forests" in the areas under reference.	District Collector, Raigad through District Revenue Department or concerned agency.
x.	The mangrove areas that are on	Pertains to the State of	To provide the	District Collector,

	government owned lands will be handed over to the Forest Department within a period of 12 weeks from the declaration of the same as “protected forests”;	Maharashtra – as per NCSCM.	status/information on handing over of notified “protected forests” in the areas under reference (if any) to the Forest Department.	Raigadthrough District Revenue Department or concerned agency.
xi.	From the list of “mangrove areas” so identified, Government owned lands will automatically be declared/notified as “protected forests”. Likewise, privately owned lands from the list of mangrove areas so identified, the same will be declared/notified as “forests”;	Pertains to the State of Maharashtra – as per NCSCM.	To provide status/information on identification and declaration of notified “forests” in the areas under reference.	District Collector, Raigad through District Revenue Department or concerned agency.
xii.	The Secretary, Revenue Department, shall from the said date of taking over possession of the Government owned land by the Forest Department, update all the revenue records to ensure that the said Government lands are shown as “protected forests” in the said revenue records within a period of 12 weeks from the same being declared as “protected forests”. In the case of lands that are private owned, the secretary, Revenue Department, shall update all the revenue records to ensure that the said private lands are shown as	Pertains to the State of Maharashtra – as per NCSCM.	To provide the status/information on updation of land records w.r.t. “protected forests” and “forests” in the areas under reference.	District Collector, Raigad through District Revenue Department or concerned agency.

	"forests" in the said revenue records within a period of 12 weeks of completion of the steps in clause (x) above;			
xiii.	In respect of Government lands, the Forest Department and other authorities of the State of Maharashtra shall take the following necessary steps of protection, conservation and regeneration of the areas that would be declared/notified as "protected forests: in terms of clause (x) above; a. Removal of all obstructions that are impeding the growth of mangroves as also the impediments which restrict the flow of sea water in the mangrove areas; b. Wherever mangrove growth is found to be sparse and denuded (i.e. with forest density less than 0.4 which means canopy less than 40%) within these identified areas, taking necessary steps for rejuvenation; c. On identification of the areas as forest, the Municipal Corporation of Greater Mumbai would remove garbage and debris within these areas within a	Sub-paras (a), (b), (c) and (d) pertain to the State of Maharashtra – as per NCSCM.	To provide the status/information w.r.t. sub-paras (a to d) of col. no. 2 of the table in the areas under reference.	District Collector, Raigad through Mangrove Cell (Govt. of Maharashtra).

	period of three months as per the instructions of the Forest Department. These areas shall be rejuvenated with mangroves; d. The Forest Department is directed to take necessary action against the offenders in accordance with law for damaging or destroying mangroves.			

Annexure-3

S. no.	Name of the participants	Department
1.	ShriSundeep, Scientist 'F'	MoEF&CC, GoI
2.	Shri Bharat K Sharma, Regional Director	CPCB, Regional Directorate - Pune
3.	ShriNishchal C., Scientist 'D'	CPCB, Regional Directorate - Pune
4.	Shri P. K. Mirashe, Asstt. Secretary (Tech)	MPCB, Mumbai
5.	Shri N.N. Gurav, RO (HQ)	MPCB, Mumbai
6.	Shri V. V. Killedar, In-charge: Regional Officer	MPCB, Raigad
7.	Dr.Sudhakar More, DHO	Dist. Health Office, RZP, Alibaug
8.	Suresh H. Sawant, Executive Engineer	Kharland Survey & Investigation Division, Pen
9.	Prashant S. Dhage, SDO	SDO, Alibaug, Revenue
10.	Vitthal G. Inamdar, SDO	SDO,Pen, Revenue
11.	Sandhya Thakur, Regional Port Officer	Regional Port Office, Mora
12.	Mrs.UjjwlaBankhele, District Agriculture Officer	Agriculture Department, Alibag, Raigad
13.	Anil Rokade, Taluka Agriculture Officer	Agriculture Department, Pen
14.	Pravinkumar B. Patil, Port Inspector	Maharashtra Maritime Board
15.	Miss. Swati S. DumbrePatil, Range Forest Officer	Forest Department, Wadkhal
16.	PradipJagtap, Dy. Surveyor	Revenue Dept.,Alibaug

Item No. 04 (Court No. 1)

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

(By Video Conferencing)

Original Application No. 165/2020
(Earlier O. A. No. 122/2015 (WZ)
(M.A. No. 211/2015) & M.A. No.220/2015)

(With report dated 07.08.2020)

Samita Rajendra Patil Applicant

Versus

Jindal Steel Works Ltd. & Ors. Respondent(s)

Date of hearing: 27.05.2021

CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE MR. JUSTICE M. SATHYANARAYANAN, JUDICIAL MEMBER
HON'BLE MR. JUSTICE BRIJESH SETHI, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER

Applicant: Mr. Shriram S. Kulkarni and Mr. Aniruddha Kulkarni, Advocates

Respondent: Mr. T.N. Subramanian, Senior Advocate with Mr. Saket Mone, Advocate for R-1 and 2
Mr. Mukesh Verma, Advocate for MPCB and MCZMA

ORDER

1. Grievance in this application is against violation of environmental norms in running the industrial operations by respondents 1 and 2 - Jindal Steel Works Limited at Village Dolwi, Karawi, Gadab, KharKaravi, Kharmachela and Jui Bapuji and other surrounding areas, District Raigarh, near Mumbai.

2. The case set out in the application is that the location of the plant in question adjoins the creek up to village Dolvi. Kharmachela and other villages are covered by Mangroves which protect the environment in the area. Similarly, the Dharamtar creek has covered complete one side of

the plant. Even the large area of their plant was covered by the then existing mangroves. The respondent Company has also constructed the coke oven plant by destroying mangroves and construction of coke oven plant is in process. The Respondent is also causing expansion of the jetty. The respondents are using one conveyer belt. The company has not only destructed mangroves on a large scale within their company premises but also destroyed the natural water/creak water/ water channels in their activity. On 6th October, 2005 in a group of Petitions bearing W.P. No. 3246 of 2004, the Hon'ble Bombay High Court has issued various, directions including to the present Respondent authorities, for protection and reservation of the fast depleting mangrove forest. Mangrove area were directed to be identified including from privately owned land and declared/notified as forest. Similarly, no mapping of mangroves is done till date, within the knowledge of the applicants. On the contrary, the applicants are informed that respondents are not aware as to whether the conveyor belt is being constructed on the mangrove's area. Now the Respondent Company has encroached the natural creak channels, mangroves and destroyed the same and expanded their plant. The Respondent Company is having coke oven plant in the manufacturing of the Steel manufacturing plant. There is potential of adverse effect of coke plant on human health on account of noxious gases. Impact is also on the organism and/or via the food chain. Injurious heavy metals viz. lead, mercury, cadmium can enter the food chain. The plant is working and gases/smoke are generated on huge level which demonstrates that the Respondent Company has no concern with the environmental damage and human lives in the locality. The air pollution caused by the Respondent No. 1 Company has also destroyed the agricultural land, because the dust

carries the waste material of the company which gets settled on the agricultural field. The Respondent Nos. 1 and 2 have dumped the by-product/waste product in the surrounding area which has caused the air pollution, water pollution and soil pollution. Large area of village Kharmachi, Kharkaravi, Juibapuji, Dolwi, Kharchirbi, Wadkhal, Vave, Kolve etc. villages situated within Taluka Pen is covered by mangroves/kandalvan. It is useful for reproduction of the fishing activities and it maintains the natural balance of environment. It also controls the soil pollution. It also controls the creek water entering in the agricultural area. It is also useful for soil conservation. The huge waste material/by-product is generated in the manufacturing process of the respondent no. 1 and 2 activities which is illegally and dumped upon the mangroves spread over the large area of the villages referred hereinabove. Similarly, the said waste material is also dumped upon the Agricultural lands situated in the above said villages. The said by-product/hazardous material is dumped even in agricultural lands and it has also destroyed the fertility not only of those lands but also of the adjoining one. This by-/waste product has choked the natural drains/nalas and the rain water gets accumulated and either enters the agricultural fields with the said material or in the residential houses. Similarly, it destroys the aquatic flora and fauna and also affects their productivity. The salt level in the land has increased and it is dangerous to all types of crops. The Agricultural fields around salty water bodies are completely protected by a bandh which is popularly known as “Kharbandisti”. Kharbandisti protects the agricultural fields from sea water entering in them. This Kharbandisti is in existence since time immemorial. The respondent no. 1 and 2 have damaged the s ıarbandisti which has rendered the agricultural filed as unfertile. The factory premises as well as their village

and agricultural field are situated near creek which is popularly known as Dharmtar Creek. The natural canal of the creek water is passing East-West and situated on southern side of company premises. On the northern side of the field there is Kharbandisti. The Government has created a separate Khar Land Department which has to take the precaution to protect the agricultural land from the creek water and it is their duty to maintain the Kharbandisti. On 03.01.2015, the Tahasildar, Pen has informed the respondent no. 1 that the company has destroyed the Kharbandisti and the entire construction of the Bandh is incomplete between *Ughadi* No. 1 to *Ranchhoddas Ughadi* No. 4 and he called upon the report of the company about the action taken by them. The respondent Company has dumped the waste products in the mangrove areas, destroyed the mangroves of the large area and destroyed the aquatic life, in expansion of the Jetty. Fishing business has completely stopped and all the families of various villages referred hereinabove have lost their source of livelihood and the loss is enormous and beyond repairs, because once the sea water enters the agricultural field or if the soil is damaged by the bye products of the Respondent Company, it becomes infertile and then the villagers have no other option than to purchase the fertile land elsewhere and/or to shift from the said area forever in search of the livelihood.

3. The application was originally filed on 26.09.2015 before the Pune Bench and notice was issued on 01.10.2015 to the respondents which includes the Project Proponent, the Maharashtra State PCB, the Ministry of Environment, Forest and Climate Change (MoEF&CC) and the concerned authorities of the : of Maharashtra. Apart from the National Coastal Zone Management, the contesting respondents have filed their replies.

4. The State PCB in its reply filed on 22.12.2015 has stated that Environment Clearance has been granted for Jetty on 04.01.1995. The State PCB granted consent to operate and consent to establish to the predecessor of the respondent. On receiving a compliant about destruction of mangroves, the matter was referred to the District Collector, Raigad with regard to the EC conditions in constructing Jetty. It was found that additional length has been constructed without requisite EC. Further, air pollution control systems were inadequate for which show cause Notice was issued on 02.11.2015. A report was also sought about CRZ violations and adverse impact on health of villagers and the agricultural land. With regard to fish mortality, compensation was found to have been paid. The PCB has also directed taking of precautionary measures.

5. In the affidavit filed by the Project Proponent, apart from raising plea of limitation, it is stated that the Project Proponent is using latest technology of steel making and compact strip production (CSP) for producing hot rolled coils. The plant is also vital as it provides raw materials to feed the other JSW Steel cold rolling and downstream facilities at Vasind, Tarapur and Kalmeshwar. The plant also supplies steel to industries of national importance including the air and gas automotive and machinery industries, infrastructure and construction sectors, cold rollers industry, factories and consumers durables and steel production. In the year 1984 Nippon Denro Ispat Limited was established by its founding Chairman, Mr. M.L. Mittal with interests in Iron, Steel, mining, energy and manufacturing sectors and had set up various plans including the Dolvi Plant. This land has been declared as Industrial Zone by Government of Maharashtra as Nagothane Growth Centre as per

notification of Urban Development Department; Government of Maharashtra dated 04.07.1992. The plant of the respondent no. 1 was set up in the industrial zone duly notified by the Government of Maharashtra under a notification which is valid, legal and subsisting. On the issue of destruction of mangroves, it is stated that there is no destruction of mangroves by any of the activities carried out by the respondent no. 1 in the plant. Damage to the Khar Bandisti has also been denied. It is stated that respondent no. 1 has spent more than 2 crores for the repair and maintenance of the Khar Bandisti as a part of its Corporate Social Responsibility (CSR) activities and states that the Dharamtar creek is having around 25 kilometers of khar bandisti which is to be maintained by khar land Department of Government of Maharashtra. Respondent No. 1 has erected conveyor belt along sides the old conveyor belt. I further state that the land being used by the Respondent No. 1 is owned by the Maharashtra Maritime Board is enclosed by boundary wall. Hence, question of destruction of mangroves does not arise. On 05.05.2015, the Maharashtra Pollution Control Board has also issued consent to operate in favour of Amba River Coke Limited for running the Coke Oven Plant at Dolvi.

6. It is not necessary to refer to the pleadings filed by the other respondents.

7. Vide order dated 07.11.2017, in continuation of earlier directions, the Tribunal directed as follows:-

> *"Learned Counsel appearing on behalf of MPCB undertakes to produce copy of the investigative, scientific and laboratory analysis Reports in respect of various locations visited in connection with the said joint visit before us and give its suggestions in terms of prayer Clause 'b' of the Application in respect of pollution detected by them on 7.8.2016."*

8. On 30.01.2018, following further order was passed:-

> *"The Applicant's counsel could submit that MPCB as well as MCZMA have not complied with the direction of this Tribunal but submit a report making recommendations and suggestions which is factually incorrect. Mrs. Supriya Dangare, learned counsel for MPCB submits that based on the inspection appropriate recommendations and suggestions will be worked out and submit to the Tribunal. In the circumstances, we direct MPCB to prepare the report giving recommendations and suggestions and serve copy to the respondent industry for his response."*

9. On 28.07.2020, the matter was transferred to the Principal Bench. We have heard Learned Counsel for the applicant, the Project Proponent and the State PCB.

10. We have accordingly heard learned Counsel for the Applicant, the project proponent and for the MPCB. After referring to the averments in the application, learned counsel for the Applicant has drawn our attention to the report filed by the State PCB on 07.08.2020 in compliance of order dated 30.01.2018, as follows:-

> *"In compliance of the said Hon'ble NGT Order dated 30.01.2018, the Maharashtra Pollution Control Board is filing its report as under:-*
>
> *1. The Respondent Board has granted Consent to Operate to M/s. JSW Steel Ltd (Formerly known as M/s. Jindal Steel Works Ltd.) an Integrated Steel Plant, located at Dolvi Raigad, Tal: Pen, Dist: Raigad for HSM and BFP Plants vide consents dated 07.04.2018 and 02.11.2018 respectively. As per the consent conditions, the slag's generated from hot strip mill and blast furnace plant are under the Non-Hazardous Waste category.*
> *2. The Respondent Board issued a letter dtd. 05.08.2020 incorporating the following suggestions & recommendations to the Respondent industry.*
>
> *i. The industry shall comply with all conditions prescribed in the consent issued by the Board and dispose off existing as well as proposed generated slags as per consent conditions at designated places in scientific manner.*
> *ii. The industry shall also explore the possibilities of utilization of slag in cement manufacturing, used as aggregates in civil & road construction and brick manufacturing activity including land reclamation and in marine applications as per CPCB guideline without violating of consent conditions.*

iii. *The industry shall strictly follow the guideline on handling and management of High Volume Low Effect Waste Slag from pyrometallurgical operations of Iron & Steel and Ferrous Alloy units prepared by CPCB.*
iv. *The industry shall take all precautionary measures to avoid any soil contamination, groundwater and surface water pollution also any adverse effect on environment and nearby villagers.*
v. *The industry shall strictly comply with all consent condition, CPCB guidelines and orders issued by Hon'ble NGT."*

11. It was submitted that though the report shows that there are non-compliances, the true status of compliance has not been set out with reference to the allegations in the application.

12. Learned Counsel for the project proponent - respondent nos. 1 and 2, has drawn our attention to the compilation of documents filed, list of which is as follows:-

"

Sr. No.	***Date***	***Particulars***	***Page No.***
		Judgments/Orders	
1.	*17.09.2018*	*Judgment and Order of Hon'ble Bombay High Court in PIL No. 87 of 2006*	***1-83***
2.	*13.11.2017*	*Order of Hon'ble Bombay High Court in PIL No. 102 of 2014*	***84-91***
3.	*15.10.2019*	*Order of Hon'ble Bombay High Court in WP No. 1643 of 2019*	***92-94***
4.	*09.07.2020*	*Order of Hon'ble Bombay High Court in WP (st.) No. 4894 of 2020*	***95-102***
5.	*23.05.2017*	*Order of this Hon'ble Tribunal in Appeal No. 30 of 2016*	***103-124***
		Clearances/Permissions	
6.	*24.02.2015*	*CRZ Recommendation issued by Maharashtra Coastal Zone Management Authority (Respondent No. 2) ("**MCZMA**") for expansion of the existing jetty facility.*	***125-128***
7.	*25.08.2015*	*Environment clearance for further expansion of integrated steel plant from 5 MTPA to 10 MTPA and power plant from 300 MW to 600 MW*	***129-137***
8.	*26.11.2015*	*Environment and CRZ Clearance issued by the Ministry of Environment, Forest and climate Change dated 26.11.2015for Expansion of the Dharamtar Jetty facility.*	***138-144***

9.	26.03.2016	*Amended Environment and CRZ Clearance issued by the Ministry of Environment, Forest and Climate Change amending the Environment and CRZ Clearance dated 26.11.2015, for expansion of the Dharamtar Jetty facility.*	**145-146**
10.	16.02.2019	*CRZ Recommendation by MCZMA for construction of additional conveyor belts/ streams in respect of expansion of the Dharamtar Jetty facility.*	**147-148**
11	10.01.2020	*Amended Environment and CRZ Clearance issued by MoEFCC for construction of additional conveyor belts/streams in respect of expansion of the Dharamtar Jetty facility.*	**149-151**
Compliance of Order dated 30.01.2018 passed by this Hon'ble Tribunal			
12	06.08.2020	*Letter issued by Respondent No. 1 to MPCB in response to MPCB's letter dated 05.08.2020*	**152-154**
13	07.08.2020	*Compliance Report of MPCB*	**155-157**
Miscellaneous Document(s)			
	Jan-March 2018	*Report on Mangrove Restoration prepared by Nature Environment & Wildlife Society*	**158-183**

13. Having regard to the nature of the violations alleged in the application, which have been denied by the Project Proponent, we are of the view that an updated status report is required by an independent and credible Committee to determine whether any further remedial action is necessary. Learned Counsel for the PP submitted that acquittal orders may be looked into but the same are not relevant. Standard of proof in a criminal trial is different from civil case. We have not expressed any opinion on merits of the violation as we leave the question to be gone into later. It is however made clear that acquittal in criminal cases is not final for the civil liability in environmental law.

14. Accordingly, we constitute a five Members Joint Committee, to be headed by an officer of the rank of Joint Secretary, MoEF&CC, nominated by the Secretary M C and comprising the CPCB, the IIT Mumbai, the District Magistrate, Raigad, the State PCB as Members. The Committee may look into the issues raised by the Applicant summed up

above including compliance of the Water and Air Acts and HoWM Rules, destruction of Mangroves and damage to Agriculture, if any, status of scientific disposal of solid waste. It may also estimate the extent of environmental damage and the amount of Compensation required and restitution plan (in case of non-compliance). The Committee will be at liberty to take assistance from any other Expert Institution or individual and conduct proceedings online, except for site visit, if necessary. The CPCB and the State PCB will facilitate the functioning of the Committee and act as nodal agency for coordination and compliance. The applicant as well as the project Proponent will be at liberty to represent their respective versions to the Committee through the State PCB. If the violations are found, the Committee may also suggest the amount of compensation to be recovered apart from other restoration measures. The Committee may give its report to the Tribunal as far as possible within four months by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF. The first meeting of the Committee may be held preferably within one month to take stock of situation and plan further course of action. While giving a report to this Tribunal, its copies be given to the applicant as well as the Project Proponent for their response, if any, before the next date.

In view of above order, all pending M.A.s stand disposed of.

A copy of this order be forwarded to Secretary MoEF&CC, CPCB, State PCB, District Magistrate, Raigad and IIT Mumbai by email for compliance.

List for further consideration on 06.12.2021.

Adarsh Kumar Goel, CP

Sudhir Agarwal, JM

M. Sathyanarayanan, JM

Brijesh Sethi, JM

Dr. Nagin Nanda, EM

May 27, 2021
Original Application No. 165/2020
(Earlier O. A. No. 122/2015 (WZ)
(M.A. No. 211/2015) & M.A. No.220/2015)
SN

Annexure-3

From : SUNDEEP <sundeep.cpcb@nic.in> Thu, May 19, 2022 08:00 AM

Subject : Fwd: Re: Draft minutes of third meeting of the joint committee in the Hon'ble NGT matter in OA no. 165 of 2020, Samita Patil vs M/s JSW Ltd., & Ors. - reg.

To : NISHCHAL C <nischal.cpcb@nic.in>, BHARAT KUMAR SHARMA <bksharma.cpcb@nic.in>

For necessary action please

Sundeep
----- Forwarded Message -----
From: JIGMET TAKPA <takpa.jigmet@gov.in>
To: SUNDEEP <sundeep.cpcb@nic.in>
Sent: Wed, 18 May 2022 21:53:25 +0530 (IST)
Subject: Re: Draft minutes of third meeting of the joint committee in the Hon'ble NGT matter in OA no. 165 of 2020, Samita Patil vs M/s JSW Ltd., & Ors. - reg.

Dear Mr. Sundeep

I have gone through the draft minutes of meeting of the Joint committee. The Minutes of the Meeting is hereby approved.
You may circulate to participants for their perusal and submission of the study report for early completion of field work.

With Best regards
Jigmet Takpa
Joint Secretary
Ministry of Environment, Forest and Climate Change,
Government of India

From: "SUNDEEP" <sundeep.cpcb@nic.in>
To: "JIGMET TAKPA" <takpa.jigmet@gov.in>
Sent: Wednesday, May 18, 2022 6:11:30 AM
Subject: Fwd: Draft minutes of third meeting of the joint committee in the Hon'ble NGT matter in OA no. 165 of 2020, Samita Patil vs M/s JSW Ltd., & Ors. - reg.

Dear Sir

Please refer the trailing mail for consideration of MoM of the field visit and joint meeting held in Raigard in connection with NGT order in the matter OA 165/2020 for kind consideration and approval please. If approved the same will be circulated to participants for their kind perusal and submission of the study report for early completion of field work and report of the joint committee.

WR
SUndeep

----- Forwarded Message -----
From: "SUNDEEP" <sundeep.cpcb@nic.in>
To: "JIGMET TAKPA" <takpa.jigmet@gov.in>
Sent: Tuesday, May 10, 2022 10:45:11 PM
Subject: Fwd: Draft minutes of third meeting of the joint committee in the Hon'ble NGT matter in OA no. 165 of 2020, Samita Patil vs M/s JSW Ltd., & Ors. - reg.

Dear Sir

Reference is invited to the trailing mail.

The draft MoM of the Joint committee meeting held at Raigarh in connection with NGT order in the matter OA 165/2020 is attached herewith for your kind consideration and approval. The draft report has been examined for ensuring that all matter as discussed during the meeting is appropriately incorporated.

The approved MoM will be circulated for early compliance ce and submission of sub-committee reports for preparation of final report.

WR
Sundeep

----- Forwarded Message -----
From: NISHCHAL C <nischal.cpcb@nic.in>
To: collector raigad <collector.raigad@maharashtra.gov.in>, rdcraigad@gmail.com, dcraigad@gmail.com, a garg <a.garg@iitb.ac.in>, rohq@mpcb.gov.in, jdwater@mpcb.gov.in, roraigad@mpcb.gov.in, kdrajin@gmail.com
Cc: JIGMET TAKPA <takpa.jigmet@gov.in>, SUNDEEP <sundeep.cpcb@nic.in>, BHARAT KUMAR SHARMA <bksharma.cpcb@nic.in>, rramesh au <rramesh_au@yahoo.com>, Ramesh <rramesh@ncscm.res.in>
Sent: Fri, 29 Apr 2022 12:21:32 +0530 (IST)
Subject: Draft minutes of third meeting of the joint committee in the Hon'ble NGT matter in OA no. 165 of 2020, Samita Patil vs M/s JSW Ltd., & Ors. - reg.

Sir(s),

This has reference to the third meeting of the joint committee held on 11/04/2022 under the Chairmanship of Shri Jigmet Takpa, Joint Secreatry, MoEF&CC, to discuss the progress on action plan formulated during its second meeting held on 19/11/2021 and preliminary site visit carried-out on 29 to 30/12/2021 in the Hon'ble NGT vide order dated 27/05/2021 in the matter OA no. 165 of 2020, Samita R. Patil vs M/s Jindal Steel Works Ltd., & Ors.

As decided during the meeting, draft minutes of the meeting is attached herewith for kind ready reference. Most of the points discussed in the meeting have been covered in the said minutes of the meeting. Comments, if any, on the attached draft minutes and any left out issues/decisions taken

1553 during the meeting be sent to this office positively by 16.00 Hrs. (29/04/2022, Friday) to enable in finalizing the minutes of meeting and circulate to the concerned agencies for taking necessary actions timely so as to finalize the joint committee's report.

Regards,
Nishchal C.
Senior Environmental Engineer
Mob: +91 97220 17220
Central Pollution Control Board, Regional Directorate - Pune, Maharashtra
(Ministry of Environment, Forest & Climate Change, Govt. of India)

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Sundeep
Scientist"F" & APD-SICOM
Control of Pollution Division & SICOM
M/o EF&CC, #A-106, Agni Tower
Indira Paryavaran Bhawan,
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Telex - +91 11 24695339
hand - +91 94330 80104

MINUTES OF THIRD MEETING OF THE JOINT COMMITTEE CONSTITUTED BY THE HON'BLE NATIONAL GREEN TRIBUNAL (NGT) VIDE ORDER DATED 27/5/2021 IN THE MATTER OF OA NO. 165 OF 2020 (PB) [EARLIER OA NO. 122 OF 2015 (WZ) TITLED AS SAMITA RAJENDRA PATIL VS JINDAL STEEL WORKS LTD., & ORS.

Third meeting of the joint committee was held on 11/04/2022 at District Collector's Office: Alibagh-Raigad under the Chairmanship of Shri Jigmet Takpa, Joint Secreatry, MoEF&CC, to discuss the progress on action plan formulated during its second meeting held on 19/11/2021 and also to deliberate on the way forward for compliance of operative directions of Hon'ble NGT order dated 04/03/2022. List of participants present in the aforesaid joint committee meeting is given at **Annexure-I.**

Representative from CPCB, Regional Directorate-Pune, welcomed the Chairman and members of the joint committee and invitee participants. It was briefed that the joint committee in its second meeting held through video conference on 19/11/2021, deliberated in detail on findings/gaps in the assessment/studies reports submitted by the concerned agencies (viz. NCSCM-Chennai, MoEF&CC-Nagpur, MPCB, District Collector-Raigad, Khar Land Department, Agriculture Department and District Health Officer). Also, briefed about the decisions/activities/action plan including ToR of the sub-committee, as decided during second joint committee meeting on 19/11/2021 and status of various assessment reports by the concerned agencies viz. District Collector-Raigad, Agricultural Dept., Khar Land Dept., Mangrove Cell, Dist. Health Office, Maritime Board, Fisheries Dept., NCSCM, MoEF&CC, and MPCB. Further, it was briefed about field visit carried-out by a team of subject expert, CPCB & MPCB during 29-30/12/2021, progress report of the joint committee submitted to Hon'ble NGT and subsequent order of the Tribunal dated 04/03/2022, mentioning about the additional operative directions to the joint committee.

The additional operative directions to the joint committee as per the order of the Tribunal dated 04/03/2022 are;

- to verify the factual position as pointed out by the applicant in the representation filed viz. dumping of waste material by M/s JSW for reclaiming the land below the conveyor belt and the jetty area within 50 m mangrove buffer area; discharge of untreated effluent from the coke oven pant in to the Dharamtar Creek; illegal constriction of the bridge abetting to village Kharmachela by dumping the waste material on mangroves;

- to verify the latest compliance status and suggest further remedial action for restoration of mangroves and its buffer zones, the creek and its banks;
- to verify the status of compliance of EC conditions as well as CRZ conditions, 2011 & steps required for restoration of the creek, canal and CC&A conditions.
- To verify the point source of waste and purpose of dumping. The scientific dumping of hazardous waste, slag and remedial action. Also, to verify the status of dumping of waste materials at villages mentioned in para 13 of the objections filed by the applicant and;
- environmental impact of industrial activities in the surroundings with reference to habitation, agricultural fields, sea shore and creek hydrology and remedial measures with cost of restoration.

It was mentioned by CPCB representative that all operative directions of the Tribunal have already been covered in the earlier action plans of the joint committee dated 04/08/2021 and 19/11/2021, except for environmental impact of industrial activities on the sea shore, creek hydrology and discharge of untreated effluent from the coke oven pant into Dharamtar Creek.

Thereafter, status of various assessment reports of the concerned agencies as per the detailed action plan & ToR dated 19/11/2021 shall be presented by individual representative(s) for deliberations by all in the joint committee meeting.

Chairman of the joint committee in his introductory remarks appreciated the collective efforts made by the District Collector and various agencies towards achieving compliance of the aforesaid order of the Hon'ble NGT, in-spite of their busy schedule during the management of COVID-19 pandemic. He urged that action plans, deliverables of the joint committee & sub-committee should be scientifically addressed and evidence based as far as possible. It shall also be endeavored to comply orders of the Hon'ble NGT expeditiously.

The joint committee deliberated on the submissions made by the concerned agencies w.r.t. various assessment studies on the each of the activities of the detailed action plan decided in previous meetings vis-à-vis progress status, findings and draft gaps/issues and way forward.

In compliance to the order of the Tribunal dated 27/05/2021, the joint committee heard the respective versions from the applicant as well as the project proponent. Various submissions made by the applicant(s) are as follows;

i. Basis for grant of EC to M/s JSW as the area on which the proposed expansion activities is under CRZ-I, II & III and covered with mangroves. The applicant submitted and relied on the Google images of the area under reference.
ii. As per compliance condition of EC dated 25/08/2015, M/s JSW has not developed adequate green belt.
iii. Dumping of waste material by M/s JSW for reclaiming the land below the conveyor belt and the jetty area within 50 m mangrove buffer area and its destruction thereof. Requested to verify the status of reported destruction of mangroves from MCZMA Report of 2016. No permission is obtained by M/s JSW for construction of conveyor belt.
iv. Compliance of Hon'ble High Court is not being followed w.r.t. conservation of mangroves.
v. M/s JSW has not having provision of adequate & designated storage area for dumping of chemical/waste materials, such wastes have been dumped in 13 no. of villages reportedly the SMS slag is dumped and covered with blast furnace slag.
vi. M/s JSW is carrying out repairing activities of damaged Kharbandisti band using waste slag materials without permission from the concerned authority.
vii. Illegal constriction of the bridge abetting to village Kharmachela by dumping the waste material on mangroves and its destruction thereof. Also, proposed illegal construction of 02 no. of bridges at survey no. 94.
viii. Additional acquisition of land by M/s JSW in 2012 without following due procedure and permission from the concerned authority.
ix. Damage caused to Kharbandisti band due to dredging activities carried-out by M/s JSW in Dharamtar Creek.
x. Loss in fish catch/productivity due to navigation of ships by M/s JSW in Dharamtar Creek.

Thereafter, the project proponent made a submission of point-wise presentation on the various alleged issues mentioned in the Hon'ble NGT order dated 27/05/2021 before the joint committee.

Decisions:

After detailed discussions, following decisions were taken by the joint committee:

(i) NCSCM and MRSAC to jointly carry-out field validation and to review the status of reported destruction of mangroves, natural creeks and mangrove buffer areas. The oint report of NCSCM and MRSAC may be submitted to District Collector: Alibaug-Raigad expeditiously.

(ii) Concerned agencies viz. District Collector: Alibaug-Raigad, Agricultural Dept., Khar Land Dept., Mangrove Cell, Dist. Health Office, Maritime Board, Fisheries Dept. NCSCM, MoEF&CC, MPCB or Sub-committee constituted during second joint committee meeting dated 19/11/2011, as applicable; shall also carry out field validation to verify the compliance of points submitted/representation made by the applicant before the joint committee as given above at page no. 3 (i to x), operative directions of the Tribunal as per order dated 04/03/2022 and submit its report to CPCB & MPCB on or before 30/04/2022.

(iii) Detailed status report on various assessment studies by the concerned agencies as per ToR dated 19/11/2021 were sought from the District Collector's Office including various State Govt. agencies and NCSCM, MoEF&CC, MPCB. The assessment reports by the concerned agencies were requested to submit to CPCB & MPCB on or before 30/04/2022 for compilation of various assessment reports and further deliberation by the joint committee, before finalization and submission to Hon'ble NGT.

(iv) As decided during second joint committee meeting dated 19/11/2021, source & fugitive emission monitoring of the coke oven plant and ambient air quality monitoring at 03 alleged locations shall be carried out by MPCB and CPCB. Also, effluent monitoring (based on the objections filed and latest representation made by the applicant) for the consented parameters (criteria parameters) as per CC&A shall be carried-out by MPCB and CPCB during 3rd week of April, 2022. Such monitoring & analysis may be carried out by MPCB Laboratory. In case, such facility is not available with MPCB Laboratory, MPCB may engage E(P)A approved or NABL accredited Laboratory for the same.

The meeting ended with vote of thanks to the chair.

*****

Subject:- Original Application No.165/2020
Samita Rajendra Patil
V/s
Jindal Steel Works Ltd. & Ors.

A meeting of the joint committee under the chairmanship of Hon'ble Shri. Jigmet Takpa, Joint Secretary, MoEF&CC
Date :- 11/04/2022 at 9.30 A.M.

Sr. No.	Name and designation	signature
1	Mr.Nishchal C., Scientist, CPCB Pune	11/04/2022
2	Prof. Anurag Garg, Representative of IIT Mumbai	11/04/2022
3	Dr.Mahendra Kalyankar, District Magistrate Raigad	
4	Mr.Y.B.Sontakke, Joint Director, MPCB Mumbai	
5	Prashant Dhage SDO- Alibag	
6	Murugarandam R, NCSCM, Chennai	
7	M. Dharma Raj NCSCM, Chennai	11/4/22
8	DR Sudhakar More. DHO, Raigad, Alibag	
9	Sameer D. Bhise, RFO Mangrove Cell	
10	Vitthal Inamdar SDO, Pen	
11	Kailas Wankhede, SDAO, Alibag (for DSAO Raigad)	
12	Anil R. Rokade, TDO, Pen	
13	Pravinkumar B. Patil, Port Inspector, MMB, Dharamtar Port	
14	Ashish Thakare OCF Alibag	
15	DR. Dattatray. V. Bhise District Epidemic officer Raigad	
16	Nandkumar Pawar RO(HQ) MPCB.	
17	V. V. Killedar, I/c RO Raigad MPCB	
18	R. S. Kamat - Sub Regional officer Raigad-2, MPCB.	

19	Chetan S. Niwalkar Asst. Fisheries Development officer. Assistant commissioner of Fisheries Raigad	
20	Yogesh Deshmukh, FO, MPCB	
21	Sunil Moreshwar Kothekar	
22	Samita Rajendra Patil	S R. Patil
23	G. S. Rathod	
24	Narayan Kolbekar	
25	Anand Kai	
26	Umang Jain	Umang Jain
27		

Annexure – II

Action plan for compliance of Hon'ble NGT order and Terms of Reference of the agencies for additional studies as per meeting dated 11/04/2022

S. no.	Assessment on various activities/studies as per order dated 04/03/2022	Terms of Reference for assessment on various activities/studies	Responsible agency
1.	Dumping of waste material and destruction of mangroves within 50 m mangrove buffer area	a. To examine the land below the conveyor belt and the jetty area within 50 m mangrove buffer area for the alleged dumping of waste materials. b. To examine destruction of mangrove buffer area.	i. District Revenue Department to carry-out activity i.e. a of Col. No. 3 and submit its report to the District Collector. ii. NCSCM and MRSAC jointly review the status of their reported destruction of mangrove buffer areas and submit its report to the District Collector.
2.	Discharge of untreated effluent from the coke oven pant in to the Dharamtar Creek	Effluent monitoring for the relevant parameters prescribed under the CC&A of coke oven plant.	MPCB & CPCB
3.	Illegal construction of the bridge abetting to village Kharmachela and proposal of construction of 02 no. of bridges at survey no. 94 by dumping the waste material on mangroves	a. To examine status of construction of alleged bridge abetting to village Kharmachela and compliance/permissions obtained thereof by M/s JSW. b. To examine destruction of mangroves.	i. District Revenue Department to carry-out activity i.e. a of Col. No. 3 and submit its report to the District Collector. ii. NCSCM and MRSAC jointly review the status of reported destruction of mangroves and submit its report to the District Collector.
4.	Status of compliance of EC conditions w.r.t. green belt development	MoEF&CC may provide information compliance of green belt development to the joint committee.	MoEF&CC, IRO-Nagpur
5.	Location of plant (phase-II) is under the CRZ-I, II & III.	Delineation of plant areas of phase-II of M/s JSW Ltd., with the help of land revenue maps and superimposition of land revenue maps with the CRZ maps, to validate illegal/unauthorized development activities of phase-II.	District Revenue Department with the help of CRZ maps and submit its report to the District Collector.

		If violations are observed, necessary action may be taken by MCZMA as per the provisions of CRZ Notification, 2011 & its amendments.	
6.	Compliance of Hon'ble High Court is not being followed w.r.t. conservation of mangroves.	To provide the compliance of Hon'ble High Court order w.r.t. conservation of mangroves in the area under reference.	District Collector, Raigad through Mangrove Cell (Govt. of Maharashtra).
7.	Repairing activities of damaged Kharbandisti band using waste slag materials without permission from the concerned authority.	To examine the various permissions obtained thereof by M/s JSW to carry-out repairing activities of damaged Kharbandisti band using waste slag materials.	Khar Land Department to examine permissions if any; taken by M/s JSW and action taken against them and submit its report to the District Collector.
8.	Additional acquisition of land by M/s JSW in 2012 without following due procedure and permission from the concerned authority.	a. To examine the status of land acquisition and validation through land records/revenue maps and compliance/ permissions obtained thereof by M/s JSW.	District Revenue Department to carry-out activity i.e. a of Col. No. 3 and submit its report to the District Collector.
9.	Compliance status w.r.t. conditions of The Water, Air Acts and HOWM Rules (w.e.f. September, 2010 to May, 2021).	a. To submit compiled compliance status report on the compliance of CC&A conditions i.e. conditions under The Water & Air Acts and HOWM Rules for Phase-II plant (5 – 10 MTPA) b. To submit compliance status of reported non-compliances w.r.t. discharge of effluent, emission and conditions of HW for phase-I & II and estimation of environmental compensation for the reported non-compliances, as applicable.	w.r.t. (a & b): MPCB.

From : NISHCHAL C <nischal.cpcb@nic.in> Mon, Jun 27, 2022 03:38 PM

Subject : Re: Final approved minutes of fourth meeting of the joint committee in the Hon'ble NGT matter in OA no. 165 of 2020, Samita Patil vs M/s JSW Ltd., & Ors. - reg.

2 attachments

To : collector raigad <collector.raigad@maharashtra.gov.in>, dcraigad <dcraigad@gmail.com>, rdcraigad <rdcraigad@gmail.com>, a garg <a.garg@iitb.ac.in>, robmw <robmw@mpcb.gov.in>, roraigad <roraigad@mpcb.gov.in>, sroraigad2 <sroraigad2@mpcb.gov.in>, kdrajin <kdrajin@gmail.com>, Shri. V N Ambade <apccfcentral-ngp-mef@gov.in>

Cc : JIGMET TAKPA <takpa.jigmet@gov.in>, SUNDEEP <sundeep.cpcb@nic.in>, BHARAT KUMAR SHARMA <bksharma.cpcb@nic.in>, jdwater <jdwater@mpcb.gov.in>, Ramesh <rramesh@ncscm.res.in>, rramesh au <rramesh_au@yahoo.com>

Regards,
Nishchal C.
Senior Environmental Engineer
Mob: +91 97220 17220
Central Pollution Control Board, Regional Directorate - Pune, Maharashtra
(Ministry of Environment, Forest & Climate Change, Govt. of India)

----- Original Message -----
From: "NISHCHAL C" <nischal.cpcb@nic.in>
To: "collector raigad" <collector.raigad@maharashtra.gov.in>, "dcraigad" <dcraigad@gmail.com>, "rdcraigad" <rdcraigad@gmail.com>, "a garg" <a.garg@iitb.ac.in>, "robmw" <robmw@mpcb.gov.in>, "roraigad" <roraigad@mpcb.gov.in>, "sroraigad2" <sroraigad2@mpcb.gov.in>, "kdrajin" <kdrajin@gmail.com>, "Shri. V N Ambade" <apccfcentral-ngp-mef@gov.in>
Cc: "JIGMET TAKPA" <takpa.jigmet@gov.in>, "SUNDEEP" <sundeep.cpcb@nic.in>, "BHARAT KUMAR SHARMA" <bksharma.cpcb@nic.in>, "jdwater" <jdwater@mpcb.gov.in>, "Ramesh" <rramesh@ncscm.res.in>, "rramesh au" <rramesh_au@yahoo.com>
Sent: Monday, June 27, 2022 3:38:07 PM
Subject: Final approved minutes of fourth meeting of the joint committee in the Hon'ble NGT matter in OA no. 165 of 2020, Samita Patil vs M/s JSW Ltd., & Ors. - reg.

Sir,

This has reference to the trailing email communication and fourth meeting of the joint committee headed by Shri Jigmet Takpa, JS, MoEF&CC and constituted in compliance with Hon'ble NGT order dated 27/05/2021 in the

Fourth meeting of the joint committee was held on 14/06/2022 through video conference under the Chairmanship of Shri Jigmet Takpa, Joint Secreatry, MoEF&CC, to discuss the progress on action plan formulated during its second meeting held on 19/11/2021, to deliberate on the additional issues discussed during third meeting held on 11/04/2022 and further way forward for compliance of additional operative directions of Hon'ble NGT order dated 04/03/2022. The final approved minutes of the meeting of the joint committee is attached herewith for kind ready reference. In this regard, it is requested to kindly initiate necessary action as per decisions taken during the said fourth meeting and as outlined in the attached MoM.

The detailed compiled report as per the second minutes of the meeting & ToR vide dated 19/11/2021 including compiled report for the additional issues/points as discussed and as per the aforesaid minutes of the meeting may be positively send to this office through MPCB for compilation of information, report preparation and deliberation.

The matter be taken on priority being compliance of the Hon'ble NGT order.

Regards,
Nishchal C.
Senior Environmental Engineer
Mob: +91 97220 17220
Central Pollution Control Board, Regional Directorate - Pune, Maharashtra
(Ministry of Environment, Forest & Climate Change, Govt. of India)

----- Forwarded Message -----
From: "SUNDEEP" <sundeep.cpcb@nic.in>
To: "NISHCHAL C" <nischal.cpcb@nic.in>, "BHARAT KUMAR SHARMA" <bksharma.cpcb@nic.in>
Sent: Monday, June 27, 2022 2:11:36 PM
Subject: Fwd: I am sharing 'Draft minutes of meeting_165 of 2020_Samita Patil vs JSW' with you

For necessary perusal please

----- Forwarded Message -----
From: "JIGMET TAKPA" <takpa.jigmet@gov.in>
To: "SUNDEEP" <sundeep.cpcb@nic.in>
Cc: "NISHCHAL C" <nischal.cpcb@nic.in>
Sent: Monday, June 27, 2022 1:02:38 PM
Subject: Re: I am sharing 'Draft minutes of meeting_165 of 2020_Samita Patil vs JSW' with you

MoM Approved.

----- Original Message -----
From: "SUNDEEP" <sundeep.cpcb@nic.in>
To: "JIGMET TAKPA" <takpa.jigmet@gov.in>
Cc: "NISHCHAL C" <nischal.cpcb@nic.in>
Sent: Monday, June 20, 2022 10:09:21 PM
Subject: Fwd: I am sharing 'Draft minutes of meeting_165 of 2020_Samita Patil vs JSW' with you

Sir,
I have examine the draft MoM and is in agreement with the deliberation amde during the meeting and the same is placed for your consideration and approval.

If approved, the same will be forwarded to CPCB-RD-Pune for further perusal and followup.
WR
Sundeep

----- Forwarded Message -----
From: sundeep moef <sundeep.moef@gmail.com>
To: SUNDEEP <sundeep.cpcb@nic.in>
Sent: Sun, 19 Jun 2022 23:13:53 +0530 (IST)
Subject: I am sharing 'Draft minutes of meeting_165 of 2020_Samita Patil vs JSW' with you

The EDM intervention have been captured.

--
Sundeep
Scientist"F" (Director),
Sustainable Coastal Management Division (SCMD) and
National Museum of Natural History (NMNH)
M/o EF&CC, #A-106, Agni Tower
Indira Paryavaran Bhawan,
Jorbag, New Delhi - 110003
Telex - +91 11 20819301
hand - +91 94330 80104
--
Sundeep
Scientist"F" (Director),
Sustainable Coastal Management Division (SCMD) and
National Museum of Natural History (NMNH)
M/o EF&CC, #A-106, Agni Tower
Indira Paryavaran Bhawan,
Jorbag, New Delhi - 110003
Telex - +91 11 20819301
hand - +91 94330 80104

Approved minutes of meeting_165 of 2020_Samita Patil vs JSW.docx
20 KB

Annexure-I_List of participants_165 of 2020_Samita Patil vs JSW.docx
14 KB

MINUTES OF FOURTH MEETING OF THE JOINT COMMITTEE CONSTITUTED BY THE HON'BLE NATIONAL GREEN TRIBUNAL (NGT) VIDE ORDER DATED 27/5/2021 IN THE MATTER OF OA NO. 165 OF 2020 (PB) [EARLIER OA NO. 122 OF 2015 (WZ) TITLED AS SAMITA RAJENDRA PATIL VS JINDAL STEEL WORKS LTD., & ORS.

Fourth meeting of the joint committee was held on 14/06/2022 through video conference under the Chairmanship of Shri Jigmet Takpa, Joint Secreatry, MoEF&CC, to discuss the progress on action plan formulated during its second meeting held on 19/11/2021, to deliberate on the additional issues discussed during third meeting held on 11/04/2022 and further way forward for compliance of additional operative directions of Hon'ble NGT order dated 04/03/2022. List of participants present in the aforesaid joint committee meeting is given at **Annexure-I.**

Representative from CPCB, Regional Directorate-Pune, welcomed the Chairman and members of the joint committee and invitee participants. It was briefed that the status of progress of various activities and list of activities to be completed by the concerned agencies (viz. NCSCM, MRSAC, MPCB, District Collector: Alibaug-Raigad, Khar Land Department, Agriculture Department, District Health Office, Mangrove Cell, Maritime Board, Fisheries Department and District Revenue Department) as per the action plan & ToR vide dated 19/11/2021 and 11/04/2022. Also, briefed about the time schedule for completion of various assessment studies/reports and submission of joint committee report as per the Hon'ble NGT order dated 04/03/2022. Further, it was briefed about the joint monitoring carried-out by a team of CPCB & MPCB during 04/05/2022 to 05/05/2022.

Chairman of the joint committee in his introductory remarks stressed about the time target for submission of various assessment studies/reports by the concerned agencies. He urged that technical/administrative issues if any; faced by the concerned agencies needs to deliberated and same may be addressed at the appropriate level. Further, he urged that concerned agencies to diligently complete their works within the time schedule and also to expeditiously submit their assessment studies/reports to CPCB & MPCB and thereafter the first draft joint committee report to be circulated for deliberation and concurrence among the joint committee within June, 2022.

Representative from agricultural department mentioned that soil samples are collected from the alleged locations and analysis results of soil samples are awaited and the assessment report including year wise crop productivity data shall be submitted to CPCB through MPCB within June, 2022.

Representative from District Collector: Alibaug-Raigad mentioned about the status of progress of various works wherein it was briefed that except assessment reports of NCSCM, MRSAC and agriculture department, rest of the assessment reports as per the action plan & ToR dated 19/11/2021 & 11/04/2022 have been completed and the same shall be submitted to CPCB through MPCB within June, 2022.

Decisions:

After detailed discussions, following decisions were taken by the joint committee:

(i) NCSCM and MRSAC to jointly carry-out field validation and to review the status of reported destruction of mangroves, natural creeks and mangrove buffer areas in the village(s) that are within the purview of M/s JSW, besides the alleged dumping of waste materials on mangrove areas/Govt. land/Pvt. Land in the 13 no. of villages that is being dealt/addressed by the Agricultural Department. The joint report of NCSCM and MRSAC may be submitted to District Collector: Alibaug-Raigad on or before 25/06/2022.

(ii) Concerned agencies viz. NCSCM, MRSAC, MPCB, District Collector: Alibaug-Raigad, Khar Land Department, Agriculture Department, District Health Office, Mangrove Cell, Maritime Board, Fisheries Department and District Revenue Department or Sub-committee constituted during second joint committee meeting dated 19/11/2011 and third joint committee meeting dated 11/04/2022, as applicable; to submit their detailed assessment reports as per action plan & ToR dated 19/11/2021 & 11/04/2022 to CPCB through MPCB on or before 25/06/2022.

(iii) MPCB to collect soil samples in the alleged village(s) where the Sub-committee comprising of Agricultural Department had reported the dumping of waste materials. Such collected soil samples may be analysed for TCLP/STLC for parameters viz. Arsenic, Barium, Cadmium, Chromium, Copper, Cyanide, Lead, Manganese, Mercury, Nickel, Selenium, Silver and Zinc as per Hazardous & Other Wastes (Management & Transboundary) Rules, 2016 and also Boron and Sodium, be submitted to CPCB on or before 25/06/2022.

(iv) The first draft report of the joint committee to be circulated for deliberation and concurrence among the joint committee within June, 2022. Thereafter, further deliberation on the draft report by the joint committee before finalization and submission to Hon'ble NGT.

(v) In case of non-receipt of various assessment reports by the concerned agencies as per the action plan & ToR within the scheduled time period as decided during its meeting it

was decided to submit the report to Hon'ble NGT highlighting that the report is still awaited (In tabular form).

(vi) The draft report after compilation of sub-committee reports will be circulated (through email) to all the members to have final inputs and also to ensure that all aspects, as required covered in the report. This will help in compilation of the reports and finalization by 10th July, 2022 for submission to NGT.

(vii) Every member of the joint committee and sub-committee to be present during the next review meeting for deliberation on the draft joint committee report before its finalization and submission of final joint committee report to Hon'ble NGT

(viii) The tentative date for next and final meeting is proposed in 1st week July 2022.

The meeting ended with vote of thanks to the chair.

*****

Annexure – I

S. no.	Name of the participants	Department
1.	Shri Jigmet Takpa, Joint Secretary, Chairman of the joint committee	MoEF&CC, GoI
2.	Shri Nishchal C., Scientist 'D'	CPCB, Regional Directorate - Pune
3.	Prof. Anurag Garg	IIT Bombay, Powai, Mumbai
4.	Dr. Padmashree Bainade	ADM – Raigad, GoM
5.	Shri N.N. Gurav, RO (HQ)	MPCB, Mumbai
6.	Shri V. V. Killedar, In-charge: Regional Officer	MPCB, Raigad
7.	Shri Raj Kamat, Sub-Regional Officer	MPCB, Raigad
8.	Shri Sundeep, Director	MoEF&CC, GoI
9.	Dr. Dharmaraj	National Centre for Sustainable Coastal Management, Chennai
10.	Mrs. Ujjwla Bankhele, District Agriculture Office, Raigad.	Agriculture Department, Alibag, Raigad.
11.	Shri Sudhakar More, District Health Officer, Raigad	District Health Office, Raigad
12.	Representatives of Sub-Committee constituted as per decisions taken during second joint committee meeting dated 19/11/2021	Govt. of Maharashtra

File No. IA-J-11014/6/2021- IA –I
Government of India
Ministry of Environment, Forest and Climate Change
(Impact Assessment Division)
*****

Indira Paryavaran Bhawan
Aliganj, Jorbagh Road
New Delhi – 110003
Date: 5th September, 2022

To,

Member Secretary,
Central Pollution Control Board,
Parivesh Bhawan, East Arjun Nagar,
Delhi – 110032

Subject: Constitution of a Joint Committee in compliance of the order of the Hon'ble National Green Tribunal (PB) in the matter of OA No. 165/2020 titled Samita Rajendra Patil Vs Jindal Steel Works & Ors. – reg.

Sir,

This is in continuation to Ministry's communication of even number dated 11th June 2021 regarding the above cited subject.

2. Shri Jigmet Takpa, Joint Secretary, MoEFCC heading the Joint Committee has been relieved from the Ministry.

3. Accordingly, as replacement to Shri Takpa, Shri Sujit Kumar Bajpayee, Joint Secretary, MoEF&CC is hereby nominated to head the Joint Committee constituted by Hon'ble NGT vide Order dated 27.05.2021 in the OA No. 165/2020 titled Samita Rajendra Patil vs Jindal Steel Works Ltd & Ors.

4. Further, Member Secretary, IA(Industry-I), MoEFCC shall coordinate the issues pertaining to the Ministry.

This issues with approval of the Competent Authority.

Yours sincerely

(Dr. Shruti Rai Bhardwaj)
Addl. Director/Scientist 'E'

Copy to:

1. Shri. Sujit Kumar Bajpayee, Joint Secretary, MoEF&CC
2. Member Secretary, Industry-I, MoEF&CC, New Delhi.
3. The Chairman, Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi-110032.
4. District Magistrate, Raigad, Maharashtra-402201

Re: Draft minutes of fifth meeting of the joint committee in the Hon'ble NGT matter in OA no. 165 of 2020, Samita Patil vs JSW Ltd. - reg.

From : Shivangi Chaturvedi <shivangi.chaturvedi@nic.in> Mon, Sep 19, 2022 02:49 PM
Subject : Re: Draft minutes of fifth meeting of the joint committee in the Hon'ble NGT matter in OA no. 165 of 2020, Samita Patil vs JSW Ltd. - reg. 2 attachments
To : NISHCHAL C <nischal.cpcb@nic.in>
Cc : Sujit Kumar Bajpayee <sujit.baju@gov.in>, Additional Director MoEFCC Dr R B LAL <rb.lal@nic.in>, sandeepan <sandeepan.bs@gov.in>
Reply To : Shivangi Chaturvedi <shivangi.chaturvedi@nic.in>

Sir/Ma'am,

This is in reference to the trailing mail. As directed, please find the copy of the approved minutes of the meeting held on 12.09.2022 attached with this e-mail. In this regard, it has also been directed, that the Joint Committee shall seek time immediately without delay, citing the change in the chairmanship and delay in obtaining information etc. as reasons.

Regards

Shivangi Chaturvedi

Legal Associate

Industry – I

MoEF&CC

From: "NISHCHAL C" <nischal.cpcb@nic.in>
To: "Sujit Kumar Bajpayee" <sujit.baju@gov.in>
Cc: "BHARAT KUMAR SHARMA" <bksharma.cpcb@nic.in>, "SUNDEEP" <sundeep.cpcb@nic.in>, "Additional Director MoEFCC Dr R B LAL" <rb.lal@nic.in>, "Shivangi Chaturvedi" <shivangi.chaturvedi@nic.in>, "sandeepan" <sandeepan.bs@gov.in>
Sent: Wednesday, September 14, 2022 2:25:29 PM
Subject: Draft minutes of fifth meeting of the joint committee in the Hon'ble NGT matter in OA no. 165 of 2020, Samita Patil vs JSW Ltd. - reg.

Respected Sir,

This has reference to the fifth meeting of the joint committee held on 12/09/2022 under the Chairmanship of Shri Sujit Kumar Bajpayee, Joint Secreatry, MoEF&CC, to discuss the progress on decisions taken during previous meetings of the joint committee, review the draft report of the joint committee and further way forward for compliance of Hon'ble NGT orders dated 27/05/2022 and 04/03/2022 in the matter OA no. 165 of 2020, Samita R. Patil vs M/s Jindal Steel Works Ltd., & Ors.

In this regard, please find attached herewith the draft minutes of the meeting for kind perusal and concurrence.

Regards,
Nishchal C.
Senior Environmental Engineer
Mob: +91 97220 17220
Central Pollution Control Board, Regional Directorate - Pune, Maharashtra
(Ministry of Environment, Forest & Climate Change, Govt. of India)

approved mom.docx
18 KB

annexure 1 of the mom.docx
16 KB

MINUTES OF FIFTH MEETING OF THE JOINT COMMITTEE CONSTITUTED BY THE HON'BLE NATIONAL GREEN TRIBUNAL (NGT) VIDE ORDER DATED 27/5/2021 IN THE MATTER OF OA NO. 165 OF 2020 (PB) [EARLIER OA NO. 122 OF 2015 (WZ) TITLED AS SAMITA RAJENDRA PATIL VS JINDAL STEEL WORKS LTD., & ORS.

Fifth meeting of the joint committee was held on 12/09/2022 through video conference under the Chairmanship of Dr. Sujit Kumar Bajpayee, Joint Secretary, MoEF&CC, to discuss the progress on decisions taken during previous meetings of the joint committee, review the draft report of the joint committee and further way forward for compliance of Hon'ble NGT orders dated 27/05/2022 and 04/03/2022. List of participants present in the aforesaid joint committee meeting is given at **Annexure-I.**

Representative from CPCB, Regional Directorate-Pune, welcomed the Chairman, members of the joint committee and invitee participants. He briefed about directions of the Tribunal, decisions of the previous joint committee meetings, status of various activities & works completed and submission of assessment reports by the respective agencies as per the decisions taken during previous meetings of the joint committee. Further, it was also briefed about the status of joint committee's draft report preparation which was circulated to the committee members for their comments.

Dr. Sujit Kumar Bajpayee, Joint Secretary, MoEF&CC and Chairman of the joint committee, in his introductory remarks expressed that the final report of the joint committee should scientifically & technically address on each of the various aspects of orders of the Hon'ble Tribunal and be conclusive. He further stressed that joint committee to expeditiously finalize its report so as to submit the same to the Hon'ble NGT prior to next date of the scheduled hearing i.e. 26/09/2022.

Thereafter, Shri Nishchal C., Scientist 'D' from CPCB, Regional Directorate-Pune, made a detailed point-wise presentation on the each of the activities & works completed as per the action plans decided in previous meetings vis-à-vis key findings, gaps/issues for deliberation, etc. and proposed way forward in order to comply with orders dated 27/05/2022 and 04/03/2022 of the Hon'ble NGT.

However, Shri Sundeep, Scientist F, has raised certain observations on the rationale and methodology adopted in the report of on "Assessment of Coastal and Marine Ecosystem Goods and Services – Linking Coastal Zone Management to Ecosystem Services in India – Mangroves" prepared by Integrated Social Sciences and Economics Division – National Centre for Sustainable Coastal Management, MoEF&CC, Govt. of India and submitted that this report don't have any legal or technical approval from Govt. It is a scientific study without any validation.

He further submitted that the committee may adopt a more rational approach as per the provision on CRZ Notification (proposal presented in the meeting) and on due consideration of prevailing rate of mangrove development considered by Mangrove

Cell of Govt. of Maharashtra. The Committee was of the view that this option can also be explored while determining the restoration cost and loss of goods and services cost due to damage of mangroves.

Decisions:

After detailed discussions, the following decisions were taken by the joint committee:

1. Environmental compensation w.r.t. mangrove loss (valuation of mangroves services cost) may be considered @ Rs. 9,58,766/ha/year as per report on "Assessment of Coastal and Marine Ecosystem Goods and Services – Linking Coastal Zone Management to Ecosystem Services in India – Mangroves" prepared by Integrated Social Sciences and Economics Division – National Centre for Sustainable Coastal Management, MoEF&CC, Govt. of India.

2. The loss of mangroves due to activities of M/s JSW & its associated activities (jetty, conveyor belt & other industrial activities etc.) clearly figured-out by MRSAC, RFO-Mangrove Cell and NCSCM in coordination with District Collector-Raigad considering the following since 2011 to 2021:
    a. The mangrove loss area (in ha) below the conveyor belt occurred because of (i) conveyor belt expansion works and (ii) due to dumping of municipal solid waste, separately.
    b. Total mangrove loss area in ha (irrespective of sparse or dense).
    c. Break-up of (b), as above in terms of activities due to M/s JSW & its associated activates (jetty, conveyor belt & other industrial activities etc.), natural/calamities loss such as shoreline erosion & cyclone and due to dumping of municipal solid waste if any;
    d. Earlier worked-out mangrove loss of 2.25 ha (due construction of conveyor belt and other industrial uses) by MRSAC & NCSCM should be differentiated from the mangrove loss estimated by RFO (below the conveyor belt area).
    e. All the above reporting's be based on satellite images, records available with respective agencies and area of total mangrove loss due to M/s JSW & its associated activates in the mangrove area as well as mangrove buffer area.
    f. Map demarcating conveyor belt or its foundation (part/fully, as applicable) falling under the mangrove area as per the CRZ/CZMP maps and associated impacted area (in ha).

3. Loss of creek area in ha and demarcation of the same in map due to M/s JSW & its associated activates.

    All the above reporting be based on satellite images, records available with respective agencies and area of total creek loss due to M/s JSW & its associated activates.

4. Kharland Dept., SDO-Pen and MPCB shall submit report on quantification of slag disposed/used by M/s JSW for carrying-out the repairing of kharbandasti bandh and duration of such disposal/use.

5. District Health Officer shall provide conclusion about whether PFT (<75%) of 08 no. of employees working in the coke oven plant are associated due to industrial activities or not.

6. District Collector-Raigad shall submit details of declaration of mangrove reserved area under Indian Forest Act, 1927 (village wise) in Pen and Alibag taluka and status of their mangroves development.

7. The Impact Assessment (Industry-I) division of the Ministry to examine details of violation against reported construction of jetty expansion from 331.5m to 1740 m prior to grant of environmental clearance as reported in the show-cause notice direction dated 11/11/2014, action taken thereto. Further action required if any, on the said violation be also informed to the joint committee.
   In case appropriate action for the above violation has not been taken yet, environmental compensation as per the formula referred in the Hon'ble NGT in its order (para 14 to 16) dated 28/8/2019 in the matter of Original Application No. 593/2017 titled Paryavaran Suraksha Samiti & Anr. Versus Union of India & Ors. may be considered.

8. Impact Assessment (Monitoring) division of the Ministry, New Delhi to provide various non-compliances observed during 2010 to 2021 as per the MoEF&CC, IRO Nagpur's report or other wise and actions taken thereto w.r.t. conditions of environmental clearance and CRZ clearance. The same may be provided along with date on which violation was observed and date on which the compliance was accepted w.r.t. each of the aforesaid non-compliances.

9. Members of the joint committee from MPCB & CPCB shall compile list of directions issued under the Water and Air Acts to M/s JSW Steel Ltd., and M/s Dharmtar Port Pvt. Ltd., w.r.t. non-compliances of the prescribed standards/conditions. The same may be provided by MPCB along with date on which violation was observed and date on which the compliance was verified w.r.t. each of the aforesaid non-compliances so as to derive the environmental compensation as per the aforesaid formula mentioned at s. no. 7, as above; based on the information provided by MPCB.

10. All the above agencies shall submit their respective report to CPCB on or before 16/09/2022 positively. Shri Nishchal C., Scientist 'D', CPCB, RD-Pune & member of the committee, shall compile the received information and circulate updated draft report to the joint committee members.

11. Next meeting of the joint committee may be held within a week wherein the report shall be finalized for submission to Hon'ble NGT before the next scheduled date of hearing on 26/09/2022.

The meeting ended with vote of thanks to the chair.

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Annexure – I

S. no.	Name of the participants	Department
1.	Dr. Sujit Kumar Bajpayee, Joint Secretary, Chairman of the joint committee	MoEF&CC, GoI
2.	Shri Nishchal C., Scientist 'D'	CPCB, Regional Directorate - Pune
3.	Prof. Anurag Garg	IIT Bombay, Powai, Mumbai
4.	Dr. Mahendra Kalyankar	District Collector – Raigad, GoM
5.	Dr. Padmashree Bainade	RDC – Raigad, GoM
6.	Dr. Y. B. Sontake, JD-Water	MPCB, Mumbai
7.	Shri N.N. Gurav, RO (HQ)	MPCB, Mumbai
8.	Shri V. V. Killedar, In-charge: Regional Officer	MPCB, Raigad
9.	Shri Raj Kamat, Sub-Regional Officer	MPCB, Raigad
10.	Shri Bharat K Sharma, Regional Director	CPCB, Regional Directorate – Pune
11.	Shri Sundeep, Director	MoEF&CC, GoI
12.	Dr. R. B. Lal, Additional Director	MoEF&CC, GoI
13.	Shri Thirunavukkarasu, Addl. Director	MoEF&CC, IRO-Nagpur
14.	Dr. Dharma Raj, Sr. Scientific Consultant	National Centre for Sustainable Coastal Management, Chennai
15.	Representatives of Sub-Committee constituted as per decisions taken during previous joint committee meeting dated 19/11/2021	Govt. of Maharashtra
16.	Dr. Ashok Katare, Additional District Health Officer, Raigad	District Health Office, Raigad

Annexure-7

Approved minutes of sixth meeting of the joint committee in the Hon'ble NGT matter OA no. 165 of 2020, Samita R. Patil vs M/s JSW Ltd., & Ors. - reg.

From : Shivangi Chaturvedi <shivangi.chaturvedi@nic.in> Tue, Nov 22, 2022 06:05 PM

Subject : Approved minutes of sixth meeting of the joint committee in the Hon'ble NGT matter OA no. 165 of 2020, Samita R. Patil vs M/s JSW Ltd., & Ors. - reg.

1 attachment

To : NISHCHAL C <nischal.cpcb@nic.in>

Cc : Sujit Kumar Bajpayee <sujit.baju@gov.in>, Additional Director MoEFCC Dr R B LAL <rb.lal@nic.in>, sandeepan <sandeepan.bs@gov.in>, RAJESH PRASAD RASTOGI <rp.rastogi@gov.in>

Reply To : Shivangi Chaturvedi <shivangi.chaturvedi@nic.in>

Sir,
As directed, kindly find the copy of the approved Minutes of the Meeting held on 16.11.2022. The undersigned has also been directed to request to provide the copy of the Draft of the Joint Committee report.
Regards
Shivangi Chaturvedi
LA

approved minutes of the meeting.docx
16 KB

MINUTES OF SIXTH MEETING OF THE JOINT COMMITTEE CONSTITUTED BY THE HON'BLE NATIONAL GREEN TRIBUNAL (NGT) VIDE ORDER DATED 27/5/2021 IN THE MATTER OF OA NO. 165 OF 2020 (PB) [EARLIER OA NO. 122 OF 2015 (WZ) TITLED AS SAMITA RAJENDRA PATIL VS JINDAL STEEL WORKS LTD., & ORS.

Sixth meeting of the joint committee was held on 16/11/2022 through video conference under the Chairmanship of Dr. Sujit Kumar Bajpayee, Joint Secretary, MoEF&CC, to discuss the progress on decisions taken during previous meeting of the joint committee, review the updated report submitted by various agencies viz. DC-Office, MoEF&CC & MPCB, review the draft report of the joint committee and further way forward for compliance of Hon'ble NGT orders dated 27/05/2021 and 04/03/2022. List of participants present in the aforesaid joint committee meeting is given at **Annexure-I.**

Representative from CPCB, Regional Directorate-Pune, welcomed the Chairman, members of the joint committee and invitee participants. He briefed about decisions taken by the joint committee in its previous meeting, status of submission of updated reports received from the respective agencies as per the decisions taken during previous meeting of the joint committee and subsequent preparation of the draft joint committee report. Further, it was also briefed that updated draft joint committee report was circulated to the committee members for review and their comments vide email dated 09/11/2022.

Dr. Sujit Kumar Bajpayee, Joint Secretary, MoEF&CC and Chairman of the joint committee, in his introductory remarks expressed that the final report of the joint committee should scientifically & technically address on each of the various aspects of orders of the Hon'ble Tribunal and be conclusive. Further, a synopsis w.r.t. orders dated 27/05/2021 & 04/03/2022 and their compliance status on each of such aspects may also be included in the joint committee report. He urged that the joint committee shall expeditiously finalize its report so as to submit the same to the Hon'ble NGT prior to next date of the scheduled hearing i.e. 28/11/2022.

Thereafter, Shri Nishchal C., Scientist 'D' from CPCB, Regional Directorate-Pune, made a detailed point-wise presentation on compilation of various aspects/issues, updated information received from various agencies, compiled findings & recommendations, gaps/issues for deliberation by the committee, etc.

Decisions:

After detailed discussions, the following decisions were taken by the joint committee:

1. Concerned Zila Parishad of the area may be held liable for the reported loss of mangroves of 0.71 ha below the conveyor belt due to dumping of solid waste. Similar approach adopted for computing environmental compensation w.r.t. mangrove loss (valuation of mangroves services cost) which was levied against the industry may be considered in such case also i.e. @ Rs. 9,58,766/ha/year. Further, as per Coastal Regulation Zone Notification, 2011 s. no. ii of V of paragraph 8, five times the number of mangroves destroyed during the process of such dumping of solid waste shall be replanted. Accordingly, about 3.55 ha of area to be replanted with mangroves by the concerned Zila Parishad of the area under the supervision of Mangrove Cell (Govt. of Maharashtra). If the area under conveyor belt is not adequate/feasible for compensatory mangrove plantation, suitable area may be identified for compensatory mangrove plantation of 3.55 ha under the supervision of Mangrove Cell (Govt. of Maharashtra) and District's revenue department.
2. As per the report of District Superintendent of Agriculture, Raigad; inadequate repair & maintenance of Kharbandisti bunds by the Khar land Dept., resulted in constant ingress of tidal water into the adjoining agricultural lands & made the soil alkaline in nature, unfertile for rice cultivation and subsequent decrease in crop productivity. Agriculture Dept., Govt. of Maharashtra may calculate the compensation amount i.e. assistance to crop damage based on crop productivity of the concerned revenue mandal and minimum support price of rice in that year. Such compensation amount as calculated by the Agriculture Dept., may be given to the beneficiaries by the Kharland Dept., Water Resource Department-Govt. of Maharashtra through the District Collector-Raigad.

3. SDO-Pen should ensure that no further dumping of solid waste shall continue below the conveyor belt. Also, to expedite commissioning of new site for managing solid wastes in an environmentally sound manner in accordance with provisions stipulated under the Solid Waste Management Rules, 2016.
4. The joint committee report shall also include a synopsis w.r.t. various issues/aspects stipulated in orders dated 27/05/2021 & 04/03/2022 and their compliance status on each of them.
5. It was inter-alia decided to provide the details of subsequent actions taken by the Ministry on the clearances provided.
6. MPCB may verify the reported period of non-compliances w.r.t. not setting up the secondary emission control system as a measure for air pollution control for the SMS plant and the environmental compensation amount may be revisited, as applicable. Further, MPCB may examine the calculation of additional environmental compensation amount based on their letter dated 03/01/2022 issued to M/s JSW Ltd., for the non-compliances observed by the joint committee during its preliminary site inspection carried-out on 29/12/2021 to 30/12/2021. The revised environmental calculation, as applicable, be informed by MPCB to CPCB RD Pune by 17/11/2022.
7. Upon receipt of revised information from the Impact Assessment (Industry-I) Division, MoEF&CC and MPCB; Shri Nishchal C, Scientist 'D', CPCB, RD-Pune shall incorporating the same and other above suggestions in the draft report of the joint committee and circulate the same to the all joint committee members on or before 18/11/2022 for seeking concurrence and signature. Final report shall be sent to MoEF&CC for seeking concurrence for submitting the same to the Hon'ble NGT well before the next scheduled date of hearing on 28/11/2022.

The meeting ended with vote of thanks to the chair.

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Annexure – I

S. no.	Name of the participants	Department
1.	Shri Sujit Kumar Bajpayee, Joint Secretary, Chairman of the joint committee	MoEF&CC, GoI
2.	Shri Nishchal C., Scientist 'D'	CPCB, Regional Directorate - Pune
3.	Prof. Anurag Garg	IIT Bombay, Powai, Mumbai
4.	Dr. Mahendra Kalyankar	District Collector – Raigad, GoM
5.	Dr. Y. B. Sontake, JD-Water	MPCB, Mumbai
6.	Shri N.N. Gurav, RO (HQ)	MPCB, Mumbai
7.	Shri V. V. Killedar, In-charge: Regional Officer	MPCB, Raigad
8.	Shri Raj Kamat, Sub-Regional Officer	MPCB, Raigad
9.	Shri Bharat K Sharma, Regional Director	CPCB, Regional Directorate – Pune
10.	Shri Sundeep, Director	MoEF&CC, GoI
11.	Dr. R. B. Lal, Additional Director	MoEF&CC, GoI
12.	Shri Thirunavukkarasu, Addl. Director	MoEF&CC, IRO-Nagpur
13.	Dr. Dharma Raj, Sr. Scientific Consultant	National Centre for Sustainable Coastal Management, Chennai
14.	Representatives of Sub-Committee constituted as per decisions taken during previous joint committee meeting dated 19/11/2021	Govt. of Maharashtra

Joint Report by MRSAC and NCSCM

Satellite Remote Sensing based study of Mangrove and Creek Loss with Respect to Hon'ble NGT Order dated 27.05.2021 in the matter OA No. 165 of 2020 Smita Rajendra Patil Vs. Jindal Steel Works Limited. & Others.

1. Background:

The Hon'ble NGT vide order dated 27.05.2021 constituted a five member Joint Committee. The meeting of this comittee held on 19.11.2021 has decided to constitute a Sub-Committee headed by the District Collector Raigad. Maharashtra Remote Sensing Application Centre (MRSAC) has been nominated as the member of this Sub-Committee by the District Collector Raigad. The meeting of sub-committee headed by District Collector held on 02.12.2021 has asked MRSAC to carry out the study of distruction of creek and mangrove in JSW plant, jetty and conveyor belt area. Accordingly, MRSAC has taken up the study by using high resolution satellite data as suggested by the Joint Committee meeting held on 19/11/2021. In the same meeting, it has been collectively decided that the assessment be carried out w.e.f. Sept. 2010 and May 2021.

MRSAC has already done the mapping of creeks and mangroves for this area using high resolution satellite data of June 2011. Since MRSAC do not have high resolution satellite data of Sept. 2010, the nearest data available was of June 2011 therefore, it has been taken as baseline data for change analysis with respect to mangroves and creeks in and around JSW plant, Jetty and Jonveyor belt only. For the study of distruction of creek and mangroves within and around M/s. JSW plant, high resolution satellite data of year 2021 is used. The mapping of mangroves and creeks has been done for the year 2021 and change analysis in GIS carried out with respect to the same classes mapped for the year 2011 to workout the loss of mangroves and creek.

2. Study of Mangrove and Creek:

The distruction of mangroves and creek has been mapped by studing the colour, tone, texture and association found on FCC of high resolution satellite images of 2011 and 2021. The outcome of the study in the form of maps overlaid with cadastral boundaries has been shown in Fig-1, Fig-2, Fig-3, Fig.-4 and Fig-5 in Appendix-1 . The area loss of mangroves and creek are given in Table-1.

Fig.1: Creek and mangrove status map of the year 2011

Figure-1 shows the status of creek and extent of mangrove observed in the month of June 2011. This mapping was already done by MRSAC using high resolution satellite data with spatial resolution of 50 cm. The same has been used as the baseline status of mangrove and

creek for the year 2011. Mangroves were seen all along the Dharamtar creek, northern part of Dolvi village and western part of Khar Devali village. Also mangroves were identified near present conveyor belt and Jetty.

Fig.2: Creek and mangrove status map of the year 2021

Figure-2 shows the extent of mangrove and creek for the year May 2021. These features were mapped using high resolution satellite image with spatial resolution of 60 cm. available with MRSAC. Overall the mangrove were identified in all the areas as were seen in the year 2011 i.e. along the Dharamtar creek, northern part of Dolvi village and western part of Khar Devali village.

Fig. 3: Change in mangrove area from 2011 to 2021

Figure-3 shows the spatial changes in mangrove cover in the study area during the year 2011 and 2021 respectively. Loss of mangrove is shown in red colour in the map. During ground truthing and on inquiry at the site, it was observed that large area near conveyor belt is occupied by dumping of domastic and solid waste, due to this there was significant loss of mangrove.

Fig. 4: Change in Creek area from 2011 to 2021

This map is a comparison of year 2011 and year 2021 status of creek in the study area. From the satellite images it can be seen that there is loss in creek area within the plant premises and its course is seen to be changed over a period of time. However, during ground truthing, the tidal flow were observed in the creek at various locations.

Fig. 5: Change in 50 meters mangrove buffer area

A per CRZ notification 2011 and the minutes of third meeting of Joint Committee held at Alibag on 11th April 2022, a 50 meter buffer drawn on the mangrove extent of year 2011. The spatial extent of conveyor belt has been mapped from 2021 satellit image. Overlay analysis of 50 meter mangrove buffer area and conveyor belt has been carried out. The results show that conveyor belt has crossed over the buffer area which is shown in the map. The area covered by conveyor belt are shown in Table-2. Fig-6, Fig-7, Fig-8, Fig-9 and Fig-10 of Appendix-2 depict the progress of construction the Conveyor belt during 2015, 2016, 2017, 2018 and 2021, through Google Earth images.

Table-1 : Loss of creek, mangrove and mangrove 50 meter buffer area:

Sr. No.	Ecosystem	Area Loss (Ha)
1	Creek	0.59
2	Mangrove	2.25

3. Assessment of violations of provisions of CRZ Rules and CRZ clearance conditions by M/s JSW w.r.t. construction of conveyor belt and development/ expansion/ operation of jetty (w.e.f. September, 2010 to May, 2021).

Status of compliance:

In the CRZ Recommendation issued by Maharashtra Coastal Zone Management Authority (MCZMA) for expansion of the existing jetty facility, vide their letter No. CRZ-2014/CR-41/TC-4 dated 24.02.2015, it is stipulated that Prior High Court Permission should be obtained if the project activities involve clearing/destruction of mangroves due to the project and if the project activities fall in 50 m mangrove buffer zone area. The same has been reiterated at Sl. No. (xii), page 4 of the Environment and CRZ Clearance issued by the Ministry of Environment, Forest and climate Change dated 26.11.2015, for expansion of the Dharamtar Jetty facility.

The amended Environment and CRZ Clearance was issued by MoEFCC for construction of additional conveyor belts/streams in respect of expansion of the Dharamtar Jetty facility, vide MoEF&CC OM No. F. No. 11-79/2013-IA-III dated 10.01.2020. The condition imposed in para 3 of the said EC & CRZ clearance is that the said activities (conveyor belt and transmission line) should not be proposed in mangroves or its 50 m buffer zone. The same condition is given in the recommendation of MCZMA issued under MCZMA letter No. CRZ-2018/CR-293/TC-4 dated 16/02/2019, citing 17th September, 2018 High Court order in PIL 87/2006, that no activities should be carried out in mangroves or its 50 m buffer zone. Further, as per the CRZ Notification, 2011, the 50 m mangrove buffer zone area is classified as CRZ-IA.

From the analysis of the satellite images, it is seen that the conveyor belt has been constructed in the mangrove areas as well as in the 50 m buffer zone around mangroves. The mangrove buffer areas have also been utilised for other development/ expansion/operation of jetty. Fig-6, Fig-7, Fig-8, Fig-9 and Fig-10 of Appendix-2 depict the progress of construction the Conveyor belt during 2015, 2016, 2017, 2018 and 2021, with part of the Conveyor belt falling in mangrove as well as 50 m mangrove buffer areas. This is also evident from Fig-6 showing the construction of the Conveyor belt during November, 2015 and Fig-3 showing the loss of mangroves (in red colour) at the same Conveyor belt site. Fig-5 of Appendix-1 also depicts the status of the Conveyor belt in the year 2021, with part of the Conveyor belt falling

in the 50 m mangrove buffer areas. Field photographs showing Conveyor belt over mangrove and mangrove buffer area are at Appendix-3.

Similarly, it is seen from Fig-1 to Fig-5 of Appendix-1 that the mangrove buffer areas have also been utilised for other development/ expansion/ operation of jetty. Details of the 50 m mangrove buffer areas utilized for construction of the Conveyor belt and Jetty during the years 2011 – 2021 are given below.

Table 2: Construction of the Conveyor belt and Jetty over the mangrove buffer area, during the years 2011 – 2021

Sr. No	Conveyor belt /Jetty	Mangrove buffer Area Loss (Ha)
1	Extent of conveyer belt over mangrove buffer area	1.52
2	Extent of Jetty area over mangrove buffer area	0.79

From the above, it is seen that the respondents (M/s JSW) have violated the provisions of the CRZ Rules and the CRZ clearance conditions w.r.t. construction of conveyor belt and development/ expansion/ operation of jetty.

****

5/7/2022

(Head, MRSAC, Pune)

5/7/20

(Director, NCSCM)

Appendix-1

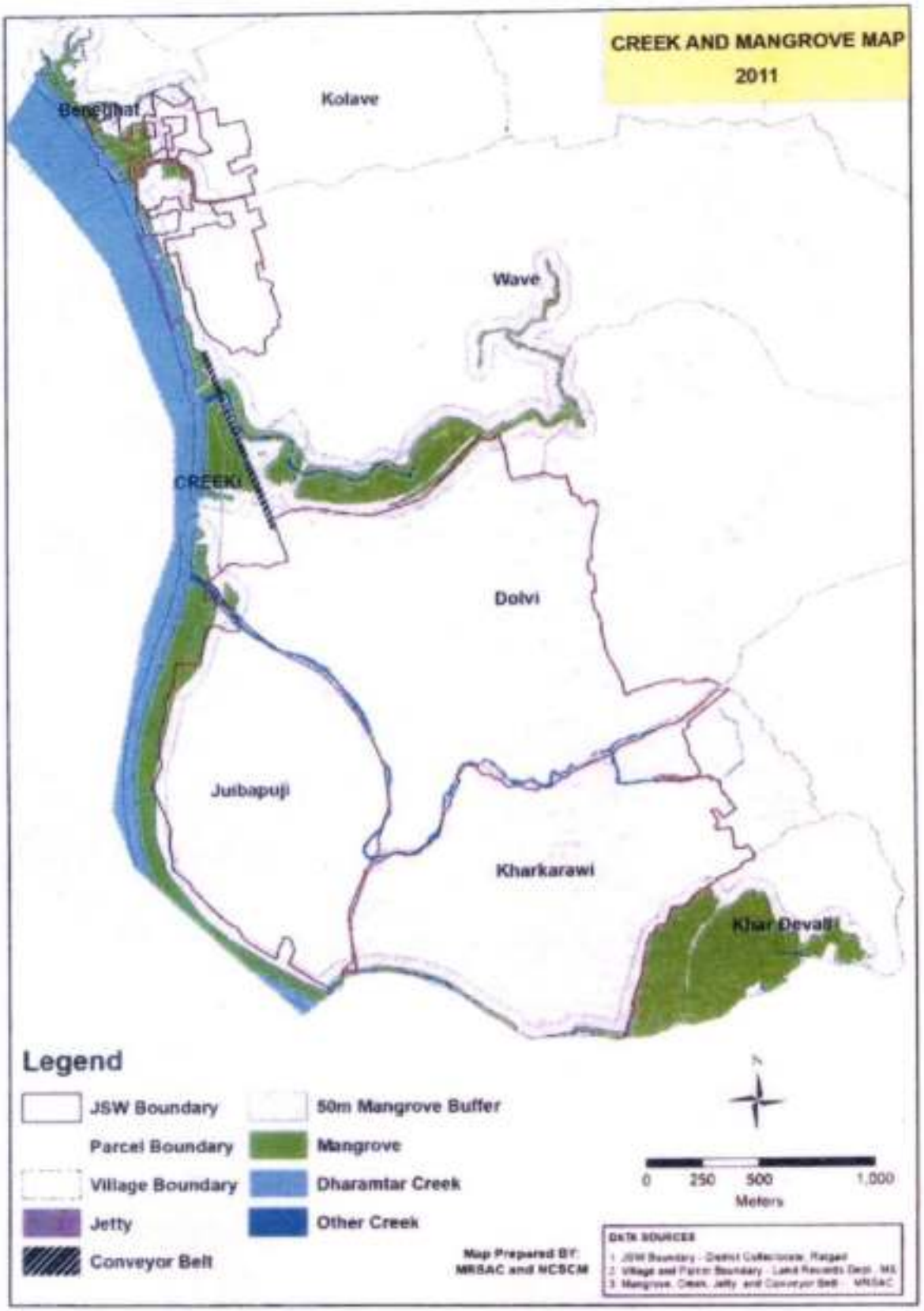

CREEK AND MANGROVE MAP
2011
Kolave
Wave
CREEK
Dolvi
Jutbapuji
Kharkarawi
Khar Devali
Legend
JSW Boundary
Parcel Boundary
Village Boundary
Jetty
Conveyor Belt
50m Mangrove Buffer
Mangrove
Dharamtar Creek
Other Creek
Map Prepared BY:
MRSAC and NCSCM
0 250 500 1,000
Meters
DATA SOURCES

Fig.1: Creek and mangrove status map of the year 2011

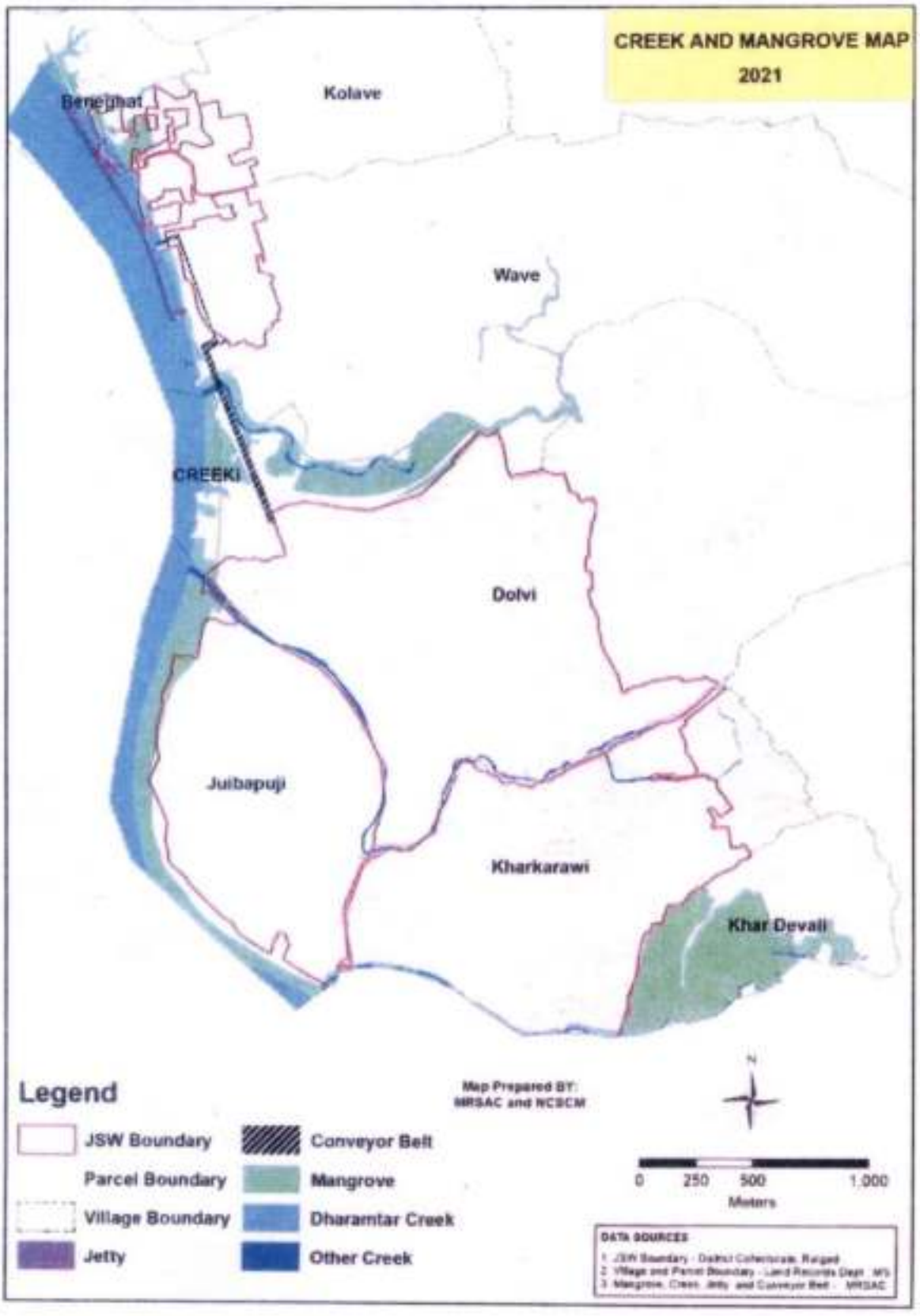


Fig.2: Creek and mangrove status map of the year 2021

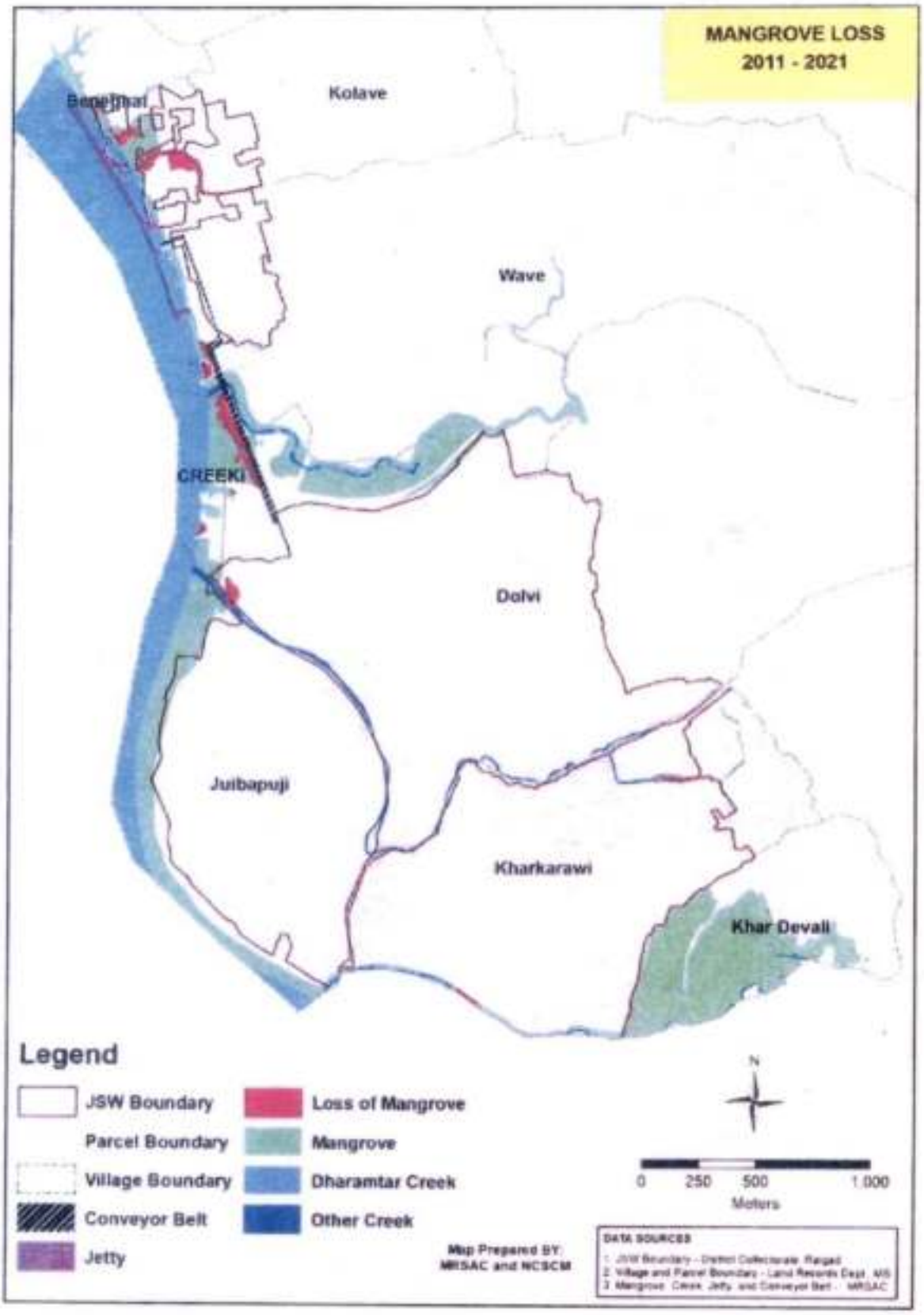


Fig. 3: Change in mangrove area from 2011 to 2021

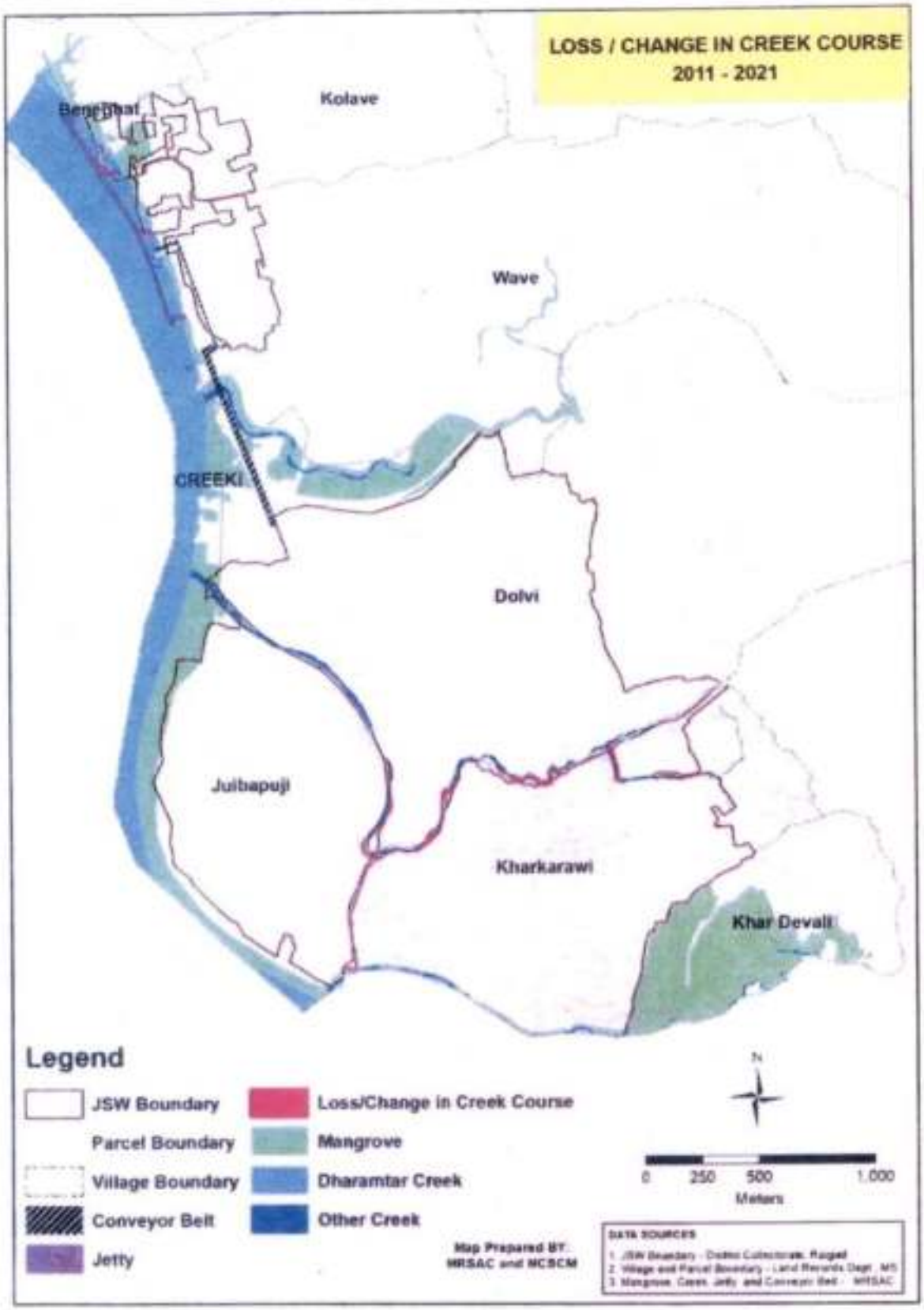


Fig. 4: Change in Creek area from 2011 to 2021

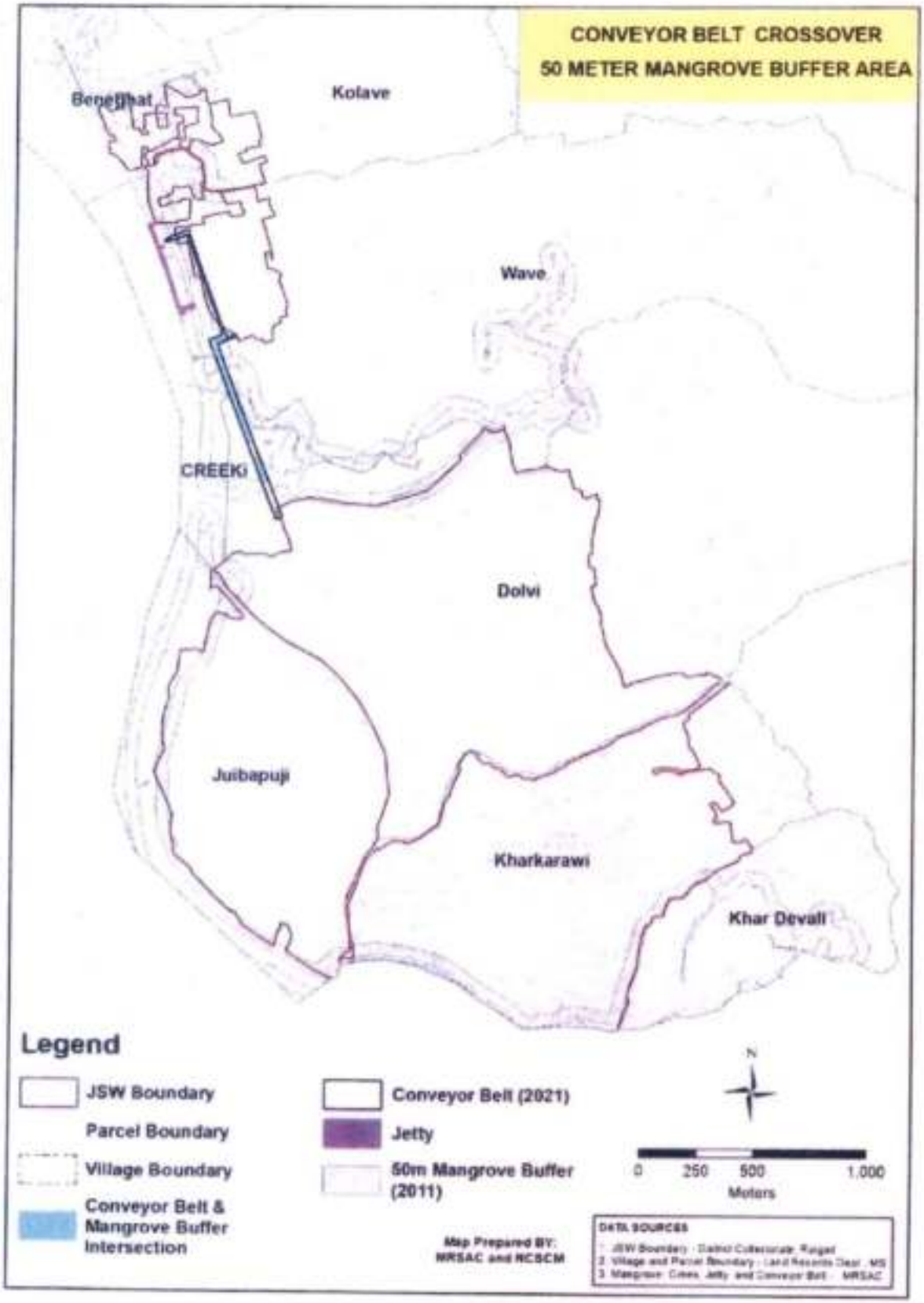


Fig.5 : Change in 50 meters mangrove buffer area

Appendix-2

GOOGLE EARTH IMAGES SHOWING CONVEYOR BELTS FROM 2015 TO 2021.

Fig. 6: Google Earth Image dated 10/11/2015

Fig. 7: Google Earth Image dated 25/01/2016

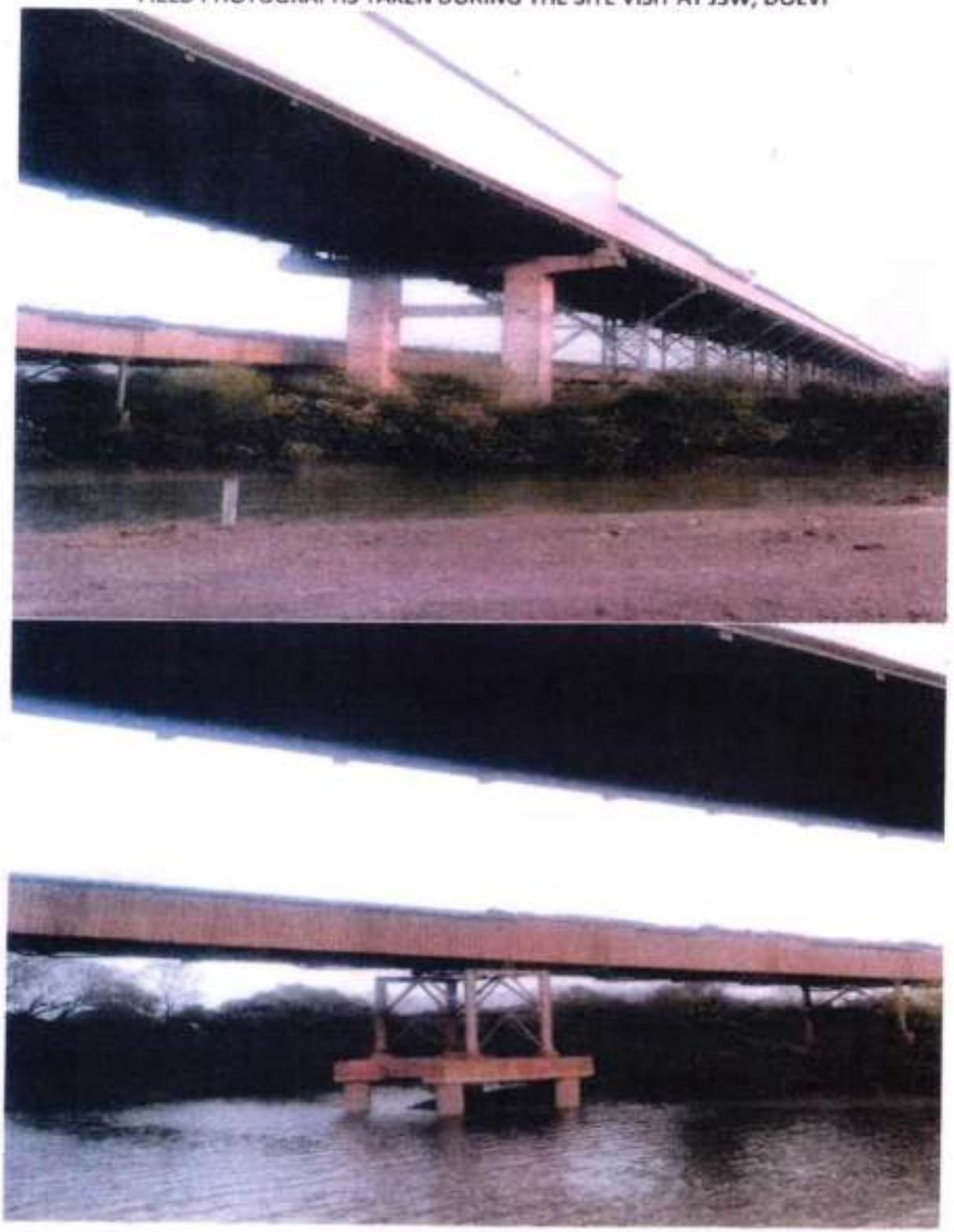
Fig. 8: Google Earth Image dated 10/01/2017

Fig. 9: Google Earth Image dated 16/10/2018

Fig. 10: Google Earth Image dated 3/11/2021

Appendix-3

FIELD PHOTOGRAPHS TAKEN DURING THE SITE VISIT AT JSW, DOLVI



End of Report....

5/7/2022
(Head, MRSAC, Pune)

5/7/20
(Director, NCSCM)

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Government Of Maharashtra
Revenue & Forest Department
Collector & District Magistrate, Raigad
Near Hirakot Lake, Tal. Alibag, Dist.Raigad 402 201
स्वातंत्र्याचा अमृत महोत्सव Phone No.02141-222118, Fax No.02141-227451, Email :: tahasildarmahasul@gmail.com

No.R.B./Land/A-03/NGT-165-2020/49499/2022 Date 08 /07/2022

To,
The Senior Environmental Engineer,
Central Pollution Control Board,
Regional Directorate, Pune.

Subject:- Report with respect to points in minutes of the meeting of Five- Member committee dated 19.11.2021, constituted as per order of Hon'ble NGT, New Delhi dated 27.05.2021 passed in O. A. No.165/2020 (Samita Rajendra Patil V/s Jindal Steel Works Ltd. & Ors.)

Reference :-Minutes of meeting of 5-Members committee dated 19.11.2021 and 11.04.2022.

With reference to above referred subject, it is hereby informed that, as per the directions given by Hon'ble NGT, New Delhi vide order dated 27.05.2021 passed in O.A. 165/2020 (Samita Rajendra Patil V/s Jindal Steel Works Ltd., Dolvi, Tal. Pen & Ors.); a five member committee has been constituted by the Hon'ble NGT. The meeting of said five member committee was held on 19.11.2021. In view of the decision taken in said meeting and as per the directions given in said meeting, a sub-committee is constituted under chairmanship of Collector Raigad. The point-wise reports submitted by the members of said sub-committee to this office as per the directions given in said five member committee dated 19.11.2021 and dated 11.04.2022 are as follows-

Meeting dated 19.11.2021 Proceeding Point no.1:- Destruction of mangroves of Dharamtar creek and within & around M/s JSW premises (1st September, 2010 to May, 2021) due to various developmental/expansion activities carried-out by M/s JSW.

Meeting dated 11.04.2022 Proceeding Point no.1:- Dumping of waste material and destruction of mangroves within 50 m mangrove buffer area.

With reference to above mentioned points, MRSAC, The Director, National Centre for Sustainable Coastal Management, Chennai, Sub Divisional Officer, Alibag , Sub Divisional Officer,Pen and Range forest officer (Mangroves), Alibag submitted reports as follows :-

1. **Sub Divisional Officer, Alibag, vide letter dated 17.01.2022, has submitted report as follows:-**

On carrying out joint inspection by circle officer poynad, talathi saza Shahabaj and representatives of the forest department regarding illegal soil filling by J.S.W Company, it is revealed that at village Jui Bapuji, Tal Alibag there are 03 plants namely 1) Pellet plant 2) Coke Ovens including By-Product plant 3) Sinter Plant belonging to said company and apart from that, there are private lands belonging to two families. Out of which, the land bearing survey no. 2/1/A belongs to Ramesh Sitaram Mhatre and family and there is a pond in said land. No soil filling or mangroves are found in said lands. The photographs thereof are annexed herewith. Similarly another land bearing survey no. 11/4 is mutated in the name of Keshav Changu Mokal and family which is a barren land growing grass on it. Neither any mangroves nor any cultivation is found in said land. Therefore no loss is caused since the said land is not under cultivation. The photographs thereof are annexed herewith. The Reports in form A, B and C are submitted by the revenue department, Agricultural department and Forest department as per the instruction given by the Committee.

Form A (Revenue department)

Name of village and taluka	S.No./H.No.	Total Area	Area of soil filling	Length x width x hight	Consent of farmer (Yes/No)	Remarks
Juibapuji, Tal Alibag	11/4	0.77.6	Nil	Nil	Nil	Nil
	2/1/A	0.30.10	Nil	Nil	Nil	Nil

Form B (Agriculture department)

Sr.No	Name of Village & Taluka	S.NO./H.No	Details of loss in area	Remarks
1	Jui bapuji, Tal Alibag	2/1/A	---	Agricultural pond. No cultivation
		11/4	----	No cultivation is found.

Form C (Forest department)

Name of Village & Taluka	S.NO./H.No	Total Area (H.R.)	Total low land filling (H.R.)	Mangrove under soil filled area (H.R.)	Total loss of mangroves in area (H.R.)	Remarks
Jui bapuji, Tal	50/D Part	0.50.0	0.50.0	0.50.0	0.50.0	The J.S.W company Ltd., gitapuram dolvi, tal pen has previously encroached and

Alibag						filled soil in land bearing survey no. 50/D. In said area the company has illegally destroyed mangroves, filled soil and extended its area, carried out construction of conveyor belt. In this regards offence bearing no. E 02/2019-20, dated 03/02/2020 has been registered at Tinvira police station.

2. **Sub Divisional Officer Pen, has submitted his following report vide letter dated 19.01.2022 and dated 26.05.2022:-**

Sub divisional officer Pen vide order dated 30.12.2021 appointed Mr. Prasad Karlekar, RNT pen as nodal officer for revenue department, Mr. Anil Rokade, Taluka Agriculture officer, pen as nodal officer for agricultural department and Smt.Swati Dumbare, Range forest officer, Wadkhal as nodal officer for forest department and thereby directed them to carry out spot inspection and to submit the reports.

Accordingly Mr. Prasad Karlekar, RNT, Tahasil office pen, has inspected site, drawn panchanama and submitted following report in form A stating that there is 385705 brass of slag filling is carried out by JSW company. It is mentioned in said report that the said slag filling is carried out with the consent of farmers.

Form A (Revenue Department)

Name of Circle	Name of Talathi saza	Village Name	S.No.	Total Area (H.R.)	Area of soil filling (H.R.)	Total volume in Brass	Consent of Farmers (Yes/No.)
Vadkhal	Karav	Kharkaravi	159/2	0.4700	0.4700	3710	Yes
		Karav	374/1	0.5330	0.5330	3816	Yes
			374/2	0.5400	0.2650	1872	Yes
			368	0.3790	0.2880	2035	Yes
			431	0.0780	0.0250	178	Yes
			29	1.0900	0.7500	2018	Yes
			Total	**2.6200**	**1.8610**	**9919**	
	Vadkhal	Dolvi	-	-	-	-	-
	Khardhombi	Khardhombi	-	-	-	-	-
Vadkhal	Khardhombhi	Kharjambhela	13/1B	0.3480	0.3480	3736	Yes
			13/1A	0.3500	0.3500	2798	Yes
			48/2B	0.3560	0.3560	4115	Yes

			6 A/2	0.5560	0.5560	6358	Yes
			7/0	0.5940	0.5940	6713	Yes
			48/1	0.2900	0.2900	4749	Yes
			Total	**2.4940**	**2.4940**	**28469**	
		Kharchirbi	31/1	0.2090	0.2090	3561	Yes
			32/1	0.3660	0.3660	4579	Yes
			Total	**0.5750**	**0.5750**	**8140**	
		Kharmachela	88/1	0.9000	0.9000	3180	Yes
			61/2	0.5350	0.5350	344	Yes
			73/2	0.8600	0.8600	53	Yes
			39/0	0.4100	0.4100	11130	Yes
			Total	**2.7050**	**2.7050**	**14707**	
		Kharghat	-	-	-	-	-
Vadkhal	Vadkhal	Wave	43/1	0.1970	0.1540	544	Yes
			43/4	0.1240	0.1100	388	Yes
			43/5	0.2500	0.2375	839	Yes
			43/6	0.1520	0.1500	530	Yes
			43/7	0.1640	0.1550	547	Yes
			44/1	0.2860	0.2340	2480	Yes
			44/3	0.1950	0.1320	1399	Yes
			41/4	0.5280	0.1924	3399	Yes
			173/4 B	0.4900	0.4900	173	Yes
			170/2	0.4550	0.4340	3067	Yes
			168/2A 1	0.3720	0.3705	2618	Yes
			167/1	0.4730	1.0000	7067	Yes
			167/2	0.5660			Yes
			167/4	0.4300	0.4240	2996	Yes
			154/2	0.6300	0.9120	6445	Yes
			154/3	0.3010			Yes
			166/1	0.6030	0.5610	3964	Yes
			166/2	0.3540	0.3300	2332	Yes
			166/4	0.3310	0.3100	2410	Yes
			165/2 B	0.5920	0.5900	4226	Yes
			156/2	0.2050	0.1976	1396	Yes

		156/1	0.9530	0.9424	6660	Yes
		157/2	0.2860	0.2795	1975	Yes
		159	0.3870	0.3780	2671	Yes
		156/3	0.1420	0.1395	986	Yes
		156/4	0.5970	0.5865	4145	Yes
		87/4	0.7590	0.6750	3577	Yes
		89/2	0.9420	0.3612	3190	Yes
				0.0480	424	Yes
		66/4	0.8590	0.8590	4571	Yes
		66/2 A	0.3050	0.6170	2544	Yes
		66/2 B	0.3120			Yes
		65/0	0.1620	0.1600	565	Yes
		64/0	0.3620	0.2800	989	Yes
		63/1B	0.8940	0.7200	2544	Yes
		67/2	0.1010	0.0600	212	Yes
		42/2 A	0.2040	0.1760	621	Yes
		43/2	0.9220	0.9180	3243	Yes
		42/3	0.7800			Yes
		175/3A	0.3310	0.4420	1562	Yes
		175/3B	0.3290			Yes
		171/1	0.3750	0.7500	5300	Yes
		171/2	0.3840			Yes
		173/1	0.8540	0.8400	5936	Yes
		173/4A	0.3390	0.3240	2290	Yes
		172/1	0.3950	0.3675	2597	Yes
		177/1B	0.0510	0.0480	339	Yes
		164/5	0.8400	0.5490	3244	Yes
		190/1A	0.9440	0.8325	2942	Yes
		71/1A	0.2200	0.1974	1743	Yes
		86/1A	0.3020	0.2880	2544	Yes
		169/2	0.3640	0.3640	4946	Yes
		66/1	0.4380	0.4380	6307	Yes
		39/4	0.2300	0.2300	1590	Yes

			84/2A	0.3200	0.3200	4204	Yes
			130/0	0.1720	0.1720	1045	Yes
			73/5	0.1690	0.1690	980	Yes
			83/1	0.4930	0.4930	6530	Yes
			72/1A1	0.4420	0.4420	6381	Yes
			39/2	0.3260	0.3260	4204	Yes
			84/2B1	0.2690	0.2690	1987	Yes
			155/1	0.3620	0.3552	2510	Yes
			41/2	0.1850	0.1665	588	Yes
			157/1A	0.2860	0.2775	1470	Yes
			157/1B	0.2120	0.2025	1788	Yes
			90/2	0.2380	0.2205	1947	Yes
			127/4	0.5870	0.5760	6106	Yes
			127/3	0.0250	0.0200	141	Yes
			131/1	0.8520	0.7920	8395	Yes
			131/3	0.1040	0.0990	874	Yes
			132/2	0.2300	0.1820	1607	Yes
			132/1	0.1090	0.0990	874	Yes
			89/2	0.9420	0.9360	6614	Yes
			166/3	0.3840	0.3740	2643	Yes
			Total	**29.768**	**26.3457**	**187965**	
Vadkhal	Vadkhal	Vadkhal	7/1	0.5860	0.5560	1966	Yes
			9/1	0.5470	0.5210	1842	Yes
			13/1	0.8170	2.7120	33541	Yes
			13/2	0.8300			Yes
			13/3	1.1230			Yes
			14/3A	0.4050	0.6600	2332	Yes
			14/3B	0.3940			Yes
			15/7	0.4350	0.4270	3021	Yes
			Total	**5.1370**	**4.8760**	**42702**	
Vadkhal	Bori	Beneghat	10	0.6700	0.6700	3551	Yes
			18	0.7110	0.7110	3763	Yes
			21	0.1290	0.1290	684	Yes
			24	0.0180	0.0180	57	Yes

28	0.0760	0.0760	374	Yes
3	0.7280	0.7280	3858	Yes
36	0.3030	0.3030	1606	Yes
39	0.5490	0.5490	2909	Yes
41	0.3190	0.3190	1690	Yes
46	0.2330	0.2330	1234	Yes
49	0.1300	0.1300	689	Yes
55	0.7460	0.7460	3954	Yes
56	0.3950	0.3950	2094	Yes
57	0.1290	0.1290	684	Yes
69	0.1720	0.1720	912	Yes
7	0.5340	0.5340	2830	Yes
70	0.1900	0.1900	1007	Yes
65	0.7100	0.7100	3763	Yes
67	0.8570	0.8570	4542	Yes
76	0.3340	0.3340	1770	Yes
77	0.6800	0.6800	3604	Yes
79	0.4600	0.4600	2438	Yes
11	1.0770	1.0770	5708	Yes
12	0.5920	0.5920	3138	Yes
13	0.2500	0.2500	1325	Yes
17	0.1160	0.1160	615	Yes
20	0.1110	0.1110	588	Yes
26	0.0760	0.0760	374	Yes
29	0.0400	0.0400	212	Yes
30	0.2960	0.2960	1569	Yes
34	0.2130	0.2130	1129	Yes
35	0.1060	0.1060	562	Yes
37	0.4680	0.4680	2480	Yes
38	0.3790	0.3790	2009	Yes
4	0.3140	0.3140	1664	Yes
40	0.2830	0.2830	1500	Yes
45	1.0340	1.0340	5480	Yes

			47	0.5310	0.5310	2814	Yes
			48	0.1340	0.1340	710	Yes
			5	0.3440	0.3440	1823	Yes
			51	0.1470	0.1470	779	Yes
			58	0.5460	0.5460	2894	Yes
			6	0.3590	0.3590	1903	Yes
			61	0.5290	0.5290	2804	Yes
			Total	**17.0180**	**17.0180**	**90093**	
		Kolve	-	-	-	-	-
	Total Area in H.R and volume in Brass			**57.2480**	**31.2217**	**385705**	

Form B (Agriculture Dept.)

Sr.No.	Name of Village & Taluka	Loss of Area (H.R)	Remarks
1	Wave, Tal Pen	10.65	Taluka agriculture officer, pen inspected said site and found no cultivation. He has informed that said land is not under cultivation since last 15 years. Similarly he has also informed that on account of sea water entering in said land, loss of area is on account of deposition made by sea water ingress as kharband is damaged and repair is still under construction. There is lot of mud accumulated in said land due to which physical survey of said land is not possible and it is to be carried out with the help of drone.
2	Beneghat, Tal Pen	2.03	
3	Vadkhal, Tal Pen	Nil	
4	Kolve, Tal Pen	Nil	
5	Dolvi, Tal Pen	0.20	
6	Kharkavari, Tal Pen	0.73	
7	Karav, Tal Pen	0.07	
8	Khardhombi, Tal Pen	Nil	
9	Kharmachela, Tal Pen	Nil	
10	Kharghat, Tal Pen	Nil	
11	Kharchirbi, Tal Pen	Nil	
12	Kharjambhela, Tal Pen	Nil	
Total		13.68	

Form C (Forest Dept.)

Name of Village & Taluka	S.No/H. No.	Total Area (H.R.)	Total area of low land filling (H.R.)	Mangroves under soil filled area (H.R.)	Total Area of Distruction of mangroves (H.R.)	Remarks
Dolvi, Tal Pen	190/4	0.20.00	-	-	-	Murlidhar Rambhau Karlekar. Area undefined.
	27/2A	0.25.05	-	-	-	R.A.Patil. Paddy land.
	27/2B	0.26.00	-	-	-	
	27/2C	0.25.00	-	-	-	
Karav, Tal Pen	65/1	0.20.00	-	-	-	Subhash Krishna Mokal. Said land is having a pond and it is near railway.
	29	1.00.90	1.00.90	-	-	Kiran Narayan

						Madhavi. This land is adjoining road and no mangroves are founds nearby.
	422	0.09.00	-	-	-	-
	423	0.03.00	-	-	-	Said area is under tar road.
	431	0.07.08	0.03.00	-	-	-
Kharkara vi, Tal Pen.	171/1	0.62.00	-	-	-	Balaram Vishnu mokal.
	173/3	0.64.0	-	-	-	Grass namely Ramban is grown in said land and it is under water.
	160/A/B	1.49.0	-	-	-	Dinkar Gopal Jambhale. There is water and Ramban grass in said land.
	159/1	1.24.00	1.24.00	-	-	Yashwant Ambaji Mokal
	159/2	1.17.00	1.17.00	-	-	Suresh Krishna Mokal. It appears that soil is filled in said lands before 4 years.
Wave, Tal Pen	89/2	-	-	-	-	No Mangroves
	66/4	0.85.90	0.85.90	-	-	
	66/2/A	0.30.00	0.30.00	--	-	
	66/2/B	0.30.0	0.30.0	-	-	
	64	0.36.00	0.36.00	-	--	
	43/2	0.92.00	0.92.00	-	-	
	43/3			-	-	
	43/4	0.12.40	0.12.40	--	-	
	43/5	-	-	-	-	
	43/6	0.15.20	0.15.20	-	-	
	43/7	0.16.40	0.16.40	-	-	
	43/1	0.19.00	0.19.00	-	-	
	67/2	0.06.0	0.06.00	-	-	
	166/4	0.33.10	0.33.10	--	-	
	165/2/B	0.59.20	0.59.20	-	-	
	164/5	0.84.00	0.84.00	-	-	
	170/1	-	-	-	-	
	176/2	-	-	-	-	
	44/3	0.19.50	0.19.50	-	-	
	44/1	0.28.60	0.28.60	-	-	
	41/4	0.52.80	0.52.80	-	-	
	173/4B	0.02.00	0.02.00	--	-	
	159/0	0.38.70	0.38.70	-	-	
	158/1	0.95.30	0.95.30	-	-	
	125	-	-	-	-	
	128	-	-	-	-	
	175/3अ	0.33.10	0.33.10	-	-	
	175/3ब	0.32.90	0.3290	-	-	
	177/1/ब	0.19.60	0.19.60	-	-	
	173/4/ब	0.03.00	0.03.00	-	-	
	170/2	0.45.50	0.45.50	-	-	
	171/2	0.38.40	0.38.40	-	-	
	173/1	0.85.40	0.85.40	-	-	
	173/4/अ	0.33.90	0.33.90	-	-	
	167/1	0.47.40	0.47.40	-	-	

	167/2	0.56.60	0.56.60	-	-	
	154/2	0.63.0	0.63.0	-	-	
	156/2	0.20.50	0.20.50	-	-	
	156/3	0.14.20	0.14.20	-	-	
	190	-	-	-	-	
	106	-	-	-	-	
	63	2.00.00	2.00.00	-	-	
Vadkhal, Tal Pen	13/3	1.12.30	1.12.30	-	-	No Mangroves
	15/7	0.43.50	0.43.50	-	-	No Mangroves
	9/1	0.54.70	0.54.70	-	-	No Mangroves
	14/3/अ	0.40.50	0.40.50	-	-	No Mangroves
	7/1	0.58.60	0.58.60	-	-	No Mangroves
	13/2	0.83.00	0.83.00	-	-	No Mangroves
	13/1	0.81.70	0.81.70	-	-	No Mangroves
Beneghat , Tal Pen	80	19.22.00	-	-	-	Said land is under water. (Revenue area)
	11	1.03.90	1.03.90	-	-	Company s.no.
	12	0.59.20	0.59.20	-	-	Company s.no.
	17	0.11.10	0.11.10	-	-	Company s.no.
	20	0.11.10	0.11.10	-	-	Company s.no.
	26	0.06.80	0.06.80	-	-	Company s.no.
	29	0.04.00	0.04.0	-	-	Company s.no.
	30	0.20.30	0.20.30	-	-	Company s.no.
	34	0.20.50	0.20.50	-	-	Company s.no.
	37	0.46.80	0.46.80	-	-	Company s.no.
	38	0.36.60	0.36.60	-	-	Company s.no.
	4	0.31.40	0.31.40	-	-	Company s.no.
	40	0.26.60	0.26.60	-	-	Company s.no.
	45	1.03.40	1.03.40	-	-	Company s.no.
	47	0.51.10	0.51.10	-	-	Company s.no.
	48	0.13.40	0.13.40	-	-	Company s.no.
	5	0.33.60	0.33.60	-	-	Company s.no.
	51	0.14.70	0.14.70	-	-	Company s.no.
	6	0.35.90	0.35.90	-	-	Company s.no.
	61	0.52.90	0.52.90	-	-	Company s.no.
	65	0.71.00	0.71.00	-	-	Farmer s.no. Private s.no.
	67	0.85.70	0.85.70	-	-	-
	76	0.33.40	0.33.40	-	-	-
	77	0.65.00	0.65.00	-	-	-
	79	0.46.00	0.46.00	-	-	-
	10	0.67.00	0.67.00	-	-	Farmer holder
	18	071.10	0.71.10	-	-	Farmer holder
	21	0.12.90	0.12.90	-	-	Farmer holder
	24	0.01.80	0.01.80	-	-	-
	28	0.07.60	0.07.60	-	-	-
	3	0.72.80	0.72.80	-	-	-
	36	0.30.30	0.30.30	-	-	-
	39	0.54.90	0.54.90	-	-	-
	41	0.31.90	0.31.90	-	-	-
	46	0.23.30	0.23.30	-	-	-
	49	0.13.00	0.13.00	-	-	-
	55	0.74.60	0.74.60	-	-	-
	56	0.39.50	0.39.50	-	-	-
	57	0.12.90	0.12.90	-	-	Private Area
	69	0.17.20	0.17.20	-	-	Private Area
	7	0.53.40	0.53.40	-	-	Private Area
	70	0.19.00	0.19.00	-	-	Private Area
Kharchirbi, Tal	31/1	0.20.90	0.20.90	-	-	Yashoda Narayan Bhoir

Pen	32/1	0.36.60	0.36.60	-	-	Suryakant Babu Kothekar
Kharmachela, Tal Pen	88/1	0.90.00	0.90.00	This area is near creek. Mangroves are visible to the west site of this area. Adjoining to creek.	-	Bhimsen Vidhoba Mhatre
	61/2	0.43.50	0.43.50		-	Pradeep Kashinath Kothekar
	73/2	0.86.90	0.86.90		-	Ganesh lakhama Kothekar
	39/0	0.41.00	0.41.00		-	Balaram Lakhama Rodekar
Khajambhela, Tal Pen	13/1/B	0.34.80	0.34.80	-	-	Gopinath Hiru Patil
	13/1/A	0.35.00	0.35.00	-	-	Tukaram Hiru Patil
	48/2/B	0.35.60	0.35.60	-	-	Suhas Kesarinath patil
	6/A/2	0.55.60	0.55.60	-	-	Pradeep Dharmaji Mokal
	7/0	0.59.40	0.59.40	To the west of this fill, small and big new footve of mangroves species are seen.	-	Rama Ganpat Jambhulkar
	48/1	0.29.00	0.29.00	-	-	Atul Babu Patil
Kharghat, Tal Pen	-	-	-	-	-	-

3. **Resources Scientist and Head, Maharashtra Remote Sensing Application Centre (MRSAC) and The Director,National Centre for Sustainable Coastal Management, Chennai has submitted following report vide letter dated 05/07/2022**

Joint Report by MRSAC and NCSCM Satellite Remote Sensing based study of Mangrove and Creek Loss with Respect to Hon'ble NGT Order dated 27.05.2021 in the matter OA No. 165 of 2020 Smita Rajendra Patil Vs. Jindal Steel Works Limited. & Others.

1. **Background**:

The Hon'ble NGT vide order dated 27.05.2021 constituted a five member Joint Committee. The meeting of this comittee held on 19.11.2021 has decided to constitute a Sub-Committee headed by the District Collector Raigad. Maharashtra Remote Sensing Application Centre (MRSAC) has been nominated as the member of this Sub-Committee by the District Collector Raigad. The meeting of sub-committee headed by District Collector held on 02.12.2021 has asked MRSAC to carry out the study of distruction of creek and mangrove in JSW plant, jetty and conveyor belt area. Accordingly, MRSAC has taken up the study by using high resolution satellite data as suggested by the Joint Committee meeting held on 19/11/2021. In the same meeting, it has been collectively decided that the assessment be carried out w.e.f. Sept. 2010 and May 2021.

MRSAC has already done the mapping of creeks and mangroves for this area using high resolution satellite data of June 2011. Since MRSAC do not have high resolution satellite data of Sept. 2010, the nearest data available was of June 2011 therefore, it has been taken as baseline data for change analysis with respect to mangroves and creeks in and around JSW plant, Jetty and Jonveyor belt only. For the study of distruction of creek and mangroves within and around M/s. JSW plant, high resolution satellite data of year 2021 is used. The mapping of mangroves and creeks has been done for the year 2021 and change analysis in GIS carried out with respect to the same classes mapped for the year 2011 to workout the loss of mangroves and creek.

2. **Study of Mangrove and Creek:**

The distruction of mangroves and creek has been mapped by studing the colour, tone, texture and association found on FCC of high resolution satellite images of 2011 and 2021. The outcome of the study in the form of maps overlaid with cadastral boundaries has been shown in Fig-1, Fig-2, Fig-3, Fig.-4 and Fig-5 in Appendix-1 . The area loss of mangroves and creek are given in Table-1.

Fig.1: Creek and mangrove status map of the year 2011

Figure-1 shows the status of creek and extent of mangrove observed in the month of June 2011. This mapping was already done by MRSAC using high resolution satellite data with spatial resolution of 50 cm. The same has been used as the baseline status of mangrove and 2 | P a g e creek for the year 2011. Mangroves were seen all along the Dharamtar creek, northern part of Dolvi village and western part of Khar Devali village. Also mangroves were identified near present conveyor belt and Jetty.

Fig.2: Creek and mangrove status map of the year 2021

Figure-2 shows the extent of mangrove and creek for the year May 2021. These features were mapped using high resolution satellite image with spatial resolution of 60 cm. available with MRSAC. Overall the mangrove were identified in all the areas as were seen in the year 2011 i.e. along the Dharamtar creek, northern part of Dolvi village and western part of Khar Devali village.

Fig. 3: Change in mangrove area from 2011 to 2021

Figure-3 shows the spatial changes in mangrove cover in the study area during the year 2011 and 2021 respectively. Loss of mangrove is shown in red colour in the map. During ground truthing and on inquiry at the site, it was observed that large area near conveyor belt is occupied by dumping of domastic and soild waste, due to this there was significant loss of mangrove.

Fig. 4: Change in Creek area from 2011 to 2021

This map is a comparison of year 2011 and year 2021 status of creek in the study area. From the satellite images it can be seen that there is loss in creek area within the plant premises and its course is seen to be changed over a period of time. However, during ground truthing, the tidal flow were observed in the creek at various locations.

Fig. 5: Change in 50 meters mangrove buffer area

A per CRZ notification 2011 and the minutes of third meeting of Joint Committee held at Alibag on 11th April 2022, a 50 meter buffer drawn on the mangrove extent of year 2011. The spatial extent of conveyor belt has been mapped from 2021 satellit image. Overlay analysis of 50 meter mangrove buffer area and conveyor belt has been carried out. The results show that conveyor belt has crossed over the buffer area which is shown in the map. The area covered by conveyor belt are shown in Table-2. Fig-6, Fig-7, Fig-8, Fig-9 and Fig-10 of Appendix-2 depict the progress of construction the Conveyor belt during 2015, 2016, 2017, 2018 and 2021, through Google Earth images.

Table-1 : Loss of creek, mangrove and mangrove 50 meter buffer area:

Sr.No.	Ecosystem	Area Loss (Ha)
1	Creek	0.59
2	Mangrove	2.25

3. Assessment of violations of provisions of CRZ Rules and CRZ clearance conditions by M/s JSW w.r.t. construction of conveyor belt and development/ expansion/ operation of jetty (w.e.f. September, 2010 to May, 2021).

Status of compliance:

In the CRZ Recommendation issued by Maharashtra Coastal Zone Management Authority (MCZMA) for expansion of the existing jetty facility, vide their letter No. CRZ-2014/CR-41/TC4 dated 24.02.2015, it is stipulated that Prior High Court Permission should be obtained if the project activities involve clearing/destruction of mangroves due to the project and if the project activities fall in 50 m mangrove buffer zone area. The same has been reiterated at Sl. No. (xii), page 4 of the Environment and CRZ Clearance issued by the Ministry of Environment, Forest and climate Change dated 26.11.2015, for expansion of the Dharamtar Jetty facility.

The amended Environment and CRZ Clearance was issued by MoEFCC for construction of additional conveyor belts/streams in respect of expansion of the Dharamtar Jetty facility, vide MoEF&CC OM No. F. No. 11-79/2013-IA-III dated 10.01.2020. The condition imposed in para 3 of the said EC & CRZ clearance is that the said activities (conveyor belt and transmission line) should not be proposed in mangroves or its 50 m buffer zone. The same condition is given in the recommendation of MCZMA issued under MCZMA letter No. CRZ-2018/CR293/TC-4 dated 16/02/2019, citing 17th September, 2018 High Court order in PIL 87/2006, that no activities should be carried out in mangroves or its 50 m buffer zone. Further, as per the CRZ Notification, 2011, the 50 m mangrove buffer zone area is classified as CRZ-IA.

From the analysis of the satellite images, it is seen that the conveyor belt has been constructed in the mangrove areas as well as in the 50 m buffer zone around mangroves. The mangrove buffer areas have also been utilised for other development/ expansion/operation of jetty. Fig-6, Fig-7, Fig-8, Fig-9 and Fig-10 of Appendix-2 depict the progress of construction the Conveyor belt during 2015, 2016, 2017, 2018 and 2021, with part of the Conveyor belt falling in mangrove as

well as 50 m mangrove buffer areas. This is also evident from Fig-6 showing the construction of the Conveyor belt during November, 2015 and Fig-3 showing the loss of mangroves (in red colour) at the same Conveyor belt site. Fig-5 of Appendix-1 also depicts the status of the Conveyor belt in the year 2021, with part of the Conveyor belt falling

in the 50 m mangrove buffer areas. Field photographs showing Conveyor belt over mangrove and mangrove buffer area are at Appendix-3.

Similarly, it is seen from Fig-1 to Fig-5 of Appendix-1 that the mangrove buffer areas have also been utilised for other development/ expansion/ operation of jetty. Details of the 50 m mangrove buffer areas utilized for construction of the Conveyor belt and Jetty during the years 2011 – 2021 are given below.

Table 2: Construction of the Conveyor belt and Jetty over the mangrove buffer area, during the years 2011 – 2021

Sr. No	Conveyor belt /Jetty	Mangrove buffer Area Loss (Ha)
1	Extent of conveyer belt over mangrove buffer area	1.52
2	Extent of Jetty area over mangrove buffer area	0.79

From the above, it is seen that the respondents (M/s JSW) have violated the provisions of the CRZ Rules and the CRZ clearance conditions w.r.t. construction of conveyor belt and development/ expansion/ operation of jetty.

4. **Range Forest Officer (Mangroves Cell) Alibag vide letter dated 03/03/2022 has submitted report as follows-**

The meeting of sub-committee dated 02.12.2021 was held as per the order dated 25.05.2021 passed by NGT, New Delhi in application no. 165/2020 filled by Smt. Samita R. Patil. The report dated 1.02.2022 has been submitted as per directions given in minutes of the said meeting. However, Collector Raigad vide order dated 18.02.2022 has directed to submit this additional report and accordingly this report is hereby submitted as follows-

The GPS survey and site inspection is carried out within the area of JSW Company, Dolvi on 05.01.2022 along with mangroves cell staff and Range Forest Officer, Alibag and Wadkhal and officers of JSW Company. Also conducted joint visit along with the officer of MRSAC on 23/01/2022. Accordingly and as per the report dated 11.02.2022 and 28/02/2022 sparse mangroves are destructed during year 2011 to 2021 in the surrounding area of the conveyor belt. The said conveyor belt is passeing through villages Wave and Dolvi and large amount of solid waste is dumped near said

conveyor belt at Dolvi. On enquiry, it has been found that said solid waste is dumped by 03 Grampanchayats and due to which mangroves are destroyed . If said solid waste is removed, mangroves can be replanted. There also appeared dense mangroves adjoining creek land in villages Jui Bapuji, Dolvi, Kirki, Wave, and Beneghat. As per MRSAC plan, said mangrove area is formed recently. It has been informed by local fishermen and farmers that said area is formed in last 15 to 20 years due to accumulation of alluvial soil by cyclones however some mangroves are also been destroyed by washing out shoreline soil due to cyclones. It has been noticed that some low-dense mangroves are destroyed near compound wall of the company.

It appears from MRSAC map and actual survey that the width of creek near company area has been reduced during year 2011 to 2021 and destruction of mudflat is also found at villages Beneghat and Wave and it is observed that some port of mud flat has been converted in to Mangroves.

The destruction of mangroves and mudflat is as follows-

Sr.No.	Natural Institution/ Resource	Area of loss
1	Natural Creek	0.77 H.R
2	Sparse Mangroves	4.85 H.R
3	Mudflat	0.68 H.R

Proceeding Point no.2 :- Status of encroachment over natural creeks and channels due to various developmental/expansion activities carried-out by M/s JSW including jetty areas(w.e.f. September, 2010 to May, 2021).

With reference to above mentioned point, the Director, National Centre for Sustainable Coastal Management, Chennai, Range Forest Officer (Mangrove Cell), Alibag, Resources Scientist and Head, Maharashtra Remote Sensing Application Centre(MRSAC), Sub Divisional Officer Alibag, and Sub Divisional Officer, Pen have submitted their reports as follows-

1. **Report of Sub Divisional officer Alibag :-**This report is described in point No. 01 (01) of the minutes of meeting.
2. **Report of Sub Divisional Officer Pen :-** This report is described in point No. 01 (02) of the minutes of meeting.
3. **The Director, National Centre for Sustainable Coastal Management,Chennai and Resources Scientist and Head, Maharashtra Remote Sensing Application Centre (MRSAC) :-**This report is described in point No. 01 (03) of the minutes of meeting.
4. **:-The Range Forest Officer (Mangrove Cell), Alibag :-**This report is described in point No. 01 (04) of the minutes of meeting.

Proceeding Point no.4 :-Assessment on illegal dumping of by-products/waste products i.e. slag generated by M/s JSW on mangrove areas, natural drains/nalas and also on agriculture lands in & around alleged villages (viz. Kharmachi, Kharkaravi, Juibapuji, Dolwi, Kharchirbi, Wadkhal, Vave, Kolve etc. situated within Taluka Pen). Also, on agricultural land/private lands/Govt. lands in & around alleged villages (viz. Gadab, Beneghat, Khardombi, Kharjambhela and Kharghat), (w.e.f. September, 2010 to May, 2021).

II) Assessment of illegal dumping of by-products/waste products i.e. slag generated by M/s JSW on agricultural lands in the aforesaid alleged villages.

III) Assessment of illegal dumping of by-products/waste products i.e. slag generated by M/s JSW on agricultural lands in the aforesaid alleged villages.

IV) Collection of soil samples from various locations of the above areas and also suitable reference soil samples (from unaffected area) and their analysis for relevant parameters including Boron and Sodium.

V) Compilation of year wise crop productivity data and assessing its trend (w.e.f. September, 2010 to May, 2021). In case, the aforesaid areas affected in terms of soil fertility/ agricultural productivity, then estimation of extent of environmental damage, remedial measures & restitution plan and the amount of compensation as applicable :-

With reference to point no. 04 (II to V) District Superintendant of Agriculture, Raigad-Alibag has submitted his report dated 06.07.2022 as follows:-

Assessment of illegal dumping of by - products / waste products i.e.slag generated from hot strip mill , blast furnace etc. on agricultural land in surrounding areas of the industry and in villages (viz . Kharmachi , Kharkaravi , Juibapuji , Dolwi , Kharchirbi , Wadkhal , Vave , Beneghat , Karav , Khardombi , Kharghat , Kharjambhela , Kolve , etc. total thirteen villages situated within Taluka Pen and Alibag)

i) The report received from Taluka Agriculture officer , Pen is attached here in annexure 1. As per revenue records , the cultivable area of 12 villages of Pen taluka is 1222.11 ha . In these 12 villages reconnaissance survey has been done by talathi's . The report is attached here in annexure 2. The report shows that , out of cultivable area of thes villages dumping has been done on 56.34 ha. area with consent of concerned farmers. As per Talathi's 7/12 records , no cultivation has been observed in Kharjambhela , Kharghat . Kharthombi and Kharmachi villages of pen taluka since 2018. The cultivated (Pik pera) area of these 12 villages in year 2021-22 is 229.97 ha. The remaining 935.80 ha. area is

affected due to salty creek water. The survey has been done randomly on adjoining dumping area by team of agriculture assistant and talathi's . It's report is attached in annexure 3. It shows that 13.68 ha . area is highly affected due to continuous tide water . The remaining 922.12 ha , area is also similarly affected due to salty creek water . Hence this area is not under cultivation at present .

In Juibapuji village of Alibag taluka about 98.708 hecter land is owned by JSW company and only one hecter land (including one farm pond) owned by individual (2owners) farmers and this agriculture land is severely damaged due to high and frequent tide water and hence rice cultivation cannot be done there since 2006-07. The 8A form of Juibapuji village is attached in annexure 4 .

ii) Collection of soil samples from various locations are physically taken and analyzed in soil testing laboratory . The comparative analysis of these soil samples with reference soil samples of unaffected area is shown in annexure 5 .

It shows that the soil has become highly alkaline due to continuous inflow of salty creek water into agriculture land . Its pH and EC have been increased beyond normal levels . Such alkaline condition is harmful to all type of crops . It also shows that the availability of Nitrogen in this soil is reduced by 25-60 kg / ha , availability of phosphorus and potash in affected area is at par with reference soil samples . It also shows that Boron and Sodium levels are highly increased in all areas which adversely affects plant growth .

iii) Agriculture department has taluka wise crop productivity data of Pen and Alibag taluka since the year 2000 and it is attached in annexure 6. The crop productivity data of the specific villages is not available but the data of revenue mandals wherein these villages are coming under ie . (Pen -Kasu . Washi mandal) and (Alibag - Poynad mandal) is available since 2014-15 and it is attached in annexure.7 . As crop cutting experiments are done at mandal level, no specific conclusion can be drawn about villagewise productivity . But the comparison of average productivity of concern mandals with respective taluka productivity average shows that the productivity of rice crop of the mandals is less by 2 to 5 quintals per hectare since2018-19 .

iv) Comparison of analysis of soil sample showed that the increased pH and EC level has made the soil alkaline in nature and hence unfertile for rice cultivation. The comparison of crop productivity data shows that it has reduced the productivity by 10 to 20 percent as compared with taluka and district respectively .

v) Remedial measure :-1. The construction or scheduled repairs and maintenance of bunds must be done, so that tide water will not affect agriculture lands in adjoining areas .

2 Promotion of plantation of citronella , babhhol , bamboo , lemon grass and medicinal plants , mangroves and Cypress (Suru) Plantation .

3. Promotion of farm ponds for fish, crab and other marine produce rearing and promotion of their processing units .

vi) Restitution Measures -As the frequent tides will further keep affecting adjoining agriculture lands, the construction or scheduled repairs and maintenance of bunds must be done .

vii) Amount of Compensation to be given-

As per Govt . of Maharashtra resolution dated 13.05.2015, the govt . assistance for crop damage due to Natural Calamity is given at the rate of Rs . 6800 per ha . But in this case assistance should be fixed on basis of crop productivity of concerned revenue mandal and minimum support price of rice in that year .

Proceeding Point no.5 :-Assessment on damage of Kharbandisti bandh (if any) due to activity of M/s JSW. Also, status report including extent of salt level in the agricultural fields and areas affected, and estimation of extent of land damage, remedial measures & restitution plan and the amount of compensation (w.e.f. 1990 till May, 2021 or afterwards).

I) Examining alleged incidence of 03/01/2015 by the Tahasildar, Pen, as referred at Para 2 at page no. 4 of the order dated 27/05/2021 of the Hon'ble NGT.

With reference to above mentioned point Executive Engineer, Kharbhumi Sarvekshan Department, Pen and Regional Port Officer, Mora Port Group Thane, Maharashtra Maritime Board have submitted their reports as follows-

1. **Executive Engineer, Kharland Survey Department, Pen has submitted his report dated 07.07.2022 as follows :-**

Alleged incidence of 3/01/2015 by the as Tahsildar, Pen as reffered at Para 2 at page no. 4 of the order dated 27/05/2021 of the the Hon'ble NGT is related to Machela Chirbi & Jui Habbas Kharland Scheme.

The damage caused to Machela Chirbi & Jui Habbas Kharland Schemes Bunds are mainly due to excessive rains & high tides resulting in breaches of bund and damage to sluice gate and lack of proper maintenance due to insufficient funds resulting in ingress of saline water in the adjoining agricultural land.

As restitution & remedial measures department also takes works under CSR funds. As per the request of villagers, the repair work of Machela Chirbi Kharland Scheme has been Completed by JSW steel Ltd in year 2020 through CSR funds and the same has been appreciated by the villagers / beneficiaries in writing.

The repair work of Jui Habbas Kharland Scheme has been Started by JSW steel Ltd through CSR funds.

2. **Regional Port Officer, Mora Port Group Thane, Maharashtra Maritime Board has submitted his report dated 05.01.2022 as follows :-**

1. It is mentioned that Khar bunds at villages Machela Chirbi and Jui Habbas are damaged. However, there is no navigation of ships and barges in said area and no excavation for navigation purpose is carried out for increasing/ maintaining depth of creek channel.

2.With reference to damage of Khar bunds due to pressure of water created by cargo ships of the J.S.W company, no such incidence or circumstances found. In this regard the port inspector, Dharamtar has submitted has inspected said site on 18/11/2020 and submitted his report to this office.

3. The excavation is not carrying out in entire Dharamtar Creek but only in 135 mtrs wide navigation channel as per the guidelines of the government issued for the purpose of easing navigation channel. And for this purpose the permission from Maharashtra Maritime Board has been taken from time to time. Dharamtar Creek is declared as Indian Waterway.

4. Apart from self controlled jetty of the J.S.W Dharamtar port Pvt Ltd., the navigation of Barg, MBC's from Dharmatar Creek and handling of cargo/goods is also done through the multi purpose jetty of PNP Maratime Services Ltd..

II) **Status report including extent of salt level in the agricultural fields and areas affected :-**

This report is described in point No. 04 (ii to v) of the minutes of meeting as per letter of District Superintendant of Agriculture, Raigad-Alibag dated 06.07.2022.

Proceeding Point no.7 :-Assessment of violations of provisions of CRZ Rules and CRZ clearance conditions by M/s JSW w.r.t. construction of conveyor belt and development/expansion/operation of jetty (w.e.f. September, 2010 to May, 2021).

With reference to above mentioned points Range Forest Officer (Mangrove Cell) Alibag, The Director, National Centre for Sustainable Coastal Management, Chennai, MRSAC, Sub Divisional Officer Alibag and Pen have submitted their reports as follows-

1. **Range Forest Officer (Mangrove Cell), Alibag :-**
   This report is described in point No. 01 (04) of the minutes of meeting.
2. **The Director, National Centre for Sustainable Coastal Management, Chennai and Resources Scientist and Head, Maharashtra Remote Sensing Application Centre (MRSAC) :** -This report is described in point No. 01 (03) of the minutes of meeting.
3. **Report of Sub Divisional Officer, Alibag :-**This report is described in point No. 01 (01) of the minutes of meeting.
4. **Report of Sub Divisional Officer, Pen :-** This report is described in point No. 01 (02) of the minutes of meeting.

Proceeding Point no.11:- Health impact assessment on residents nearby to the plant premises within 5 Km. based on the health records due to industrial activity especially w.r.t. particulate matter and gaseous emissions (SO2, NOx, PM, CO and BaP) (w.e.f. September, 2010 to May, 2021).

With reference to above point District Health Officer, Raigad Zilha Parishad, Alibag has submitted his report dated 18.01.2022 as follows :-

1) We have collected annual medical health checkup data of 499 workers / employees working in Jindal Steel Works Ltd. & Ors . coke oven plant (Annexure A).

2) We have also performed medical examination of coke oven plant workers / employees with respect to respiratory health hazards. (Annexure B)

3) As per Company administration's statement coke oven plant was started Since 2016. , So we have collected annual medical health checkup data of 499 employees with respect to Respiratory health hazards of coke oven plant from Jindal Steel Works Ltd. & Ors . from year 2016 to 2021. (As data from 2010 to 2015 is not available).

4) After analyzing the annual medical health checkup data of (2019) with respect to respiratory health hazards Pulmonary function test of 457 out of 499 (91.5 %) employee's was within normal range. (upto> 80%) and Pulmonary function test of 42 (8.5 %) employee's was not within normal range and all were tobacco chewers and cigarette smokers.

5) We received 499 employees list of coke oven plant from Jindal Steel Works Ltd. & Ors. As per sub-committees instruction dated 02.12.2021 we performed medical checkup with respect to respiratory health hazards. We randomly selected 50 employees and performed Pulmonary function test (PFT) , out of that 42 (84%) employee's Pulmonary function test was within normal range (> 80 %) and 8 (16 %) employees Pulmonary function test was not within normal range (>75%).

After analyzing the annual medical checkup data of employees from 2016 to 2021 and our randomly selected medical examination data with respect to respiratory health hazards, it is observed that near about (7.5%) health impact with respect to respiratory health hazards was found in those employees working in coke oven plant in Jindal Steel Works Ltd. & Ors.

As per industrial health and safety (Factory ACT 1978) it considered as permissible occupational health hazards.

Observations

- Out of 499 employees working in coke oven plant 457 (91.5 %) were having normal PFT (> 80%) and 42 (8.5%) were having abnormal / deranged PFT i.e <80%
- With reference to subcommittee's instruction dated 02.12.2021 District Health Office Raigad Health Team visited the plant and randomly carried out PFT of 50 out of 499 employees it was observed that 42 (84%) out of 50 employees were having normal PFT (> 80 %) and 8 (16 %) were having impaired / deranged PFT (< 80 %) i.e having respiratory health hazards
- Comparison of health hazards of coke oven plant in 2019 (8.5 %) and in 2022 (16 %) show (7.5 %) rise in health hazard effects on employees of coke oven plant in Jindal Steel Works Ltd. & Ors . As per (Factory ACT 1978) are within permissible occupational health hazards.

Proceeding Point no.12:-Loss in fish catch/productivity due to navigation of ships in the Dharamtar creek around M/s JSW: Compilation of year wise fish catch/productivity data and assessing its trend (w.e.f. September, 2010 to May, 2021).

With reference to above point Assistant Commissioner of Fisheries has submitted his report dated 02/06/2022 as follows :-

Report on The Effect on Fishery of Dharamtar Creek

There are 11 fisheries co-operative societies near Dharamtar creek in Raigad district. These organizations depend on fishing Dharamtar Creek. Under Govt.Order Matsyavi-1113 / Pr.No.307 / Padum-14 dated 9/7/2014 a committee has been set up to study the problems of Dharamtar creek fishermen in the Raigad district. This committee deals with the Industrial projects near the creek and their effect on fish availability.

The functions of the committee are as follows.

1. To study whether the livelihood of the fishermen has been exhausted due to the jetty of 2 companies in Dharamtar Estuary.

2. To check and determine the extent of fisheries in the creek due to shipping in Dharamtar creek.

3. Number of affected fishing families and losses incurred

4. To check effects of Industries on Dharamtar Estuary as well as on the coast of the State.

5. To suggest permanent measures in case of adverse effects on the fisheries in the creek due to shipping in Dharamtar creek and discharge of industrial effluent in the creek.

6. Fish species affected by pollution and measures to be taken for their conservation.

Since the formation of the committee, 8 meetings have been held till date and at once all the committee members have been jointly visited in Dharamtar Estuary. In addition, a declaration of 1937 fishermen from the Dharamtar Creek region has been obtained.

On 2/12/2021 The Collector has directed to submit a report on the decline in fishing in Dharamtar Estuary in the district. However, due to lack of funds, the work of the committee has not been completed.

Revenue production reports of eleven organizations of Dharamtar Creek were requested to submit. This information has been obtained from the offices of District Special Auditor Class-II, Co-operative Societies (ADF), Thane and related organizations. From the reports we can conclude that revenue generation of eight institutions declined. A report is being submitted to you for further action.

The following is the details of the revenue received from the fishery by the co-operative societies near Dharamtar Estuary. This amount is in rupees and is the revenue received by the organization from the sale of fishing.

Revenue received from fishing in Dharamtar Estuary area

Sr. No.	Name fisheries co-operative society	Place of Society	Tahsil	Revenue obtained from Fish Sale in Rs.				
				2015-16	2016-17	2017-18	2018-19	2019-20
1	Bahireswar Fisheries Co-operative Society	Dherand	Alibag	18,95,000	19,37,250	19,91,000	25,40,950	21,61,500
2	Vighnaharta Fisheries Co-operative Society	Mothe Shahapur	Alibag	35,01,000	34,32,000	9,29,800	14,70,000	8,65,200
3	Maridevi Fisheries Co-operative Society	Dhakate Shahapur	Alibag	0	0	10,89,400	21,72,500	7,71,750
4	Kasumata Fisheries Co-operative Society	Shahabaj	Alibag	31,50,000	10,10,000	12,60,000	20,43,200	19,74,000
5	Maheswar Fisheries Co-operative Society	Kovale	Pen	7,300	0	15,100	4,900	4,800
6	Raje Shivkalyan Fisheries Co-operative Society	Beneghat	Pen	41,24,000	26,58,100	10,50,000	25,73,000	21,78,078
7	Vijay Mhasoba Fisheries Co-operative Society	Shirki Chal no.2	Pen	0	0	3,37,900	57,000	16,680
8	Juibandar Fisheries Co-operative Society	Jui	Pen	9,88,000	0	9,02,500	8,74,500	7,13,625
9	Daryavarti Fisheries Co-operative Society	Ghodabandar	Pen	0	0	0	16,500	25,080
10	Amba Bhavani Fisheries Co-operative Society	Mothe Bhal	Pen	16,74,500	1,50,000	90,000	3,31,866	2,22,462
11	Shri Ganesh Fisheries Co-operative Society	Benvale Bedi	Pen	0	0	0	6,200	0

From above information we can conclude that revenue from fisheries of Sr. No. 2, 3, 4, 5, 6, 7, 8 & 10 Fishermen's Co-operative Societies is decreased compared to 2015-16. However, it will not be possible to give a definite report on the decline of fish availability due to pollution of companies or movement of companies' barges or any other reason. Government Resolutions and Government Supplementary Letters regarding this Cimmittee are being attached. .

Proceeding Point no.13:- Status of compliance of order dated 6 th October, 2005 of the Hon'ble Bombay High Court in a group of Petitions bearing W.P.No.3246 of 2004.

i. Total freeze on the destruction and cutting of mangroves in the entire State of Maharashtra.

ii. All construction and rubble/garbage dumping on the mangrove areas shall be stopped forthwith.

iii. Regardless of ownership of the land, all construction taking place within 50 metres on all sides of all mangroves shall be forthwith stopped.

iv. No development permission whatsoever shall be issued by any authority in the state of Maharashtra in respect of any area under mangroves.

v. The state Government and the Maharashtra Coastal Zone Mangement Authority (MCZMA) are directed to file monthly report on the above action plan to this Court. The first report will be submitted within four weeks from today. The report shall specifically state, in aditions to the progress/ action taken, (a) the number of complaints received, if any, (b) the action taken there on if any, (c) the number of offenders named, and (d) the details of prosecutions/ action launched / taken against such offenders.

13 (v) :- In this regard this office vide letter dated 25.01.2022 has informed Senior Engineer, Environment Central Pollution Control Board, Pune to take report from The Maharashtra Coastal Zone Management Authority (MCZMA) which is notunder control of Collector Raigad.

ix After the aforesaid process in clause (viii) is completed, the areas so identified which are government owned shall be declared and notified as protected forests in accordance with law after carrying out ground survey etc. The areas so identified that are privately owned shall be declared and notified as forests, in accordance with law, after carrying out grounds survey etc. The said declaration/ notification will be completed within a period of 8 weeks of the completion of Phase II mapping.

x. The mangrove areas that are on government owned lands will be handed over to the Forest Department within a period of 12 weeks from the declaration of the same as protected forests.

xi. From the list of mangrove areas so identified, Government owned lands will automatically be declared/ notified as protected forests Likewise, privately owned lands from the list of mangrove areas so identified, the same will be declared/notified as forests.

xii. The Secretary, Revenue Department, shall from the said date of taking over possession of the Government owned land by the Forest Department, update all the revenue records to ensure that the said Government lands are shown as protected forests in the said revenue records within a period of 12 weeks from the same being declared as protected forests. In the case of lands that are private owned, the secretary, Revenue Department, shall update all the revenue records to ensure that the said private lands are shown as forests in the said revenue records within a period of 12 weeks of completion of the steps in clause (x) above;

xiii. In respect of Government lands, the Forest Department and other authorities of the State of Maharashtra shall take the following necessary steps of protection, conservation and regeneration of the areas that would be declared/notified as protected forests: in terms of clause (x) above;

a. Removal of all obstructions that are impeding the growth of mangroves as also the impediments which restrict the flow of sea water in the mangrove areas;

b. Wherever mangrove growth is found to be sparse and denuded (i.e. with forest density less than 0.4 which means canopy less than 40%) within these identified areas, taking necessary steps for rejuvenation;

c. On identification of the areas as forest, the Municipal Corporation of Greater Mumbai would remove garbage and debris within these areas within period of three months as per the instructions of the Forest Department. These areas shall be rejuvenated with mangroves;

d. The Forest Department is directed to take necessary action against the offenders in accordance with law for damaging or destroying mangroves.

Report with respect to above point no. 13 is as follows-

A)<u>Range Forest Officer (Mangrove Cell), Alibag</u> :-

This report is described in point No. 01 (04) of the minutes of meeting.

B) <u>Sub Divisional Officer Alibag vide letter dated 01.10.2021 has submitted his report as follows:-</u>

i. Sub Divisional Officer, Alibag has filled Criminal case number 85/2020 dated 05/10/2020 before Hon. Chief Judicial Magistrate Raigad-Alibag against J.S.W company Ltd.. Dolvi, Tal Pen under section 19 of the Environment (Protection) Act 1986 for illegal destruction of mangroves in land bearing survey no. 50/D situating at village Jui Bapuji, Tal Alibag without taking any prior permission from the competent authority.

ii. The final notification under section 20 of the Indian Forest Act 1927 has been published in government gazette dated 05.03.2021 and area

admeasuring 0.50.0 H.R. out of land bearing gut no. 50/D situating at village Jui Bapuji, Tal Alibag has been declared as Reserve Forest. This area is in possession of the forest department.

iii. In this regards, J.S.W company pvt. Ltd.. Dolvi, Tal Pen has submitted review application to tahasildar Alibag praying for correction in record of rights pertaining to land bearing gut no. 50/D situating at village Jui Bapuji, Tal Alibag and Tahasildar Alibag vide order dated 03.06.2021 has directed to close 7/12 extract of land bearing gut no. 50/D having area 1.84.0 H.R. and there by creating 7/12 extract of land bearing 50/F having area 1.84.00 H.R. in the name of Khajan and Mahrashtra Govt. reserved forest. Presently 7/12 extract of land bearing gut no. 50/D of area 1.84.00 H.R is closed and out of land bearing gut no. 50/F area admeasuring 1.34.00 H.R. is mutated as Khajan land and area admeasuring 0.50.0 H.R. is mutated as Mahrashtra Govt. reserved forest.

C) <u>With reference to Area notified as Mangroves : -</u>

The final notification under section 20 of the Indian Forest Act 1927 has been published in government gazette dated 20.01.2021 by Revenue and Forest department, Government of Maharashtra and thereby declared area admeasuring 242.1230 H.R. out of mangrove area of govt. land in Taluka Pen, Dist. Raigad as Reserve Forest.

Similarly vide letter of this office dated 03/01/2022 area admeasuring 72.9441 H.R. out of remaining government land under mangroves situating in Taluka Pen District Raigad has submitted draft of notification for declaration under section 4 of the Indian Forest Act, 1927 to Hon'ble Divisional Commissioner, Konkan Division, Konkan Bhavan.

The final notification under section 20 of the Indian Forest Act 1927 has been published in government gazette dated 05.03.2021 by Revenue and Forest department, Government of Maharashtra and thereby declared area admeasuring 409.2916 H.R. out of mangrove area of govt. land in Taluka Alibag, Dist. Raigad as Reserve Forest.

Similarly vide letter of this office dated 03/01/2022 area admeasuring 228.8281 H.R. out of remaining government land under mangroves situating in Taluka Alibag District Raigad has submitted draft of notification for

declaration under section 4 of the Indian Forest Act, 1927 to Hon'ble Divisional Commissioner, Konkan Division, Konkan Bhavan.

D) Total Mangrove Notified Area Of Protected Forest in Raigad District :-

An area admeasuring 2302.8501 H.R. of the government mangrove land situating in Raigad district has been notified as Reserved Forest under section 20 of the Indian Forest Act, 1927. Similarly draft of notification for declaration under section 4 of the Indian Forest Act 1927 pertaining to remaining 3842.3926 H.R. government land under mangroves in Raigad District has been submitted to Hon'ble Divisional Commissioner, Konkan Division, Konkan Bhavan.

Land under the Conveyor belt belongs to Govt. and years together grampanchayats have been using the said land for dumping of the waste material under and around the conveyor belt area and it is also noticed by the committee during the joint site visit.

As per the attached Hon'ble High Court Order dated 15 October 2019 the permission was given to JSW for construction of bridge which was duly recommended by MCZMA & SEIAA. The construction of bridge was started and the said construction is in companys land of survey no.93 of village Kharmachela and survey no.68 of village Kharkaravi. Other two bridges will be constructed after obtaining clearances from concerned regulatory authorities.

Collector office Raigad has instructed Sub Divisional Officer Pen to stop dumping of solid waste by 3 Grampanchayats. Tahasildar Pen has proposed 0.40.00 H.R land for dumping ground at mauje Karav, Tal Pen, Dist.Raigad for Solid waste management of Village Dolvi and Wadkhal. On the said proposal we are obtaining NOC from MPCB, GSDA, aerchology, ADTP, Forest and irrigation departments. After getting all NOC, land will be granted for dumping of solid waste.

Hence report with respect to points in minutes of meeting of Hon. Committee are submitted.

Thanking You.

(Dr.Mahendra Kalyankar)
Collector Raigad

Annexure-10

MAHARASHTRA POLLUTION CONTROL BOARD
REGIONAL OFFICE-RAIGAD

Tel. No. 2757 2620
Fax No. 2756 2132

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Navi Mumbai 400 614.
roraigad@mpcb.gov.in
http://mpcb.gov.in

No. MPCB/TB/220705-FTS-0042 Date: 04.07.2022

To,
Regional Director,
Central Pollution Control Board,
Regional Directorate – Pune,
Maharashtra.

Sub: Compliance Status Report of M/s. JSW Steel Lts., at vill. Dolvi, Tal. Pen, Dist. Raigad wrt. Hon'ble NGT order dated 27.05.2021 in the matter OA No. 165 of 2020 of Samita Patil vs. M/s. JSW Steel Works Ltd & Ors.-reg.

Ref: - 1. Minutes of Joint Committee Meeting dated 04.08.2021.
2. CPCB, RD Pune email dated 12.08.2021.
3. Part Compliance report submitted by this office dated 23.09.2021.
4. Minutes of 2nd Joint Committee Meeting dated 19.112021.
5. Site visit of Joint Committee on 11.04.2022.

Sir,

This has reference to joint committee constituted by the Hon'ble National Green Tribunal (NGT) vide order dated 27/05/2021 in the matter OA no. 165 of 2020, Samita R. Patil vs M/s Jindal Steel Works Ltd., & Ors. about violation of environmental norms by M/s Jindal Steel Works Ltd., Dolvi.

In order to comply with the aforesaid order of the Hon'ble NGT, the joint committee headed by the Joint Secretary, Ministry of Environment, Forest and Climate Change, GoI, held its meeting on 04.08.2021, 19.11.2021 and 11.04.2022.

As per minutes of meeting and subsequent emails from CPCB Regional Directorate, Pune, to submit compliance report of M/s. JSW Steel Ltd, at vill. Dolvi, Tal. Pen, Dist. Raigad. Board has prepared status report of the industry with respect to compliances of consent conditions. The said status report is submitted herewith for your information please.

It is in opinion that Environmental Compensation may be calculated jointly with CPCB on the basis of status report submitted.

(V. V. Killedar)
Regional Officer, Raigad

Enclosures: Compliance status report
Copy submitted for favor of information to :

1. The Member Secretary, MPCB , Mumbai.
2. Assistant Secretary (Technical) MPCB, Mumbai.
3. Reginal Officer (BMW) , MPCB, Mumbai.

Annexure-II

The Officials, Regional Directorate-Pune, CPCB and Officials, Regional Office, Raigad, MPCB had jointly carried out ambient air quality monitoring, stack monitoring, fugitive emission monitoring and effluent water sampling on 04.05.2022 and 05.05.2022 at following locations along with analysis results are as below.

A	**Stack Monitoring (Source emission)**	
	Stack identity	**Parameters**
1	Common stack attached to coke oven battery-I & II (Coke oven plant-1)	PM mg/Nm^3, SO_2 mg/Nm^3, NOx mg/Nm^3
2	Common stack attached to coke oven battery charging & pushing side (Ground de-dusting system of coke oven plant-1)	PM mg/Nm^3
3	Stack attached to kiln of lime calcination plant-2 (600 TPD)	PM mg/Nm^3, NOx mg/Nm^3
4	Stack attached to sinter machine & de-dusting (sintering plant-1)	PM mg/Nm^3
5	Stack attached to product discharge end & product sinter sizing house (sintering plant-1)	PM mg/Nm^3
6	Stack attached to furnace of pellet plant-I (4 MTPA)	PM mg/Nm^3
7	Common stack attached to de-dusting system-1 & 2 of pellet plant-I (4 MTPA)	PM mg/Nm^3
B	**Ambient Air Quality Monitoring (AAQM) for 24 hr.**	
	AAQM locations	**Parameters**
1	Near K.E.S. Madhyamik Vidyamandir (South, South-West of M/s. JSW Steel Ltd) Village Shahabaj, Tal. Alibag, Dist. Raigad	PM_{10}, $PM_{2.5}$, SO_2, NOx and CO
2	On Roof top of residence of Shri Dilip Kothekar (South-Eastern side of M/s. JSW Steel Ltd). Village Gadab, Tal. Pen, dist. Raigad	PM_{10}, $PM_{2.5}$, SO_2, NOx and CO
3	Near Labour colony of M/s. JSW Steel Ltd (Northside of M/s. JSW Steel Ltd) Village Dolvi, Tal. Pen, Dist. Raigad.	PM_{10}, $PM_{2.5}$, SO_2, NOx and CO
C	**Fugitive emission**	
	Locations	**Parameter**
1	Near Quenching Tower	PM_{10}
2	Coke oven area (other area)	Benzo(a) Pyrene (BaP) and CO
3	Near Coke pushing side	PM_{10}
D	Water Sampling	
	Locations	Parameters
1	Coke Oven Plant	
a	ETP Inlet	pH, SS, BOD, TDS, COD, NH_3-N, and Phenol.
b	ETP Outlet	pH, SS, BOD, TDS, COD, NH_3-N, Phenol and Cyanide.
2	Sponge Iron Plant	
a	ETP Outlet	pH, SS, BOD, Chromium, TDS, COD, Iron and Zinc.
3	Near Kasumata Temple (Western side of M/s. JSW Steel Ltd)	
a	Creek Water Sample	pH, TSS, BOD, Chromium, Phosphate, COD, NH_3-N, Phenol Iron and Zinc

A	Stack Monitoring (Source emission)			
	Stack identity	Parameters		
		TPM	SO_2	NOx
	Standards as per consent	50 mg/Nm^3	800 mg/Nm^3	500 mg/Nm^3
1	Common stack attached to coke oven battery-I & II (Coke oven plant-1)			
2	Common stack attached to coke oven battery charging & pushing side (Ground de-dusting system of coke oven plant-1)			
	Standards as per consent	100 mg/Nm^3	--	50 ppm
3	Stack attached to kiln of lime calcination plant-2 (600 TPD)	119	--	<10
	Standards as per consent	50 mg/Nm^3	--	--
4	Stack attached to sinter machine & de-dusting (sintering plant-1)	18	--	--
5	Stack attached to product discharge end & product sinter sizing house (sintering plant-1)	65	--	--
	Standards as per consent	150 mg/Nm^3	--	--
6	Stack attached to furnace of pellet plant-I (4 MTPA)	52	--	--
7	Common stack attached to de-dusting system-1 & 2 of pellet plant-I (4 MTPA)	88	--	--

JSW Steel Ltd. Results

From : sroraigad2@mpcb.gov.in
Subject : JSW Steel Ltd. Results
To : NISHCHAL C <nischal.cpcb@nic.in>
Cc : roraigad@mpcb.gov.in

Sat, Jul 02, 2022 05:43 PM

2 attachments

Sir,

Please find attached herewith the results for JSW Steel Ltd. BR-0022908 as Coke Oven Process Stack and BR-0022909 as Coke Oven Charging Stack.

This is submitted for your information please.

Regards,

R. S. Kamat
Sub Regional Officer
Raigad-2

sampleReport-29266-90348936862877025 4a8231653043237.pdf
16 KB

sampleReport-29265-17343171866287703e8bf2c1653043262 (1).pdf
16 KB

MAHARASHTRA POLLUTION CONTROL BOARD

Phone : 022-67195031
Fax : 27780684
Email :soclab@mpcb.gov.in
Website : http://mpcb.gov.in

"Your Service is our Duty"

Central Laboratory
Central Laboratory, Maharashtra Pollution Control Board, "Nirmal Bhavan", P-3, MIDC Industrial Area, Mahape, Navi Mumbai- 400 701

Repot Outward No.: MPCB/CLab/Source Emission/22-23/05/21
Date: 18/05/2022 04:40 PM

Analysis Report-Air (Source Emission)

Client/Industry/location Name & Address
JSW Steel Ltd. (Coke Oven Plant) R19 Coke making , liquefaction, coal tar distillation or fuel gas making

Sample Details	
Field Sample ID :	BR-0022908
Laboratory Sample Code :	MPCB/CLab/STK/22-23/16
Sample Details (Water/Air/HW) :	Air
Sample Volume Received :	
Sample Collected By :	FO-Raigad II (Shri. Jayant Doke) (SRO-Raigad II)
Seal No. :	251
Type of Industry / Location details :	Red
Sample Collected On :	May 4 2022 06:00:00:000PM

Sr.No	Parameter	Result	Unit	Method of analysis
1	SO2	15	mg/m3	
2	Total Particulate Matter	52	mg/Nm3	

Sr.No	Parameter	Reason	Reason Detail
1	Total Particulate Matter	Other	Final volume of flue gas is very low, however TPM results are calculated as per the data provided by FO.

Where, **NA:** Not Analysed **ND:** Not Detectable

Report Type: final

Report generated on: 2022-05-18 16:40:41

Compiled & Approved by: Sharmila Bhirud

Reviewed on Date: 18/05/2022 04:40 PM

Reviewed by: Mr Kishor Gawankar

Dr Vishwajeet R Thakur 1626
Senior Scientific Officer
I/C, Central Laboratory
Navi Mumbai

* Electronic report does not require signature

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MAHARASHTRA POLLUTION CONTROL BOARD

Phone : 022-67195031
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Central Laboratory
Central Laboratory, Maharashtra Pollution Control Board, "Nirmal Bhavan", P-3, MIDC Industrial Area, Mahape, Navi Mumbai- 400 701

Repot Outward No.: MPCB/CLab/Source Emission/22-23/05/20
Date: 18/05/2022 04:38 PM

Analysis Report-Air (Source Emission)

Client/Industry/location Name & Address
JSW Steel Ltd. (Coke Oven Plant) R19 Coke making , liquefaction, coal tar distillation or fuel gas making

Sample Details	
Field Sample ID :	BR-0022909
Laboratory Sample Code :	MPCB/CLab/STK/22-23/15
Sample Details (Water/Air/HW) :	Air
Sample Volume Received :	
Sample Collected By :	FO-Raigad II (Shri. Jayant Doke) (SRO-Raigad II)
Seal No. :	251
Type of Industry / Location details :	Red
Sample Collected On :	May 4 2022 06:00:00:000PM

Sr.No	Parameter	Result	Unit	Method of analysis
1	Total Particulate Matter	140	mg/Nm3	

Sr.No	Parameter	Reason	Reason Detail
1	Total Particulate Matter	Other	Final volume of flue gas is very low, however TPM results are calculated as per the data provided by FO.

Where, **NA:** Not Analysed **ND:** Not Detectable

Report Type: final

Report generated on: 2022-05-18 16:38:30

Compiled & Approved by: Sharmila Bhirud

Reviewed on Date: 18/05/2022 04:38 PM

Reviewed by: Mr Kishor Gawankar

Dr Vishwajeet R Thakur 1628
Senior Scientific Officer
I/C, Central Laboratory
Navi Mumbai

* Electronic report does not require signature

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1629

MAHARASHTRA POLLUTION CONTROL BOARD
REGIONAL OFFICE-RAIGAD

Tel. No. 2757 2620
Fax No. 2756 2132

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Sec-11, C.B.D. Belapur,
Navi Mumbai 400 614.
roraigad@mpcb.gov.in
http://mpcb.gov.in

No. MPCB/TB/220705-FTS-0042 Date: 04.07.2022

To,
Regional Director,
Central Pollution Control Board,
Regional Directorate – Pune,
Maharashtra.

Sub: Compliance Status Report of M/s. JSW Steel Lts., at vill. Dolvi, Tal. Pen, Dist. Raigad wrt. Hon'ble NGT order dated 27.05.2021 in the matter OA No. 165 of 2020 of Samita Patil vs. M/s. JSW Steel Works Ltd & Ors.-reg.

Ref: - 1. Minutes of Joint Committee Meeting dated 04.08.2021.
2. CPCB, RD Pune email dated 12.08.2021.
3. Part Compliance report submitted by this office dated 23.09.2021.
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5. Site visit of Joint Committee on 11.04.2022.

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This has reference to joint committee constituted by the Hon'ble National Green Tribunal (NGT) vide order dated 27/05/2021 in the matter OA no. 165 of 2020, Samita R. Patil vs M/s Jindal Steel Works Ltd., & Ors. about violation of environmental norms by M/s Jindal Steel Works Ltd., Dolvi.

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As per minutes of meeting and subsequent emails from CPCB Regional Directorate, Pune, to submit compliance report of M/s. JSW Steel Ltd, at vill. Dolvi, Tal. Pen, Dist. Raigad. Board has prepared status report of the industry with respect to compliances of consent conditions. The said status report is submitted herewith for your information please.

It is in opinion that Environmental Compensation may be calculated jointly with CPCB on the basis of status report submitted.

(V. V. Killedar)
Regional Officer, Raigad

Enclosures: Compliance status report
Copy submitted for favor of information to :

1. The Member Secretary, MPCB , Mumbai.
2. Assistant Secretary (Technical) MPCB, Mumbai.
3. Reginal Officer (BMW) , MPCB, Mumbai.

B	Ambient Air Quality Monitoring (AAQM)					
	AAQM locations	Parameters				
		24 hrs. monitoring				8 hrs. monitoring
		PM_{10} µg/m³	$PM_{2.5}$ µg/m³	SO_2 µg/m³	NO_2 µg/m³	CO mg/m³
	NAAQ Standards Notification 18th November, 2009	100	60	80	80	2
1	Near K.E.S. Madhyamik Vidyamandir (South, South-West of M/s. JSW Steel Ltd) Village Shahabaj, Tal. Alibag, Dist. Raigad	145.66	24	2.5	6.66	0.54
2	On Roof top of residence of Shri Dilip Kothekar (South-Eastern side of M/s. JSW Steel Ltd). Village Gadab, Tal. Pen, Dist. Raigad	403.66	28	1.16	8.16	0.38
3	Near Labour colony of M/s. JSW Steel Ltd (Northside of M/s. JSW Steel Ltd) Village Dolvi, Tal. Pen, Dist. Raigad.	169	31	2.33	6.83	0.48

C	Fugitive emission			
Sr. No.	Locations	Parameter		
		PM_{10} µg/m³	Benzo(a) Pyrene (BaP) ng/m³	CO µg/m³
1	Near Quenching Tower	1923	--	--
2	Coke oven area (other area)	--	4.99	1.32
3	Near Coke pushing side	693	--	--

PARTICULATE MATTER DURING COKE PUSHING IN COKEOVEN

Sr No	Sampled Value in ($\mu gm/m^3$)	Sampled value converted to (gm/m^3)	Total Production of the sampling Day in (Tonnes)	Particulate mattter in Pushing in (gm/Tonne) of Coke Produced	Conssented Norms (gm/Tonne) of Coke Produced
1	693	0.000693	2157	1.494801	**5**

PARTICULATE MATTER FOR QUENCHING OPERATION IN COKEOVEN

Sr No	Sampled Value in ($\mu gm/m^3$)	Sampled value converted to (gm/m^3)	Total Production of the sampling Day in (Tonnes)	Particulate mattter in Pushing in (gm/Tonne) of Coke Produced	Conssented Norms (gm/Tonne) of Coke Produced
2	1923	0.001923	2157	4.147911	**50**

CARBON MONOXIDE IN COKEOVEN

Sr No	Sampled Value in ($\mu gm/m^3$)	Sampled value converted to (kg/m^3)	Total Production of the sampling Day in (Tonnes)	Carbon monoxide in Pushing in (kg/Tonne) of Coke Produced	Conssented Norms (kg/Tonne) of Coke Produced
3	1320	0.00000132	2157	0.00284724	**3**

Percentage leakage in doors.

Company name: JSW steel ltd
Battery no.: Coke battery #5
Date: 04/05/2022
City, State:
Total no. of ovens in battery: 110
Observer name: Sumoth M Patil
Certification expiration date:
Inoperable ovens: 0
Company representative(s): Dinesh Gadekar.
Traverse time CS: 445 sec
Traverse time PS:
Valid run (Y or N): Y

Time traverse started/completed	PS/CS	Door No.	Comments (No. of blocked doors, interruptions to traverse, etc.)
17:20:12 to 17:24:00	C/S	126	NA.
		128	
		228	
		229	
Calculation =	Total nos of doors in which visible emission observed / Total no of ovens in operation		x 100
	=	4 / 100	x 100 = 2.63 %

Figure 303–2. Door Area Inspection.

charging emission battery A

Company name: Tata Steel Ltd coP-1 (Coke oven plant)
Battery no. A Date: Run no.: 1
City, State: 04/05/2022
Observer name: Ramnath V. Patil
Company representative(s): Dinesh Gadekar

Charge No.	Oven No.	Clock time	Visible emissions, seconds	Comments
Battery A				
3	129	07:08	00:37	
4	134	07:36	00:48	
5	139	07:58	00:42	
6	141	08:28	00:52	
7	110	08:50	00:41	
Calculation =	charging emission in sec (Total) / Total charging observed		= 220/5 = 44 sec	
Battery A				
Average charging = 44 sec				
emission in sec				

Figure 303–1. Charging System Inspection

Company name: Tata steel ltd cap-2 (coke oven plant)
Battery no.: A&B Date: 04/05/2022 Run no.: ____
City, State: ____
Observer name: Sumanth B. Patil
Company representative(s): Dinesh gadekar

Charge No.	Oven No.	Clock time	Visible emissions, seconds	Comments
Battery B				
5	233	06:05	00:42	
6	210	07:10	00:44	
7	223	07:55	00:48	
8	234	08:20	00:57	
9	255	09:10	00:40	
Calculation =	Charging emission in sec (Total) / total Charging observed		= 225/5 = 45 sec	
Battery B				
Average charging Emission in sec	= 45 sec			

Figure 303–1. Charging System Inspection

Percentage leakage in lids

Company name: Jsw steel ltd Cop-2 (Coke oven plant)
Battery no.: Cop-2 Battery #10
Date: 04/05/2022
City, State:
Total no. of ovens in battery: 110
Observer name: Laxmath d patil
Certification expiration date:
Inoperable ovens: NA
Company representative(s): Dinath Gadekar
Total no. of lids: 220
Total no. of offtakes: 110
Total no. of jumper pipes:
Ovens not observed: NA
Total traverse time: 450
Valid run (Y or N): Y

Time traverse started/completed	Type of Inspection (lids, offtakes, collecting main)	Location of VE (Oven #/Port #)	Comments
17:45 to 17:53	128 I 128 II		
Calculation of PLL =	Total lids in which VE observed / Total no of lids x 100		
=	2/220 x 100		
= 0.90 %			

Percentage leakage in offtakes.

Company name: JSW steel Ltd Cop-1 (Coke oven plant)
Battery no.: Cop-1 Battery A2D
Date: 04/05/2024
City, State: _____
Total no. of ovens in battery: 110
Observer name: Sumath d Patil
Certification expiration date: _____
Inoperable ovens: NA
Company representative(s): Dinesh Gacleker.
Total no. of lids: 220
Total no. of offtakes: 110
Total no. of jumper pipes: _____
Ovens not observed: NA
Total traverse time: 452
Valid run (Y or N): Y

Time traverse started/completed	Type of Inspection (lids, offtakes, collecting main)	Location of VE (Oven #/Port #)	Comments
17:34 to 17:42	140		
Calculation of PLO =	Total offtakes in which VE observed		
	Total no of offtakes	× 100	
=	$\frac{1}{110} \times 100$		
=	0.90%		

Annexure-12

MAHARASHTRA POLLUTION CONTROL BOARD
REGIONAL OFFICE-RAIGAD

Tel. No. 2757 2620
Fax No. 2756 2132

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Visit us at:

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roraigad@mpcb.gov.in
http://mpcb.gov.in

No. MPCB/TB/ 220705-FTS-0042 **Date: 04.07.2022**

To,
Regional Director,
Central Pollution Control Board,
Regional Directorate – Pune,
Maharashtra.

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5. Site visit of Joint Committee on 11.04.2022.

Sir,

This has reference to joint committee constituted by the Hon'ble National Green Tribunal (NGT) vide order dated 27/05/2021 in the matter OA no. 165 of 2020, Samita R. Patil vs M/s Jindal Steel Works Ltd., & Ors. about violation of environmental norms by M/s Jindal Steel Works Ltd., Dolvi.

In order to comply with the aforesaid order of the Hon'ble NGT, the joint committee headed by the Joint Secretary, Ministry of Environment, Forest and Climate Change, GoI, held its meeting on 04.08.2021, 19.11.2021 and 11.04.2022.

As per minutes of meeting and subsequent emails from CPCB Regional Directorate, Pune, to submit compliance report of M/s. JSW Steel Ltd, at vill. Dolvi, Tal. Pen, Dist. Raigad. Board has prepared status report of the industry with respect to compliances of consent conditions. The said status report is submitted herewith for your information please.

It is in opinion that Environmental Compensation may be calculated jointly with CPCB on the basis of status report submitted.

(V. V. Killedar)
Regional Officer, Raigad

Enclosures: Compliance status report
Copy submitted for favor of information to :

1. The Member Secretary, MPCB , Mumbai.
2. Assistant Secretary (Technical) MPCB, Mumbai.
3. Reginal Officer (BMW) , MPCB, Mumbai.

Annexure-VIII

D	Water Sampling				
Sr. No.	Locations	Coke Oven Plant-1		Sponge Iron Plant	Near Kasumata Temple (Western side of M/s. JSW Steel Ltd)
		ETP Inlet	ETP Outlet	ETP Outlet	Creek Water Sample
	Parameters				
1	pH	8.4	5.6	9.3	9.1
2	SS (mg/l)	38	36	12	12
3	BOD (mg/l)	260	38	3.0	15
4	TDS (mg/l)	11731	2384	--	--
5	COD (mg/l)	704	88	12	72
6	NH3-N (mg/l)	12.20	1.15	--	0.45
7	Phosphate (total) (mg/l)	--	--	--	0.05
8	Phenol (mg/l)	3.0	0.88	--	0.11
9	Cyanide (mg/l)	--	BDL	--	--
10	Chromium (mg/l)	--	--	0.01	0.01
11	Iron (mg/l)	--	--	0.38	0.19
12	Zinc (mg/l)	--	--	0.01	0.02

Annexure-13

MAHARASHTRA POLLUTION CONTROL BOARD
REGIONAL OFFICE-RAIGAD

Tel. No. 2757 2620
Fax No. 2756 2132

Email:
Visit us at:

Raigad Bhavan, 6th Floor,
Sec-11, C.B.D. Belapur,
Navi Mumbai 400 614.
roraigad@mpcb.gov.in
http://mpcb.gov.in

No. MPCB/TB/ 220705-FTS-0042 **Date: 04.07.2022**

To,
Regional Director,
Central Pollution Control Board,
Regional Directorate – Pune,
Maharashtra.

Sub: Compliance Status Report of M/s. JSW Steel Lts., at vill. Dolvi, Tal. Pen, Dist. Raigad wrt. Hon'ble NGT order dated 27.05.2021 in the matter OA No. 165 of 2020 of Samita Patil vs. M/s. JSW Steel Works Ltd & Ors.-reg.

Ref: - 1. Minutes of Joint Committee Meeting dated 04.08.2021.
2. CPCB, RD Pune email dated 12.08.2021.
3. Part Compliance report submitted by this office dated 23.09.2021.
4. Minutes of 2nd Joint Committee Meeting dated 19.112021.
5. Site visit of Joint Committee on 11.04.2022.

Sir,

This has reference to joint committee constituted by the Hon'ble National Green Tribunal (NGT) vide order dated 27/05/2021 in the matter OA no. 165 of 2020, Samita R. Patil vs M/s Jindal Steel Works Ltd., & Ors. about violation of environmental norms by M/s Jindal Steel Works Ltd., Dolvi.

In order to comply with the aforesaid order of the Hon'ble NGT, the joint committee headed by the Joint Secretary, Ministry of Environment, Forest and Climate Change, GoI, held its meeting on 04.08.2021, 19.11.2021 and 11.04.2022.

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It is in opinion that Environmental Compensation may be calculated jointly with CPCB on the basis of status report submitted.

(V. V. Killedar)
Regional Officer, Raigad

Enclosures: Compliance status report
Copy submitted for favor of information to :

1. The Member Secretary, MPCB , Mumbai.
2. Assistant Secretary (Technical) MPCB, Mumbai.
3. Reginal Officer (BMW) , MPCB, Mumbai.

Mass Balance on generation, Storage and Disposal/transfer of slag generated in M/s. JSW Steel Ltd., Dolvi, Dist. Raigad.

Preamble

The slag produced at blast furnace during pig iron manufacturing is called blast furnace slag. The slag produced at steel melting shop is known as steel slag. Slag output obtained during pig iron and steel production is variable and depends mainly on composition of raw materials and type of furnace. Typically, for ore feed containing 60 to 65% iron, blast furnace (BF) slag production ranges from about 300 to 540 kg per tonne of pig or crude iron produced, whereas in steel making 150 to 200 kg per tonne of slag is generated per tonne of liquid steel. Lower grade ores yield much higher slag fractions, sometimes as high as one tonne of slag per tonne of pig iron produced. Steel slag output is approximately 20- 30% by mass of the crude steel output in the country. (*Ref. Indian Minerals Yearbook 2019 (part-II: Metals & Alloys, 58th edition published by GoI, Ministry of Mines December 2020*).

Slag generated from Hot Strip Mill (Steel Melting Shop) and Blast Furnace process. The slag produced at steel melting shop is known as steel slag and Slag produced at blast furnace during pig iron manufacturing is called blast furnace slag.

Mass Balance of Slag generation.

Board has granted consent to operate to Hot Strip Mill (3.5 MTPA) vide consent dated 02.11.2018 which is valid upto 30.04.2023. As per consent, the Slag generation shall be 3503 Ton per Day i.e. 12,78,595 Ton/A. Board has also granted consent to operate to Blast Furnace Plant (3.5 MTPA) vide consent dated 07.04.2018 which is valid upto 31.12.2022. As per consent, the Granulated Slag generation shall be 1.28 MTPA.

As per the environmental statement submitted by the industry from 2010 to 2020, the production and slag generation of Blast furnace and steel melting shop is as below;

Environmental Statement	Production of Hot Rolled Coil in MT	Steel Melting Slag in MT	Slag generation per ton
2009-10	26,11,038	645746	247.31
2010-11	2307373	562277	243.68
2011-12	2392767.904	522377	218.31
2012-13	2633175.12	508515	193.11
2013-14	2885953.238	568877	197
2014-15	2875093.87	639646	222.47

Environmental Statement	Production of Hot Rolled Coil in MT	Steel Melting Slag in MT	Slag generation per ton
2015-16	1871262	532825	284.74
2016-17	2955000	913938	309.28
2017-18	3179173	1021470	321.30
2018-19	3158390	1021470	323
2019-20	3003083	986844	328.61
2020-21	2993112	1059176	353.87
Total	**2,99,79,468**	**7961691**	**265.57**

Environmental Statement	Production of Liquid Metal in MT	Blast Furnace Slag in MT	Slag generation per ton
2009-10	1544065.03	502568	325
2010-11	1459117.45	461406	316
2011-12	1554938	631191	406
2012-13	1759373	644378.4	366
2013-14	1877381	744726.4	397
2014-15	1872075.5	662136	354
2015-16	1047484	381825.7	365
2016-17	2911237.2	1035975.72	356
2017-18	3033192	972294	321
2018-19	3033470	1091596	360
2019-20	3120093	1426230	457
2020-21	3010851.3	1412042	469
Total	**2,62,23,277.48**	**99,66,369.22**	**380**

As per consent condition, industry has submitted the environmental statements in the prescribed form V. As per the statement, the slag generation is within the consented limit.

Storage and Disposal/transfer of slag

The status/information on various parties to whom slag were handed over, slag intended use while handing over, nature of actual use of the slag by the parties, location where used and land ownership details, MoU/consent of individual(s) etc. was called from the industry.

Industry has submitted the following information/details of Slag generation and its actual use along with copies of consent of individual(s).

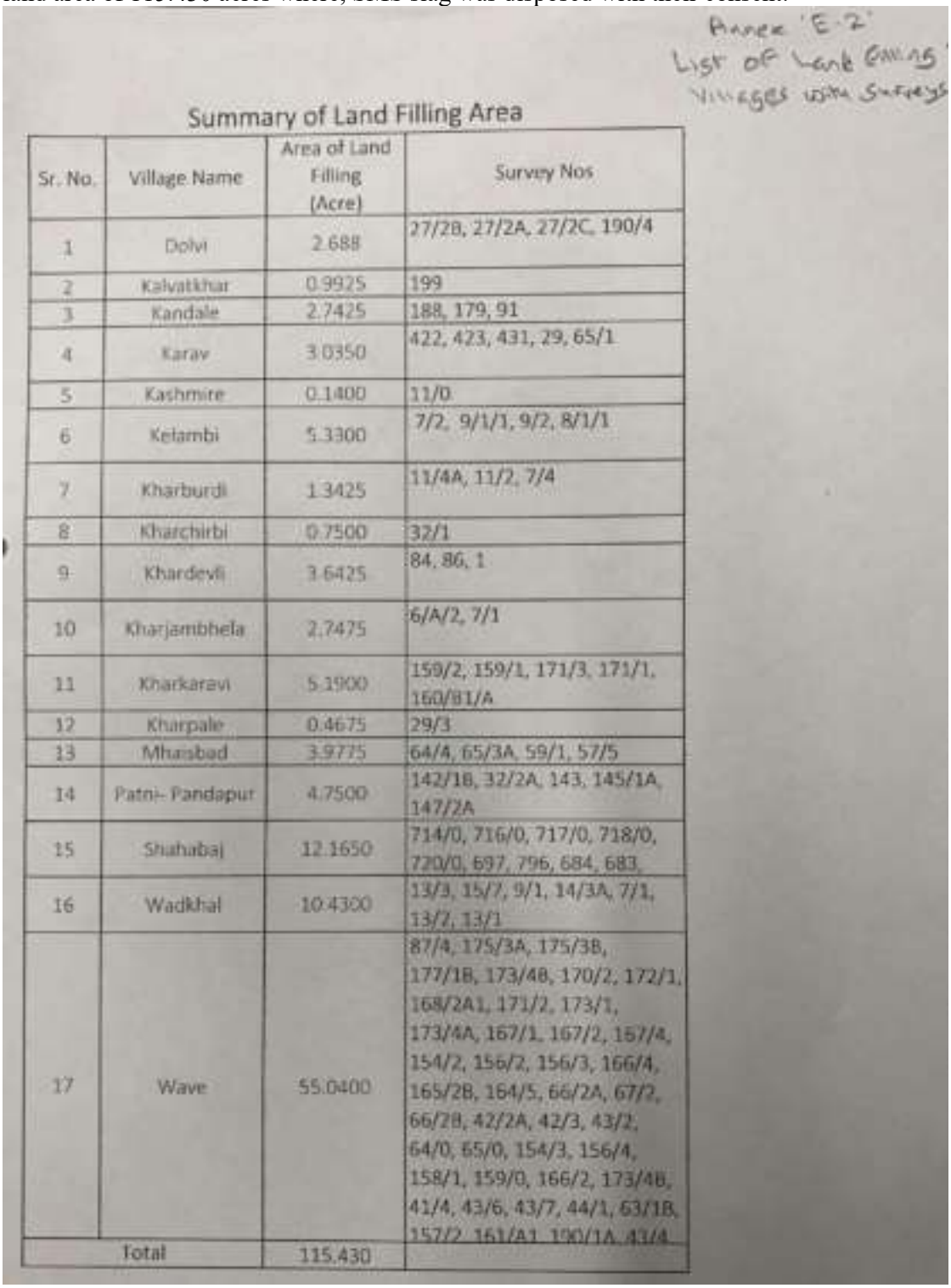
Mode of slag disposal							
Year of generation	**Slag generation in MT**	**EAF slag(<6mm) used in Sinter plant in MT**	**In Jetty (189 acre)**	**In JSW Hospital (7.5 acre)**	**Land filling inside the plant premises (108 acre)**	**Land filling at land of interested parties (115.43 acre)**	**Total**
2009-10	645746	36641			**2752898.4**		
2010-11	562277	40085.5					
2011-12	522377	44575.26					
2012-13	508515	2394					
2013-14	568877	Nil					
2014-15	639646	Nil					
2015-16	532825	Nil	**4817572.2**				
2016-17	913938	Nil					
2017-18	1021471	Nil					
1018-19	1021470	Nil		**163863**			
2019-20	986844	Nil					
2020-21	1059176	Nil					
April 2021	95791	4795					
May 2021	106950	2835					
Total	**9185903**	**131325.76**	**4817572.2**	**163863**	**2752898.4**	**1260980.406**	**9126639.766**

From the above statement submitted by the industry it seems that during the year April 2009 to May 2021, Industry has generated @ 91,85,903 MT of steel melting slag out of which about 91,26,639.766 MT is used for various purposes.

- Reused in EAF and Sinter plant – about 1,31,325.76 MT i.e. 1.43%
- Landfilling in Jetty, Hospital site and factory Premises (304.5 Acres) – 77,34,333.6 MT i.e. 84.2%
- Landfilling on Private land (115.43 Acres) – 12,60,980.406 MT i.e. 13.72%
- Stored in the factory premises- about 59,263.234 MT i.e. 0.64%.

And in year 2009-10 to 2020-21, Industry has generated @ 99,66,369.22 MT of Blast furnace which is 100% used in cement plant of M/s. JSW Cement Ltd. Dolvi.

1643 Industry has submitted the following list of 17 villages with survey numbers and total land area of 115.430 acres where, SMS slag was disposed with their consent.



Annex 'E-2'
List of Land Filling Villages with Surveys

Summary of Land Filling Area

Sr. No.	Village Name	Area of Land Filling (Acre)	Survey Nos
1	Dolvi	2.688	27/2B, 27/2A, 27/2C, 190/4
2	Kalvatkhar	0.9925	199
3	Kandale	2.7425	188, 179, 91
4	Karav	3.0350	422, 423, 431, 29, 65/1
5	Kashmire	0.1400	11/0
6	Ketambi	5.3300	7/2, 9/1/1, 9/2, 8/1/1
7	Kharburdi	1.3425	11/4A, 11/2, 7/4
8	Kharchirbi	0.7500	32/1
9	Khardevli	3.6425	84, 86, 1
10	Kharjambhela	2.7475	6/A/2, 7/1
11	Kharkaravi	5.1900	159/2, 159/1, 171/3, 171/1, 160/81/A
12	Kharpale	0.4675	29/3
13	Mharsbad	3.9775	64/4, 65/3A, 59/1, 57/5
14	Patni- Pandapur	4.7500	142/1B, 32/2A, 143, 145/1A, 147/2A
15	Shahabaj	12.1650	714/0, 716/0, 717/0, 718/0, 720/0, 697, 796, 684, 683,
16	Wadkhal	10.4300	13/3, 15/7, 9/1, 14/3A, 7/1, 13/7, 13/1
17	Wave	55.0400	87/4, 175/3A, 175/3B, 177/1B, 173/4B, 170/2, 172/1, 168/2A1, 171/2, 173/1, 173/4A, 167/1, 167/2, 167/4, 154/2, 156/2, 156/3, 166/4, 165/2B, 164/5, 66/2A, 67/2, 66/2B, 42/2A, 42/3, 43/2, 64/0, 65/0, 154/3, 156/4, 158/1, 159/0, 166/2, 173/4B, 41/4, 43/6, 43/7, 44/1, 63/1B, 157/2, 161/A1, 190/1A, 43/4
Total		115.430	

	Steel Slag utilization by local villagers				
S. No.	**Village**		**Name of the Beneficiary**	**Survey No.**	**Area of Land (in Acres)**
1	Dolvi	1	Rohidas Balu Patil	27/2B	0.650
		2	Pramod Ramadas Patil	27/2A	0.488
		3	Pankaj Laxman Patil	27/2C	1.050
		4	Murlidhar Rambhau Karlekar	190/4	0.500
				Total	**2.688**
2	Kalvatkhar	5	Prabhavati Kashinath Patil	199	0.9925
				Total	**0.993**
3	Kandale	6	Balu Gajanan Mhatre	188	0.5125
		7	Madhukar Ganu Patil	179	0.8725
		8	Prabhakar Ganpat Mhatre & others	91	1.3575
				Total	**2.7425**
4	Karav	9	Bhagwan Maya Kothekar	422	0.0975
		10	Bhagwan Maya Kothekar	423	0.0325
		11	Sayali Sagar Patil (Sakharam Joma Bhaydekar)	431	0.1825
		12	Kiran Narayan Madhavi & others	29	2.5225
		13	Subhash Krushna Mokal & others	65/1	0.2000
				Total	**3.0350**
5	Kashmire	14	Kavish Rambhau Mhatre	11/0	0.1400
				Total	**0.1400**
6	Kelambi	15	Manjula Pandurang Patil	7/2	2.048
		16	Janardan Hari Patil	9/1/1	1.500
		17	Vithabai Sakharam Patil	9/2	0.945
		18	Ganesh Yashwant Patil	8/1/1	0.838
				Total	**5.330**
7	Kharburdi	19	Prakash Bhimrao Patil	11/4A	0.463
		20	Kishor Atmaram Patil	11/2	0.660
		21	Vijay Navinchandra Kankia	7/4	0.220
				Total	**1.3425**
8	Kharchirbi	22	Suryakant Balu Kothekar	32/1	0.7500
				Total	**0.7500**
9	Khardevli	23	Prakash Laxman Patil	84	0.8800
		24	Nalini Tukaram Mhatre & others	86	1.5425
		25	Ramchandra Damaji Mhatre	1	1.2200
				Total	**3.6425**
10	Kharjambhela	26	Lakhamibai Motiram Patil	6/A/2	1.2625
		27	Rama Ganpat Jambhulkar	7/1	1.485
				Total	**2.7475**
11	Kharkaravi	28	Suresh Krushna Mokal	159/2	1.1750
		29	Yashwant Ambaji Mokal / Moreshwar Ambaji Mokal	159/1	1.2475
		30	Suresh Vishnu Mokal	171/3	0.6450

Steel Slag utilization by local villagers					
S. No.	Village		Name of the Beneficiary	Survey No.	Area of Land (in Acres)
		31	Balaram Vishnu Mokal	171/1	0.6250
		32	Dinkar Gopal Jambhale & Others	160/B1/A	1.4975
				Total	**5.1900**
12	Kharpale	33	Mohan Sakharam Shinde	29/3	0.4675
				Total	**0.4675**
13	Mhaisbad	34	Parashuram Hari Patil	64/4	0.5575
		35	Ananta Shankar Patil	65/3A	2.1375
		36	Asmita Jagdish Patil	59/1	0.6500
		37	Gajanan Nathuram Shirke	57/5	0.6325
				Total	**3.9775**
14	Patni-Pandapur	38	Chandrakant Parshuram Tandel	142/1B	0.470
		39	Ravindra Shantaram Thakur	32/2A	1.035
		40	Namdev Mahadev Tandel & others	143	1.233
		41	Kisan Dattu Tandel & others	145/1A	0.613
		42	Laxman Devji Patil & Others	147/2A	1.400
				Total	**4.750**
15	Shahabaj	43	Pravin Gangadhar Patil	714/0	1.100
		44	Jagannath Ramji Patil	716/0	0.975
		45	Madhukar Sitaram Patil	717/0	0.658
		46	Uday Shripat Patil	718/0	0.888
		47	Kiran Dattatray Patil	720/0	1.000
		48	Sandhya Ramchandra Patil	697	1.430
		49	Mangesh Baliram Ghase	796	1.348
		50	Vishnu Maruti Patil	684	1.125
		51	Champabai Anant Patil	683	0.633
		52	Janaradan Narayan Mhatre	990	0.858
		53	Vijay Narayan Mhatre	991	0.863
		54	Subhash Narayan Mhatre	992	0.865
		55	Narendra Shantaram Patil (Ramchandra Dharmaji Patil) & others	795	0.425
				Total	**12.165**
16	Wadkhal	56	Changunabai Madhukar Mhatre	13/3	1.403
		57	Parshuram Posha Mhatre	15/7	1.088
		58	Mahadev Dharmaji Mhatre	9/1	1.368
		59	Bharati Kishor Patil	14/3A	1.013
		60	Vanita Gajanan Mhatre (Narayan Posha Mhatre)	7/1	1.443
		61	Prashant Mahadev Divekar	13/2	2.075
		62	Nirmala Nagu Mhatre	13/1	2.043
				Total	**10.430**
17	Wave	63	Vithoba Bhau Patil	87/4	1.8975

Steel Slag utilization by local villagers					
S. No.	Village		Name of the Beneficiary	Survey No.	Area of Land (in Acres)
		64	Arun Tukaram Mhatre	175/3A	0.8275
		65	Padmakar Shivram Mhatre	175/3B	0.8225
		66	Baburao Dharma Mhatre	177/1B	0.4900
		67	Vandana Santosh Mali	173/4B	0.0750
		68	Santosh Balkrishna Mhatre	170/2	1.1375
		69	Krushna Ragho Mhatre	172/1	0.9875
		70	Hariram Jakhu Mhatre	168/2A1	0.9300
		71	Prakash Ganpat Mhatre	171/2	0.9600
		72		173/1	2.1350
		73	Yashwant Ganu Mhatre	173/4A	0.8475
		74	Omkar Ramesh Patil	167/1	1.1850
		75		167/2	1.4150
		76	Dwarkanath Barkya Mhatre	167/4	1.0750
		77	Ganu Dharma Mhatre	154/2	1.5750
		78		156/2	0.5125
		79		156/3	0.355
		80	Kashinath Hiru Mhatre	166/4	0.8275
		81	Suresh Hiraman Patil	165/2B	1.4800
		82	Pandurang Nagu Mhatre	164/5	2.1000
		83	Haribhau Damaji Mhatre	66/2A	0.7625
		84	Haribhau Damaji Mhatre	67/2	0.2525
		85	Lilabai Sadashiv Mhatre	66/2B	0.7800
		86	Balaji Kashinath Mhatre	42/2A	0.5100
		87	Raghu Kanu Mhatre/ Hiraji Raghu Mahtre	42/3	0.1950
		88	Raghu Kanu Mhatre/ Hiraji Raghu Mahtre	43/2	2.3050
		89	Muralidhar Ganpat Mhatre	64/0	0.9050
		90	Muralidhar Ganpat Mhatre	65/0	0.4050
		91	Joma Dharma Mhatre/Moreshwar Joma Mhatre	154/3	0.7525
		92	Bhikaji Ganu Mhatre	156/4	1.4925
		93	Nilesh Kathor Jambhale	158/1	2.3825
		94	Nilesh Kathor Jambhale	159/0	0.9675
		95	Ranjana Gopal Mhatre	166/2	0.8850
		96	Vandana Santosh Mali	173/4B	0.0500
		97	Vasanti Haribhau Patil	41/4	1.3200
		98	Rami Vithu Mokal	43/6	0.3800
		99	Changunabai Haribhau Mhatre	43/7	0.4100
		100	Ganesh Hiraman Mhatre	44/1	0.7150
		101	Padmakar Dharmaji Patil	63/1B	2.2350
		102	Ashok Ramdas Mhatre	157/2	0.7150
		103	Sanket Shashikant Patil	161/A1	1.2025

	Steel Slag utilization by local villagers				
S. No.	**Village**		**Name of the Beneficiary**	**Survey No.**	**Area of Land (in Acres)**
		104	Krushna Dharmaji Mhatre	190/1A	2.3600
		105	Girish Shankar Patil	43/4	0.3100
		106	Prabhakar Gajanan Mhatre	183/7A	0.9050
		107	Ganu Dharma Mhatre	185/6	0.9375
		108	Krushna Devji Mhatre	166/1	1.4250
		109	Krushna Devji Mhatre	178/2/1	1.3725
		110	Mahadev Ganpat Patil(Other rights) & others	84/1	0.9550
		111	Mahadev Ganpat Patil(Other rights) & others	85/2	1.0625
		112	Prabhakar Govardhan Patil	44/3	0.4875
		113	Prabhakar Balkrushna Mhatre & others	88/3	0.3225
		114	Krushna Dharmaji Patil & others	42/1	0.4625
		115	Pundlik Ganpat Patil & others	160/1	1.2900
		116	Krushna Dharmaji Patil & others	165/1A	1.8925
				Total	**55.0400**
				Grand Total	**115.430**

महाराष्ट्र शासन
जलसंपदा विभाग
कार्यकारी अभियंता, खारभूमी सर्वेक्षण व अन्वेषण विभाग, पेण-रायगड

गजानन महाराजांचे मंदिराजवळ, पाटबंधारे वसाहत, उंबर्डे,
मुंबई गोवा राष्ट्रीय महामार्ग, खाचरखिंड, ता.पेण, जि.रायगड
दुरध्वनी -०२१४३-२५२२०३ ई-मेलrdwrdkldee@gmail.com

जा.क्र. खाभूसवअवि/प्रशा-२/३७५५/२०२२ दिनांक :- ०७ / ०७ /२०२२

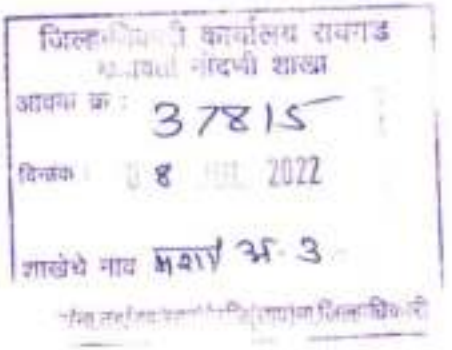
प्रति,
मा. जिल्हाधिकारी,
रायगड, आलिबाग.

विषय :- Constituted of Joint Commitee as per Hon. NGT order O A No. 165/2020 Dated 25/05/2021 w r t Samita Rajendra Patil V/s Jindal Steel Works Ltd and Ors.

संदर्भ :-
१. जिल्हाधिकारी कार्यालयाचे पत्र क्र. म.शा./जमीन/ अ-०३/ NGT-१६५ / ईतिवृत्त/ अभिप्राय /२०२१ दिनांक २७/०८/२०२१.
२. उपविभाग पेण यांचे पत्र जा. क्र. खाभूविउवि/प्रशा/२७०, दिनांक ३०/०८/२०२१.
३. या कार्यालयाचे पत्र जा. क्र खाभूसवअवि/प्रशा-१/१५५२, दि. ०२/०९/२०२१
४. दि. ०२/१२/२०२१ रोजी जिल्हाधिकारी कार्यालयात झालेली बैठक.
५. मुख्य समिती समवेत दिनांक ११/०४/२०२२ रोजीचे बैठकीचे इतिवृत्त जा.क्र. मशा-/जमिन/अ-०३ /NGT-१६५/२०२२ /बैठक/२०२२ दिनांक ०९/०५/२०२२
६. या कार्यालयाचे पत्र खाभूसवअवि/प्रशा-२/१३५९, दि. १८/०५/२०२२
७. जिल्हाधिकारी कार्यालयाचे पत्र क्र. म.शा./जमीन/ अ-०३/ NGT-१६५ - २०२०/२०२२ दि. ०७/०७/२०२२

संदर्भीय पत्र क्र. १ च्या अनुषंगाने पत्रात निर्देशित केल्याप्रमाणे मा. राष्ट्रीय हरीत न्यायाधिकरण, नवी दिल्ली यांनी O A No.165/2020 दि. 25/05/202 रोजीच्या आदेशामध्ये दिलेल्या निर्देशानुसार प्रदुषण नियंत्रण मंडळामार्फत गठीत केलेल्या ५ सदस्यीय समितीच्या दि. ०४/०८/२०२१ रोजी पार पडलेल्या बैठकीच्या अनुषंगाने प्रस्तुत केलेल्या ईतिवृत्तातील मुद्दा क्र. ७ मध्ये नमुद केलेल्या निर्देशाचे अनुषंगाने सन १९९० ते मे २०२१ वा त्यानंतरच्या सद्यस्थितीबाबत या विभागाचे अभिप्राय संदर्भीय पत्र क्र. ३ अन्वये सादर करण्यांत आला आहे. तसेच संदर्भ क्र. ५ च्या अनुषंगाने आलेल्या इतिवृत्ताचा या कार्यालयाचा अहवाल संदर्भ क्र. ६ अन्वये आपल्या कार्यालयास दिलेला आहे. तथापी, आपल्या कार्यालयाच्या संदर्भ पत्र क्र. ७ च्या अन्वये मुख्य समितीने दिनांक ११/०४/२०२२ च्या बैठकीत दिलेल्या निर्देशानुसार या कार्यालयाकडून सदर आपल्या पत्रात खालील मुद्द्यांबाबत अहवाल मागितलेला आहे.

1) मौजे खारमचेला आणी जुई हब्बास खारबंदिस्तीची सद्य परिस्थिती
2) मा. राष्ट्रीय हरित न्यायाधिकरण , नवी दिल्ली यांनी ओरिजिनल अप्लीकेशन क्रमांक १६५ /२०२० मध्ये दिनांक २५०/५/२०२१ च्या आदेशामध्ये पान क्र. ४ परिच्छेद क्र. २ कडे नमुद केलेल्या मा तहसिलदार पेण यांनी पहाणी केलेल्या दिनांक ०३/०१/२०१५ रोजीच्या घटनेबाबत
या बाबत या कार्यालयाचा अहवाल खालीलप्रमाणे-



अ.क्र.	मुद्दा	अभिप्राय
i	Examining alleged incidence of 3/01/2015 by the Tahsildar, Pen as referred at Para 2 at page no. 4 of the order dated 27/05/2021 of the Hon'ble NGT.	Alleged incidence of 3/01/2015 by the Tahsildar, Pen as reffered at Para 2 at page no. 4 of the order dated 27/05/2021 of the Hon'ble NGT is related to Machela Chirbi & Jui Habbas Kharland Scheme. The damage caused to Machela Chirbi & Jui Habbas Kharland Schemes Bunds are mainly due to excessive rains & high tides resulting in breaches of bund and damage to sluice gate and lack of proper maintenance due to insufficient funds resulting in ingress of saline water in the adjoining agricultural land. As restitution & remedial measures department also takes works under CSR funds. As per the request of villagers, the repair work of Machela Chirbi Kharland Scheme has been Completed by JSW steel Ltd in year 2020 through CSR funds and the same has been appreciated by the villagers / beneficiaries in writing . The repair work of Jui Habbas Kharland Scheme has been Started by JSW steel Ltd through CSR funds .

(सु. ह. सावंत)
कार्यकारी अभियंता
खारभूमी सर्वेक्षण व अन्वेषण विभाग
पेण-रायगड

महाराष्ट्र शासनकृषी विभाग

दूरध्वनी क्र. 02141 222094
Email- dsaoraigad@gmail.com

जिल्हा अधिक्षक कृषी अधिकारी कार्यालय,
शासकीय रोपवाटिका, वेश्वी, अलिबाग पेण रोड
अलिबाग, 402209

जा.क्र.जिअकृअ/जेएसडब्ल्यु/1358/2022 दिनांक. 06/07/2022

प्रति,
निवासी उपजिल्हाधिकारी
रायगड-अलिबाग

विषय :- Constituted of joint commite as per NGT order OA NO.165/2020 DTD 25.05.2021 WRT Samita Rajendra Patil V/S Jindall steel Ltd and ORS

संदर्भ :- 1.आपलेदकार्यालयाचे पत्र क्रमांकमशा/जमिन/अ-03/NGT-165/इतिवृत्त/अभिप्राय 2021 दिनांक 27.08.2021
2.वरीष्ठ अभियंता पर्यावरण, मध्यवर्ती प्रदुषण नियंत्रण मंडळ पुणे यांचेकडील दिनांक 13.08.2021 रोजीचा ईमेल संदशे

वरील संदर्भिय विषयान्वये मा.राष्ट्रीय हरीत न्यायाधिकरण, नवीदिल्ली यांनी ओरीजनल ॲप्लीकेशन क्रमांक 135/2020 मध्ये दिनांक 25/05/2021 रोजीच्या आदेशामध्ये दिलेल्या निर्देशानुसार प्रदुषण नियंत्रण मंडळा मार्फत गठीत केलेल्या समितीच्या निर्देशाच्या अनुषंगाने सन 1990 मे मे 2021 अखेर पर्यंतचे सद्यस्थितीबाबतचा अहवाल सोबत जोडण्यात येत आहे.

(उज्वला वाणखेले)
जिल्हा अधिक्षक कृषि अधिकारी
रायगड अलिबाग

Assessment of illegal dumping of by-products/waste products i.e.slag generated from hot strip mill, blast furnace etc. on agricultural land in surrounding areas of the industry and in villages (viz. Kharmachi, Kharkaravi, Juibapuji, Dolwi, Kharchirbi, Wadkhal, Vave, Beneghat, Karav, Khardombi, Kharghat, Kharjambhela, Kolve, etc. total thirteen villages situated within Taluka Pen and Alibag)

i) The report received from Taluka Agriculture officer, Pen is attached here in **annexure 1.** As per revenue records, the cultivable area of 12 villages of Pen taluka is 1222.11 ha. In these 12 villages reconnaissance survey has been done by talathi's. The report is attached here in **annexure 2**. The report shows that, out of cultivable area of these villages dumping has been done on 56.34 ha area with consent of concerned farmers. As per Talathi's 7/12 records, no cultivation has been observed in Kharjambhela, Kharghat, Kharthombi and Kharmachi villages of pen taluka since 2018. The cultivated *(Pik pera)* area of these 12 villages in year 2021-22 is 229.97 ha. The remaining 935.80 ha. area is affected due to salty creek water. The survey has been done randomly on adjoining dumping area by team of agriculture assistant and talathi's. It's report is attached in **annexure 3.** It shows that 13.68 ha. area is highly affected due to continuous tide water. The remaining 922.12 ha. area is also similarly affected due to salty creek water. Hence this area is not under cultivation at present.

In Juibapuji village of Alibag taluka about 98.708 hecter land is owned by JSW company and only one hecter land (including one farm pond) owned by individual (2owners) farmers and this agriculture land is severely damaged due to high and frequent tide water and hence rice cultivation cannot be done there since 2006- 07 , The 8A form of Juibapuji village is attached in **annexure 4.**

ii) Collection of soil samples from various locations are physically taken and analyzed in soil testing laboratory. The comparative analysis of these soil samples with reference soil samples of unaffected area is shown in **annexure 5.**

It shows that the soil has become highly alkaline due to continuous inflow of salty creek water into agriculture land. Its pH and EC have been increased beyond normal levels. Such alkaline condition is harmful to all type of crops. It also shows that the availability of Nitrogen in this soil is reduced by 25-60 kg/ha, availability of phosphorus and potash in affected area is at par with reference soil samples. It also shows that Boron and Sodium levels are highly increased in all areas which adversely affects plant growth.

iii) Agriculture department has taluka wise crop productivity data of Pen and Alibag taluka since the year 2000 and it is attached in **annexure 6.** The crop

productivity data of the specific villages is not available but the data of revenue mandals wherein these villages are coming under i.e. (Pen -Kasu, Washi mandal) and (Alibag-Poynad mandal) is available since 2014-15 and it is attached in **annexure.7**. As crop cutting experiments are done at mandal level, no specific conclusion can be drawn about villagewise productivity. But the comparison of average productivity of concern mandals with respective taluka productivity average shows that the productivity of rice crop of the mandals is less by 2 to 5 quintals per hectare since2018-19.

iv) Comparison of analysis of soil sample showed that the increased pH and EC level has made the soil alkaline in nature and hence unfertile for rice cultivation. The comparison of crop productivity data shows that it has reduced the productivity by 10 to 20 percent as compared with taluka and district respectively.

v) Remedial measure -1. The construction or scheduled repairs and maintenance of bunds must be done, so that tide water will not affect agriculture lands in adjoining areas.

2. Promotion of plantation of citronella, babhhol, bamboo, lemon grass and medicinal plants, mangroves and Cypress (Suru) Plantation.

3. Promotion of farm ponds for fish, crab and other marine produce rearing and promotion of their processing units.

vi) Restitution Measures -As the frequent tides will further keep affecting adjoining agriculture lands, the construction or scheduled repairs and maintenance of bunds must be done.

vii) Amount of Compensation to be given-

As per Govt. of Maharashtra resolution dated 13.05.2015, the govt. assistance for crop damage due to Natural Calamity is given at the rate of Rs. 6800 per ha. But in this case assistance should be fixed on basis of crop productivity of concerned revenue mandal and minimum support price of rice in that year.

District Superintending Agriculture Officer Raigad Alibag

महाराष्ट्र शासन - कृषि विभाग
तालुका कृषि अधिकारी पेण -रायगड
गजानन महाराज मंदिर शेजारी खाचरखिंड(रामवाडी) जि.रायगड ४०२१०७
दुरध्वनीक्र- ०२१४३-२५२३५१ ईमेल-tao_pen@rediffmail.com

जा.क्र./ता.कृ.अ.पेण/वेगसदस्य /६२५ /२०२२
तालुका कृषि अधिकारी कार्यालय पेण
दिनांक ०९/०३/२०२२

प्रति,

मा. जिल्हा अधिक्षक कृषि अधिकारी,
रायगड-अलिबाग.

विषय:- मध्यवर्ती प्रदुषण मंडळ पुणे यांनी दिलेल्या सूचनेनुसार अहवाल सादर करणे बाबत.

उपरोक्त विषयाच्या अनुषंगाने पेण तालुक्यातील खारमाचेला, खारकारावी, डोंबवी, खाडनिवी, वडखळ, वाशे, वेणेघाट, खारजांभेळा, कारावं, खारडोंवी, खारघाट व कोळवे या गावांमध्ये दिनांक०३/०१/२०२२ ते ०५/०१/२०२२ याकालावधीत Reconnaissance Survey करण्यात आला. सदर सर्व्हे तलाठी यांच्यामार्फत करण्यात आला. मा. उपविभागीय अधिकारी यांच्याकडील पत्र क्र.उविअ/जमीननबाब/NGT Order 165/2020/2022 दि. 19/01/2022 अन्वये सादर करण्यात आलेला अहवाल सोबत जोडलेला आहे. त्यानुसार 56.3447 हे. क्षेत्रामध्ये शेतकऱ्यांच्या सहमतीमध्ये JSW कंपनीकडून भराव करण्यात आलेला आहे.

वर नमूद करण्यात आलेल्या गावांमधील पिकपेरा अहवाल तलाठीयांच्याकडून प्राप्त झाला. त्यानुसार - खार जांभेला व खार घाट या गावामध्ये सन 2018 पासून व खार माचेला व खार ढोंबी या गावांमध्ये सन–2018 पासून कोणतेही पिक लागवड केली जात नसल्याचे निदर्शनास येते. - वरील 12 गावांमध्ये 1222.11 हे बाहितीखालील क्षेत्रापैकी 229.97 हे क्षेत्रावर सद्य स्थितीतील पिकपेरा अहवालात येतो. सदर क्षेत्र वजा जाता उर्वरित क्षेत्र खाडीच्या पाण्यामुळे बाधित झाले आहे. सदरील गावांमधील भराव करण्यात आलेल्या लगतच्या क्षेत्रांमधील रँडम सर्व्हे क्र. मध्ये संयुक्त सर्वेक्षण करण्यात आले. त्याचा अहवाल सोबत जोडला आहे. सर्वेक्षणामध्ये सद्यस्थितीत त्या शेत जमिनीमध्ये कोणतेही पिक लागवड केल्याचे दिसून आले नाही. तथापि खाडीचे पाणी शेती क्षेत्राम वारंवार येत असल्याने व सदर पाण्याचा निचरा होत नसल्याने त्या ठिकाणी चिखल व दलदलीची परिस्थिती कायम असले असे दिसून आले. त्यामुळे त्या ठिकाणी कोणत्याही पिकाची लागवड केली जात नसल्याचे दिसून येते. अशीच परिस्थिती गावातील इतर ही भागात दिसून आली.

सदर गावांमधील रँडम पद्धतीने मातीनमुने घेण्यात आले. सदर माती नमुने जिल्हा मृद सर्वेक्षण मृद चाचणी प्रयोगशाळा, अलिबाग येथून तपासून घेण्यात आले. त्याचा अहवाल सोबत जोडला आहे. तपासणी करण्यात आलेल्या नमुन्यावरून Ph व EC हे बाधित क्षेत्रामध्ये इतर क्षेत्रापेक्षा अधिक असल्याचे अढळून आले. या वरून सततच्या क्षारयुक्त पाण्यामुळे तेथील जमीन क्षार पड झाल्याचे निदर्शनास येते. तसेच बोरॉन व सोडीयम यांचे प्रमाण जवळ जवळ सारखेच अढळून आले.

कृषि विभागामार्फत भात पिकाचे सद्यस्थितीत मंडळ स्तरावर पिककापणी प्रयोग घेण्यात येत असल्यामुळे गाव निहाय उत्पादकता उपलब्ध नाही. सन २०००-०१ ते २०२१-२२ यावर्षीची तालुक्याची उत्पादकता उपलब्ध आहे. ती सोबत जोडली आहे. तसेच सन २०१८-१५ पासून सदरील गावे समाविष्ट असलेल्या महसूल मंडळाची उत्पादकता उपलब्ध आहे. ती सोबत जोडलेली आहे महसूल मंडळ स्तरावर पिक कापणी प्रयोग होत असल्यामुळे या गावांमधील उत्पादकते बाबत निश्चित निष्कर्ष काढता येत नाही. वैसर्गिक आपत्तीमुळे शासन निर्णय क्र. सी.एल.एस-२०१५/प्र.क्र.४०/म.क्र. ०३दिनांक१३/०५/२०१५ अन्वये नमूद निकषानुसार बाधित शेतकऱ्यांना भात पिकासाठी ६८०००

प्रती हे इतकी सामुग्रह मदत देण्यात येते. त्यामुळे प्रस्तुत प्रकरणी नुकसान भरपाई देताना महसूल मंडळाची उत्पादकता व त्या वर्षाची किमान आधारभूत किंमत याआधारे मदत देता येऊ शकते.

उपाय - खाडीची व खाईंग ची बांधबंधीस्ती करणेत यावी. तसेच शेतलगतचे मत्स्यपालन व त्यावरील प्रक्रिया उद्योगास चालना देणेत यावी.

Annexure-2

महाराष्ट्र शासन

महसूल व वन विभाग

उपविभागीय दंडाधिकारी, उप विभाग पेण

❖ दुरध्वनी क्र.०२१४३-२५३००० ❖ ❖ ई मेल subpen[illegible]@gmail.com ❖

क्र.उविअ/जमीनबाब/NGT Order १६५/२०२०/२०२१ | दि. [illegible]

प्रति,

मा.जिल्हाधिकारी रायगड

विषय:- Constituted of Joint Committee as Per Hon NGT Order O A No १६५/२०२० Dist २५/०५/२०२१ wrt Samita Rajendra Patil V/s Jindal Steel Workr Ltd & Ors

संदर्भ:- आपलेकडील पत्र क्र.मशा/जमीन/अ-३/NGT-१६५/उपसमिती बैठक [illegible] दि.६/०१/२०२०

महोदय,

उपरोक्त विषयांकित संदर्भिय पत्रान्वये श्रीम.सविता राजेंद्र पाटील [illegible] विरुध्द मा.राष्ट्रीय हरीत न्यायाधिकरणाकडे अर्ज क्र.१६५/२०२० दाखल केलेला आहे सदर अर्जाच्या अनुषंगाने मा.राष्ट्रीय हरित न्यायाधिकरणाने दि.२७/०५/२०२१ रोजी आदेश पारीत करुन ५ सदस्यीय समिती गठीत करुन चौकशी करण्याचे निर्देश दिलेले आहेत. मा.न्यायालयाचे आदेशान्वये गठीत समितीच्या दि.[illegible] तसेच दि.१९/११/२०२१ रोजी बैठका झालेल्या आहेत. सदर बैठकीमधील निर्देशानुसार उप-समिती स्थापन करण्यात आली आहे. सदर उप-समितीस दिलेल्या निर्देशानुसार तातडीने कार्यवाही करुन परिपूर्ण अहवाल सादर करणेकामी या कार्यालयास निर्देश दिले आहेत.

त्यानुसार या कार्यालयाचे आदेश क्र.उविअ/जमीनबाब/स्थळपहाणी/२०२१, दि.३०/१२/२०२१ रोजीच्या आदेशान्वये महसूल विभागासाठी नोडल अधिकारी म्हणून श्री.प्रसाद कालेकर, नियामी नायब तहसिलदार पेण, कृषी विभागासाठी नोडल अधिकारी म्हणून, श्री.अनिल रोकडे, तालुका कृषी अधिकारी, पेण तसेच वन विभागासाठी नोडल अधिकारी म्हणून श्रीम.स्वाती डुंबरे परिक्षेत्र वन अधिकारी [illegible] नेमणूक करण्यांत आली असून सदर अधिकारी यांनी प्रपत्र-अ, प्रपत्र-ब व प्रपत्र-क मध्ये पंचनामे करुन अहवाल सादर करणेकामी निर्देश दिले आहेत.

तरी महसूल विभागासाठी नोडल अधिकारी म्हणून श्री.प्रसाद कालेकर, नियामी नायब तहसिलदार पेण यांनी या कार्यालयाकडे सादर केलेल्या पंचनाम्यानुसार गावनिहाय माहिती प्रपत्र-अ मध्ये एकूण ३८,५७०५/- इतक्या ब्रासचा भराव जे.एस.डब्ल्यू. कपंनीने केलेला आहे. तथापि सदरचा भराव हा शेतकऱ्यांच्या संमितीने केलेला दिसून येत आहे. सोबत पंचनामे आपलेकडे पुढील कार्यवाहीसाठी सादर करण्यांत येत आहे. तसेच वन विभाग, व कृषी विभागाकडील प्रपत्र-ब व प्रपत्र-क मधील सविस्तर अहवाल जिल्हा समितीकडे परस्पर सादर करण्याबाबतच्या सूचना देण्यांत आलेल्या आहेत.

आपला विश्वासू,

(विठ्ठल इनामदार)
उपविभागीय अधिकारी,पेण
उपविभाग,पेण

	जे.एस.डब्ल्यू. सांगली लि.डोलवली,ता.पेण,जि.रायगड येथील प्रस्तावित भराव्याबाबत तपशील.								
अनुक्रमांक	अ.क्र.	भंडाऱ्याचे नाव	सध्याची स्थिती	गावाचे नाव	स.नं.	एकूण क्षेत्र	दैनंदिन स.नं. वरील भराव	एकूण आकार	क्षेत्रधारकांची संमती आहे/नाही.
१	१	खडकाळ	कातळ	खारकवाणी	१५९/१	०.४७००	०.४७००	३७१०	आहे
	२			खाजण	३७४/१	०.५३३०	०.५३३०	३८१५	आहे
	३				३७४/२	०.५४००	०.४५५०	१८७०	आहे
२	४				३६८	०.३७१०	०.२८८०	४०३५	आहे
	५				४३१	०.०७८०	०.०२५०	१७८	आहे
	६				२१	१.०१००	०.७५००	३०१८	आहे
					एकूण	३.६२००	१.८६१०	१११११	
३	८	खडकाळ	डोलणी	डोलवली	-	-	-	-	-
४	९		खाजणी	खाजणी	-	-	-	-	-
५	१०	खडकाळ	खाजणी	खारफोलणा	१३/१अ	०.३४८०	०.३४८०	३७३६	आहे
	११				१३/१आ	०.३५००	०.३५००	२७९८	आहे
	१२				४८/२अ	०.३५६०	०.३५६०	४१२५	आहे
	१३				६७०२	०.५५६०	०.५५६०	६३५८	आहे
	१४				७०	०.५९४०	०.५९४०	५७१३	आहे
	१५				४८/१	०.२९००	०.२९००	४७४९	आहे
					एकूण	२.४९४०	२.४९४०	२८४६९	
६	१६			खारपिरची	३१/१	०.२०९०	०.२०९०	३५६१	आहे
	१७				३२/१	०.३६८०	०.३६८०	४५७९	आहे
					एकूण	०.५७५०	०.५७५०	८१४०	
७	१८			खारफोलना	८८/१	०.९०००	०.९०००	३१८०	आहे
	१९				६१/२	०.५३५०	०.५३५०	३४४	आहे
	२०				७३/२	०.८६००	०.८६००	५३	आहे
	२१				३९/०	०.४१००	०.४१००	१११३०	आहे
					एकूण	२.७०५०	२.७०५०	१४७०७	आहे
८	२२			खारघाट	-	-	-	-	-
	२३	खडकाळ	खडकाळ	पार्थे	४३/१	०.१९७०	०.१५४०	५४४	आहे
	२४				४३/४	०.१२४०	०.११००	३८८	आहे
	२५				४३/५	०.२५००	०.२३७५	८३९	आहे
	२६				४३/६	०.१५२०	०.१५००	५३०	आहे
	२७				४३/७	०.१६४०	०.१५५०	५४७	आहे
	२८				४४/१	०.२८६०	०.२३४०	२४८०	आहे
	२९				४४/३	०.१९५०	०.१३२०	१३९९	आहे
	३०				४९/४	०.५२८०	०.१९२४	३३९९	आहे
	३१				७७३/४अ	०.४९००	०.४९००	७७३	आहे
	३२				७७०/२	०.४५५०	०.४३४०	३०६७	आहे
	३३				१५८/२अ१	०.३७१०	०.३७०५	२६१८	आहे
	३४				१९७/१	०.४७३०	१.००००	७०६७	आहे
	३५				१९७/२	०.५६६०			आहे
	३६				१९७/४	०.४३००	०.४२४०	२९९६	आहे
	३७				१५४/२	०.६३००	०.११२०	६४४५	आहे
	३८				१५४/३	०.३०१०			आहे
	३९				१६६/१	०.६०३०	०.५६१०	३९६४	आहे
	४०				१६६/२	०.३५४०	०.३३००	२३३२	आहे
	४१				१६६/४	०.३३१०	०.३६००	२४१०	आहे
	४२				१६५/२अ	०.५९२०	०.५९००	४२२६	आहे
	४३				१५६/२	०.२०५०	०.१९७६	१३९६	आहे
	४४				१५६/१	०.१५३०	०.१४२४	६६६०	आहे
	४५				१५७/२	०.२८६०	०.२७१५	१९७५	आहे
	४६				१५९	०.३८७०	०.३७८०	२५७१	आहे
	४७				१५६/३	०.१४२०	०.१३९५	९८६	आहे
	४८				१५६/४	०.५१७०	०.५८६५	४१४५	आहे
	४९				८७/४	०.७५९०	०.६७५०	३५७०	आहे

	५०				८९/२	०.१४३०	०.१६१२	३१९०	आहे.
	५१						०.०४८०	४२४	आहे.
	५२				९६/४	०.८५१०	०.८५१०	४५७१	आहे.
	५३				९६/२अ	०.३०५०	०.५१७०	२५४४	आहे.
	५४				९६/२ब	०.३१२०			आहे.
	५५				९५/०	०.३९३०	०.१६००	५६५	आहे.
	५६				९४/०	०.३६२०	०.१८००	१८९	आहे.
	५७				९३/१ब	०.८९४०	०.७२००	२५४४	आहे.
	५८				९७/२	०.१०१०	०.०६००	३१२	आहे.
	५९				४२/२अ	०.३०४०	०.१७६०	६२१	आहे.
	६०				४३/१	०.१२२०	०.१९८०	३२४३	आहे.
	६१				४३/२	०.१८००			आहे.
	६२				१७५/३अ	०.३३१०	०.४४२०	१५६२	आहे.
	६३				१७५/३ब	०.३२९०			आहे.
	६४				१७१/१	०.३७५०	०.७५००	५३००	आहे.
	६५				१७१/२	०.३८४०			आहे.
	६६				१७३/१	०.८५४०	०.८४००	५९३६	आहे.
	६७				१७३/४अ	०.३३१०	०.३२४०	२२१०	आहे.
	६८				१७३/१	०.३९५०	०.३५७५	२५१७	आहे.
	६९				१७७/१ब	०.०५१०	०.०४८०	३३९	आहे.
	७०				१६४/५	०.८४००	०.५४९०	३२४४	आहे.
	७१				१६७/१अ	०.९४४०	०.८३२५	२९४२	आहे.
	७२				७६/१अ	०.२२००	०.१९७४	१७४३	आहे.
	७३				८६/१अ	०.३०२०	०.२८८०	२५४४	आहे.
	७४				१६१/२	०.३६४०	०.३६४०	४९४६	आहे.
	७५				६६/१	०.४३८०	०.४३८०	९३०७	आहे.
	७६				३९/४	०.२३००	०.२३००	१५९०	आहे.
	७७				८४/२अ	०.३२००	०.३२००	४२०४	आहे.
	७८				१३०/०	०.१७२०	०.१७२०	१०४५	आहे.
	७९				७३/५	०.१६९०	०.१६९०	९८०	आहे.
	८०				८७/१	०.४९३०	०.४९३०	६५३०	आहे.
	८१				७७/२अ	०.४४२०	०.४४२०	६३८१	आहे.
	८२				३९/२	०.३२६०	०.३२६०	४२०४	आहे.
	८३				८४/१५१	०.२६९०	०.२६९०	१९८७	आहे.
	८४				१५५/१	०.३६२०	०.३५५२	२५१०	आहे.
	८५				४९/२	०.१८५०	०.१९१५	५८८	आहे.
	८६				१५७/१अ	०.२८६०	०.२७७५	१४७०	आहे.
	८७				१५७/१ब	०.२९२०	०.२०२५	१७८८	आहे.
	८८				१०/२	०.२३८०	०.२२०५	१९४७	आहे.
	८९				१२७/४	०.५८७०	०.५७६०	६१०६	आहे.
	९०				१२७/३	०.०२५०	०.०२००	१४१	आहे.
	९१				१३१/१	०.८५२०	०.७९२०	८३५	आहे.
	९२				१३१/३	०.१०४०	०.०९९०	८७४	आहे.
	९३				१३२/२	०.२३००	०.१८२०	१५०७	आहे.
	९४				१३३/१	०.१०९०	०.०९९०	८७४	आहे.
	९५				८९/२	०.१४२०	०.१३६०	६६१४	आहे.
	९६				१६६/३	०.३८४०	०.३७४०	२६४३	आहे.
					एकूण	१९.७१८	२१.३४५७	१८७१६५	
	९७	चतुरसन	चतुरकर	चतुरकर	७/१	०.५८६०	०.५५६०	१९१६	आहे.
	९८				९/१	०.५४७०	०.५२१०	१८४२	आहे.
	९९				१३/१	०.८१७०	२.७१२०	३३५४१	आहे.
१०	१००				१३/२	०.८३००			आहे.
	१०१				१३/३	१.२२३०			आहे.
	१०२				१४/३अ	०.४०५०	०.९८००	२३३२	आहे.
	१०३				१४/३ब	०.३९४०			आहे.
	१०४				१५/७	०.४३५०	०.४२७०	३०२१	आहे.
					एकूण	५.१३७०	४.८७६०	४२७०२	
११	१०५				१०	०.६७००	०.६७००	४५५१	आहे.

(विद्युत स्थापित)

उपभोक्ताचा संपर्कपत्ता

उपभोक्ता क्रमांक

प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-अ

अ.क्र	गावाचे नाव	स.न/हि.न	एकूण क्षेत्र	पैकी स.न वरील भराव	लांबीx रुंदीx उंची(मीटरमध्ये)		शेतक-यांची संमती आहे/नाही	शेरा
1	2	3	4	5	6	घनमी	7	8
2	वाघे	४३१७	०.१८.७०	०.१५.५०	७०×५२×१ =	५४४	होय	राजन बजरंग पाटील
3	—"—	४३१४	०.१२.४०	०.११.००	५०×२२×१	३८८	—"—	गिरिजा शंकर पाटील
4	—"—	४३१५	०.२५.००	०.२३.७५	६५×२५×१	८३९	—"—	रामकृष्ण रघुनाथ म्हात्रे
5	—"—	४३१६	०.१५.२०	०.१५.००	५०×३०×१	५३०	—"—	रामी विठ्ठ मोकल
6	—"—	४३१७	०.१६.५०	०.१५.५०	५०×३१×१	५४७	—"—	चांगुणा हरिभाऊ म्हात्रे
7	—"—	४३१९	०.२८.६०	०.२३.४०	५२×१५×३	२४८०	—"—	जगेश हिरामण म्हात्रे
8	—"—	४३१३	०.१६.५०	०.१३.२०	३३×३०×३	१३६६	—"—	प्रभाकर गोवर्धन पाटील
9	—"—	४३१४	०.५२.८०	०.१६.२४	५२×३७×५	३३६६	—"—	वासंती हरिभाऊ पाटील
10	—"—	१६३/१६	०.४०.००	०.४८.००	४१×१२×१	१७३	—"—	तंटया सतोष माळी
11	—"—	१७०/२	०.४५.५०	०.४३.४०	७०×६२×२	३०६७	—"—	सतोष बाळकृष्ण म्हात्रे व
12	—"—	१६८/२अ	०.३७.२०	०.३७.०५	५७×६५×२	२६१८	—"—	हरिराम जाधु म्हात्रे
13	—"—	१६७/१	०.४७.३०	१.००.००	१२५×८०×२	७०६७	—"—	ओमकार रमेश म्हात्रे
८	—"—	१६७/२	०.५६.६०				—"—	ओमकार रमेश म्हात्रे
			४.२५.२०	१.६५.८४		२३०५१		

तलाठी स्वाक्षरी

मंडळ अधिकारी स्वाक्षरी

प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-अ

अ.क्र	गावाचे नाव	स.न/हि.न	एकूण क्षेत्र	पैकी स.न वरील भराव	तांबीx रुंदीxउंची(मीटरमध्ये)	आरस	शेतक-यांची संमती आहे/नाही	शेरा
1	2	3	4	5	6		7	8
१४	मावे	२६७/४	0-६३-00	0-६२-४०	८0x४३x२=	२८८६	होस	महादेव बाबल्या म्हाळो व
१५	-11-	२५४/२	0-६३-00	0-८१-२0	१५२x८0x२=	६४४५	-11-	गणु धर्मा म्हाळो
१	-11-	२५४/३	0-३0-१0				-11-	ओमा धर्मा म्हाळो
१४	-11-	१६६/१	0-६0-३0	0-५६-१0	११0x५१x२=	३८६४	-11-	कृष्णा देवजी म्हाळो व
१७	-11-	२६६/२	0-३५-४0	0-३३-00	११0x३0x२=	२३३२	-11-	गोपाळ पदम म्हाळे
१८	-11-	२६६/४	0-३३-१0	0-३१-00	११0x३१x२=	२४१0	-11-	हरिचंद्र हिरामण म्हाळो व
१९	-11-	२६५/२अ	0-५८-२0	0-५८-00	८२x६५x२=	४२२६	-11-	एकनेश हिरामण पाटील व
२0	-11-	२५६/२	0-२0-५0	0-१८-७८	७६x२६x२=	१३८६	-11-	गणु धर्मा म्हाळो
२१	-11-	२५५/१	0-८५-३0	0-८४-२४	१५२x६२x२=	६६६0	-11-	चांगुना हरिभाऊ म्हाळेव
२२	-11-	२५७/२	0-२८-६0	0-२७-८५	६५x४३x२=	१८७५	-11-	अशोक रामदास म्हाळो
२३	-11-	१५८	0-३८-७0	0-३७-८0	७0x५४x२=	२६७१	-11-	निलेश लामोर
२४	-11-	२५५/३	0-१४-२0	0-१३-८५	४५x३१x२=	८८६	-11-	गणु धर्मा म्हाळो
२५	-11-	१५६/४	0-५८-७0	0-५८-६५	८५x६८x२=	४१४५	-11-	शिवाजी गणु म्हाळो
	तलाठी स्वाक्षरी		५-८१-१	५-६५-०५		४०२०६		

मंडळ अधिकरी स्वाक्षरी

प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-अ

अ.क्र	गावाचे नाव	स.न/हि.न	एकूण क्षेत्र(हेक्टर)	पैकी स.न वरील भराव	लांबीx रुंदीxउंची(मीटरमध्ये)=घनमीटर	शेतक-यांची संमती आहे/नाही	शेरा (कोणत्या गांव)
1	2	3	4	5	6	7	8
२६	वाबे	८७/४	०-७५-९	०-६७-५	९०×७५×१०·५ = ३५७७	होय	विठोबा मारुती पांचाळ व.
२७	—"—	८९/२	०-९४-२०	०-३६-१२	८६×४२×२·५ = ३१९०	—"—	विठोबा संभाजी पांचाळ व.
२८	—"—			०-०४-८०	३२×१५×२·५ = ४२४	—"—	
२९	—"—	६६/४	०-८५-९०	०-८५-९०	११५×७५×१०·५ = ४५७१	—"—	नंदा बहुमाने व्यवहार व.
३१	—"—	८६/२अ	०-३०-५०	(०-७२-००) ०-६१-५०	१२०×६०×१ = २५४४	—"—	हरिभाऊ दामोदर मोहोळ
३	—"—	६६/२ब	०-२१-२०			—"—	सौ.गोदा आदिनाथ व्यवहारे व.
३०	—"—	६५/०	०-१६-२०	०-१६-००	४०×४०×१ = १६५	—"—	सुकदेव हरणाप्पा मोहोळे
३१	—"—	६४/०	०-३६-२०	०-२८-०	७०×००×१ = ९८६	—"—	—"—
३२	—"—	६३/१अ	०-८९-४०	०-७२-०	९६×७५×१ = ४५४४	—"—	पद्मावती व्यवहारे पांचाळ व.
३३	—"—	६७/२	०-१०-१०	०-०६-००	३०×२०×१ = २१२	—"—	हरिदास दामोदर मोहोळ
३४	—"—	४२/२अ	०-२०-४०	०-१७-६०	८०×२२×१ = १६२१	—"—	बाबासो काशिनाथ मोहोळे
३५	—"—	४३/२	०-१२-२०	०-११-८०	१०२×१०×१ = ३२४३	—"—	शिवाजी बापू मोहोळे
३६	—"—	४२/३	०-०७-८०				बापू कापू मोहोळे
			५-१०-०	४-१७-७२	एकूणक्रास ३२४८०		

तलाठी स्वाक्षरी

मंडळ अधिकारी स्वाक्षरी

प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-अ

अ.क्र.	गावाचे नाव	स.न/हि.न	एकूण क्षेत्र	पैकी स.न वरील भराव	लांबीx रुंदीxउंची(मीटरमध्ये) नाश	नाश	शेतक-यांची संमती आहे/नाही	शेरा
1	2	3	4	5	6		7	8
२६) २४)	वाबे	१७५/३अ	०·३३·१०	०·४४·२०	८५×५२×१	१५६२	आहे	अक्का तुकाराम म्हाने व.
२५)	—"—	१७५/३ब	०·३२·९०				—"—	पदमाकर शिवराम म्हाने.
३७) २६)	—"—	१७१/१	०·३७·५०	०·६५·००	१५०×५०×२	५३००	—"—	तुकाराम नागु पाटील.
४५)	—"—	१७१/२	०·३८·४०				—"—	प्रकाश गणपत म्हाने.
२७) २७)	—"—	१७३/१	०·८५·४०	०·८४·००	१२०×६०×२	५९३६	—"—	—"—
३५) २९)	—"—	१७३/४अ	०·३३·९०	०·३२·४०	१२०×२७×२	२२९०	—"—	यशवंत गणु म्हाने.
७०) ४७)	—"—	१७२/१	०·३९·५०	०·३६·७५	७५×४९×२	२५९७	—"—	अशोक कृष्णा म्हाने.
७१) ४९)	—"—	१७७/१४	०·०५·१०	०·०४·८०	४०×१२×२	३३९	—"—	उषा नरेश म्हाने.
७२) ४८)	—"—	१६४/५	०·८४·००	०·५४·९०	८५×५४×२	३२४४	—"—	पांडुरंग नागु म्हाने.
७३) ४९)	—"—	१९०/१अ	०·९४·४०	०·८३·२५	१८५×४५×१	२८४२	—"—	कृष्णा चमनी म्हाने.
७४)	एकुण	१०	४·८४·२०	४·१५·३०		२४२१०		
७५)								
७६)								

तलाठी स्वाक्षरी

मंडळ अधिकारी स्वाक्षरी

प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-अ

अ.क्र	गावाचे नाव	स.न/हि.न	एकूण क्षेत्र	पैकी स.न वरील भराव	लांबीx रुंदीxउंची(मीटरमध्ये)	शेतक-यांची संमती आहे/नाही	शेरा
1	2	3	4	5	6	7	8
४४५	वाघे	७१/१अ	०-२२-०	०-१८-७४	४७x४२x२.५ =७४३	होय	
४५)	—"—	८६/१अ	०-३०-२	०-२८-८	६०x४८x२.५ = २५४४	—"—	
४६)	—"—	१६१२	०-३६-४	पूर्ण भराव	८०x७०x२.५ = ४०४६	—"—	
४७)	—"—	६६१७	०-४३-८	—"—	५५x८४x२.५ = ६३०७	—"—	
४८)	—"—	२०१४	०-२३-०	—"—	५०x७५x२ = ३५८०	—"—	
४९)	—"—	८४/२अ	०-३२-०	—"—	८५x७०x२ = ४२०४	—"—	
५०)	—"—	१३०१०	०-१७-२	—"—	८०x३७x२ = ७०४५	—"—	
५१)	—"—	७३१५	०-१६-९	—"—	३७x३०x२.५ = ९५०	—"—	
५२)	—"—	८३१७	०-४९-३	—"—	८८x८४x२.५ = ६५३०	—"—	
५३)	—"—	७२/१अ१७	०-४४-२	—"—	८६x ८४x२.५ = ६२८७	—"—	
५४)	—"—	३०१२	०-३२-६	—"—	८५x७०x२ = ४२०४	—"—	
५५)	—"—	८४/२अ७	०-२६-९	—"—	५०x७५x२.५ = ३१८७	—"—	
५६	एकूण		२-७४-५	२-७०-८	एकूण क्यूब = ४२४८७		

तलाठी स्वाक्षरी

मंडळ अधिकरी स्वाक्षरी

प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-अ

अ.क्र	गावाचे नाव	स.न/हि.न	एकूण क्षेत्र	पैकी स.न वरील भराव	लांबीx रुंदीxउंची(मीटरमध्ये)		शेतकऱ्यांची संमती आहे/नाही	शेरा
1	2	3	4	5	6		7	8
४९	वाघे	१५५१ १	०.३६.२०	०.३५.५२	६६×३७×२	२५१०	— " —	
५०	— " —	४१२	०.१८.५०	०.१६.६५	४५×३७×१	५८८	— " —	
५१	— " —	१५७/१३१	०.२८.६०	०.२७.७५	७५×३७×२.५	१४७०	— " —	
५२	— " —	१५७/१४	०.२१.२०	०.२०.२५	७५×२७×२.५	१७८८	— " —	
६०	— " —	६०१२	०.२३.८०	०.२२.०५	४६×४५×२.५	१८४७	— " —	
६१	— " —	१०७१४	०.५८.७०	०.५७.६०	८०×७२×३	६१०६	— " —	
६२	— " —	१२७१३	०.०२.५०	०.०२.००	२०×३०×२	१४१	— " —	
६३	— " —	१३१९	०.८५.२०	०.७६.२०	१३०×७२×३	८३६५	— " —	
६४	— " —	१३१३	०.१०.४०	०.०६.६०	४५×२२×२५	८७४	— " —	
६५	— " —	१३२१२	०.२३.००	०.१८.२०	५२×३५×२५	१६०७	— " —	
६६	— " —	१३२१७	०.१०.६०	०.०६.६०	४५×२२×२५	८७४	— " —	
६७	— " —	८६१२	०.६८.२	०.६३.६०	१०४×६०×२	६६१४	— " —	
६८	— " —	१६६१३	०.३८.४	०.३७.४०	१३०×३४×२	२६४३	— " —	

तलाठी स्वाक्षरी

४.५१.६ ४.३००२
२६.७६.६ २६.३४.५५

३५५५७
६८१६५

मंडळ अधिकारी स्वाक्षरी

1664

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प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-अ

अ.क्र	गावाचे नाव	स.न/हि.न	एकूण क्षेत्र	पैकी स.न वरील भराव	लांबीx रुंदीx उंची(मीटरमध्ये)	शेतक-यांची संमती आहे/नाही	शेरा
1	2	3	4	5	6	7	8
2	वडखळ	७१७	०-४८-६	०-४५-६	३५८x३५x१ = १८६६	होय	नारायण पोशा म्हात्रे व.
3		८१७	०-५४-७	०-५२-१	३५८x३३x१=१८६२	—11—	महादेव रामजी म्हात्रे व.
4		१३१७	०-८७-७			—11—	निर्मला नाथु म्हात्रे
5		१३/२	०-८३-०	२-६१-२	४५२x८०x५=१८०८४	—11—	कृष्ण महादेव दिवेकर व.
6		१३/३	१-५२-३		४५२x८०x३·५=३३४८०	—11—	लक्ष्मण शिवराम आंभले
7		१४/३अ	०-४०-५	०-६६-०	११०x८०x१=२३३२	—11—	भारती किशोर पाटील
8		१४/३ब	०-३८-५			—11—	शिवराम मशनंक भारदर
9		१५/७	०-४३-५	०-४२-७	८५x४५·२= ३८२१	—11—	परशुराम धोंडा म्हात्रे व.
10							
11			५-१२-७	४-८७-६	८२०१ = (५७०५६) ४२१०२		
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तलाठी स्वाक्षरी

प्र. मलांगि वडखळ

तलाठी

ग. वडाळ

मंडळ अधिकारी स्वाक्षरी

प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-अ

अ.क्र	गावाचे नाव	स.न/हि.न	एकूण क्षेत्र	पैकी स.न वरील भराव	लांबीx रुंदीxउंची(मीटरमध्ये)	शेतक-यांची संमती आहे/नाही	शेरा
1	2	3	4	5	6	7	8
2	कोळवे	४१/२	०.२०.६	—	—	—	
3	—11—	४२/१	०.४८.३	—	—	—	
4	—11—	४४/१	०.२६.०	—	—	—	
5	—11—	४४/२	०.३३.८	—	—	—	
6	—11—	४४/३	०.४१.६	—	—	—	
7	—11—	४५/२	१.४६.०	—	—	—	
8	—11—	४६/२	०.२०.६	—	—	—	
9	—11—	४६/३	०.३०.१	—	—	—	
10	—11—	४६/४	०.१६.०	—	—	—	
11	—11—	४६/५	०.५.५	—	—	—	
12	—11—	४७/२	०.४२.२	—	—	—	
13	—11—	४७/३	०.४०.४	—	—	—	
14	—11—	४७/४	०.१५.२	—	—	—	

तलाठी स्वाक्षरी

मंडळ अधिकारी स्वाक्षरी

प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-अ

अ.क्र	गावाचे नाव	स.न/हि.न	एकूण क्षेत्र	पेकी स.न वरील भराव	लांबीx रुंदीxउंची(मीटरमध्ये)	शेतक-यांची संमती आहे/नाही	शेरा
1	2	3	4	5	6	7	8
३५	कोळवे	६५१	0.६८.0	—	—	—	
३६	-11-	६८७	0.20.0	—	—	—	
३७	-11-	६८२	0.६0.७	—	—	—	
३८	-11-	५०१७	0.७६.५	—	—	—	
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तलाठी स्वाक्षरी

प्र.सजाठी वडगाव

दि.७/१/१७

मंडळ अधिकारी स्वाक्षरी

तलाठी अक्षर सांकेतांक
दि. ०५/०१/२२

मे. उपविभागीय अधिकारी सो.

पेण भोरे ऐवेकी

विषय तलाठी अक्षर सांकेतांक मंजूरकरून
अविनय आदर

विषय जे.एस.डब्लू कं.ने केलेल्या
अनधिकृत मशवाबाबत

संदर्भ ३-३ वि.अ/जमीनबाब/१/कान/१
दप्तलपाठणी/२०२१/उपविभागीय अधिकारी
पेण/३०/१२/२०२१

महोदय,

वरील संदर्भिय विषयान्वये जे.एस.डब्लू कं.ने केलेल्या अनधिकृत मशवाबाबत दि.३०/१२/२१ रोजी नोटिसा काढलेल्या आहेत.

	शासकीय नाव	शेतकऱ्याचे नाव	अनधिकृत दर
१)	आरवांगेळा	तुकाराम दिनकर पाटील	३९,९५०/- + १४,९२४
२)	-11-	सुरेश केशरीनाथ पाटील	३९,९५०/-
३)	-11-	अनुल बाबू पाटील	३५,०३१/- ~~४१,९५०/-~~
४)	खारनिर्वी	सुदिप्त बाबू कोळेकर	२,३९,३८१/-

परंतु सदर खातेदारांनी अनधिकृत मशवा. बाबतच्या नोटिसा देऊन मशवा केलेल्या नाही.

तलाठी सजा खारनिर्वी
ता. पेण, जि. रायगड

मा० उपजिल्हाधिकारी साहेब वेळा विभाग
पेठा सांगली

विषय: पुरुषांच्या संरक्षणाची निविदा
बुचनाप्रमाणे अनामत रक्कम भरणेबाबत

संदर्भ: मा. उपजिल्हाधिकारी साहेब यांचेकडील
टीप शीट क्रमांक 1/कार्या/ कार्या/
दिनांक 30/12/2024

महोदय

उपरोक्त संदर्भीय विषयाबाबत आपल्या
कार्यालयाकडून प्रसिद्ध केलेल्या जाहिरातीनुसार
मौजे खारकाटवी, डोंबवी, कारंब व खारदेवी या गावी
दिनांक 31/05/2024 ते 04/05/2029 रोजी पर्यंत
जागेवर जाऊन पाहणी करून प्रपत्र अ मध्ये अनामत
संबंधीत कार्यालयीन कर्मचाऱ्यांच्या स्वाक्षरीनिशी
मोजमापे केवळ अनामत ठेवली जावी

गांव	अनामत भरणे पात्र गाळे	अनामत भरणा केलेले
कारंब	3	6023
	2	2966
खारदेवी	--	--
खारकाटवी	5	3690
डोंबवी	-	--
खाडोंबी	--	--
	90	13226 बाद

मिळकत धारकाची
वर्णी

प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-अ

अ.क्र	गावाचे नाव	स.न/हि.न	एकूण क्षेत्र	पेकी स.न वरील भराव	लांबीx रुंदीxउंची(मीटरमध्ये)	शेतक-यांची संमती आहे/नाही	शेरा
1	2	3	4	5	6	7	8
2	वा।२७।८						
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तलाठी खांडरी

प्रत. वा।२७।१।

मंडळ अधिकारी

प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-अ

अ.क्र	गावाचे नाव	स.न/हि.न	एकूण क्षेत्र	पैकी स.न वरील भराव	लांबीx रुंदीxउंची(मीटरमध्ये)	शेतक-याची समती आहे/नाही	शेरा
1	2	3	4	5	6	7	8
2	खारमाचेमा	८८/१	०.१०.०	०.१०.०	३०×१०×३ = ९०००मे		मीनचेन विनेश म्हात्रे
3	-11-	९१/२	०.४३.५	०.४३.५	५५×५×३ = २१७५मे		प्रदीप कांतिनाथ ठोंबर
4	-11-	५३/२	०.८६.९	०.८६.०	१०×५×३ = ५००मे	होते	गंगेश लक्ष्मण ठोंबर
5	-11-	३९/०	०.४१.०	०.४१.०	१०×६०×५ = ११५००		वाळाराम लक्ष्मण रोंबर
6							
7							
8		दिघा (स.नं. ३९/० मधे			बांधकाम चालू असलेचे दिसून येते)		
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तलाठी स्वाक्षरी

1) तलाठी (सजा खारगांव)

2) स.नं. ३९/०

3)

मंडळ अधिकारी स्वाक्षरी

प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-अ

अ.क्र	गावाचे नाव	स.न/हि.न	एकूण क्षेत्र	पैकी स.न वरील भराव	लांबीx रुंदीxउंची(मीटरमध्ये)	शेतक-याची संमती आहे/नाही	शेरा
1		3	4	5	6	7	8
2	खारिवली	९१/१	०-२०-९	०-२०-९	९०×५५×३=~~१५८५~~	~~नाही~~	वरील नालाचा मोरि
3	-11-	९२/१	०-३९-९	०-३९-९	९०×७२×३=~~१९५९~~	नाही	पुर्वीचा वापू कोल्हर
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तलाठी स्वाक्षरी

सु. खाडे

प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-अ

अ.क्र	गावाचे नाव	स.न/हि.न	एकूण क्षेत्र	पैकी स.न वरील भराव	लांबी x रुंदी x उंची (मीटरमध्ये)	शेतक-यांची संमती आहे/नाही	शेरा / नाव
1	2	3	4	5	6	7	8
2	खारजाभेका	१४/१/ब	०.३४-८	०.३४-८	४७ x ४५ x ५ = ३७३३ ब्रास		गोपीनाथ दिगु पाटील
3	-11-	१४/१अ	०.३५-०	०.३५-०	६० x ४४ x ३ = २७६० ब्रास		तुकाराम दिगु पाटील
4	-11-	४८/२ब	०.३५-६	०.३५-६	५६ x ५२ x ४ = ११५४ ब्रास		सुधाकर केसरीनाथ पाटील
5	-11-	६/अ/2	०.५५-६	०.५५-६	६१ x ५६ x ५ = ५७१० ब्रास	नाही	प्रविण बनाजी मोहिते व ।।
6	-11-	७/०	०.५६-४	०.५६-४	६५ x ४० x ५ = ६७३ ब्रास		[illegible]
7	-11-	४८/१	०-२६-०	०-२६-०	८४ x ४० x ४ = ६७२ ब्रास		सुनुल बाबू पाटील व ।।
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तलाठी स्वाक्षरी

गाव - डोंबळी

प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-अ

अ.क्र	गावाचे नाव	स.न/हि.न	एकूण क्षेत्र	पेकी स.न वरील भराव	लांबीx रुंदीxउंची(मीटरमध्ये)	शेतीक-यांची संमती आहे/नाही	शेरा
1	2	3	4	5	6	7	8
2	डोंबळी	27/23	0-25-0	-	माल दिसी आले	-	जागेवर डिपी
3	-ू-	27/2ब	0-16-0	-	-ू-	-	आढळून आली
4	-ू-	27/2क	0-12-0	-	-ू-	-	नाही.
5	-ू-	1901 4	0-20-0	-	-	-	—
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प्रमोद रामचंद्र पाटील
रोहिदास लक्ष्मण पाटील
कमलाकर पाटील
सुरेश हरिभाऊ पाटील

तलाठी स्वाक्षरी

तलाठी - सजा डोंबळी

प्र तलाठी डोंबळी

7768566477

मंडळ अधिकारी स्वाक्षरी

34/2022

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प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-अ

अ.क्र	गावाचे नाव	स.न/हि.न	एकूण क्षेत्र	पेकी स.न वरील भराव	लांबीx रुंदीxउंची(मीटरमध्ये)	शेतक-यांची संमती आहे/नाही	शेरा
1	2	3	4	5	6	7	8
2	खराव	५५/१	०-२०-०	-	-	-	भराव नाही
3	- ' -	२८ ✓	१-००-९ ✓		१०५ x ५५ x १ = २०१८	होय	भराव आहे
4	- ' -	४२२	०-०३-९	१८५ ब्रास	- -	-	भराव नाही
5	- ' -	४२३	०-०९-३ ✓	४५	- -	-	भराव आहे
6	- ' -	४३१ ✓	०-०७-८		९८ x ९४ x २ = ९७८	होय	भराव आहे
7		३७४					
8	खराडेवस्ती	८४ ✓	०-८१-० ✓	-	-	-	भराव नाही
9	- ' -	८६ ✓	०-४६-८ ✓	-	-	-	भराव नाही
10	- ' -	१ ✓	०-४८-८ ✓	-	-	-	भराव आहे
11							
12							
13				० पंच			
14							

तलाठी स्वाक्षरी

तलाठी - खराडवाडी

सर्वसाधारण सामाजी सदरे: प्रकारा examine केले

मंडळ अधिकारी स्वाक्षरी

वाघोली

१९/१/२०२२

प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-अ

अ.क्र	गावाचे नाव	स.न/हि.न	एकूण क्षेत्र	पैकी स.न वरील भराव	लांबीx रुंदीxउंची(मीटरमध्ये)घनफळ	शेतक-यांची संमती आहे/नाही	शेरा
1	2	3	4	5	6	7	8
2	कारावे	367/1	0-43-3 ✓		90 x 60 x 2 3816	होय	
3	-ू-	367/2	0-48-0 ✓		53 x 50 x 2 = 1872	होय	
4	-ू-	365 ✓	0-36-6 ✓		90 x 32 x 2 = 2035	होय	
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तलाठी स्वाक्षरी

मंडळ अधिकारी स्वाक्षरी

दि. 21/9/2022

तलाठी साजा -ू- होटी

तलाठी-हमरापूर

तलाठी-पेगोदे

प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-अ

अ.क्र	गावाचे नाव	स.न/हि.न	एकुण क्षेत्र	पैकी स.न वरील भराव	लांबीx रुंदीxउंची(मीटरमध्ये)	शेतकऱ्यांची संमती आहे/नाही	शेरा
1	2	3	4	5	6	7	8
2	खानकारवाडी	१७१/३	०-३५-८	-	-	-	भराव नाही
3	—"—	१७१/१	०-२६-३	-	-	-	भराव नाही
4	—"—	१६०/१/१/अ	०-१६-९	-	-	-	भराव नाही
5	—"—	१५९/१	०-२९-९	-	-	-	भराव नाही
6	—"—	१५१/२	०-२७-०	-	०३५ x ३५० x ०२ फी	- आहे	भराव नाही
7					कुल 3690		
8							
9							
10							
11							
12							
13							
14				पैव			

तलाठी स्वाक्षरी

मंडळ अधिकारी स्वाक्षरी

Annexure-3

1678

महाराष्ट्र शासन - कृषि विभाग

तालुका कृषि अधिकारी पेण-रायगड

गजानन महाराज मंदीर शेजारी खाचरखिंड (रामवाडी) जि.रायगड पिन कोड-402107
दुरध्वनी क्र - ०२१४३-२५२३५१ ई-मेल-tao_pen@rediffmail.com

जा.क्र/ताकृअपे/तंत्र/जेएसडब्ल्यु अहवाल/ 628/2022
तालुका कृषि अधिकारी कार्यालय पेण
दिनांक – 06 /07/2022

प्रति,
मा.जिल्हा अधिक्षक कृषि अधिकारी
रायगड-अलिबाग

विषय – केंद्रीय प्रदुषण मंडळ पुणे यांचे सुचनेप्रमाणे(JSW कंपनी संदर्भात) चौकशी तक्ता गाव निहाय गावाचे अहवाल सादर करणे बाबत..

संदर्भ – कृषि पर्यवेक्षक वडखळ यांचे दिनांक- 13/01/2022 चे पत्र

उपरोक्त विषयान्वये 12 गावचे प्रपत्र-ब अहवाल या कार्यालयास खालीलप्रमाणे प्राप्त झाले आहे. ते आपल्या माहिती व कार्यवाहीसाठी सविनय सादर करीत आहे.

सोबत- 12 गावाचा अहवालाची झेरॉक्स प्रत

अ.क्र	गावाचे नाव	प्रपत्र-ब नुकसान क्षेत्र गोषवारा	शेरा
1	वावे	10.65	
2	बेणेघाट	2.03	
3	वडखळ	निरंक	
4	कोळवे	निरंक	
5	डोलवी	0.20	
6	खारकारावी	0.73	
7	कारावं	0.07	
8	खारढोंबी	निरंक	
9	खारमाचेला	निरंक	

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10	खारघाट	निरंक	
11	खारचिरबी	निरंक	
12	खारजांभेळा	निरंक	
	एकुण	13.68 हेक्टर	

वर नमुद 13.68 हे क्षेत्रावर प्रत्यक्ष पिक नाही. परंतु सदरचे क्षेत्र जास्त प्रमाणात बाधित असुन उर्वरित क्षेत्र ही असेच बाधित आहे.

खाडीचे पाणी शेती क्षेत्रात वारंवार येत असल्याने व सदर पाण्याचा निचरा होत नसल्याने चिखल व दलदलीची परिस्थिती कायम असते. त्यामुळे सर्व्हे क्रमांक निहाय प्रत्यक्ष पाहणी करणे शक्य होत नाही तरी त्यासाठी ड्रॉन इमेज इनपोज करुन सर्व्हे करणे आवश्यक आहे असे वाटते.

तालुका कृषि अधिकारी
पेण-रायगड

प्रत- मा.उपविभागिय अधिकारी पेण- रायगड यांना माहितीसाठी सविनय सादर
मा. उपविभागिय कृषि अधिकारी अलिबाग- रायगड यांना माहितीसाठी सविनय सादर
मा.तहसिलदार पेण- रायगड यांना माहितीसाठी सविनय सादर

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वरठक. मं.-पेण
दिनांक- 23/3/2022

प्रति,
मा. तालुका कृषि अधिकारी
ता.-पेण, जि.-रायगड.

विषय :- प्रदुषण मंडळ पुणे यांची देवेळ्या सुचनेप्रमाणे कळेच्या चौकशी तपशील (प्रपत्र ब) सादर करणे बाबत

संदर्भ :- १) उपविभागीय अधिकारी-पेण, उपविभाग-पेण दि. 30/3/2022

महोदय,

वरील विषयानुसार आपण दिलेल्या सुचनेप्रमाणे आवश्यक गावाचे प्रपत्र ब " मध्यान्ह आपत्या कार्यालयास पुढील कार्यवाहीसाठी सविनय सादर करीत आहे.

अनुक्रमांक	गावाचे नांव	सुक्ष्मसार देणेचे प्रपत्र ब्यचे आवश्यक आहे की नाही.	शेरा.
१)	वाशी	१०-६५	
२)	वेणघाट	२-०३	
३)	वरवणे	निरंक	
४)	कोळवे	निरंक	
५)	डोलवी	०-२०	
६)	वाशीवरची	०-७३	
७)	कासाव	०-०७	
८)	वाशी दोडी	निरंक.	
९)	वाशी मानेवस	-"-	
१०)	वाशी घाट	-"-	
११)	वाशीचिंचली	-"-	
१२)	वाशी आडीवे	-"-	

(सही)
कृषि पर्यवेक्षक
वरठक. मं. पेण

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प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-ब

अ.क्र	गावाचे नाव	स.न/हि.न	एकूण क्षेत्र	शेती नुकसानीचे क्षेत्र	शिल्लक क्षेत्र	शेरा
1	2	3	4	5	6	8
1	वाव	89/2	0.94	0.24 अदाय		
2	वाते	64/4	0.859	0.85 अदाय		
3		66/2A	0.29	-0.29		
4		62/1	0.38	0.28	0.014	
5		163/2/1	0.19	0.19		
6		60/4अ	0.08	0.08		सदरील क्षेत्रातील शेतकऱ्यांनी अर्जामध्ये चौकशी पंचनामे दिसून आली नाही. व सदरील क्षेत्रामध्ये पाहणी केली असता तिथल्या स्थानिक ग्रामस्थांनी सांगितले.
7		60/4ब	0.08	0.08		
8		158/1	0.90	0.90		
9		168/2अ2	0.36	0.36		
10		137/2	0.77	0.77		
11		77/3अ	0.33	0.33		
12		76	0.70	0.70		
13		60/5	0.35	0.35		
14		88/3 87/4	0.12 0.75	0.12 0.75		

6.75 हे

कृषी सहायक वडखळ

तलाठी सजा पदाव ता.पेण,जि.रायगड

मंडळ अधिकारी तथा तालुका कृषी अधिकारी पेण

तलाठी सजा वडखळ ता.पेण,जि.रायगड

कृषि पर्यवेक्षक वडखळ,ता.पेण

1681

1682

360

प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-ब

अ.क्र	गावाचे नाव	स.न/हि.न	एकूण क्षेत्र	शेती नुकसानीचे क्षेत्र	शिल्लक क्षेत्र	शेरा
1	2	3	4	5	6	8
1	नारे	102/4ब	0.15	0.15	1) उर्वरित सर्व सत्राची पाहणी केली असता पिकाची लागवड केली नसल्याचे आढळून आले मात्र जमीन सदरची क्षेत्र पडीक असल्याचे दिसून आले	
2		107	0.36	0.36		
3		108/2	0.70	0.70		
4		112/4ब	0.48	0.48		
5		112/3	0.43	0.43	② खाडीचे पाणी शेती सत्रात वारंवार येत असल्याने व सदर पाण्याचा निचरा होत नसल्याने मिश्रण व दलदलीची परिस्थिती कायम असत त्यामुळे सर्वे नंबर निरुपयोगी झाले नाही तरी त्यासाठी झोन इसम इंप्रोज करणे आवश्यक वाटते.	
6		73/2अ	0.01	0.01		
7		73/4	0.32	0.32		
8		68/1	0.08	0.08		
9		132/1	0.09	0.09		
10		1/4/2	0.37	0.37		
11		164/4	0.79	0.79		
12		115/1	0.12	0.12		
13						
14						

अतिवृष्टी झाल्याने शेतातील पिकांची पिछेहाट झाली असून गवताचा तसेच गाळ माती दगडगोटे यांचा थर साचला आहे

कृषी सहायक वडखळ

क.इ. तलाठी सजा वडखळ ता.पेण, जि.रायगड

3.90 हे

तलाठी सजा वडखळ
ता.पेण जि.रायगड

नोडल अधिकारी तथा तालुका कृषी अधिकारी पेण

कृषि पर्यवेक्षक वडखळ, ता.पेण

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प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-ब

अ.क्र	गावाचे नाव	स.न/हि.न	एकूण क्षेत्र	शेती नुकसानीचे क्षेत्र	शिल्लक क्षेत्र	शेरा
1	2	3	4	5	6	8
1	वेलोशी	32	0.24	0.44		
2		9	0.37	0.37		
3		22	0.42	0.42		
4		15	0.19	0.19		
5		5	0.30	0.30	सदरील क्षेत्रात	
6		8	0.13	0.13	कुठल्याही पुकाची	
7		14	0.14	0.14	माती लागवड / अथवा	
8		19	0.24	0.24	पडिक लागवड नसून	
9	1) डोंगरीत	सर्व क्षेत्राची पाहणी केली असता पिकाची लागवड केली			जसे होते तसेच मोकळे	
10	नसल्याचे	आढळून	आले म्हणजेच सदरची जमीन		पडिक असल्याचे दिसून आले.	
11	2) खडीचे पाणी शेती	क्षेत्रात वारंवार येत असल्याने व सदर पाण्याचा				
12	निचरा	दरवर्षी	होत नसल्याने निचरा व दलदलीची परिस्थिती कायम असते			
13	त्यामुळे	सदर जमीन पडिक राहिली आहे. त्यासाठी शेत जमीन दुरुस्त करुन सदर क्षेत्रात आवश्यकतेनुसार भराव				
14			(1.30)	2.03		

कृषी अधिक पदवीधर छ. सं वडखळ

ग्रामसेवक तलाठी सजा वढाव ता.पेण,जि.रायगड

तलाठी सजा वडखळ ता.पेण,जि.रायगड

नोडल अधिकारी तथा तालुका कृषी अधिकारी पेण

कृषि पर्य फ वडखळ,ता.पेण

1683

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पंचनामा मंडळ पेण यांनी दिलेल्या सूचनेप्रमाणे केलेल्या संयुक्त तपासणी

अ.क्र	गावाचे नाव	सर्वे क्र	एकूण क्षेत्र	शेती नुकसानीचे क्षेत्र	शिल्लक क्षेत्र	शेरा
	तडखळ	93/1	-	-	-	२०१८ हिवाळी हंगाम कार्यक्षेत्रात आला आहे
		93/2	-	-	-	
		93/3	-	-	-	
		81	-	-	-	
		61	-	-	-	
		94/6	-	-	-	
		94/3 अ	-	-	-	

१) उर्वरित सर्व क्षेत्रावरी पाहणी केली असता पिकांची लागवड केली नसल्याचे आढळून आले. मुळातच सरस्वती जलाशय पाणीसाठा असल्याचे दिसून आले.

२) रब्बी हंगामात पाणी शेती क्षेत्रात वापरात येत असल्याने व सदर पाण्याचा निचरा देखील होत असल्याने निचरा व दलदलीची परिस्थिती कायम असते त्यामुळे सर्वे नंबर निहाय प्रत्यक्ष पाहणी करणे शक्य झाले नाही. तरी त्यासाठी ड्रोन इमेज द्वारा फेरतपासणी सर्वे करणे आवश्यक आहे असे वाटते.

कृषि सहाय्यक
तडखळ

मंडळ कृषि अधिकारी
तडखळ

तलाठी

नोडल अधिकारी तथा तालुका कृषि अधिकारी पेण

तलाठी सजा वडखळ
ता.पेण,जि.रायगड

कृषि पर्यवेक्षक
वडखळ, ता. पेण

363

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प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-ब

अ.क्र	गावाचे नाव	स.न/हि.न	एकूण क्षेत्र	शेती नुकसानीचे क्षेत्र	शिल्लक क्षेत्र	शेरा
1	2	3	4	5	6	8
1	कोप्ले					
2						
3						
4						
5				निरंक		
6						
7	(1) रसायनाच्या सर्व क्षेत्राची पहाणी केली असता विहीरी					
8	लागवड केलेली नसल्याचे आढळुन आले. शेतीच्या सदरची नुकसान					
9	पडिक असल्याचे दिसुन आले.					
10	(2) रसायनाचे पाणी शेती क्षेत्रात वारंवार येत असल्याने व सदर पाण्याचा					
11	निचरा होत नसल्याने जिमीन व वातावरणाची परिस्थिती कायम असते					
12	त्यामुळे सदर नि.तिहाय प्रत्यक्ष पहाणी करणे शक्य होत नाही तरी सदरची					
13	शेत जमीन उपयोगात आणण्या करीता आवश्यक ते सहकार्य करावे.					
14						

कृषी सहाय्यक
पडसाद

कृ स
वरवणे

तलाठी सजा वढाव
ता.पेण,जि.रायगड

तलाठी सजा वडखळ
ता.पेण,जि.रायगड

नोडल अधिकारी तथा तालुका कृषी अधिकारी पेण

कृषि पर्यवेक्षक
वडखळ,ता.पेण

1685

1686

364

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गोषवारा

प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनेप्रमाणे केलेल्या शेतीची तपशील

अ.क्र	गावाचे नाव	सर्वे क्र	एकुण क्षेत्र	शेती नुकसानीचे क्षेत्र	शिल्लक क्षेत्र	शेरा
1)	डोलवी	–	1.27	0.20	1.07	
2)	खारकोपोली	–	2.18	0.73	1.45	
3)	कासव	–	1.48	0.07	1.33	0.08 क्षेत्रात बांधीत
4)	खारढोंबी	–	–	–	–	
		एकूण =	4.93	1.00	3.85	

कृषि सहाय्यक

के.ज.जो.

तलाठी सजा-वाशी
तहसिल-पेण रायगड

मोडल अधिकारी तथा तालुका कृषि अधिकारी पेण

तलाठी सजा-
ता.पेण,जि.रायगड

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प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-ब

अ.क्र	गावाचे नाव	स.न/हि.न	एकुण क्षेत्र	शेती नुकसानीचे क्षेत्र	शिल्लक क्षेत्र	शेरा
1	2	3	4	5	6	8
1	डोलवी	900/8	0.20	0.20	—	सदर गटामध्ये कोणत्याही प्रकारचा माती भराव झालेला किंवा पुरण [illegible] आढळून आलेला नाही.
2						
3						
4						
5	डोलवी	27/2 ब	0.4825	—	0.25	सदर शेती ही [illegible] मात शेती दिसून येत आहे. शेतीचे नुकसान दिसून येत नाही.
6		27/2 ब	0.26	—	0.26	
7		27/2 क	0.36	—	0.36	
8		190/4	0.20	—	0.20	
9	1) अधिक मोठ्याची पाहणी केली असता पिकाची मागवड केल्याचे आढळून आले. मुळातच सदरची जमीन पडीक असल्याचे दिसुन येत आहे.					
10	2) ओढीचे पाणी शेती क्षेत्रात आंबा येत असल्याने व सदरपाण्याचा निचरा देखील होत					
11	असल्याने निचरा व दलदलीची परिस्थिती कायम असते त्यामुळे सर्वे नंबर निहाय प्रत्यक्ष पाहणी					
12	करणे शक्य झालेले नाही तरी त्यासाठी ड्रोन इमेज इमपोज करुन सर्वे करणे आवश्यक आहे असे वाटते.					
13						
14						

मंडळ कृषी सहायक
डोलवी

पोलीस पाटील डोलवी

तलाठी सजा-वाशी
ता.पेण, जि.रायगड

नोडल अधिकारी तथा तालुका कृषी अधिकारी पेण

तलाठी सजा- [illegible]
ता.पेण, जि.रायगड

1687

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प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-ब

अ.क्र	गावाचे नाव	स.न/हि.न	एकुण क्षेत्र	शेती नुकसानीचे क्षेत्र	शिल्लक क्षेत्र	शेरा
1	2	3	4	5	6	8
1	कारेगाव	54/9	0.07	0.07	-	तलाव ०.०५ गुंठे 502 क्षेत्र पडीक
2						पुनर्वसनाचा प्रस्ताव
3	〃	20	0.93	-	0.93	सदर क्षेत्रात गावे इस्टिमेशन. पूर्व परवानगीचा अभाव कामास
4						
5						सदर क्षेत्र रस्तेमार्गात
6	〃	822	0.03	-	-	आधिच झाले आहे
7	〃	823	0.01	-	-	सदर क्षेत्रा मध्ये 0.03 हे. तलाव अभाव
8	〃	839	0.07	-	0.03	आहे. व इतर क्षेत्र रस्ता मध्ये बाधित झाले
9						
10	〃	368	0.37	-	0.37	सदर क्षेत्रात अभाव कामा आहे

11) अंतिम क्षेत्राची पाहणी केली असता शिल्लकी नागवड क्षेत्राची नोंद घेतली नाही त्याने माहिती आले.

12) सुलट्याच सर्वेक्षणी ग्रामस्थ पडीक ग्रामस्थाने दिसून येत आहे. झाडांना पाणी होती क्षेत्रात नाविन्य येत असल्याने व सदर पाण्याचा निचरा देखील येत नसल्याने त्यामुळे परिस्थिती कायम असते त्यामुळे तलाव नवीन निर्माण पुनर्वसन करणे शक्य आहे तरी त्यासाठी येत असेल असे कामे आवश्यक आहे असे वाटते.

13) सही

14) शिक्का

रामचंद्र पायगुडे पाटील

तलाठी सजा-वाशी ता.पेण जि.रायगड

मंडळ अधिकारी

नोडल अधिकारी तथा तालुका कृषी अधिकारी पेण

तलाठी सजा-वाशी ता.पेण,जि.रायगड

प्रदुषण मंडळ पुणे यांनी दिलेल्या सूचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-ब

अ.क्र	गावाचे नाव	स.न/हि.न	एकूण क्षेत्र	शेती नुकसानीचे क्षेत्र	शिल्लक क्षेत्र	शेरा
1	2	3	4	5	6	8
1	आप्पाकावी	171/3	0.24	0.24	-	20 वर्षे पासून शेती करत आहे
2		171/2	0.24	0.24	-	पाहणी
3		171/1	0.25	0.25	-	
4		160/B/3	0.50	-	0.50	2 तलाव आहे
5		159/1	0.48	-	0.48	
6		159/2	0.47	-	0.47	
7	1) वरील सर्वांनी मागणी केली असता पंपाची मागणी केलेली नसल्याने मागणी आलेली नाही. मात्र गावची लोकसंख्या पाहता पंपाची आवश्यकता आहे.					
8	2) आंबेचे पाणी शेती करीता वापरणेची परिस्थिती	शेती केलेले क्षेत्र असल्याने व मुबलक पाण्याचा साठा असल्याने सदर जागेवर नियमित पाहणी करणे शक्य होत नाही				
9	तरी त्यासाठी डिझेल इंजिन उपलब्ध करून देणेची आवश्यकता आहे असे वाटते.					
10						
11	सरपंच -	देविदास	भला मोठा			
12		ग्रामसेवक	नथुराम	मोजणी		
13						
14		गावरा	ग्रामसेवक			

तलाठी सजा-आंबी

विस्तार अधिकारी पंचायत समिती पेण

ग्रामसेवक

नोडल अधिकारी तथा तालुका कृषी अधिकारी पेण

तलाठी सजा-गागोदे बु.
ता.पेण,जि.रायगड

1689

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1690

368

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प्रदुषण मंडळ पुणे यांनी दिलेल्या सुचनाप्रमाणे केलेला चौकशी तक्ता

प्रपत्र-ब

अ.क्र	गावाचे नाव	स.न/हि.न	एकूण क्षेत्र	शेती नुकसानीचे क्षेत्र	शिल्लक क्षेत्र	शेरा
1	2	3	4	5	6	8
1	2011 ८ 8 ली	-	-	-	-	-
2						
3						
4						
5						
6	1) अंशित क्षेत्राची पाहणी केली असता पिकाची नागवड केलेली नसल्याने नाकबूल आले.					
7	मुळातच सदरची जमिन पडीक असल्याने दिसून येत आहे.					
8	2) ओढीचे पाणी शेती क्षेत्रात बांधावरील असल्याने व मजुरांच्या अभावामुळे हात नसल्याने					
9	क्षेत्रात व वसतीची परिस्थीती कायम असते त्यामुळे सर्वे नंबर निहाय पुढील पाहणी करणे शक्य					
10	झाले नाही तरी त्यानाही ड्रोन ईमेज उपयोग करुन सर्वे करणे आवश्यक आहे वाटते.					
11						
12						
13						
14						

कृषी सहायक

तलाठी सजा-वाशी

नोडल अधिकारी तथा तालुका कृषी अधिकारी पेण

प्रगणन मंडळ ( ) यांनी दिलेल्या खुणेप्रमाणे केलेल्या चौकोनी नकाशा गोषवारा.

अ.क्र	गावाचे नाव	सर्वे नंबर	एकुण क्षेत्र.	शेती क्षेत्र वगळता क्षेत्र	शिल्लक क्षेत्र
1	वाटमोगरा	-	2.60	-	-
2	अकोला	-	शिरेड	-	-
3	वाटमिर्ची	-	0.56	-	-
4	वाटलोणेवा	-	2.47	-	-
5		एकुण क्षेत्र	5.63		
6					

तलाठी

मुख्य पर्यवेक्षक

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पदुषण मंडळ पुणे यांनी दिलेल्या सूचनेप्रमाणे केलेल्या पीकाची तपासणी

अ.क्र	गावाचे नाव	गाडी क्र.	एकूण क्षेत्र	शेती मुक्तसानीचे क्षेत्र	दिलासक क्षेत्र	शेरा
	आरमाचेला	8811	0.90	—	—	सध्यपरिस्थितीत सदर क्षेत्रात कोणत्याही प्रकारचे पीक आढळून आले नाही.
		6112	0.43.5	—	—	
		7312	0.86.2	—	—	
		3910	0.41.0	—	—	

1) अंकित क्षेत्राची पाहणी केली असता पिकाची लागवड केलेली नसल्याने आढळून आले. मागील खरीपी नमित पीक असल्याचे दिसून येत आहे.

2) अशीच पाणी सोडी क्षेत्रात वारंवार येत असल्याने व सदर पाण्याचा निचरा होत नसल्याने चिखल व पाणथळीची परिस्थिती कायम असते त्यामुळे सर्वे नंबर निहाय प्रत्यक्ष पाहणी करणे आवश्यक आहे तरी त्याप्रमाणे झोन समेज इनपोज करून सर्वे करणे आवश्यक आहे. असे वाटते.

कृषि सहाय्यक

कृषि सहाय्यक
रसायनी

तलाठी साजा खारपाले
ता पेण जि रायगड

कृषि पर्यवेक्षक
वडखळ/पेण

आरवाट

अ.क्र.	गावाचे नाव	सर्वे नं.	तलाव क्षेत्र	बांधी असलेले क्षेत्र	शिल्लक क्षेत्र	शेरा

1) उर्वरित क्षेत्राची पाहणी केली असता पिकाची लागवड केलेली असल्याचे आढळून आले त्यामुळे सदरची जमिन पडिक असल्याचे दिसुन येत नाही.

2) वरील बांधी जोगी क्षेत्रास वरकाट येत असल्याने वरकट पाण्या नियंत्रण वेदांतील दोन असल्याने पिकाचे व परिसरातील परिस्थितीची कायम असते त्यामुळे जागेवर जाऊन प्रत्यक्ष पाहणी करणे शक्य आले नाही तरी त्या सही शेत बांध इलपोज करून सर्वे करणे आवश्यक आहे असे वाटते.

कृषि सहायक

कृषि पर्यवेक्षक

तलाठी सजा वारघाले
ता पेण जि रायगड

कृषि पर्यवेक्षक
पदनाम

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प्रदुषण मंडळ पुणे यांनी दिलेला सूचनाप्रमाणे केलेला पोकपी तक्ता

प्रपत्र-ब

अ.क्र	गावाचे नाव	स.न/हि.न	एकूण क्षेत्र	शेती नुकसानीचे क्षेत्र	शिल्लक क्षेत्र	शेरा
		3	4	5	6	8
1	आरवली	3111	0.20.9	—	—	सदर परिस्थिती
1	— " —	3211	0.36.6	—	—	सदर बेजाग कोणताही
2						प्रकारचे पीक आढळून
3						आले नाही.
4						
5						
6						
7						
8	१) उर्वरित शेतपाणी पाहणी केली असता पिकाची नासधूस केलेली					
9	आढळून आले. त्यामुळे सदरची जमीन पडिक असल्याचे दिसून येत आहे.					
10	२) आडीचे पाणी कोणी शेतात सोडत असल्याचे व सदर पाण्याचा					
11	सिंचन पंपाचे होत नसल्याचे पिकाचे व दलदलीची परिस्थिती कायम					
12	असले सारखे सर्वे नंबर निहाय प्रत्यक्ष पाहणी करणे शक्य आले. नाही					
13	ती त्यासाठी ड्रोन सोबत उपलब्ध करून सर्वे नंबर करणे आवश्यक					
14	आहे असे वाटते.					

कृषी सहाय्यक

कृषी पर्यवेक्षक

तलाठी (सजा खारपाले)
मा. पेण जि. रायगड

कृषी मंडल अधिकारी
पाली

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1694

372

Annexure -4

गाव नमुना १२ नुसार पिकाच्या नोंदवही सन २००६-०७ ते सन २०२१-२२

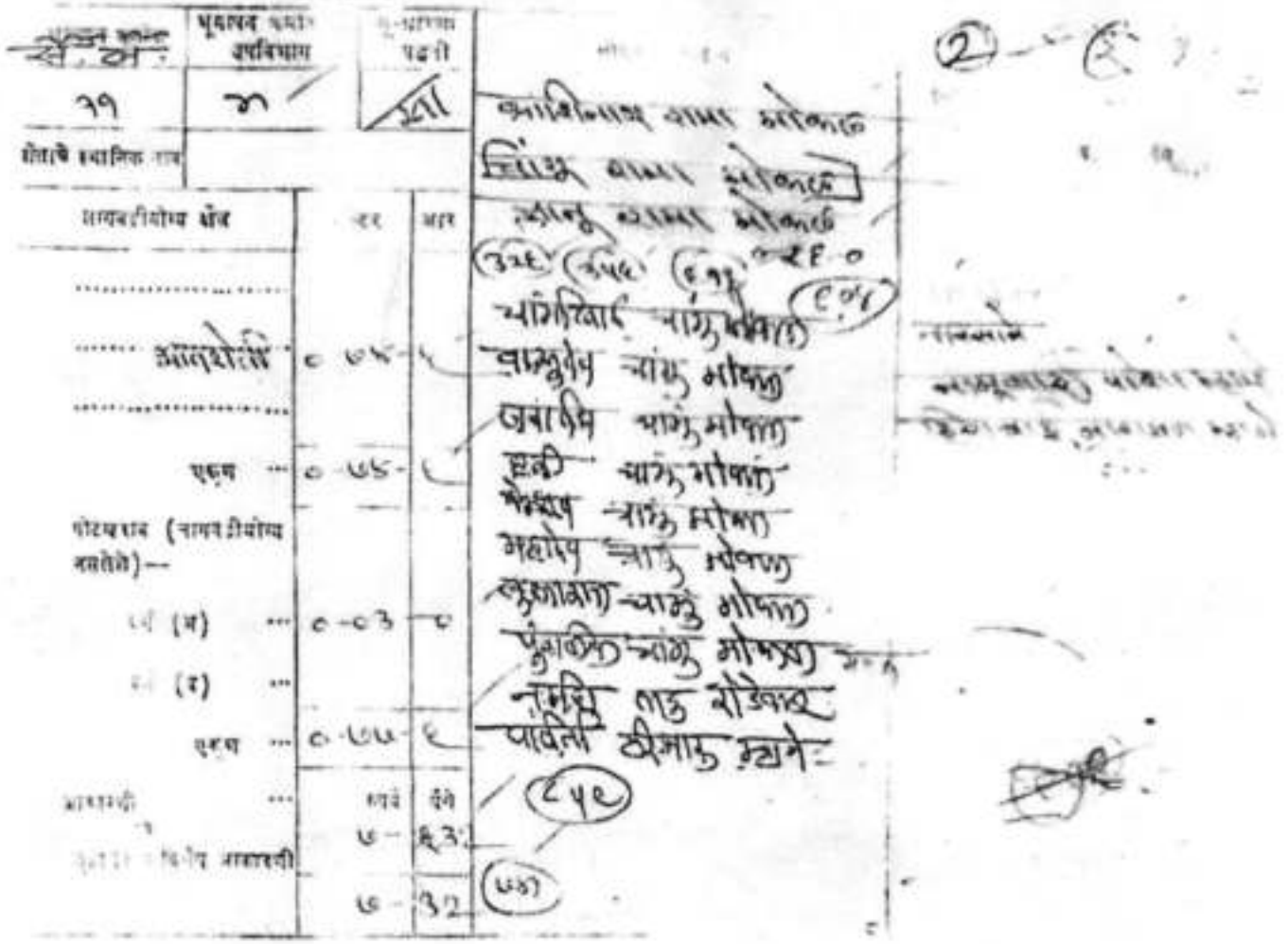
अ.क्र.	शेतकऱ्याचे नाव	गांव	सर्वे क्र.	क्षेत्र	वर्ष	हंगाम	पिकाची नोंद	शेरा
१	केशव चांगू मोकल व इतर १९	जुई बापूजी	११/०४.	०.७७	२००६-०७	संपूर्ण वर्ष	ओसाड	
					२००७-०८	संपूर्ण वर्ष	ओसाड	
					२००८-०९	संपूर्ण वर्ष	ओसाड	
					२००९-१०	संपूर्ण वर्ष	ओसाड	
					२०१०-११	संपूर्ण वर्ष	ओसाड	
					२०११-१२	संपूर्ण वर्ष	ओसाड	
					२०१२-१३	संपूर्ण वर्ष	ओसाड	
					२०१३-१४	संपूर्ण वर्ष	ओसाड	
					२०१४-१५	संपूर्ण वर्ष	ओसाड	
					२०१५-१६	संपूर्ण वर्ष	ओसाड	
					२०१६-१७	संपूर्ण वर्ष	ओसाड	
					२०१७-१८	संपूर्ण वर्ष	ओसाड	
					२०१८-१९	संपूर्ण वर्ष	ओसाड	
					२०१९-२०	संपूर्ण वर्ष	ओसाड	
					२०२०-२१	संपूर्ण वर्ष	ओसाड	
					२०२१-२२	संपूर्ण वर्ष	ओसाड	
२	महादेव सिताराम म्हात्रे	जुई बापूजी	२/१ अ	०.३०	२००६-०७	संपूर्ण वर्ष	ओसाड	
					२००७-०८	संपूर्ण वर्ष	ओसाड	
					२००८-०९	संपूर्ण वर्ष	ओसाड	
					२००९-१०	संपूर्ण वर्ष	ओसाड	
					२०१०-११	संपूर्ण वर्ष	ओसाड	
					२०११-१२	संपूर्ण वर्ष	ओसाड	
					२०१२-१३	संपूर्ण वर्ष	ओसाड	
					२०१३-१४	संपूर्ण वर्ष	ओसाड	
					२०१४-१५	संपूर्ण वर्ष	ओसाड	
					२०१५-१६	संपूर्ण वर्ष	ओसाड	
					२०१६-१७	संपूर्ण वर्ष	ओसाड	
					२०१७-१८	संपूर्ण वर्ष	ओसाड	
					२०१८-१९	संपूर्ण वर्ष	ओसाड	
					२०१९-२०	संपूर्ण वर्ष	ओसाड	
					२०२०-२१	संपूर्ण वर्ष	ओसाड	
					२०२१-२२	संपूर्ण वर्ष	ओसाड	

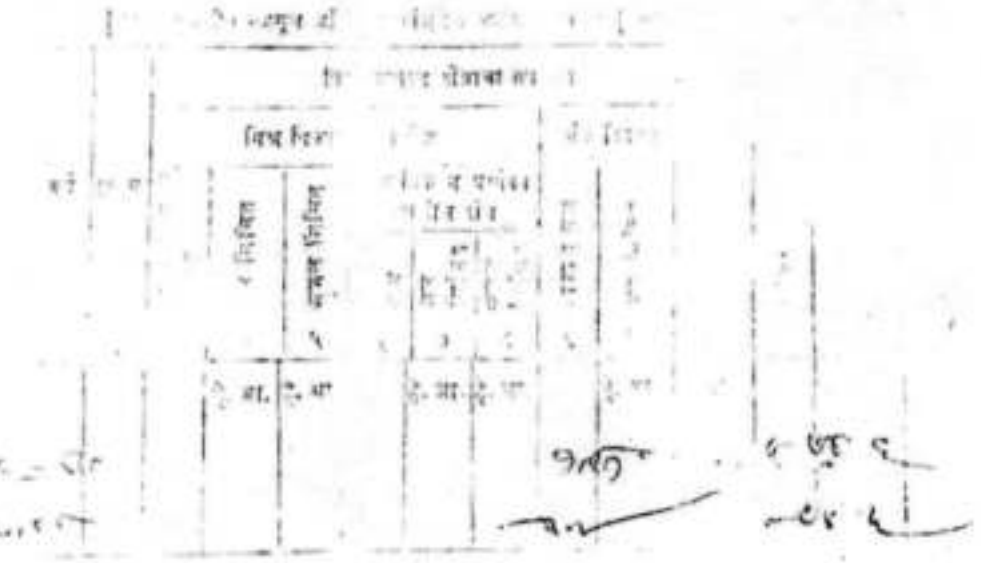
टीप: सदर माहिती तलाठी गाव नमुना १२ नुसार भरण्यात आलेली आहे. **सोबत:** तलाठी गाव नमुना १२

Tarawade

तालुका कृषि अधिकारी अलिबाग

अलिबाग, जि. रायगड





प्रस्तुत कागदपत्र नकला रुजू असे.
दिनांक: 08/06/2027

कीम. शिल्पा सुकाराम कावटे
सहायक सह दुय्यम निबंधक

महाराष्ट्र शासन

गाव नमुना सात (अधिकार अभिलेख पत्रक)

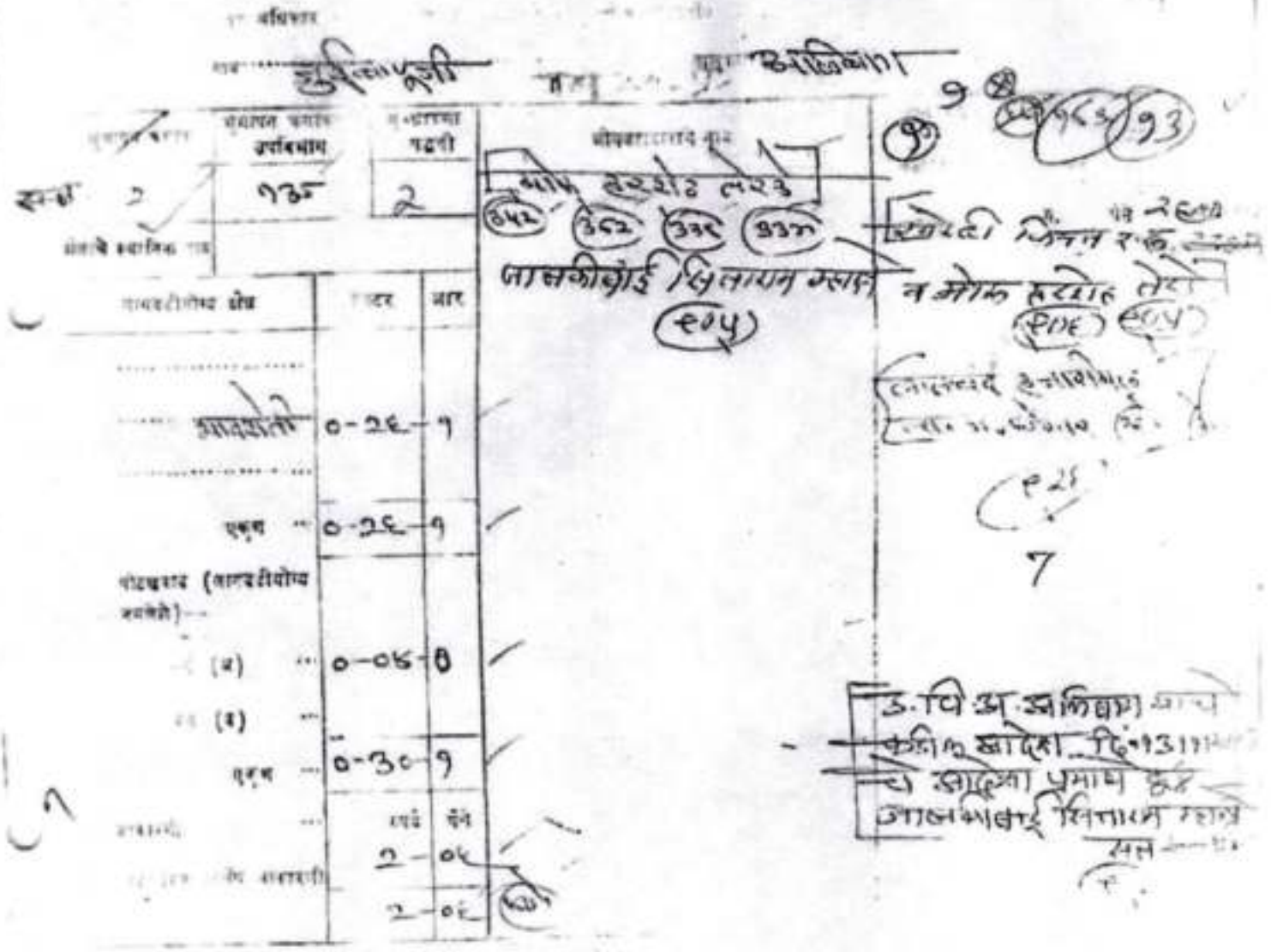
गाव :- जुईबापुजी

भूमापन क्रमांक व उपविभाग : 11/4

तालुका :- अलिबाग

जिल्हा :- रायगड

भू-धारणा पद्धती : खोपटदारा वर्ग -1						
अ) आकार बोजा होय						
0.74.60						
एकूण जा.मी. होय 0.74.60						
0.03.00						
एकूण ज.मी. 0.03.00						
एकूण होय (अ+ब) 0.77.60						
7.32						
इतर हक्कात						



महाराष्ट्र शासन

गाव नमुना सात (अधिकार अभिलेख पत्रक)

[महाराष्ट्र जमीन महसूल अधिनियम अधिनियम आणि सोपस्कार (गाव कामे व सुविधातील देवघेव) नियम, १९८१ यातील नियम ५,६,८ आणि ९]

गाव :- जुईघापुजी तालुका :- अलिबाग जिल्हा :- रायगड

भूमापन क्रमांक व उपविभाग : 2/1/अ

भू-धारणा पध्दती : भोगवटादार वर्ग - 2

क्षेत्र, एकक व आकारणी	खाते क्र.	भोगवटादाराचे नाव	क्षेत्र	आकार	पो.ह.	पै.का.	इतर, खंड व इतर अधिकार
क्षेत्र एकक हे.आर.चौ.मी	[4]	[illegible]	0.26.10	2.06	0.04.00	(953)	कुळाचे नाव व पत्ता
अ) लागवड योग्य क्षेत्र		[illegible]	0.26.10	2.06	0.04.00	(956)	इतर अधिकार
		[illegible]				(956)	तलाठी सजा पुई यांजकडील दिनांक तलाठ्याचा सही - १
		[illegible]				(956)	वापराबद्दल इतर अधीन (9015)
		[illegible]				(956)	इतर
एकूण लाग क्षेत्र 0.26.10							
ब) पोट-खराब क्षेत्र (लागवड अयोग्य)							
	9	भूमि विकास पहाणे	0.26.10	2.06	0.04.00	(956)	
एकूण पो.ख							
एकूण क्षेत्र (अ+ब) 0.30.10							
आकारणी 2.06							
एक पिक क्षेत्र -							
आकारणी							

(334 X 339 X 352 X 363 X 471 X 903 X 904 X 905 X 906 X 926 X 944 X 953)

गाव नमुना सात (विकासी सोदवही)

[महाराष्ट्र जमीन महसूल अधिनियम अधिनियम आणि सोपस्कार (गाव कामे व सुविधातील देवघेव) नियम, १९८१ यातील नियम ५१]

गाव :- जुईघापुजी तालुका :- अलिबाग जिल्हा :- रायगड

भूमापन क्रमांक व उपविभाग : 2/1/अ

वर्ष	हंगाम	खाता क्रमांक	*१	*२	*३	विकासित क्षेत्राचे	विकासित क्षेत्र		विकासित क्षेत्राचे	विकासित क्षेत्र		लागवडीसाठी उपलब्ध असलेली जमीन		जल सिंचनाचे साधन	शेरा
							हे.आर. चौ.मी	हे.आर. चौ.मी		हे.आर. चौ.मी	हे.आर. चौ.मी		हे.आर. चौ.मी		
(१)	(२)	(३)				(७)	(८)	(९)	(१०)	(११)	(१२)	(१३)	(१४)	(१५)	
2015-16	संपूर्ण वर्ष										0.2610				
2016-17	संपूर्ण वर्ष										0.2610				
2017-18	संपूर्ण वर्ष										0.2610				
2018-19	संपूर्ण वर्ष										0.2610				
2019-20	संपूर्ण वर्ष										0.2610				
2020-21	संपूर्ण वर्ष											एकूण क्षेत्र	0.2610		

टीप :- *१ - विकासित क्षेत्र क्षेत्राचे, *२ - जल सिंचित, *३ - अजल सिंचित

"सदर्हू कागदपत्री विश्वसनीय आहे."
दिनांक :- 04/07/2022
सांकेतिक क्रमांक :- 272400602908504007202214

(सही :- जिल्हा भूमापन अधिकारी)
कचेरी शाखा :- कार्यालय :- अलिबाग जि :-रायगड

Rewised Average villagwise Fertility Index level

Sr.no	Block Name	Village Name	No of Sample	PH		EC (us/cm)		Fertility Index				Fertility Index level				Boron	Sodium
								Organic Carbon	Nitrogen(Kg/h)	Phosphorus (Kg/h)	Potassium (Kg/h)	Organic Carbon (%)	Nitrogen(Kg/h)	Phosphorus (Kg/h)	Potassium (Kg/h)		
1	Pen	Kolave	No of sample of affected Area-12	8.019	Highly Alkaline	10.086	harmful to all crops	2.336	115.69	25.61	1750.96	Very High	very Low	Moderately High	Very High	High	Madium
			Reference sample - 5	6.73	Neutral	7.69	harmful to all crops	0.53	176.61	168.71	1397.09	Madium	Low	Very High	Very High	High	Madium
2		vave	No of sample of affected Area-13	8.01	ModeratelyAlkaline	10.67	harmful to all crops	0.61	98.03	14.166	1527.89	Madium	very Low	Madium	Very High	Madium	Low
			Reference sample - 3	5.78	Moderately Acidic	0.2	Suitable for alkali sensitive crops	0.7433	148.85	10.56	346.53	Moderately High	Low	Low	Very High	High	Low
3		Dolavi	No of sample of affected Area - 6	8.01	Moderately Alkaline	12.93	harmful to all crops	1.068	126.065	18.018	1713.43	Very High	very Low	Madium	Very High	High	Madium
			Reference sample - 2	7.01	Neutral	9.03	harmful to all crops	0.56	153.66	51.09	1010.77	Madium	Low	Very High	Very High	High	Madium
4		Kharchirbi	No of sample of affected Area - 6	8.14	Moderately Alkaline	7.97	harmful to all crops	1.001	118.95	36.17	1559.377	Very High	very Low	High	Very High	High	Low
5		Kharmachela	1	8.16	Moderately Alkaline	14.46	harmful to all crops	0.97	87.81	7.52	1656.98	High	very Low	Low	Very High	Madium	Madium
6		Kharjamtihela	2	8.12	Moderately Alkaline	9.48	harmful to all crops	1.07	126.065	25.34	1512.33	Very High	very Low	Moderately High	Very High	High	Madium
7		Kharghombi	6	7.83	Moderately Alkaline	7.8	harmful to all crops	1.2	160.98	28.38	1566.43	Very High	low	Moderately High	Very High	High	Low
8		Kharkarav	1	8.48	Highly Alkaline	8.58	harmful to all crops	1.87	144.26	15.84	1333.58	Very High	low	Madium	Very High	Madium	Low
9		Kharghath	1	8.36	Highly Alkaline	2.37	harmful to all crops	0.82	156.8	13.86	2089.75	High	low	Low	Very High	High	Low
		Karav	Reference sample - 4	6.18	Slightly Acidic	0.27	Suitable for alkali sensitive crops	0.745	180.32	69.65	445.11	Moderately High	Low	Very High	Very High	High	Low
10		Beneghat	3	8.2	Moderately Alkaline	18.73	harmful to all crops	1.05	173.94	34.32	1583.287	Very High	low	High	Very High	High	Madium
11		Vadkhal	1	8.03	Moderately Alkaline	4.53	harmful to all crops	1.15	115.4	22.18	1595.83	Very High	very Low	Moderately High	Very High	Madium	Low
12	Alibag	Jui Bapuji	2	8.53	Highly Alkaline	1.265	Suitable for alkali sensitive crops	0.76	130.45	4.355	620.14	High	very Low	very Low	Very High	Madium	Low
	Total		68														

District Soil Servey Soil Testing Officer
Raigad-Alibag

Annexure -5

Annexure-6

Annexure-6

Productivity kg/ha.			
Sr. N.	Year	Takula	
		Alibag	Pen
1	2000-01	1601.6	1331.8
2	2001-02	2806.4	2422.7
3	2002-03	2082.1	2313.3
4	2003-04	2703.3	2719.9
5	2004-05	2261	1210.0
6	2005-06	2582	1337.0
7	2006-07	2469.1	3273.2
8	2007-08	2565	2572.0
9	2008-09	3045	3071.0
10	2009-10	2691	2501.8
11	2010-11	2504.9	2441.1
12	2011-12	2206.3	1770.5
13	2012-13	2847	2512.5
14	2013-14	3528.1	2699.0
15	2014-15	2792	2606
16	2015-16	2844	3045
17	2016-17	2702	2545
18	2017-18	2376	2493
19	2018-19	3180	2789
20	2019-20	1907	1094
21	2020-21	1498	1052
22	2021-22	2276	2077

District Superintending Agriculture Officer, Raigad-Alibag

Annexure -7

Annexure.-7

Productivity kg/ha.				
Sr. N.	Year	Takula/Circle		
		Alibag/Poynad	Pen/vashi	Pen/Kasu
15	2014-15	3139.00	2389	2606
16	2015-16	3142.00	3275	3498
17	2016-17	2772.00	2329	2632
18	2017-18	1386.00	2473.00	3954.00
19	2018-19	2975.00	2754.00	2320.00
20	2019-20	2284.00	984.00	1099.00
21	2020-21	1217.00	578.10	877.73
22	2021-22	2062.00	1892.00	2428.00

District Superintending Agriculture Officer, Raigad Alibag

Annexure-15

MAHARASHTRA POLLUTION CONTROL BOARD
REGIONAL OFFICE-RAIGAD

Tel. No. 2757 2620
Fax No. 2756 2132

Email:
Visit us at:

Raigad Bhavan, 6th Floor,
Sec-11, C.B.D. Belapur,
Navi Mumbai 400 614.
roraigad@mpcb.gov.in
http://mpcb.gov.in

No. MPCB/TB/220705-FTS-0042 Date: 04.07.2022

To,
Regional Director,
Central Pollution Control Board,
Regional Directorate – Pune,
Maharashtra.

Sub: Compliance Status Report of M/s. JSW Steel Lts., at vill. Dolvi, Tal. Pen, Dist. Raigad wrt. Hon'ble NGT order dated 27.05.2021 in the matter OA No. 165 of 2020 of Samita Patil vs. M/s. JSW Steel Works Ltd & Ors.-reg.

Ref: - 1. Minutes of Joint Committee Meeting dated 04.08.2021.
2. CPCB, RD Pune email dated 12.08.2021.
3. Part Compliance report submitted by this office dated 23.09.2021.
4. Minutes of 2nd Joint Committee Meeting dated 19.112021.
5. Site visit of Joint Committee on 11.04.2022.

Sir,

This has reference to joint committee constituted by the Hon'ble National Green Tribunal (NGT) vide order dated 27/05/2021 in the matter OA no. 165 of 2020, Samita R. Patil vs M/s Jindal Steel Works Ltd., & Ors. about violation of environmental norms by M/s Jindal Steel Works Ltd., Dolvi.

In order to comply with the aforesaid order of the Hon'ble NGT, the joint committee headed by the Joint Secretary, Ministry of Environment, Forest and Climate Change, GoI, held its meeting on 04.08.2021, 19.11.2021 and 11.04.2022.

As per minutes of meeting and subsequent emails from CPCB Regional Directorate, Pune, to submit compliance report of M/s. JSW Steel Ltd, at vill. Dolvi, Tal. Pen, Dist. Raigad. Board has prepared status report of the industry with respect to compliances of consent conditions. The said status report is submitted herewith for your information please.

It is in opinion that Environmental Compensation may be calculated jointly with CPCB on the basis of status report submitted.

(V. V. Killedar)
Regional Officer, Raigad

Enclosures: Compliance status report
Copy submitted for favor of information to :

1. The Member Secretary, MPCB , Mumbai.
2. Assistant Secretary (Technical) MPCB, Mumbai.
3. Reginal Officer (BMW) , MPCB, Mumbai.

Annexure- V

Analysis results of the slag samples collected on 25.10.2021 and 16.06.2022

Sr. No.	Parameters	Within JSW premises Collected on 25.10.2021		Sample Locations outside of the industries collected on 16.06.2022				
		740	741	816	817	818	819	820
		Slag generated from Steel Melting Shop	Slag generated from Blast Furnace	Sr. No 41/4, Vill. Vave, Tal. Pen, Dist. Raigad	Sr. No 173/1, Vill. Vave, Tal. Pen, Dist. Raigad	Sr. No 16/5, Vill. Wadkhal, Tal. Pen, Dist. Raigad	Sr. No 169/2, Vill. Dolvi, Tal. Pen, Dist. Raigad	Sr. No 29, Vill. Karav, Tal. Pen, Dist. Raigad
1	Solid Sample Colour	Black	Grey	Light Brown	Light Brown	Blackish Brown	Blackish Grey	Light Brown
2	Bulk Density (g/cm^3)	2.20	1.19	1.53	1.4	1.46	1.44	1.29
3	pH (at room temperature)	8.20	6.15	10.48	9.96	10.44	9.93	10.03
4	Flash Point (^oC)	>65.0	>65.0	> 65.0	> 65.0	> 65.0	> 65.0	> 65.0
5	LOD @ 105°C (%)	4.44	12.95	14.82	20.7	9.04	15.26	16.06
6	LOI @ 550°C (%)	0.81	1.93	24.51	8.62	7.64	7.65	9.42
7	Calorific Value (cal/g)	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0
8	Water Soluble Inorganics (WSI) (%)	0.36	0.55	0.59	0.62	0.38	0.03	0.10
9	Organic Halogens (mg/kg)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10	Reactive Sulphides (mg/kg)	119.20	76.48	3.68	7.36	11.04	18.40	22.08
11	Sulphate as SO_4 (mg/kg)	29.72	28.12	8.43	2.6	BDL	BDL	BDL
12	Total Chlorides as Cl (mg/kg)	124.07	169.26	556.22	536.08	263.71	302.55	365.52
13	Cyanide as (WLT) (mg/L)	<1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
14	Ammonia as N (WTL) (mg/L)	BDL	BDL	163.80	162.96	178.36	112.08	150.92
15	Nitrate (WLT) (mg/L)	BDL	BDL	27.72	21.75	23.72	16.46	17.20
16	Toxicity Characteristic Leaching Procedure	--	--	--	--	--	--	--

Sr. No.	Parameters	Within JSW premises Collected on 25.10.2021		Sample Locations outside of the industries collected on 16.06.2022				
		740	741	816	817	818	819	820
		Slag generated from Steel Melting Shop	Slag generated from Blast Furnace	Sr. No 41/4, Vill. Vave, Tal. Pen, Dist. Raigad	Sr. No 173/1, Vill. Vave, Tal. Pen, Dist. Raigad	Sr. No 16/5, Vill. Wadkhal, Tal. Pen, Dist. Raigad	Sr. No 169/2, Vill. Dolvi, Tal. Pen, Dist. Raigad	Sr. No 29, Vill. Karav, Tal. Pen, Dist. Raigad
17	Arsenic as As (TCLP) (mg/L)	BDL	BDL	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
18	Lead as pb (TCLP) (mg/L)	BDL	0.0046	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
19	Cadmium as Cd (TCLP) (mg/L)	BDL	0.0008	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
20	Chromium as Cr (TCLP) (mg/L)	0.0154	0.1207	< 0.05	< 0.5	< 0.5	< 0.5	< 0.5
21	Copper as Cu (TCLP) (mg/L)	0.0154	0.0085	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
22	Nickel as Ni (TCLP) (mg/L)	0.0051	0.0821	BDL	BDL	BDL	BDL	BDL
23	Zinc as Zn (TCLP) (mg/L)	0.0436	0.0957	< 0.05	0.06	< 0.05	0.090	0.1613
24	Cobalt as CO (TCLP) (mg/L)	--	--	BDL	BDL	BDL	0.0002	0.0007
25	Iron as Fe (TCLP) (mg/L)	--	--	< 0.1	0.176	3.447	0.1694	1.431
26	Mercury as Hg (TCLP) (mg/L)	BDL	BDL	BDL	BDL	BDL	BDL	BDL
27	Manganese as Mn(TCLP) (mg/L)	0.0139	2.657	BDL	0.170	0.10	0.1392	0.2779

MUMBAI WASTE MANAGEMENT LIMITED

PLOT NO.Part-32, Part MIDC, TALOJA, Dist.:-Raigad

COMPREHENSIVE ANALYSIS REPORT

Mumbai Waste Management Ltd.
Plot No. P-32 & Part, MIDC Taloja, Tal.Panvel,
Dist. Raigad, Maharashtra 410 208, India
Phone: 8422877165 / 65 / 7710882601
Phone: 7304990389 / 90 / 91 / 92 & 93
Email: mwlenvmill@ramky.com
www.mumbaiwastemanagement.com
CIN: U90001TG2001PLC037829

Date	29.10.2021

Name of Client	M/s. Maharashtra Pollution Control Board
Contact Details	Maharashtra Pollution Control Board SRO Raigad -2
Tel. No	-
Fax No.	-
Kind Attn.:	V. V. Killedar

Sample Reference Number
740

Name of Sample	: MPCB/SROR-2/211025-FTS-0022		
Waste Type	: Slag generated from Steel Melting Shop		
Description of Sample When Received	: Solid, DRY, Black		
Sample Received on	25.10.2021	Sample drawn by Customer	:Customer
Waste Category	Schedule – 1	Schedule – 2	Schedule – 5 (A/B)
Raw Material list/ Process Details Enclosed		☐ Yes	☑ No
MSDS Provided by Client		☐ Yes	☑ No

Confirmation Date	25.10.2021	Confirmation By	-
Testing Period	04 days		

Sr. No.	Particulars	Observation		Remarks (if any)
1.	Does the waste have Odor?	☑Y	☐N	
2.	Does the waste give fumes exposed to the atmosphere?	☐Y	☑N	
3.	Does the waste react with water?	☐Y	☑N	
4.	Does the waste is incompatible with any material? If so specify	☐Y	☑N	
5.	Physical State	Solid		
6.	Colour	Black		
7.	Texture	Dry		

Note: Y = Yes N= No

Laboratory Incharge
(Authorized Signature)

MUMBAI WASTE MANAGEMENT LIMITED

PLOT NO.Part- 32, Part MIDC, TALOJA; Dist.:-Ra

COMPREHENSIVE ANALYSIS REPORT

Date	29.10.2021

TEST REPORT

Parameter	Unit	Method	Result	Std. for Secure Landfill Disposal
Specific Gravity/ Bulk Density	g/cm³	ASTM D 5057-2010	2.20	Not Specified
pH (At Room Temperature)	-	USEPA 1998, SW-846 9045 C	8.20	> 4 To < 12
Flash Point	°C	USEPA 1998, SW-846; 1020 A	>65.0	>65.0
LOD @ 105°C	%	US EPA 1998, SW -846; 1684	4.44	Not Specified
LOI @ 550°C	%	US EPA 1998, SW -846; 1684	0.81	< 20 % No Biodegradable <=5% Biodegradabl
Calorific Value	cal/g	IS 1350:Part2-1975 (Reff:2010)	<50.0	<2500 cal/g
Water Soluble Inorganics (WSI)	%	APHA 2540 E	0.36	Not Specified
Organic Halogens	mg/kg	SW 846 5050 & 9253	BDL	Not Specified
Sulphate as SO_4	mg/kg	APHA 23rd Edition, June 2017; 4500 SO_4^{-2} E	29.72	Not Specified
Total Chlorides as Cl	mg/kg	APHA 23rd Edition, June 2017; 4500 Cl B	124.07	Not Specified
Ammonia as NH3-N	mg/kg	APHA 4500 NH3-C	BDL	<1000
Nitrate as NO3-	mg/kg	APHA 23rd Edition, June 2017; NO3 B	BDL	<30.0
Reactive Sulphide	mg/kg	US EPA 1998, SW -846;9030B&9034	119.20	Not Specified
Reactive Cyanide	mg/kg	USEPA 1998, SW-846; 9010 C &9014	<1.0	Refer Class E4

Laboratory Incharge
(Authorised Signatory)

ISO 9001:2015 | ISO 14001:2015 | ISO 45001:2018
NABL Certified & MoEF Accredited Environmental Laboratory

Ramky Enviro Engineers Ltd
Ramky Grandeur Floor, 12, 13, Ramky Tower Complex,
Gachibowli Hyderabad - 500 032
Tel.: 040-2301 5000 (40 Lines)• Fax: 040-2330 2353• Website: www.ramky.com

MUMBAI WASTE MANAGEMENT LIMITED

PLOT NO.Part-.32, Part MIDC, TALOJA; Dist.-Raigad

COMPREHENSIVE ANALYSIS REPORT

Date	29.10.2021

Parameters	Unit	Method	Result	Std. for Secure Landfill Disposal
(TCLP) Toxicity Characteristics Leaching Procedure	-	USEPA 1998 , SW 846 1311	-	-
Arsenic as As (TCLP)	mg/L	USEPA 1998, SW 846; 3010 A	BDL	<5.0
Lead as Pb (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	BDL	<5.0
Total Chromium as Cr (TCLP)	mg/L	USEPA, SW-846 Method 1311,1330	0.0154	<5.0
Nickel as Ni (TCLP)	mg/L	USEPA , SW 846 Method 1311, 1330	0.0051	<3.0
Mercury as Hg (TCLP)	mg/L	SW 846 7470 A & 7471 A	BDL	-
Zinc as Zn (TCLP)	mg/L	USEPA 1998, SW-846,3010 A	0.0436	<10.0
Manganese as Mn (TCLP)	mg/L	USEPA 1998, SW-846 Method 1311,1330	0.0139	Not Specified *
Copper as (Cu)	mg/L	USEPA 1998, SW-846 Method 1311,1330	0.0075	<10.0
Cadmium as (Cd)	mg/L	USEPA 1998, SW-846 Method 1311,1330	BDL	<1.0
Silver as Ag	mg/L	USEPA 1998, SW-846 Method 1311,1330	BDL	Not Specified
Boron as B	mg/L	USEPA 1998, SW-846 Method 1311,1330	0.134	Not Specified
Barium as Ba	mg/L	USEPA 1998, SW-846 Method 1311,1330	0.3350	Not Specified

Safety Instructions for Handling of Hazardous Waste (If any)	Use of proper PPE's is must while handling hazardous waste.

* Inland Surface Discharge (Water Standards) Application

ND: Not Detected BDL: Below Detectable Limit

Note :
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Disposal Pathway / Opinions / Interpretations :	Direct Landfill

END OF REPORT

Laboratory Incharge
(Authorised Signature)

MUMBAI WASTE MANAGEMENT LIMITED

PLOT NO.Part-.32, Port MIDC, TALOJA, Dist.-Raigad

COMPREHENSIVE ANALYSIS REPORT

Mumbai Waste Management Ltd.
Plot No. P-32 & Part, MIDC Taloja, Tal.Panvel,
Dist. Raigad, Maharashtra 410 208, India
Phone: 8422877160 / 65 / 7710082601
Phone: 7304992189 / 90 / 91 / 92 & 93
Email: mbaswm@ramky.com
www.mumbaiwastemanagement.com
CIN: U90001TG2001PLC037829

Date	29.10.2021

Name of Client	:M/s. Maharashtra Pollution Control Board
Contact Details	: Maharashtra Pollution Control Board SRO Raigad -2
Tel. No	-
Fax No.	-
Kind Attn.>	- V. V. Killedar

Sample Reference Number
741

Name of Sample	: MPCB/SROR-2/211025-FTS-0022
Waste Type	: Slag generated from Blast Furnace.
Description of Sample When Received	: Solid, DRY, Grey.

Sample Received	25.10.2021	Sample drawn by :	Customer
Waste Category	Schedule – 1	Schedule – 2	Schedule – 5 (A/B)
Raw Material List/ Process Details Enclosed		☐ Yes	☑ No
MSDS Provided by Client		☐ Yes	☑ No

Confirmation Date	25.10.2021	Confirmation By	-
Testing Period	04 days		

Sr. No.	Particulars	Observation		Remarks (If any)
1.	Does the waste have Odor?	☑Y	☐N	
2.	Does the waste give fumes exposed to the atmosphere?	☐Y	☑N	
3.	Does the waste react with water?	☐Y	☑N	
4.	Does the waste is incompatible with any material? If so specify	☐Y	☑N	
5.	Physical State	Solid		
6.	Colour	Grey		
7.	Texture	Dry		

Note: Y = Yes N= No

Laboratory Incharge
(Authorized Signatory)

MUMBAI WASTE MANAGEMENT LIMITED

PLOT NO.Part-,32, Part MIDC, TALOJA; Dist.:-Raigad

COMPREHENSIVE ANALYSIS REPORT

Date	29.10.2021

TEST REPORT

Parameter	Unit	Method	Result	Std. for Secure Landfill Disposal
Specific Gravity/ Bulk Density	g/cm³	ASTM D 5057-2010	1.19	Not Specified
pH (At Room Temperature)	-	USEPA 1998, SW-846 9045 C	6.15	> 4 To < 12
Flash Point	°C	USEPA 1998, SW-846; 1020 A	>65.0	>65.0
LOD @ 105°C	%	US EPA 1998, SW -846; 1684	12.95	Not Specified
LOI @ 550°C	%	US EPA 1998, SW -846; 1684	1.93	< 20 % Non Biodegradable <=5% Biodegradabl
Calorific Value	cal/g	IS 1350:Part2-1975 (Reff:2010)	<50.0	<2500 cal/g
Water Soluble Inorganics (WSI)	%	APHA 2540 E	0.55	Not Specified
Organic Halogens	mg/kg	SW 846 5050 & 9253	BDL	Not Specified
Sulphate as SO_4^{-2}	mg/kg	APHA 23rd Edition, June 2017; 4500 SO_4^{-2} E	28.12	Not Specified
Total Chlorides as Cl^-	mg/kg	APHA 23rd Edition, June 2017; 4500 Cl^- B	169.26	Not Specified
Ammonia as NH3-N	mg/kg	APHA 4500 NH3-C	BDL	<1000
Nitrate as NO3	mg/kg	APHA 23rd Edition, June 2017; NO3 B	BDL	<30.0
Reactive Sulphide	mg/kg	US EPA 1998, SW -846;9030B&9034	76.48	Not Specified
Reactive Cyanide	mg/kg	USEPA 1998, SW-846; 9010 C &9014	<1.0	Refer Class E4

Laboratory Incharge
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MUMBAI WASTE MANAGEMENT LIMITED

PLOT NO.Part-.32, Part MIDC, TALOJA, Dist.-Raigad

COMPREHENSIVE ANALYSIS REPORT

Date	29.10.2021

Parameters	Unit	Method	Result	Std. for Secure
(TCLP) Toxicity Characteristics Leaching Procedure	-	USEPA 1998 , SW 846 1311	-	-
Arsenic as As (TCLP)	mg/L	USEPA 1998, SW 846, 3010 A	BDL	<5.0
Lead as Pb (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	0.0045	<5.0
Total Chromium as Cr (TCLP)	mg/L	USEPA, SW-846 Method 1311,1330	0.1207	<5.0
Nickel as Ni (TCLP)	mg/L	USEPA , SW 846 Method 1311, 1330	0.0821	<3.0
Mercury as Hg (TCLP)	mg/L	SW 846 7470 A & 7471 A	BDL	-
Zinc as Zn (TCLP)	mg/L	USEPA 1998, SW-846;3010 A	0.0957	<10.0
Manganese as Mn (TCLP)	mg/L	USEPA 1998, SW-846 Method 1311,1330	2.657	Not Specified
Copper as (Cu)	mg/L	USEPA 1998, SW-846 Method 1311,1330	0.0085	<10.0
Cadmium as (Cd)	mg/L	USEPA 1998, SW-846 Method 1311,1330	0.0008	<1.0
Silver as Ag	mg/L	USEPA 1998, SW-846 Method 1311,1330	BDL	Not Specified
Boron as B	mg/L	USEPA 1998, SW-846 Method 1311,1330	0.0833	Not Specified
Barium as Ba	mg/L	USEPA 1998, SW-846 Method 1311,1330	0.4196	Not Specified

Safety instructions for Handling of Hazardous Waste (If any)	Use of proper PPE's is must while handling hazardous waste.

*Treated Surface Discharge Water Standards Applicable

ND: Not Detected BDL: Below Detectable Limit

Note:
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- Any correction invalidates the earlier Report.

Disposal Pathway / Opinions / Interpretations :	Direct Landfill

END OF REPORT

Laboratory In-charge
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COMPREHENSIVE ANALYSIS REPORT

RAMKY
Mumbai Waste Management Ltd.
Plot No. P-32 A Part, MIDC Taloja, Tal.Panvel,
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Phone: 7304992709 / 90 / 91 / 92 & 95
Email: rabalmwml@ramky.com
www.ramkyenvirocare.com
CIN: U90001TG2001PLC037829

Date	22.06.2022

Name of Client	M/s. Maharashtra Pollution Control Board
Contact Details	Raigad Bhavan, 7th Floor Sector-11, C.B.D Belapur Navi Mumbai-400 614
Email ID :	roraigad@mpcb.gov.in
Tel No :	27572620

Sample Reference Number
816

Name of Sample / Hazardous Waste	MW Sludge		
Sample Location:	Plot No 41/4, Vill Vavr. Tal Pen Dist. Raigad		
Description of Sample When Received	Solid Sample, Light Brown Color		
Sample Received Date	18.06.2022	Sample Drawn By	Customer
Waste Category	Schedule – 1	Schedule – 2	Schedule – 5 (A/B)
Raw Material List/ Process Details Enclosed	□ Yes		☑ No
MSDS Provided by Client	□ Yes		☑ No

Confirmation Date	18.06.2022	Confirmation By	-
Testing Period	04 Days		

Sr. No	Particulars	Observation		Remarks (If any)
1.	Does the waste have Odor?	☑Y	□N	
2.	Does the waste give fumes exposed to the atmosphere?	□Y	☑N	
3.	Does the waste react with water?	□Y	☑N	
4.	Does the waste is incompatible with any material? If so specify	□Y	☑N	
5.	Physical State	Solid		
6.	Colour	Light Brown		
7.	Texture	Semi wet		

Note Y = Yes N= No

Prepared By

Verified By

Laboratory In Charge
[Authorized Signature]

MWML/LAB/CAR/18/19.04.2021

Certification & Accreditations
ISO 9001:2015 | ISO 14001:2015 | ISO 45001:2018
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COMPREHENSIVE ANALYSIS REPORT

RAMKY

Date	22.06.2022

TEST REPORT

Parameter	Unit	Method	Result	Std. for Secure Landfill Disposal/HWM Trans boundary Rule 2016,Schedule-II
Bulk Density	g/cm³	ASTM D 5057-2010	1.53	Not Specified
pH (at Room Temperature)	-	USEPA 1998, SW-846 9045 C	10.48	> 4 To < 12
Flash Point	°C	USEPA 1998, SW-846; 1020 A	>65.0	>65.0
LOD @ 105°C	%	US EPA 1998, SW -846; 1684	14.82	Not Specified
LOI @ 550°C	%	US EPA 1998, SW -846; 1684	24.51	< 20 % No Biodegradable <=5% Biodegradable
Calorific Value	cal/g	IS 1350:Part2-1975 (Reaff:2010)	<50.0	<2500 cal/g
Water Soluble Inorganics (WSI)	%	APHA 2540 E	0.59	<10% Except Salts
Organic Halogens	mg/kg	SW 846 5050 & 9253	BDL	Not Specified
Reactive Sulphides	mg/kg	USEPA 1998, SW-846; 9030 B & 9034	3.68	<500.0
Sulphate as SO_4^{--}	mg/kg	APHA 23rd Edition, June 2017; 4500 SO_4^{--} E	8.43	Not Specified
Total Chlorides as Cl	mg/kg	APHA 23rd Edition, June 2017; 4500 Cl⁻ B	556.22	Not Specified
Cyanide as (WLT)	mg/L	USEPA 1998, SW-846 9010C,9014	<1.0	<2.0
Ammonia as N (WLT)	mg/L	APHA 23rd Edition, June 2017; 4500 NH_3 B, C	163.80	<1000.0
Nitrate (WLT)	mg/L	IS: 3025 (Part 34) – 1998; APHA 23rd Edition, June 2017;	27.72	<30.0

Prepared By

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Laboratory In charge
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MWML/LAB/CAR/18/19.04.2021

COMPREHENSIVE ANALYSIS REPORT

RAMKY

Date	22.06.2022

Parameters	Unit	Method	Result	Std. for Secure Landfill Disposal/HzW Trans boundary Rule 2016,Schedule-II
Toxicity Characteristic Leaching Procedure	-	USEPA,SW 846 Method 1311,1330	-	-
Arsenic as As (TCLP)	mg/L	USEPA 1998, SW 846; 3010 A	<0.02	<1.0
Lead as Pb (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	<0.05	<2.0
Cadmium as Cd (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	<0.01	<0.2
Chromium as Cr^{3+} (TCLP)	mg/L	USEPA 1998, SW -846; 7196 A	<0.05	<0.5
Copper as Cu (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	<0.5	<10.0
Nickel as Ni (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	BDL	<3.0
Zinc as Zn (TCLP)	mg/L	USEPA 1998, SW-846;3010 A	<0.05	<10.0
Cobalt as Co (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	BDL	Not Specified *
Iron as Fe (TCLP)	mg/L	USEPA 1998, SW -846; 3010 A	<0.1	<3.0
Mercury as Hg(TCLP)	mg/L	USEPA 1998, SW-846;3010 A	BDL	Not Specified
Manganese as Mn (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	BDL	Not Specified *
TEST	Name of Compound			Prob.%
GCMS Compound	2,2,4,6,6,8 Hexamethyl -4,8			44.6
	2,4 Di-tert -butylphenol			48.15
	1,3 di-iso propylnaphthalene			38.86

Safety Instructions for Handling of Hazardous Waste: (If any) Use of proper PPE's is must while handling hazardous waste

*Inland Surface Discharge Water Standards Applicable NDI: Not Detected BDL: Below Detectable Limit

Note:
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Disposal Pathway / Opinions / Interpretations : -

23/6/22
Reviewed By

23/6/2022
Verified By

23/6/22
Laboratory In charge
(Authorized Signature)

RKWML/LAB/CAR/18/19.04.2021

COMPREHENSIVE ANALYSIS REPORT

RAMKY
Mumbai Waste Management Ltd.
Plot No. P-32 & Part, MIDC Taloja, Tal.Panvel,
Dist. Raigad, Maharashtra 410 208. India
Phone: 8422877163 / 65 / 7710882601
Phone: 7304991289 / 90 / 91 / 92 & 93
Email: mwmtaloja@ramky.com
www.mumbaiwastemanagement.com
CIN: U90001TG2001PLC037829

Date	22.06.2022

Name of Client	M/s. Maharashtra Pollution Control Board
Contact Details	Raigad Bhavan,7TH Floor Sector-11, C.B.D Belapur Navi Mumbai-400 614
Email ID :	roraigad@mpcb.gov.in
Tel No :	27572620

Sample Reference Number
817

Name of Sample / Hazardous Waste	HW Sludge		
Sample Location:	Plot No 173/1,Vill.Vave Tal Pen Dist. Raigad		
Description of Sample When Received	Solid Sample, Light Brown		
Sample Received Date 18.06.2022	Sample Drawn By Customer		
Waste Category	Schedule – 1	Schedule – 2	Schedule – 5 (A/B)
Raw Material List/ Process Details Enclosed	☐ Yes	☑ No	
MSDS Provided by Client	☐ Yes	☒ No	

Confirmation Date	18.06.2022	Confirmation By	-
Testing Period	04 Days		

Sr. No.	Particulars	Observation		Remarks (If any)
1.	Does the waste have Odor?	☑Y	☐N	
2.	Does the waste give fumes exposed to the atmosphere?	☐Y	☑N	
3.	Does the waste react with water?	☐Y	☑N	
4.	Does the waste is incompatible with any material? If so specify	☐Y	☑N	
5.	Physical State	Solid		
6.	Colour	Light Brown		
7.	Texture	Semi wet		

Hold Y = Yes N= No

Prepared By 22/6/22

Verified By 22/06/2022

Laboratory In charge 23/06/22
(Authorised Signature)

MWMB/LAB/EAN/18/19.04.2021

Certification & Accreditations
ISO 9001:2015 | ISO 14001:2015 | ISO 45001:2018
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COMPREHENSIVE ANALYSIS REPORT

Date	22.06.2022

TEST REPORT

Parameter	Unit	Method	Result	Std. for Secure Landfill Disposal/HzW Trans boundary Rules 2016,Schedule-II
Bulk Density	g/cm³	ASTM D 5057-2010	1.40	Not Specified
pH (At Room Temperature)	-	USEPA 1998, SW-846 9045 C	9.96	> 4 To < 12
Flash Point	°C	USEPA 1998, SW-846; 1020 A	>65.0	>65.0
LOD @ 105°C	%	US EPA 1998, SW -846; 1684	20.70	Not Specified
LOI @ 550°C	%	US EPA 1998, SW -846; 1684	8.62	< 20 % No Biodegradable <=5% Biodegradable
Calorific Value	cal/gm	IS 1350:Part2-1975 (Reff:2010)	<30.0	<2500 cal/g
Water Soluble Inorganics (WSI)	%	APHA 2540 E	0.62	<10% Except Salts
Organic Halogens	mg/kg	SW 846 5050 & 9253	BDL	Not Specified
Reactive Sulphides	mg/kg	USEPA 1998, SW-846; 9030 B & 9034	7.36	<500.0
Sulphate as SO_4^{--}	mg/kg	APHA 23rd Edition, June 2017; 4500 SO_4^{-2} E	2.60	Not Specified
Total Chlorides as Cl	mg/kg	APHA 23rd Edition, June 2017; 4500 Cl⁻ B	536.08	Not Specified
Cyanide as (W&T)	mg/L	USEPA 1998, SW-846 9010C,9014	<1.0	<2.0
Ammonia as N (W&T)	mg/L	APHA 23rd Edition, June 2017; 4500 NH_3 B, C	182.96	<1000.0
Nitrate (W&T)	mg/L	IS: 3025 (Part 34) – 1998; APHA 23rd Edition, June 2017;	21.75	<30.0

Prepared By 23/6/22

Verified By 23/6/2022

Laboratory In charge 23/6/22
(Authorized Signature)

MSWM/LAB/CAR/18/19 DK 2021

COMPREHENSIVE ANALYSIS REPORT

RAMKY

Date: 22.06.2022

Parameters	Unit	Method	Result	Std. for Secure Landfill Disposal/HzW Trans boundary Rules 2016,Schedule-II
Toxicity Characteristic Leaching Procedure	–	USEPA,SW 846Method 1311,1330	–	–
Arsenic as As (TCLP)	mg/L	USEPA 1998, SW 846; 3010 A	<0.02	<1.0
Lead as Pb (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	<0.05	<2.0
Cadmium as Cd (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	<0.01	<0.2
Chromium as Cr^{6+} (TCLP)	mg/L	USEPA 1998, SW -846; 7196 A	<0.5	<0.5
Copper as Cu (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	<0.5	<10.0
Nickel as Ni (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	BDL	<3.0
Zinc as Zn (TCLP)	mg/L	USEPA 1998, SW-846;3010 A	0.06	<10.0
Cobalt as Co (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	BDL	Not Specified *
Iron as Fe (TCLP)	mg/L	USEPA 1998, SW -846; 3010 A	0.170	<3.0
Mercury as Hg(TCLP)	mg/L	USEPA 1998, SW-846;3010 A	BDL	Not Specified
Manganese as Mn (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	0.170	Not Specified *

TEST	Name of Compound	Prob %
GCMS Compound	2,4-Di-tert-butylphenol	37.63
	1,7-di-iso propylnaphthalene	31.58

Safety Instructions for Handling of Hazardous Waste (if any): Use of proper PPE's is must while handling hazardous waste

* Inland Surface Discharge Water Standards Applicable — ND-Not Detected — BDL-Below Detectable Limit

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Disposal Pathway / Opinions / Interpretations: –

Prepared by — 23/6/22

Verified by — 23/6/2022

Laboratory in charge (Authorized Signature) — 23/6/22

MWML/LAB/CAR/1A/29.04.2021

COMPREHENSIVE ANALYSIS REPORT

RAMKY
Mumbai Waste Management Ltd.
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Email: mbdmwml@ramky.com
www.mumbaiwastemanagement.com
CIN: U90001TG2001PLC037829

Date	22.06.2022

Name of Client	M/s. Maharashtra Pollution Control Board
Contact Details	Raigad Bhavan,7th Floor Sector-11, C.B.D Belapur Navi Mumbai-400 614
Email ID :	roraigad@mpcb.gov.in
Tel No :	27572620

Sample Reference Number
818

Name of Sample / Hazardous Waste	HW Sludge		
Sample Location:	Plot No 16/5, Vill. Wadkhal Tal. Pen Dist. Raigad		
Description of Sample When Received	Solid Sample, Blackish Brown		
Sample Received Date	18.06.2022	Sample Drawn By	Customer
Waste Category	Schedule – 1	Schedule – 2	Schedule – 5 (A/B)
Raw Material List/ Process Details Enclosed	☐ Yes	☑ No	
MSDS Provided by Client	☐ Yes	☑ No	

Confirmation Date	18.06.2022	Confirmation By	-
Testing Period	04 Days		

Sr. No.	Particulars	Observation		Remarks (If any)
1.	Does the waste have Odor?	☑Y	☐N	
2.	Does the waste give fumes exposed to the atmosphere?	☐Y	☑N	
3.	Does the waste react with water?	☐Y	☑N	
4.	Does the waste is incompatible with any material? If so specify	☐Y	☑N	
5.	Physical State	Solid		
6.	Colour	Blackish Brown		
7.	Texture	Semi wet		

Note Y = Yes N= No

23/6/22
Prepared By

22/06/2022
Verified By

22/06/22
Laboratory In charge
(Authorized Signature)

MWML/LAB/EAR/18/13.04.2021

Certification & Accreditations
ISO 9001:2015 | ISO 14001:2015 | ISO 45001:2018
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COMPREHENSIVE ANALYSIS REPORT

RAMKY

Date	22.06.2022

TEST REPORT

Parameter	Unit	Method	Result	Std. for Secure Landfill Disposal/.HeW Trans boundary Rules 2016,Schedule-II
Bulk Density	g/cm³	ASTM D 5057-2010	1.46	Not Specified
pH (At Room Temperature)	-	USEPA 1996, SW-846 9045 C	10.44	> 4 To < 12
Flash Point	°C	USEPA 1998, SW-846; 1020 A	>65.0	>65.0
LOI @ 105°C	%	US EPA 1998, SW -846; 1684	9.04	Not Specified
LOI @ 550°C	%	US EPA 1998, SW -846; 1684	7.64	< 20 % Nc Biodegradable <=5% Biodegradable
Calorific Value	cal/g	IS 1350:Part2-1975 (Reff:2010)	<50.0	<2500 cal/g
Water Soluble Inorganics (WSI)	%	APHA 2540 E	0.38	<10% Except Salts
Organic Halogens	mg/kg	SW 846 5050 & 9253	BDL	Not Specified
Reactive Sulphides	mg/kg	USEPA 1998, SW-846; 9030 B & 9034	11.04	<500.0
Sulphate as SO_4^{--}	mg/kg	APHA 23rd Edition, June 2017; 4500 SO_4^{-2} E	BDL	Not Specified
Total Chlorides as Cl	mg/kg	APHA 23rd Edition, June 2017; 4500 Cl B	283.71	Not Specified
Cyanide as (WLT)	mg/L	USEPA 1998, SW-846 9010C,9014	<1.0	<2.0
Ammonia as N (WLT)	mg/L	APHA 23rd Edition, June 2017; 4500 NH_3 B, C	139.46	<1000.0
Nitrate (WLT)	mg/L	IS: 3025 (Part 34) – 1998; APHA 23rd Edition, June 2017;	23.72	<30.0

Prepared By — 23/6/22

Verified By — 23/06/2022

Laboratory In charge — 23/6/22
(Authorized Signature)

MWM/LAB/CAR/21/18.04.2021

COMPREHENSIVE ANALYSIS REPORT

RAMKY

Date: 22.06.2022

Parameters	Unit	Method	Result	Std. for Secure Landfill Disposal/ HzW Trans boundary Rules 2016,Schedule-II
Toxicity Characteristic Leaching Procedure	–	USEPA,SW 846Method 1311,1330	–	–
Arsenic as As (TCLP)	mg/l	USEPA 1998, SW 846; 3010 A	<0.02	<1.0
Lead as Pb (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	<0.05	<2.0
Cadmium as Cd (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	<0.01	<0.2
Chromium as Cr^{+6} (TCLP)	mg/L	USEPA 1998, SW -846; 7196 A	<0.5	<0.5
Copper as Cu (TCLP)	mg/l	USEPA 1998, SW-846; 3010 A	<0.5	<10.0
Nickel as Ni (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	BDL	<3.0
Zinc as Zn (TCLP)	mg/L	USEPA 1998, SW-846;3010 A	<0.05	<10.0
Cobalt as Co (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	BDL	Not Specified *
Iron as Fe (TCLP)	mg/L	USEPA 1998, SW -846; 3010 A	8.447	<3.0
Mercury as Hg(TCLP)	mg/L	USEPA 1998, SW-846;3010 A	BDL	Not Specified
Manganese as Mn (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	0.10	Not Specified *

TEST	Name of Compound	Prob.%
GCMS Compound	2,4-Di-tert-butylphenol	46.33

Safety Instructions for Handling of Hazardous Waste (If any)	Use of proper PPE's is must while handling hazardous waste

* Inland Surface Discharge Water Standards Applicable NIL: Not Detected BDL: Below Detectable Limit

Note:
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2. This certificate may not be reproduced in part, without the permission of the laboratory.
3. Any correction invalidates this certificate.
4. This Test report is valid for three years from the date of issue of report, if there is no change in processes, raw materials etc.

Disposal Pathway / Opinions / Interpretations	–

Prepared By Verified By Laboratory in charge (Authorized Signature)

COMPREHENSIVE ANALYSIS REPORT

RAMKY
Mumbai Waste Management Ltd.
Plot No. P-12 & Part, MIDC Taloja, Tal.Panvel,
Dist. Raigad, Maharashtra 410 208. India
Phone: 8433877162 / 65 / 7710082601
Phone: 7304992787 / 90 / 91 / 92 & 93
Email: mwm@ramky.com
www.mumbaiwastemanagement.com
CIN: U90001TG2001PLC037829

Date: 22.06.2022

Name of Client:	M/s. Maharashtra Pollution Control Board
Contact Details:	Raigad Bhavan, 7th Floor Sector-11, C.B.D Belapur Navi Mumbai-400 614
Email ID:	roraigad@mpcb.gov.in
Tel No:	27572620

Sample Reference Number
819

Name of Sample / Hazardous Waste:	HW Sludge		
Sample Location:	Plot No 169/2, Vill. Dohi ,Tal. Pen Dist. Raigad		
Description of Sample When Received:	Solid Sample, Blackish Grey		
Sample Received Date: 18.06.2022	Sample Drawn By: Customer		
Waste Category:	Schedule – 1	Schedule – 2	Schedule – 5 (A/B)
Raw Material List/ Process Details Enclosed:	☐ Yes	☑ No	
MSDS Provided by Client:	☐ Yes	☑ No	

Confirmation Date:	18.06.2022	Confirmation By:	-
Testing Period:	04 Days		

Sr. No.	Particulars	Observation		Remarks (if any)
1.	Does the waste have Odor?	☑Y	☐N	
2.	Does the waste give fumes exposed to the atmosphere?	☐Y	☑N	
3.	Does the waste react with water?	☐Y	☑N	
4.	Does the waste is incompatible with any material? If so specify	☐Y	☑N	
5.	Physical State	Solid		
6.	Colour	Blackish Grey		
7.	Texture	Semi wet		

Note: Y – Yes, N – No

Prepared By

Verified By 22/06/2022

Laboratory In Charge 22/06/22
(Authorized Signature)

MWML/LAB/CAR/18/18.04.2021

Certification & Accreditations
ISO 9001:2015 | ISO 14001:2015 | ISO 45001:2018
IABL Certified & MoEF Accredited Environmental laboratory

Corporate Office
Ramky Enviro Engineers Ltd
Ramky Grandbase Nos. 12, 13, Ramky Tower Complex,
Gachibowli Hyderabad - 500 032
Tel.: 040-2301 3000 (40 Lines) • Fax: 040-2330 2553 • Website: www.ramky.com

RAMKY

COMPREHENSIVE ANALYSIS REPORT

Date	22.06.2022

TEST REPORT

Parameter	Unit	Method	Result	Std. for Secure Landfill Disposal/Haz/W Trans boundary Rules 2016 Schedule-II
Bulk Density	g/cm³	ASTM D 5057-2010	1.44	Not Specified
pH (At room temperature)	-	USEPA 1998, SW-846 9045 C	9.93	> 4 To < 12
Flash Point	°C	USEPA 1998, SW-846; 1020 A	>65.0	>65.0
LOD @ 105°C	%	US EPA 1998, SW -846; 1684	15.26	Not Specified
LOI @ 550°C	%	US EPA 1998, SW -846; 1684	7.65	< 20 % No Biodegradable <=5% Biodegradable
Calorific Value	cal/g	IS 1350:Part2-1975 (Reff:2010)	<50.0	<2500 cal/g
Water Soluble Inorganics (WSI)	%	APHA 2540 E	0.03	<10% Except Salts
Organic Halogens	mg/kg	SW 846 5050 & 9253	BDL	Not Specified
Reactive Sulphides	mg/kg	USEPA 1998, SW-846; 9030 B & 9034	18.40	<500.0
Sulphate as SO_4^{--}	mg/kg	APHA 23rd Edition, June 2017; 4500 SO_4^{-2} E	BDL	Not Specified
Total Chlorides as Cl	mg/kg	APHA 23rd Edition, June 2017; 4500 Cl- B	302.55	Not Specified
Cyanide as (WLT)	mg/L	USEPA 1998, SW-846	<1.0	<2.0
Ammonia as N (WLT)	mg/L	APHA 23rd Edition, June 2017; 4500 NH_3 B, C	112.08	<1000.0
Nitrate (WLT)	mg/L	IS: 3025 (Part 34) – 1998; APHA 23rd Edition, June 2017;	16.46	<50.0

Prepared by 23/6/22

Verified By 23/06/2022

Laboratory In charge 23/06/22
(Authorised Signature)

MWML/LAB/QAR/18/19.04.2021

COMPREHENSIVE ANALYSIS REPORT

RAMKY

Date: 22.06.2022

Parameters	Unit	Method	Result	Std. for Secure Landfill Disposal/HzW Trans boundary Rules 2016 Schedule II
Toxicity Characteristic Leaching Procedure	–	USEPA,SW-846 Method 1311,1330	–	–
Arsenic as As (TCLP)	mg/L	USEPA 1998, SW 846; 3010 A	<0.02	<1.0
Lead as Pb (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	<0.05	<2.0
Cadmium as Cd (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	<0.01	<0.2
Chromium as Cr^{VI} (TCLP)	mg/L	USEPA 1998, SW -846; 7196 A	<0.5	<0.5
Copper as Cu (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	<0.5	<10.0
Nickel as Ni (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	BDL	<3.0
Zinc as Zn (TCLP)	mg/L	USEPA 1998, SW-846;3010 A	0.090	<10.0
Cobalt as Co (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	0.0002	Not Specified *
Iron as Fe (TCLP)	mg/L	USEPA 1998, SW -846; 3010 A	0.1694	<3.0
Mercury as Hg(TCLP)	mg/L	USEPA 1998, SW-846;3010 A	BDL	Not Specified
Manganese as Mn (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	0.1352	Not Specified *

TEST	Name of Compound	Prob.%
GCMS Compound	Octadecane ,1,1-(1-methyl 1-2	16.51
	2,4-Di-tert-butylphenol	46.44

Safety instructions for Handling of Hazardous Waste (if any): Use of proper PPE's it must while handling hazardous waste

* Inland Surface Discharge Water Standards Applicable — ND: Not Detected — BDL: Below Detectable Limits

Note:
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- Any correction invalidates this certificate.
- This Test report is valid for three years from the date of issue of report, if there is no change in processes, raw materials etc.

Disposal Pathway / Opinions / Interpretations

Prepared By — 22/6/22

Verified By — 23/6/2022

Laboratory In charge — 23/6/22
(Authorized Signature)

COMPREHENSIVE ANALYSIS REPORT

RAMKY
Mumbai Waste Management Ltd.
Plot No. P-32 & P-34, MIDC Taloja, Tal.Panvel,
Dist. Raigad, Maharashtra 410 208. India
Phone: 8422877163 / 66 / 7710003601
Phone: 7304901589 / 90 / 91 / 92 & 93
Email: mwmlpanvel@ramky.com
www.mumbaiwastemanagement.com
CIN: U90001TG2001PLC037629

Date: 22.06.2022

Name of Client	M/s. Maharashtra Pollution Control Board
Contact Details	Raigad Bhavan,7th Floor Sector-11, C.B.D Belapur Navi Mumbai-400 614
Email ID :	roraigad@mpcb.gov.in
Tel No :	27572020

Sample Reference Number: 830

Name of Sample / Hazardous Waste	HW Sludge		
Sample Location:	Plot No 29, Vill.Karav, Tal. Pen Dist. Raigad		
Description of Sample When Received	Solid Sample, Light Brown		
Sample Received Date	18.06.2022	Sample Drawn By	Customer
Waste Category	Schedule – 1	Schedule – 2	Schedule – 5 (A/B)
Raw Material List/ Process Details Enclosed	☐ Yes		☑ No
MSDS Provided by Client	☐ Yes		☑ No

Commencement Date	18.06.2022	Confirmation By	-
Testing Period	04 Days		

Sr. No.	Particulars	Observation		Remarks (If any)
1.	Does the waste have Odor?	☑Y	☐N	
2.	Does the waste give fumes exposed to the atmosphere?	☐Y	☑N	
3.	Does the waste react with water?	☐Y	☑N	
4.	Does the waste is incompatible with any material? If so specify	☐Y	☑N	
5.	Physical State	Solid		
6.	Colour	Light Brown		
7.	Texture	Semi wet		

Note: Y = Yes, N = No

Prepared By

Verified By
24/06/2022

Laboratory In charge
(Authorized Signatory)

RAMKY

COMPREHENSIVE ANALYSIS REPORT

Date: 22.06.2022

TEST REPORT

Parameter	Unit	Method	Result	Std. for Secure Landfill Disposal/HzW Trans boundary Rules 2015 Schedule-II
Bulk Density	g/cm³	ASTM D 5057-2010	1.39	Not Specified
pH (At Room Temperature)	-	USEPA 1998, SW-846 9045 C	10.03	> 4 To < 12
Flash Point	°C	USEPA 1998, SW-846; 1020 A	>65.0	>65.0
LOD @ 105°C	%	US EPA 1998, SW -846; 1684	16.06	Not Specified
LOI @ 550°C	%	US EPA 1998, SW -846; 1684	9.42	< 20 % No Biodegradable <=5% Biodegradable
Calorific Value	cal/g	IS 1350:Part2-1975 (Reff:2010)	<50.0	<2500 cal/g
Water Soluble Inorganics (WSI)	%	APHA 2540 E	0.10	<10% Except Salts
Organic Halogens	mg/kg	SW 846 5050 & 9253	BDL	Not Specified
Reactive Sulphides	mg/kg	USEPA 1998, SW-846; 9030 B & 9034	22.08	Not Specified
Sulphate as SO_4^{2-}	mg/kg	APHA 23rd Edition, June 2017; 4500 SO_4^{2-} E	BDL	Not Specified
Total Chlorides as Cl	mg/kg	APHA 23rd Edition, June 2017; 4500 Cl^- B	365.52	Not Specified
Cyanide as (WLT)	mg/L	USEPA 1998, SW-846	<1.0	<2.0
Ammonia as N (WLT)	mg/L	APHA 23rd Edition, June 2017; 4500 NH_3 B, C	150.92	<1000.0
Nitrate (WLT)	mg/L	IS: 3025 (Part 34) – 1998; APHA 23rd Edition, June 2017;	17.20	<30.0

Prepared By

22/6/2022
Verified By

Laboratory In-charge
(Authorized Signature)

Page 2 of 3

RAMKY

COMPREHENSIVE ANALYSIS REPORT

Date 27.06.2022

Parameters	Unit	Method	Result	Std. for Secure Landfill Disposal/HzW Trans boundary Rules 2016 Schedule-II
Toxicity Characteristic Leaching Procedure	-	USEPA,SW-846 Method 1311,1330	-	-
Arsenic as As (TCLP)	mg/L	USEPA 1998, SW 846; 3010 A	<0.02	<1.0
Lead as Pb (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	<0.05	<2.0
Cadmium as Cd (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	<0.01	<0.2
Chromium as Cr^{6+} (TCLP)	mg/L	USEPA 1998, SW -846; 7196 A	<0.5	<0.5
Copper as Cu (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	<0.5	<10.0
Nickel as Ni (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	BDL	<3.0
Zinc as Zn (TCLP)	mg/L	USEPA 1998, SW-846;3010 A	0.1613	<10.0
Cobalt as Co (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	0.0007	Not Specified *
Iron as Fe (TCLP)	mg/L	USEPA 1998, SW -846; 3010 A	1.431	<3.0
Mercury as Hg(TCLP)	mg/L	USEPA 1998,SW-846;3010 A	BDL	Not Specified
Manganese as Mn (TCLP)	mg/L	USEPA 1998, SW-846; 3010 A	0.2779	Not Specified *

TEST	Name of Compound	Prob.%
GCMS Compound	Octadecane ,1,1-(1-methyl 1-2	21.06
	2,4-Di-tert-butylphenol	51.09

Safety Instructions for Handling of Hazardous Waste (if any): Use of proper PPE's is must while handling hazardous waste

* Limits for Sea Discharge Waste Standards Applicable — NG: Not Detected — BDL: Below Detectable Limit

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Disposal Pathway / Opinions / Interpretations -

Prepared By

27/06/2022
Verified By

Laboratory In charge
(Authorized Signatory)
MWML/LAB/CAR/LR/19.04.2021

Annexure-16

By Speed Post

F. No. IA-J-11014/6/2021-IA-I
Government of India
Ministry of Environment, Forest and Climate Change
(I.A. Division)

Indira Paryavaran Bhavan
Jor Bagh Road, Aliganj
New Delhi-110 003
Email: shruti.rai@nic.in

Dated: 7th March, 2022

To,

The Deputy Director General of Forests (C),
Ministry of Environment, Forest and Climate Change,
Integrated Regional Office,
Ground Floor, East Wing,
New Secretariat Building, Civil Lines,
Nagpur-440001

Sub: OA No. 165/2020 in the matter of Samita Rajendra Patil Vs. Jindal Steel Works limited- reg.

Ref: i. Ministry's EC letter No. J-16011/6/94-IA.III dated 04/01/1995.
ii. EC accorded by Ministry of Surface Transport vide letter no. J-16011/6/94-IA.III/PD-IV dated 12.01.1997.
iii. Ministry's EC letter No. J-11011/76/2013-IA.III(I) dated 25.08.2015.
iv. Ministry's EC and CRZ clearance letter No. 11-79/2013-IA.III dated 26.11.2015.
v. Ministry's Amendment in EC and CRZ clearance letter 11-79/2013-IA.III dated 26.03.2016 and 10.01.2020.
vi. Show-Cause notice issued by Ministry vide letter no. J-11011/76/2013-IA II (I) dated 11.11.2014.
vii. Response to Show-Cause notice submitted by PP vide letter dated 22.11.2014.
viii. Detailed EC wise inspection report submitted by IRO, Nagpur vide letter No. CC-337/RON/2021-NGP/8634 dated 21.09.2021

This has reference to the letter submitted by M/s Jindal Steel Works Ltd vide letter dated **November 22,2014**, where in the project proponent has submitted their response to the show-cause notice issued by Ministry vide letter no. **J-11011/76/2013-IA II (I)** dated **11.11.2014** (**Copy enclosed**) on non-compliances observed w.r.t monitoring carried out for the project on **03.01.2014** by Integrated Regional Office of Ministry at Bhopal. The said monitoring report was submitted to Ministry vide letter No. **5-3/1997(ENV)/051 dated 10.06.2014**.

2. Environmental Clearance has been issued to the project "Construction of a capacity Jetty by M/s Nippon Denro Ispat Ltd in Raigad dist. Of Maharashtra" by Ministry vide letter dated **J-16011/6/94-IA.III** dated **04.01.1995.** The EC for expansion of jetty of 331.5 m was accorded to the project by Ministry of Surface transport (MoST) vide letter no. **J-16011/6/94-IA-III/PD.IV dated 12.01.1998** as per the MoEF&CC notification dated **July 09, 1997** stating that 'expansion or modernisation of existing ports and harbours of jetties except the areas classified as category

CRZ-1 (i) shall require environmental clearance from Government of India in the Ministry of Surface Transport, which shall take decision on these activities on the basis of Environmental Impact Assessment Report'. Further, the company was renamed to JSW Ispat Steel Ltd with effect from 28.06.2011 and was granted EC by MoEF&CC for expansion of Integrated Steel plant from 5MTPA to 10 MTPA vide letter no. **J-11011/76/2013-IA.II(I) dated 25.08.2015.** Also, unit has obtained EC and CRZ clearance No. **11-79/2013-IA.III** dated **26.11.2015** for expansion of Dharamtar Jetty facility and its subsequent amendments vide EC and CRZ clearance no. **11-79/2013-IA.III** dated **26.03.2016** and **10.01.2020**.

3. In this regard, it is requested to kindly verify the facts of the response submitted by the PP and provide the comments at the earliest.

This issues with the approval of the Competent Authority.

Encl: As above

(Dr. Shruti Rai Bhardwaj)
Addl. Director/Scientist 'E'

Copy to:

1. M/s Jindal Dharamtar Port Pvt Ltd., JSW Centre, Bandra-Kuria Complex, Bandra (E), Mumbai-51 (Maharashtra).

(Dr. Shruti Rai Bhardwaj)
Addl. Director/Scientist 'E'

By Speed Post

F. No. IA-J-11014/6/2021-IA-I
Government of India
Ministry of Environment, Forest and Climate Change
(I.A. Division)

Indira Paryavaran Bhavan
Jor Bagh Road, Aliganj
New Delhi-110 003
Email: shruti.rai@nic.in

Dated: 7th March, 2022

M/s Jindal Dharamtar Port Pvt Ltd.,
JSW Centre, Bandra-Kurla Complex,
Bandra (E), Mumbai-51 (Maharashtra)

Sub: OA No. 165/2020 in the matter of Samita Rajendra Patil Vs. Jindal Steel Works limited- reg.

Ref: i. Ministry's EC letter No. J-16011/6/94-IA.III dated 04/01/1995.
ii. EC accorded by Ministry of Surface Transport vide letter no. J-16011/6/94-IA-III/PD.IV dated 12.01.1998.
iii. Ministry's EC letter No. J-11011/76/2013-IA.III(I) dated 25.08.2015.
iv. Ministry's EC and CRZ clearance letter No. 11-79/2013-IA.III dated 26.11.2015.
v. Ministry's Amendment in EC and CRZ clearance letter 11-79/2013-IA.III dated 26.03.2016 and 10.01.2020.
vi. Site inspection report by IRO, Nagpur vide letter No. CC-337/RON/2021-NGP/8634 dated 21/09/2021.

This has reference to petition filed in court in the matter of OA No. 165/2020 titled Samita Rajendra Patil Vs. Jindal Steel Works limited before Hon'ble NGT Principal Bench, New Delhi wherein applicant has alleged that the M/s Jindal Steel Works Ltd is engaged in construction of coke oven plant destroying mangroves, natural water and dumping waste products in surrounding area leading to air, water and soil pollution.

2. Environmental Clearance was granted to the project "Construction of a capacity Jetty by M/s Nippon Denro Ispat Ltd in Raigad dist. Of Maharashtra" vide letter dated **J-16011/6/94-IA.III** dated **04.01.1995.** The EC for expansion of jetty of 331.5 m was accorded to the project by Ministry of Surface transport (MoST) vide letter no. **J-16011/6/94-IA-III/PD.IV dated 12.01.1998** as per the MoEF&CC notification **dated July 09, 1997**. Further, the company was renamed to JSW Ispat Steel Ltd with effect from 28.06.2011 and was granted EC by MoEF&CC for expansion of Integrated Steel plant from 5MTPA to 10 MTPA vide letter no. **J-11011/76/2013-IA.II(I) dated 25.08.2015.** Also, unit has obtained EC and CRZ clearance No. **11-79/2013-IA.III** dated **26.11.2015** for expansion of Dharamtar Jetty facility and its subsequent amendments vide EC and CRZ clearance no. **11-79/2013-IA.III** dated **26.03.2016** and **10.01.2020**.

3. In this regard, Integrated Regional Office of the Ministry at Nagpur conducted a site inspection of the unit on 28.8.2021 (**copy enclosed**). The report submitted thereof has been examined by the Ministry and following non-compliances has been observed with respect to EC:

i. The report of the study to be conducted through CWPRS/NCSCM/NIO demonstrating the fact that scour protection is not necessary for the project and no shoreline changes are envisaged has not been submitted (**Specific condition v. and Specific condition xviii. of EC dated 26.11.2015**).

ii. No report of the study carried out by CWPRS suggesting negligible impact on river morphology and flow hydrodynamics due to development of jetty has been submitted (**Specific condition xvi. of EC dated 26.11.2015**).

iii. Detailed EMP depicting implementation of dust control measures has not been submitted (**Specific condition xx. of EC dated 26.11.2015**).

iv. Action taken report pertaining to issues raised in the public hearing, six monthly compliance reports and action plan for works to be carried out under CER has not been submitted (**Specific condition xxiv., General condition iii. of EC dated 26.11.2015, Specific condition ii of EC dated 10.01.2020**).

v. Copy of compliance report, EC and environment statement was not uploaded on project website (**General condition ix., General condition x., General condition xii. and General condition xiii. of EC dated 26.11.2015**).

vi. The advertisement of EC accorded to the unit was not published in newspapers within 7 days of time (**General condition vii. of EC dated 26.11.2015**).

4. In view of the foregoing, the Project Proponent (PP) is directed to submit (i) clarification (ii) **Action Taken Report** (ATR) and (iii) Action plan with respect to the above cited non-complied condition immediately. It may be noted that, if no satisfactory reply is received within the prescribed time frame, the Ministry will be constrained to take necessary action as deemed fit and appropriate in the circumstances of the case, which may include issuance of Show Cause Notice under Section 5 of Environment Protection Act, 1986.

5. Being a time bound Court matter; the information may be submitted urgently to the Ministry.

This issues with the approval of the Competent Authority.

Encl: *As above*

(Dr. Shruti Rai Bhardwaj)
Addl. Director/Scientist 'E'

Copy to:

1. The Chairman, Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi-110032
2. The Deputy Director General of Forests (C), Ministry of Environment, Forest and Climate Change, Integrated Regional Office, Nagpur, Ground Floor, East Wing, New Secretariat Building, Civil Lines, Nagpur-440001.
3. The Member Secretary, Maharashtra Pollution Control Board, Udyog Bhawan, 5th Floor, Near Sales Tax Office, Civil Lines, Nagpur-440001.
4. The Member Secretary, Industry-1, Ministry of Environment, Forest & Climate Change, Paryavaran Bhawan, CGO Complex, Lodhi Road, New Delhi-110003.

(Dr. Shruti Rai Bhardwaj)
Addl. Director/Scientist 'E

By Speed Post

F. No. IA-J-11014/6/2021-IA-I
Government of India
Ministry of Environment, Forest and Climate Change
(I.A. Division)

Indira Paryavaran Bhavan
Jor Bagh Road, Aliganj
New Delhi-110 003
Email: shruti.rai@nic.in

Dated: 7th March, 2022

M/s Jindal Dharamtar Port Pvt Ltd.,
JSW Centre, Bandra-Kurla Complex,
Bandra (E), Mumbai-51 (Maharashtra)

Sub: OA No. 165/2020 in the matter of Samita Rajendra Patil Vs. Jindal Steel Works limited- reg.

Ref: i. Ministry's EC letter No. J-16011/6/94-IA.III dated 04/01/1995.
ii. EC accorded by Ministry of Surface Transport vide letter no. J-16011/6/94-IA-III/PD.IV dated 12.01.1998.
iii. Ministry's EC letter No. J-11011/76/2013-IA.III(I) dated 25.08.2015.
iv. Ministry's EC and CRZ clearance letter No. 11-79/2013-IA.III dated 26.11.2015.
v. Ministry's Amendment in EC and CRZ clearance letter 11-79/2013-IA.III dated 26.03.2016 and 10.01.2020.
vi. Site inspection report by IRO, Nagpur vide letter No. CC-337/RON/2021-NGP/8634 dated 21/09/2021.

This has reference to petition filed in court in the matter of OA No. 165/2020 titled Samita Rajendra Patil Vs. Jindal Steel Works limited before Hon'ble NGT Principal Bench, New Delhi wherein applicant has alleged that the M/s Jindal Steel Works Ltd is engaged in construction of coke oven plant destroying mangroves, natural water and dumping waste products in surrounding area leading to air, water and soil pollution.

2. Environmental Clearance was granted to the project "Construction of a capacity Jetty by M/s Nippon Denro Ispat Ltd in Raigad dist. Of Maharashtra" vide letter dated **J-16011/6/94-IA.III** dated **04.01.1995.** The EC for expansion of jetty of 331.5 m was accorded to the project by Ministry of Surface transport (MoST) vide letter no. **J-16011/6/94-IA-III/PD.IV dated 12.01.1998** as per the MoEF&CC notification **dated July 09, 1997**. Further, the company was renamed to JSW Ispat Steel Ltd with effect from 28.06.2011 and was granted EC by MoEF&CC for expansion of Integrated Steel plant from 5MTPA to 10 MTPA vide letter no. **J-11011/76/2013-IA.II(I) dated 25.08.2015.** Also, unit has obtained EC and CRZ clearance No. **11-79/2013-IA.III** dated **26.11.2015** for expansion of Dharamtar Jetty facility and its subsequent amendments vide EC and CRZ clearance no. **11-79/2013-IA.III** dated **26.03.2016** and **10.01.2020**.

3. In this regard, Integrated Regional Office of the Ministry at Nagpur conducted a site inspection of the unit on 28.8.2021 (**copy enclosed**). The report submitted thereof has been examined by the Ministry and following non-compliances has been observed with respect to EC:

i. The report of the study to be conducted through CWPRS/NCSCM/NIO demonstrating the fact that scour protection is not necessary for the project and no shoreline changes are envisaged has not been submitted (**Specific condition v. and Specific condition xviii. of EC dated 26.11.2015**).

ii. No report of the study carried out by CWPRS suggesting negligible impact on river morphology and flow hydrodynamics due to development of jetty has been submitted (**Specific condition xvi. of EC dated 26.11.2015**).

iii. Detailed EMP depicting implementation of dust control measures has not been submitted (**Specific condition xx. of EC dated 26.11.2015**).

iv. Action taken report pertaining to issues raised in the public hearing, six monthly compliance reports and action plan for works to be carried out under CER has not been submitted (**Specific condition xxiv., General condition iii. of EC dated 26.11.2015, Specific condition ii of EC dated 10.01.2020**).

v. Copy of compliance report, EC and environment statement was not uploaded on project website (**General condition ix., General condition x., General condition xii. and General condition xiii. of EC dated 26.11.2015**).

vi. The advertisement of EC accorded to the unit was not published in newspapers within 7 days of time (**General condition vii. of EC dated 26.11.2015**).

4. In view of the foregoing, the Project Proponent (PP) is directed to submit (i) clarification (ii) **Action Taken Report** (ATR) and (iii) Action plan with respect to the above cited non-complied condition immediately. It may be noted that, if no satisfactory reply is received within the prescribed time frame, the Ministry will be constrained to take necessary action as deemed fit and appropriate in the circumstances of the case, which may include issuance of Show Cause Notice under Section 5 of Environment Protection Act, 1986.

5. Being a time bound Court matter; the information may be submitted urgently to the Ministry.

This issues with the approval of the Competent Authority.

Encl: *As above*

(Dr. Shruti Rai Bhardwaj)
Addl. Director/Scientist 'E'

Copy to:

1. The Chairman, Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi-110032
2. The Deputy Director General of Forests (C), Ministry of Environment, Forest and Climate Change, Integrated Regional Office, Nagpur, Ground Floor, East Wing, New Secretariat Building, Civil Lines, Nagpur-440001.
3. The Member Secretary, Maharashtra Pollution Control Board, Udyog Bhawan, 5th Floor, Near Sales Tax Office, Civil Lines, Nagpur-440001.
4. The Member Secretary, Industry-1, Ministry of Environment, Forest & Climate Change, Paryavaran Bhawan, CGO Complex, Lodhi Road, New Delhi-110003.

(Dr. Shruti Rai Bhardwaj)
Addl. Director/Scientist 'E

By Speed Post

F. No. IA-J-11014/6/2021-IA-I
Government of India
Ministry of Environment, Forest and Climate Change
(I.A. Division)

Indira Paryavaran Bhavan
Jor Bagh Road, Aliganj
New Delhi-110 003
Email: shruti.rai@nic.in

Dated: June 30, 2022

M/s Jindal Dharamtar Port Pvt Ltd.,
JSW Centre, Bandra-Kurla Complex,
Bandra (E), Mumbai-51 (Maharashtra)

Sub: Reminder letter seeking ATR for OA No. 165/2020 in the matter of Samita Rajendra Patil Vs. Jindal Steel Works limited- reg.

Ref: i. Site inspection carried out by IRO, Nagpur on 28.08.2021 submitting report vide letter No. CC-337/RON/2021-NGP/8634 dated 21.09.2021.
ii. Letter seeking action taken report issued to PP vide ref no. IA-J-11014/6/2021-IA-I dated 07.03.2022.

Dear Sir/Ma'am,

This has reference to the letter no. **IA-J-11014/6/2021-IA-I** dated **7.03.2022** issued by Ministry to M/s Jindal Dharamtar Port Pvt Ltd seeking (i) clarification, (ii) **Action taken report** (ATR) and (iii) Action plan on the observed non-compliances as per site inspection undertaken by IRO Nagpur for the project "development/expansion of Jetty by M/s JSW Dharamtar Port Pvt Ltd located at Dharamtar, Dolvi, Raigad, Maharashtra" on **28.08.2021** with respect to the Court matter OA no. 165/2020 titled Samita Rajendra Patil Vs. Jindal Steel Works limited before Hon'ble NGT Principal Bench, New Delhi. However, the response to the same is still awaited.

2. In view of the foregoing, the Project Proponent (PP) is directed to consider this as a reminder and submit the information urgently to the Ministry being this a time bound Court matter. It may be noted that, if no satisfactory reply is received within the prescribed time frame, the Ministry will be constrained to take necessary action as deemed fit and appropriate in the circumstances of the case, which may include issuance of Show Cause Notice under Section 5 of Environment Protection Act, 1986.

This issues with the approval of the Competent Authority.

Encl: *As above*

(Dr. Shruti Rai Bhardwaj)
Addl. Director/Scientist 'E'

Copy to:

1. The Chairman, Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi-110032
2. The Deputy Director General of Forests (C), Ministry of Environment, Forest and Climate Change, Integrated Regional Office, Nagpur, Ground Floor, East Wing, New Secretariat Building, Civil Lines, Nagpur-440001.
3. The Member Secretary, Maharashtra Pollution Control Board, Udyog Bhawan, 5th Floor, Near Sales Tax Office, Civil Lines, Nagpur-440001.
4. The Member Secretary, Industry-1, Ministry of Environment, Forest & Climate Change, Paryavaran Bhawan, CGO Complex, Lodhi Road, New Delhi-110003.

(Dr. Shruti Rai Bhardwaj)
Addl. Director/Scientist 'E'

1737

JSW Dharamtar Port Pvt. Ltd.

Regd. Office : JSW Centre,
Bandra Kurla Complex,
Bandra (East), Mumbai - 400 051
CIN. : U93030MH2012PTC236083
Phone : +91 22 4286 1000
Fax : +91 22 4286 3000
Website : www.jsw.in

Date: 28th March, 2022

To,
The Additional Director/ Scientist E
Ministry of Environment, Forest & Climate Change
(IA.Division)
Indira Paryavaran Bhavan
Jor Bagh Road, Allganj
New Delhi 110003

Subject: **OA no. 165/2020 In the matter of Samita Rajendra Patil vs Jindal Steel Works Limited – reg**

Reference: : **i. Ministry of Environment & Forest (MoEF) Clearance vide no. J- 16011/6/94-IA.III dated 4th January, 1995**

ii. Ministry of Surface Transport (MoST) Clearance vide no. J-16011/6/94-IA-III/PD.IV dated 12th January, 1997

iii. Ministry of Environment, Forest & Climate Change, EC and CRZ Clearance Letter F.No. 11-79/2013-IA.III dated 26th November, 2015.

iv. Ministry of Environment, Forest & Climate Change, Amended EC and CRZ Clearance, Letter F.No. 11-79/2013-IA.III dated 26th March, 2016 10th January, 2020.

v. Site Inspection report by IRO, Nagpur vide letter no. CC-337/RON/2021-BGP/8634 dated 29th September 2021

vi. Ministry of Environment, Forest & Climate Change letter F.No.IA-J-11014/6/2021-IA-I dated 7th March 2022

Sir/ Madam

We are in receipt of your letter F.No.IA-J-11014/6/2021-IA-I dated 7th March 2022.

JSW Dharamtar Port Private Limited (DPPL) is a riverine jetty facility in the Dharamtar creek/ Amba estuary about 12 nautical miles (22 km) from the Arabian sea.

The jetty is operational since 1997 handling captive cargo for the steel plant. The expansion of the jetty facility is being carried out after the grant of EC and CRZ clearance dated 26th November, 2015. The EC was further amended by Ministry's letter dated 10th January, 2020.

The Integrated Regional Office of the Ministry, Nagpur conducted a site inspection on 28th August, 2021. The Action Taken and Clarifications with respect to the non-compliances cited by the Regional Office our replies are as below

Sr	Non compliances reported by Regional Office	JSW Response
i.	The report of the study to be conducted through CWPRS/NCSCM/NIO demonstrating the fact that scour protection is not necessary for the project and no shoreline changes are envisaged has not been submitted (Specific condition V and Specific condition xviii of EC dated 26.1..2015)	NCSCM has been appointed to undertake the studies for shoreline changes and scour protection. The study is under progress. The report will be submitted soon. The copy of the Work Order is enclosed along as **Annexure** I.
ii.	No report of the study carried out by CWPRS suggesting negligible impact on river morphology and flow hydrodynamics due to development of jetty has been submitted (Specific condition xvi of EC dated 26.11.2015)	The report prepared by CWPRS is available. The report is submitted herewith as **Annexure** II. The conclusions as mentioned in the report: • Since jetties are on piles there is no effect on coastal morphology • Dredging up to 5m of depth is proposed for the approach channel and the jetty location would increase the flow channelization and flow efficiency of the river (creek). • There is no wave impact inside the port. • The coastal geo-morphology is not affected even with the reclamation • The disposal of the dredged sediments can be done at the existing dumping grounds of Mumbai Port. The report recommends the following: The proposed development would have no or negligible impact on the river morphology and the flow hydrodynamics, hence the development is recommended.
iii	Detailed EMP depicting implementation of dust control measures has not been submitted (Specific condition xx of EC dated 26.11.2015)	The EMP is enclosed as **Annexure III**

Sr	Non –compliances reported by Regional Office		JSW Response
iv	Action taken report pertaining to issues raised in the public hearing, six monthly compliance reports and action plan for works to be carried out under CER has not been submitted (Specific condition xxiv. General condition iii of EC dated 26.11.2015, Specific condition of EC dated 10.01.2020)		JSW responses to the commitments made to the issues raised during the Public Hearing. JSW Dharamtar Port Private Limited through JSW Foundation has been working towards the upliftment of the villages in the vicinity. The details enclosed along as **Annexure IV** JSW DPPL have submitted a detailed action plan to the Director, I&MP (Infra 2), MoEF&CC vide letter dated 25th November, 2019. The letter is attached along as **Annexure V.**
v	Copy of the compliance report, EC and environment statement was not uploaded on project website (General condition ix, General condition xii and General condition xiii of EC dated 26.11.2015)		We are now complying to the conditions. The EC letters 26th November 2015 and its amendments dated 26th March, 2016 and 10th January 2020 is uploaded of the website EC Compliance reports from Dec 2017 to November 2021 are uploaded on DPPL website. The environment statements are also uploaded. The screenshot is attached along as **Annexure VI**

vi	The advertisement of EC accorded to unit was not published in newspapers within 7 days of time (General condition vii of EC dated 26.11.2015)		The advertisement for the EC accorded was published in the newspapers. Attached along as **Annexure VII** The little delay was due to the unforeseen reasons at that time.

We hope the replies furnished by suitably addresses the issues raised. We would be glad to share any further clarification in the said matter.

Thanking you in anticipation.

Yours faithfully,

For **JSW Dharamtar Port Private Limited**

Authorized Signatory

763639/2022/IA_I
1741

SERVICE ORDER

JSW Dharamtar Port Pvt Limited
At Post Dolvi, Taluka: PEN,
Dharamtar-402107
Raigad-Maharashtra (India)
Tel No: 02143-277620
Fax No: 02143-277800

Vendor Code	:	0020026055
Name	:	NATIONAL CENTRE FOR SUSTAINABLE COASTAL MANAGTEMENT
Address	:	KOODAL BUILDING,ANNA UNIVERSITY CAMPUS CHENNAI-600025-Tamil Nadu
Ph.No	:	044 22300108
Fax No.	:	022-27690126
E-mail	:	finance@ncscm.org
PAN NO	:	AABAN2289A

P.O.No.:DRTR/21-22/0950008883
P.O.Date:10.01.2022
Type:SER-DOM
Contact:Chirag R Patel
PR No.:1300190825

Dear Sir/Madam,

We are pleased to place order against your Ref. Quote No. Dated: , as per below mentioned PRICE, terms & conditions.

ALL THE PRICES MENTIONED BELOW ARE IN #INR"

SR. NO.	SERVICE SHORT DESCRIPTION	UOM	QTY.	TOTAL	COMPLETION DATE
1	SHORELINE CHANGE STUDY OF DHARAMTAR PORT	AU	1.000	837000.00	31.03.2022

The above work contains following Services:

SR.NO.	SERVICE CODE SERVICE DESCRIPTION	QTY.	UoM	UNIT PRICE	TOTAL PRICE
1.1	3000107029 CONSULTANCY,BASELNE ENVIRONMENTAL STUDY SAC Code : 999490	1.000	LUM	837000.00	837000.00

Detail Specification as per Annexure 1

I/P GST 18% (IGST)_Ded
D/ T/C: IGST @18% - 150660.00

Total Duties/Taxes & Charges: IGST @ 18.000% - 150660.00

Total Base Value: 837000.00	Total Taxes / Charges : 150660.00	Total PO Value: 987660.00

Total Value (In Figures):NINE LAKH EIGHTY SEVEN THOUSAND SIX HUNDRED SIXTY Rupees

PRICE BASIS:FOR jsw Dharamtar Port

PAYMENT TERMS:Payment in 30 days from GRN date

NOTE TO SUPPLIER:

1) If you fall under the MSME criteria as per the revised guidelines then you are requested to submit an MSME certificate.

2) If any discrepancy revert within 3 days.

3) You shall comply with the Business Responsibility/Sustainability policies of JSW Steel Limited which can be referred to on our website: "https://www.jsw.in/groups/sustainability-policies"

4) You hereby affirm that the Supplier Code of Conduct has been read (at https://bit.ly/31Yip6E) and understood, and that it is agreed upon to comply unconditionally with the provisions of the Code stated therein.

1. Execute this order in accordance with the prices, terms, delivery method, and specifications listed above and as per annexure if any.
2. Please notify us immediately if you are unable to perform service as specified.
3. JSW Dharamtar Port Pvt Limited is an environment friendly company. Your acceptance of Order assumes that your services will not cause any environmental damage
4. Send all correspondence to: Chirag R Patel Email # chirag.patel@jsw.in Phone Fax:

Thanking You
Yours sincerely,
FOR JSW Dharamtar Port Pvt Limited

AUTHORISED SIGNATORY

Annexure 1

TECHNICAL SPECIFICATION/SERVICE SPECIFICATION

Item No.: 1.1 Material/Service: 000000003000107029 CONSULTANCY,TYPE:BASELINE ENVIRONMENTAL STUDY,WORK LOCATION:JSW ODISHA,DOCUMENT PREPARATION:CONSULTANT AGENCY,DURATION:06 MONTHS,ADDITIONAL INFORMATION:ADDITIONAL SERVICES FOR GENERATION OF BASELINE ENVIRONMENTAL STUDY FOR THE PURPOSE OF PREPARATION OF PORT EIA(ENVIRONMENTAL IMPACT ANALYSIS) STUDY.

A. Scope of Work

==========

To carry out a shoreline change map through the periodical study of satellite imagery at our operational Dharamtar Port as per the EC requirements.
Shore line change study (for the period of 2009-2021 for JSW Dharamtar Port Pvt Ltd of Dharamtar Creek
Details Scope & Enfa for single party work awarded attached for your references

B. SPECIAL TERMS & CONDITIONS :-

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1. Effective Date of Contract: -

The contract shall be effective from date of Work Order.

2. Completion Period: -

The work shall be completed within 9 monthsfrom the Effective date of Contract.

3. Terms of Payment: -

---

i)Payment shall be made against completion of work.The 100% basic amount of the bill plus taxes shall be paid within 30 days from the date of certification by JSW Engineer subject to submission of correct bill.

Please mention the following details in the invoice without which Invoice will not be processed.

i. Consignor Name (supplier), Address & GST no.
ii. Consignee Name (JSW), Address & GST no
iii. HSN code (for supply) / SAC code (for service)

4. Power & Water :-

Power & water required for execution of work shall be provided by JSW DPPL free of cost at one point.

5. Lodging, Boarding & Travelling :-

Contractor shall make his own arrangements for Lodging Boarding, Traveling & Functional Site Office for its personnel at its own cost.

6. Mobilization & De-mobilizaation:-

Mobilization & de-mobilization of manpower , plant & machinery and other resources shall be arranged by contractor at his own cost.

7. Safety Related Penalty: -

The Seller shall pay Safety related penalties as per EHS policy 2021.

8.TDS 194 CLAUSE (194Q r.w.s 206AA and 206AB):

"The turnover of the Company exceeds Rs. 10 crores during the Financial Year 2020-21 and accordingly, as per the provisions of section 194Q of the Income Tax Act, 1961 ('the Act'), the Company will be liable to withhold tax at the rate of 0.1%, in case the value of goods purchased exceeds Rs. 50 lakhs, in a Financial Year. In case where services are rendered to the Company, it shall be liable to withhold taxes as per the rates specified under the applicable provisions of the Act.

However, such withholding of taxes would be at higher rate as per section 206AA of the Act (in case PAN is not provided or is invalid / inoperative), not aadhar linked and / or as per section 206AB of the Act (in case of a person specified therein, generally non-filer of ITR), as below:

For withholding of tax u/s 194Q, in relation to purchase of goods, the rate would be 5%.

In relation to withholding of tax under other provisions of the Act, the rate of withholding of tax shall be twice the rate specified in the relevant provisions or 5%/ 20% (as the case may be), whichever is higher."

9. Recovery of the GST Amount:

JSW Dharamtar Port Private Limited has the right to recover/debit the GST amount, if it is not reflected in Form -2A of GSTN Portal under the provision of GST Act, in the respective Month/Quarters in which the return of the said invoice is to be filed.

C. GENERAL TERMS & CONDITIONS :-
==========

1. Definitions: -

The "Client/Employer" shall mean JSW Dharamtar. Port Pvt. Ltd. (JSW DPPL), a Company incorporated and existing under the laws of India and having its registered office at "JSW Centre" Bandra- Kurla Complex, Bandra (East), Mumbai - 400 051.
The "Contractor" shall mean the person, firm, corporation, or a company to whom this work order is issued.
"Work Order" shall mean "This Contract" between client and contractor including all documents and annexures attached hereto and any amendments as may from time to time be made to this contract between parties in writing.
"Site" means the port complex of JSW Dharamtar Port Pvt. Limited at Dolvi, District Raigad, State Maharashtra, India, where the works are to be executed.

2.Scope of Contract: -

The contractor to execute the work as per scope of work , Technical Specifications, Bill of Qty. ,completion schedule ,drawings and any annexures attached & defined in this order. Contractor to carry out any other work, which falls in the general purview of Contractor's scope of work, as defined in the technical scope at no extra cost.

The Contractor to execute the Works on day-night basis (in three shifts) as required. Necessary arrangement for night-works shall be arranged by the Contractor to meet the agreed Completion Schedule.

3. Prices :-

The Contract Price shall remain valid and firm and not be subject to any cost escalation during the Term of this Contract or extension thereof including variation of exchange rate between any currencies.

The Contract Prices are full and complete compensation for the Contractor's performance of all its obligations under the contract and includes without limitation, any and all direct, indirect and ancillary charges, costs and expenses of whatsoever nature necessary to execute the work as mentioned in scope of work.

Income Tax as applicable shall be deducted from contractor's bill as per Income Tax Act and necessary TDS certificate shall be issued for the same.

4. Taxes, Duties & Fees :-

All taxes, duties, levies, rentals, royalty's & license fees, imports, or other duties of whatever nature required to be paid in connection , with the work within India or any other country shall be borne by the contractor and shall be deemed be included in the prices except GST which shall be paid extra as applicable.

5.GST :-
----
i). GST collected on this supply/service shall be deposited by you with the Govt. Treasury on immediate due date

and relevant GSTR-1 return of your entity (for outward supply) to be uploaded on the GSTN portal on or before 10th of the next month to facilitate 'JSW DPPL' in availing input tax credit.

ii). If GST collected by you on this supply/service is not timely deposited or return is not filed on due date, an amount equivalent to the GST charged on this supply plus applicable interest/ penalties (if any) will be retained by 'JSW DPPL' till such non-compliance continues.

iii). Availing of GST-input tax credit by 'DPPL" on this supply would not be construed as the technical acceptance of the material/ services supplied by you.

iv). "JSW Dharamtar Port Pvt. Limited has right to recover/debit the GST amount, if it not reflected in Form -2A of GSTN Portal under the provision of GST Act, in the respective Month/Quarters in which the return of the said invoice is to be filed."

NOTE: - GST NO. OF JSW DHARAMTAR PORT LTD - 27AACCJ9361Q1ZS

6. Safety: -

Safety is essence of this contract. The Contractor shall abide by the EHS (Environment, Health & Safety) code of conduct as per requirements of the Safety Department of the Client as stipulated on time to time and shall take necessary clearance of the Client's safety department before initiating any installation work.

All personal safety equipment required for the subject job such as safety helmet, gloves, safety shoes, jackets, safety goggles, belt etc. and any other safety related items as required shall be provided by the Contractor to its sub-contractors/employee/workers. The Contractor shall put-up necessary safety related signs boards, barricade, safety nets/covers etc. as necessary for safe and sound execution of its performance under the subject Contract.

The Contractor shall be responsible for security of tools, tackles and materials provided by the Purchaser. The Contractor shall also arrange gate passes for their vehicles and personnel from the Security Department of the Purchaser as per prevailing regulations for the currency of the contract, which should be given back to the Security after the completion of the period of the contract.

7. Insurance :-

The Contractor shall obtain necessary insurance like insurance for third party liabilities, and Contractor's personnel & equipment including its Site office, vehicles, Workshop, etc., deployed at Site by the Contractor, insurance against injury to persons and damage to surroundings property during the work execution period.

a. The insurance shall be maintained in full force and effect during the period of the Contract. For a sub Contractor's employee, the insurance may be effected by the sub-Contractor, but the Contractor shall be responsible for compliance.

b. The Contractor shall provide documentary evidence to the Company/Engineer-in-charge before commencement of work at site that the third party liability insurance have been effected and shall within 30 days of the commencement date, provide the insurance policy to the Employer/Engineer-in-charge. The Contractor shall, whenever, called upon, produce to the Engineer-in-charge or his representative the evidence of payment of premiums paid by him to ensure that the policy indeed continue to be in force. On the event of any damage to the property/life of third party, the contractor has to make immediate payment and relief measures as per the directions of the Engineer-in charge. The decision of Engineer-in-charge is final and finding.

8. Statutory Obligations: -

---

a. The contractor shall be governed by all the relevant Statutory Rules / Acts applicable to Contractors / Sub-contractors as required by Central/ State/ Local Government authorities. It is mandatory on the contractor's part to comply with the all regulations and contractor, under provisions of any law, undertakes to indemnify client in respect of such expenditure, in addition to other incidental expenditure incurred by client in that regard. It is mandatory on the Contractor's part to comply with the regulations with regard to the following:

o Minimum wages
o Provident fund
o Workmen compensation/ESIC
o Payment of wages
o Labor license
o Insurance including third-party liability insurance.
o Any other regulation that may be in force
o The Contractor shall engage only Workers who are more than 18 years of age.

b. Contractor to ensure statutory compliance of vehicle fleet in accordance with motor vehicle act and the manpower deployed should be complied with the statutory compliance as per govt. norms/acts. This includes RTO registration, Insurance, pollution control certificate, driving license etc.

9. Free issue material :-
---
a.Free Issue Material (Material to be supplied by the Employer) will be as mentioned in technical specifications and shall be supplied free of cost by Company for permanent work only.

Wastage allowance to be accounted while reconciling free issue materials shall be as per technical specifications /scope of work. The other free issue materials shall be reconciled based on actual consumption certified at Site by Engineer in charge/ Company representative at Site.

b. Contractor to unload, store and stack and transport to the required sites all free issue materials at his own cost. Storage areas to be constructed and maintained by the Contractor.
c. All unused/scrap materials shall be the property of the Employer and shall be returned by the Contractor at his own cost category wise in good and acceptable conditions by the Contractor to Company's store(s).
d. In case, the Contractor fails to return unused/scrap materials, the cost of Free Issue Materials shall be recovered from the Contractor's bill(s) or from any other dues of the Contractor, considering latest procurement cost of the Free Issue Materials by the Employer with extra penalty @25% extra.
e. The reconciliation statement should be enclosed in each running bill or first week of every month as applicable.

10. Weighment Variation :-

Weighment should be carried out at JSW DPPL weigh brideg and Weighment variation of +/-0.5% is allowed for each vehicle.

11. Risk Purchase: -

Notwithstanding anything contained in this contract, if at any stage Company feels that delay is taking place or likely to take place in the execution of contract, then the Company shall have the rights to procure required services or part thereof from an alternate source at Contractor's cost and expenses including incidental expenses. In such case Company shall issue(s) notice informing exercising this option for the specified item and Contractor shall stop processing and delivery of the specified item. This shall be over & above the Company's right to claim liquidated damages towards late delivery.

12. Limitations of Liability: -

The Parties shall assume no liability for any reasons whatsoever, unless expressly stated in the Contract.
Accordingly, the rights and remedies provided for under the Contract are final and exclusive and shall not be modified, changed or amended.

Notwithstanding anything to the contrary provided for by the applicable law or contained or implied in this Contract, neither Party shall in any event, whether under and/or in connection with this Contract or the performance or non-performance warranty, be responsible or held liable towards the other for any indirect and/or consequential, incidental, prospective, remote, special or speculative damages.

The Contractor's maximum aggregate limit of liability whether under and/or in connection with this Contract or the

performance or non-performance thereof or as a result of any fundamental breach of Contract, warranty including termination of this Contract by the Company, shall in no event exceed the 100 %(Hundred per cent) of the Contract Price, save and except for risk purchase, and any acts of negligence, fraud, statutory liabilities or demurrages / claims by third parties.

13. Patent Liability: -

Your liability under any kind of patent infringement with respect to this contract shall be unlimited.

14. Arbitration & Applicable Law: -

Any dispute arising out of or in connection with this Contract including any question regarding the existence, validity or termination shall be referred to and finally resolved by arbitration in accordance with the Arbitration Rules of the Mumbai Centre for International Arbitration ("MCIA Rules"), which rules are deemed to be incorporated by reference in this clause. The governing law shall be Indian law. The seat of the arbitration shall be in Mumbai.

15. Enabling Work: -

All enabling works required for installation, operation and maintenance of the plant and machinery required for execution of work shall be in the scope of the contractor.

16. Site Mobilization :-

Exclusive resources shall be mobilized by contractor as agreed at site for the scope of work under this contract without diverting existing resource(s) from any of contractors on-going jobs at our and/or JSW group company's locations. Contractor undertake not to lure any resources of JSW and other Contractor(s) already working in any of JSW and/or JSW group company's locations(s).

17. Qty. Variations :-

In case of individual quantity variation being more than +10% ,JSW shall have the right to negotiate for reduction in the unit rate which shall be mutually discussed and finalized. Any other variation of individual quantity of work shall be done at same unit rate.

18. Assignment and Subcontracting: -

Contractor shall not assign, in whole or in part, its obligations under this Contract to any third party without prior written consent of the Client except to a subsidiary or affiliated company or group company, for which the written consent shall not be unreasonably withheld. The Contractor may subcontract a portion of this Contract work to third parties. All such third parties shall be as per the sub-contractors list to be submitted by the Contractor and approved by the Client prior to commencement of any activities. In case, the Contractor proposes any addition/deletion of sub-contractors over and above the list, the Contractor shall obtain prior written approval of Client on the same. The Contractor shall be solely responsible for any liabilities, acts, defaults and neglects of any of its sub-contractor(s), its agent(s) or employee(s) as fully as if they were its own acts, defaults or neglects.

19. Force Majeure: -

A) As used in this Agreement, the expression "Force Majeure" or "Force Majeure Event" shall mean occurrence in India of any or all of the following exceptional events or circumstances, if it affects the performance by the Party claiming the benefit of Force Majeure (the "Affected Party") of its obligations under this Agreement and which act or event

(i) is beyond the reasonable control of the Affected Party,

(ii) could not have foreseen and could not have reasonably been provided against, before entering into contract

(iii) the Affected Party could not have prevented or overcome by exercise of due diligence and following Good Industry Practice,

(iv) has materially and adversely affected the Affected Party

(v) prevents the Affected Party from performing or discharging its obligations under this Agreement and

(vi) is not attributable to the acts of the parties.

B) Force-Majeure may include, but is not limited to, exceptional events or circumstances of the kind as listed below, so long as conditions (i) to (iv) above are satisfied.

i. War, hostilities (whether war be declared or not), invasion, act of foreign enemies,

ii. Rebellion, terrorism, revolution, insurrection, military or usurped power, or civil war,

iii. Munitions of war, explosive Materials, ionising radiation or contamination by radio-activity, except as may be attributable to the Subcontractor's use of such munitions, explosives, radiation or radio-activity, and

iv. Acts of God, Natural catastrophes such as earthquake, hurricane, epidemic, floods, torrential rains, tempest, rough sea, cyclones, typhoon or volcanic activity.

v. change in law, government embargo, and/or any judgment or order of a court of competent jurisdiction or statutory authority in India made against the Affected Party in any proceedings which is non-collusive and duly prosecuted by the Affected Party; except proceedings relating to (i) pursuant to failure of the Affected Party to comply with any applicable Law or permit, or (ii) on account of breach of any applicable Law or permit or of any contract, or (iii) enforcement of this Agreement or (iv) with respect to exercise of any of its rights under this Agreement;

C) Neither Parties shall be considered in default or in contractual breach to the extent that performance of obligations is prevented by a Force Majeure event, which arises after the Contract Date.

D) Notwithstanding anything contained in this clause, the ongoing COVID -19 pandemic outbreak shall not be deemed as a Force Majeure event, as the Parties are aware of the current outbreak of the COVID-19 at the time of finalization/ execution of this Contract, which may impact their performance. Hence, the Parties agree to do their best to implement all reasonable mitigation measures in compliance with the existing guidelines and restrictive measures to enable the timely performance under this Agreement. Any subsequent hindrance due to evolution of COVID-19 shall be governed in accordance with the provisions of clause 31.E, 31.F, 31.G under this Contract. Any guidelines for COVID-19 test reports, quarantine period or self-isolation implemented by the government Authorities in the Purchaser's jurisdiction shall be strictly complied by the Seller with a view to mitigate costs. The period of quarantine / isolation in the Purchaser's jurisdiction, if any, shall be excluded from the calculation of the timelines under the Agreement and such calculation shall commence from the date when the performance is commenced in accordance to the terms of this Agreement. If any of the Seller's personnel are tested positive after their arrival in the Purchaser's jurisdiction, then the Seller shall endeavor to send substitutes for such personnel at its sole cost.

E) If either Party is prevented from performing any of its obligations under this Contract by an event/(s) of Force Majeure, it shall promptly give written notice to the other Party within 10 (Ten) days of the occurrence of such events, describing the event, substantiating the reasons thereof and its effects supported by authentic evidences and/or certifications from relevant authorities that are verifiable. The affected Party shall, having given notice, be wholly or partially excused performance of such obligation for so long as such Force Majeure prevents it from performing them.

F) The affected Party shall use all reasonable efforts to minimize any losses and/or damages and delays in its performance of the Contract as a result of Force Majeure Events.

G) The Party unable to perform this Contract due to the effect of Force Majeure Events occurrence may, after

consultation with the other Party, extend the duration of this Contract by a period commensurate to the time actually lost due to the Force Majeure occurrence. The other Party shall not claim compensation for the loss thus incurred

H) Provided that, the excuse from performance shall be of no greater scope and of no longer duration than is reasonably warranted by the Force Majeure Event. Provided further, nothing contained herein shall absolve the Affected Party from any payment obligations accrued prior to the occurrence of the underlying Force Majeure Event.

I) The Affected Party shall also notify the other Party of any proposals, including any reasonable alternative means for performance but such proposals shall be effected only with the consent of JSW. The Affected Party shall inform the other Party of the measures which the Affected Party has taken or proposes to take, to alleviate the impact of the Force Majeure Event or to mitigate the damage

J) As soon as it is apparent that the contractual dates and/or timelines cannot be adhered to, an application for extension of time with sufficient reasons shall be made by the Vendor not later than 7 days of expiry of Force Majeure event. The date of completion may be extended by a time period subject to the Vendor being able to present proper documentary evidence in support of his request. However, the Vendor shall not be entitled to any increase in price or in statutory levies that may arise during such extended delivery period.

K) If the period of Force Majeure continues or is in the reasonable judgment of the Parties likely to continue beyond a period of 30 (Thirty) Days, the Parties may mutually decide to terminate this Agreement in which event, the provisions of this Contract pertaining to termination shall, to the extent expressly made applicable, apply.

20. Termination Of Contract: -
---
a. Termination of the Contract By JSW

JSW may at any time terminate the Contract for any reason by giving the Contractor a notice of 30 (thirty) days of termination.
Without prejudice to the other rights or remedies of JSW under the Contract or otherwise, JSW shall be entitled to terminate the Contract
Upon receipt of notice of termination the Contractor shall either immediately or upon the date specified in the notice of termination:
i) Cease all further work except such work as specified in the notice of termination or any work required to be done to leave the site in a clean and safe condition.
ii) Terminate all sub Contracts except those to be assigned to JSW.
iii) Remove all materials, machinery, equipment from site, Contractors / sub-Contractors personnel from site, remove any rubbish debris of any kind and leave the site in a safe and clean condition.
iv) Deliver to JSW the parts of work executed by the Contractor upto the date of termination.
v) Deliver to JSW all drawings, specifications and other documents prepared by the Contractor / sub-Contractor.
In the event of such termination, JSW shall pay to the Contractor the undisputed price attributable to the parts of the work executed by the Contractor as of the date of termination and subject to the deduction of any amount due and payable by the Contractor. No consequential damages shall be payable by JSW to the Contractor in the event of termination.

b. Termination of The Contract by The Contractor.
In the event of the Company:-
1. without reasonable cause/reasons, failing to pay to the Contractor the amount due under any certificate of the Engineer within sixty (60) Days after the same shall have become due under the terms of the Contract, or
2. without reasonable cause/reasons, interfering with or obstructing or refusing any required approval to the issue of any such certificate, or
3. becoming bankrupt or, being a company, going into liquidation, other than for the purpose of a scheme of reconstruction or amalgamation, or
4. giving formal notice to the Contractor that for unforeseen reasons, due to economic dislocation, it is impossible for him to continue to meet his contractual obligations,
then the Contractor may give notice stating the default. If the default is not remedied within thirty(30) Days after the Company's receipt of this notice, the Contractor may terminate the Contract and demobilize its plant and Equipment

Registered Office :JSW Centre, Bandra Kurla Complex, Bandra (East) Mumbai 400051

from the Site.
Upon the expiry of the thirty (30) Days' notice referred to hereinabove, the Contractor shall with all reasonable dispatch, remove from the Site all Spread brought by him thereon.
Upon such termination the Contractor shall without prejudice to any rights or remedies it may have under the Contract or at law be entitled to payment of the unpaid balance of the value of the Works executed till date of termination, adjusted by any sums to which the Contractor is entitled under the Contract including demobilization cost
The net balance shall be paid by the Company to the Contractor within thirty (30) Days of the acceptance of notice of termination by Company & submission of No Claim Certificate

21. Confidential Information: -

Any information received pursuant to this contract shall be treated as confidential information and shall not be disclosed to any third party except as is required by Law or Legal process.

22. Press Release / Public Announcements: -

Contractor shall take prior written consent by providing draft well in advance for any kind of press release, public announcements or any other notifications with respect to this contract, for our approval under the provisions of law.

23. General :-

Contractor shall execute this Contract in accordance with the following contract documents which where these documents may be at variance with each other shall have the following order of precedence :

i) Contract Agreement, Bill of Quantities & Drawings.
ii) LOI Ref no.
iii) Price Bid.
iv) Scope of Work
v) Indian Standards and Codes of Practice

If there are varying or conflicting provisions in any one document forming part of the Contract, the Purchaser shall be the deciding authority with regard to the intention of the document.

Terms of Payment:

Scope of Work

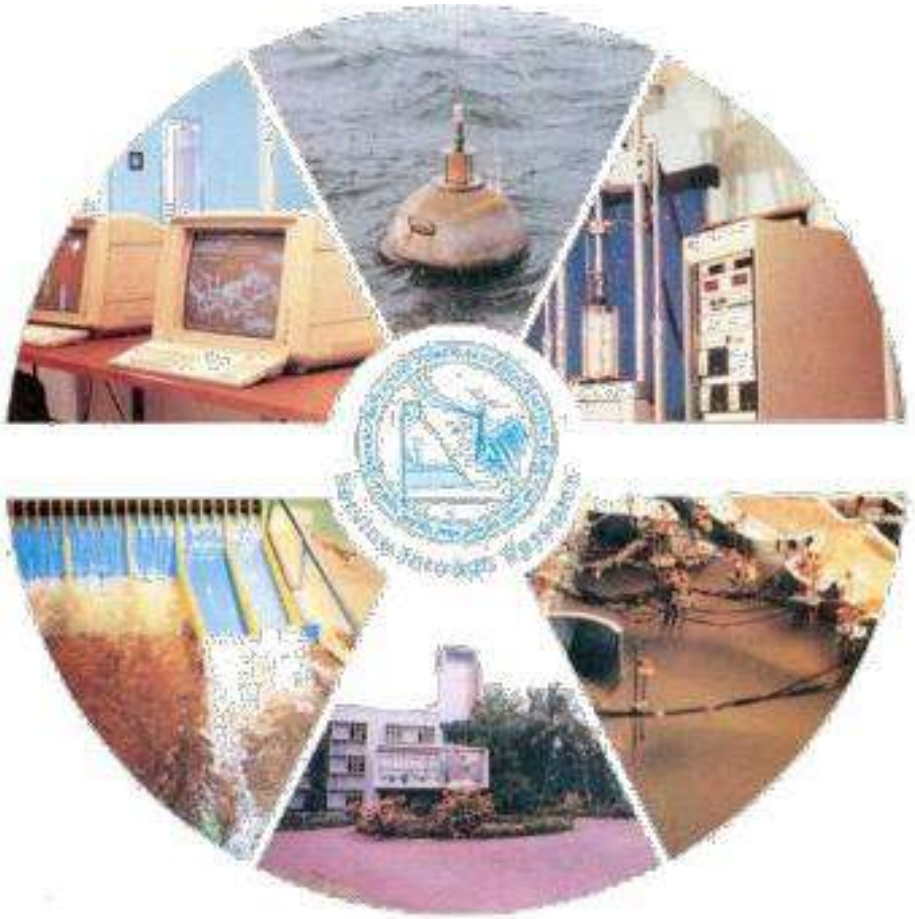
==========

To carry out a shoreline change map through the periodical study of satellite imagery at our operational Dharamtar Port as per the EC requirements.

Shore line change study (for the period of 2009-2021 for JSW Dharamtar Port Pvt Ltd of Dharamtar Creek

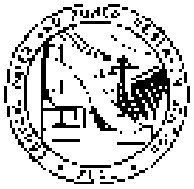
Details Scope & Enfa for single party work awarded attached for your references

Government of India
Ministry of Water Resources, River Development and Ganga Rejuvenation
CENTRAL WATER AND POWER RESEARCH STATION
Pune, Maharashtra, India



Numerical Model Study of Hydrodynamics and Siltation and Wave Tranquility Study for the Navigation of the Dharamtar Creek (Amba River)

GOVERNMENT OF INDIA
MINISTRY OF WATER RESOURCES
CENTRAL WATER AND POWER RESEARCH STATION
PUNE 411 024, INDIA

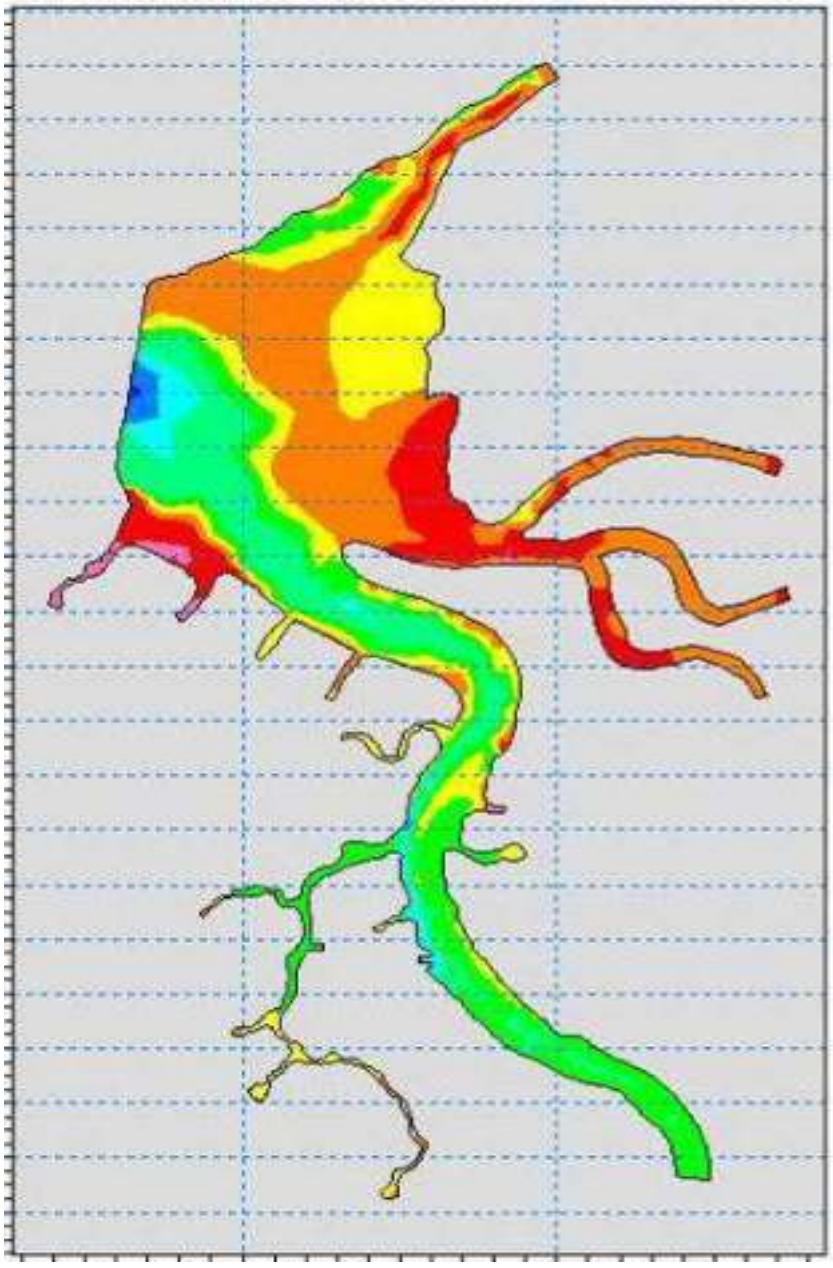


NUMERICAL MODEL STUDY REPORT

March 2015

Numerical Model Study of Hydrodynamics and Siltation and Wave Tranquility Study for the Navigation of the Dharamtar Creek (Amba River)

Numerical Model Study of Hydrodynamics and Siltation and Wave Tranquility Study for the Navigation of the Dharamtar Creek (Amba River)



JSW Dharamtar Port Pvt. Limited **March 2015**

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SYMBOLS AND ABBREVIATIONS

Symbols and abbreviations used are generally in accordance with the following list.

1 Proper names and organisations - India

BIS.....Bureau of Indian Standards

GAIL… ……..Gas Authority of India

IAPH.....The International Association of Ports and Harbours

MMB…….Maharashtra Maritime Board

MCZMA .....Maharashtra Coastal Zone Management Authority

MIDC .....Maharashtra Industrial Development Corporation

MLDB .....Main Lighting Distribution Board

MoEF .....Ministry of Environment and Forests

MoS .....Ministry of Shipping

MPCB ..... Maharashtra Pollution Control Board

MSEDCL ..... Maharashtra State Electricity Distribution Company Limited

NHO .....National Hydro graphic Office, Dehra Dun

OCIMF.....The Oil Companies International Marine Forum

PINAC ..... Permanent International Association of Navigation Congress

SIGTTO.....Society of International Gas Tankers & Terminal Operators Ltd.

SoI……Survey of India

2 Proper names and organisations – Other

BA.....British Admiralty

BR .....Beckett Rankine

BS.....British Standard

IMO.....International Maritime Organization

ISPS .....International Ship and Port facility Security code

UTM.....Universal Transverse Mercator (map projection)

WGS.....World Geodetic System (ellipsoid for map projection)

3 Other abbreviations

Approx. .....approximately

cif.....cost, insurance, freight

dia.....diameter

feu .....forty foot equivalent unit (container)

fob .....free on board

max.....maximum

min.....minimum

No.....number (order) as in No 6

nr .....number (units) as in 6 nr

Panamax .....ship of max permissible beam of 32.2m for transiting the Panama Canal

ppt .....parts per thousand

teu .....twenty-foot equivalent unit (container)

BOOT .....Build – Own - Operate – Transfer

CCTV.....Closed Circuit Television

CSR.....Corporate Social Responsibility

CBRM…….Coal bearing raw material

DPR.....Detailed Project Report

EIA.....Environmental Impact Assessment

HAT .....Highest Astronomical Tide

MHWS .....Mean High Water Spring tides

MHS……Material Handling System

MSL .....Mean Sea Level

MLWS.....Mean Low Water Spring tides

LAT.....Lowest Astronomical Tide

CD .....Chart Datum

ICD .....Inland Container Depot

IT .....Information Technology

IBRM……..Iron bearing raw material

LOA .....Length overall (of a ship)

LCL.....Less Than Container Load / Consolidation Containers

M .....“mega” or one million (10^6)

MVA……Mega volt ampere

MoU.....Memorandum of Understanding

SEZ .....Special Economic Zone

ToR.....Terms of Reference

VTMS .....Vessel Traffic Management System

4 Units of measurement

Length, area and volume

mm .....millimetre(s)

m .....metre(s)

km.....kilometre(s)

n. mile.....nautical mile(s)

mm^2 .....square millimetre(s)

m^2 .....square metre(s)

km^2 .....square kilometre(s)

ha .....hectare(s)

m^3 .....cubic metre(s)

Time and time derived units

s.....second(s)

min.....minute(s)

h .....hour(s)

d .....day(s)

wk .....week(s)

mth .....month(s)

yr .....year(s)

mm/s.....millimetres per second

km/h.....kilometres per hour

m/s.....metres per second

knot.....nautical mile per hour

Mass, force and derived units

kg.....kilogram(s)

g .....gram = kg x 10^{-3}

t .....tonne = kg x 10^3

displacement ....the total mass of the vessel and its contents. (This is equal to the volume of water displaced by the vessel multiplied by the density of the water.)

DWT .....dead weight tonne, the total mass of cargo, stores, fuels, crew and reserves with which a vessel is laden when submerged to the summer loading line. (Although this represents the load carrying capacity of the vessel it is not an exact measure of the cargo load).

Mt .....million tonnes = t x 10^6

TPD.....Tonnes per day

TPH/tph.....Tonnes per hour

Other units

°C .....degrees Celsius (temperature)

Mtpa .....million tons per annum

1 Introduction

1.1 Background

JSW Group is one of the fastest growing business conglomerates with a strong presence in the core economic sector. This Mr. Sajjan Jindal led enterprise has grown from a steel rolling mill in 1982 to a multi business conglomerate worth US $ 11 billion within a short span of time. As part of the US $ 16.5 billion O. P. Jindal Group, JSW Group has diversified interests in Steel, Energy, Minerals and Mining, Aluminium, Infrastructure, Cement and Information Technology.

JSW Group has grown significantly over the years and taking steps for rapid expansion to ramp up the capacity of Vijaynagar Steel Plant in Karnataka from the present 10 MTPA to 12 MTPA by the year 2014. In addition, JSW Energy Limited, a JSW Group company, is the first independent Power producer to set up 2 units of 130 MW each and 4 units of 300 MW each and producing power using Corex gas and coal.

The JSW group owns and operates JSW Steel Limited, Dolvi Works, 3.2 Million tons per annum (Mtpa) Steel plant based at Dolvi, Maharashtra working on BF-DR-CONARC-CSP process. The plant also has facilities for cold rolling, galvanizing, colour coating, galvalume, and supplements the pipe and tube plant at Kalmeshwar, Nagpur in the state of Maharashtra.

The JSW Infrastructure Ltd (JSWIL) is a JSW Group company which is presently into design, finance, development, operation and maintenance of ports, rail/road and inland water connectivity, development of port based SEZ and other related infrastructure developments works along with terminal handling operations and port management. The JSWIL has constructed a mega port in Jaigarh, near Ratnagiri, in Maharashtra, with a present capacity of 15 Mtpa through a Special Purpose Vehicle (SPV) presently under expansion to 50 Mtpa. Another Subsidiary of JSWIL, the South West Port Limited (SWPL), has developed berth number 5A and 6A in the Mormugao Port Trust on BOOT basis and has successfully handled more than 50 million cargos in about 9 years.

JSW Dharamtar Port Limited (JSWDPL) is a SPV under the aegis of JSWIL, to handle the proposed EXIM cargo of the JSW Steel Limited, Dolvi works. The Plant was taken over from the erstwhile M/s Ispat Industries Limited, in the Year 2011. The Steel plant has unique distinction of having road, rail and water connectivity. It is located on the right bank of the Amba River, which falls in to the Dharamtar Creek, before merging in to the Arabian Sea. There is a barge handling facility which mostly handles raw materials for the Steel Plant. The location of the JSW Steel Limited, Dolvi works is shown in Figure 1.1 below.

Figure 1-1: Location of the Dolvi facility on the Map of India (top) and on the map of Maharashtra (bottom)

The cargo in the fair season, is handled at the Mumbai outer anchorage (mostly in the Bravo anchorage), and then transported through barges to the Jetty at Dharamtar, near Dolvi. The berthing facility consists of 430 m barge berth with two approaches as shown in Figure 1.2. The berth is equipped with two barge unloaders and two LHM 250 Leibherr Cranes.

Figure 1-2: The existing barge berthing facility at Dharamtar

1.2 The project

Modern day industry requires a larger market and economical transportation systems to get its input or base materials at lowest costs and the finished products are disposed at many destinations at a comparative cost. To achieve this, appropriate transportation facilities are very essential. Thus, such propositions are possible only if such industries are set up as near as possible to a seaport.

The existing berthing facility at Dharamtar is for handling of barges. Originally designed for barge sizes of 2500 DWT, presently barges up to 3700 DWT are handled at the berth. There are 4 berths (Berth no 1 to 4) totaling to about 331.5 m in one alignment. Berth no. 5 of about 100 m long, is at an angle of 30. The berth structure is designed on pile foundations and has a concrete RCC decking. The berth is provided with two approaches, which apart from providing access to the berths carry the conveyor systems as well.

The present logistical chain for the Dharamtar facility is fairly simple. The mother vessels are handled at the anchorage and load the barges using ship's gear. The barges then move in to the creek and travel to the berth and gets unloaded. The empty barges are serviced and start their journey back to the anchorage for re-loading. Typically this is the fair weather operation, which spans 8 months in year. At this outer anchorage there are no depth restrictions and therefore, vessels up to cape size ships could call in. The ships do

move shoreward during the midstream handling as they lighten themselves. This effectively reduces the distance of travel of the barges travel, resulting in savings in fuel and time of travel.

In the monsoon season, due to the wave disturbance in the outer anchorage, the action of cargo transfer shifts to the inner anchorage. In such a scenario, due to the depth limitations in the inner anchorage, mother vessels up to 40,000 DWT only could be serviced. The vessels generally come partially loaded to be handled inside the inner anchorage. The inner anchorage provides the necessary tranquility for cargo handling.

However, it must be understood that the number of inner anchorages are limited. About 5 anchorages are being developed by the Mumbai Port Trust. Though additional anchorages could be developed, but the efficiency would be low.

Therefore, with the increase in the cargo volumes, the dependencies on the inner anchorages should be reduced proportionately. There are two inherent inadequacies ingrained in the inner anchorage operations.

1. Handling of vessel sizes limited to 40000 DWT. Hence the freight charges increases.
2. Since the numbers of anchorages are limited, as the number of ships to be handled increase, the waiting time also increase.

Accordingly, in order to reduce redundancies and uncertainties in the system it was decided to do away with the inner anchorage for the planning of the cargo movement in the Phase II and Phase III. Instead the cargo could be shifted and handled from Jaigarh Port, where the turnaround of the ship would be much higher.

In the report (as in the Logistic studies), the fair weather cargo is considered to be handled from the outer anchorage and the monsoon cargo from the Jaigarh Port. In another scenario the entire cargo is being handled from the Jaigarh Port. The logistic study is dealt in a separate report; the present report would only deal with the Mathematical model studies as part of compliance for the construction and expansion of the water front structures for handling the increased cargo volumes.

1.3 Summary of Terms of Reference

The broad scope of work for the mathematical model study report would include the following:

- Review of the existing reports, available data and documents
- Data collection and collation
- Mathematical model studies
- Discussion of the Results

1.4 Intent of the report

The purpose of this report is to determine the impact of the waterfront development in order to handle the enhanced cargo volumes.

The report would discuss the siltation and the morphological changes in the creek as well.

1.5 Format of the report

The report is arranged as below:

Chapter 1: Introduction

Chapter 2: Site Condition

Chapter 3: Field Investigations

Chapter 4: Model Set up

Chapter 5: Conclusions and Recommendations

2 Site Condition

2.1 Geographical Location

The location of Dharamtar Creek and Karanja Creek along the west coast of India, and proposed Port facility is shown in Figure 2.1. The location of the proposed TPP lies between latitudes 18^0 43' to 18^0 45' North and 72^0 58' to 72^0 59' East as shown in Figure 2.2. The general topography of the area is flat terrain surrounded by creeks on three sides.

Figure 2-1: Location of the proposed Facility in side Dharamtar Creek

Figure 2-2: Location of the proposed Existing waterfront and Steel plant Facility in side Dharamtar Creek

2.2 Meteorological and Oceanographic Conditions

2.2.1 Temperature

The mean of the highest air temperature recorded at Mumbai is 35^0 C in the months of April and May while the mean lowest is 16^0 C recorded in the month of January. Mean daily maximum and minimum temperatures are 34^0 C and 22^0 C respectively.

2.2.2 Rainfall

The average yearly rainfall is about 2098 mm, of which 1965 mm (93.66%) occur during June to September. Usually maximum average monthly rainfall of 709 mm occurs in July. There is practically no rainfall from December to April.

2.2.3 Relative Humidity

Mean yearly relative humidity at 0830 hours is 77% while the same at 1730 hours is 71%. The monthly average is lowest in February (62%) and highest in July to September (85%).

2.2.4 Wind

Ship observed offshore wind data for a period of 35 years from 1976 to 2015 were obtained from the India Meteorological Department (IMD) and analysed for the grid covering Lat. 18° - 20° N and Long 71° - 73° E, which centers the area of interest. The distribution of wind speed and direction is presented in Figure 2.3. The observations represent measurements taken at sea level for 3 minutes. It may be seen that west is the predominant direction and that the wind speed is less than 10 m/s for 88% of the time as shown in figure 2.4.

It was observed that the predominant wind is NE-N-NW in January. It gradually shifts towards west and by May it becomes NW to SW. During the months of June, July and August, the wind blows from W to SW. From September the wind direction starts changing and by December, again the predominant sector becomes NE-N-NW.

Figure 2-3: Wind rose diagram (Source: IMD, 1976 – 2015).

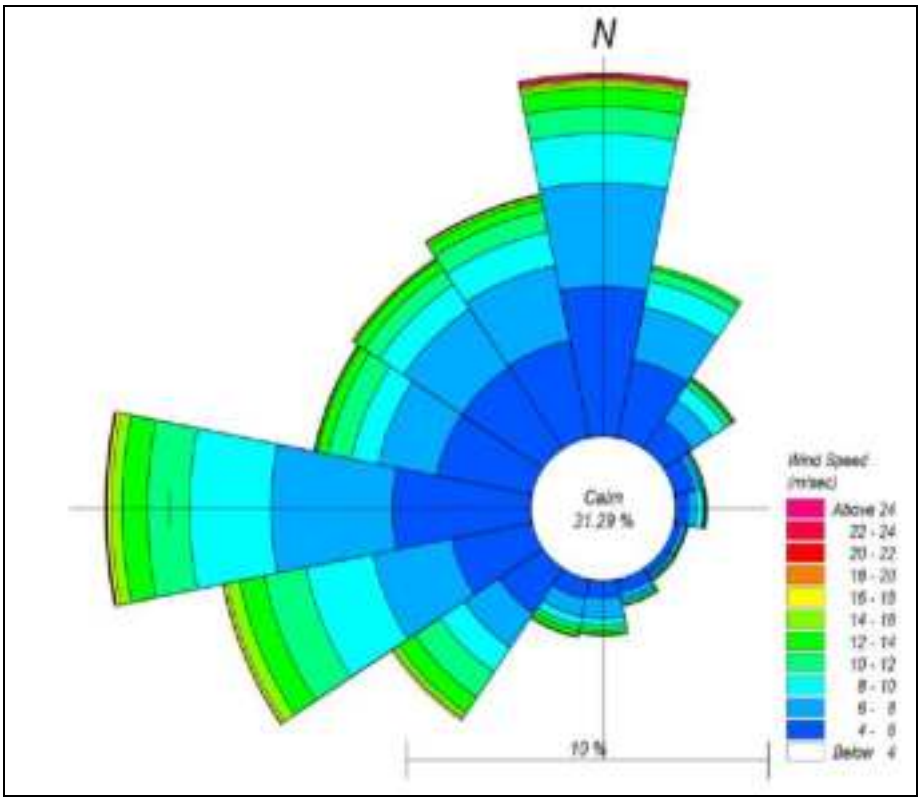
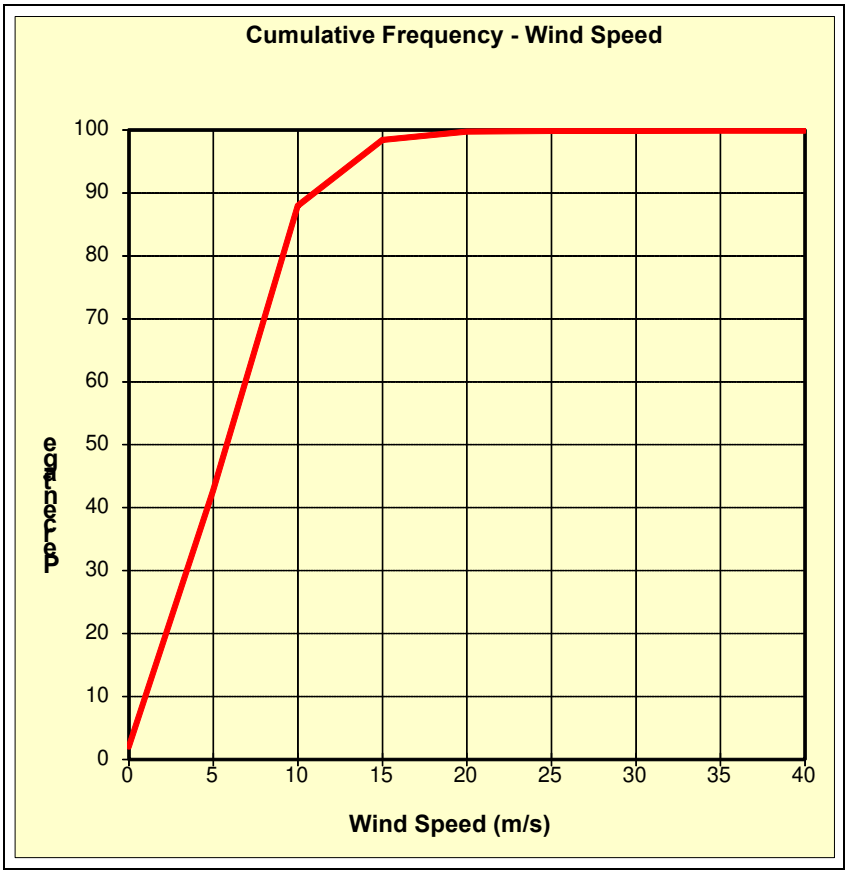


Figure 2-4: Cumulative frequency graph for the wind speed (Source: IMD, 1976 – 2015).



It may be observed that during the fair weather season viz. October to May, the wind speed is less than 6 m/s for about 91% of the time. However, during the monsoon season (June to September), the wind speed is less than 8 m/s knots for only 62% of the time. It may also be seen that during the peak monsoon period (July and August), wind speed of 6 to 13 m/s occurs for about 29% of the time. Wind speed of 13 m/s knots is seldom exceeded.

2.2.5 Wave Climate

The ship observed wave data were collected from the India Meteorological Department (IMD) for the quadrant bounded by Latitudes 18° to 20° N and Longitudes 71° to 73° E, between 1976 and 2005. The annual distribution of wave heights is given in the form of wave rose diagrams in Figures 2.5. It may be seen that the predominant directions of waves in the deep sea are from SW to NW. It can also be seen that waves are less than

1 m, 2 m and 3 m in height for 77, 94 and 98% of the time respectively as may be observed from the cumulative frequency curve given as Figure 2.6. Figure 2.7 shows the wave rose for wave period.

During the pre-monsoon period (January to May) over 92.93% of waves are less than 3 m in height. During the monsoon period (June to September) wave heights are less than 2 m for 85 % and less than 3 m for 97% of the time. During the post monsoon period (October to December) wave heights are more than 3 m for 0.9% of the time. The predominant wave directions are in the NW quadrant for pre-monsoon period, from W to SW during the southwest monsoon and from NE to NW in the post-monsoon period. These wave heights applicable for the offshore conditions and wave are completely attenuated as they enter the well-protected creek.

Figure 2-5: Wave height rose diagram Offshore (IMD, 1976 – 2015).

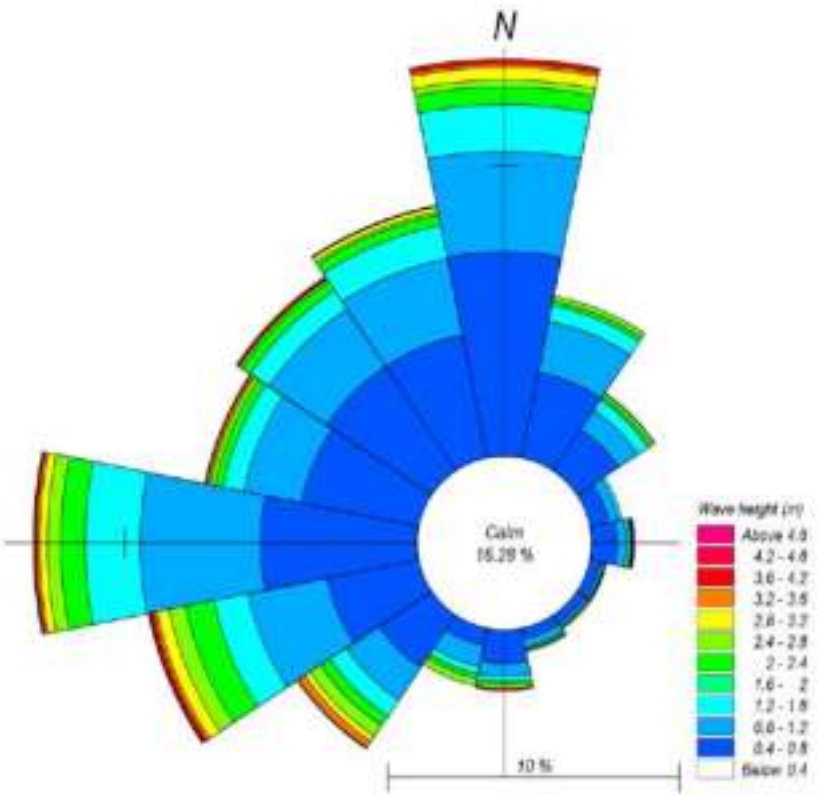


Figure 2-6: Cumulative frequency graph for wave height (Source: IMD, 1976 – 2015).

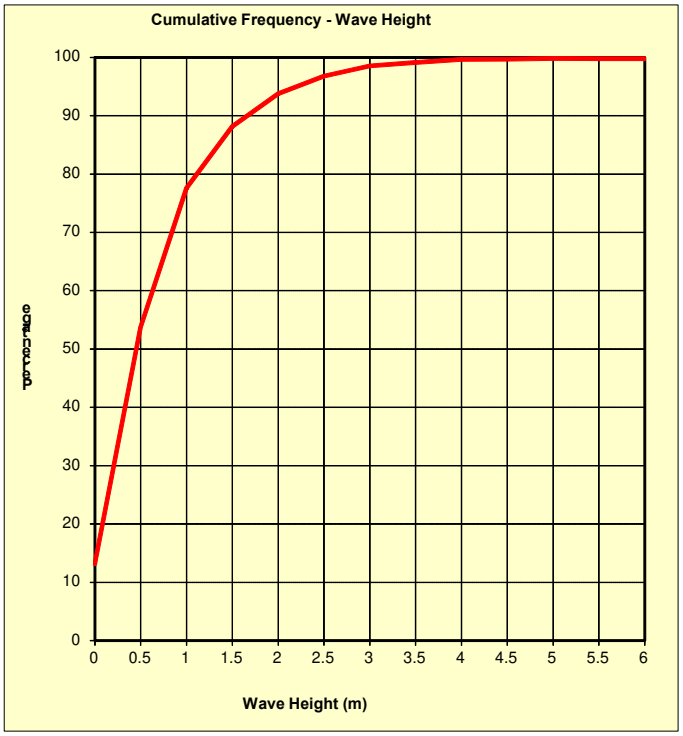
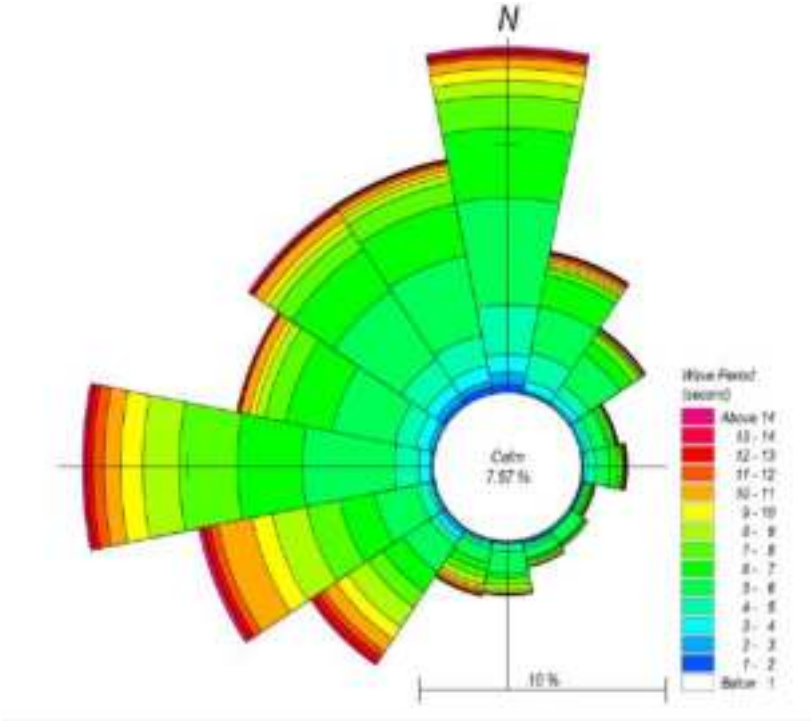


Figure 2-7: Wave period rose diagram Offshore (IMD, 1976 – 2015).



2.2.6 Tides

The tides in the Mumbai region are of the semi-diurnal type, i.e., characterized by occurrence of two high and two low waters every day. There is a marked inequality in the levels of the two low waters in a day. The important tidal datum planes with respect to Chart Datum at Apollo Bandar (Latitude 18^0 55' N, Longitude 72^0 50' E) are as under.

MHWS	+ 4.4 m
MHWN	+ 3.3 m
MSL	+ 2.5 m
MLWN	+ 1.9 m
MLWS	+ 0.8 m

It may be mentioned that the tidal levels mentioned above get modified, albeit to a minor extent, by coastal geometry and configuration at the proposed port site.

2.2.7 Currents

The currents in the Mumbai region in the near shore zone are tide induced with reversal at high and low waters. The current speeds are of the order of 0.75 m/s to 1.5 m/s (1.5 to 3 Knots).

3 Site Investigations

3.1 General

The site investigations were carried out for collecting field data with regard to, bathymetry of the area, tidal levels, current, temperature, salinity and total suspended solids (TSS) specific to the area under consideration. The collected data is used both as input to the mathematical model as well as for calibration.

3.2 Bathymetric Survey

Bathymetric survey was conducted by Mumbai Maritime Board (MMB) of the area as shown in figure 3.1and the levels were reduced to chart datum. This was used as the basic bathymetry for the model and calculation of the dredging quantities.

3.3 Tidal Data

Tidal data was collected at the Dharamtar Jetty. The zero of the tide pole was connected to the Bench Mark by levelling. The observations after tide is reduced to chart datum are given as Figure 3.2.

It can be seen that the maximum tide is 5.45 m and tidal range is 5 m. This tide will be used at the lower boundary defining the flow of the creek near Dharamtar Jetty.

3.4 Current

Current data was collected at 5 locations as shown in Figure 3.3. The time series of current speed are plotted and given in Figure 3.4.

Figure 3-1: Bathymetry chart of the area – MMB survey

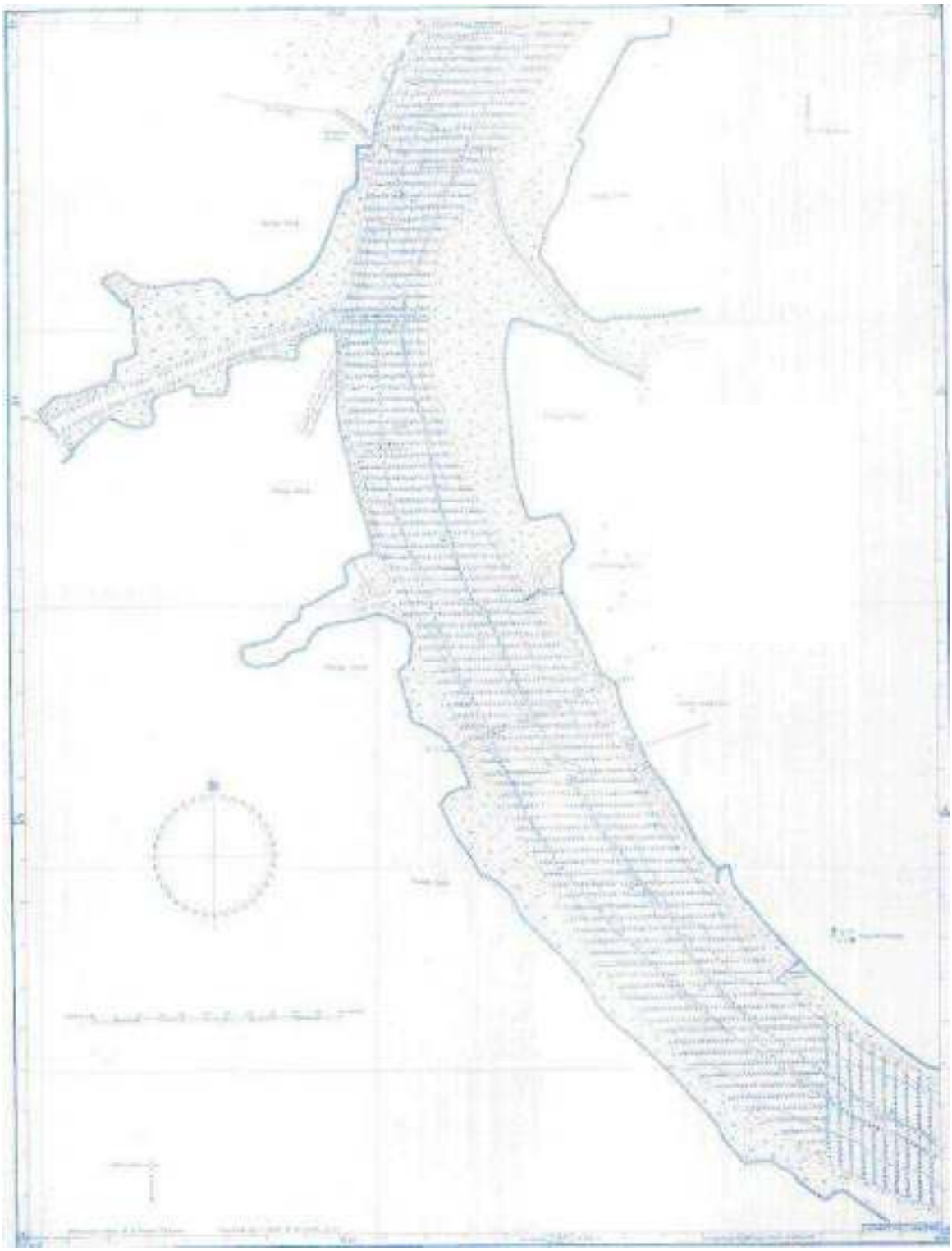


Figure 3-2: Tidal Levels at the Dharamtar Jetty

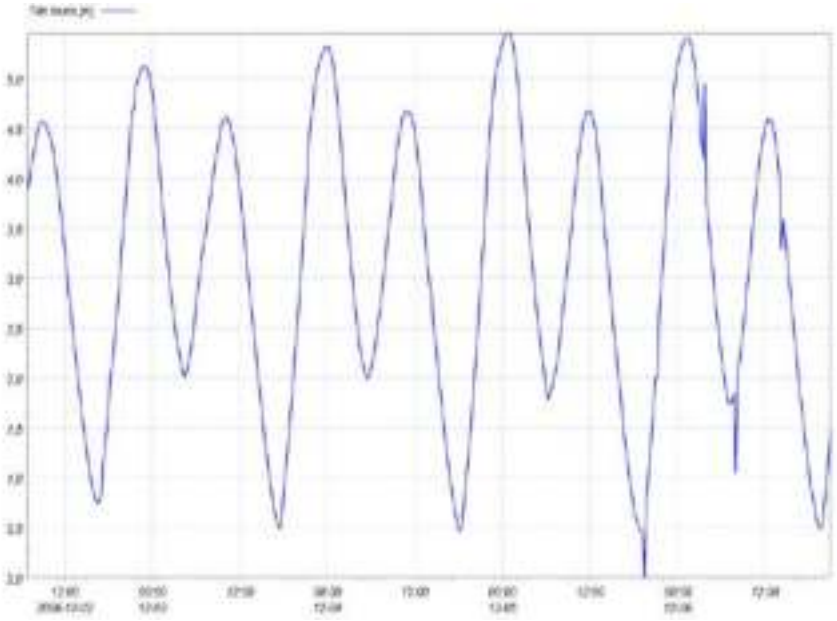


Figure 3-3: Location of the Current Measurements

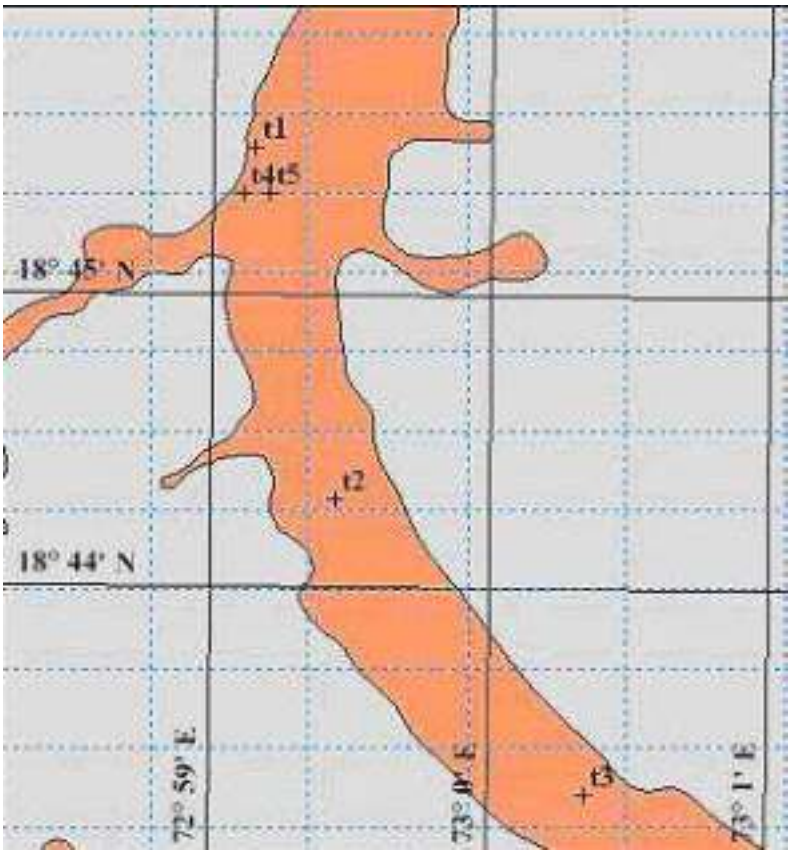
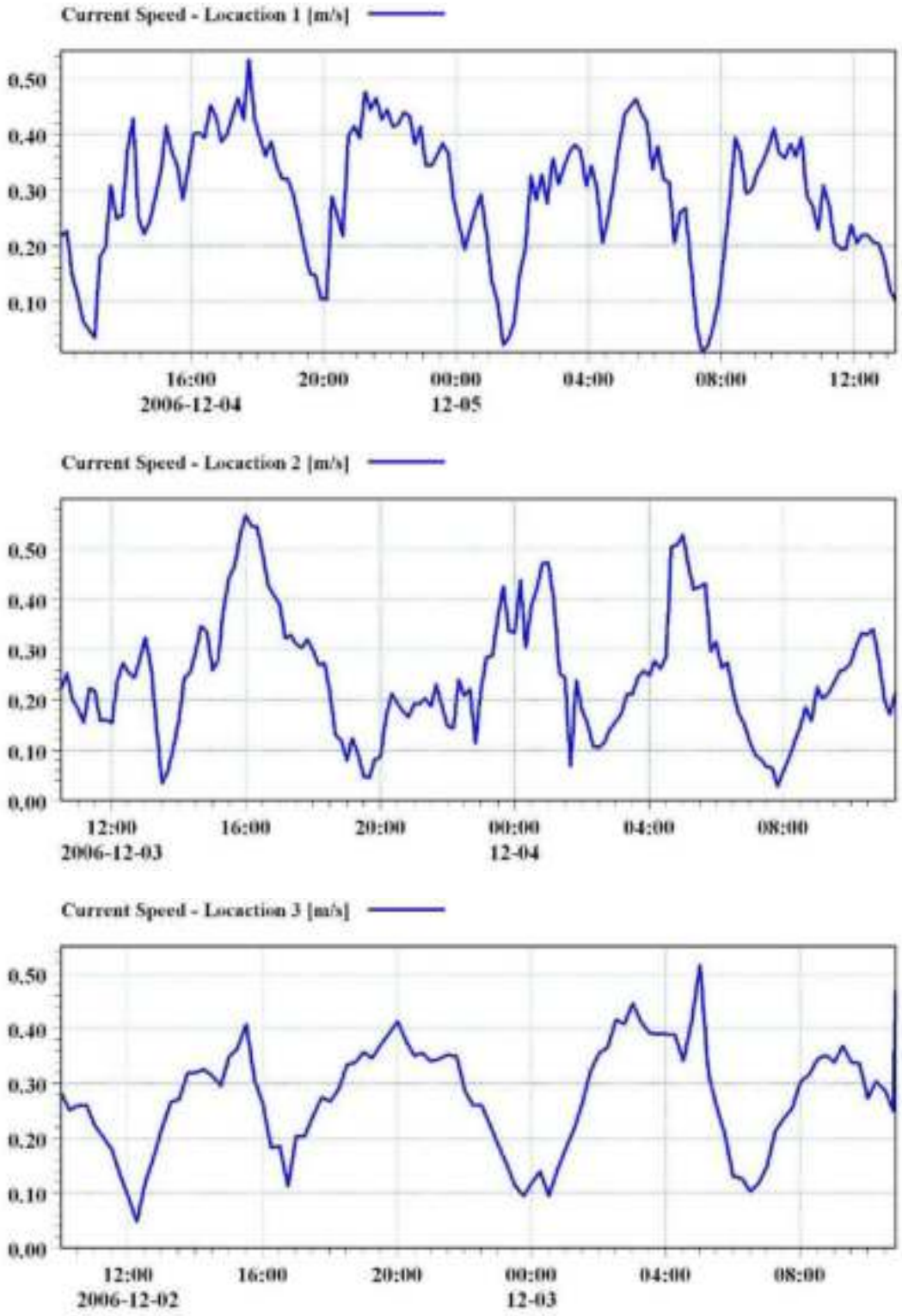
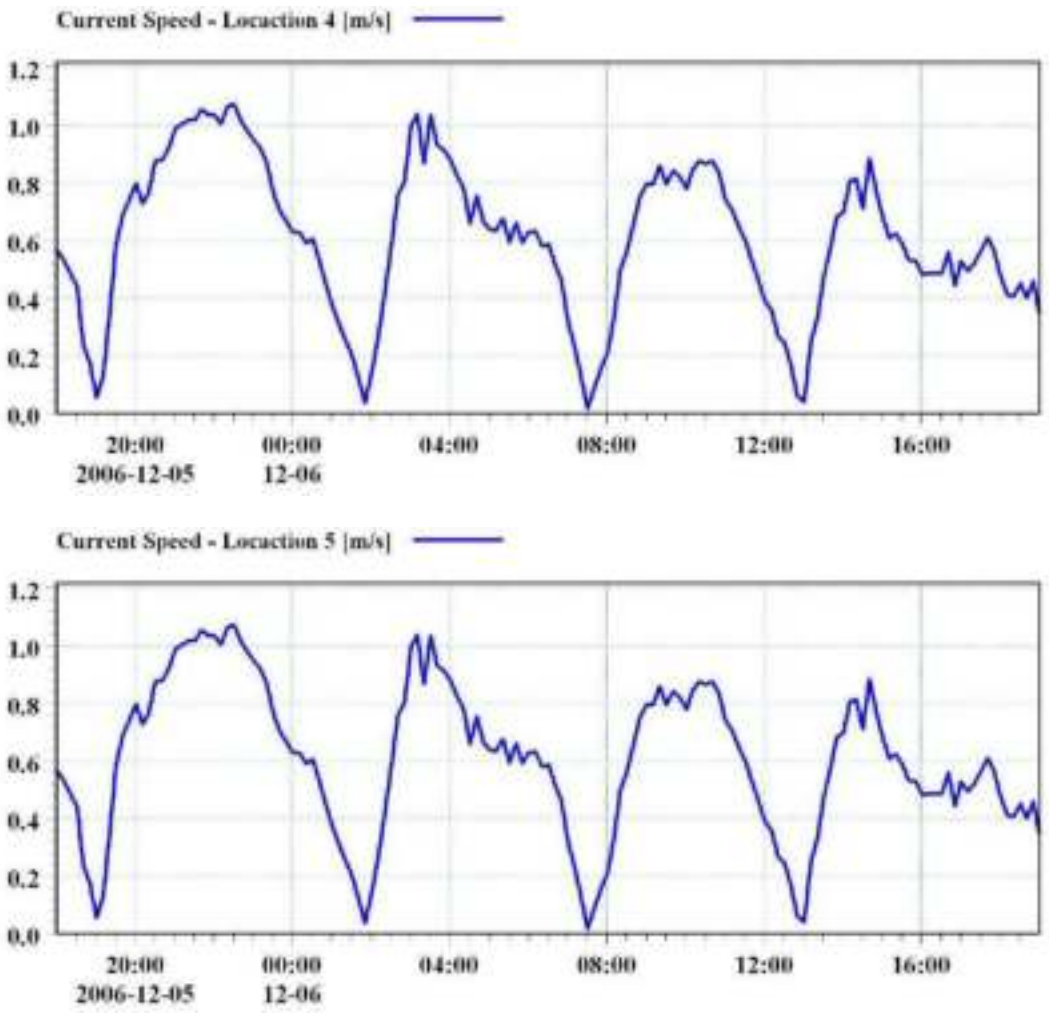


Figure 3-4: Current plots of stations 1 to 5 in sequence

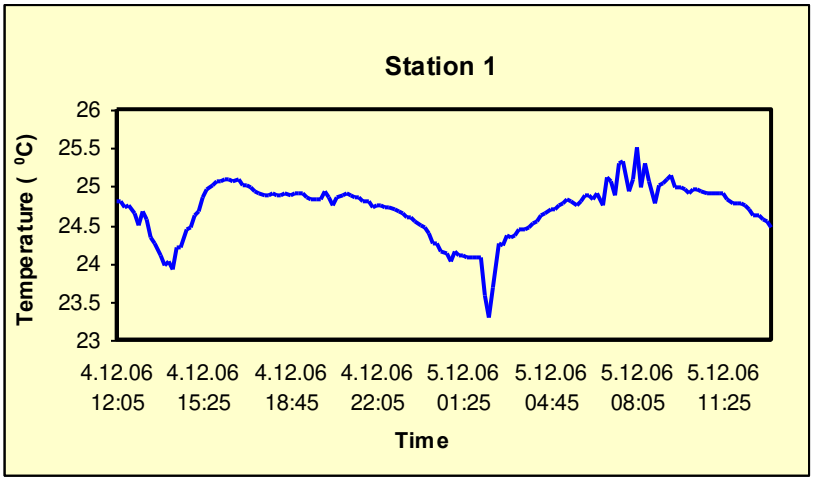


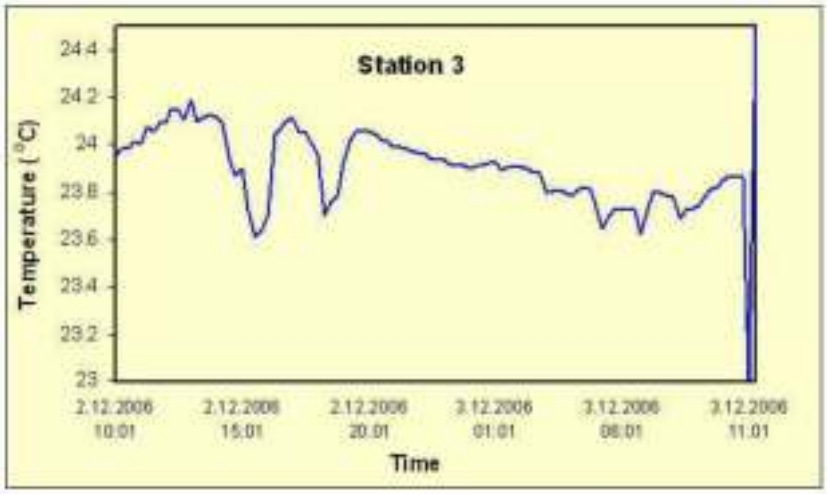


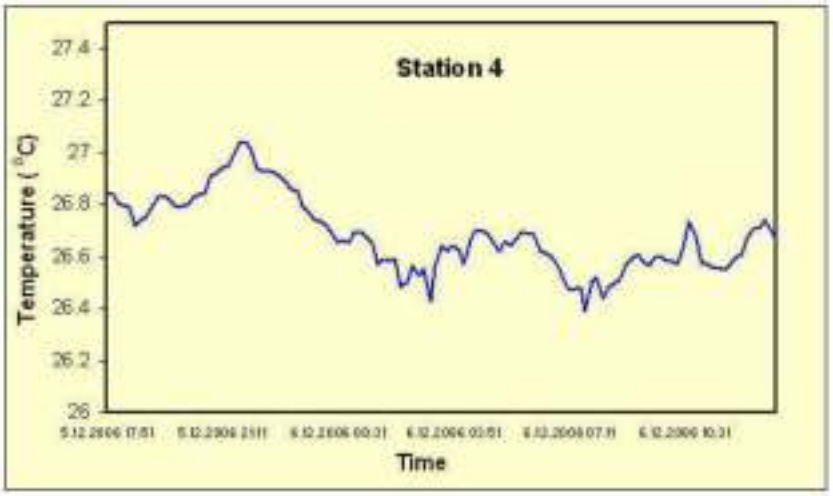
3.5 Temperature

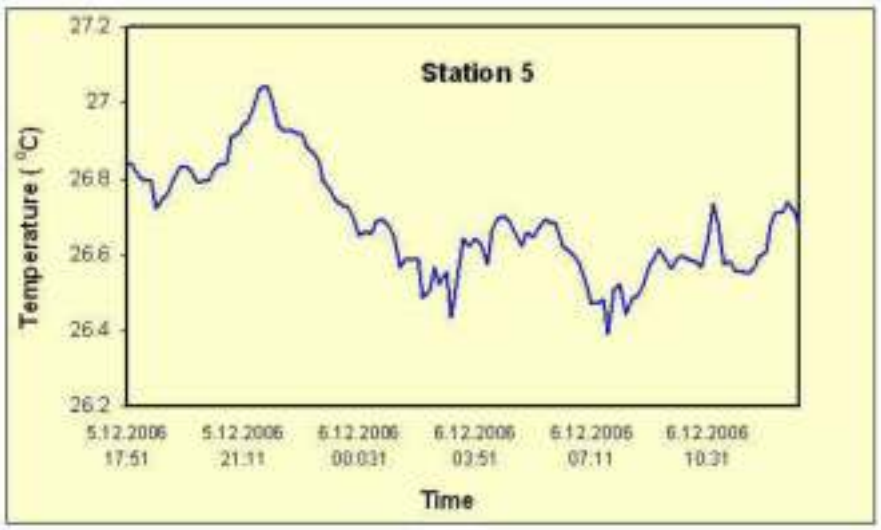
The temperature monitoring was carried out at the four locations where current was also measured (Figure 3.3) at specified depth from the water surface as provided in Figure 3.5.

Figure 3-5: Current plots of stations 1 to 5 in sequence









3.6 Salinity and Total Suspended Solid

The water samples were analysed using CTD meter for the TSS and the salinity of the creek at three locations as depicted in Figure 3.6. The salinity and TSS profiles of the above said locations are given in Figure 3.7 to 3.9.

Figure 3-6: Locations of monitoring stations for salinity and TSS

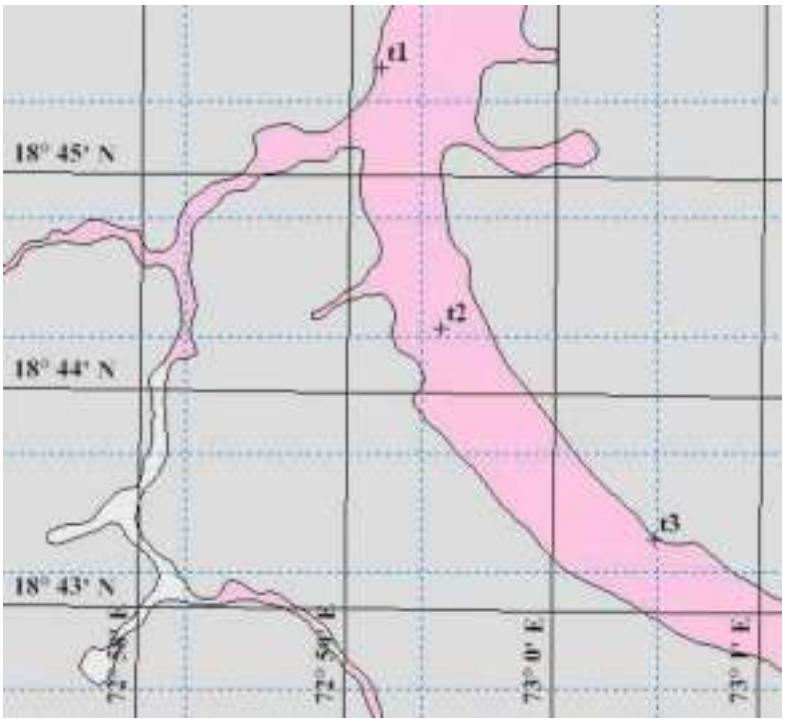
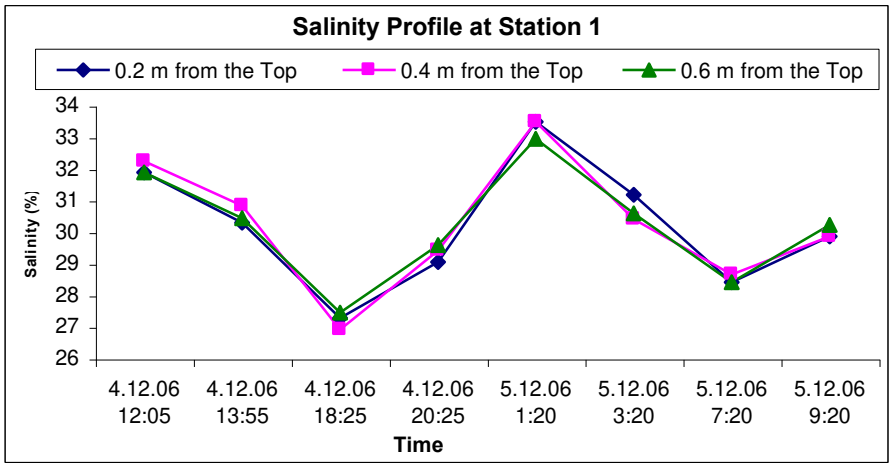


Figure 3-7: Salinity and TSS profile at Station 1



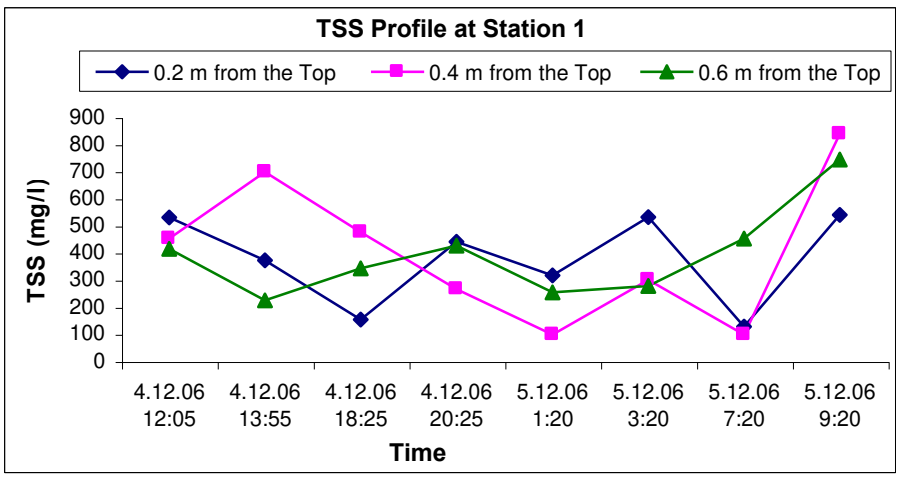
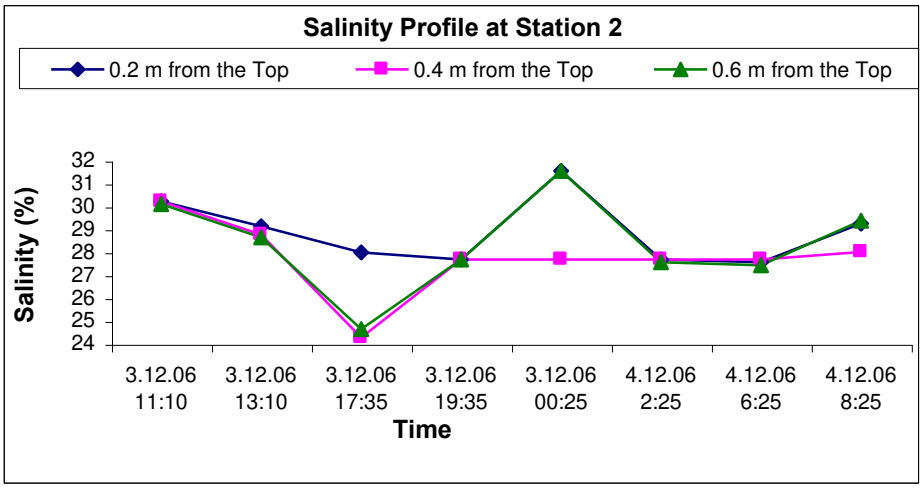


Figure 3-8: Salinity and TSS profile at Station 2



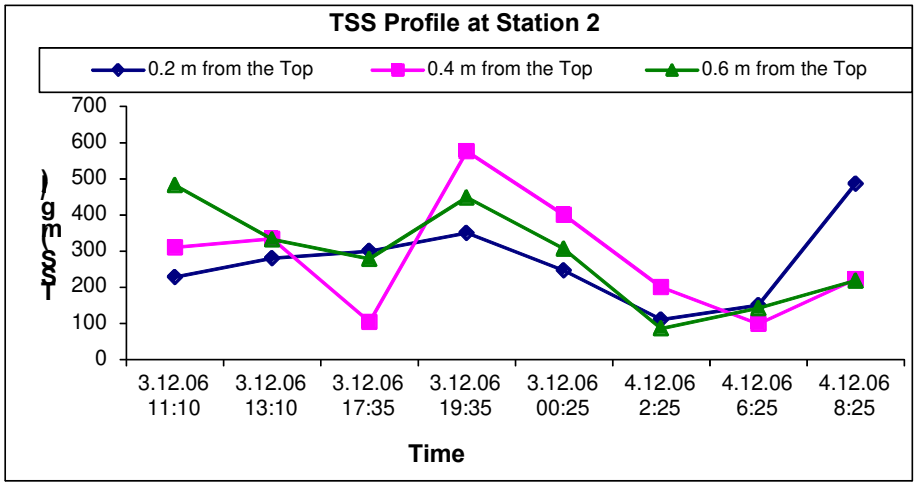
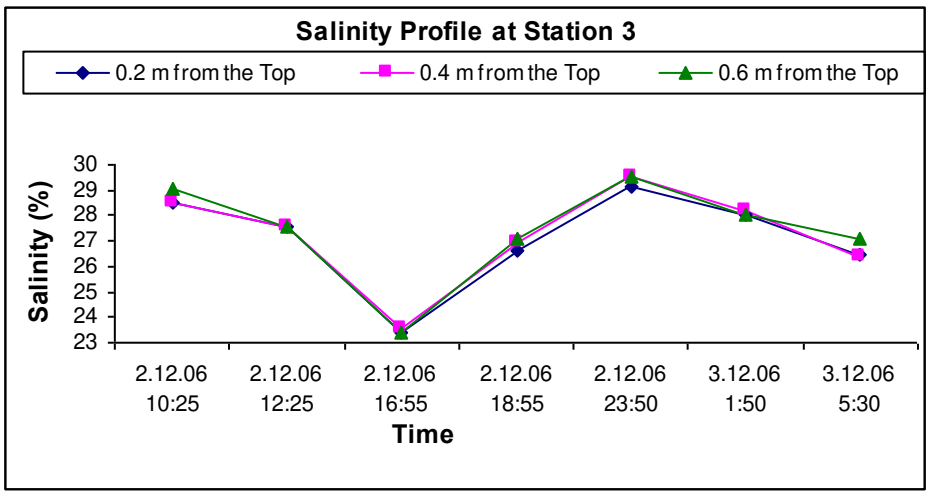
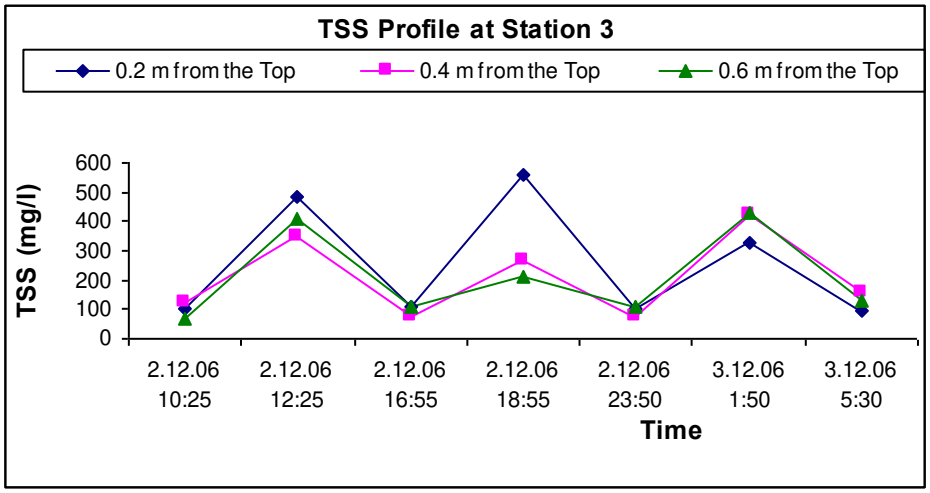


Figure 3-9: Salinity and TSS profile at Station 3





3.7 Bed Samples

The grain size distribution analysis was carried out at three locations as shown in figure 3.10. Table 3.1 presents the description of the analysis. The texture of bed material at location 1, which is closest and most relevant to the site, is clayey with very little sand. But as one moves towards the Dharamtar creeks mouth the percentage of sand content increases because of its vicinity from the sea.

Figure 3-10: Locations of Bed Samples collected in the Dharamtar Creek

Table 3-1: Grain size distribution of the collected samples (in % of dry weight)

Locations	*Sand*	*Silt*	*Clay*	*Texture*
1	*14.90*	*2.10*	*83.00*	*Clayey*
2	*35.50*	*3.70*	*60.80*	*Clayey*
3	*35.00*	*58.00*	*7.00*	*Silty*

4 Numerical Simulations

4.1 General

Numerical hydrodynamic modeling is a very handy tool to track these changes in the hydrodynamics due to the existence of the new structures. The mathematical model, especially the 2D models help in ascertaining any changes on the flow regime, in the water body.

In order to determine the likely changes in the flow regime in the water body with accuracy, it is necessary to set up a correct hydrodynamic model. This is carried out as discussed below.

To begin with a global mesh model was set up to study the flow pattern in Dharamtar Creek. It was necessary to setup a global model as no boundary information near the mouth of Dharamtar Creek was available. Accordingly, in the first step, a global model was set up with the tidal boundaries extracted from CMAP chart systems. In the second step, boundary information from the calibrated global model was extracted and a local model was set up. This ensured that the hydrodynamics in the local model was satisfactorily achieved

Accordingly, the scheme of the model studies is,

- 2D regional model with C-Map tidal data for existing conditions
- 2D local model with boundary information extracted from global model
- 3D local model with extracted boundary information from global model with 5 m dredging.

4.2 MIKE 3 FM

All modelling for the re-circulation study was carried out using DHI's model suite for three-dimensional (3D) hydrodynamic modelling, MIKE 3 Flexible Mesh (FM). MIKE 3 is applicable for the study of a wide range of phenomena, including:

- Tidal exchange and currents, including stratified flows
- Heat and salt re-circulation

- Mass budgets of different categories of solutes and other components such as brine

MIKE 3 FM solves the time-dependent conservation equations of mass and momentum in three dimensions, the so-called Reynolds-averaged Navier-Stokes equations. The flow field and pressure variation are computed in response to a variety of forcing functions, when provided with the bathymetry, bed resistance, wind field, hydrographic boundary conditions, etc. The conservation equations for heat and salt are also included. MIKE 3 uses the UNESCO equation for the state of seawater (1980) as the relation between salinity, temperature and density. The hydrodynamic phenomenon included in the equation is:

- Tidal flows and currents
- Effects of buoyancy and stratification
- Turbulent (shear) diffusion, entrainment and dispersion
- Coriolis forces
- Barometric pressure gradients
- Wind stress
- Variable bathymetry and bed resistance
- Flooding and drying of inter-tidal areas
- Hydrodynamic effects of creek and outfalls
- Interlinking of sources and sinks (both mass and momentum)
- Heat exchange with the atmosphere including evaporation and precipitation

MIKE 3 FM has an advection dispersion equation solver that simulates the spread of heat and of dissolved and suspended substances subject to the transport processes described by the hydrodynamics. A full heat balance is included in MIKE 3 for the calculation of water temperature.

MIKE 3 FM is based on an unstructured flexible mesh and uses a finite volume solution technique. The meshes are based on linear triangular elements. This approach allows for a variation of the horizontal resolution of the model grid mesh within the model area to allow for a finer resolution of selected sub-areas.

The computational triangular grid of the model ranges from approximately 25m resolution in the near field area around the intakes and outfalls to 500m in the far field. There is a trade-off between the wish of a fine model resolution and the computational time as the

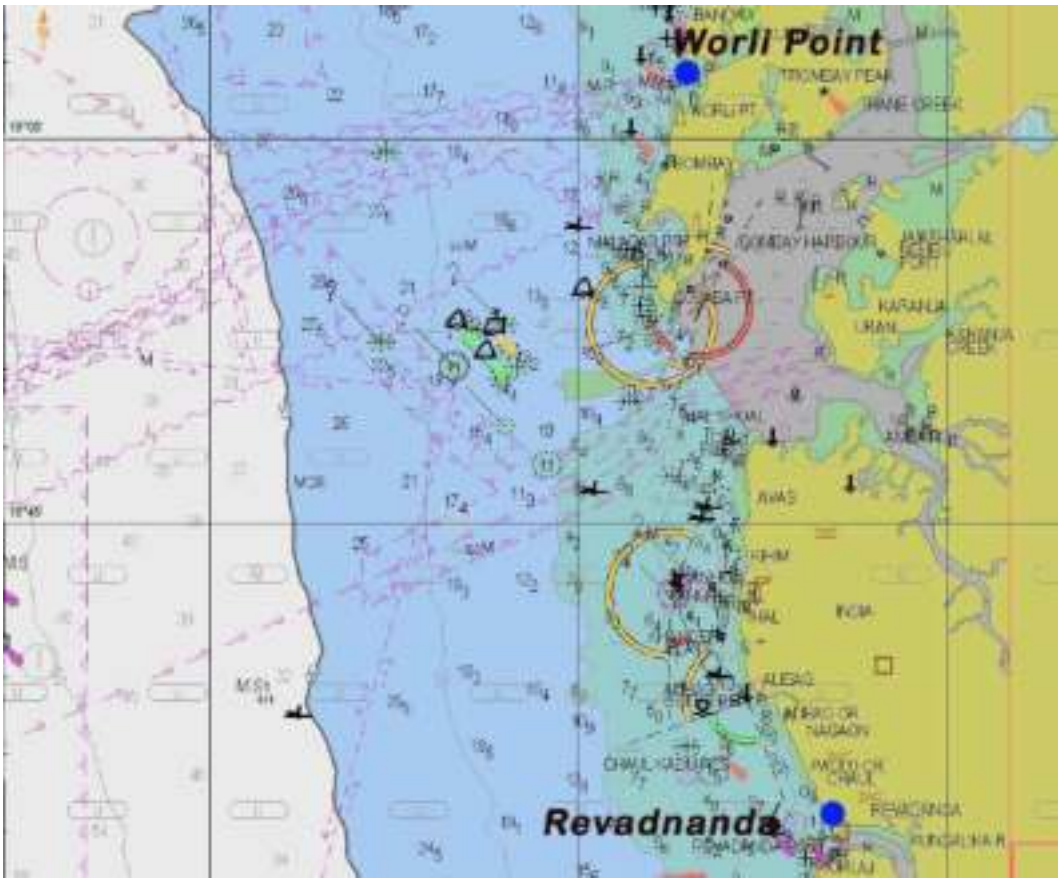
computational time increases with the number of elements. Furthermore, the stability of the numerical scheme roughly speaking depends on the ratio between the triangle side length and the bathymetric depth. The consequence of this is that small elements on deep water require a small time step; therefore the very fine resolution should be limited to as shallow water as possible.

4.3 MIKE 21 FM - Regional Model Setup

4.3.1 General

The extents of the regional model are shown in Figure 4.1. The available predicted tides at Revdanda in the south and Worli Point in the north were derived from C-MAP digitized chart compilation.

Figure 4-1: Extents of the global model, showing tidal station of C-Map



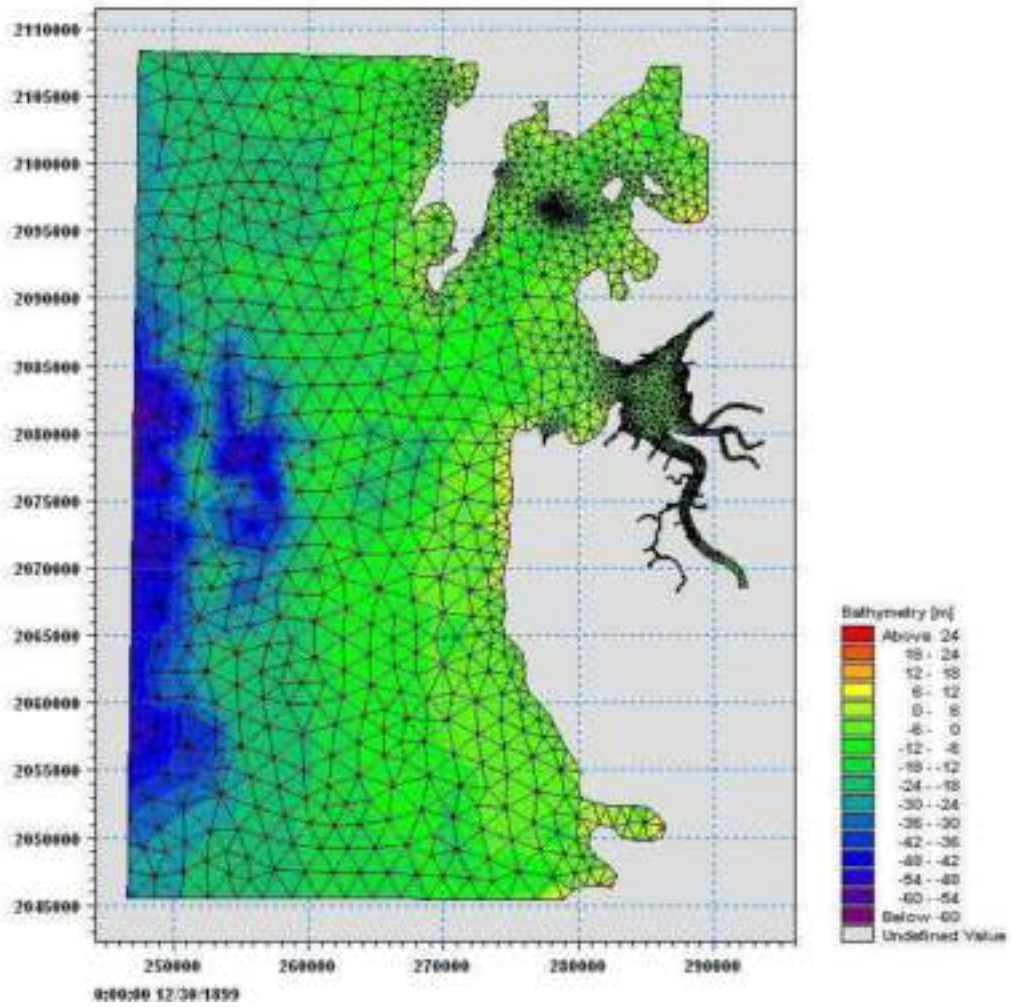
4.3.2 Bathymetry

The bathymetry consisting of the coast and Dharamtar Creek was compiled on the basis of the following.

- Naval Hydrographic Chart no. 2016
- MMB surveys as discussed in section 3.2
- CMAP chart systems

Flexible mesh bathymetry was prepared for the global bathymetry model, is shown in Figure 4.2.

Figure 4-2: Flexible mesh showing the Model Domain of the Model



4.3.3 Tidal data (Boundary)

There were four boundaries defined for the global model, namely, north, west, south and downstream Dharamtar creek. The other boundaries of the creeks joining the Dharamtar creek were considered closed. The distance of these boundaries was large enough to have any effect on the results. The tidal levels at Worli Point and Revadanda were used to define north and south boundaries and are shown in Figure 4.3 and 4.4 respectively. West boundary was assumed to have flux as Zero, whereas upstream boundary was defined with the tidal data collected near Dharamtar Jetty, as discussed in section 3.3 (Figure 4.5). All the boundaries were corrected to the Mean Sea Level (MSL). These boundaries were used to set up the initial model and to carry out calibration with respected to the collected current observations.

Figure 4-3: Tidal Levels on the Nothern Boundary

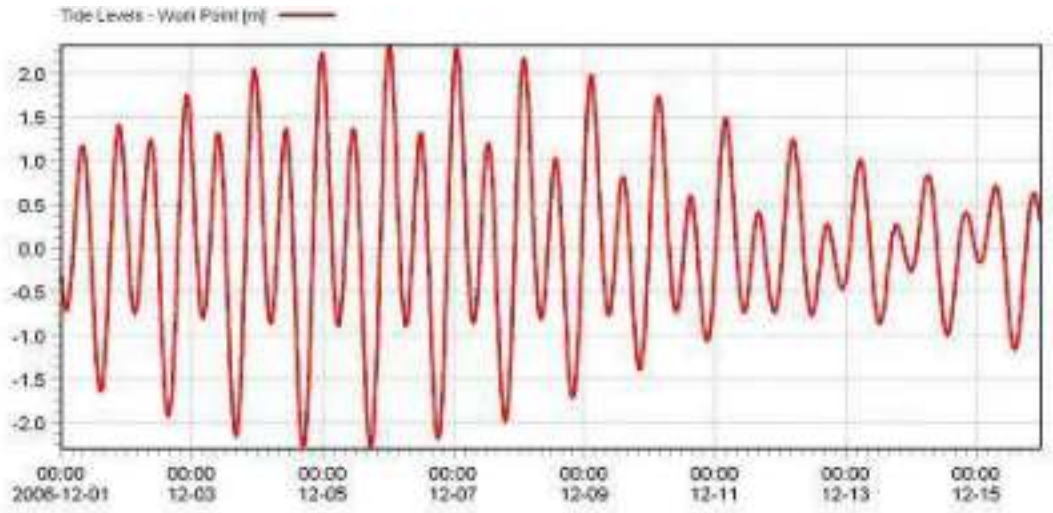


Figure 4-4: Tidal Levels on the Southern Boundary

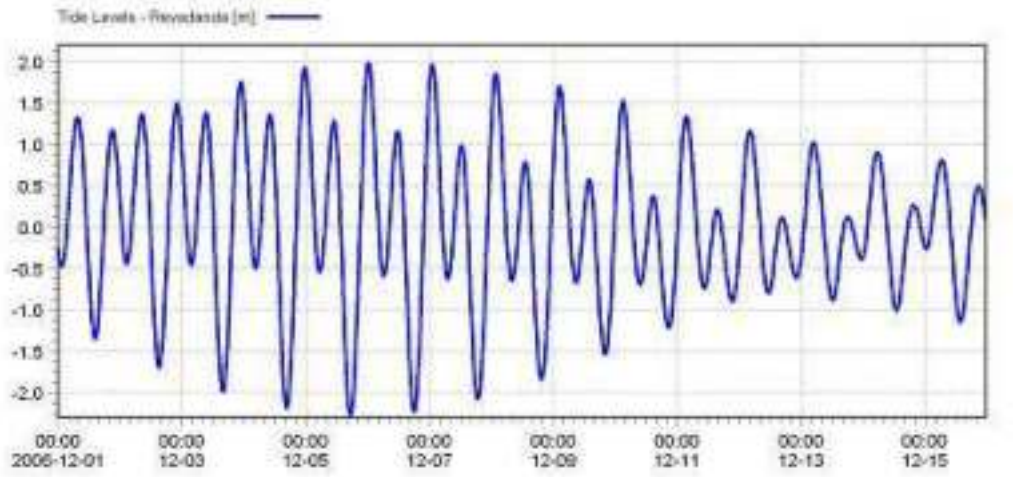
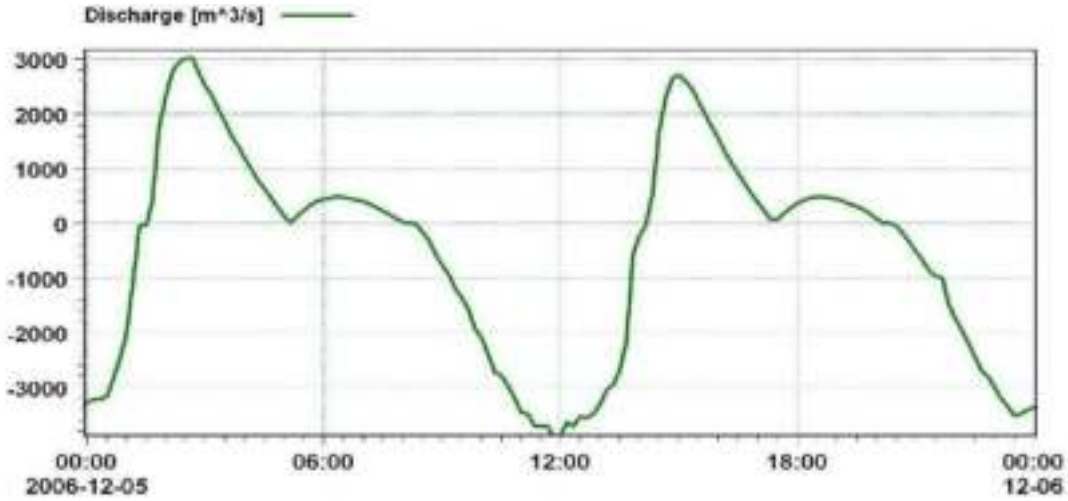


Figure 4-5: Disacharge Boundary data for the up-stream Amba River boundary



4.3.4 Model Set up

The model set up for the present study is given in Table 4.1.

Table 4-1: Details of Model Set Up

Time step	*30 seconds*
Nodes	*3099*
Manning Number	*40*
Eddy Viscosity coefficient	*0.28*
Boundary Condition open sea	*Tidal elevations: Worli Point (N), Revadanda (S)*
Simulation Period	*1st to 15th December (15 days)*

4.3.5 Regional Model Calibration

The global flow model was calibrated comparing the current data collected at four sites. The locations of these points are shown in Figure 3.3. Figure 4.6 to 4.9 presents the calibration plots with respect to current speed and direction at different locations.

Figure 4-6: Calibration plot showing measured and predicted current speed (top) and direction (bottom) at Station 1

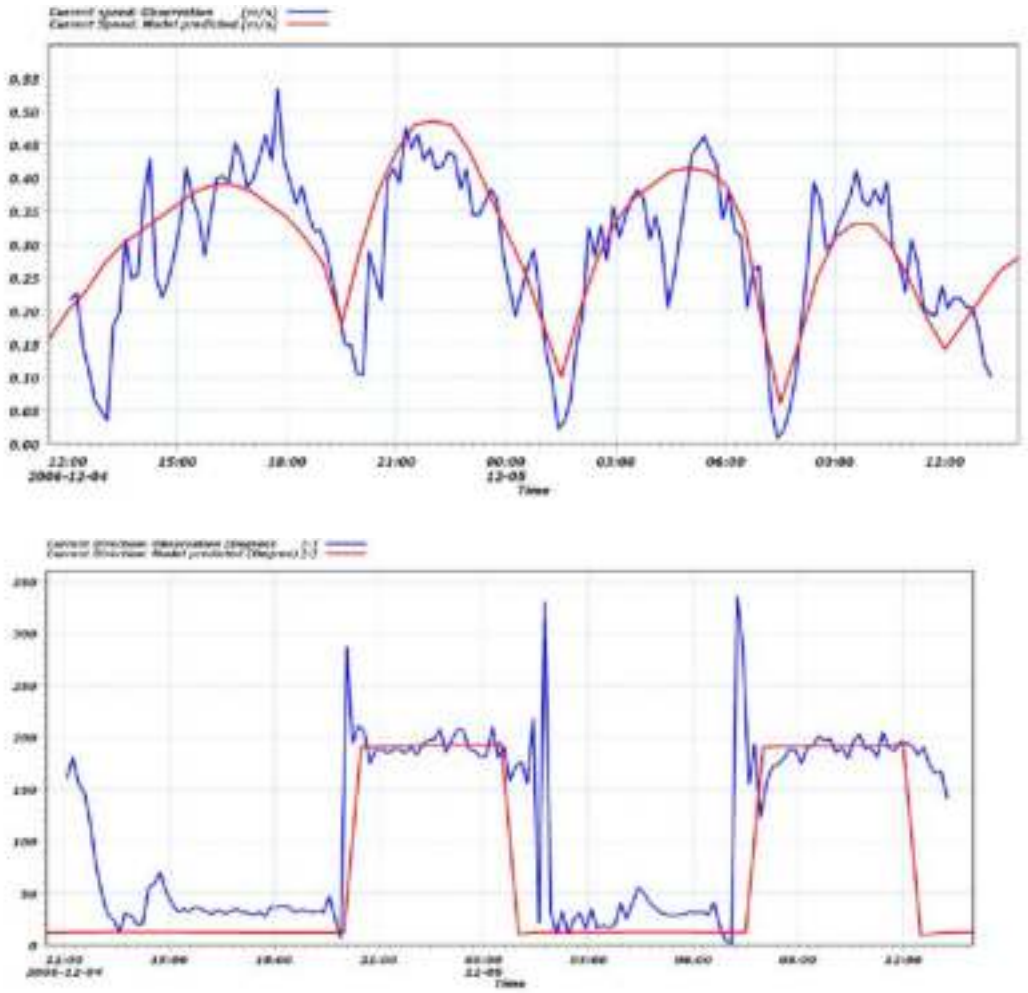


Figure 4-7: Calibration plot showing measured and predicted current speed (top) and direction (bottom) at Station 3

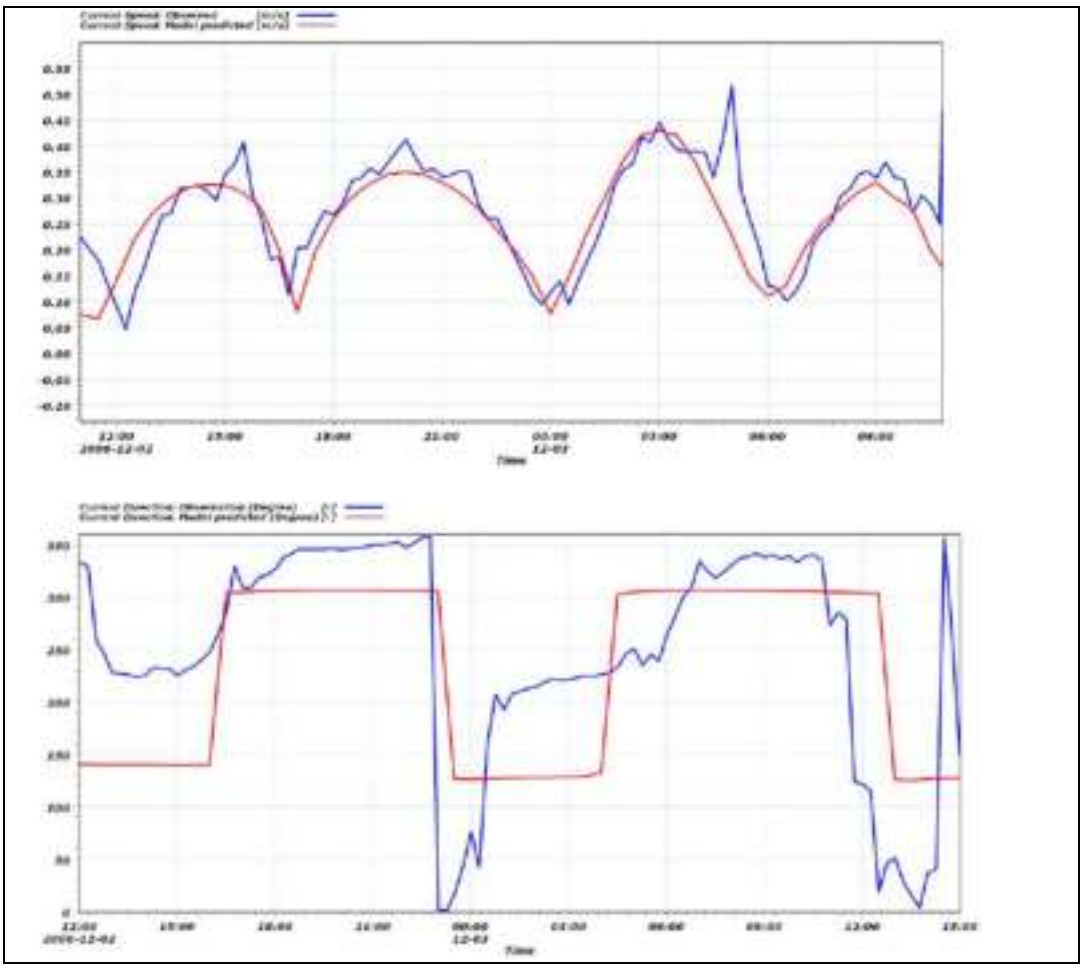
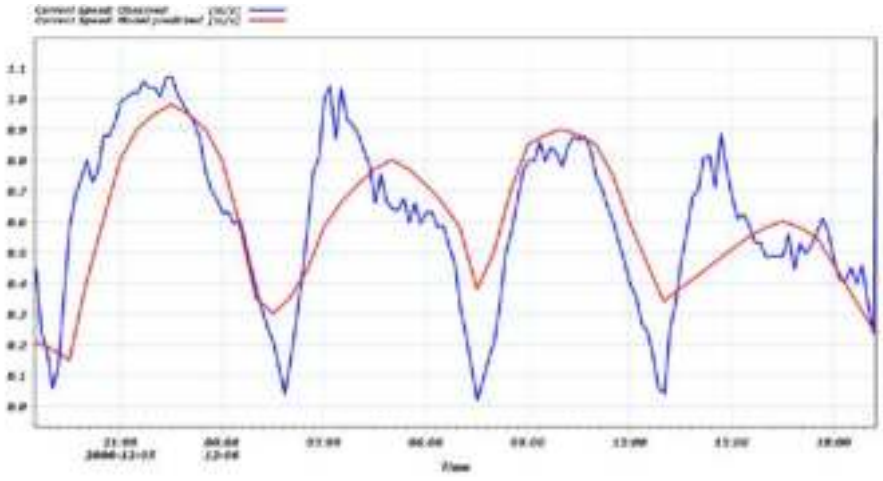


Figure 4-8: Calibration plot showing measured and predicted current speed (top) and direction (bottom) at Station 4



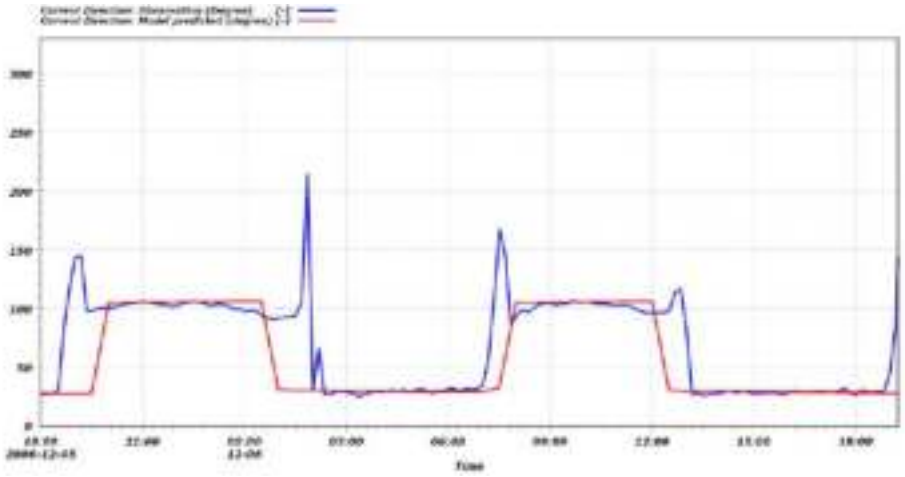
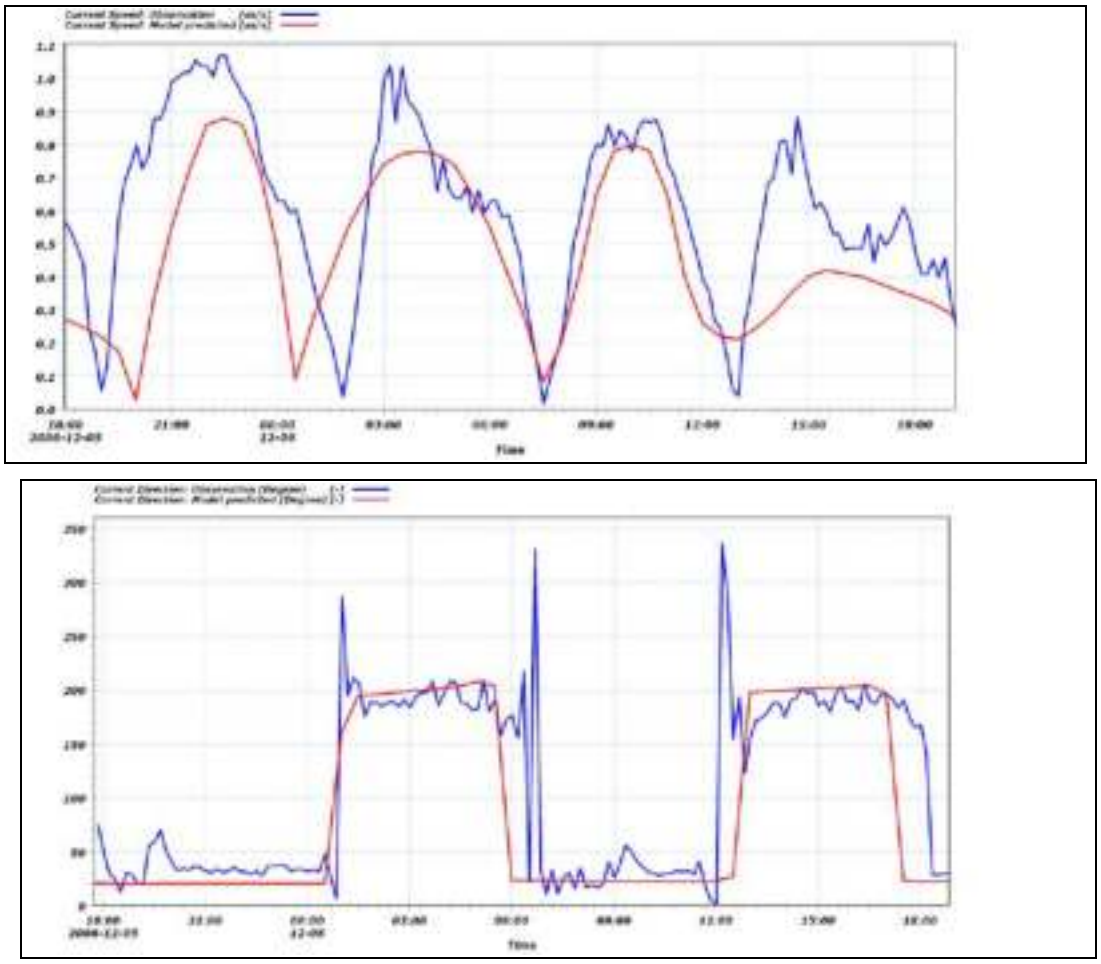


Figure 4-9: Calibration plot showing measured and predicted current speed (top) and direction (bottom) at Station 5



Comparison between model predicted and measured values for current speed and current direction showed a good fit. Thus, model is well calibrated and represents the conditions of the study region within acceptable limits.

4.3.6 Regional Model Results

The model calibration was with in the acceptable limits and therefore the model could be considered validated. Accordingly, the simulation results for the existing conditions and for the predicted tides are discussed in the section.

The flow vectors for the existing conditions are presented in Figure 4.10 to 4.11 for the flood as well the ebb conditions.

As mentioned in the beginning, global model was executed to derive the boundary conditions for local model. Thus a vertical profile series was extracted presenting water level across the Dharamtar creek. Water levels across Dharamtar creek on 7th December 2006 at 2:30 A.M. are shown in figure 4.12 as an example.

Figure 4-10: Flood Current Vectors

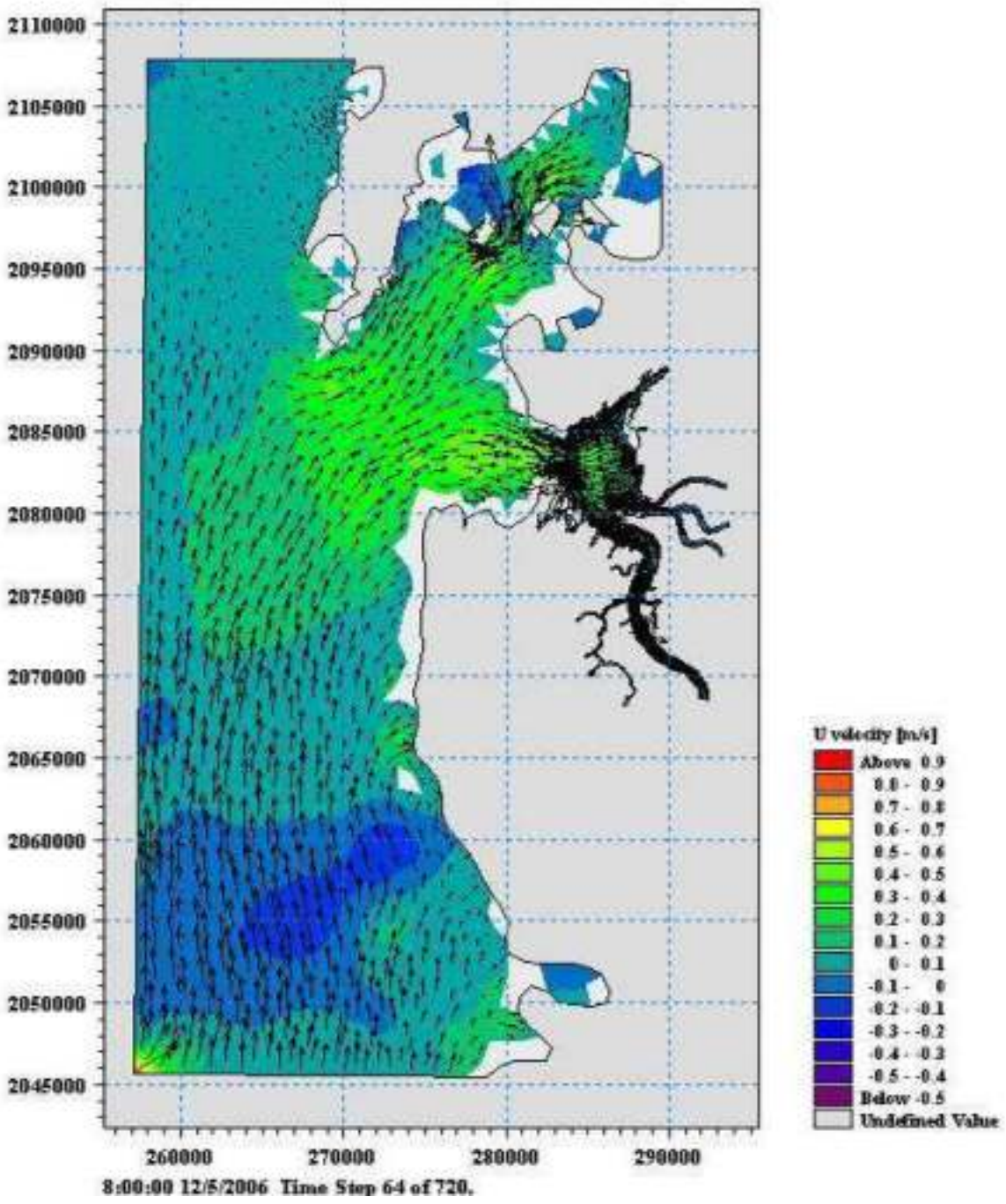


Figure 4-11: Ebb Current Vectors

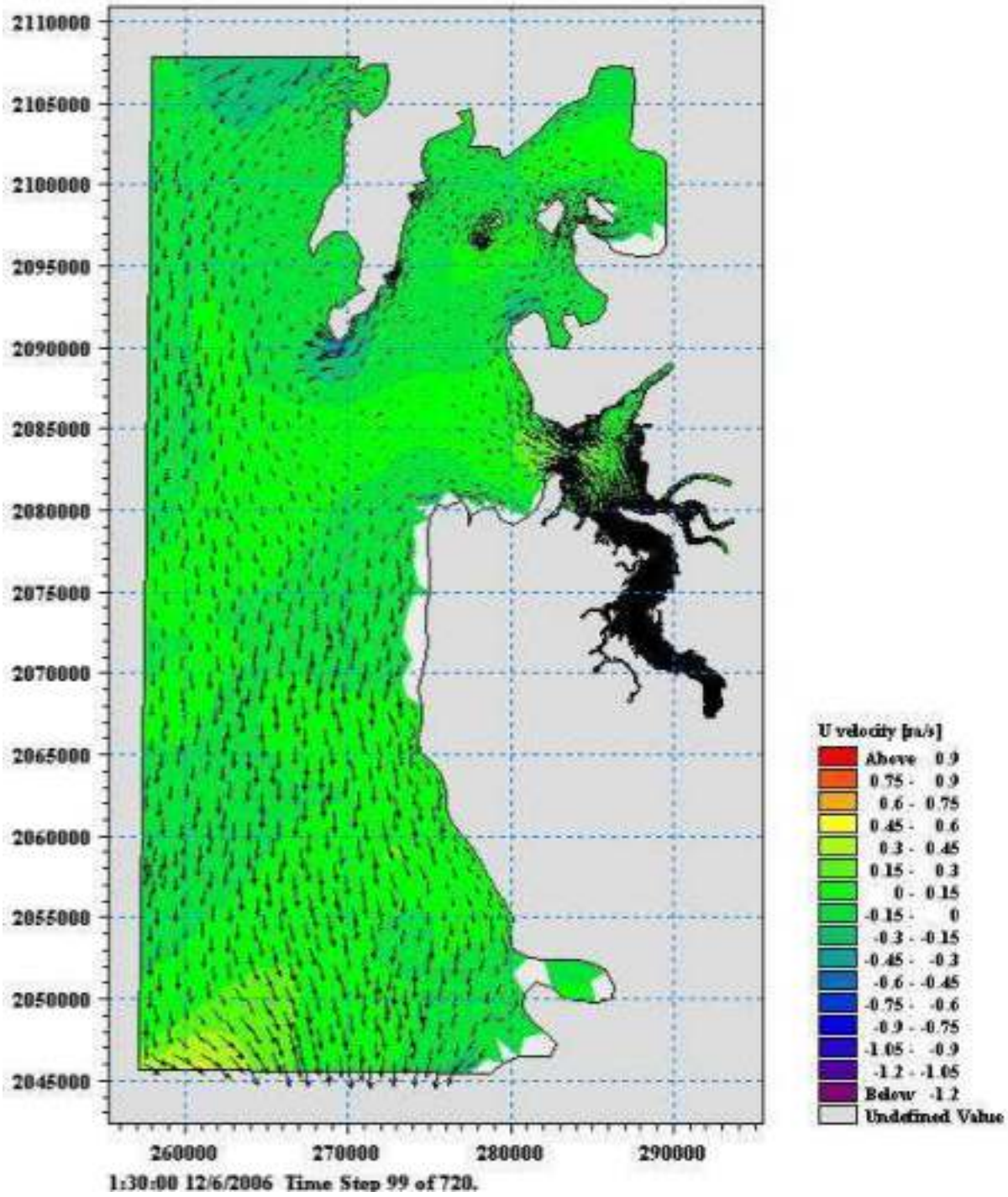
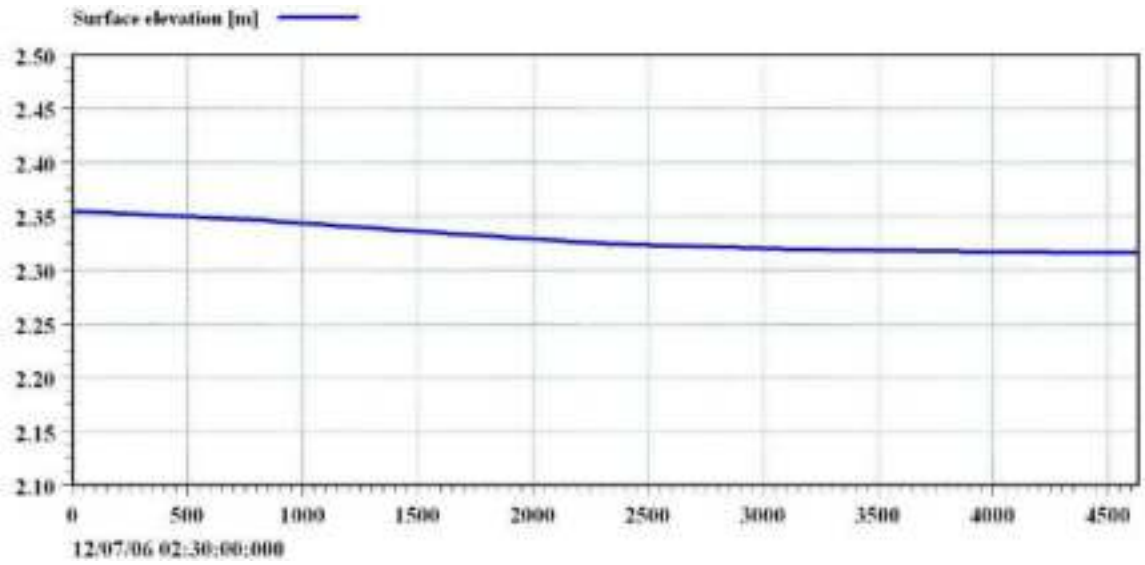


Figure 4-12: Profile series extarcted from the global model for the Local model boundary



4.4 MIKE 21 FM – Local Model Set-up for Existing Conditions

As explained above, in the second step the local 2D model was set up with existing conditions but with profile boundary at Dharamtar creek extracted from the global model as shown in figure 5.12 and introducing the intake and outfall.

4.4.1 Model Set Up

The model set up for the local model is given in Table 4.2.

Table 4-2: Details of Model Set Up

Time step	*30 seconds*
Nodes	*2352*
Manning Number	*40*
Eddy Viscosity coefficient	*0.28*

4.4.2 Bathymetry

The computational triangular grid of the model ranges from approximately 25 m resolution in the near field area around the intake and outfall to 500m in the far field. The bathymetry of the region was prepared on the basis MMB surveys and CMAP chart data same as detailed in global model. Bathymetry used for the model is shown in Figure 4.13.

The model study was carried out to understand the tidal hydrodynamic behavior of flow, probable siltation pattern in the harbour, and estimation shoreline changes in the proposed layout. The proposed reclamation along the bank is shown as Figure 4.15.

Figure 4-13: Local Bathymetry (finite Mesh) for the Model Simulation

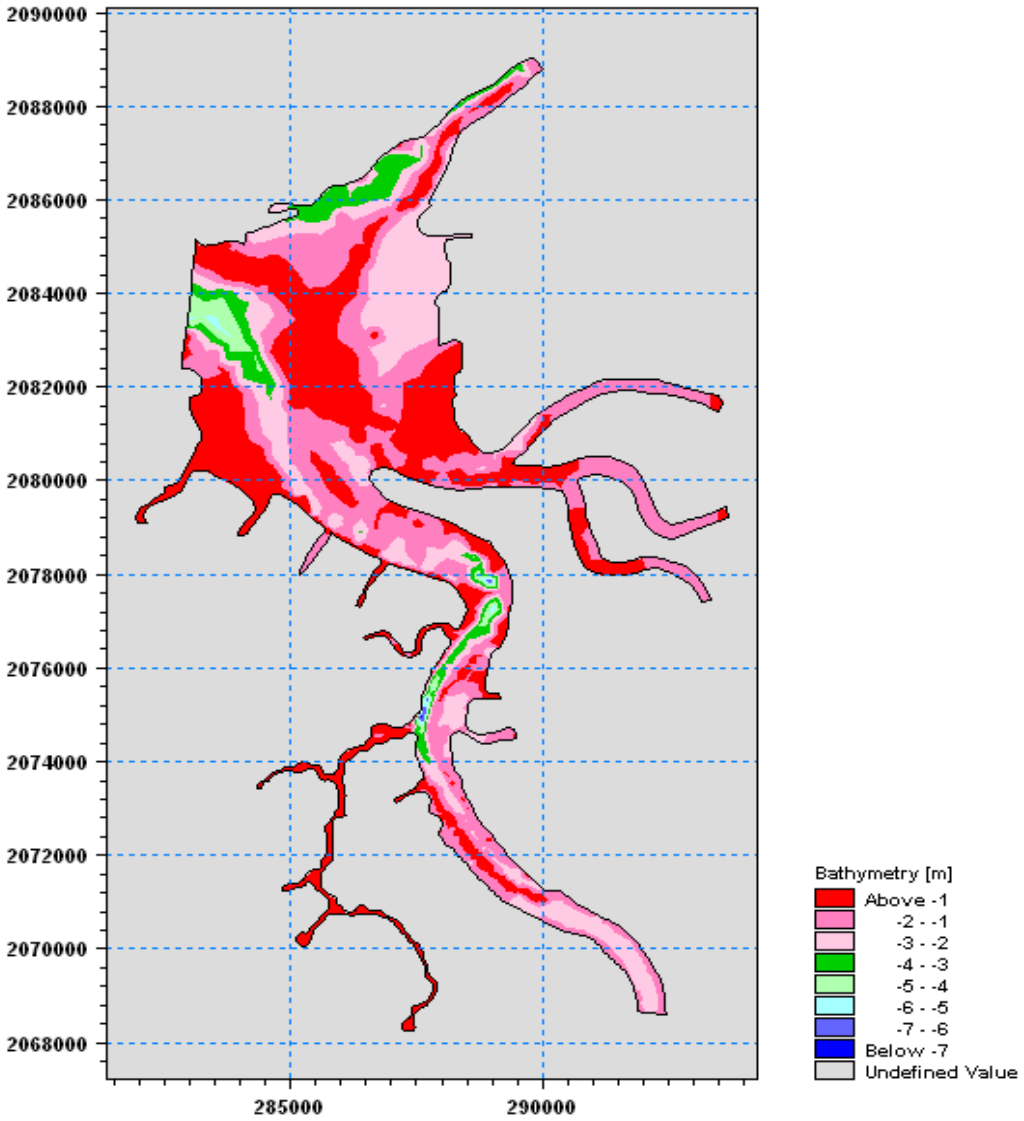


Figure 4-14: Local Bathymetry (finite Mesh) – close up for the Model Simulation

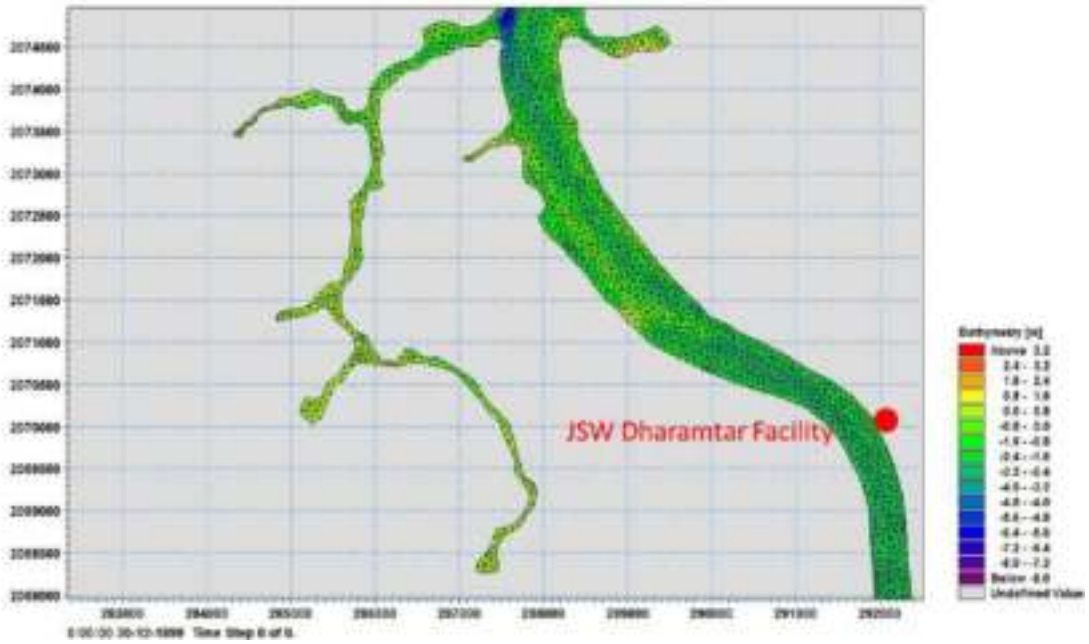
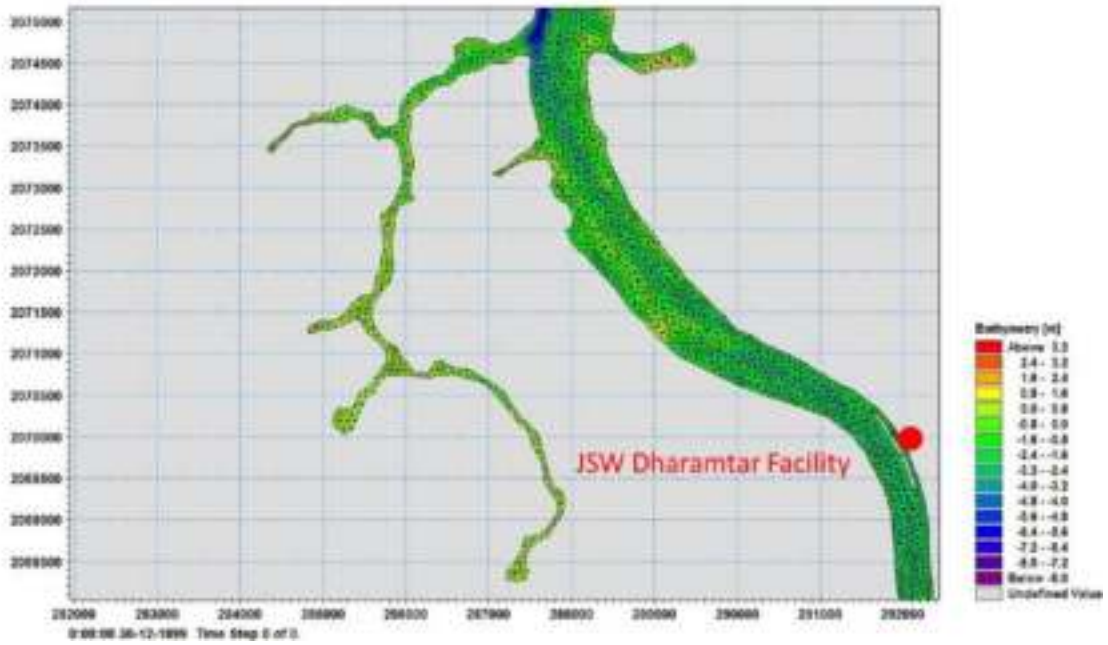


Figure 4-15: Local Bathymetry (finite Mesh) – close up for the Model Simulation – With Reclamation



4.4.3 Flow Hydrodynamics

A number of model simulations were performed to describe the hydrodynamic conditions at the study area under a range of tidal and wind conditions. The flow regime under the flood and ebb tides are shown in Figure 7.5 through 7.8. The velocity profile with reclamation is shown in Figure 7.9 and 7.10. The velocity time series for the entire tidal

cycle is presented as figures 7.11 and 7.12 for the flood as well as the ebb tide near the proposed development. The maximum and minimum values of the currents under the flood and the ebb conditions are 0.57 m/s.

Figure 4-16: Current speed in the Local Model under Flood tide

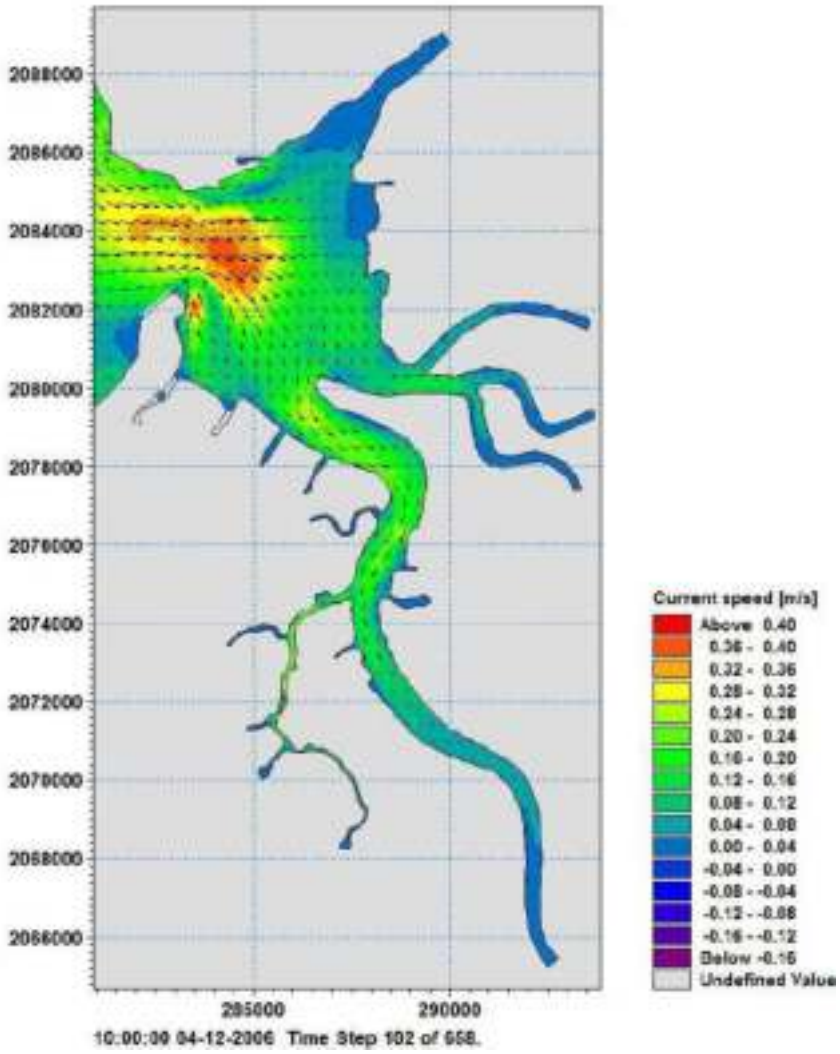


Figure 4-17: Current speed in the Local Model under Ebb tide

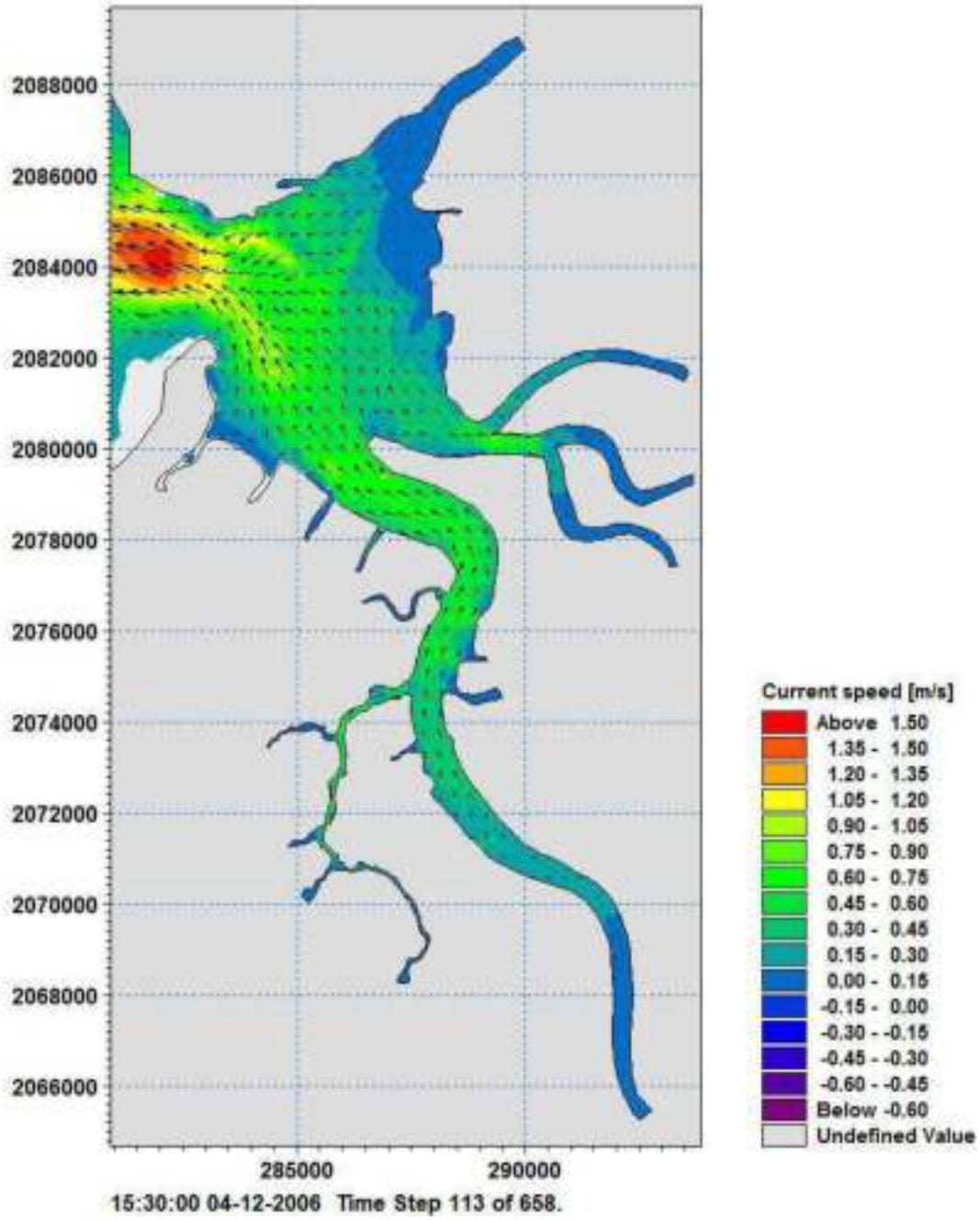


Figure 4-18: Current speed in the Local Model under Flood tide – With reclamation

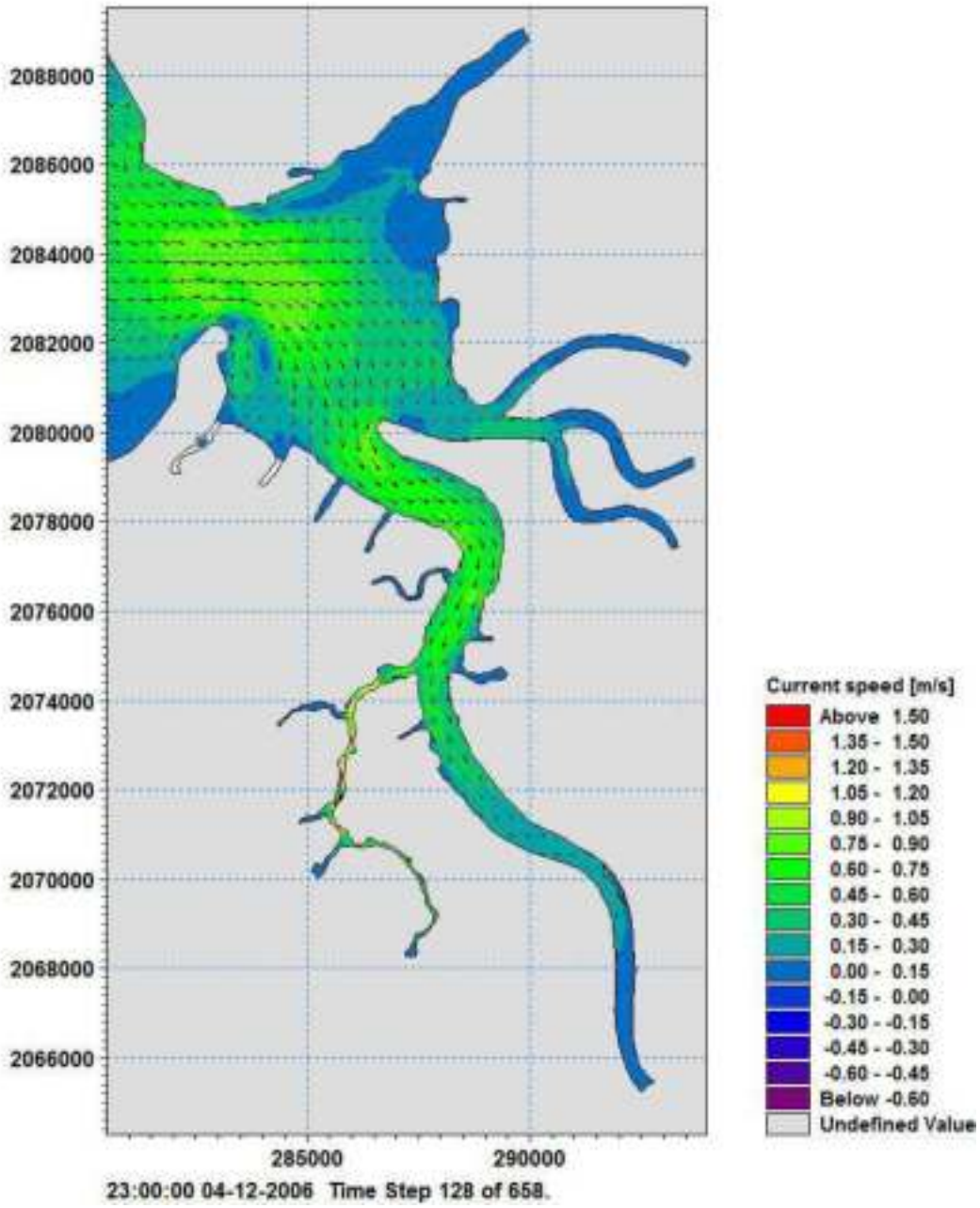


Figure 4-19: Current speed in the Local Model under Ebb tide – With reclamation

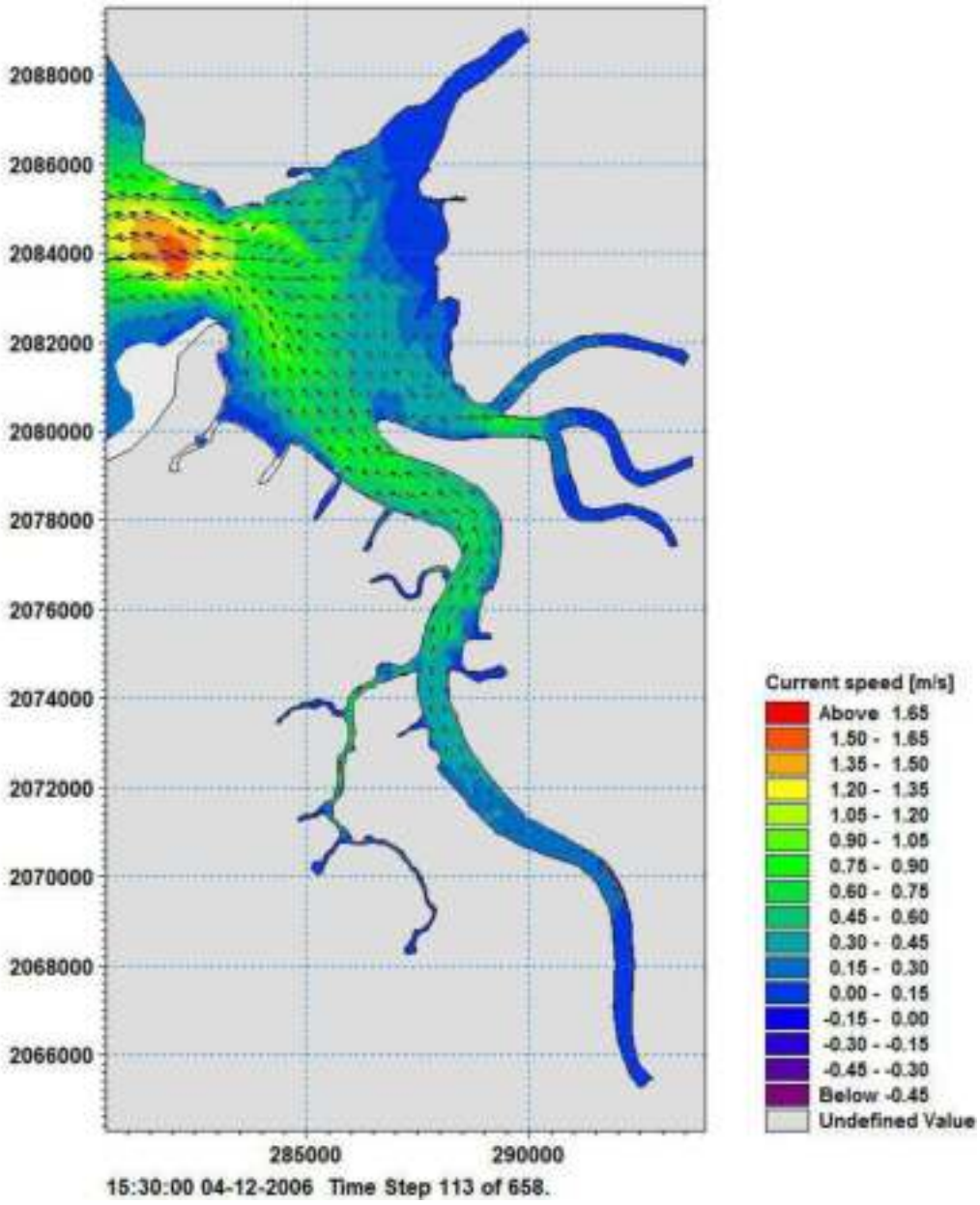


Figure 4-20: Extracted Current Speed at location t1 and t2 – Without reclamation - Flood tide

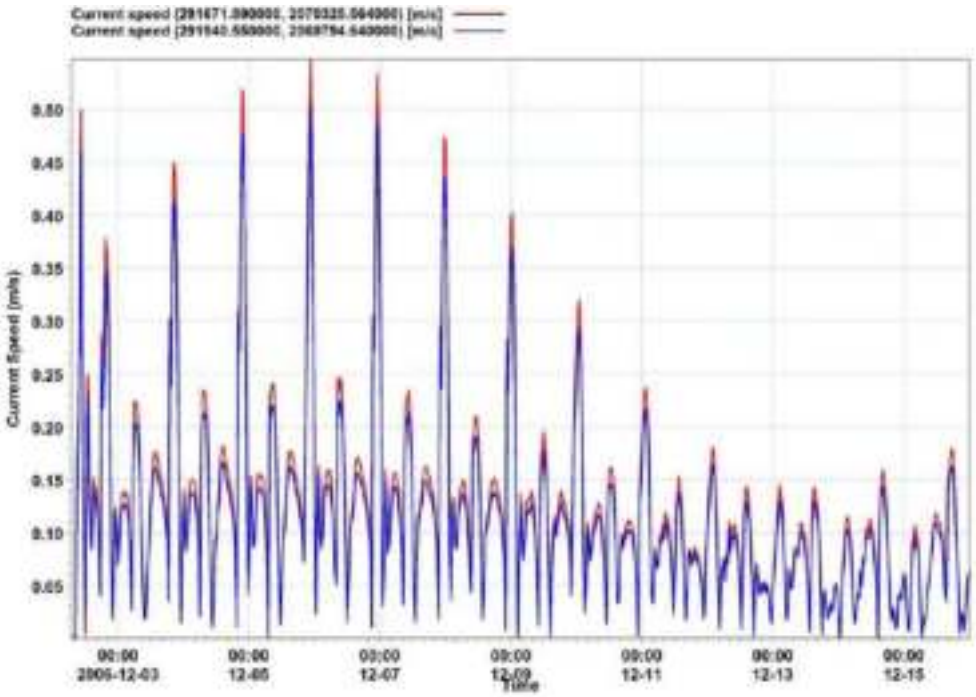
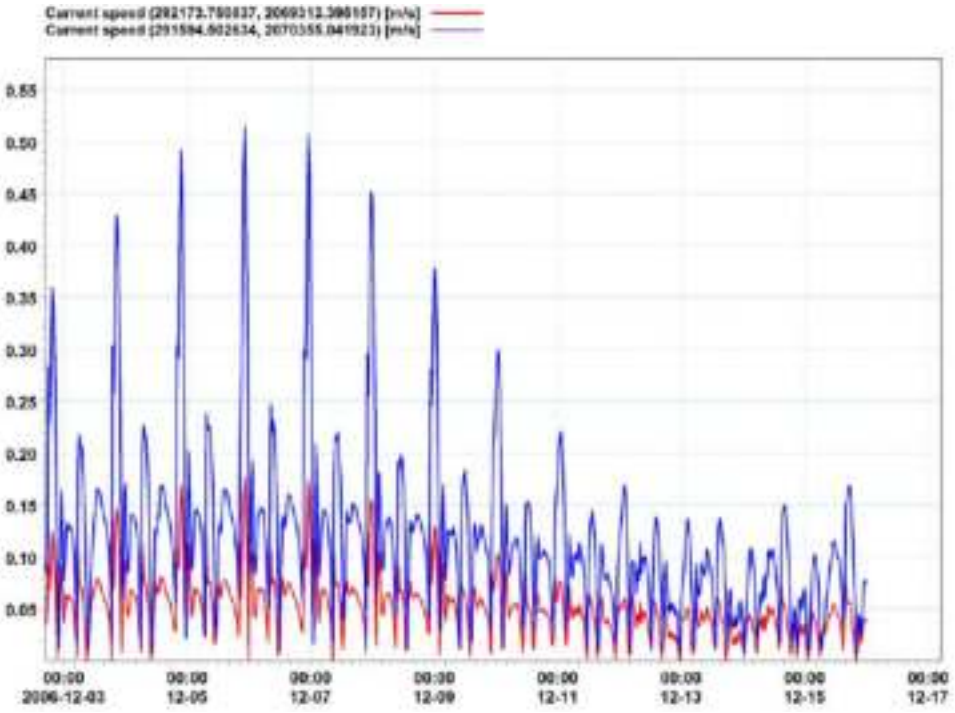


Figure 4-21: Extracted Current Speed at location t1 and t2 – With reclamation - Flood tide



The computational model was modified by incorporating the proposed developments as shown in Figure 7.3 with reclamation behind the berth and was tested in the model.

The magnitude and direction of flow and flow pattern were observed. It was noticed that the velocity magnitude remain unchanged even after the developments (reclamation). Therefore the reclamation could be carried out without altering the flow regime in the area indicating no impact of the development on the flow conditions.

4.4.4 Sedimentation Model – MIKE 21 MT

The MIKE 21 Mud Transport Module (MT) describes erosion, transport and deposition of mud or sand/mud mixtures under the action of currents and waves.

Mud transport parameters

MIKE 21 MT is applicable for mud fractions alone as well as for sand/mud mixtures. The following processes can be included in the simulation.

- Forcing by waves
- Sliding
- Salt-flocculation
- Detailed description of the settling process
- Layered description of the bed, and
- Morphological update of the bed

In the MT-module, the settling velocity varies, according to the salinity (if included) and the concentration taking into account flocculation in the water column. Furthermore, hindered settling and consolidation in the fluid mud and under consolidated bed are included in the model. Bed erosion can be either non-uniform, i.e. the erosion of soft and partly consolidated bed, or uniform, i.e. the erosion of a dense and consolidated bed. The bed is described as layered and characterized by the density and shear strength.

The Mud Transport Module can be applied to the study of engineering problems such as:

- Sediment transport studies for fine cohesive materials or sand/mud mixtures in estuaries and coastal areas in which environmental aspects are involved and degradation of water quality may occur.
- Siltation in harbour, navigational fairways, canals, rivers and reservoirs.
- Dredging studies.

4.4.5 Model Set up – MIKE 21 MT

Bathymetry and the boundary conditions used in this setup are same applied in the local model described in the chapter 4, section 5.5. Inlet and outfall points are introduced in the bathymetry dredged up to 5 m. Local area extracted from modified bathymetry is shown in Figure 4.13.

Model was executed for the period of 1day during non- monsoon as well as monsoon conditions. Details on the set-up of MIKE 21 MT modules are provided in Table 4.3. Initial and boundary concentration taken during non-monsoon and monsoon are provided in table 4.4.

Table 4-3: Parameters applied in the model simulations

S. No	Parameters	Value
1	No. of grain size fractions	1
2	No. of bed layer	1
3	Settling velocity	0. 05 m/s
4	Critical shear stress for deposition	0.05 N /m2
5	Power of erosion	1
6	Erosion coefficient	0.00001 kg/m2/s
7	Critical shear stress for erosion	0.05 N/m2
8	Density of bed layer	180 kg/m3
9	Bed roughness	0.001 m

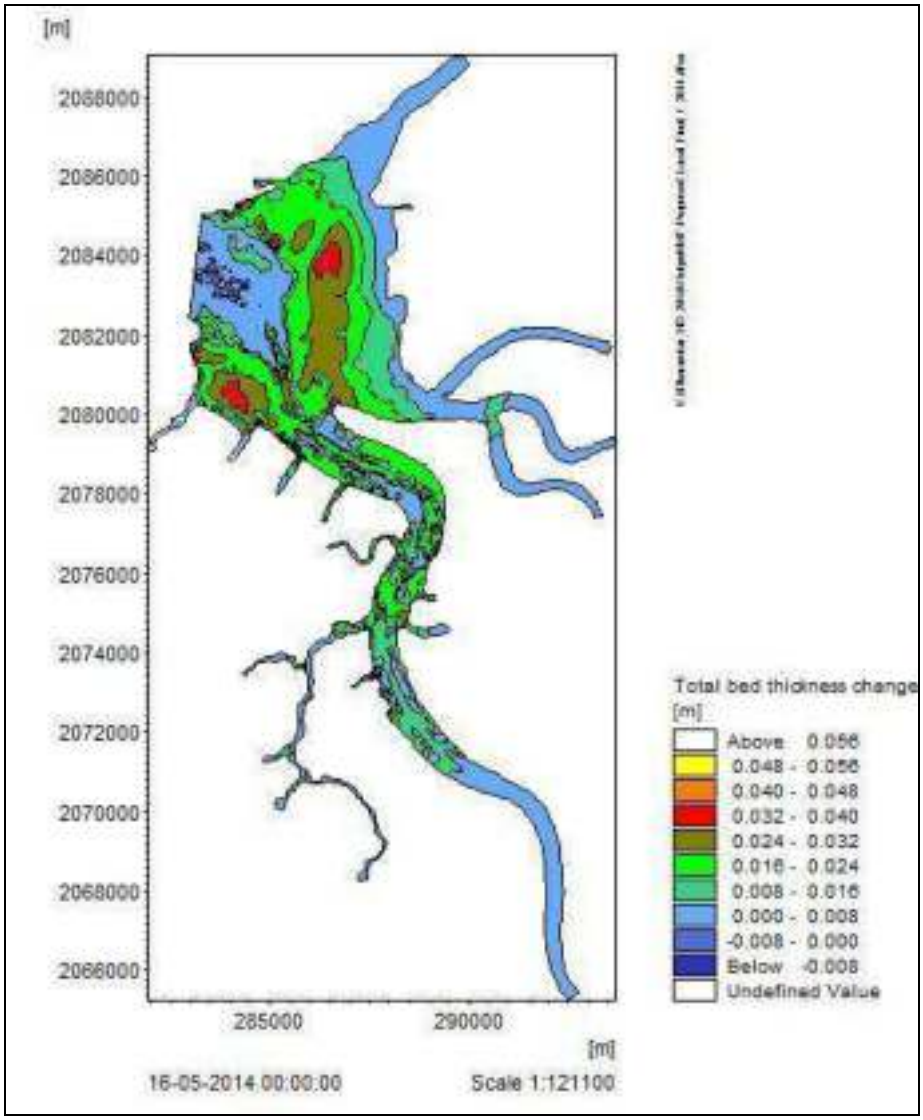
Table 4-4: Concentration applied during non-monsoon and monsoon period

S. No	Parameters	Value
1	Initial sediment concentration (non- monsoon)	0.004 kg /m^3
3	Sediment concentration at downstream boundary (non- monsoon)	0.0191 kg /m^3
4	Sediment concentration at upstream boundary (non- monsoon)	0.0443 kg /m^3
5	Initial sediment concentration (monsoon)	0.02 kg /m^3
6	Sediment concentration at downstream boundary (monsoon)	0.02 kg /m^3
7	Sediment concentration at upstream boundary (monsoon)	0.03 kg /m^3

4.4.6 Model Result

The model was then simulated for predicting the siltation pattern with the proposed using a dredged depth of 3.5 m. The TSS concentration as indicated above was used. The total annual siltation was found to be around 0.60 million cum per annum. It is observed that the average depth of sediment deposition in the approach channel varies from 1.21 m over a length of about 9 km in a period of six months covering monsoon season. The total bed thickness change in the modeling domain is shown in Figure 4.22.

Figure 4-22: Bed Level change in the modelling domain due to siltation in the channel



It could be seen from the Figure 4.22 that the maximum deposition is outside the channel and in the lee of the Proposed Rewas Harbour. The maximum thickness change due to deposition varies between 0.03 m to 0 m.

The total deposition in the Port area, approach channel and turning circle is worked out and reproduced below in Table 4.5.

The total quantity required to be removed for maintaining the desired navigable depth as described elsewhere in the Report is 0.6 million cubic meters per annum as indicated below.

Table 4-5: Average deposition in the Channel and total quantity of the

Sr. No.	Coordinate	Average Net deposition (m)	Length of channel in Proposed condition (m)	Total quantity of deposition in channel per annum (Mm^3)
1	2065500-2067000	0.00221	1534	525.4717
2	2067000-2069500	0.04762	2021	14917.2
3	2069500-2071500 (Jetty of Dharamtar Port)	0.14047	795	17309.42
4	2071500-2073000	0.2170	2550	85769.25
5	2073000-2075000	0.22293	2035	70317.7
6	2075000-2077000	0.32486	1090	54885.1
7	2077000-2079000	0.27059	3190	133793.2
8	2079000-2081000	0.3586	3170	176198.1
9	2081000-2083000	0.10104	3350	52465.02
Total		**1.68532**		**606180.5**

4.5 Wave tranquility

There is no wave effect near the proposed development as it is about 26 km from the sea mouth. Waves cannot enter the creek due to restriction of width and depth.

4.6 Shoreline Evolution due to Construction

The model studies indicates no changes in the bank line of the river, as the eroding forces due to the increase in the flow velocity due to the development is low.

This was also ascertained by studying the bank line evolution over the years.

4.7 Disposal of the Dredged sediments

The dredged sediments from the capital and the maintenance dredging would be disposed at the established Mumbai Port Dumping ground on the high sea. This is an established dumping ground and no additional study would be required for the same.

Figure 4-23: Dumping Location for the Dredged Spoils

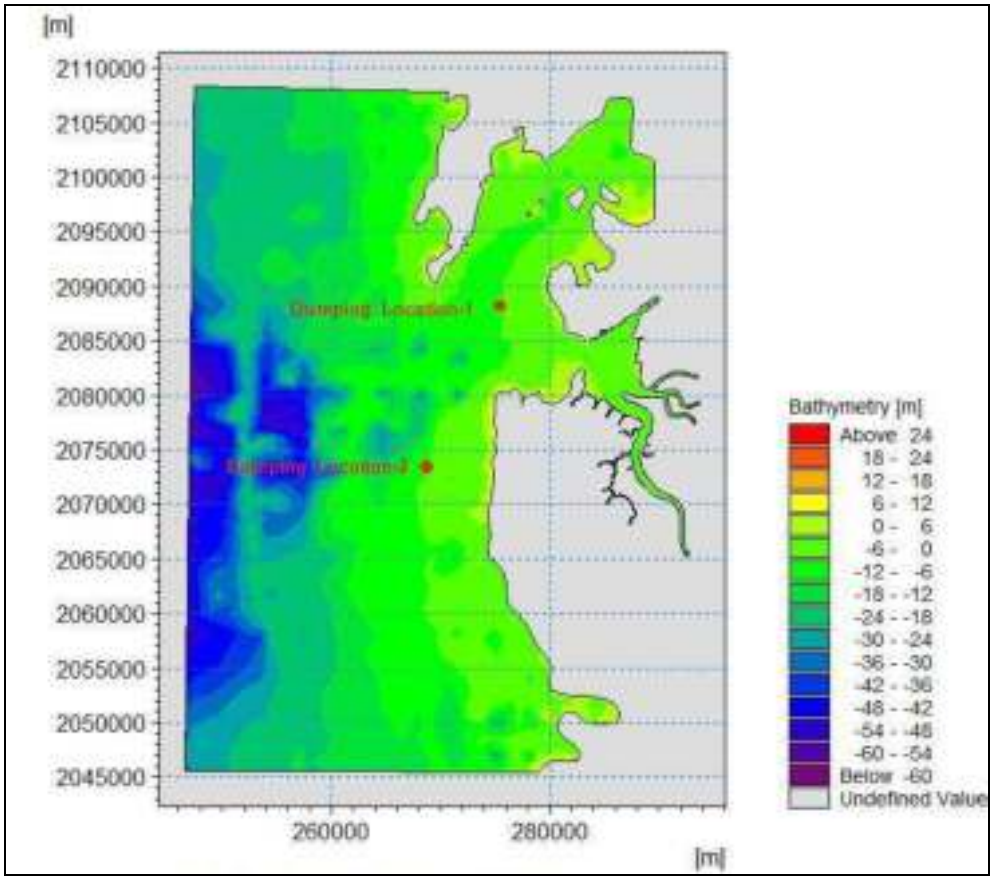


Figure 4-24: Location – 1: Dispersion Northward

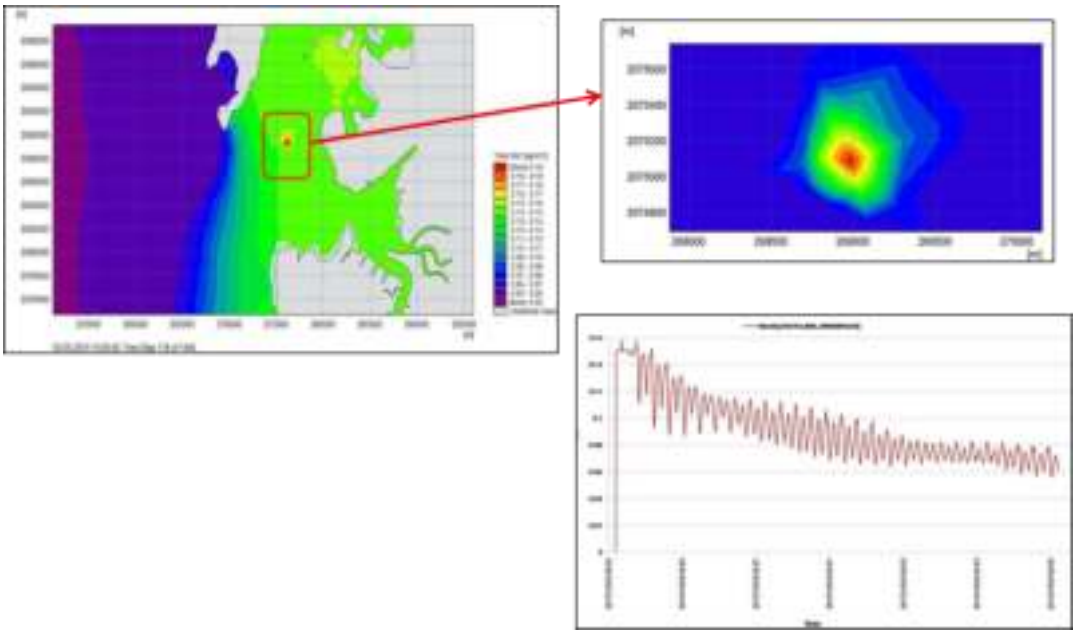


Figure 4-25: Location – 1: Dispersion Southward

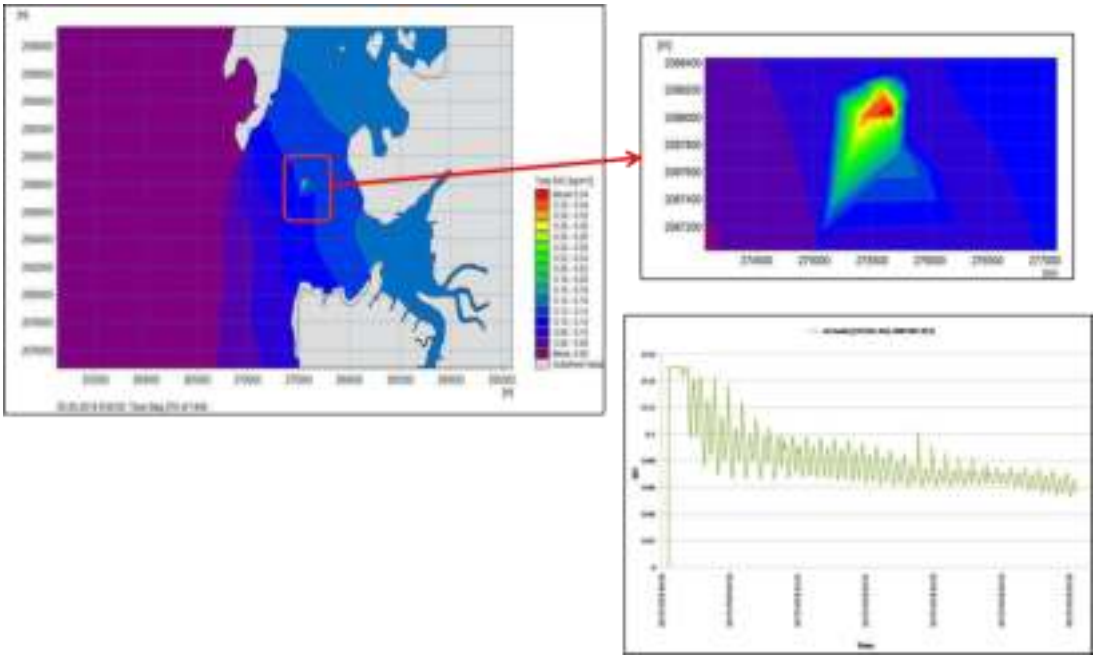


Figure 4-26: Location – 2: Dispersion Northward

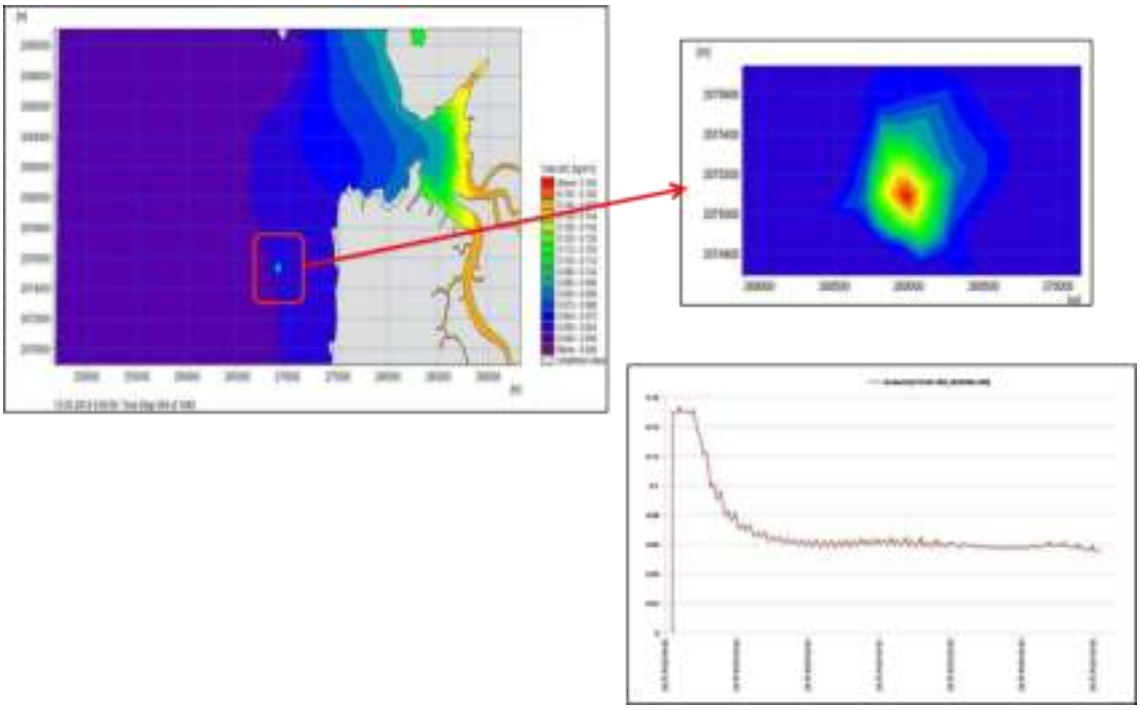
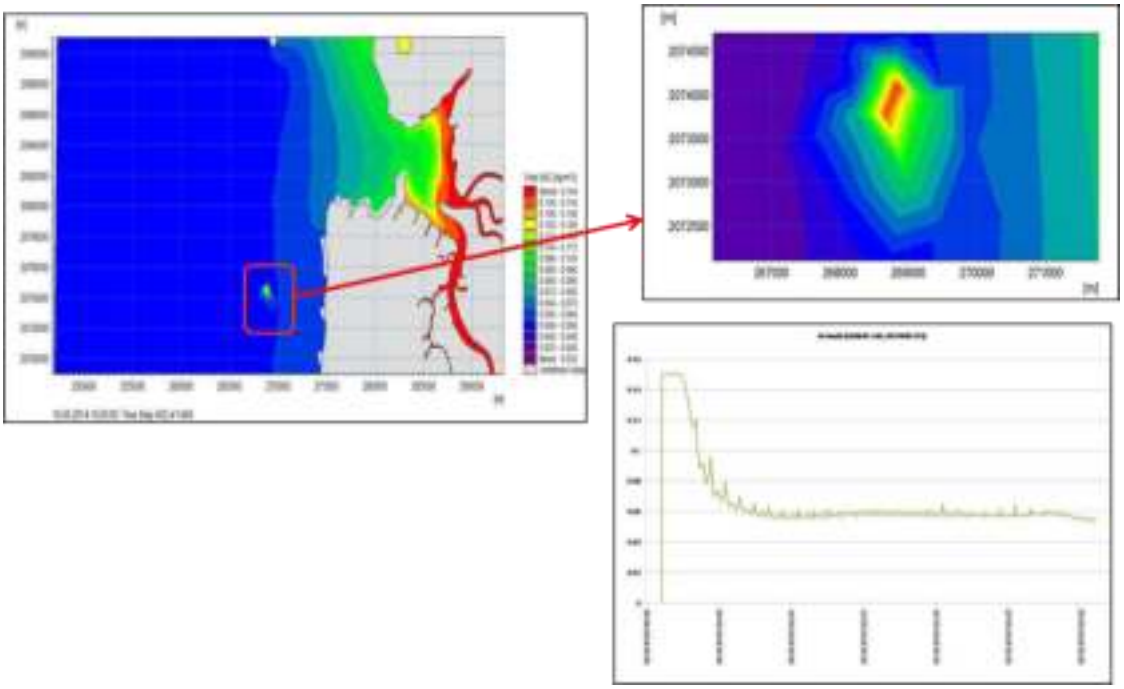


Figure 4-27: Location – 2: Dispersion Southward



It could be seen from the above figures the dispersion is quick and attains a concentration of about 0.03 PPM over a very short distance. Hence the dumping ground is suitable for the disposal of excess soils from the dredging. The Granular and rocky materials could be used for land filling and grading.

5 Conclusions and Recommendations

5.1 Conclusions

The study suggests that the proposed developments have negligible impact on the coastal morphology of the creek. The following broad conclusions can be drawn

- Dredging up to 5m of depth is proposed for the approach channel and the jetty location. This would increase the flow channelization and flow efficiency of the river (creek).
- About 0.60 million m^3 of maintenance dredging is required for a 5 m depth channel.
- There is no wave impact inside the port.
- The coastal geo-morphology is not affected by the reclamation of 50 m width, as the width is small in comparison to the river width.
- The disposal of the dredged sediments can be done at the existing dumping grounds of Mumbai Port.

5.2 Recommendations

The proposed development would have no or negligible impact on the river morphology and the flow hydrodynamics, hence the development is recommended.

ENVIRONMENTAL MANAGEMENT PLAN

FOR

THE EXPANSION OF THE DHARAMTAR JETTY FACILITIES

at

DOLVI, RAIGAD (MAHARASHTRA)

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ENVIRONMENTAL MANAGEMENT PLAN

1 INTRODUCTION

The aim of the environmental management plan is to ensure that the adverse impacts are minimized and the positive impacts are maximized to the extent possible. The management plan integrates the baseline conditions, impacts likely to occur, and the supportive and assimilative capacity of the system. The most reliable way to achieve the above objective is to incorporate the management plan into the overall planning and implementation of the project. The Environmental Management Plan (EMP) for the proposed Expansion of the jetty into following categories:

- Land environment
- Water environment
- Air Environment
- Noise Environment

2 ENVIRONMENTAL MANAGEMENT PLAN

Impact assessment helps in identifying potentially damaging aspects of a proposed project. Based on the findings of the impact assessment, Environment Management Plan is devised to minimize adverse impacts and enumerate various steps to be taken for improvement of the environment. However due to no major adverse impact on the Air, Water, Land, Biological Environment due to the project, the Environment Management Plan shall not be very complicated and only regular monitoring of ambient air quality, marine water quality, noise level and soil quality shall be carried out as per the requirements.
The general precautionary measures shall be adopted at all times. These include

- Persons working near the noise generation equipments shall use Personal Protective Equipment such as earplugs muffs
- All workers should be made aware of adverse effect high noise levels through training program; this will ensure proper implementation of mitigation measures
- All sanitary facilities shall be properly maintained
- all the wastes generated shall be treated and disposed as per norms.

Environmental Management Plan (EMP) is the key to ensure a safe and clean environment. A project may have identified proper mitigation measures but without a management plan to execute it, the desired results may not be obtained.

The following issues have been addressed in this EMP:

- Mitigation measures for abatement of the undesirable impacts caused during construction
- Details of management plans
- Institutional set up for implementation of the EMP
- Post project environmental monitoring programme to be undertaken after commissioning of the project
- Expenditures for environmental protection measures.

The EMP's that will be put into place consist of those during construction and operating stages of the project and includes the following elements:

- Air Pollution Control and Management
- Noise Control and Management

- Plantation, Landscaping and Land Management
- Management of Soil Issues
- Occupational, Safety and Health Issues
- Best Management Practices
- Energy Conservation
- Environmental Monitoring
- Solid Waste Management (during construction)
- Emergency Response Plans for Emergency Scenarios Environmental Management System.

3 LAND ENVIRONMENT

The project envisages no acquisition of land. The land will be purchased from the wowners at the prevailing market rate. Government land will be leased from the appropriate department

4 MANAGEMENT OF SOLID WASTE

There are no labour camps on the site. The only solid waste expected to be generated during the construction phase is the packaging waste, wooden and paper cartoons etc.

Various aspects of solid waste management include:

- Reuse/Recycling
- Collection and Transportation
- Disposal

In order to reduce quantum of waste generated, project will reuse significant quantity Muck (generated due to excavations) for backfilling, form work (in civil work) wherever possible and will also reuse the packing materials received with packages etc.

Project proponent will explore opportunity to recycle the waste generated at the project site, in this context project will identify authorized vendors and send used batteries, used oil, and used oil filters for recycling.

Adequate facilities for collection, conveyance and disposal of solid waste will be developed.

5 MANAGEMENT OF CONSTRUCTION WASTE

On completion of construction activities, it should be made mandatory for the contractor to annihilate all signs of haul roads, storage areas, temporary structures, labour colonies, etc. Extraneous material and objects should be removed from the site. These aspects will be made mandatory as a part of the contract agreement.

The major construction materials include coarse aggregate, cement and steel for various other concrete structures. It is proposed to use existing approved quarries to the extent possible.

As far as reclamation work is concerned, direct dumping of burrowed material either burrowed or dredged will create turbidity. Hence a reclamation embankment would be constructed before the reclamation and all the reclamation material shall be dumped inside the embankment so that no general turbidity in the area is created.

6 AIR ENVIRONMENT

6.1 Construction Phase

a) For mobile source emissions:

- Idling of delivery trucks or other equipment should not be permitted during periods when they are being unloaded or are not in active use.
- Concrete should be supplied from an on-site batching plant in order to reduce travel distances of concrete delivery trucks. But trucks carrying cement, gravel, sand will have to travel to site and may cause dust emission. Instead, ready mix concrete carried in enclosed container may be better option as compared to on site batch mixing.
- Dust covers should be provided on trucks that would be used for transportation of materials prone to fugitive dust emissions.

b) For stationary source emissions: -

- Most of the crushers and machinery related to quarry materials should be located close to quarries for ease of handling. Such machinery should be screened with sheets of suitable material and plantation to reduce SPM levels and noise levels by crushers and other machinery.
- Areas prone to fugitive dust emissions due to activities such as demolition, excavation, grading sites and routes of delivery vehicles across patches of exposed earth, should be frequently watered to suppress re-entrained dust.
- Apart from these, the equipment/machines and vehicles should be always kept in good state of repair to minimize emissions. Low emission vehicles / equipment should be used wherever feasible. Construction areas should be enclosed, wherever possible.

6.2 Operation Phase

6.2.1 Dust control during coal, iron ore and limestone handling

The coal handling system is designed based on the annual coal requirement for different uses. The imported coal would be unloaded from the ships anchored in mid-sea into barges and received at a proposed jetty. The coal would be unloaded by barge unloaders and then conveyed by belt conveyors to coal stockyard. These cargos are potential sources of dust and would contribute to fugitive dust emissions. Another source of air pollution in the proposed project is due to the increased vehicular movement in the project area.

The following measures are recommended to control air pollution during cargo handling:

- The impacts due to dust emissions could be substantially managed by containment and reduction of emissions. The reduction in the emissions is achieved by continuous spraying of water so that the surface remains moist and the dust gets suppressed. In materials where the water spray would change the characteristics of the material by making it muddy and slushy, foam is proposed to be used.

- It is proposed to install mechanised handling system and the other associated equipments such as hoppers, belt conveyors, stacker cum reclaimers along with integrated dust suppression systems. The systems to be incorporated in the

7 NOISE

7.1 Construction Phase

During construction phase, the use of construction equipment is the major source of noise. However, based on the modelling studies, the noise due to operation of construction equipment is not likely to have any adverse impact on the nearby villages. Efforts will be required to maintain properly functioning equipment and comply with occupational safety and health standards. The recommended measures are as follows:

- Construction equipments shall be properly maintained. Contract should specify use of equipment generating noise of not greater than 90 dB (A).
- Construction Contract Specifications should stipulate levels of maximum noise generation in various zones (residential, commercial and sensitive) based on CPCB Noise Standards.
- Notification will be given to residents within 100 m of major noise generating activities. High noise generating construction activities like drilling, compacting etc. should be carried out only during day time Installation, use and maintenance of mufflers on equipment are recommended.
- Adequate PPE to be provided to the persons working in the high noise area.

7.2 Operation Phase

During the operational phase noise generation is envisaged from the use of cargo handling equipments, vehicular movements. Following precautions shall be adopted to maintain the noise levels within the prescribed limits:

- Preference shall be given to equipments that produce low noise.
- A noise barrier in the form of trees/ green belt shall be developed to attenuate the noise level.
- Adequate Personal Protective Equipment (PPE) will be provided to the persons working in high noise areas
- Noise from the DG set shall be controlled by providing an acoustic enclosure or by treating the enclosure acoustically.

8 WATER ENVIRONMENT

8.1 Construction Phase

- The waste water generated due to washing of the equipments shall be treated and reused to the maximum extent. The remaining shall be disposed off as per MPCB norms.
- Drinking water facilities and waste disposal facilities if any will be located away from each other.
- An environmentally friendly Dredging Plan shall be adopted. This includes.
    - Dredger operators should follow proper safety procedures to avoid accidents and spills.
    - Care to be taken to ensure that the ship movement in the proximity of the dredged area shall not be affected.

- The timing of the dredging activities to be planned to avoid and reduce any impact on the marine fauna , if any.
- Measures to be adopted for minimizing and localising the sediment suspension in the area

8.2 Operation Phase

There are two sources of wastewater generation in the port project. One is the water collected from the stockyard area after being used for dust suppression and second is the domestic wastewater. Both of these waste streams will be treated appropriately. Apart from these two regular sources of effluents, plans for leaks at workshops and marine oil spills also are proposed.

Effluent from coal and other bulk cargo yard

Effluent from stack yard will contain mainly fine particles. This is proposed to be treated in a settling tank. Clean over flow after dust settlement can be collected and recycled for dust suppression and excess overflow will be discharged into outfall drain. The sludge so produced will be mainly coal dust, which will be put back in the stack yard.

The effluent form coal stack yard will contain high suspended solids. It is proposed to be treated in a settling tank. The sludge so produced will be mainly coal dust, which can be dried on sludge drying beds. The dried sludge, which has fuel value, can then be distributed amongst the villagers. During monsoon months, the sludge can be stored separately, in a structure with adequate storage capacity. The collected water can be reused sprinkling on coal stockyard.

Control of Water Pollution from oil spills/ marine transportation

Another source of water pollution during the operation phase is the oil spills that may occur during bunkering operations. To combat the oil pollution the measures adopted will be as follows:

- Portable oil skimmers should be available at the berth.
- A clean sweep oil recovery unit consisting of a power pack and the recovery unit mounted on a system can be utilized for skimming the oil.
- The berths should have chemical dispersants with spray pumps, collection system for debris and recovery of oil and tanker carriers for recovering sludge/bilge water.
- An Oil Spill Response Plan shall be in place.

Management of Oil Spills

At terminals the main source of spoils results from routine operations such as valve leakages, improper couplings, pipeline leaks etc. These operational spills are generally small. Rare but large accidental spills can occur when a ship/barge gets involved in an accident such as collision or grounding. Hence, response at several levels is necessary for combating oil spills of such variable quantity.

A response team shall be dedicated for action in case of such spills in the jetty limits. The team can seek additional assistance through the regional communication / operational centre of the Coast Guard. In case of an accident or grounding of the vessel.

Oil Spill Contingency Plan

A quick and efficient response is the prime factor deciding the efficiency of the operation and implementation of the oil spill combat plan. In view of efficient operation of the plan in case of emergency the measures proposed are:

- All equipment to be routinely inspected and regular mocks to be held
- The plan to include strategy for combating depending on the oil type, quantity, area of spill and areas likely to be affected.
- Deployment of booms to contain and protect sensitive habitats, mainly mangroves.
- Strategy for shore line cleaning and storage of oil contaminated soil.
- Final disposal of recovered oil.
- Training to be imparted to the personnel responding to oil spills.

9 ESCAPEMENT OF SOLID CARGO

Comprehensive and easy to implement Standard Operating Procedure (SOP) will be made for each category of cargo in order to avoid spillages. SOPs will address safe conditions of wind, tide, visibility etc under which operations would be permissible. The operating staff at the berth will be trained in such operations and also to handle emergencies.

Transfer of bulks to the stack yards will be through closed conveyors. Water sprinkling will be done at stack yards prone to generate wind-blown dust.

10 BERTH RELATED WASTES

The wastes generated at berths in normal operations include domestic effluent, garbage and solid wastes (debris, leftover plastic items, boxes, containers etc).

Sufficient number of toilets and bathrooms will be provided to the operational staff. The sewage and domestic wastewater will be treated in a wastewater treatment plant and used for greenbelt development.

A site in the vicinity of berths will be cordoned and mark as solid waste collection site. Solid and hazardous wastes will be segregated at this site and stored separately. Biodegradable waste will be disposed as municipal sewage while hazardous waste will be given to the MPCB approved recyclers.

11 GREEN BELT DEVELOPMENT

Green belt development around the various project appurtenances is proposed, this will go a long way to protect environment and mitigate pollution levels in the area.

Depending upon the topo-climatological conditions and regional ecological status, selection of the appropriate plant species has been made. The various criteria adopted for selecting the species for greenbelt development are:

- Plants should be fast growing;
- Preferably perennial and evergreen;
- Indigenous;
- Resistant to SPM pollution
- Should maintain the ecological and hydrological balance of the region.

The general considerations involved while developing the greenbelt are:

- Trees growing up to 10 m or above in height with perennial foliage should be planted around the perimeter of the proposed project area and on both sites of the conveyor belt.
- Planting of trees should be undertaken in appropriate encircling rows around the project site.
- Trees should also be planted along the roadside.
- Generally fast growing trees should be planted.
- Since, the tree trunk area is normally devoid of foliage up to a height of 3 m, it may be useful to have shrubbery in front of the trees so as to give coverage to this portion.

Table 1: Recommended species for greenbelt development

Common Name	***Botanical Name***
Peepal	*Ficus religiosa*
Arjuna	*Terminalia arjuna*
Mango	*Mangifera indica*
Suru	*Casuarina equisetifolia*
Undi	*Mamea logifolia*
Amla	*Embelica officinalis*

12 SOCIO-ECONOMIC ENVIRONMENT

The proposed expansion of the existing jetty shall lead to employment opportunities during construction as well as operation phase. The proposed project will overall enhance the existing Socio-economic profile of the area. The fishing activity of local people shall not be affected due to the proposed expansion project.

The proposed project does not involve displacement of houses or population and no R & R issues are envisaged.

Adequate arrangements shall be provided for crossover of residents. The proposed project is a jetty expansion project and thus shall not affect the life-style of the local people, nor will it affect the Public Health of the residents of nearby villages. Adequate Medical facilities are provided to the workers.

13 ENVIRONMENTAL MANAGEMENT CELL

It is proposed to develop Environment management team as a part of Environmental Management Cell (EMC) who will be responsible for the management of the environment of all environment retreated activities. The team will be headed by a senior management executive and will constitute environmental engineers, chemists and horticulture supervisors.

The Head (Environment) will be responsible for Environmental Management Activities in the proposed project. Basically, this department will supervise the monitoring of environmental pollution levels viz. source emission monitoring, ambient air quality, water and effluent quality, noise level either departmentally or by appointing external agencies wherever necessary. In case the monitored results of environmental monitoring are found to exceed the allowable limits, the

Environmental Management Cell (EMC) will suggest remedial action and get these suggestions implemented through the operation group.

The EMC will also coordinate all the related activities such as collection of statistics of health of workers and population of the region, afforestation and greenbelt development.

Table- 2 and 3 gives the mitigation measure to be carried out during construction and operational phase respectively with the organization responsible to take the measures.

Table 2: Mitigation Measures during Initiation/Construction Phase

Sr. No.	Affected Environ-mental Parameters	Likely adverse impacts in the absence of mitigation measures	Nature of impact	Proposed Mitigation Measures		Supervision By
				Action to be taken	Implementing Agency	
1.	Land – Soil Erosion / Silting etc.	Degradation of land by erosion, loss of top soil, silting of water courses, flooding etc.	Significant and Permanent	Stabilization of all slopes along with provision of benches, pitching, breast walls etc.	Contractor	JSW
				Avoiding earthwork during monsoon		
				Provision of adequate Construction and Development works to prevent silting and avoid flooding		
				Planting shrubs, grass or trees on slopes and surfaces exposed due to excavation or filling		
					Design Consultant	JSW
2.	Air Quality	Increase in levels of NOx, SPM, Dust hazards	Significant but Temporary	Prohibition of unnecessary idling of construction trucks	Contractor	JSW
				On-site use of concrete batching plant		
				Use of dust covers over construction material during transportation		
				Keeping all equipment/vehicles in good state of repairs		
				Enclosing construction areas and crushers at quarry if possible		
				Keeping all stationary equipment downwind and away from residential area and sensitive receptors		

Sr. No.	Affected Environ-mental Parameters	Likely adverse impacts in the absence of mitigation measures	Nature of impact	Proposed Mitigation Measures		Supervision By
				Action to be taken	**Implementing Agency**	
				Stabilization of dust prone areas by sprinkling water		
3.	Noise	Increase in noise levels causing nuisance to nearby residence and sensitive receptors	Significant but temporary	Prohibition for use of equipment emitting noise of greater than 90 dB (A) for 8 hour operation	Contractor	JSW
				Installation and maintenance of mufflers on equipment wherever possible		
				Provide workers on machinery with ear muffs / ear plugs		
4.	Surface water quality	Increase in turbidity Deterioration in marine water quality	Significant but temporary	Erosion protection measures	Contractor	JSW
				No dumping of construction material into marine waters.		
5.	Severance / Displacement	Effect on livelihood of people and temporary health hazards to populace	Temporary but significant	Ensure dialogue with affected people	JSW	JSW
				Provide adequate crossover for school children and populace.		

Table 3: Mitigation Measures during Operation Phase

Sr. No.	Affected Environmental Parameters	Likely adverse impacts in the absence of mitigation measures	Nature of Impact	Proposed Mitigation Measures	
				Action to be taken	**Implementing agency**
1.	Air Quality	Fugitive emissions due to loading and unloading activities	Significant and	▪ Sprinkling of water during loading/unloading activity	JSW

Sr. No.	Affected Environmental Parameters	Likely adverse impacts in the absence of mitigation measures	Nature of Impact	Proposed Mitigation Measures	
				Action to be taken	**Implementing agency**
			temporary	▪ Green belt and regular maintenance of carriageways ▪ Good house keeping	
2.	Noise	Increase in noise level due to project activities	Significant and temporary	▪ All the equipments will be duly lubricated, maintained in good working conditions to minimise noise level ▪ Green belt barriers will be provided on either side of the road	JSW
3.	Surface water quality	Sewage generation & accidental oil spill	Insignificant	▪ Installation of STP for treating the sewage ▪ No oil bunkers will be handled at the port	JSW
4.	Public Health and Safety	Health problems to people staying in close vicinity	Moderate and Permanent	▪ Adequate medical facilities will be provided to the people staying in close vicinity ▪ Regular medical check-ups will be organised for the welfare of local people	JSW

14 BUDGETS FOR ENVIRONMENTAL MANAGEMENT PLAN

The mitigative measures suggested in the preceding chapters forms costs related to measures incorporated into engineering design; project scheduling, site planning and preparation of tender documents. The cost on this account will be covered with the construction budget and should not be seen as items of cost for implementing Environmental Management Plan. The estimated environmental cost considered here includes:

During Construction phase

- Provision of air, noise, and dust vegetative barrier/ special screens- both side of project area
- Dust suppression
- Erosion Control Measures
- Solid barrier to check noise pollution for sensitive receptors like school etc.
- Rehabilitation of borrow pits
- Solid waste management due to construction activity.

During Operation phase

- Air pollution monitoring
- Noise monitoring
- Water quality monitoring

Table 4 : Cost Estimate for Environment Management

Parameter	EMP Cost (in Rs. Lakhs)	
	Construction Phase	Operational Phase (annual expense)
Air pollution	85	40
Water pollution	77	50
Waste Management	28	35
Marine ecology	73	50
Green belt development	55	15
Total	**318**	**190**

The environmental cost is consisting of monetary value of the mitigative measures adopted to minimize the negative impact of project on environment. Environmental cost is divided into two categories, i.e. capital cost and operation and maintenance cost. Sufficient fund will be made available for environmental monitoring, pollution control system and its operation activities.

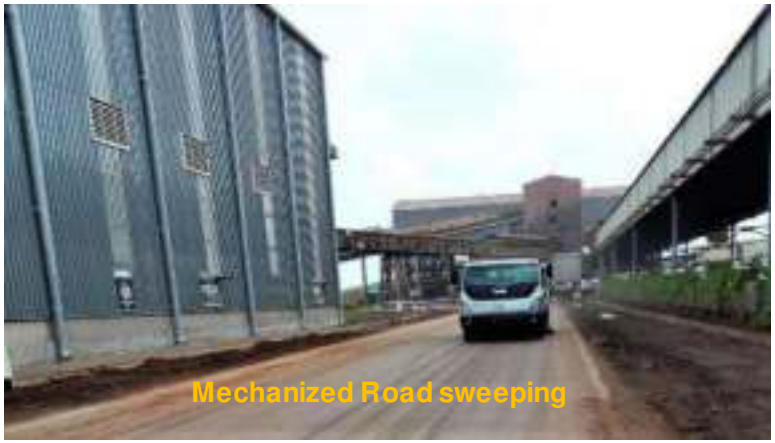
IMPLEMENTATION OF DUST CONTROL MEASURES

Dust Suppression System at Hoppers

Covered conveyor belt and junction house

Covered shed and conveyors

Dust suppression



Sewage Treatment Plant-50 KLD

Dust Measuring System

Green Belt Development

Green Belt Development

8

ANNEXURE IV

Responses / commitments made to the issues raised during Public Hearing

JSW Dharamtar Port Private Limited through JSW Foundation has been working towards the upliftment of the villages in the vicinity.

The year wise expenditure under the CSR activity for the last 5 years is as below:

Sr. No	**Name of the Port**	**Yearwise expenditure on CSR**	
		Year	Amount (Rs. In Lakhs)
1	Dharamtar Port Pvt. Ltd.	2017-18	55
2	Dharamtar Port Pvt. Ltd.	2018-19	94
3	Dharamtar Port Pvt. Ltd.	2019-20	127
4	Dharamtar Port Pvt. Ltd.	2020-21	111
5	Dharamtar Port Pvt. Ltd.	2021-22	121
	Total		**508**

The initiatives undertake are

Sr no.	Issues raised	JSW response	Locality (benefited villages)
1	Water supply to the neighboring villages	• Laying of pipeline for supply of drinking water • Tanker water supply to the villages	Div, Borze, Mankule
2	Construction of hospital in the vicinity	• A well-equipped hospital with modern amenities is constructed at village	A well-equipped 73 bedded Sanjeevani hospital is constructed by JSW at village Dolvi. The hospital has 10 OPDs, ICU & Emergency Ward, 6-bed MCH Ward with NICU, 24x7 ambulances, Pharmacy etc. The Hospital offers consultation services in medicine, general surgery, paediatrics, cardiology, ENT, Ophthalmology, Dentistry, Gynaecology and Orthopaedics.. About 200 Villages in the vicinity are benefitted as the medical facilities are available.

3	Repairs of Kharbandh	• Financial aid is provided to the kharbandh department as per the request from them for construction and maintenance of the kharbandh	Kharland department, GoM approaches JSW for repairs of the bunds. As a part of the CSR activities kharbunds in the villages of strengthened through the department of kharland.
4	Direct/ indirect Employment to the locals	• People from the surrounding villages are directly and indirectly employed with JSW DPPL.	
5	Pollution control measures and safety measures	• Erection of solar lamps • Erection of high mast lamp • Training to the truck drivers • Training to school going children on safety measures • Erection of safety signs at strategic locations in school and road.	Wadkhal Vave
6	Development of educational amenities	• Development of computer aided center for e learning • Digitalization of 12 class rooms in the surrounding villages	Wadkhal, Mankule, Tukaramwadi, Bhal, Indranagar, Vave, Vadhav
7	Development of social amenities	• Development of sports ground	Wadkhal, Mankule, Tukaramwadi, Bhal, Indranagar, Vave
8	Issues related to fishermen	• Training like crab fattening, cage fishing, ornamental fish breeding to fishermen for development of livelihood • Distribution of fish nets	Wadkhal, Mankule, Div

DHARAMTAR PORT PVT. LTD.
Regd. Office: JSW Centre,
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Mumbai – 400 051
CIN : U99999MH2012PTC236083
Phone : 022-4286 1000
Fax : 022-4286 3000
Website : www.jsw.in

Date: 25th November, 2019

To,
The Director
Infrastructure & Misc. Projects (Infra-2)
Ministry of Environment, Forest and Climate Change
Paryavaran Bhavan
Jor Bagh, Aliganj
New Delhi - 110 003

Sub: Expansion of Dharamtar Jetty Facility in Village Dolvi of District Raigad (Maharashtra) by M/s JSW Dharamtar Port Pvt. Ltd. – Amendment in Environmental and CRZ Clearance.
(IA/MH/MIS/34131/2015; F. No. 11-79/2013-IA.III)

Ref: 1. 43rd EAC Meeting of Infra – 2, 22nd August, 2019
2. Our earlier letter dated 22nd August, 2019

Dear Sir,

With reference to the above mentioned EAC meeting, as desired by the esteemed EAC, we are submitting herewith our commitment for Corporate Environmental Responsibility per MoEFCC Office Memorandum (No. 22/65/2017/-IA.III, dated 1st May, 2018) at the applicable rate of 0.75% (Brownfield Expansion) for Rs. 3.0 Crores.

S. No.	CER Component	Amount (Rs. Lacs.)
1	**Health** • (Construction of New 70 Bed Multi-Specialty Hospital – Jindal Sanjivani Dolvi Hospital, Dolvi)	85
2	**Water** • Provision of drinking water to 6 villages in the proximity of the Jetty Facility • Construction of rainwater harvesting (Rooftops of 6 nearby villages common building and village schools) • Renovation of community ponds of 6 villages in the proximity of the Jetty Facility	45
3	**Infrastructure** • Construction of village internal road and installation of Solar Street Light in 6 villages in the proximity of the Jetty Facility	80
4	**Skill Development** • Creation of new educational and infrastructural facility in the ITI of Nagothane and Pen	55

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Fax : 022-4286 3000
Website : www.jsw.in

S. No.	CER Component	Amount (Rs. Lacs.)
5	**Agricultural and Scientific Support** • Agricultural extension service to the 6 villages in the proximity of the Jetty Facility	25
6	**Plantation** • Avenue plantation on the NH 66 (Mumbai Goa) and National Highway 166A (Vadkhal-Alibag).	10
7	**Total**	300

We trust the above is in line with the direction of the esteemed EAC.

Thanking you.

Yours faithfully
for **JSW Dharamtar Port Pvt. Ltd.**

Rashmi Ranjan Patra
Vice President, Strategy and Planning

ANNEXURE VI

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Sustainability
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Infrastructure
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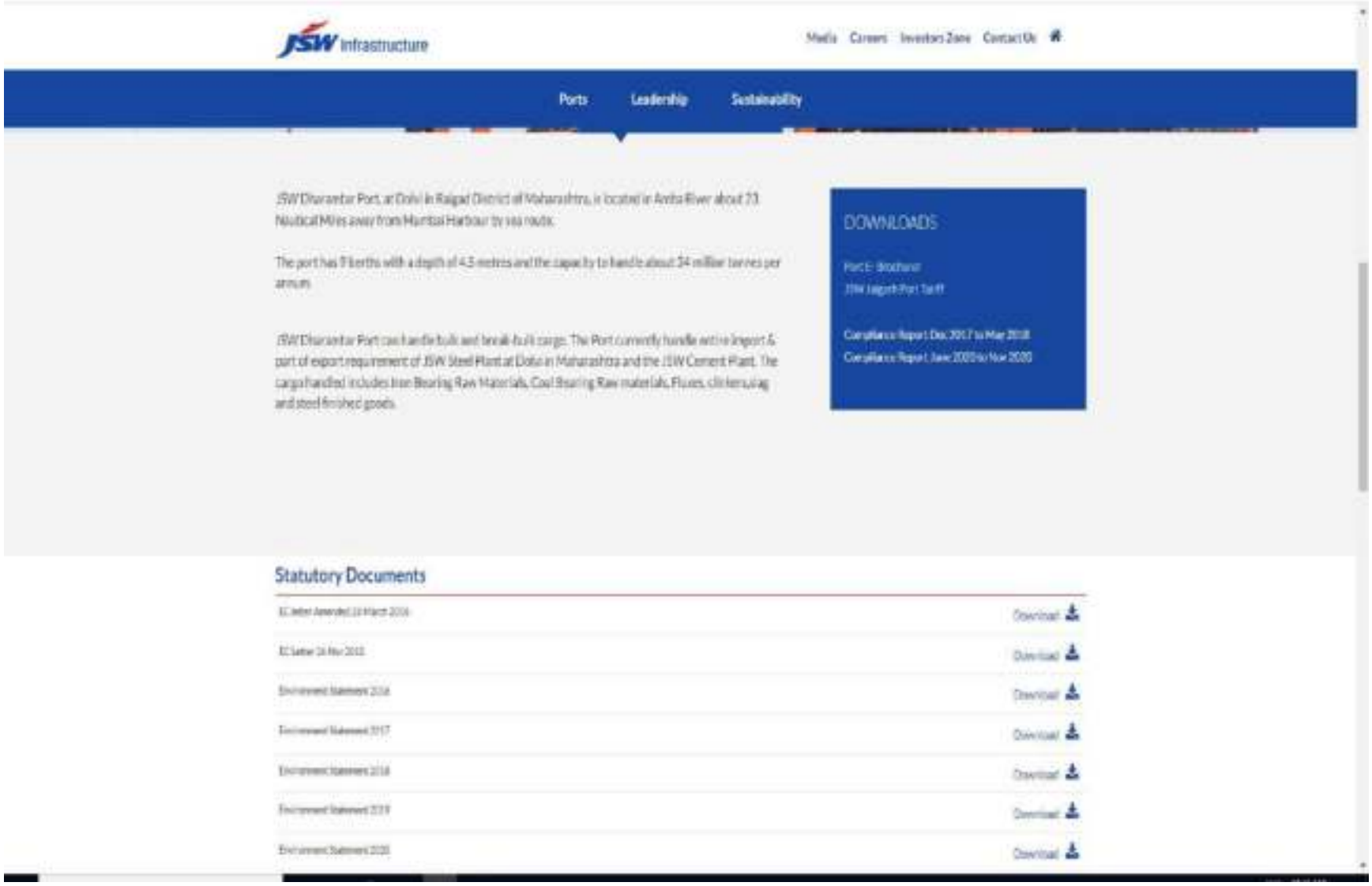
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JSW Dharamtar Port, at Dolvi in Raigad District of Maharashtra, is located in Amba River about 73 Nautical Miles away from Mumbai Harbour by sea route.
The port has 9 berths with a depth of 4.5 metres and the capacity to handle about 24 million tonnes per annum.
JSW Dharamtar Port can handle bulk and break-bulk cargo. The Port currently handle entire import & part of export requirement of JSW Steel Plant at Dolvi in Maharashtra and the JSW Cement Plant. The cargo handled includes Iron Bearing Raw Materials, Coal Bearing Raw materials, Fluxes, clinker, slag and steel finished goods.
DOWNLOADS
Port E- Brochure
JSW Jaigarh Port Tariff
Compliance Report Dec 2017 to Mar 2018
Compliance Report June 2020 to Nov 2020
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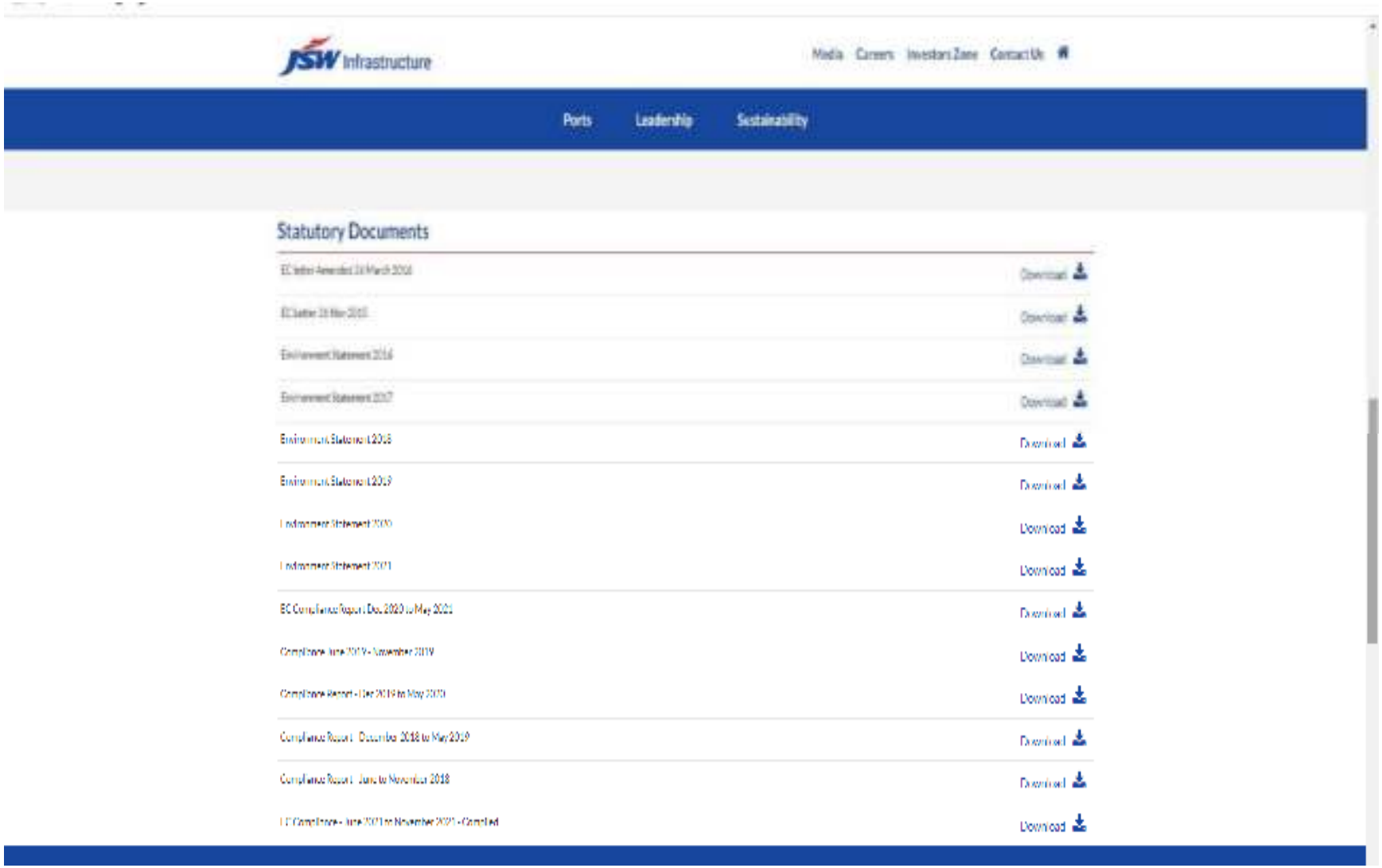
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निवळी-जयगड चौपदरीकरणासाठी २१ रोजी जनआंदोलन

। सनगिरी । वार्ताहर ।

तालुक्यातील निवळी-जयगड राज्यमार्ग चौपदरीकरणासाठी जिल्हा परिषदेचे सदस्य प्रसाद उर्फ बाबू पाटील यांनी अजूनही भूमिका जिल्हा प्रशासनासमोर मांडली आहे.

चौपदरीकरणाची कार्यवाही तातडीने करण्याच्या मागणीसाठी त्यांनी चाटव-खांडाळा येथे येत्या २१ डिसेंबर रोजी सकाळी ११ वा. जनआंदोलन छेडण्याचा इशारा दिला आहे. त्याविषयी बुधवारी जिल्हा प्रशासनाला त्यांनी आपल्या सहकाऱ्यांसमवेत निवेदनही सादर केले आहे.

तालुक्यातील निवळी-जयगड हा राज्य मार्ग सुमारे ४१ मीटर लांबीचा आणि ७ ते १० मीटर रुंदीची अवघड वळणे, तीव्र उताराचा आहे. हा राज्य मार्ग पर्यटक, स्थानिक प्रवासी, शेतकरी व विद्यार्थी यांच्यासाठी सुमारे ५० गावांमध्ये जाण्यासाठी केलेला आहे. सन २००७ मध्ये या चौपदरीकरणाचे भूमिपूजन जेएसडब्ल्यू समूहाचे एनर्जी व पोर्ट या कंपन्यांची उभारणी झाली आहे. तसेच लाखाहून अधिकवाहने, कोळसा पोर्ट गावाचे अंतर वाढले आहे. या कंपन्यांमधील मालाची ने-आण करण्यासाठी अनेक अवजड वाहने या राज्यमार्ग मोठ्या प्रमाणात धावत असतात. त्यामुळे या राज्यमार्गाची वाताहात झाल्याने उच्च न्यायालयात याचिका दाखल करण्यात आली आहे.

सकाळी ७ ते सायंकाळी ६ यावेळेत अवजड वाहतुकीला या मार्गावरून प्रतिबंध केलेला आहे. मुबलक न्यायालयानेही रस्ता त्वरित दुरुस्त करण्याचे आदेश दिले असल्याचे बाबू पाटील यांनी सांगितले. शासनाने २०१५ साली हा रस्ता चौपदरीकरण करण्यासाठी शासन आदेश काढला. १०, १५ या अंतरावरचा भागापासून ६० मीटर रुंदीचा करण्याचा शासन आदेश आहे. पण, सध्या दुरवस्था होत असलेला रस्ता काही ठिकाणी ७ मीटर ते १० मीटर रुंदीचा, अवघड वळणाचा रस्ता तेथून त्याचे दुरुस्तीकरण सुरू आहे. त्यामुळे पादचाऱ्यांना चालण्यासाठी साईडपट्टीही शिल्लक राहिलेली नाही. त्यामुळे जीवितहानी होण्याचा धोका वाहनांत असल्याने दुचाकीस असलेला सुमारे ३० मीटर रुंदीचा रस्ता त्वरित करण्यात यावा. व्यावसायिक वाहिन होत असलेल्या त्यांच्यासाठी नवीन वाहनांचे नियोजन करावे, असा मागण्यांचा समावेश आहे. चौपदरीकरण झालेपर्यंतच्या या मार्गावरील अवजड वाहतूक वाहतुकीस पर्यायी रस्त्यात येत नये, असेही मागणी बाबू पाटील यांनी जिल्हा प्रशासनाकडे केली आहे.

आरसीएफ कंपनी प्रकल्पग्रस्तांचा आत्मदहनाचा इशारा

। अलिबाग । प्रतिनिधी ।

आरसीएफ थळ प्रकल्पग्रस्त गेली २२ वर्षे सुरु असलेला प्रकल्पग्रस्तांचा लढा आता 'करो या मरो' या भूमिकेवरील आला आहे. येत्या सात दिवसांत कंपनी प्रशासनाने निर्णय न घेतल्यास सामूहिक आत्मदहन करण्यात येईल, असा इशारा आरसीएफ प्रकल्पग्रस्त संघर्षाने दिला आहे. प्रकल्पग्रस्त संघर्षाने म्हटले आहे की, २००५ साली तत्कालीन कंपनी प्रशासनाने प्रमाणपत्रांची पडताळणी केल्यावर प्रकल्पग्रस्तांना सामावून घेण्याचे आश्वासन दिले.

त्याप्रमाणे जिल्हाधिकारी यांच्याकडून दाखलपात्रांची पडताळणी झाली. दि. ७ एप्रिल २०१० रोजी उपविभागीय अधिकारी अलिबाग यांनी केलेल्या संपूर्ण चौकशीतून अपूर्ण १८८ खातेदारांना नोकऱ्या देण्याचे शिफारस असल्याचे दिसून आले. दि. ३० नोव्हेंबर २०१० रोजी खासदार अनंत गीते लोकसभेच्या विशेषज्ञ कमिटीचे अध्यक्ष असताना त्यांनी आरसीएफमध्ये कायमस्वरुपी नोकरी उपलब्ध होईपर्यंत तात्पुरती नोकरी उपलब्ध करावी, असा निकाल दिला होता व त्याला आरसीएफने मान्यता दिली होती. दि. ९ नोव्हेंबर २०१२ रोजी तत्कालीन पालकमंत्री सुनील तटकरे यांचे उपस्थितीत झालेल्या बैठकीत सीएमडी आर.जी. राजन यांनी प्रकल्पग्रस्तांच्या मागीचा मुद्दा आरसीएफ संचालक मंडळाकडे तेथपात घेतले व त्यानंतर प्रकल्पग्रस्तांना नोकरीत सामावून

घेण्यात येईल, असे आश्वासन दिले.

जानेवारी २०१३ येऊनही आरसीएफकडून कोणतीही कार्यवाही होत नाही हे पाहून आ. जयंत पाटील यांच्या नेतृत्वाखाली सर्व प्रकल्पग्रस्त आरसीएफ गेटसमोर सात महिने आंदोलनाला बसले व दि. २७ जुलै २०१३ रोजी महसूल व पुनर्वसन सचिव यांच्या दालनात झालेल्या बैठकीत विविध किती प्रकल्पग्रस्तांना नोकरीत सामावून घ्यावे यासंदर्भ यांचे जिल्हाधिकारी यांनी आरसीएफ व्यवस्थापनाला आदेश द्यावेत, असे ठरले. सतरा वर्षांच्या कालावधीत आरसीएफने घेतलेल्या ६९० प्रकल्पग्रस्तांपैकी १९२ प्रकल्पग्रस्त सेवानिवृत्त झाले. परंतु, त्यांच्या जागी एकाही प्रकल्पग्रस्ताला नोकरी दिली गेली. या सर्व कालावधीत प्रकल्पग्रस्तांचे मोठे आर्थिक व मानसिक नुकसान झाले आहे. दि. १९ ऑगस्ट २०१५ पासून सर्व प्रकल्पग्रस्त आरसीएफ थळ प्रशासकीय गेटसमोर धरणे आंदोलनास बसले आहेत. आजमितीस ११४ दिवस होऊनसुद्धा आरसीएफ प्रशासन अथवा जिल्हा प्रशासनने प्रकल्पग्रस्तांच्या मागीसंदर्भात कोणताही ठोस आश्वासने दिलेले नाही.

कारखाना आरसीएफकडून निर्माण झालेल्या आरोग्यसमस्या, कंपनीतून प्रकल्पग्रस्तांची येत्या सात दिवसांत ठोस निर्णय न झाल्यास त्यानंतर सामूहिक आत्मदहन करण्याचा निर्णय घेतला आहे. संदर्भातील निवेदन जिल्हाधिकारी, सीएमडी आरसीएफ, पोलीस अधीक्षक व इतर खात्यांना देण्यात आले आहे.

विष प्राशन केलेल्या प्रौढाचा मृत्यू

। सनगिरी । वार्ताहर ।

साळवी स्टॉप येथील फुलचंद हरिलक्ष्मण विष प्राशन केलेल्या प्रौढाचे रुग्णालयाच्या ओपीडीत निधन झाले. संतोष लक्ष्मण शिंदे (४०) असे या इसमाचे नाव असून, तो शिवाजीनगर येथे राहणारा आहे.

येथील फुलचंद हरिलक्ष्मण त्याने सायंकाळी चहा चाखण्याच्या सुमारास त्यांनी विषारी द्रव्य प्राशन केले. यानंतर त्यांच्या घरच्या सदस्यांनी रुग्णालयात दाखल करण्यात आले होते. त्यानंतर पुढील उपचारासाठी जिल्हा सामान्य रुग्णालयात दाखल करत असतानाच यांचा मृत्यू झाला.

संतोष शिंदे हे मूळचे सिंधुदुर्ग जिल्ह्यातील दापचरी येथील रहिवासी आहेत. ते सिद्धीविनायक नगरमध्ये राहात होते. साळवी स्टॉप येथे त्यांचा वाहनूक व्यवसाय आहे. त्यांच्या पश्चात पत्नी, दोन मुलांची मुलगी असा परिवार आहे. रत्नागिरी पोलीस या प्रकरणी अधिक तपास करत आहेत.

स्थानिक स्वराज्य संस्थांच्या निवडणुकीत उमेदवारांच्या खर्चात राज्य निवडणूक आयोगाकडून वाढ

। पोलादपूर । वार्ताहर ।

स्थानिक स्वराज्य संस्थांच्या निवडणुकीत उमेदवारांच्या खर्चात राज्य निवडणूक आयोगाकडून वाढ सुचविण्यात आल्यानंतर महानगरपालिकेसाठी राजकीयपक्षांसह प्रत्येक उमेदवाराला मतदारांना 'चॉट पडी महोत्' द्वारे प्रचार पाठवण्याची संधी अधिकृतरित्या प्राप्त झाली आहे. या सुधारणेनुसार पोलादपूर नगरपंचायत निवडणुकीत उमेदवारांना प्रत्येकी दीड खर्चाची मुभा असल्याचे समजते झाले आहे. परिणामी, जमो मतदार संख्या असलेल्या प्रभागांतील मतदारांची चांदी होईल, असे खुमासदार चर्चा याअनुषंगाने सहाजमध्ये होऊ लागली आहे. राज्य निवडणूक आयोगाने राज्यातील स्थानिक स्वराज्य संस्थांच्या निवडणूक कार्यक्रमानुसार अ वर्गातील मुंबई महानगरपालिकेच्या निवडणुकीसाठी उमेदवाराला पूर्वी खर्चाची मर्यादा १ लाख ३५ हजार रुपये होती; ती आता ५ लाख रुपये एवढी वाढविण्यात आली आहे. व वर्गातील पुणे व नागपूर महानगरपालिकेच्या निवडणुकीसाठी आतापर्यंत १ लाख रुपये उमेदवाराची खर्चमर्यादा आता ४ लाख रुपये झाली आहे. क वर्गातील पिंपरी-चिंचवड, ठाणे, नाशिक व नवी मुंबई मध्येही आतापर्यंत १ लाख रुपये उमेदवाराची खर्चमर्यादा आता ४ लाख रुपये झाली आहे. ड वर्गातील ही खर्चमर्यादा १ लाखावरून ३ लाखांवर नेण्यात आली आहे. अ वर्गातील नगरपरिषदांच्या उमेदवारांना खर्च मर्यादित मोठ्या प्रमाणात वाढ करून निवडणूक आयुक्त, पूर्वीच्या ३५ हजार खर्चमर्यादेवरून थेट ३ लाख रुपयांपर्यंत खर्च करता येणार आहे. व वर्गातील नगरपरिषदांमधील उमेदवारांचा पूर्वीची निवडणूक खर्चमर्यादा ३५ हजारांवरून थेट १ लाख ५० हजार रुपयांपर्यंत वाढविण्यात आली आहे. क वर्गातील नगरपंचायतींमधील उमेदवारांना पूर्वीची निवडणूक खर्चमर्यादा ३५ हजारांवरून थेट १ लाख ५० हजार रुपयांपर्यंत वाढविण्यात आली आहे. उमेदवाराच्या खर्चाच्या मर्यादित केलेली वाढ ३० जुलै २०१५ पासून लागू झाली असल्याची माहिती प्राप्त झाली आहे.

निवडणूक खर्चाची दिलेली हमी पाहता आतापर्यंत निवडणुकीमध्ये 'पैसा फेको- तमाशा देखो' असे स्वरूप दिसून येण्याची शक्यता निर्माण झाली आहे.

पोलीस कोठडीत रवानगी

जिल्हा परिषदांची आरोग्य आर्थिक मदत मर्यादा वाढवा

। नागपूर । विशेष प्रतिनिधी ।

आ. पंडित पाटील यांची मागणी

जिल्हा परिषदांना आपल्या

सलाव येथील कुळांची नोंद करा- आ. पंडित पाटील

एसटी बंदला अल्प प्रतिसाद

। अलिबाग । प्रतिनिधी ।

विविध प्रलंबित मागण्यांसाठी

पालिका कर्मचाऱ्यांचा संपामध्ये सहभाग

मिळाला पाहिजे, महिला कर्मचाऱ्यांना

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स्थानापन्न कलम, इदवाग, खेड़ला अशा दुर्धर रोगाने पीड़ित असलेल्या रुग्णांना आर्थिक मदतीची मर्यादा १५ हजार रुपयांवरून ३० हजार करण्याची मागणी रोकाण्डाबे आ. पंडित पाटील यांनी आरोग्यमंत्री डॉ. दीपक सावंत यांच्याकडे केली आहे.

यावेळच्या दिलेल्या निवेदनात असे म्हटले आहे की, शासनाच्या प्राथमिकता व अनावश्यक विभाग यांच्याकडील दि. ३ नोव्हेंबर २००६ च्या परिपत्रकानुसार जिल्हा परिषदांना आपल्या स्वनिधीतून कॅन्सर, इदवाग, किडणी अशा दुर्धर रोगाने पीड़ित असलेल्या रुग्णांना रु. १५,०००/- आपत्कालीन मदत देण्याबाबत मर्यादा घालालेली आहे. तसेच आर्थिक मदत देण्याबाबत प्राधिकृत रुग्णालयांची यादी निश्चित केलेली आहे.

सदर प्राधिकृत केलेल्या रुग्णालयांच्या यादीमधील रुग्णालये दूरचे असल्यामुळे राजगड जिल्ह्यातील ग्रामीण भागातून आर्थिकदृष्ट्या दुर्बल घटकातील लाभार्थ्यांना सदर प्राधिकृत रुग्णालय गैरसोयीचे व त्रासदायक दुहेरी खर्चाचे आहे. तरी कृपया राजगड जिल्ह्यातील नमूदित रुग्णालये प्राधिकृत यादीमध्ये समाविष्ट करावी. राजगड जिल्ह्यातील लाभार्थी रुग्णांची गैरसोय व आर्थिक मुर्दड पडणार नाही, तसेच रुग्णांसाठी आर्थिक मदत महापूर मंजूर करण्यात आलेले रु. १५,०००/- ऐवजी रु. ३०,०००/- करण्यात यावी, याबाबत राजगड जिल्हा परिषदेने सर्वसाधारण सभा दिनांक १२-२०१६ रोजी ठराव क्र. ९०८ अन्वये ठराव संमत केल्याप्रमाणे रुग्णांच्या आर्थिक परिस्थितीसाठी मर्यादित केलेल्या यादीला शासनाने मान्यता देण्याबाबत निवेदनात करण्यात यावी, अशी मागणी आ. पंडित पाटील यांनी केली आहे.

राजगड जिल्ह्याच्या पनवेल तालुक्यातील मौजे खानाव येथील जमिनी शेतकरी कसत आहेत; परंतु महसूल खात्याच्या सातबाऱ्याच्या उताऱ्यावर मात्र अन्य मालकांच्या नोंदी झालेल्या आहेत, त्या रद्द करून जमीन कसणाऱ्या शेतकऱ्यांची खातेनिक कुळांची नोंद करावी, अशी मागणी अलिबाग तालुक्याचे शेकापचे आमदार पंडित पाटील यांनी गुरुवारी विधानसभेत केली.

याबाबत जिल्हाधिकारी रायगड, पनवेलचे प्रांत, तहसीलदार यांच्याकडे वारंवार करूनही अद्याप कुळांना त्याचे मिळाला नाही, ही बाब पंडित पाटील यांनी विधानसभेत औचित्याच्या मुद्द्याद्वारे सरकारच्या निदर्शनास आणून दिली.

मागील अधिवेशनातही हा मुद्दा उपस्थित केल्यानंतर कुळांना त्याचे देण्याचे सरकारचे मत्य करण्यात आले होते. मात्र, हिवाळी अधिवेशन संपताच अद्यापदेखील ही बाब महसूल यंत्रणेने त्याची अंमलबजावणी केली नाही, असेही पंडित पाटील यांनी सांगितले.

दरम्यान १७ डिसेंबर रोजी राजगड महाराष्ट्र एसटी कर्मचारी कृतिम रुंदकर्मचारी एसटी बंद आंदोलन पुकारण्यात आला. परंतु, जिल्ह्यात दादरचे संघसाद कमी असल्याने या बंदला फारसे यश आले नाही. जिल्ह्यात रोहा, उरण घटिकांनी किरकोळ बंद पाळला अन्य ठिकाणी बंद पाळण्यात आलेला नाही.

२०१२-२०१६ या कालावधीत मंजूर करण्यात येणारा २५ लाख वाढ करण्यात यावी, बालक-पालक दुहेरी अभ्यासक्रम टी-१ रेटिंग व रद्द संगणीकृत व्यवस्थापन लागू करण्यात यावी, यासह कायमस्वरूपी स्वरूपाची सेवेत सामावून घेण्यात, राज्य परिवहन कर्मचाऱ्यांच्या संपाचे आजार, अशोभन, पाही-पानी एकत्रीकरण, आपघातात मिळणारी मदतीचा दावाचा करण्यात यावा, नवीन भरतीपूर्वी अनुकंपातील जागा भरण्यात यावा, अशा अनेक मागण्या महामंडळ कर्मचारी संघटनेने केल्या आहेत. परंतु शासनाने दुर्लक्ष केले. शासनाचे लक्ष वेधण्यासाठी राज्यभर एसटी बंद आंदोलन पुकारण्यात आले. मात्र अल्प प्रतिसाद मिळाला असल्याचे दिसून आला आहे.

टोटाचली आहे.जंगलात शिकारीला गेलेल्या सुनील बाळाराम जाधवर यांना गोळी लागून त्याचा मृत्यू झाला. याप्रकरणी त्याचा सख्खा भाऊ विनोद बाळाराम जाधवर व जावयाने वेगळेच संदेश दिलयम, संतोष पाथरे, विठ्ठल पाथरे, मंगेश पाथरे, विलास उर्फे पापू कदम, संदीप भगवडे या सातजणांना मंगळवारी अटक झाली होती. त्यानंतर प्रकाश शिलकर या आठव्या आरोपीला अटक करण्यात आली आहे.

झाडाची फांदी कोसळून शाळेच्या छपराचे नुकसान

खेड शहरातील कन्याशाळेच्या इमारतीवर कोसळलेली झाडाची फांदी.

। खेड । प्रतिनिधी ।

खेड शहरातील कन्याशाळेच्या वेगात कन्याशाळेच्या इमारतीवर पडलेल्या झाडाची फांदी कोसळल्याने छपराचे मोठ्या प्रमाणात नुकसान झाले. ही घटना घडली तेव्हा सुदैवाने शाळेत विद्यार्थी नव्हते, त्यामुळे मोठा अनर्थ टळला.

खेड शहरातील कन्याशाळा ही जिल्हा परिषदेची शाळाच्या जुनी शाळा आहे. या शाळेत पहिली ते सातवीपर्यंतचे वर्ग असले तरी पटसंख्या अधिक्य कमी आहे. ही घटना घडली तेव्हा विद्यार्थी दुसऱ्या इमारतीत बसले होते, त्यामुळे मोठा अनर्थ टळला. या शाळेच्या इमारती अतिशय धोकादायक झालेल्या असल्याने जिल्हा परिषदेने इमारतींची डागडुजी करणे आवश्यक आहे. परंतु, जिल्हा परिषदेकडून याची जोगवाही प्रकारची डागडुजी करण्यात आलेली नाही. शाळेच्या मैदानात मोठमोठी कुपाड झाडे आहे. किमान धोकादायक झालेली झाडे तोडली असती तरी शाळेच्या इमारतीस असलेला धोका काही प्रमाणात कमी झाला असता. जुनाट झालेल्या झाडाची एक फांदी अचानक तुटली आणि इमारतीच्या छपरावर कोसळली.

या दुर्घटनेत छपराचे मोठ्या प्रमाणात नुकसान झाले आहे. या दुर्घटनेनंतर तरी जिल्हा परिषद प्रशासनाने धोकादायक झालेल्या इमारतींची डागडुजी करावी, मैदानात वाढलेली धोकादायक झाडे वाढून टाकावीत, अशी मागणी पालकवर्गातून होत आहे.

पेण नगरपरिषदेचे कार्य कौतुकास्पद

निधी चौधरी यांचे प्रतिपादन

। पेण । प्रतिनिधी ।

महात्मागांधीजींकडे वाटचाल करणाऱ्या पेण नगरपरिषदेचे कार्य कौतुकास्पद आहे, असे प्रतिपादन प्रांत निधी चौधरी यांनी पेण येथे केले. पेण नगरपरिषदेच्या शताब्दीनिमित्त सुरवात महोत्सवाअंतर्गत नगरपरिषदेच्या वतीने मध्यमातून शताब्दीच्या पेण शहरातील विविध प्रकल्पांची, कामांची माहिती असलेल्या तैलचित्रांचे अनावरण माजी मंत्री रवीद्र पाटील यांच्या हस्ते करण्यात आले. त्यावेळी त्या बोलत होत्या. याप्रसंगी नगराध्यक्षा वैशाली पाटील, उपनगराध्यक्ष मंगेश दळवी, मुख्याधिकारी अरविंद मोरे, नगरसेवक व त्यांचे कर्मचारी यांचा मोठा वाटा आहे, असे सांगून आपल्या भाषणात त्यांनी नगरपरिषदेच्या विविध योजनांची माहिती दिली. यावेळी माजी मंत्री रवीद्र पाटील यांचा सत्कार करण्यात आला.

महात्मा एज्युकेशनची २० डिसेंबरला मिनी मॅरेथॉन

। पेण । प्रतिनिधी ।

महात्मा एज्युकेशन सोसायटीच्या वतीने पेणमध्ये २० डिसेंबर रोजी दुसऱ्या मिनी सीपीसी स्पर्धेचे आयोजन केले आहे, या स्पर्धेतील मिनी खेळाडूंना या वर्षी रोख लाखोंची बक्षिसे देण्यात येणार आहेत, अशी माहिती स्पर्धा समितीचे अध्यक्ष पद्मानंद पद्मसागर यांनी पत्रकार परिषदेत दिली.

यावेळी संस्थेच्या प्रमुख डी. लता जालुरे -मेनन, स्पर्धा समितीचे सदस्य जी. पाटील उपस्थित होते. महात्मा एज्युकेशन सोसायटी संचे 'मानवतेसाठी धावा' हे घोषवाक्य सदर सीपीसी स्पर्धेचे देण्यात आले आहे. ही स्पर्धा ७ गटात खुले, मुली, पुरुष, महिला आणि ४५ वर्षांवरील पुरुष व महिलांसाठी ठेवण्यात आली आहे. या स्पर्धेचे उद्घाटन १० डिसेंबर रोजी सकाळी ७ वा. वेणगाव फाटाच्या ठीक पाटील यांच्या हस्ते होणार आहे.

स्पर्धकांनी पेण नोंदिवसाच्या प्रवेशद्वारासाठी सकाळी ६ वा. हजर व्हावे, असे आयोजक पद्मसागर यांनी सांगितले.

जाहीर नोटीस

अलिबाग येथील प्रमुख जिल्हा न्यायाधीश, रायगड, यांचे कोर्टात,

विवाही फौजदारी अर्ज १५८/२०१४

जी. वेंकाबाई वेंकाप्पा भात वाणी, ... अर्जदार

विरुद्ध

जी. गोड कोंडाप्पा म्हात्रे वाणी, ... गैरअर्जदार

या मजकूर वेंकाबाई अर्जदार [illegible]

अलिबाग को-ऑप. अर्बन बँक लि.

महावीर कार्ये रोड, अलिबाग-रायगड ४०२ २०१

फोन नं.-२२४४६४, फैक्स नं. २२४४६३

जाहीर नोटीस

अलिबाग को-ऑप. बँक लि., अलिबाग बँकेचे चेअरमनसाहेब डी. रंगुलाल हरिश्चंद्र मेहता, रा. मु-मिलची गल्ली, पो.ता. अलिबाग, जि. रायगड यांनी बँकेकडून कर्ज घेतले आहे. तसा जामीन म्हणून बँकेकडे तारण ठेवलेल्या खालील प्रॉपर्टीवरचे मयत डी. रंगुलाल हरिश्चंद्र मेहता यांचे वारसदार म्हणून बँकेचे कायदेशीरीत्या दावा केली आहे. तसा दावा न्यायालय निवाडा जाहीर निर्णयाचे विक्रीत जाहली होती. खालील वर्णनाची प्रॉपर्टीवरील दावा न्यायालय बँकेकडे हस्तांतरीत करण्याचे आदेश/हुकमाला उल्लंघन बँकेने दाखल केले आहेत. त्यानुसार खालील वर्णनाच्या प्रॉपर्टीवरील दावा न्यायालयाचे मालकी हक्क बँकेत प्राप्त होऊन निवाडा व

जाहीर नोटीस

प्रति,

१) श्री. अमोलिद विनायक कुलकर्णी,

२) श्री. सचिन विनायक कुलकर्णी

रा. कल्याण, जि. ठाणे

यांसी...

१) मिळकतीचे वर्णन- जिल्हा व तालुका रायगड, तालुका व पोट तालुका पेण, मौजे हमरापूर येथील खालील वर्णनाची बागायत जमीन.

गावाचे नाव	स.नं./हि.नं.	क्षेत्र	आकार (रु.पै.)
हमरापूर	३२५/४	३.५६.०	५.२१

तरारची जमीन ही या नोटीसीचा विषय आहे.

२) सन १९५२-१९५३ साली पाटिलांच्याकडून ते नातालालाल तरारची जमीन साडे पुरुष हकदारे सारे जमाबंदा व इत्यादा जातानुसीन आहे. प्रतिवादी या मिळकतीवरुन भी खात खातापत्रे व अन्यायालयाने राजीनामे गावाचे इत्यादा घेत आहे. या कायदेशीर जोगोडी जोपर्यंत प्रकारची हा-हुकार लेखा अहमदाबाद केला नाही.

३) वीरणी गावोला चतुर्भुज कुलकर्णी या विक्रेता होता. सबब तुम्ही जाबदाराने साडे तारांक विक्री झाली नाही. मात्र आजन तिचे चालवाद अंतरात आले शाहूपुर महसूल दप्तरी केलेला क्र. २०७८ ही आजच्या वाचाची सोट सोडपुर

NOTICE

The Ministry of Environment Forest & Climate Change, Government of Indira Paryawaran Bhavan, Jor Bagh Road, New Delhi 110003 has accorded Environment & CRZ Clearance to JSW Dharamtar Port Private Limited for their proposed "Expansion of Dharamtar Jetty facility" in village Dolvi, Taluka pen, District Raigad, Maharashtra, vide letter 11-79/2013 IA.III dated 26th November, 2015

The copy of the clearance is available with the maharashtra pollution Control Board and also on the MoEF & CC website, http://www.envfor.nic.in.

JSW Dharamtar Port Private Limited
JSW Centre, BAndra Kurla Complex,
BAndra (East), Mumbai 400 051.

763080/2022/IA_I

1848

...ची होती. बैठकीचे संचालन हसने आभार मानण्यात आले.

या कार्यक्रमास नगराध्यक्षा प्रीतम पाटील, गटनेते अस्लिम पाटील, मुख्याधिकारी भीमराव पाटील, बांधकाम सभापती दिलीप गायकवाड, सभापती प्रकाश रामाणे, ज्येष्ठ नगरसेवक मुबारक, अस्लिम पाटील, अस्लिम शाह आदींसह पेण शहराच्या अनेक प्रतिष्ठित नागरिक उपस्थित होते.

यावेळी बोलताना प्रांत सिंघी चौधरी यांनी सांगितले की, पेण नगरपरिषद आपला शताब्दी महोत्सव साजरा करीत असताना या नगरपरिषदेची महानगरपालिकेकडे वाटचाल होत असताना, अधिकच आनंद होत असून, या पुढेही विकासकामांचा झंझावात चालू राहील यासाठी सर्व जनतेचे सहकार्य लाभेल असे, असे सांगितले.

यावेळी नगराध्यक्षा प्रीतम पाटील यांनी पेण शहराचा इतिहास उलगडला तर अनेक गोष्टी आपल्याकडून पेण आहेत. पेण शहराची ही नगरपरिषद अस्तित्व जपण्या आदरणीय राजाला देत राहील, असे त्यांनी सांगितले.

नगराध्यक्षा प्रीतम पाटील यांनी मागी मंत्री रवींद्र पाटील व सर्व सहकारी यांच्या मार्गदर्शनाखाली नगरपरिषदेची विकासकामे मागी लागली असून, शासकीय महोत्सव साजरा होत असताना, अधिकच आनंद होत असून, या पुढेही विकासकामांचा झंझावात चालू राहील यासाठी सर्व जनतेचे सहकार्य लाभेल असे, असे सांगितले.

क्रमांक ६०- चौलची तिलप्पा मुलगीचंद चव्हाण, रेल्वेहिट क्रमांक ६५- वाशेदा (मुलगीचा) चाफवाकर टाकूर, रेल्वेहिट क्रमांक ६६- प्रतिमा चंद्रकांत पाटील, रेल्वेहिट क्रमांक ६७- श्री. संजय चंद्रकांत पाटील, रेल्वेहिट क्रमांक ६८- तिलोत्तमा (ताई) चंद्रकांत पाटील, रेल्वेहिट क्रमांक ६९- उल्का अरविंद म्हात्रे आणि रेल्वेहिट क्रमांक ७०- राजेंद्र अरविंद म्हात्रे यांना चेंबरीलेखी चौलिलनामांकन अधिकारी तथा/चौलिल पालिकेची असता चाचणी कुलाबेची नाही.

तरी, तरा रेल्वेहिट यांत नमूद असे व्यक्तिगिनेत येत असते की, या अधिनाची पुर्वीत तारीख २६/०६/२०१६ रोजी अमूर, तत्पश्चात ६६.०० वाजता या कोर्टात स्वत: अथवा प्राधिकृत व्यक्तीमार्फत त्यांनी हजर व्हावे व आपले म्हणणे सुद्धा. त्याचप्रमाणे चाचणीकर्तीता तक्रार या पत्र दाखल करावा. तसा दाखील हजर होण्यास व जबाब देण्यास कसूरी केल्यास तसा अर्जेन्सीविरुद्ध योग्य तो हुकूम करणेत येईल, याची नोंद व्यावी.

आज तारीख १६/१२/२०१५ रोजी माझ्या सहीने व कोर्टाच्या शिक्क्यानिशी दिले.

वरिष्ठ लिपिक
जिल्हा न्यायालय, रायगड
अलिबाग

कोर्टाचा शिक्का

अधीक्षक
जिल्हा न्यायालय, रायगड
अलिबाग

कार्यालयातील तसा उपलब्ध चालनामध्ये चेंबरच्या चालकीची आहे. तसेच खालील परिशिष्टामध्ये नमूद केलेला चालनामध्ये उपलब्ध साला चेंबरने भरलेला आहे. तसा केलेला चालनाचा आहे त्याठिकाणी आहे तसा परिशिष्टात चिठ्ठी जाणेची आहे. तरी इच्छुक असलेल्या खोरीदारांनी दिलेल वेळ सेवही निविदा भुगवा, दिनांक २०/१२/२०१५ पर्यंत चेंबरने कार्यालयीन वेळेत चेंबरने भुद्रांक कार्यालयात खालील सही जागेत चांचेकडे सादर करावयात.

परिशिष्ट

मुलखी व जिल्हा रायगड, पोटमुलखी व तालुका अलिबाग, अलिबाग नगरपालिकेच्या हद्दीतील मौजे अलिबाग येथील मिळकत सिटी सर्वे नं. ३१८ के/१ या भूखंड व सदर भूखंडावरील बांधकामाचा भा.क्र. १६५,१६६,१६१ यांचेचे चालीत खालीलप्रमाणे.

गाव अलिबाग	सिटी सर्वे नं. ३१८ के १	क्षेत्रफळ (स्क्वे. मीटर) २५१.००	शेरा

ठिकाण : अलिबाग
दि. १७/१२/२०१५

मुद्रांक कार्यकारी अधिकारी
अलिबाग को-ऑप. अर्बन बँक लि.करिता

...असता नाही.

५) सदर फेरफार नं. २३५३ व २८६० हे ई) श्री. बाबुराव महादेव पाटील व यांनी या अभिलेखा महाबुद्धू दाखरी नोंद नोंदबुद्धू घेतलेली आहे. सबब श्री ती नोंद व कागदपत्रांना पेण तहसिल ने. उपविभागीय अधिकारी तथा उपविभागीय दंडाधिकारी पेण उपविभाग पेण यांचे न्यायालयात आ.टी.एस. अपील नं. ८१/२०१४ ने अपील दाखल केले आहे. सबब या संदर्भात न्यायालय योजीत/ तसेच मालकांचेच दालनिक व दालनाचे प्रयास केला आहे. तरिहेतील सालकांचा मालकाची कुलची नाही.

तरी या व्यक्ति योजीतांने न्यायालय व्यक्तिगिनेत येने की, दिनांक २६/१२/२०१५ रोजी दालनाची दिवस ११ वाजता अंतिम न्यायालयात अंतिम स्थान; अंतर अंतरने चालीत हजर राहून, संबंधित कागदपत्रांसह आपले म्हणणे दाखल करावे. अंतिम दिवशी व तेथे अंतर उपस्थित न राहिल्यास अंतरनाम या संदर्भात काहीही सांगावयाचे नाही असे गृहीत धरुन सुनावणी पूर्ण केली जाईल, याची कृपया नोंद व्यावी.

पेण
दि. १६/१२/२०१५

डी.जी. पाटील
अंतरनाम-पेण

रायगड टाइम्स
जिल्ह्याचे हक्काचे व्यासपीठ।

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रायगड टाइम्स जिल्हा २

शोकसंवाद

प्राचार्य अनंत जोग यांचे मरणोत्तर नेत्रदान व देहदान

पेण नगरीची १५० वर्षपूर्ती

सांस्कृतिक ऋणानुबंधाची उत्साही शोभायात्रा

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विरवाडी येथे पेंढ्याला आग

सुनेने उभी केली बोगस सासू

तयार केले बोगस दस्तऐवज ■ कर्जतमधील घटना; तिघांना अटक

म्हसळ्यात एसटी-मोटरसायकलची धडक

दोनजण गंभीर; उपचारासाठी मुंबईत

ग्रामसेवकाच्या खोट्या सहीने पत्रकबाजी

अलिबाग पोलिसात गुन्हा ■ जिल्हाधिकाऱ्यांनाही दिले दिवेदन

माझेरी घाटात तवेरा उलटली; आठ जखमी

कुंठ्याची गोठी येथे मटका अड्ड्यावर धाड; एकास अटक

वेश्वीत विकासाचा पाया आमचा...

पान १ वरून

पोलादपूर नगरपंचायत

जाहिर सुचना

भारत सरकार पर्यावरण, वन आणि जलवायु परिवर्तन मंत्रालय, इंदिरा पर्यावरण भवन, जोरबाग रोड, नयी दिल्ली 110003 यांनी त्यांचा पत्र क्रमांक 11-79/2013-IA.III दिनांक 26/11/2015 द्वारे जे.एस. डब्लू. वास्तार पोर्ट प्रा. लि. च्या वास्तवर बेलीज जेट्टी विस्तारिकरण वास्तवाच्या पर्यावरण व सी. आर. झेड. विषयक परवानगी दिली आहे.

सदर पर्यावरण विषयक परवानगी पत्राच्या प्रती उद्यमच्या माहितीसाठी महाराष्ट्र प्रदूषण नियंत्रण मंडळाकडे उपलब्ध आहेत. तसेच पर्यावरण, वन आणि जलवायु मंत्रालयाच्या http://www.envfor.nic.in या वेब साईटवर सुद्धा पाहु शकता.

दिनांक:

जे. एस. डब्लू. वास्तार पोर्ट प्रा.लि.

जे.एस डब्लू.सेंटर,

बांद्रा कुर्ला कॉम्प्लेक्स,

बांद्रा (पूर्व) मुंबई 400 051

जाहिरात छोटी; संधी मोठी
। संपर्क।
अलिबाग : ०२१४१-२२६३०१
पनवेल : ०८६८९९०९७१२

विकणे आहे
पेण (तरिस्ता नाका) येथे राष्ट्रीयमार्ग लगत अंदाजे ८५० स्के. फूट, ६ रूम किचन फर्निचर अंदाजे ३० लाख रूपयास विकणे आहे.
संपर्क: विनायक - मो.९८२१३६१५२०

Approved Comments as sought from the Ministry in OA 165 of 2020 Samita Rajinder Patil Vs Jindal Steel Works - reg

From : Shivangi Chaturvedi <shivangi.chaturvedi@nic.in> Tue, Nov 22, 2022 06:31 PM

Subject : Approved Comments as sought from the Ministry in OA 165 of 2020 Samita Rajinder Patil Vs Jindal Steel Works - reg

1 attachment

To : NISHCHAL C <nischal.cpcb@nic.in>

Cc : Sujit Kumar Bajpayee <sujit.baju@gov.in>, Additional Director MoEFCC Dr R B LAL <rb.lal@nic.in>, sandeepan <sandeepan.bs@gov.in>, RAJESH PRASAD RASTOGI <rp.rastogi@gov.in>

Reply To : Shivangi Chaturvedi <shivangi.chaturvedi@nic.in>

Sir,
As pe the meeting held on 16.11.2022 information was sought from the Ministry. In this regard, as directed kindly find the complied information from IA- Industry, Infra and Monitoring ,as approved from the Chairman of the Joint Committee. It is also requested to kindly provide the copy of the Draft Joint Committee report at the earliest.
Regard
Shivangi Chaturvedi
LA

Approved comments sought to be incorporated.docx
18 KB

COMPILED DRAFT COMMENTS

[IA-Industry, Infra & Monitoring]

A meeting of the Joint Committee in Hon'ble NGT matter [OA no. 165 of 2020 titled Samita Rajendra Patil vs Jindal Steel Works & Ors] was held through VC on 16.11.2022 under the Chairmanship of Joint Secretary, MoEFCC. It was inter-alia decided to provide the details of subsequent actions taken by the Ministry on the clearances provided.

2. It is mentioned that the Project Proponent had obtained ECs related to the project, vide letter dated 4th January 1995, 31st December 1996, 12th January 2009, and 21st November 2012. Further, the Ministry has granted the EC on 25th August 2015 for the expansion of integrated Steel Plant from 5 to 10 MTPA and power plant from 300 to 600 MW.

A. Comments of IA (Industry 1 Sector):

Examination of EC proposal by Industry 1 Sector while granting EC on 25th August 2015

i. Terms of Reference (TOR) for the Expansion of integrated Steel Plant from 5 to 10 MTPA and power plant from 300 to 600 MW (Gas Based) at Geethapuram, Village DoIvi, Tehsil District Raigarh in Maharashtra by M/s JSW Ispat Steel Limited was granted by the Ministry, vide letter no J-11011/76/2013-IA.II(I), dated 28/05/2013.

ii. The PP has submitted the EIA/EMP report along with PH and requested the Ministry for consideration of proposal for Environmental Clearance.

iii. PP has also forwarded certified compliance report (CCR) obtained from Regional Office of Ministry, Bhopal for the existing environmental clearances. The Ministry has examined the CCR and observed certain noncompliance of existing ECs with regard to Jetty, Extension of validity of Coke oven EC, Density of green belt plantation etc. As per the practice, the Ministry has examined the issues and issued a Show Cause Notice to the PP on 11/11/2014 based on these non-compliances and inter-alia sought the reasons from the PP as to why the EC accorded should not be kept in abeyance.

iv. The PP, vide letter dated 22/11/2014, submitted the justification/clarification on the SCN and on request of PP, a hearing was also conducted for the PP on 04/12/2014. Based on the justification provided by the PP, the Ministry has forwarded the proposal

along with all facts to the EAC for consideration and to make suitable recommendation.

v. The Proposal was deliberated in the 31st EAC (Industry 1) held during 8th- 9th January 2015 wherein the EAC sought additional information and decided that a sub-committee of EAC shall visit the plant.

vi. Based on the recommendations of the EAC, the Sub-committee had conducted the site visit on 9th March, 2015 and submitted a detailed report.

vii. The matter was re-considered in 35th EAC (Industry 1) meeting held on 26th – 27th March, 2015. The EAC has deliberated on the project along with the site visit report of the sub-committee and deliberated all the issues in details. After detailed deliberations, the EAC has recommended the project for grant of environmental clearance for the expansion project and also stipulated various environment safeguard and other mitigative measures in form of the conditions. Further, the EAC has duly deliberated on the issues w.r.t. compliances and accordingly made recommendations for grant of the EC for the expansion project.

viii. Based on the recommendations of EAC, the Ministry has granted the EC to M/s JSW Steel Limited on 25th August 2015 for Expansion of integrated Steel Plant from 5 to 10 MTPA and power plant from 300 to 600 MW (Gas Based) at Geethapuram, Village DoIvi, Tehsil District Raigarh in Maharashtra.

ix. It is also mentioned that the Ministry has also granted Environmental & CRZ Clearance to M/s JSW Dharamtar Port Private Ltd. on 26/11/2015 for Expansion of the Dharamtar Jetty facility at Dolvi, Raigad, Maharashtra.

B. Comments of IA (Infra Sector): Following are the submission of IA (Infra) Sector handling the subject related to EC & CRZ:

i. Initially the EC for the jetty was obtained from MoEF vide no. J-16011/6/94-IA.III dated 4.01.1995 in the name of the owner Nippon Denro Ispat Ltd.

ii. Further, the proposal of Expansion of the Dharamtar Jetty facility at Dolvi, Raigad, Maharashtra by M/s JSW Dharamtar Port Private Ltd was submitted to the Ministry online on 23rd Feb 2015 at Infra-2 division for expansion in EC and CRZ clearance of the existing EC along with the self-certified EC compliance report dated 22nd December, 2014. The proposal, was considered by the Expert Appraisal Committee (EAC-Infra-2) in its meetings held on 23rd -24th April, 2015 and 24th -

26th June, 2015. The Expert Members of the EAC have found the proposal is in order and have recommended granting EC Clearance along with stipulation of certain additional specific conditions over and above the Standard EC conditions stipulated by the Ministry for this category of project. Ministry granted the EC vide letter no. F. No. 11-79/2013 -IA III Dated: 26th November, 2015 with the certain conditions.

iii. Subsequently PP applied online on 26th November, 2015 seeking the amendment in the EC and CRZ clearance dated 26th November, 2015 regarding specific condition no.(iii), "*There shall be no disposal of dredged material into the sea, but to be reused for reclamation, and for shore enrichment based on its characteristics, as committed*".

iv. The proposal was considered by the Expert Appraisal Committee (Infrastructure-2) in its 1st meeting held during 21st -22nd December, 2015 and the Committee after detailed deliberation recommended the proposal for following amendment in EC 26th November, 2015 '*As proposed, the granular and rocky materials shall be used for landfilling and grading. Other dredge materials shall be disposed at designated disposal ground off Mumbai Port as suggested by Central Water and Power Research Station (CWPRS), Pune indicating the location of the disposal grounds in the geographical coordinates viz. Disposal Ground NO.1: 18°52'29.96"N, 72°52'17.98" E and Disposal Ground No. 18°45'11.97"N, 72°48'24.0" E*' and the Ministry has granted the Amendment in EC vide letter no. 11-79/2013-IA.II, dated 26.03.2016 .

v. Further, the PP applied online on 05.04.2019 seeking the Amendment in the EC dated 26th November, 2015 after obtaining the recommendations of the Maharashtra Coastal Zone Management Authority recommendations dated 16 th February, 2019. The proposal for grant of amendment in Environmental and CRZ Clearance to the above referred project was considered by the Expert Appraisal Committee (Infra-2) in its 41 st meeting held during 27-29 May, 2019, 43 rd meeting held during 20-22 August, 2019 and 46 th meeting held during 25-26 November, 2019.

vi. The CRZ Division of the Ministry has seen the proposal and found it a permissible activity as per CRZ Notification, 2011 and Maharashtra Coastal Zone Management Authority (MCZMA) has also recommended the proposed amendment vide their letter dated 16.02.2019. The EAC in its 46th meeting held on 25th -26th November, 2019 deliberated upon the proposal and information submitted by the project proponent. The Committee recommended to add component of '*Laying of in-plant conveyor to serve all the raw-material conveying to the day bins of the respective plant units and its associated facilities. All raw materials will be transferred from Jetty/Jetty backup*

to the respective plant units through the conveying system. Pipe conveyors (bi-directional) will be for the cement grinding unit with associated facilities like power, water pipeline, ICT cables' in the EC and CRZ Clearance letter dated 26.11.2015 and subsequent amendment dated 26.03.2016. As per recommendations of the EAC, Ministry granted the Amendment vide letter dated 10th January, 2020 in the EC and CRZ Clearance letter F.No.11-79/2013-IA.III dated 26.11.2015 and subsequent amendment vide letter dated 26.03.2016.

vii. Further, it is observed that as per the noting of the IA-Monitoring division, a site inspection report was sought from IRO, MoEFCC, Nagpur. In response of the Ministry's letter dated 03.02.2022, The IRO Nagpur provided EC condition-wise inspection report vide letter no. CC-337/RON/2021-NGP/8634 dated 21.09.2021 based on the monitoring carried out for the project on 28.08.2021.

viii. A letter no. IA-J-11014/6/2021-IA-I dated 07.03.2022 was issued to IRO Nagpur seeking comments on the response of PP to Show-Cause Notice dated 11.11.2014 issued by the concerned sector for EC's dated 04.01.1995 and 12.01.1997.

ix. A letter no. IA-J-11014/6/2021-IA-I dated 07.03.2022 was issued to PP seeking Action Taken report on the observed non-compliances as per IRO Nagpur inspection report based on EC's dated 2015 and 2020.

x. Consequently, IRO Nagpur vide letter no. CC-337/RON/2021-NGP/9884 dated 15.06.2022 provided their comments on the response submitted by PP to Show-Cause Notice.

xi. Also, PP vide letter dated 28.03.2022 provided clarification on the observed non-compliances and the IA-Monitoring division further informed that they are awaiting for Joint Committee's report before initiating further action in the matter and the final decision will be taken on the basis of the outcome of Joint Committee's report and IRO's ATR review report.

C. Comments of IA (Monitoring Sector): Following are the submission of IA (Monitoring) Sector handling the subject related to monitoring of EC conditions:

i. The Hon'ble tribunal vide order dated 27.05.2021 constituted a five-member Joint Committee to be headed by an officer of the rank of Joint Secretary, MoEF&CC nominated by the Secretary MoEF&CC comprising the CPCB, the IIT Mumbai, the

District Magistrate, Raigad, the State PCB as Members. The CPCB and the State PCB will facilitate the functioning of the Committee and act as nodal agency for coordination and compliance.

ii. Further, a site inspection report was sought from Integrated Regional Office of Ministry at Nagpur by IA-Monitoring Cell, vide letter IA-J-11014/6/2021-IA-I dated 3.02.2022. The IRO MoEFCC, in response to this letter provided EC condition-wise inspection report vide letter no. CC-337/RON/2021-NGP/8634 dated 21.09.2021 based on the monitoring carried out for the project on 28.08.2021.

iii. A letter no. IA-J-11014/6/2021-IA-I dated 07.03.2022 was issued to IRO MoEFCC seeking comments on the response of PP to Show-Cause Notice dated 11.11.2014 issued by the concerned sector for EC's dated 04.01.1995 and 12.01.1997.

iv. A letter no. IA-J-11014/6/2021-IA-I dated 07.03.2022 was issued to PP seeking Action Taken report on the observed non-compliances as per IRO MoEFCC inspection report based on EC's dated 2015 and 2020.

v. Consequently, IRO MoEFCC vide letter no. CC-337/RON/2021-NGP/9884 dated 15.06.2022 provided their comments on the response submitted by PP to Show-Cause Notice. Also, PP vide letter dated 28.03.2022 provided clarification on the observed non-compliances in which PP assured that they will submit report on shoreline changes soon. Review report is being sought on the above submission by IA, Monitoring.

vi. Now, in order to avoid duplication of work IA-Monitoring Cell is awaiting Joint Committee's report before initiating further action in the matter and the final decision will be taken on the basis of the outcome of Joint Committee's report and IRO's ATR review report.

***

MAHARASHTRA POLLUTION CONTROL BOARD
REGIONAL OFFICE-RAIGAD

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No. MPCB/TB/220705-FTS-0042 Date: 04.07.2022

To,
Regional Director,
Central Pollution Control Board,
Regional Directorate – Pune,
Maharashtra.

Sub: Compliance Status Report of M/s. JSW Steel Lts., at vill. Dolvi, Tal. Pen, Dist. Raigad wrt. Hon'ble NGT order dated 27.05.2021 in the matter OA No. 165 of 2020 of Samita Patil vs. M/s. JSW Steel Works Ltd & Ors.-reg.

Ref: - 1. Minutes of Joint Committee Meeting dated 04.08.2021.
2. CPCB, RD Pune email dated 12.08.2021.
3. Part Compliance report submitted by this office dated 23.09.2021.
4. Minutes of 2nd Joint Committee Meeting dated 19.112021.
5. Site visit of Joint Committee on 11.04.2022.

Sir,

This has reference to joint committee constituted by the Hon'ble National Green Tribunal (NGT) vide order dated 27/05/2021 in the matter OA no. 165 of 2020, Samita R. Patil vs M/s Jindal Steel Works Ltd., & Ors. about violation of environmental norms by M/s Jindal Steel Works Ltd., Dolvi.

In order to comply with the aforesaid order of the Hon'ble NGT, the joint committee headed by the Joint Secretary, Ministry of Environment, Forest and Climate Change, GoI, held its meeting on 04.08.2021, 19.11.2021 and 11.04.2022.

As per minutes of meeting and subsequent emails from CPCB Regional Directorate, Pune, to submit compliance report of M/s. JSW Steel Ltd, at vill. Dolvi, Tal. Pen, Dist. Raigad. Board has prepared status report of the industry with respect to compliances of consent conditions. The said status report is submitted herewith for your information please.

It is in opinion that Environmental Compensation may be calculated jointly with CPCB on the basis of status report submitted.

(V. V. Killedar)
Regional Officer, Raigad

Enclosures: Compliance status report
Copy submitted for favor of information to :

1. The Member Secretary, MPCB , Mumbai.
2. Assistant Secretary (Technical) MPCB, Mumbai.
3. Reginal Officer (BMW) , MPCB, Mumbai.

Annexure-V

- **COKE OVEN PLANT (1.0 MTPA)**

The compliance status to the major conditions of Coke Oven Plant is as follows:

Consent Status				
1	Consent No	BO/CAC-Cell/UAN No: 0000024004-17/CAC-1803000008 dated 01/03/2018		
2	Consent validity	31.05.2022		
Sr. No.	**Product name**	**Maximum quantity**	**Actual Production As per annual report - 2020-21**	**EC granted dated 25/08/2015**
1	Dry Coke	1 MTPA	0.94 MT	4.5 MTPA
By Product name				
2	Coke Oven Gas	4,56,687x 10^6 Nm3/A	401945 x 10^3 Nm^3/A by recovery oven technology)	---
3	Tar	47,000 MT/A	36,005 MT	---

Conditions under Water (P& CP) Act, 1974 for discharge of effluent:			
Sr. No	**Consent Condition**	**Disposal as per consent**	**Compliance Status**
1	Trade effluent permitted quantity of discharge: - 2160 CMD	100% reuse/recycle in the process	Industry is generated about 1200 CMD trade effluent and same is treated in Biological Oxidation of De-Phenolization Plant (BOD) plant and treated effluent 100% used for hot coke quenching purpose.
2	Domestic Effluent permitted quantity of discharge: - 30 CMD	On land for gardening	Industry is generated about 23 CMD domestic effluent and same is treated in Biological Oxidation of De-Phenolization (BOD) plant.
A	Install the effluent Treatment Plant (ETP) based on Biological Oxidation of De-Phenolization Plant with the design capacity of 3840 CMD		Industry has provided ETP based on Biological Oxidation of De-Phenolization Plant having capacity of 3840 CMD for treatment of effluent generated which consist of- • Dissolved Air floatation • Anaerobic sludge bed • Anoxic pool • Aerobic treatment • Primary & Secondary sedimentation tank • Contact Oxidation • Flocculation • Sand Filtration • Drying Bed
B	Treated effluent shall be 100% recycled and reused for in the process, cooling tower, quenching purpose.		Industry is used 100% treated effluent for hot coke quenching purpose.

Conditions under Water (P& CP) Act, 1974 for discharge of effluent:		
C	Industry shall provide online monitoring device to ETP Inlet and Outlet to monitor consented parameters and effluent discharge and connect to MPCB/CPCB server	Industry has installed flow meter with camera at the outlet of the BOD plant and the system is connected with CPCB and MPCB servers.
D	Cyanide as CN shall be controlled within 0.2 mg/Lit and Ammonical nitrogen as N within 50 mg/liter	The JVS sample result of Cyanide is within the limit and for one sample (55.4 mg/liter) is marginally exceeding the consent limits for the parameter Ammonical nitrogen.

Biological Oxidation of De-Phenolization (BOD) plant.

Conditions under Air (P& CP) Act, 1981 for air emissions:							
Industry has provided following Air Pollution Control (APC) system and also erected following stack(s) and to observe the following fuel pattern.							
Sr. No	**Stack Attached To**	**APC System**	**Height in Mtrs.**	**Type of Fuel**	**Quantity & UoM**	**S%**	
1	Coke Oven Battery 1 &2 (Main Stack)	Natural draft	145 (common stack)	Coke Oven gas & blast Furnace gas	127500 Nm3/hr	With SO_2 content less than 800 mg/NM^3	
2	Flare Stack	Stack	50	Coke Oven gas	5000 Nm3 /hr		
3	Boiler Stack	Stack	40.5	Coke Oven gas & Natural gas	7000 Nm3/hr		
4	DG Set	Acoustic enclosure	30	HSD	400 lit/hr	1	
5	Wet Quenching Tower (for steam exhaust)	---	60	---	---	---	
6	Ground de-dusting system						
i	Coke oven Battery Pushing side	Bag Filter	31	---	---	---	

Conditions under Air (P& CP) Act, 1981 for air emissions:							
ii	Coke oven Battery Pushing side						

Sr. No	Consent Condition	Compliance Status
1	De-dusting system with bag filters at all dust generating locations in all the units have been installed to control the dust emissions as well as in the BF cast house and SMS and dust levels at work zone are within prescribed limits. For the expansion projects (5MTPA), Which is under various stages, secondary fugitive dust emission system shall be installed at the BF cast house and SMS and all other units. (It is consent condition for Expansion)	Secondary fugitive dust emission Control system have been installed at the BF, Cast house and SMS roof top. Also the dust collection system of adequate capacity is provided to all the sources like charging and pushing side to control the emission.
2	Primary and Secondary fume extraction system followed by adequate pollution control system in the form of Bag filters and scrubbers Shall be provided to limit the emission also from BF cast house, SMS and other units.	Industry has provided fume extraction system in the Coke oven Battery area. The Coke oven gas generated is collected in gas holders and used as fuel for other operating plants.
3	Dust suppression system and bag filter should be installed to control the fugitive dust emissions at conveyor and transfer points product handling, loading and unloading points.	Industry has provided Specific air Pollution control equipment like bag filters at Battery Charging side, pushing side Bag filters provided to control the fugitive dust emissions as per the CREP / EC guidelines.
4	Standards for emission of air pollutants Fugitive visible emissions a. Leakage from door: 5 (PLD) b. Leakage from charging lids: 1 (PLL) c. Leakage from AP covers: 4 (PLO) d. Charging emission (second/charge) : 16 (with HPLA)	Industry has Complied the visible emissions from battery as per the notification of Ministry of Environment, Forest & Climate GSR 277 (E) dated 31.03.2012 i.e. 50 second for Stamp Charging. Existing Coke oven is designed for stamp charging only not for top charging. The draft notification also suggests 50 second for stamp charging and 30 second for top charging.
5	Stack emission of Coke Oven plant to achieve following standards: a) PM (mg/Nm^3): 50 b) SO_2 (mg/Nm^3): 800 c) NOx (mg/Nm^3): 500 d) PM (during stamp charging) (mg/Nm^3): 25 e) Sulphur in Coke Oven gas used for heating (mg/Nm^3): 800	Industry has installed Continuous emission monitoring system and the data is connected to MPCB and CPCB servers. The results of CEMS of last one year i.e. from August 2020 to August 2021 are
6	Fugitive emissions:- Benzo (a) Pyrene (BaP)	

Conditions under Air (P& CP) Act, 1981 for air emissions:		
	f) Battery area (top of the battery) (µg/m^3): 5 g) Other units in coke oven plant (µg/m^3): 2 h) Ambient Standards (µg/m^3): 10	generally found within the consented limits.
7	Effective pollution Control measures (for e.g., extensive maintenance and cleaning of oven doors and frame seals, ascension pipes, changing holes and lids and other equipment's on main charging system (HPLA), luting charging holes with clay suspension; modified guide /transfer car with emission control systematic etc. shall be taken or reduce coal charging and coke pushing emissions. The bleeder of the coke oven Shall be flared.	Industry has installed de-dusting system and regular maintenance and cleaning is being observed to control the charging and pushing emissions. The bleeder of the coke oven is being flared
8	Online ambient air quality monitoring and continuous stack monitoring facilities for all the stack should be provided and sufficient air pollution control devices, gaseous emission levels including secondary fugitive emission from all the sources should be controlled within the latest permissible limits and regularly monitored. Guidelines /code of fraction issued by the CPCB Should be followed.	The industry has installed 5 nos. of online AAQM stations within the industry premises for parameters like PM 10, PM 2.5. SO2. NOx, CO including Meteorological parameters. Apart from this, CEMS has been installed at all major process stacks of Coke Oven Plant (i.e. main stack, Pushing & Charging stack).
9	Industry Shall install 24X7 air and water Online Monitoring devices to monitor air emission effluent discharge and connect to MPCB /CPCB server	Being a Zero discharge plant, Industry has installed flow meter and camera at the outlet of the ETP (Biological Dephenolization Plant) Also installed OCEMS & CAAQMS and data is connected with CPCB and MPCB servers.

Coke Oven Plant: Air Pollution Control Systems

De-dusting system with Bag Filters at Coal Handling Area

Ground De-dusting system at Coke Oven Plant
For Coke pushing and charging emissions

Conditions about Non-hazardous waste				
Sr. No	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
1	Coal and Coke Dust from De-dusting system	10,000 T/A	100% reused for coke making	Industry is generated Coal and coke dust from de dusting system and coke breeze as a non-hazardous waste and same is 100% reused in Coke oven, Sinter and Pellet plant. 1. Coal and Coke Dust from De-dusting system – 313.7 T/A 2. Coke Breeze – 12175 T/A
2	Coke Breeze	49,145 T/A	100% recycled in Sinter and Blast Furnace	
Conditions about Hazardous and Other Wastes (M & TM) Rules, 2016 for treatment & disposal of Hazardous Waste				
	Consent Condition		**Disposal path as per consent condition**	**Compliance Status**
1	Used/Spent Oil (5.1)	50,000 Litre/Year	Sale to authorized re-processor	Used Oil is being used in internal purpose for coke making for binding of coal for better Cake formation. Hence It is not disposed to Recycler.
2	Spent Nickel (Ni) Catalyst (35.2)	60 T once in 3 years	CHWTSDF	Not generated in the year 2020-21
3	Sulphur Paste (34.3)	5000 T/A	Sale to authorized re-processor/CHWTSDF	Generated in the year 2020-21 10.28 T/A and disposed to CHWTSDF
4	Chemical Sludge from waste water treatment (35.3)	1000 T/A	CHWTSDF	Chemical sludge from Waste water treatment plant is being disposed in Coke Oven Battery at high temperature.
5	Decanter tank tar sludge (13.4)	1000 T/A	100% used for coke making	Tar sludge generated in the year 2020-21 is 53.39 T/A and same is used in Coke Processing
6	Wastes/residue containing oil (cotton waste) (5.2)	730 Kg/A	Used as fuel in Electric Arc Furnace	Wastes/residue containing oil generated in the year 2020-21 is 740 Lit/A which is used in Electric Arc Furnace
7	Mercury Compound Waste bearing Mercury (Used Tube Lights) A6	500 Nos/A	Sale to authorized re-processor	Not generated in the year 2020-21. However, Industry replaced mercury lighting system with LED.
8	E-waste	1 Ton/A	Sale to authorized re-processor	Not generated in the year 2020-21
	BG compliance			

1	Industry has submitted the BG of Rs. 10 lakhs towards O&M of pollution control system which is valid up to 31.05.2022.

- **Hot Strip Mill Plant & Lime Calcination Plant 1 & 2**

The compliance status to the major conditions of Hot Strip Mill Plant is as follows:

Consent Status				
1	Consent No	Format 1.0/ BO/ CAC - Cell/ UAN No. 0000045821 - 18 / CAC - 1811000099 dated 02/11/2018		
2	The consent validity	30.04.2023		
Sr. No.	**Product / By Product name**	**Maximum quantity (CTO)**	**Actual Production As per annual report - 2020-21**	**EC granted dated 25.08.2015**
1	Hot Rolled Coil	35,00,000 MT/A (3.5 MTPA)	29,93,112 MT	3.5 MTPA
2	Lime / Calcinated Dolomite (Plant 1 & 2)	600 TPD	1,92,450 MT (527.26 MT/D)	---
3	Oxygen	36,000 MT/A (100 TPD)	Plant is not in opeartion	---

Conditions under Water (P& CP) Act, 1974 for discharge of effluent:			
Sr. No	**Consent Condition**	**Disposal as per consent**	**Compliance Status**
1	Trade effluent permitted quantity of discharge: - 3408 CMD	100% Recycle	The effluent is treated in waste water treatment plant and 100% reused in the process and slag cooling purpose.
2	Domestic Effluent permitted quantity of discharge: - 240 CMD	On land for gardening	The sewage effluent is treated in STP and the treated water is reused for gardening.
1	A) As per application, you have provided the Effluent Treatment Plant (ETP) with the design capacity of 3408 CMD.		Industry has provided Effluent treatment plant consisting Scale Pits (3 Nos.), Pressure Sand Filters (20 Nos.), Cooling tower, Thickener, Flash mixer, Filter press/Sludge drying bed to treat the effluent and reused in the process in close loop for cooling of hot metal sheets.
	B) The treated effluent shall be 100% recycled in the process to achieve zero discharge.		Treated effluent 100% reused in the process and slag cooling purpose.
	C) Industry shall provide online monitoring devices to ETP Inlet & Outlet to monitor the consented parameters & effluent discharge & connect to MPCB & CPCB server.		The Industrial effluent is being circulated in close loop after treatment and being a ZLD.
2	A) As per consent applications; you have provided STP with the designed capacity 180 CMD for the treatment of sewage generated. Industry shall either installed adequate capacity of STP or connect the sewerage line to existing STP of adjacent plant within three months		As informed by the Industry, actual sewage generation from the plant is around 100 CMD for which STP of 120 CMD and 60 CMD capacity has been provided. The treated domestic effluent is used on land for gardening.

Conditions under Water (P& CP) Act, 1974 for discharge of effluent:	
B) The treated domestic effluent 240 CMD shall be used on 55 acres of land for gardening within factory premises.	

Conditions under Air (P& CP) Act, 1981 for air emissions:

Industry has provided following Air Pollution Control (APC) system and also erected following stack(s) and to observe the following fuel pattern.

Sr. No.	Stack Attached To	APC System	Height in Mtrs.	Type of Fuel	Quantity & UoM	S %	SO_2 Kg/Day
1	Gas Cleaning Plant - I	Bag filters	70.5	---	---	---	---
2	Gas Cleaning Plant - II	Bag filters	70.5	---	---	---	---
3	Gas Cleaning Plant - III	Bag filters	66.5	---	---	---	---
4	Lime stone De-dusting system - 1	Bag filters	41.5	---	---	---	---
5	Lime De-dusting system- 2	Bag filters	25.5	---	---	---	---
6	Kiln- I	Bag filters	48.7	---	---	---	---
7	Kiln- II	Bag filters	48.7	---	---	---	---
8	De-dusting system for lime	Bag filters	30	---	---	---	31
9	DRI de-dusting system	Cyclone and wet scrubber	33.4	---	---	---	---
10	Boiler	Bag filters	65	RLNG	20,00,00 M^3/D	Nil	Nil
11	Tunnel Furnace - Stack 1 A	Stack	50	COG	3,94,368 Kg/D	--	--
12	Tunnel Furnace - Stack 1 B	Stack	50				
13	Tunnel Furnace - Stack 2 A	Stack	50	FO	53 KL/D	4.0	4.77
14	Tunnel Furnace - Stack 2 B	Stack	50	LDO	151 KL/D	1	543.6

Sr. No	Consent Condition	Compliance Status
1	De-dusting system with bag filters at all dust generating locations in all the units have been installed to control the dust emissions as well as in the BF cast house & SMS & dust emission levels at work zone are within prescribed limits. Secondary fugitive dust emission system shall be installed at the BF cast house & SMS & all other units.	Industry has provided Bag filters to de-dusting systems and Gas Cleaning Plants (GCP).
2	Primary and secondary fume extraction system followed by adequate pollution control system in the form of bag filters & scrubbers shall be provided to limit the gaseous emissions.	Industry has provided Primary and secondary fume extraction system with adequate capacity of ID fan followed by Bag Filter which has designed for outlet concentration of 10 mg/NM^3
3	Secondary pollution control system with dust suppression system and bag filters should be installed to control the fugitive dust emissions at conveyor & transfer points, product handling, loading & unloading points.	Industry has provided secondary pollution control system such as Gas Cleaning Plant. · Up-gradation work of GCP of shell one, two, three and four has been completed.
4	The applicant shall operate and maintain above mentioned air pollution control system, so as to achieve the level of pollutants to the following standards:- • Particulate Matter- not to exceed 100 mg/Nm^3 • Nox process- not to exceed 50 ppm	Industry has installed Continuous emission monitoring system and the data is connected to MPCB and CPCB servers. The results of CEMS of last one year i.e. from August 2020 to August 2021 are generally found within the consented limits.

GCP- 4 Nos with Bag filters with primary & secondary DES

Gas Cleaning Plant - 4

Conditions about Non-hazardous waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
1	Skull	125 T/D	Reuse in the Plant	27230.2 MT/A generated during 2020-2021 and reused in the plant in EAF
2	Refractory	70 T/D	Landfill/reuse	22,000 Ton/A (60.2 Ton/Day) generated during 2020-21 and disposed by landfill.
3	Mill Scale	116 T/D	Used as raw material in Sinter Plant	23,652 ton/A generated during 2020-21 and reused as raw material in Sinter plant
4	EAF Slag	3000 T/D	After processing, Metallic slag is being used in Hot Strip Mill plant and Sinter Plant as raw material. Non-metallic Slag is used for internal road making, land filling in low laying area and stored in designated place. Used as raw material in Sinter plant, Internal road making and stored in designated place for further use.	The consented quantity of slag generation from EAF & LF plant is around 3503 MT/D. The actual generation during last year is @ 1059176 MT (i.e. 2901.8 MT/Day). The Metallic slag after screening is being used back in Electric Arc Furnace & sinter plant as raw material. Whereas non-metallic slag is used for land filling in low laying area within the factory premises and partly on private farmers land, to avoid water logging, after obtaining their request letter/consent. The storage is being done in designated place within factory premises.
5	LF Slag	503 T/D	Used as raw material in Sinter Plant, Internal road making	
6	GCP Dust	460 T/D	Used as raw material in Sinter Plant	111603.7 MT/A (305.7 Ton/Day) generated during 2020-21 and reused as raw material in Sinter plant.
7	Lime Dust	19 T/D		3216 MT/A (8.81 Ton/Day) generated during 2020-21 and reused as raw material in Sinter plant.
8	Lime Stone Fines	281 T/D		66000 MT/A (180.8 Ton/Day) generated during 2020-21 and reused as raw material in Sinter plant.
9	DRI dust from de-dusting system of SMS	121 T/A		8050 MT/A (22 Ton/Day) generated during 2020-21 and reused as raw material in Sinter plant.

Conditions about Hazardous and Other Wastes (M & TM) Rules, 2016 for treatment & disposal of Hazardous Waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
1	Used/Spent Oil (5.1)	180 KL/A	Sale to authorized re-processor	As per annual return generated 159.2 KL used oil in the year 2020-21 and same is disposed to MPCB authorized re-processor.
2	Waste/ Residue Containing Oil (5.2)	3600 Kg/A	Used as fuel in Furnace	2.56 MT/A generated in the year 2020-21and used as fuel in Furnace
3	Mercury compounds waste bearing Mercury (used tube lights) (A6)	1500 to 2000 Nos/A	Sale to authorized vendors	Industry has replaced Mercury lighting system with LSED lighting, Hence no generation of Mercury compound during the year 2020-21
4	Oil Filters (35.1)	1200 Kg/A	Used as fuel in Furnace	Earlier, Industry was using LDO as a fuel which requires Oil filters now same has replaced with Coke oven gas and Blast Furnace gas. Hence, no generation of Oil Filter in year 2020-21.
5	Empty Paint Containers (33.3)	4000 to 5000 Nos/A	Sale to authorized re-processor	As per annual return generated 3340 Nos. in the year 2020-21 and same is disposed to MPCB authorized re-processor.
6	Chemical sludge from waste water treatment plant (35.3)	25 T/D	Used as raw material in Sinter plant/CHWTSDF	As per annual return generated 19.91 Ton/day (7268 MT/A) in the year 2020-21 and same is reused in Sinter plant
	Specific conditions and BG compliance			
1	Industry shall carryout carrying capacity of the area from renowned institute like NEERI / IIT within six months as industry is having various units in the said premises under Integrated Steel Plant and Submit the report to the Board			Industry has submitted the carrying capacity sturdy report carried out by NEERI vide letter dated 09.09.2021.
2	Industry shall either installed adequate capacity of STP or connect the sewerage line to existing STP of adjacent plant within three months.			As informed by the Industry, actual sewage generation from the plant is around 100 CMD for which STP of 120 CMD and 60 CMD capacity has been provided The treated domestic effluent is used on land for gardening.

Conditions about Hazardous and Other Wastes (M & TM) Rules, 2016 for treatment & disposal of Hazardous Waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
3	Industry shall submit the BG of Rs. 5 lakh towards O & M of pollution control system			Industry has submitted the BG of Rs.5 lakh which is valid up to 31.10.2023.
4	Industry shall carryout carrying capacity of the area from renowned institute like NEERI / IIT within six months and submit the BG of Rs. 25 lakh			Industry has submitted the BG of Rs. 25 lakh which is valid up to 31.12.2024.

- **<u>Lime Calcination Plant 3 & 4</u>**

The compliance status to the major conditions of Lime Calcination Plant is as follows:

Consent Status		
1	Lime Calination Plant No. 3	1.0/BO/CA-Cell /UAN No.0000044416-18/5th CAC-1810001827 dated 31.12.2018
	Consent Validity	31.09.2022
	Production capacity: Calcinated Lime- 600 TPD	Calcinated Lime: 1,67,559 MT/A (459 MT/Day)
2	Lime Calination Plant No. 4	1.0/BO/CA-Cell /UAN No.0000046342-18/ CAC-1810001260 dated 23.10.2018
	Consent Validity	31.03.2023
	Production capacity: Calcinated Lime/Dolomite-600 TPD	Calcinated Lime-162469 MT/A (445 MT/Day)

Conditions under Water (P& CP) Act, 1974 for discharge of effluent:			
Sr. No	**Consent Condition**	**Disposal as per consent**	**Compliance Status**
1	**Lime Calination Plant No. 3**		
	1) Trade effluent permitted quantity of discharge: Nil	NA	LCP plants are not generating any trade effluent.
	2) Domestic Effluent permitted quantity of discharge: 3.0 CMD	On land for gardening	The treated domestic effluent used on land for gardening
	3) As per consent application, you have proposed to provide septic tank and soak pit for the treatment of sewage generated		Industry has provided Septic tank with soak pits.
	4) The treated domestic effluent shall be used on land for gardening within factory premises after confirming the standards.		The treated domestic effluent used on land for gardening
2	**Lime Calination Plant No. 4**		
	1) Trade effluent permitted quantity of discharge: Nil	NA	LCP plants are not generating any trade effluent.

	2) Domestic Effluent permitted quantity of discharge: 3.0 CMD	On land for gardening	The treated domestic effluent used on land for gardening
	3) As per consent application, you have provided septic tank and soak pit for the treatment of sewage generated		Industry has provided Septic tank with soak pits.
	4) The treated domestic effluent shall be used on land for gardening within factory premises after confirming the standards.		The treated domestic effluent used on land for gardening

Conditions under Air (P& CP) Act, 1981 for air emissions:

Industry has provided following Air Pollution Control (APC) system and also erected following stack(s) and to observe the following fuel pattern.

Lime Calination Plant No. 3

Sr. No.	Stack Attached To	APC System	Height in Mtrs.	Type of Fuel	Quantity & UoM	S %	SO_2 Kg/Day
1	Kiln III	Bag filters	58	Mix Gas (Blast Furnace, Gas Coke Oven Gas)	18,875 TPD	---	---
2	Lime stone feed building	Bag filters	35	Nil	---	---	---
3	Product storage building	Bag filters	31	Nil	---	---	---
Lime Calination Plant No. 4							
1	Kiln IV	Bag filters	58	Mix Gas (Blast Furnace, Gas Coke Oven Gas)	11,875 Nm^3/Hr	---	---
2	Lime stone feed building	Bag filters	40	Nil	---	---	---
3	Product storage building	Bag filters	40	Nil	---	---	---

LCP-03- Lime de-dusting system – Bag filter

LCP 4 – Lime stone De-dusting system Bag Filter

Conditions about Non-hazardous waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
1	Dust from APC system	450 MT/M	Reused in Sinter Plant	Generated about 350 MT/M from LCP-3 and 300 MT/M from LCP-4 and same is reused in the Sinter plant.

Conditions about Hazardous and Other Wastes (M & TM) Rules, 2016 for treatment & disposal of Hazardous Waste			
Sr. No.	**Consent Condition**	**Disposal path as per consent condition**	**Compliance Status**
	Lime Calination Plant No. 3		
1	Used/Spent Oil (5.1) – 2000 Lit/A	Sale to authorized re-processor	As per annual return for the year 2020-21, industry generated 2000 lit used oil and same is disposed to MPCB authorized re-processor.
2	Waste Residues Containing Oil (5.2)	---	The said HW category not in the consent. Industry also generated waste residue containing oil 400 kg/A and used in EAF
	Lime Calination Plant No. 4		
1	Used/Spent Oil (5.1) – 2000 Lit/A	Sale to authorized re-processor	As per annual return for the year 2020-21, industry generated 2000 lit used oil and same is disposed to MPCB authorized re-processor.
2	Waste Residues Containing Oil (5.2)	---	The said HW category not in the consent. Industry also generated waste residue containing oil 450 kg/A and used in EAF
	Specific conditions and BG compliance		
1	Industry shall carryout carrying capacity of the area from renowned institute like NEERI / IIT within one year as industry is having various units in the said premises under Integrated Steel Plant and Submit the report to the Board	Industry has submitted the carrying capacity sturdy report carried out by NEERI vide letter dated 09.09.2021.	
2	Industry shall submit the BG of Rs. 5 lakh towards O & M of pollution control system for LCP-03	Industry has submitted the BG of Rs.5 lakh which is valid upto 31.10.2023.	
3	Industry shall submit the BG of Rs. 5 lakh towards O & M of pollution control system for LCP-04	Industry has submitted the BG of Rs. 5 lakh which is valid upto 31.12.2023.	

- **SINTER PLANT -1 (2.8 MTPA) & 2 (2.5 MTPA)**

The compliance status to the major conditions of Sinter Plant is as follows:

Consent Status				
1	Consent No	Format 1.0: BO/CAC-Cell/UAN No.0000056996-18/ 8th CAC-1901000685 dated 10.01.2019		
2	The consent validity	Upto 31.12.2023		
Sr. No.	**Product / By Product name**	**Maximum quantity (CTO)**	**Actual Production As per annual report - 2020-21**	**EC granted dated 25/08/2015**
1	Sinter (Plant-I)	28,00,000 MT/A (2.8 MTPA)	44,58,329 MT (4.45 MTPA)	14 MTPA
2	Sinter (plant-II)	25,00,000 MT/A (2.5 MTPA)		

Conditions under Water (P& CP) Act, 1974 for discharge of effluent:			
Sr. No	**Consent Condition**	**Disposal as per consent**	**Compliance Status**
1	Trade effluent permitted quantity of discharge: - Nil	100% recycle	Industry is not generating any trade effluent
2	Domestic Effluent permitted quantity of discharge: - 38.31 CMD	On land for gardening	Actual domestic sewage generation is around 20 CMD. The treated domestic effluent is used on land for gardening.
3	You have provided STP with designed capacity 23.31 CMD. Industry shall upgrade/install adequate capacity of STP so as to treat the total domestic effluent of 38 CMD within 03 months.		Industry has provided Septic Tank with Soak pits at different places of the plant. Sewage from septic tanks is being collected by super sucker and treated in the existing Sewage treatment plant (60 CMD).
4	Treated effluent shall be used on land for gardening within factory premises.		The treated domestic effluent is used on land for gardening.

Conditions under Air (P& CP) Act, 1981 for air emissions:							
Industry has provided following Air Pollution Control (APC) system and also erected following stack(s) and to observe the following fuel pattern.							
Sinter Plant -I (2.8 MTPA)							
S. No	**Stack attached to**	**APC system**	**Height in meters**	**Type of fuel**	**Quantity**	**S%**	**SO2 (Kg/Day)**
1	Fuel Dust Bag Filter	Bag Filters	40	---	---	---	---
2	Flux ESP	Electrostatic Precipitators	50	---	---	---	---
3	Proportioning House ESP	Electrostatic Precipitators	50	---	---	---	---
4	Sinter Machine	Electrostatic Precipitators	140	Coke Coke Oven Gas	482 T/Day	0.6	1878.2

				Natural Gas	2500 Nm^3/Hr 30000 Nm^3/Day		
5	Sinter Discharge End and Sizing	Electrostatic Precipitators	60	---	---	---	---
6	Circular Cooler Fan (2 Nos.)	---	30	---	---	---	---
Sinter Plant - II (2.5 MTPA)							
7	Sinter Machine and dedusting (Main ESP)	Electrostatic Precipitators	85	Mixed Gas Coke	3350 Nm^3/Hr 565 Ton/Day	---	---
8	Sinter Crushing Building	Bag Filters	35	---	---	---	---
9	Sinter Screening Building	Bag Filters	35	---	---	---	---
10	Sinter Near Product Screening Building	Bag Filters	29	---	---	---	---
11	Sinter Product Crusher & HL&FS building	Bag Filters	22	---	---	---	---
12	Banker House & JH 08 stack	Bag Filters	32	---	---	---	---
13	Fuel Storage Bin in Crusher Building	Bag Filters	33.5	---	---	---	---
14	Flux Storage Bin crusher	Bag Filters	33.5	---	---	---	---
15	Waste Heat Recovery Boiler	---	18.35	---	---	---	---

S. No	Consent Conditions	Compliance Status
1	The secondary emission control system with dust suppression system and bag filters should be installed to control the fugitive dust emission generated at conveyor and transfer points, product handling and unloading and loading points.	Dust suppression system, ESPs and De-dusting system are provided to control the Secondary & fugitive dust emission.
2	Fume Extraction system followed by scrubber of adequate capacity shall be provided to limit the gaseous emissions.	Industry has provided ESP and bag filters to various source of emissions.
3	Industry shall operate and maintain above mentioned air pollution control system, so as to achieve the level of pollutants to the following standards: Particulate Matter not to exceed 50 mg/Nm3	Industry has installed Continuous emission monitoring system and the data is connected with MPCB and CPCB servers. The results of CEMS of last one year August 2020 to August 2021 to be verified. Found generally within the consented limits.

Sinter Plant II – Bag Filter

SP 1 – Main Electrostatic Precipitator

SP 1- Proportioning Electrostatic Precipitator

SP 1 – Flux Electrostatic Precipitator

SP 1- Fuel Bag Filter

Conditions about Non-hazardous waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
1	Sinter Fines after Screening	6,000 MT/D	100% reuse in Sinter plant	Generated fines about 12,03,755 T/A (3297.9 MT/Day) in the year 2020-21 and same is 100% reused as raw material in Sinter plant.
2	Dust from ESP and Bag filters	10351 MT/D	100% reuse in Sinter plant	Generated dust of 3865 T/A in the year 2020-21 and same is 100% reused as raw material in Sinter plant.
Conditions about Hazardous and Other Wastes (M & TM) Rules, 2016 for treatment & disposal of Hazardous Waste				
Sr. No.	**Type of waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
1	Used/Spent Oil (5.1)	33 KL/A	Sale to authorized-re-processor	As per annual return generated 21,400 Lit/A used oil in the year 2020-21 and same is disposed to MPCB authorized re-processor.
2	Waste/ Residue Containing Oil cotton waste (5.2)	4.5 T/A	Used as fuel in BF & EAF	As per annual return generated 4.29 MT/A cotton waste in the year 2020-21 and same is used as fuel in Furnace

	BG Compliance	
1	Industry shall submit the BG of Rs. 5 lakhs towards O & M of pollution control system for Sinter Plant- II.	Industry has submitted the BG of Rs. 5 lakh which is valid up to 30.04.2024.
2	Industry shall submit the BG of Rs. 10 lakhs towards O & M of pollution control system for Sinter Plant- II.	Industry has submitted the BG of Rs. 10 lakh which is valid up to 30.04.2024.

- **Pellet Plant (4 MTPA)**

The compliance status to the major conditions of Sinter Plant is as follows:

Consent Status				
1	Consent No	Format 1.0: BO/CAC-Cell/UAN No.0000045570-18/ 5th CAC-1811000098 Dated 02.11.2018		
2	Consent validity	Upto 30.09.2022		
Sr. No.	**Product / By Product name**	**Maximum quantity (CTO)**	**Actual Production As per annual report - 2020-21**	**EC granted dated 25/08/2015**
1	**Pellet**	**4 MTPA**	**32,12,391 MT**	**8 MTPA**

Conditions under Water (P& CP) Act, 1974 for discharge of effluent:			
Sr. No	**Consent Condition**	**Disposal as per consent**	**Compliance Status**
1	Trade effluent permitted quantity of discharge: - Nil	NA	Industry is not generating any trade effluent
2	Domestic Effluent permitted quantity of discharge: -: 15 CMD	On land for gardening	The treated domestic effluent is used on land for gardening.
3	As per consent application, you have provided septic tank and soak pit for treatment of sewage	Industry has provided Septic Tank with Soak pits at different places of the plant. Sewage from septic tanks is being collected by super sucker and treated in the existing Sewage treatment plant (60 KLD). The treated domestic effluent is used on land for gardening.	

Conditions under Air (P& CP) Act, 1981 for air emissions:							
Industry has provided following Air Pollution Control (APC) system and also erected following stack(s) and to observe the following fuel pattern.							
Sr. No.	**Stack Attached To**	**APC System**	**Height in Mtrs.**	**Type of Fuel**	**Quantity & UoM**	**S %**	**SO_2 Kg/Day**
1	Furnace Stack	ESP	100	Mixed Gas	42,100 Nm^3/Hr	---	---
2	De-dusting 1 &2	Bag filters	30.5 (common)	---	---	---	---
3	De-dusting 3	Bag filters	30.5	---	---	---	---
4	De-dusting 4	Bag filters	30.5	---	---	---	---
5	De-dusting 5	Bag filters	30.5	---	---	---	---
6	De-dusting 6	Bag filters	30.5	---	---	---	---
S. No	**Consent Conditions**			**Compliance Status**			
1	De-dusting system with bag filter at all dust generating locations in all the units have been installed to control the dust emission as well as in the BF cast house and SMS and dust emission levels at work zone shall be within prescribed limits.			Industry has provided Bag filters to de-dusting system for blending and mixing area, Ball mill area, hearth layer, product discharge and storage area. Industry has also provided ESP to Induration process.			

2	Dust suppression system and bag filters should be installed to control the fugitive dust emission at conveyor and transfer points, product handling, loading and unloading points.	Dust suppression system with Bag Filter is provided in conveyors and material transfer points.
3	Industry shall operate and maintain above mentioned air pollution control system, so as to achieve the level of pollutants to the following standards: Particulate Matter not to exceed 150 mg/Nm3	Industry has installed Continuous emission monitoring system and the data is connected with MPCB and CPCB servers. The results of CEMS of last one year August 2020 to August 2021 to be verified. Found generally within the consented limits.

Pellet Plant –Main Electro Static Precipitator (ESP)

Conditions about Non-hazardous waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
1	Dust	20,000 MT/A	100% reused in Sinter Plant	Generated fine dust in the year 2020-21 about 25,856 MT/A and same is 100% reused as raw material in Sinter plant.
Conditions about Hazardous and Other Wastes (M & TM) Rules, 2016 for treatment & disposal of Hazardous Waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
1	Used/Spent Oil (5.1)	30,000 Lit/A	Sale to authorized re-processor	Used Oil is being used in internal purpose for coke making for binding of coal for better Cake formation. Hence It is not disposed to Recycler
2	Waste/ Residue Containing Oil (cotton waste) (5.2)	2000 Kg/A	Used as fuel in Blast Furnace	As per annual return generated 720 Kg cotton waste in the year 2020-21 and same is used as fuel in Furnace

Conditions about Non-hazardous waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
3	Used Tube lights	200 Nos/A	Sale to authorized re-processor	Not generated in the year 2020-21
	BG Compliance			
1	Industry shall submit the BG of Rs. 5 lakhs towards O & M of pollution control system.		Industry has submitted the BG of Rs. 5 lakh which is valid up to 30.09.2023.	

- **BILLET CASTER (1.5 MTPA) & BAR MILL (1.4 MTPA)**

The compliance status to the major conditions of Sinter Plant is as follows:

Consent Status				
1	Consent No	1.0/ BO/ CAC – Cell/ UAN No. 0000024109 – 17 / CAC – 1802000263 dated 07.02.2018		
2	Consent validity	Upto 31.05.2022		
Sr. No.	**Product / By Product name**	**Maximum quantity (CTO)**	**Actual Production As per annual report - 2020-21**	**EC granted dated 25/08/2015**
1	Billet caster	15,00,000 MT/A (1.5 MTPA)	85,049 MT	1.5 MTPA
2	Bar	14,00,000 MT/A (1.4 MTPA)	7,69,099 MT	1.4 MTPA

Conditions under Water (P& CP) Act, 1974 for discharge of effluent:			
Sr. No	**Consent Condition**	**Disposal as per consent**	**Compliance Status**
1	Trade effluent permitted quantity of discharge: - 1800 CMD	100% Recycle	The actual trade effluent generation is around 1650 CMD. The effluent is treated in waste water treatment plant consisting thickener and Filtration unit and 100% reused in the process.
2	Domestic effluent permitted quantity of discharge: - 30 CMD	On land for gardening	The sewage effluent is treated in existing STP of capacity 120 CMD and the treated water is reused for gardening.
3	As per your application, you have provided Effluent Treatment plant with the design capacity of 1800 CMD.		Industry has provided ETP consisting thickener and Filtration unit.
4	Treated effluent shall be 100% recycled in the process to achieve zero discharge.		The Industrial effluent is being circulated in close loop after treatment to achieve ZLD.
5	Industry shall provide online monitoring devices to ETP Inlet & Outlet to monitor the consented parameters & effluent discharge & connect to MPCB & CPCB server		The Industrial effluent is being circulated in close loop after treatment and being a ZLD.

Conditions under Water (P& CP) Act, 1974 for discharge of effluent:

Conditions under Air (P& CP) Act, 1981 for air emissions:							
Industry has provided following Air Pollution Control (APC) system and also erected following stack(s) and to observe the following fuel pattern.							
Sr. No.	**Stack Attached To**	**APC System**	**Height in Mtrs.**	**Type of Fuel**	**Quantity & UoM**	**S %**	**SO_2 Kg/Day**
1	Ladle Heating Furnace	Fume Extraction System	80	Natural Gas	3000 Nm^3/Day	---	---
2	Bar Mill	Bag filters	80	Mixed Gas	1045 Ton/Day	---	---

S. No	Consent Conditions	Compliance Status
1	Secondary pollution control system with dust suppression system and bag filters should be installed to control the fugitive dust emissions at conveyor and transfer points, product handling, loading and unloading points.	Industry has provided closed exhaust system to Bar Mill for reheating furnace & connected to stack.
2	Industry shall operate and maintain above mentioned air pollution control system, so as to achieve the level of pollutants to the following standards: Particulate Matter not to exceed 50 mg/Nm^3	Industry has installed Continuous emission monitoring system and the data is connected with MPCB and CPCB servers. The results of CEMS of last one year August 2020 to August 2021 to be verified. Found generally within the consented limits.

Conditions about Non-hazardous waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
1	Scale from Ladle Heating Furnace and Billet Caster	30 MT/Day	100% reuse in Sinter/Pellet plant	Generated scale about 4.7 MT/Day (1718.4 MT/A) and same is 100% reused as raw material in Sinter/Pellet plant.

Conditions about Non-hazardous waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
2	Bar Mill Scale	35 MT/Day	100% reuse in Sinter/Pellet plant	Generated scale about 9.6 MT/Day (3497.7 MT/A) and same is 100% reused as raw material in Sinter/Pellet plant.
3	Sludge from ETP	10 MT/Day	100% reuse in Sinter/Pellet plant	Generated sludge about 2 Kg/Day (800 Kg/A) and same is 100% reused as raw material in Sinter/Pellet plant.
Conditions about Hazardous and Other Wastes (M & TM) Rules, 2016 for treatment & disposal of Hazardous Waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
1	Used/Spent Oil (5.1)	50,000 Lit/A	Sale to authorized re-processor	As per annual return generated 17,400 Lit used oil in the year 2020-21 and same is disposed to MPCB authorized re-processor.
2	Waste/ Residue Containing Oil cotton waste (5.2)	2400 Kg/A	Used as fuel in Electric Arc Furnace	As per annual return generated 2.3 MT cotton waste in the year 2020-21 and same is used as fuel in Furnace
	BG Compliance			
1	Industry shall submit the BG of Rs. 10 lakhs towards O & M of pollution control system.		Industry has submitted the BG of Rs. 5 lakh which is valid upto 31.10.2022	

- **BLAST FURNACE (3.5 MTPA)**

The compliance status to the major conditions of Sinter Plant is as follows:

Consent Status				
1	Consent No	BO/CAC-Cell/UAN No. 0000035084-17/CAC-1804000347dated 07.04.2018		
2	Consent validity	Upto 31.12.2022		
Sr. No.	**Product / By Product name**	**Maximum quantity (CTO)**	**Actual Production As per annual report - 2020-21**	**EC granted dated 25/08/2015**
1	Liquid Metal / Pig Iron	3.5 MTPA	3.01 MTPA (30,10,851 MT)	8.1 MTPA
2	Pulverized dry coal	0.9 MTPA	0.451 MTPA (4,51,206 MT)	---
3	Electric Power (from Top Gas Recovery Turbine)	12 MW	8 MW	600 MW

	By-product			
1	Granulated slag	1.28 MTPA	1.41 MTPA	

Conditions under Water (P& CP) Act, 1974 for discharge of effluent:			
Sr. No	**Consent Condition**	**Disposal as per consent**	**Compliance Status**
1	Trade effluent permitted quantity of discharge: - 916.86 CMD	100% reuse/recycle	Actual trade effluent generation is around 900 CMD. The effluent is treated in Effluent treatment plant consisting collection tank, Thickener, Sludge holding tank & Vacuum Drum filter and 100% reused in the process.
2	Domestic effluent permitted quantity of discharge: - 38 CMD	On land for gardening	Industry has provided Septic Tank with Soak pits at different places of the plant. Sewage from septic tanks is being collected by super sucker and treated in the existing Sewage treatment plant (60 KLD). The treated domestic effluent is used on land for gardening.
3	As per application, you have provided Primary Effluent treatment Plant with the design capacity 18,480 CMD consisting Thickener and Drum Filter		Industry has provided Primary Effluent treatment Plant consisting Thickener and Drum Filter.
4	The treated effluent shall be 100% reused/recycle for gas cleaning.		The treated effluent is 100% reused for gas cleaning.
5	As per your consent application, you have provided STP with the design capacity 60 CMD.		Industry has provided STP of design capacity 60 CMD.
6	The treated domestic effluent shall be used on land for gardening.		The treated domestic effluent is used on land for gardening.

ETP Plant

STP Plant

Conditions under Air (P& CP) Act, 1981 for air emissions:							
Industry has provided following Air Pollution Control (APC) system and also erected following stack(s) and to observe the following fuel pattern.							
Sr. No.	**Stack Attached To**	**APC System**	**Height in Mtrs.**	**Type of Fuel**	**Quantity & UoM**	**S %**	**SO_2 Kg/Day**
1	Blast Furnace Stove	---	75	BF Gas Coke Oven Gas	2,10,500 Nm^3/Hr 3,000 Nm^3/Hr	---	---
2	Boiler	---	59.5	BF Gas Coke Oven Gas	4,000 Nm^3/Hr 300 Nm^3/Hr	---	---
3	Coal Injection Stack	Bag filters	60.5	Coal	2520 TPD	0.5	25200
4	Slag Granulation Plant-I	Bag filters	65	---	---	---	---
5	Slag Granulation Plant-II	Bag filters	65	---	---	---	---
6	Flare Stack-I	---	50	---	---	---	---
7	Flare Stack-II	---	45	---	---	---	---
8	Stock House De-dusting System- I & II	Bag filters	45	---	---	---	---
9	Cast House Fume Extraction System	Bag filters	45	---	---	---	---

S. No	**Consent Conditions**	**Compliance Status**
1	Fume extraction system followed by dust collector system of sufficient capacity shall be provided to all sources to achieve consented standards.	Industry has provided Fume Extraction system followed by Bag Filters to achieve consented standards.
2	Industry shall provide dust suppression system to all raw material handling conveyor system at Blast Furnace unit.	Industry has provided Bag Filters to Raw material handling Conveyor System.
3	Industry shall provide dust extraction system followed by dust collection system to pulverized mill hot gas chamber and stock house.	Industry has provided dust extraction system followed by Bag Filters to pulverizing mill and stock house.
4	Sufficient capacity of dust collector/bag filters shall be provided to coal crusher, coal handling unit to achieve consented standards.	Industry has provided Bag Filters to Coal Crusher and Coal Handling unit.
5	Industry shall operate and maintain above mentioned air pollution control system, so as to achieve the level of pollutants to the following standards:	Industry has installed Continuous emission monitoring system and the data is connected with MPCB and CPCB servers. The results of CEMS of last one year

	Particulate Matter not to exceed 50 mg/Nm3.	August 2020 to August 2021 to be verified are found generally within the consented limits.

Conditions about Non-hazardous waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
1	Blast Furnace Slag	7875 MT/M	Reuse for Hot Strip Mill as a raw material	Generated scrap about 126808 MT/M (1521695 MT/A) and same is reused as raw material in HSM plant.
2	ETP Sludge	2800 MT/M	Land fill and Sinter making	Generated sludge about 502.58 Ton/M (6031 MT/A) and partly used in Sinter plant.
3	Dust from APC System	4358 MT/M	Use in Sinter plant	Generated dust about 3940.9 Ton/M (47291 MT/A) and same is reused as raw material in Sinter/Pellet plant.
4	Coke fines	21438 MT/M	Use in Sinter plant	Generated coke fines about 10057.6 MT/M (120691 MT/A) and same is reused as raw material in Sinter/Pellet plant.
5	Oxide fines	30625 MT/M	Use in Sinter plant	Generated oxide fines about 10615 MT/M (127384 MT/A) and same is reused as raw material in Sinter/Pellet plant.
6	Sinter fines	61250 MT/M	Use in Sinter plant	Generated sinter fines about 63188.9 Ton/M (758267 MT/A) and same is reused as raw material in Sinter/Pellet plant.
Conditions about Hazardous and Other Wastes (M & TM) Rules, 2016 for treatment & disposal of Hazardous Waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Consent Condition**
1	Used/Spent Oil (5.1)	50 KL/A	By sale to authorized re-processor	As per annual return generated 28.4 KL used oil in the year 2020-21 and same is disposed to MPCB authorized re-processor.
2	Waste/ Residue Containing Oil cotton waste (5.2)	1200 Kg/M	Use as fuel in Electric Arc Furnace	As per annual return generated 135 Kg/M (1620 Kg/A) cotton waste in the year 2020-21 and same is used as fuel in Furnace
	BG Compliance			
1	Industry shall submit the BG of Rs. 10 lakhs towards O & M of pollution control system.			Industry has submitted the BG of Rs. 5 lakh which is valid upto 31.12.2022

- **SPONGE IRON PLANT (2 MTPA)**

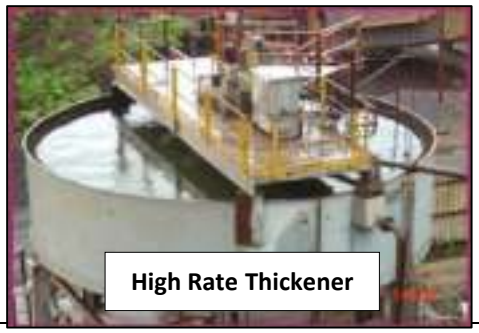
The compliance status to the major conditions of Sinter Plant is as follows:

Consent Status				
1	Consent No	BO/CAC-Cell/UAN No.0000034884-17/CAC-1804000348 dated 07/04/2018		
2	Consent validity	Upto 31.12.2022		
Sr. No.	**Product / By Product name**	**Maximum quantity (CTO)**	**Actual Production As per annual report - 2020-21**	**EC granted dated 25/08/2015**
1	Direct Reduced iron (Gas based mega module)	2 MTPA	1.16 MTPA (11,68,874 MT/A)	4 MTPA

Conditions under Water (P& CP) Act, 1974 for discharge of effluent:			
Sr. No	**Consent Condition**	**Disposal as per consent**	**Compliance Status**
1	Trade effluent permitted quantity of discharge: - 3624 CMD	Reuse/recycle and remaining on land for gardening	Actual trade effluent generation is around 1680 CMD. The effluent is treated in waste water treatment plant consisting clarifier, classifier, High-rate thickener and used for EAF slag cooling.
2	Domestic effluent permitted quantity of discharge: - 18 CMD	On land for gardening	Industry has provided Septic Tank with Soak pits at different places of the plant. Sewage from septic tanks is being collected by super sucker and treated in the existing common Sewage treatment plant (60 KLD). The treated domestic effluent is used on land for gardening.
3	As per your application, you have provided the effluent treatment plant		Industry has provided effluent treatment plant consisting clarifier, classifier, High-rate thickener
4	Metal bearing effluent shall be segregated and reused back in the process and remaining treated effluent shall be used on land for gardening. There shall not be any discharge outside the factory premises and in on case trade effluent shall find its way into nearby stream/water body.		Effluent generated from the process is treated in clarifier, classifier, High-rate thickener and recycled in the process and used for EAF Slag cooling and remaining used for gardening. There is No effluent discharge found outside the premises
5	As per your consent application, you have septic tank and soak pit for sewage treatment		Industry has provided septic tanks and soak pit for sewage treatment.
6	Treated domestic effluent shall be used on land for gardening		Treated domestic effluent is used on land for gardening.

Conditions under Water (P& CP) Act, 1974 for discharge of effluent:

Thickener


High Rate Thickener

Conditions under Air (P& CP) Act, 1981 for air emissions:							
Industry has provided following Air Pollution Control (APC) system and also erected following stack(s) and to observe the following fuel pattern.							
Sr. No.	**Stack Attached To**	**APC System**	**Height in Mtrs.**	**Type of Fuel**	**Quantity & UoM**	**S %**	**SO_2 Kg/Day**
1	Flue Gas Ejector	---	40	Natural Gas and Coke Oven Gas	67,083 Nm^3/Hr	---	---
2	Reduction Furnace Dust Collection	Wet Scrubber	30	---	---	---	---
3	Product Screen Dust Collection -I	Wet Scrubber	30		---	---	---
4	Product Screen Dust Collection -II	Wet Scrubber	30	---	---	---	---
5	Product Silo Dust Collection	Wet Scrubber	30	---	---	---	---
6	Prod. Grizzly (C-304) Dust Collection	Dust Collector	30	---	---	---	---
7	DG Set (1000 KVA)	Acoustic enclosure	6.5	Natural Gas	---	---	---
8	DG set (500 KVA)	Acoustic enclosure	5.5	Natural Gas	---	---	---

S. No	Consent Conditions	Compliance Status
1	Adequately designed ESP or BAG Filter or wet scrubbing system or other suitable and adequate air pollution control system / combination of system should be installed to achieve the prescribed stack emissions.	Industry has provided wet scrubber to air pollution generating units.
2	Kiln of gas treatment with efficient de dusting system shall be provided. The plant more than 100 TPD shall use a	Industry has provided De dusting system to gas generated from Kiln and again it is reused for heating purpose.

	waste heat recovery system for generation of power.	
3	Interlocking facility to be provided to ensure stoppage of plant in case of failure of pollution control systems.	Industry has provided Interlocking facility to ensure stoppage of Plant in case of failure.
4	Fumes collection systems followed by dust removal system shall be provided to achieve emission standards.	Industry has provided wet scrubber to air pollution generating units.
5	Industry shall operate and maintain above mentioned air pollution control system, so as to achieve the level of pollutants to the following standards: Particulate Matter not to exceed 100 mg/Nm3	Industry has installed Continuous emission monitoring system and the data is connected with MPCB and CPCB servers. The results of CEMS of last one year August 2020 to August 2021 are generally found within the consented limits.

Conditions about Non-hazardous waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
1	ETP Sludge (Iron Oxide)	300 Ton/Day	Reuse in Sinter Plant	Generated sludge about 362.8 Ton/Day (132435 MT/A) and same is reused as raw material in Sinter/Pellet plant.
2	Iron oxide fines	1200 Ton/Day	Reuse in Sinter Plant	Generated oxide fines about 661 Ton/Day (2,41,387 MT/A) and same is reused as raw material in Sinter/Pellet plant.
Conditions about Hazardous Waste (MH & TM) Rules, 2016 for treatment & disposal of Hazardous Waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
1	Waste/ Residue Containing Oil cotton waste (5.2)	150 Kg/M	By sale to authorized re-processor/ CHWTSDF	As per annual return generated 2300 Kg/M cotton waste in the year 2020-21 and same is used as fuel in Furnace
2	Used/Spent Oil (5.1)	28000 Lit/A	By sale to authorized re-processor	As per annual return generated 23,600 Lit/A used oil in the year 2020-21 and same is disposed to MPCB authorized re-processor.
3	Spent Nickel catalyst	180 Ton/ 5 years	By sale to authorized re-processor/ CHWTSDF	As per annual return generated 115 MT/A Spent nickel in the year 2020-21 and same is disposed to MPCB authorized re-processor.
4	Spent Zinc Catalyst	28 M3/3 year	By sale to authorized re-processor/ CHWTSDF	Not generated in the year 2020-21.

Conditions about Non-hazardous waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
5	Oil Filters (3.3)	40 Kg/A	Incineration in Electric Arc Furnace	As per annual return generated 14 No/A Oil filters in the year 2020-21 and same is used as fuel in Furnace
6	E-Waste	600 Kg/A	By sale to authorized re-processor	Not generated
	BG Compliance			
1	Industry shall submit the BG of Rs. 10 lakhs towards O & M of pollution control system.			Industry has submitted the BG of Rs. 5 lakh which is valid upto 31.12.2022.

Annexure-VI

PLANT: CAPTIVE POWER PLANT-55 MW

The compliance status to the major conditions of Gas based captive power plant is as follows:

Consent Status				
1	Consent No	BO/CAC-Cell/UAN No: -NG-0000 025212-17/ CAC-1803000005. Dated 01/03/2018.		
2	Consent validity	Upto 31.08.2022		
Sr. No.	**Product / By Product name**	**Maximum quantity (CTO)**	**Actual Production As per annual report - 2020-21**	**EC granted dated 25/08/2015**
1	Captive Power Generation (Gas Based)	55 MW	51.11 MW	600 MW

Conditions under Water (P& CP) Act, 1974 for discharge of effluent:			
Sr. No	**Consent Condition**	**Disposal as per consent**	**Compliance Status**
1	Trade effluent permitted quantity of discharge: - 991.20 CMD	Recycle and Reuse	Actual trade effluent generation is around 200 CMD. The effluent is treated in waste water treatment plant consisting Collection tank, Clarifier, Multi-grade Filters, ultra-filtration, Reverse Osmosis having capacity 50 m3/hr. RO permeate used for power plant and RO reject used for slag cooling.
2	Domestic effluent permitted quantity of discharge: - 40 CMD	On land for gardening	Industry has provided Septic Tank with Soak pits at plant. Sewage from septic tanks is being collected by super sucker and treated in the existing common Sewage treatment plant. The treated domestic effluent is used on land for gardening.
3	As per your application, you have provided the effluent treatment plant		Industry has provided effluent treatment plant consisting Collection tank, Clarifier, Multi-grade Filters, ultra-filtration, Reverse Osmosis having capacity 50 m3/hr.
4	The total RO treated effluent shall be recycled/reused in the process and RO reject shall be used for slag cooling and industry shall achieve zero discharge. There shall not be any discharge outside the factory premises or used on land for gardening purpose.		RO treated effluent recycled/reused in the process and RO reject used for slag cooling. There is No effluent discharge found outside the premises
5	As per your consent application, you have provided septic tank and soak pit for sewage treatment		Industry has provided septic tanks and soak pit for sewage treatment. Sewage from septic tanks is being collected by super sucker and treated in the existing common Sewage treatment plant.
6	Treated domestic effluent shall be used on land for gardening		Treated domestic effluent is used on land for gardening.

Conditions under Water (P& CP) Act, 1974 for discharge of effluent:	
55 MW Power	Wastewater treatment plant

Conditions under Air (P& CP) Act, 1981 for air emissions:							
Industry has provided following Air Pollution Control (APC) system and also erected following stack(s) and to observe the following fuel pattern.							
Sr. No.	**Stack Attached To**	**APC System**	**Height in Mtrs.**	**Type of Fuel**	**Quantity & UoM**	**S %**	**SO_2 Kg/Day**
1	Boiler	---	40	Blast Furnace Gas	1,80,000 Nm^3/Hr	Below 250 mg/Nm^3	---

S. No	Consent Conditions	Compliance Status
1	Industry shall operate and maintain above mentioned air pollution control system, so as to achieve the level of pollutants to the following standards: Particulate Matter not to exceed 50 mg/Nm3	Industry has installed Continuous emission monitoring system and the data is connected with MPCB and CPCB servers. The results of CEMS of last one year August 2020 to August 2021 are generally found within the consented limits.
2	Waste gases from blast furnace and coke ovens will be utilized for power generation. Fugitive emissions from raw material handling section will be suppressed by dry fogging system/water sprinkling	Industry is using Blast Furnace gas for power generation.

Conditions about Non-hazardous waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
NA				
Conditions about Hazardous and Other Waste (M & TM) Rules, 2016 for treatment & disposal of Hazardous Waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
1	Used/Spent Oil (5.1)	10,000 Lit/A	By sale to authorized re-processor	As per annual return generated 5200 Lit/A used oil in the year 2020-21 and same is disposed to MPCB authorized re-processor.
	BG Compliance			
1	Industry shall submit the BG of Rs. 5 lakhs towards O & M of pollution control system.			Industry has submitted the BG of Rs. 5 lakh which is valid upto 31.12.2022.

Annexure-VII

HARSCO PLANT: SLAG PROCESSING PLANT

The compliance status to the major conditions of Slag Processing plant is as follows:

Consent Status				
1	Consent No	BO/JD(APC)/EIC No. RD-3239-16/O-CC-9447 Dated 26.07.2016.		
2	Consent validity	Upto 31.10.2020 applied for renewal of consent		
Sr. No.	**Product / By Product name**	**Maximum quantity (CTO)**	**Actual Production As per annual report - 2020-21**	**EC granted dated 25/08/2015**
1	Metallic Arising	68,000 T/M	63,251.72 MT	--
2	Slag Arising	8,52,000 T/M	10,50,658.71 MT	--
3	Large Steel Scrap	14,400 T/M	44,841.78 MT	--

Conditions under Water (P& CP) Act, 1974 for discharge of effluent:			
Sr. No	**Consent Condition**	**Disposal as per consent**	**Compliance Status**
1	Trade effluent permitted quantity of discharge: - 14 CMD	Recycle	Actual trade effluent generation is around 4 CMD. The effluent is treated in ETP consisting oil skimmer, carbon filter and collection tank.
2	Domestic effluent permitted quantity of discharge: - 08 CMD	On land for gardening	Industry has provided Septic Tank with Soak pits at plant.
3	As per your application, you have provided the effluent treatment plant		Industry has provided effluent treatment plant with design capacity 14 CMD consisting oil skimmer, carbon filter and collection tank.
4	The treated effluent of 14 CMD shall be 100% reused/recycle into the process. There shall not be any discharge outside the factory premises or used on land for gardening purpose.		Effluent generated from the vehicle washing is treated in ETP system and treated effluent is again reused for vehicle washing. There is No effluent discharge found outside the premises
5	As per your consent application, you have provided septic tank and soak pit for sewage treatment		Industry has provided septic tanks and soak pit for sewage treatment.
6	Treated domestic effluent shall be used on land for gardening		Treated domestic effluent is used on land for gardening.

De-dusting System in crushing

Dust Suppression System at Conveyor

Conditions under Water (P& CP) Act, 1974 for discharge of effluent:

ETP Plant

Rain guns installed at vehicle movement area

Conditions under Air (P& CP) Act, 1981 for air emissions:							
Industry has provided following Air Pollution Control (APC) system and also erected following stack(s) and to observe the following fuel pattern.							
Sr. No.	**Stack Attached To**	**APC System**	**Height in Mtrs.**	**Type of Fuel**	**Quantity & UoM**	**S %**	**SO_2 Kg/Day**
1	Metal Recovery section	Dust Separation system	11	---	---	---	---

S. No	Consent Conditions	Compliance Status
1	Industry shall operate and maintain above mentioned air pollution control system, so as to achieve the level of pollutants to the following standards: Particulate Matter not to exceed 150 mg/Nm3	Board official has visited plant on 17.03.2022. During the visit non compliances were observed. i.e. not operated secondary air pollution control system and fugitive emissions were observed. Industry has process stack. Industry has installed 05 Nos of Continuous Ambient Air Quality monitoring system within the integrated steel plant and in periphery and the data is connected with MPCB and CPCB servers.

Conditions about Non-hazardous waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
NA				

Conditions about Hazardous and Other Wastes (M & TM) Rules, 2016 for treatment & disposal of Hazardous Waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
1	Used/Spent Oil (5.1)	25 Kg/M	By sale to authorized re-processor	As per annual return 285 KL/A used oil is generated in the year 2020-21 and same is disposed to MPCB authorized re-processor.
2	Oil soaked cotton waste (5.2)	50 Kg/M	CHWTSDF	Not generated during the year
3	ETP Sludge (35.3)	100 Kg/M	CHWTSDF	Not generated during the year

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Conditions about Non-hazardous waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
	BG Compliance			
1	Industry shall submit the BG of Rs. 10 lakhs towards O & M of pollution control system.			BG of Rs.10 Lakhs was forfeited towards non compliances.

- **Ready Mix Concrete Plant**

The compliance status to the major conditions of RMC plant is as follows:

Consent Status			
1	Consent No	Format1.0/CAC/UAN No:-0000102768/CR-2202000171 dated 02.02.2022.	
2	Consent validity	Upto 31.01.2026	
Sr. No.	**Product / By Product name**	**Maximum quantity (CTO)**	**Actual Production As per annual report (2019-2020)**
1	Ready Mix Concrete	8,23,680 MT/A	70,416.7 MT/A

Conditions under Water (P& CP) Act, 1974 for discharge of effluent:			
Sr. No	**Consent Condition**	**Disposal as per consent**	**Compliance Status**
1	Trade effluent permitted quantity of discharge: Nil	Not applicable	Industry is not generating any trade effluent.
2	Domestic effluent permitted quantity of discharge: - 6.5 CMD	On land for gardening	Industry has provided Septic Tank with Soak pits at plant. The treated domestic effluent is used on land for gardening.
3	As per your application, the treated effluent generation is Nil		Not applicable
4	As per your application, you have provided septic tank followed by soak pit for the treatment of 6.5 CMD of sewage.		Industry has provided septic tanks followed by soak pit for sewage treatment.
5	The treated sewage shall be recycled for secondary purpose to the maximum extent and remaining shall be discharged on land for gardening within premise after confirming above standards. In no case, sewage shall find its way to outside factory premises.		Treated domestic effluent is used on land for gardening.

Conditions under Air (P& CP) Act, 1981 for air emissions:							
Industry has provided following Air Pollution Control (APC) system and erected following stack(s) and to observe the following fuel pattern.							
Sr. No.	**Stack Attached To**	**APC System**	**Height in Mtrs.**	**Type of Fuel**	**Quantity & UoM**	**S %**	**SO_2 Kg/Day**
1	RMC Plant	Bag Filters	11	--	--	--	--

S. No	Consent Conditions	Compliance Status
1	All material transfer points should be covered	Industry has provided cladding to conveyor belt and transfer points.
2	The dust containment system shall be provided incorporating either of the following;	

Conditions under Air (P& CP) Act, 1981 for air emissions:		
a	Barricading all around the periphery of the plot boundary of height minimum 20 feet or 5 feet above free fall air emission area. Whichever is height with tin sheets same may extend above with netlon clothing whenever required.	• Industry has provided water sprinkling system along the periphery and inside the premises of RMC plant by mobile water tanker. • Industry has partly covered the plot boundary with green netlon clothing and tin sheets.
b	Water sprinkling/chemical dust stabilizing agent spraying system along the periphery inside the premises of RMC.	
c	Tree plantation along the periphery inside boundary of the RMC premises having minimum width of 5 meters, on all sides. The foliage of the trees shall adequately cover area up to about 20m height.	
3	Internal work area shall be cement concreted/Asphalted.	Industry has provided internal cement concrete road.
4	Daily cleaning/removal of dust accumulation inside the plant (dry/wet) shall be carry out with industrial vacuum cleaner.	--
5	Two level type washing facility shall be provided at entry and exit points, for transit mixture vehicle.	Industry has provided tyre washing facility but not provided proper drainage system to collect the same.
	RAW MATERIAL STORAGE AND HANDLING	
1	Storage silos of cement and fly ash shall be adequate capacity of dust collection system such as multi-cyclone followed by bag house assembly.	Industry has provided two nos. of cement silo. Industry has provided dust collector to both the RMC plants.
2	Handling of cement, sand, fly ash and aggregates shall be carried out with mechanical closed system only.	Mechanical system was provided for handling of raw material.
3	Manual operations shall be permitted only in a closed shed, equipped with dust control system at the loading point as well as roof top secondary dust control system.	
4	All conveyor belts of sand, aggregate shall be covered with tin sheets and at points dust collection system to be installed to avoid secondary fugitive emissions.	Industry has provided cladding to conveyor belt and transfer points.
5	Mixing section of cement, aggregate and sand shall be equipped with adequate capacity dust collection system, such as multi-cyclone followed by bag house, so as to limit dust emission.	Industry has provided dust collector to both the RMC plants.
6	Storage area of sand and aggregates shall be equipped with roof top water sprinkling system.	• Industry has provided water sprinkling system along the periphery and inside the premises of RMC plant by mobile water tanker. • The aggregates are stored in open area and not provided closed shed.
7	The production plant shall be interlocked with air pollution control system.	--
8	Alternative power supply system should cover both the production and air pollution control system.	Industry has made the arrangement of alternative power supply.

Conditions about Non-hazardous waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
1	Waste ready mix concrete	0.1 Ton/M	Landfill	Industry has not generated any Waste ready mix concrete in this financial year.
Conditions about Hazardous and Other Waste (M & TM) Rules, 2016 for treatment & disposal of Hazardous Waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
NA				
BG Compliance				
1	Industry shall submit the BG of Rs. 25 lakhs towards O & M of pollution control system and towards compliance of consent conditions			Industry has submitted the BG of Rs. 25 lakh which is valid upto 31.07.2023

- **M/s. JSW Dharamter Port Pvt. Ltd (Jetty)**

The compliance status to the major conditions of Dharamter Jetty is as follows:

Consent Status				
1	Consent No	Format 1.0/BO/CAC-Cell/UAN No 75788/CAC-2002001100. Dated 25.02.2020.		
2	Consent validity	Upto 31.08.2024		
Sr. No.	**Product / By Product name**	**Maximum quantity (CTO)**	**Material Handling at Port, As per annual report 2020-21**	**EC granted dated 26.11.2015**
1	Length of the jetty: 726.5 m	21,90,000 MT/M (27.0 MTPA)	12.84 MTPA	As per the EC Expansion of Dharamter jetty facility from existing berth length from 331.5 mtrs. Jetty to 1750 mtrs. The project envisage increase in cargo handling from existing 9.69 MTPA to 33.95 MTPA.
2	Length of expanded jetty: 319 m	4,16,666 MT/M (5.0 MTPA)		
Total length- 1045.5 m		**26,06,666 MT/M (32.0 MTPA)**		
	I. Industry can also handle raw of M/s. Amba River Coke Ltd and M/s. JSW Cement Ltd as they are sister concerns of M/s. JSW Steel Ltd. II. Industry shall not exceed the total capacity of material handling permitted by the Board i.e. 5 MTPA. III. Third party cargo handling shall be as per the Port Policy of 2016. IV. The jetty shall not be used for transportation of hazardous material.			

Conditions under Water (P& CP) Act, 1974 for discharge of effluent:			
Sr. No	**Consent Condition**	**Disposal as per consent**	**Compliance Status**
1	Trade effluent permitted quantity of discharge: Nil	NA	Trade effluent generation is Nil
2	Domestic effluent permitted quantity of discharge: - 30 CMD	80% treated effluent shall be recycled and reuse for flushing, firefighting and cooling of air conditions etc.	Treated domestic effluent is used on land for gardening.
3	As per your application, trade effluent generation is Nil		Not applicable.
4	As per your consent application, industry shall provide the sewage treatment plant of capacity 50 CMD for the treatment of domestic effluent.		Industry has provided sewage treatment plant having capacity 50 CMD.
5	Treated domestic effluent shall be used on land for gardening		Treated domestic effluent is used on land for gardening.

Conditions under Air (P& CP) Act, 1981 for air emissions:							
Industry has provided following Air Pollution Control (APC) system and also erected following stack(s) and to observe the following fuel pattern.							
Sr. No.	**Stack Attached To**	**APC System**	**Height in Mtrs.**	**Type of Fuel**	**Quantity & UoM**	**S %**	**SO_2 Kg/Day**
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S. No	Consent Conditions	Compliance Status
1	Industry shall provide and operate adequate air pollution control systems to material loading/unloading/area.	• Industry has provided dry fog dedusting system at hopper and transfer points. PP has provided mechanized sweeping machine (2 Nos.) for road cleaning as well as mobile water spraying tanker to control the dust emission during transportation. • Industry has also provided covered conveyor belt to carry raw material from JSW Port to JSW Steel ltd. The covered conveyor belt is around 02 KM from Port to Steel plant.
2	Environmental monitoring for air and water shall be done during the operation of jetty. Air monitoring shall be done near berth as well as near yard for PM 10 & PM 2.5 within 500 m distance from material handling points at berth. Monitoring can be done through any laboratory approved by MoEF, GoI. The AAQ monitoring shall be done on alternative day's basis continuously for 24 hours.	Industry is monitoring air quality.

Conditions about Non-hazardous waste				
Sr. No.	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent**	**Compliance Status**
NA				
Conditions about Hazardous and Other Waste (M & TM) Rules, 2016 for treatment & disposal of Hazardous Waste				
1	Used/Spent Oil (5.1)	20000 Lit/A	By sale to authorized re-processor	As per annual return, industry has disposed 19,270 Lit used oil in the year 2019-20 to re-processor.
BG Compliance				
1	Industry shall submit the BG of Rs. 5 lakhs towards compliance of consent conditions			Industry has submitted the BG of Rs. 5 lakh which is valid upto 31.12.2024.
2	Industry shall submit the BG of Rs. 5 lakhs towards installation of screw conveyor system material handling at barges within 06 months and towards compliance of the same.			Industry has submitted the BG of Rs. 5 lakh which is valid upto 31.12.2024. PP has installed Gantry type barge unloader for material handling at barges instead of installation of screw conveyor system material handling at barges.

Annexure-18

MAHARASHTRA POLLUTION CONTROL BOARD
REGIONAL OFFICE-RAIGAD

Tel. No. 2757 2620
Fax No. 2756 2132

Email:
Visit us at:

Raigad Bhavan, 6th Floor,
Sec-11, C.B.D. Belapur,
Navi Mumbai 400 614.
roraigad@mpcb.gov.in
http://mpcb.gov.in

No. MPCB/TB/ 220705-FTS-0042 **Date: 04.07.2022**

To,
Regional Director,
Central Pollution Control Board,
Regional Directorate – Pune,
Maharashtra.

Sub: Compliance Status Report of M/s. JSW Steel Lts., at vill. Dolvi, Tal. Pen, Dist. Raigad wrt. Hon'ble NGT order dated 27.05.2021 in the matter OA No. 165 of 2020 of Samita Patil vs. M/s. JSW Steel Works Ltd & Ors.-reg.

Ref: - 1. Minutes of Joint Committee Meeting dated 04.08.2021.
2. CPCB, RD Pune email dated 12.08.2021.
3. Part Compliance report submitted by this office dated 23.09.2021.
4. Minutes of 2nd Joint Committee Meeting dated 19.112021.
5. Site visit of Joint Committee on 11.04.2022.

Sir,

This has reference to joint committee constituted by the Hon'ble National Green Tribunal (NGT) vide order dated 27/05/2021 in the matter OA no. 165 of 2020, Samita R. Patil vs M/s Jindal Steel Works Ltd., & Ors. about violation of environmental norms by M/s Jindal Steel Works Ltd., Dolvi.

In order to comply with the aforesaid order of the Hon'ble NGT, the joint committee headed by the Joint Secretary, Ministry of Environment, Forest and Climate Change, GoI, held its meeting on 04.08.2021, 19.11.2021 and 11.04.2022.

As per minutes of meeting and subsequent emails from CPCB Regional Directorate, Pune, to submit compliance report of M/s. JSW Steel Ltd, at vill. Dolvi, Tal. Pen, Dist. Raigad. Board has prepared status report of the industry with respect to compliances of consent conditions. The said status report is submitted herewith for your information please.

It is in opinion that Environmental Compensation may be calculated jointly with CPCB on the basis of status report submitted.

(V. V. Killedar)
Regional Officer, Raigad

Enclosures: Compliance status report
Copy submitted for favor of information to :

1. The Member Secretary, MPCB , Mumbai.
2. Assistant Secretary (Technical) MPCB, Mumbai.
3. Reginal Officer (BMW) , MPCB, Mumbai.

Compliance Status Report: - M/s. JSW Steel Ltd, an Integrated Steel Plant (5 to 10 MTPA)

Plant wise year of Commissioning (5 to 10 MTPA plant)			
S. No.	**PLANT**	**CAPACITY**	**YEAR OF COMMISSIONING**
1	Lime Calcinations Plant 5, 6 & 7	1800 Ton/Day	Nov. 2021 (5&6)
2	Pellet Plant II	90,00,000 MT/A (9 MTPA)	October 2021
3	Steel Metal Shop -II	62,00,000 MT/A (6.2 MTPA)	October 2021
4	Hot Strip Mill (HSM) -II	50,00,000 MT/A (5 MTPA)	October 2021
5	Blast Furnace-II	45,00,000 MT/A (4.5 MTPA)	October 2021
6	Captive Power plant	245 MW	March 2022 (75 MW) April 2022 (175 MW)
7	Coke Oven plant-II	1.5 MT/A	September 2021 (Battery C) February 2021 (Battery D)

- **Integrated Steel Plant Expansion (5 to 10 MTPA)**

The compliance status to the major conditions is as follows:

Consent Status				
1	Consent No	Format 1.0/CAC/UAN No. 0000108919/CO-2109000621 dated 17.09.2021.		
2	Consent validity	30.04.2022. Now applied for renewal of consent.		
Sr. No.	**Product name**	**Maximum quantity**	**Actual Production As per annual report - 2020-21**	**EC granted dated 25/08/2015**
1	Calcinated Limes Plant 5, 6 & 7	1800 Ton/Day	Industry has commissioned their plant in October 2021	3600 TPD
2	Pellet Plant II	90,00,000 MT/A		13 MTPA
3	Steel Metal Shop –II (Crude Steel/Steel slab)	62,00,000 MT/A		6 MTPA
4	Hot Strip Mill (HSM) –II (Hot Rolled Coil)	50,00,000 MT/A		5 MTPA
5	Blast Furnace-II (Liquid Metal/Pig Iron)	45,00,000 MT/A		8.1 MTPA
6	Captive Power plant	245 MW		600 MW
	By Product name			
1	LD Gas from SMS-II	442260 MT/A	Industry has commissioned their plant in October 2021	---
2	Steam	393120 MT/A		---
3	Slag from SMS-II	930000 MT/A		---
4	Granulated Slag from Blast furnace	2172000 MT/A		---
5	Electric Power from Top Gas recovery turbine	37.25 MW		---
6	Blast Furnace Gas	800000 m^3/hr		---

Conditions under Water (P& CP) Act, 1974 for discharge of effluent:			
Sr. No	**Consent Condition**	**Disposal as per consent**	**Compliance Status**
1	Trade effluent permitted quantity of discharge: - 14542 CMD	Partly recycle and remaining marine discharge	**Trade Effluent generation details** **Lime Calcination Plant –** • From Cooling tower: 576 CMD **Pellet Plant 2**:- • From Cooling tower 540 CMD **SMS unit 2** • Direct cooling from Mill: 2508 CMD • Back Wash: 700 CMD • Cooling Tower: 167 CMD **HSM 2** • Direct cooling from Mill: 3580 CMD • Back Wash: 700 CMD **BF 2** • Cooling Tower: 259 CMD • Gas Cleaning Plant: 1176 CMD **CPP2** • Boiler Blow Down: - 1324 CMD • Cooling Tower blow down: - 428 CMD **DM Plant** • Back wash and Regeneration: 2184 CMD **Total Effluent Generation 14,142 CMD.**
2	Domestic Effluent permitted quantity of discharge: - 228 CMD	On land for gardening	**Domestic Effluent generation details** • Lime Calcination Plant: 7.1 CMD • Pellet Plant 2: 17.6 CMD • SMS - 2 Plant: 114.9 CMD • HSM 2 Plant: 47.3 CMD • BF 2 Plant: 35.5 CMD • CPP -2 Plant: 5.6 CMD **Total Domestic Effluent Generation 228 CMD**
A	As per your application, you have provided 06 Nos of ETP with the design capacity of 15216 CMD consisting of primary, secondary treatment system (biological treatment), Chemical, Neutralization Pit, Chemical dosing of cooling tower water etc. for the treatment of 14,542 CMD.		Industry has provided 4 Nos. of ETP which is as below; **Hot Strip Mill 2 & SMS-2** – ETP consisting Holding tank, Dosing System and Thickener having capacity 1800 CMD for treatment of back wash effluent generated from HSM-2 (700 CMD) & SMS-2 plant (700 CMD). The effluent generated from Direct cooling from Mill of SMS-2 about 2508 CMD is reused in HSM-

Conditions under Water (P& CP) Act, 1974 for discharge of effluent:		
		2. The effluent generated from HSM-2 is about and 3580 CMD is directly discharged into Dharamter Creek after chlorination. **Blast Furnace 2** – Effluent generated from Gas Cleaning plant about 1176 CMD, industry has provided ETP having design capacity 1440 CMD consisting primary treatment (settling tank), secondary treatment (Aerobic, anaerobic and anoxic treatment) and tertiary treatment (pressure sand filters). The effluent generated from cooling tower about 259 CMD is again reused in slag granulation process. **DM Plant –** To treat the Back wash and regeneration effluent, ETP having Neutralization pit and dosing systems (Capacity 2184 CMD) Chemical Dosing – To treat all the cooling tower blow down, ETP having Institute Chemical dosing networks of capacity 9696 CMD. The effluent generated from **Lime Calcination Plant** from Cooling tower about 576 CMD is directly discharged into Dharamter Creek after chlorination.
B	As per EC conditions, project proponent shall achieve Zero Liquid Discharge (ZLD) at the end of completion of all the facilities, in the meantime 4864 CMD treated trade effluent shall be reused in the process and remaining 9678 CMD shall be discharge into sea after confirming above standards and after obtaining necessary permission/clearance from concerned regulatory authorities. Till then PP shall achieve ZLD and shall not discharge the effluent outside the factory premises.	Shall be achieved Zero Liquid Discharge (ZLD) at the end of completion of all the facilities. In the meantime, marine discharge shall be implemented after obtaining permission from concern authority. Industry has laid down disposal pipeline system from industry to Dharamtar Creek. As per NIO guidelines industry is disposing treated effluent into creek.
C	As per your application, you have provided STP design capacity of 300 CMD for the treatment of 228 CMD sewage.	Industry has provided plant-wise following sewage treatment system Lime Calcination Plant: 7.1 CMD Pellet Plant 2: 17.6 CMD SMS 2: 114.9 CMD HSM 2: 47.3 CMD BF2: 35.5 CMD CPP -2: 5.6 CMD Total Domestic Effluent Generation 228 CMD

Conditions under Water (P& CP) Act, 1974 for discharge of effluent:		
		Industry has provided decentralized septic tank and soak pit. The sewage is treated in existing STP.
D	Treated sewage shall be utilized for gardening. In no case, treated sewage shall be disposed of outside factory premises.	Sewage effluent shall be used for gardening after treatment in STP.

Conditions under Air (P& CP) Act, 1981 for air emissions:

Industry has provided following Air Pollution Control (APC) system and also erected following stack(s) and to observe the following fuel pattern.

Sr. No	Stack Attached To	APC System	Height in Mtrs.	Type of Fuel	Quantity & UoM	S%
1	(LCP-5) Waste Heat Recovery System Kiln-5	Bag Filters	62	Mixed Gas (BG &COG)	13500 Nm3/hr	--
2	(LCP-6) Waste Heat Recovery System Kiln-6	Bag Filters	62	Mixed Gas (BG &COG)	13500 Nm3/hr	
3	(LCP-7) Waste Heat Recovery System Kiln-7	Bag Filters	62	Mixed Gas (BG &COG)	13500 Nm3/hr	
4	(LCP LDE-1) Lime De-dusting System for kiln Discharge	Bag Filters	35	---	---	---
5	(LCP LDE-2) Stone De-dusting System for kiln feed	Bag Filters	37	---	---	---
6	(LCP LDE-3) Stone De-dusting System for junction House	Bag Filters	30	---	---	---
7	(LCP LDE-4) Lime De-dusting System for product storage building	Bag Filters	35	---	---	---
8	(LCP LDE-5) Stone De-dusting System for Lime Stone	Bag Filters	33	---	---	---
9	Pellet -2 Process ESP	ESP	100	---	---	---
10	Pellet -2 De-dusting ESP	ESP	50	---	---	---
11	Pellet -2 Storage Bin	Bag filters	45	---	---	---

Conditions under Air (P& CP) Act, 1981 for air emissions:						
12	SMS-2 Flare Stack-1	Stack	77	Natural Gas + Mixed Gas	---	---
13	SMS-2 Flare Stack-2	Stack	77	Natural Gas + Mixed Gas	---	---
14	SMS-2 Secondary De-dusting system	Bag filters	98.5	---	---	---
15	HSM-2 Reheating furnace	Stack	82	Mixed Gas	---	---
16	HSM-2 Reheating furnace	Stack	35	Mixed Gas	---	---
17	HSM-2 Fume exhaust	Bag filters	30.5	---	---	---
18	BF-2 Cast House De-dusting system	Bag filters	70.8	---	---	---
19	BF-2 Stock House De-dusting system-1	Bag filters	71	---	---	---
20	BF-2 Stock House De-dusting system-2	Bag filters	45	---	---	---
21	BF-2 Stock House De-dusting system-3	Bag filters	45	---	---	---
22	BF Stove Stack	Stack	80	---	---	---
23	BF-2 Coal Injection Coal grinding System	Bag filters	72.5	---	---	---
24	BF-2 BF Gas network flare stack-1	Stack	53.5	---	---	---
25	BF-2 BF Gas network flare stack-2	Stack	53.5	---	---	---
26	BF-2 BF Gas network flare stack-3	Stack	53.5	---	---	---
27	BF-2 BF Gas network flare stack-4	Stack	53.5	---	---	---
28	BF-2 Slag Granulation Stack	Stack	27.5	---	---	---
29	BF-2 Pig iron Granulation Plant	Stack	35	---	---	---
30	Power Plant (CPP) 245 MW	Stack	60	---	---	---
31	Incinerator	Stack	30	---	---	---

Conditions under Air (P& CP) Act, 1981 for air emissions:		
Sr. No	**Consent Condition**	**Compliance Status**
1	The internal roads shall be Cement concrete and shall be maintained with adequate green belt	Industry has provided cement concrete road in factory premises. All the major Internals roads have been concreted. Green belt development in progress on either side of the roads. Regular Sweeping of roads is being carried out by road sweeping machines.
2	Industry shall not cause any nuisance in surrounding area.	The fugitive emissions was observed within the factory premises as well as during vehicular movements.
3	Industry shall install 24*7 online continuous emission monitoring system at process stack to monitor stack emissions as per CPCB guidelines and its connectivity to CPCB and MPCB. PP shall calibrate these system from time to time.	Industry is in the process to install continuous emission monitoring system at process stacks to monitor stack emissions. Total 12 stacks installation already completed but connectivity to the MPCB and CPCB not done yet.
4	Coal Handling Plant shall be provided with dust collector, complete dust extraction arrangement automatic water sprinkling with fog nozzles shall be provided wherever necessary for dust suppression. a) Dust generation points machinery will be covered by hoods. b) Spraying of water as necessary at working area, dump area, stock piles etc. c) Coal shall be properly covered during transportation. d) Carryout tree plantation along road side. e) Black topping metaled/tarred/MBF slag mixed cement road shall be provided. f) Overloading of dumpers shall be avoided to prevent spillages.	Industry has provided dust extraction system to Coal Handling plant. All the transfer points related to the Coal handling section has been provided with adequately design capacity for collection of Dust. Also provided dust suppression by Sprinkling arrangement. Hoods has been provided to all the Dust Generation Points with dampers and Side skirts for sealing of the Transfer point. Water sprinkler done on daily basis on roads and stock piles. Coal is transported through closed conveyor system only. All the junction houses / transfer points of coal are having de-dusting system. Also Coal is stored in the Covered shed. Road side tree plantation is in progress. All the internal roads are Concrete roads and cleaning is done by road sweeping machines. Raw material is transferred through closed conveyors. For internal transportation of material, the overloading is controlled at loading point to avoid spillages.
5	Raw material Handling and Preparation	

Conditions under Air (P& CP) Act, 1981 for air emissions:		
a.	Unloading of coal by trucks or wagons should be carried out with proper care avoiding dropping of the material from height. It is advisable to moist the material by sprinkling water while unloading.	Industry has provided closed conveyor system to transport coal and other raw material from Jetty to main plant. There is no material dropping from height.
b.	Crushing and screening operation should be carried out in enclosed area. Centralize de-dusting facility (collection hood and suction arrangements followed by de-dusting unit like bag filter or ESP or equally effective method or wet scrubber and finally discharge of emission through a stack) should be provided to control fugitive particulate matter emissions. Particulate matter emission level in the stack should not exceed 100 mg/Nm3. Water sprinkling arrangement should be provided at raw material heaps and on land around the crushing and screening units.	De-dusting system with Bag Filter installed at Coal crushing area, Coke Handling area, Iron ore fines handling area. Water sprinkler system provided at Raw material handling area.
c.	Enclosures should be provided for belt conveyors and transfer points of belt conveyors.	All the belt conveyors and transfer points are closed system. De-dusting system provided at the transfer points of Conveyors Constructed Covered sheds for storage of raw materials like coal, Iron ore and fluxes.
d.	Cooler Discharge and Product separation unit-enclosure should be provided for belt conveyor and transfer points of belt conveyors. Dust extraction cum control system to be installed preferably bag filters/ESP or equally effective method to arrest product loss in cooler discharge and product separation area. The stack emission not be exceed 100 mg/Nm3. (Particulate matter)	Product discharge and product separation/ screening areas have been provided with De-dusting system with bag filters and ESPs as per the requirement. All the de-dusting systems have been provided with ID fan and Bag filters with self-supporting stacks. The stacks emissions are designed as per the Euro Norms.
e.	Extensive plantation/green belt shall be developed along the road and boundary line of the industry	Road side and avenue tree plantation is in progress in the plant as per the space availability.
f.	Kiln of gas treatment with efficient de-dusting shall be provided waste heat utilization for power generation should be followed a) Provision of gas conditioning tower followed by pollution control system for small capacity kiln (size 100 TPD and below) b) Entrepreneur having more than 100 TPD kilns shall use WHRB for generation of power. Adequately designed ESP or Bag filters or wet scrubbing system or any other adequate air pollution control system/combination of system should be installed to achieve the prescribed stack emission standards.	Waste heat recovery system and waste heat recovery boilers provided in the plant. Blast Furnace 2 – Top Gas Recovery turbine provided which generates power of 37.25 MW. BF Gas will be utilized for generate power of 175 MW. Coke Dry Quenching systems at Coke oven plant generate power of 70 MW. Bag Filters and ESPs with adequate air pollution control system installed to achieve the prescribed stack emission standards.

Conditions under Air (P& CP) Act, 1981 for air emissions:		
g.	The safety cap/emergency stack of rotary kiln type plant, which is generally installed above the After Burner Chamber (ABC) of feed end column should not be used for discharging untreated emission by passing the air pollution control device. In the midst of a process, the auxiliary stack cap which is generally kept closed is opened only when, There is process disturbance and non-functioning of kiln off gas system.	Industry do not have Rotary Kiln

Conditions about Non-hazardous waste				
Sr. No	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
1.	Calcinated Lime Fines	69350 T/A	Reuse	The non-hazardous waste generated is again reused in the process.
2.	ESP and Bag filter dust	20000 T/A	Reuse	
3.	KR Slag	50005 T/A	Reuse	
4.	LD Slag	747520 T/A	Reuse	
5.	LHF/RHD Slag	50005 T/A	Reuse	
6.	Bag filter dust	19929 T/A	Reuse	
7.	Bolder Slag generation from dry pit	180000 T/A	Reuse	
8.	HSM Sludge	102000 T/A	Reuse	
9.	BF dust catcher fines	174400 T/A	Reuse	
10.	BF GCP dust	33600 T/A	Reuse	
11.	Cast house DE system dust	5400 T/A	Reuse	
12.	Stock house DE system dust	5400 T/A	Reuse	
13.	Slag generation from SGP	1937500 T/A	Reuse	
14.	Scale	24911 T/A	Reuse	
15.	Refractory Waste	29894 T/A	Reuse	
16.	SMS GCP fines	100375 T/A	Reuse	
17.	Tundish Skull	6077 T/A	Reuse	
18.	Ladle Skull	14600 T/A	Reuse	
19.	Metalic Scrap	60000 T/A	Reuse	

Conditions about Hazardous and Other Wastes (M & TM) Rules, 2016 for treatment & disposal of Hazardous Waste				
Sr. No	**Consent Condition**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
1	Used/Spent Oil (5.1)	200 KL/A	Sale to authorized recycler	Industry is recently commission the expansion plant.
2	Waste or residue containing oil (5.2)	10000 Kg/A	CHWTSDF/Used as fuel in steel melting shop/blast furnace	
3	Oil Filters	600 Kg/A	Used in Furnace	
4	Glass Wool	20 Ton/A	CHWTSDF	
5	Copper Scrap	100 Ton/A	Sale to authorized recycler	
Conditions under Plastic Waste Management Rules, 2016 (Notification dtd. 18.03.2016)				
Sr. No	**Consent Condition**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
1	Plastic Waste	100 Ton/A	Sale to authorized recycler	Industry is recently commission the expansion plant.
Condition under E-waste Management				
Sr. No	**Consent Condition**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
	E-waste	1 Ton/A	Sale to authorized recycler	Industry is recently commission the expansion plant.
Specific conditions and BG compliance				
1	PP Should study feasibility towards provision of single oven pressure control system and shall submit implementation plan within 03 months.			This condition is related to the existing plant of Amba River Coke Ltd. Industry has carried out feasibility towards provision of single oven pressure control system and allotted work to the agency for installation of oven pressure control system.
2	PP shall complete Bag house modification of GCP3 within 03 months.			This condition is related to the existing SMS Plant. Industry has made the modification of Bag House of GCP3 plant.
3	PP shall carryout leachability study of steel melting slag and submit report within 03 months.			This condition is related to the existing SMS Plant. Industry has carried out leachability study of steel melting slag.
4	PP shall up-grade the existing CAAQMS for Benzo (a) Pyrene (BaP) monitoring.			Industry has not upgraded the existing CAAQMS for the parameter Benzo (a) Pyrene (BaP).

		Industry has approached to the vendors of the CAAQMS for the installation of the Benzo (a) Pyrene (BaP) parameter. It is in process.
5	PP shall strictly follow the recommendations of NEERI's carrying capacity study report.	Industry has submitted the copy of carrying capacity study report. The implementation work on recommendation as per the report is in process.
6	Industry shall submit the BG of Rs. 25 lakhs towards O&M of pollution control system and towards compliance of EC and consent conditions.	BG submitted.
7	Industry shall submit the BG of Rs. 25 lakh towards O&M of pollution control systems	BG submitted.

- **COKE OVEN PLANT-2 (Battery A & B having total capacity 1.5 MTPA)**

The compliance status to the major conditions of Coke Oven Plant is as follows:

Consent Status				
1	Consent No	Format 1.0/CAC/UAN No. MPCB- Consent- 0000101988/CR-2110000975 dated 21.10.2021.		
2	Consent validity	31.12.2022		
Sr. No.	**Product name**	**Maximum quantity**	**Actual Production As per annual report - 2021-22**	**EC granted dated 25/08/2015**
1	Dry Coke	1.5 MTPA	Industry has commissioned their plant in November 2021	3.5 MTPA
	By Product name			
2	Coke Oven Gas	75000 m^3/hr	Industry has commissioned their plant in November 2021	---
3	Tar	65693 Ton/A		---
4	Sulphur	4250 Ton/A		---
5	Crude Benzene, Toluene, Xylene	18624 Ton/A		---
6	Carbon Black (CB00,PITCH)	52378 Ton/A		---
7	Anthracite/Heavy Oil	3833 Ton/A		---
8	Light Oil	1916 Ton/A		---
9	Three Mix Oil	12775 Ton/A		---

Conditions under Water (P& CP) Act, 1974 for discharge of effluent:			
Sr. No	**Consent Condition**	**Disposal as per consent**	**Compliance Status**
1	Trade effluent permitted quantity of discharge: - 4176 CMD	Partly recycle and remaining marine discharge	Industry is generated about 3600 CMD trade effluent and same is treated in Biological Oxidation of De-Phenolization Plant (BOD) plant of capacity (350 M3/Hr) and treated effluent used partly for hot coke quenching purpose and remaining disposed into marine.
2	Domestic Effluent permitted quantity of discharge: - 48 CMD	On land for gardening	Industry is generated about 23 CMD domestic effluent and same is treated in Biological Oxidation of De-Phenolization (BOD) plant.
A	As per your application, you have provided ETP of designed capacity of 8400 CMD consisting of Biological Oxidation De-phenolization (BOD) plant which consist of 1) Pretreatment including oil separation pool and air floatation pool 2) The second stage is biological treatment stage including anaerobic pool, anoxia pool and aerobic pool for the treatment of 4176 CMD industrial effluent.		Industry has provided ETP based on Biological Oxidation of De-Phenolization Plant having capacity of 8400 CMD for treatment of effluent generated which consist of- • Dissolved Air floatation • Anaerobic sludge bed • Anoxic pool • Aerobic treatment • Primary & Secondary sedimentation tank

Conditions under Water (P& CP) Act, 1974 for discharge of effluent:		
		• Flocculation • Sand Filtration
B	As per EC conditions, project proponent shal achieve Zero Liquid Discharge (ZLD) at the end of completion of all the facilities, in the meantime maximum treated trade effluent shall be reused in the process and remaining shall discharge in to sea after confirming above standards and after obtaining necessary permission/clearance from concerned regulatory authorities.	Industry is using in partly treated effluent for hot coke quenching purpose and disposed into marine.
C	As per your application, you have provided septic tank and soak pit for the treatment of 48 CMD sewage.	Industry has provided septic tanks with soak pits for the treatment of 48 CMD sewage.
D	The treated sewage shall be utilized for gardening. In no case, treated sewage shall be disposed of outside factory premises	The sewage shall be treated in BOD plant (ETP) and the treated effluent is used partly for coke quenching purpose and disposed into marine.
E	Industry shall provide online continuous monitoring of effluent and flow meter in the channel/drain carrying effluent within the premises.	Industry has installed flow meter with camera at the outlet of the BOD plant. The connectivity with CPCB and MPCB servers is under process.
F	Prior permission shall be obtained from CGWA/Irrigation department, if ground water/surface water is being used for industrial/domestic purpose.	Industry is not using any ground water in the plant. Industry is using surface water for domestic purpose and the permission is obtained from Irrigation department.

Biological Oxidation of De-Phenolization (BOD) plant.

Conditions under Air (P& CP) Act, 1981 for air emissions:

Industry has provided following Air Pollution Control (APC) system and also erected following stack(s) and to observe the following fuel pattern.

Sr. No	Stack Attached To	APC System	Height in Mtrs.	Type of Fuel	Quantity & UoM	S%
1	Coke Oven Battery 1 &2 (Main Stack)	Natural draft	145 (common stack)	Coke Oven gas & blast Furnace gas	127500 Nm3/hr	With SO_2 content less than 800 mg/NM^3
2	Flare Stack	Stack	50	Coke Oven gas	5000 Nm3 /hr	
3	Boiler Stack	Stack	40.5	Coke Oven gas & Natural gas	7000 Nm3/hr	
4	DG Set	Acoustic enclosure	30	HSD	400 lit/hr	1
5	Wet Quenching Tower (for steam exhaust)	---	60	---	---	---
6	Ground de-dusting system					
i	Coke oven Battery Pushing side	Bag Filter	31	---	---	---
ii	Coke oven Battery Pushing side					

Sr. No	Consent Condition	Compliance Status
1	Standards for emission of air pollutants Fugitive visible emissions a. Leakage from door: 5 (PLD) b. Leakage from charging lids: 1 (PLL) c. Leakage from AP covers: 2 (PLO) d. Charging emission (second/charge): 16 (with HPLA)	Industry has Complied the visible emissions from battery as per the notification of Ministry of Environment, Forest & Climate GSR 277 (E) dated 31.03.2012 i.e. 50 second for Stamp Charging. Existing Coke oven is designed for stamp charging only not for top charging.
2	The internal road shall be cement concrete and shall be maintained with adequate green plant	All the internal roads in the coke oven plant has been concreted. Avenue plantation is done along the road side.
3	Industry shall install 24*7 online continuous monitoring system at process stack to monitor emissions as per CPCB guidelines and it's connectivity to CPCB & MPCB Servers. PP shall Calibrate these system from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.	Online continuous emission monitoring system installed at process stacks of coke oven plant. Data connectivity in MPCB and CPCB is in progress.
4	Continuous monitoring system shall be installed or monitoring Sulphur Dioxide & Suspended Particulate Matter and results submitted to the Board every fortnight. The results for continuous monitoring done on daily basis shall be submitted after every 15 days to Regional	Online continuous emission monitoring system installed at process stacks of coke oven plant for the parameters TPM, SO2, NOx, Temperature and Flow. Data connectivity in MPCB and CPCB is in progress.

Conditions under Air (P& CP) Act, 1981 for air emissions:		
	Officer, Nagpur with a copy to Member Secretary, Mumbai. In the event of difficulty in providing the continuous monitoring system, monitoring shall be done daily and results be submitted as started above.	
5	The form shall provide continuous flow meter for the measurement of flow of the effluent.	Flow meter has been installed for measuring the flow of treated effluent at BOD. Data connectivity with MPCB and CPCB is in progress.
6	Industry shall install a separate meter showing the consumption of energy for operation of domestic and industrial effluent treatment plants.	Separate Energy meters provided for ETP.
7	The firm shall provide continuous flow meter for the measurement of flow of the effluent.	Flow meter has been installed for measuring the flow of treated effluent at BOD. Data connectivity with MPCB and CPCB is in progress.
8	Coal handling plant shall be provided with Dust Collector, complete dust extraction arrangement and Automatic Water Sprinkler with fog nozzles shall be provided where necessary for dust-suppression. Dust generation points/machinery shall be covered by hoods.	De-dusting system along with Dry fogging system provided at raw material handling system. All the junction houses and transfer point of Raw material are covered. Water sprinklers and rain gun arrangements provided at Raw material yard
9	Dust collector of sufficient capacity provided to coal crusher, pulverizes & all sources of dust emission shall be operated properly.	Dust collection system with bag filters provided at coal crusher, coke cutter and coke storage building and the system and found in operation.
10	Spraying of water on all working area, dump area, stockpiles.	Water sprinkling arrangements provided in dump area, stockpiles. Coal and coke storage are provided with covered shed.
11	Coal shall be properly covered during transportation.	Coal is transported by closed conveyor belt.
12	Black topper metalled roads shall be provided and well maintained to prevent dust formation.	All the internal roads in the coke oven plant has been concreted
13	Overloading of dumpers shall be avoided to prevent spillage.	The raw material is transported through closed conveyor belt.
14	Water of Water mixed chemical shall be sprayed at all strategic coal transfer points such as conveyors, loading unloading points etc. As far as practically possible conveyors, transfer points etc., shall be provide with enclosures.	The raw material is transported through closed conveyor belt. De-dusting system are provided at all transfer points.
15	The crushers/pulverizes of the coal washery shall be provided with enclosures, fitted with suitable air pollution control measures finally emitted through a stack of minimum height of 30 m, confirming particulate emission standard of 150 mg/Nm3 or provided with adequate water sprinkling arrangement.	The coal crushing house is provided with de-dusting system with bag filters. The system have been provided followed by stack with adequate height. All the transfer points have been transported through closed conveyor system.

Conditions under Air (P& CP) Act, 1981 for air emissions:		
16	Water sprinkling by using the fine atomizer nozzles arrangement shall be provided on the coal heaps and on the land around the crushers/pulverizes.	Dry fogging system (fine atomizer nozzles arrangement) provided at coal crushing. Coal is stored in the covered shed.
	Raw Material Handling and Preparation	
17	Unloading of coal by trucks or wagons should be carried out proper care avoiding dropper of the material from height. It is advisable to moist the material by sprinkling water while using unloading.	Coal is received at Jetty through barges and transported in the yard through the closed conveyors and de-dusting system provided at transfer points.
18	Crushing and screening operation should be carried out in enclosed area. Centralizes de-dusting facility (collection hood and suction arrangements followed by de-dusting unit like bag-filter or ESP or equally effective method or wet scrubber and finally discharge of emission through a stack) should be provided to control Fugitive Particulate Matter Emissions. Particulate Matter Emission level in the stack should not exceed 100 mg/Nm3. Water sprinkling arrangements should be provided at raw material heaps and on land around the crushing and screening units.	All Crushing and screening operations of Coal and coke is carried out in the closed system with adequate de-dusting system.
19	Work area surrounding the plant shall be asphalted or concreted.	All the internal roads in the coke oven plant has been concreted
20	Enclosure should be provided for belt conveyor and transfer points of belt conveyor	All the conveyors provided for transportation of material are in closed system along with de-dusting / dust suppression systems at transfer points.

Conditions about Non-hazardous waste				
Sr. No	**Type Of Waste**	**Quantity & UoM**	**Disposal path as per consent condition**	**Compliance Status**
1	Coal and Coke Dust from De-dusting system	15,000 T/A	100% Recycle for coke making	Industry is generated Coal and coke dust from de dusting system and coke breeze as a non-hazardous waste and same is 100% reused in Coke oven, Sinter and Pellet plant. 1. Coal and Coke Dust from De-dusting system – 313.7 T/A 2. Coke Breeze – 12175 T/A
2	Coke Breeze	73718 T/A	100% recycled in Sinter and Blast Furnace	
Conditions about Hazardous and Other Wastes (M & TM) Rules, 2016 for treatment & disposal of Hazardous Waste				
	Consent Condition		**Disposal path as per consent condition**	**Compliance Status**

1	Used/Spent Oil (5.1)	30,000 Litre/Year	Sale to authorized reprocessor/recycler	Used Oil is being used in internal purpose for coke making for binding of coal for better Cake formation. Hence It is not disposed to Recycler.
2	Spent Catalyst (29.5)	16 T/A	CHWTSDF	Not generated in the year 2020-21
3	Chemical Sludge from waste water treatment (35.3)	225 T/A	CHWTSDF	Chemical sludge from Wastewater treatment plant is being mixed with coal and used in the Coke making process as per SOP.
4	Decanter tank tar sludge (13.4)	156.25 T/A	100% recycle for coke making	Tar sludge generated in the year 2020-21 is 53.39 T/A and same is used in Coke Processing as per CREP.
5	Wastes/residue containing oil (cotton waste) (5.2)	225 T/A	CHWTSDF	Wastes/residue containing oil generated in the year 2020-21 is 740 Lit/A which is used in Electric Arc Furnace
6	E-waste	0.25Ton/A	Sale to authorized re-cycler	Not generated in the year 2020-21
	BG compliance			
1	Industry shall submit the BG of Rs. 50 lakh towards compliance of conditions stipulated in Environmental Clearance			Industry has submitted BG of Rs. 50 lakh and the validity is up to 31 March 2023
2	Industry shall submit the BG of Rs. 10 lakh towards O&M of pollution control system and compliance of consent conditions			Industry has submitted BG of Rs. 10 lakh and the validity is up to 31 March 2023
	Specific conditions			
1	Industry shall install online continuous monitoring system as per CPCB guidelines and data to be transmitted directly from Data logger to Boards server			Installed online continuous monitoring system for process stacks as per CPCB guidelines. Data connectivity with CPCB and MPCB is in progress.
2	Specific condition on page no 6 of VI of EC shall be strictly comply i.e. “No development should be done on the creek word side of the land. Land area between HTL to 100 meters or width of the creek, whichever is less, on the landward side should be kept free from any type of development”. Town planning Authority shall monitor the compliance of the said condition as directed by MCZMA			--
3	Industry shall carryout carrying capacity of the area from renowned institute like NEERI/IIT within one year as industry is having various units in the said premises under Integrated Steel Plant and submit the report to the Board.			Industry has submitted the Carrying Capacity study report (Conducted by NEERI) to MPCB.
4	PP shall provide online monitoring system devices to ETP inlet and outlet within six months.			Industry has installed online monitoring system devices with flow meter and camera. Data Connectivity with MPCB and CPCB is in progress.

Annexure-19

Revised JSW EC Calculation Report (MPCB) revised 17.11.2022

From : roraigad@mpcb.gov.in — Thu, Nov 17, 2022 04:35 PM

Subject : Revised JSW EC Calculation Report (MPCB) revised 17.11.2022 — 1 attachment

To : robmw@mpcb.gov.in, jdwater@mpcb.gov.in, NISHCHAL C <nischal.cpcb@nic.in>

Cc : sroraigad2@mpcb.gov.in

Sir,
Please find attached herewith the revised EC calculation as per discussion during the Draft finallization report of Joint committee wrt M/s. JSW Steel Ltd V/s. Samita Patil for your information and approval please.

Regards,
V. V. Killedar
I/C Regional Officer,
Maharashtra Pollution Control Board, Raigad
Email:-roraigad@mpcb.gov.in

"SAVE PAPER"-THINK BEFORE YOU PRINT!
POWER BEHIND ENVIRONMENT...M.P.C.B.

JSW EC Calculation Report (MPCB) revised 17.11.2022.docx
35 KB

The Environmental Compensation is calculated as per the Report of the CPCB In House Committee on Methodology for Assessing Environmental Compensation and Action Plan to utilize the fund.

In this case following non-compliances/violation considered for levying Environmental Compensation (EC)

a) Not complying with the directions issued, such as direction for closure due to non-installation of OCEMS, non – adherence to the action plans submitted etc.

b) Accidental discharge lasting for short durations resulting into damage to the environment.

c) Discharge in violation of consent conditions, mainly prescribed standards / Consent Limits.

The Environmental Compensation calculated considering CPCB methodology.

$$EC = PI \times N \times R \times S \times LF$$

Where,

I. PI = Pollution Index i.e. 80 for RED industry
II. N = No of Days of Violation
III. R = Factor = 250
IV. S= Scale of Industry i.e. 1.5 as Large Scale Industry
V. LF = Location Factor i.e. 1.0 as Population below 5 million

1. **Board has issued following directions dated 17.04.2014**,
   I. To install online continuous stack emission monitoring system before 31.03.2015.
   II. To connect and upload the online emission and effluent monitoring data to the Board and CPCB server in a time bound manner before 31.03.2015

Compliance -

I. Industry has installed online continuous stack emission monitoring system by 30.06.2015. Industry has connected and uploaded online emission monitoring data to CPCB and MPCB server by 12.09.2015. **[violation period 166 days]**

I. EC = 80 x 166 x 250 x 1.5 x 1.0 = 49,80,000/-

2. Board has issued following proposed direction to the industry on 29.08.2017.

At the time of visit dated 27.08.2017, ground de-dusting system was not in operation which resulted into fugitive emission from charging and pushing of ovens cell.

Compliance -

The Ground De-dusting system was taken under scheduled maintenance on 27.08.2017 and The Ground De-dusting system was put into operation immediately after the maintenance work on 28.08.2017**. [violation period 2 days]**

EC = 80 x 2 x 250 x 1.5 x 1.0 = 60,000/-

3. **The board has issued proposed direction to the industry on 30.05.2018.**

I. The fugitive emissions were observed from roof top of HSM plant which reveals that the existing air pollution control system is not operated properly & it is not adequate.

II. The slag cooling/quenching effluent is found overflowed from slag cooling effluent collection pit which find its way into storm water drain having alkaline in nature.

Compliance -

I. Industry replaced the pump 7.5 HP and discharge was stopped on the same day. **[violation period 1 day]**

EC = 80 x 1 x 250 x 1.5 x 1.0 = 30,000/-

4. **Board officials has visited to coke oven plant on 27.11.2018 and proposed direction issued to the industry on 28.11.2018.**

There was a lot of smoke/dust emission were observed from coke oven battery 1 & 2 and not operating pollution control system scientifically. Hence, air pollution has been observed in the surrounding area.

Compliance -

Industry has taken corrective steps and regularize the operation of flue gas exhauster system within a same day on 27.11.2018. **[violation period 1 days]**

EC = 80 x 1 x 250 x 1.5 x 1.0 = 30,000/-

5. **Board has issued Direction to the industry on 06.11.2019.**

Dust emissions were observed from the roof top of HSM plant. The secondary emission control system not operated properly and seems to be inadequate/efficient. Accordingly, the Board has issued direction dated 06.11.2019 and directed to minimize the fugitive emissions by the way of scientific operations and up-gradation of APC system including "Industry shall make offset to complete up-gradation work on or before Dec. 2019."

Compliance -

Industry has completed phase-wise installation /modifications of Gas Cleaning Plants (1, 2, 3 and 4 shell) in all respect to control secondary emissions by 31.12.2020. **[violation period 365 days]**

EC = 80 x 365 x 250 x 1.5 x 1.0 = 1,09,50,000/-

6. **Board has issued proposed direction to the industry on 30.07.2020.**

The Huge / large scale fugitive, yellowish brown air emission from Coke oven plant was observed due to failure of air pollution control system, resulting created smoky clouds kind of situation in and around factory premises and also in nearby area.

Compliance -

Industry has taken corrective steps and regularize the operation of flue gas exhauster system within a same day **on 29.07.2020. [violation period 1 days].**

EC = 80 x 1 x 250 x 1.5 x 1.0 = 30,000/-

7. **Board has issued non-compliance letter to the industry on 03.01.2022 due to non-compliances were observed during the visit dated 29.12.2021 such as leakages observed in transfer points of raw material, steam outlets were open in various section of Sinter plant, SMS plant etc., water collection tank was overflowed near Sinter plant, De-silting material was observed laying along the side of natural nall etc. Industry vide letter dated 04.01.2022 submitted their reply and taken corrective measure immediately. Hence, environmental compensation for this minor non-compliance was not considered.**

Conclusion: -

Board has referred to the CPCB methodology for assessing environmental compensation towards non-compliances with respect to directions/consent issued by the Board.

Considering the various non-compliances referred above from serial no. 1 to 8 viz. non-compliance of direction issued by the Board from time to time, exceedance of source emission, and non-compliances of consent conditions. It is recommended to direct the industry to pay total environmental compensation of Rs. 02,01,90,000/-

Total EC = 49,80,000 + 60,000 + 30,000 + 30,000 + 1,09,50,000 + 30,000 = Rs. 1,60,80,000/-

Non-compliances with respect to directions/consent issued by the Board to JSW Steel Ltd and environmental compensation

Sr. No.	Direction letter no. & date		Non-compliances reported	Compliance status	Compliance Date	No. of days of violation considered
1.	17.04.2014	Direction No. MPCB/ROR/PD/140417-FTS-0144	To install online continuous stack emission monitoring system before 31.03.2015	They have installed online continuous stack monitoring system for Sponge Iron Plant and Power Plant stacks (6 Nos.) and for other plants continuous stack emission monitoring system for 11 major process stack.	12.09.2015	166 days = 49,80,000/-
			To install online effluent quality monitoring systems at the outlet of ETP for the measurement of flow and other parameter before 31.03.2015	The continuous stack emission data from 6 stacks are uploaded in MPCB and CPCB server.		
2.	29.08.2017	Proposed Direction vide letter MPCB/ROR/PD/ 170829-FTS-0260 dated 29.08.2017	At the time of visit ground de-dusting system was not in operation which resulted into fugitive emission from charging and pushing of ovens cell.	Industry informed that the Ground De-dusting system was taken under scheduled maintenance on 27.08.2017 and therefore, the Ground De-dusting system could not be put into operation due to safety reasons. However, the other air pollution control system comprising of the Charge Gas Transfer Car with High Pressure Liquor Ammonia aspiration at Oven top was in operation and therefore, the emissions from the coke oven were under control. Industry	28.08.2017	2 Days =60,000/-

Sr. No.	Direction letter no. & date		Non-compliances reported	Compliance status	Compliance Date	No. of days of violation considered
				reported that the Ground De-dusting system was put into operation immediately after the maintenance work on 28.08.2017.		
3.	30.05.2018	Proposed Direction vide letter MPCB/RO R/TB/ PD/2286	Board officials has visited plant on 22.05.2018. The fugitive emissions were observed from roof top of HSM plant which reveals that the existing air pollution control system is not operated properly & it is not adequate.	The Cleaning and leakage arrest of water-cooled ducts during shell shutdown was done to control fugitive emissions.	22.05.2018	1 Day =30,000/-
			You have discharged the effluent generated from slag cooling/quenching having alkaline pH into storm water drain which ultimately goes outside factory premises, thereby violated consent conditions.	In EAF slag cooling system industry has provided collection tank having primary and secondary tank with pumps in the slag cooling area. During the inspection of MPCB officials on 22.05.2018, shell 3 & 4 slag cooling water recirculation system was under maintenance due to which, certain amount of water was flowing outside the collection pit. Thereafter, immediate action has been taken by replacing the pump 7.5 HP and discharge was stopped immediately.		

Sr. No.	Direction letter no. & date		Non-compliances reported	Compliance status	Compliance Date	No. of days of violation considered
4.	28.11.2018	Proposed Direction No. ROR/181128-FTS-0001	There was a lot of smoke/dust emission were observed from coke oven battery 1 & 2.	Emissions were observed during the cleaning process of the chocked gas passage of gooseneck and was subsided after cleaning.	27.11.2018	1 Days =30,000/-
5.	06.11.2019	Direction No. ROR/2019/1911060002	Dust emissions were observed from the roof top of HSM plant. The secondary emission control system not operated properly and seems to be inadequate/efficient. Accordingly, the Board has issued direction dated 06.11.2019 and directed to minimize the fugitive emissions by the way of scientific operations and up-gradation of APC system including "Industry shall make offset to complete up-gradation work on or before Dec. 2019."	Industry has completed phase-wise installation /modifications of Gas Cleaning Plants (1, 2, 3 and 4 shell) in all respect to control secondary emissions by 31.12.2020.	31.12.2020	365 Days =1,09,50,000/-

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Sr. No.	Direction letter no. & date		Non-compliances reported	Compliance status	Compliance Date	No. of days of violation considered
6.	30.07.2020	Proposed Direction No. ROR/PD/2007300002	Huge / large scale fugitive, yellowish brown air emission from Coke oven plant due to failure of air pollution control system, resulting created smoky clouds kind of situation in and around factory premises and in nearby area which threatened the environment and human health of nearby villager/ peoples.	Industry reported that during operations of coke oven plant II on 29.07.2020, there was emissions from Coke Oven Battery at 10.21 am due to the problem with the Gas exhauster B. Gas exhauster is one of the critical equipment in coke oven plant. It is a centrifugal blower with gas handling capacity of 92500 Nm3/hr with 1.4MW motor and fluid coupler. We have installed three gas exhausters. Due to problem with gas exhauster B, there was a spike observed in exhauster B motor winding temperature 1TISA 41533B and when it reached 145oC, exhauster tripped as per safety interlock system. Since exhauster A was ready as standby, it was started by 10.30 am after opening the necessary valves and it was taken in load by 10.35 am and Gas collecting main pressure was normalized around 160Pa and all bleeders were closed. All the running parameters found to a normal range. To prevent the incidence in future, actions were taken to control tripping.	20.07.2020	1 Days =30,000/-
Total environmental compensation					**Rs. 1,60,80,000/-**	

आरोग्य विभाग
जिल्हा परिषद अलिबाग

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जाक/राजिप /आरोग्य/ /२०२२
दिनांक १८/०१/२०२२

जिल्हाधिकारी कार्यालय रायगड
आवक क्र : 4663
दिनांक : 19 JAN 2022
शाखेचे नाव मदत कक्ष

To,

Hon. District Collector Sir,
Raigad,Alibag

Subject:- Constituted of joint Commitee as per Hon.NGT Order OA No 165/2020 dated 25.05.2021 with respect to Samita Rajendra Patil V/s Jindal Steel Works Ltd & Ors.

Reference:- Hon NGT Order New Delhi Dated- 27.05.2021, Sub Committee date 02.12.2021.

Respected Sir,

With reference of above subject as per sub committee's instruction dated 02.12.2021,

1) We have collected annual medical health checkup data of 499 workers/employees working in Jindal Steel Works Ltd & Ors. coke oven plant (Annexure A).
2) We have also performed medical examination of coke oven plant workers/employees with respect to respiratory health hazards. (Annexure B)
3) As per Company administratration's statement coke oven plant was started Since 2016., So we have collected annual medical health checkup data of 499 employees with respect to Respiratory health hazards of coke oven plant from Jindal Steel Works Ltd & Ors. from year 2016 to 2021.(As data from 2010 to 2015 is not available).
4) After analysing the annual medical health checkup data of (2019) with respect to respiratory health hazards Pulmonary function test of 457 out of 499 (91.5%) employee's was within normal range.(upto > 80%) and Pulmonary function test of 42 (8.5%) employee's was not within normal range and all were tobacco chewers and cigarette smokers.
5) We received 499 employees list of coke oven plant from Jindal Steel Works Ltd & Ors. As per subcommitees instruction dated 02.12.2021 we performed medical checkup with respect to respiratory health hazards. We randomly selected 50 employees and performed Pulmonary function test (PFT). out of

that 42 (84%) employee's Pulmonary function test was within normal range(>80%) and 8 (16%) employees Pulmonary function test was not within normal range(>75%).

After analyzing the annual medical checkup data of employees from 2016 to 2021 and our randamoly selected medical examination data with respect to respiratory health hazards, it is observed that near about (7.5%) health impact with respect to respiratory health hazards was found in those employees working in coke oven plant in Jindal Steel Works Ltd & Ors.

As per industrial health and safety (Factory ACT 1978) it considered as permisable occupational health hazards.

Observations

- Out of 499 employees working in coke oven plant 457 (91.5%) were having normal PFT (>80%) and 42 (8.5%) were having abnormal / derranged PFT i.e <80%
- With reference to subcommittee's instruction dated 02.12.2021 District Health Office Raigad Health Team visited the plant and randomaly carried out PFT of 50 out of 499 employees it was observed that 42 (84%)out of 50 employees were having normal PFT (>80%) and 8 (16%) were having impaired/derranged PFT(<80%)i.e having respiratory health hazards
- Comparision of health hazards of coke oven plant in 2019 (8.5%) and in 2022 (16%) show (7.5%) rise in health hazard effects on employees of coke oven plant in Jindal Steel Works Ltd & Ors. As per (Factory ACT 1978) are within permisable occupational health hazards.

DISTRICT HEALTH OFFICER
RAIGAD ZILLA PARISHAD ALIBAG

आरोग्य विभाग
जिल्हा परिषद अलिबाग

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दिनांक / /२०२२

Annexure A

Sr no		Department	Period	Certifing Surgen Name	Name Of the person	Gender	FEV1/ FVC	Status	Other Details
1	JSW Steel Ltd	Coke Oven	17-10-2016 to 24-01-2017	Dr Prakash Shendge	Atmaram Sharma	M	79.22 %	MILD	Smoking
2	JSW Steel Ltd	Coke Oven	22-05-2017 to 17-09-2017	Dr Prakash Shendge	PANKAJ PATIL	M	78.36 %	MILD	Smoking
3	JSW Steel Ltd	Coke Oven	08-01-2018 to 15-05-2018	Dr Prakash Shendge	SANJAY KUMAR	M	72.85 %	SEVERE	Chewing Tobacco
4	JSW Steel Ltd	Coke Oven	08-01-2018 to 15-05-2018	Dr Prakash Shendge	SHYAM MADAN JHA	M	79.45 %	MILD	Smoking
5	JSW Steel Ltd	Coke Oven	08-01-2018 to 15-05-2018	Dr Prakash Shendge	KALAPPA PATIL	M	77.62 %	MILD	Smoking
6	JSW Steel Ltd	Coke Oven	08-01-2018 to 15-05-2018	Dr Prakash Shendge	ISRAIL MIYA	M	79.69 %	MODERATE	Smoking
7	JSW Steel Ltd	Coke Oven	08-01-2018 to 15-05-2018	Dr Prakash Shendge	RAMBALAK TANTI	M	71.62 %	SEVERE	Chewing Tobacco
8	ATSPL	Coke Oven	24-08-2018 to 03-11-2018	Dr Pushparaj Khanna	SUBHARJIT MUDALI	M	79.29 %	MILD	Smoking
9	ATSPL	Coke Oven	24-08-2018 to 03-11-2018	Dr Pushparaj Khanna	Kartika Lenka	M	78.76 %	MILD	Chewing Tobacco
					Shashi God	M	79.64 %	MODERATE	Smoking
10	ATSPL	Coke Oven	24-08-2018 to 03-11-2018	Dr Pushparaj Khanna	Baliram Gawand	M	76.95 %	SEVERE	Chewing Tobacco
11	ATSPL	Coke Oven	24-08-2018 to 03-11-2018	Dr Pushparaj Khanna	Rajendra Panigrahy	M	79.62 %	MILD	Chewing Tobacco
12	ATSPL	Coke Oven	24-08-2018 to 03-11-2018	Dr Pushparaj Khanna	Ashok Ram	M	79.52 %	MILD	Smoking
13	ATSPL		24-08-2018	Dr	Munna Prasad	M	79.45	MODER	Chewing

		Coke Oven	to 03-11-2018	Pushparaj Khanna			%	ATE	Tobacco
14	ATSPL	Coke Oven	24-08-2018 to 03-11-2018	Dr Pushparaj Khanna	Jitendra Kumar Rao	M	79.62 %	MILD	Smoking
15	ATSPL	Coke Oven	24-08-2018 to 03-11-2018	Dr Pushparaj Khanna	JAYPRAKASH YADAV	M	79.62 %	MILD	Smoking
16	ATSPL	Coke Oven	24-08-2018 to 03-11-2018	Dr Pushparaj Khanna	MEER AKIB	M	78.65 %	MILD	Smoking
17	ATSPL	Coke Oven	10-01-2019 to 30-03-2019	Dr Uttam Kumar Shinde	Jitendra Rao	M	79.62 %	MILD	Smoking
18	ATSPL	Coke Oven	10-01-2019 to 30-03-2019	Dr Uttam Kumar Shinde	Brahm Mahto	M	79.13 %	MODER ATE	Smoking
19	ATSPL	Coke Oven	10-01-2019 to 30-03-2019	Dr Uttam Kumar Shinde	MAHENDAR RAM	M	79.13 %	MILD	Chewing Tobacco
20	ATSPL	Coke Oven	10-01-2019 to 30-03-2019	Dr Uttam Kumar Shinde	MANAS RAJAN BHUYAN	M	79.62 %	MILD	Smoking
21	JSW Steel Ltd	Coke Oven	23-07-2019 to 19-10-2019	Dr Prakash Shendge	SAROJ KUMAR OJHA	M	79.52 %	MODER ATE	Smoking
22	ATSPL	Coke Oven	02-01-2020 to 18-03-2020	Dr Prakash Shendge	KISHOR KOLI	M	77.56 %	MILD	Chewing Tobacco
23	ATSPL	Coke Oven	02-01-2020 to 18-03-2020	Dr Prakash Shendge	MURARI CHAURASIA	M	78.69 %	MILD	Smoking
24	ATSPL	Coke Oven	02-01-2020 to 18-03-2020	Dr Prakash Shendge	AKHILESH SAHNI	M	78.89 %	MODER ATE	Smoking
25	ATSPL	Coke Oven	02-01-2020 to 18-03-2020	Dr Prakash Shendge	PRADEEP SAHOO	M	77.90 %	MILD	Chewing Tobacco
26	ATSPL	Coke Oven	02-01-2020 to 18-03-2020	Dr Prakash Shendge	TAPAN SAHOO	M	78.23 %	MILD	Chewing Tobacco
27	ATSPL	Coke Oven	02-01-2020 to 18-03-2020	Dr Prakash Shendge	TOPHAN MIRKAP	M	78.45 %	MODER ATE	Smoking
28	ATSPL	Coke Oven	02-01-2020 to 18-03-2020	Dr Prakash Shendge	MANMOHAN PATNAIK	M	76.55 %	SEVERE	Chewing Tobacco
29	ATSPL	Coke Oven	02-01-2020 to 18-03-2020	Dr Prakash Shendge	LALAN KUMAR	M	77.79 %	MILD	Smoking
30	ATSPL	Coke Oven	02-01-2020 to 18-03-2020	Dr Prakash Shendge	RUDAL YADAV	M	76.38 %	SEVERE	Chewing Tobacco

31	ATSPL	Coke Oven	02-01-2020 to 18-03-2020	Dr Prakash Shendge	DEEPAK KHANOJIYA	M	78.59 %	MODERATE	Smoking
32	ATSPL	Coke Oven	02-01-2020 to 18-03-2020	Dr Prakash Shendge	MANGAL YADAV	M	77.89 %	MODERATE	Chewing Tobacco
33	ATSPL	Coke Oven	02-01-2020 to 18-03-2020	Dr Prakash Shendge	MUNDRIKA RAM	M	76.63 %	SEVERE	Chewing Tobacco
34	ATSPL	Coke Oven	02-01-2020 to 18-03-2020	Dr Prakash Shendge	KAMLESH YADAV	M	78.69 %	MODERATE	Smoking
35	ATSPL	Coke Oven	02-01-2020 to 18-03-2020	Dr Prakash Shendge	SHESHNATH YADAV	M	77.23 %	MODERATE	Smoking
36	ATSPL	Coke Oven	02-01-2020 to 18-03-2020	Dr Prakash Shendge	AJAY KHANOJIYA	M	78.66 %	MILD	Smoking
37	ATSPL	Coke Oven	02-01-2020 to 18-03-2020	Dr Prakash Shendge	MD GULZAR	M	77.52 %	MODERATE	Smoking
38	ATSPL	Coke Oven	02-01-2020 to 18-03-2020	Dr Prakash Shendge	SURYAKANT KUMAR	M	77.12 %	MODERATE	Smoking
39	ATSPL	Coke Oven	02-01-2020 to 18-03-2020	Dr Prakash Shendge	Irfan I Momin	M	78.23 %	MILD	Chewing Tobacco
40	ATSPL	Coke Oven	02-01-2020 to 18-03-2020	Dr Prakash Shendge	Imran Ismail Raut	M	77.89 %	MILD	Smoking
41	ATSPL	Coke Oven	02-01-2020 to 18-03-2020	Dr Prakash Shendge	Jaydeep Bhaskar Roy	M	78.56 %	MILD	Chewing Tobacco
42	ATSPL	Coke Oven	02-01-2020 to 18-03-2020	Dr Prakash Shendge	Sourabh Kasturay	M	76.59 %	SEVERE	Chewing Tobacco

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दिनांक / /२०२२

Annexure B

Sr No	Location	Department	Date	Certifying Surgen Name	Name of the person	Emp No	Gender	Age	FVC	FEV 1	PEF	Status	Other Details
1	JSW STEEL LTD	Coke Oven	11.01.2022	Health Departmen t Raigad	Rahul Raj	1088274	M	32	98	88	82%	Normal	NA
2	JSW STEEL LTD	Coke Oven	11.01.2022	Health Officer Raigad	Dharmend ra Yadav	31347	M	45	100	100	91%	Normal	NA
3	JSW STEEL LTD	Coke Oven	11.01.2022	Health Officer Raigad	Mananjay K Singh	2560	M	35	82	87	93%	Normal	NA
4	JSW STEEL LTD	Coke Oven	11.01.2022	Health Officer Raigad	Kanhaiyya Lal	2771	M	38	89	88	89%	Normal	NA
5	JSW STEEL LTD	Coke Oven	11.01.2022	Health Officer Raigad	Sunil Kumar	3653	M	42	86	88	82%	Normal	NA
6	JSW STEEL LTD	Coke Oven	11.01.2022	Health Officer Raigad	Pramod Kumar	31175	M	30	80	100	96%	Normal	NA
7	JSW STEEL LTD	Coke Oven	11.01.2022	Health Officer Raigad	Roshan Kumar	2239	M	32	88	89	100 %	Normal	NA
8	JSW STEEL LTD	Coke Oven	11.01.2022	Health Officer Raigad	Sanatan Patil	16536	M	40	88	100	98%	Normal	NA
9	JSW STEEL LTD	Coke Oven	11.01.2022	Health Officer Raigad	Abhishek	1025421	M	28	88	100	100 %	Normal	NA
10	JSW STEEL LTD	Coke Oven	11.01.2022	Health Officer Raigad	Ganesh Jadhav	15008	M	33	80	100	98%	Normal	NA
11	JSW STEEL LTD	Coke Oven	12.01.2022	Health Officer Raigad	Rupesh Singh	30605	M	47	90	96	96%	Normal	NA
12	JSW STEEL LTD	Coke Oven	12.01.2022	Health Officer Raigad	Ganesh Kumar Singh	30046	M	45	97	95	100 %	Normal	NA
13	JSW STEEL LTD	Coke Oven	12.01.2022	Health Officer Raigad	M D Gulzar	30012	M	38	65	63	85%	Normal	NA
14	JSW STEEL LTD	Coke Oven	12.01.2022	Health Officer Raigad	Vinod Yadav	30132	M	32	65	73	80%	Normal	NA
15	JSW STEEL LTD	Coke Oven	12.01.2022	Health Officer Raigad	Pramod Kumar Raut	30478	M	41	62	71	92%	Normal	NA
16	JSW STEEL LTD	Coke Oven	12.01.2022	Health Officer Raigad	Pradeep K Shrivastav	30387	M	48	88	90	100 %	Normal	NA

17	JSW STEEL LTD	Coke Oven	12.01.2022	Health Officer Raigad	Subhash Pandit	30384	M	33	80	85	80%	Normal	NA
18	JSW STEEL LTD	Coke Oven	12.01.2022	Health Officer Raigad	Rahul K Mahato		M	29	65	60	62%	Moderate	NA
19	JSW STEEL LTD	Coke Oven	12.01.2022	Health Officer Raigad	Pramod Kumar Panigrahi	30103	M	38	75	73	90%	Normal	NA
20	JSW STEEL LTD	Coke Oven	12.01.2022	Health Officer Raigad	Dharmendra Kushwaha	30017	M	42	41	37	28%	Severe	NA
21	JSW STEEL LTD	Coke Oven	12.01.2022	Health Officer Raigad	Ravindra Chauhan	30019	M	45	52	47	41%	Severe	NA
22	JSW STEEL LTD	Coke Oven	12.01.2022	Health Officer Raigad	Saurabh Kasturi	15423	M	30	96	95	80%	Normal	NA
23	JSW STEEL LTD	Coke Oven	12.01.2022	Health Officer Raigad	Sheshnath Yadav	30517	M	29	47	51	37%	Severe	NA
24	JSW STEEL LTD	Coke Oven	12.01.2022	Health Officer Raigad	Dipak Kanojia		M	31	76	77	72%	Mild	NA
25	JSW STEEL LTD	Coke Oven	12.01.2022	Health Officer Raigad	Ganapati Powar	2083	M	36	69	73	88%	Normal	NA
26	JSW STEEL LTD	Coke Oven	12.01.2022	Health Officer Raigad	Sumant Chindhwankar	1023010	M	29	87	96	100%	Normal	NA
27	JSW STEEL LTD	Coke Oven	12.01.2022	Health Officer Raigad	Ravi Kumar	1015391	M	31	80	90	90%	Normal	NA
28	JSW STEEL LTD	Coke Oven	12.01.2022	Health Officer Raigad	Chetan Patil	1018354	M	45	81	81	99%	Normal	NA
29	JSW STEEL LTD	Coke Oven	12.01.2022	Health Officer Raigad	Arun Sharma	13935	M	47	100	100	92%	Normal	NA
30	JSW STEEL LTD	Coke Oven	12.01.2022	Health Officer Raigad	Mahendra K Ram	16813	M	29	80	88	98%	Normal	NA
31	JSW STEEL LTD	Coke Oven	13.01.2022	Health Officer Raigad	Akhilesh Sohani	30222	M	29	78	79	77%	Moderate	NA
32	JSW STEEL LTD	Coke Oven	13.01.2022	Health Officer Raigad	Kartik Lenka	30025	M	33	79	70	80%	Normal	NA
33	JSW STEEL LTD	Coke Oven	13.01.2022	Health Officer Raigad	Jayprakash Yadav	30055	M	40	78	76	80%	Normal	NA
34	JSW STEEL LTD	Coke Oven	13.01.2022	Health Officer Raigad	Manay R Bhushan	30198	M	38	90	93	94%	Normal	NA
35	JSW STEEL LTD	Coke Oven	13.01.2022	Health Officer Raigad	Uttam Rao	30107	M	35	90	92	94%	Normal	NA
36	JSW STEEL LTD	Coke Oven	13.01.2022	Health Officer Raigad	Sumit M Kumar	30211	M	38	89	90	99%	Normal	NA

37	JSW STEEL LTD	Coke Oven	13.01.2022	Health Officer Raigad	Lalan Kumar	30240	M	42	89	92	93%	Normal	NA
38	JSW STEEL LTD	Coke Oven	13.01.2022	Health Officer Raigad	Pramod K Singh	30001	M	50	89	88	90%	Normal	NA
39	JSW STEEL LTD	Coke Oven	13.01.2022	Health Officer Raigad	Mangal Yadav	30007	M	52	80	82	89%	Normal	NA
40	JSW STEEL LTD	Coke Oven	13.01.2022	Health Officer Raigad	Ajay Ram	30216	M	28	82	81	80%	Normal	NA
41	JSW STEEL LTD	Coke Oven	13.01.2022	Health Officer Raigad	Rajendra B Panigrahi	30104	M	34	85	82	85%	Normal	NA
42	JSW STEEL LTD	Coke Oven	13.01.2022	Health Officer Raigad	Deepak Kumar Das	30098	M	48	88	82	86%	Normal	NA
43	JSW STEEL LTD	Coke Oven	13.01.2022	Health Officer Raigad	Dileshwar Sahoo	30096	M	30	88	89	82%	Normal	NA
44	JSW STEEL LTD	Coke Oven	13.01.2022	Health Officer Raigad	Shailesh K Singh	30062	M	45	80	81	88%	Normal	NA
45	JSW STEEL LTD	Coke Oven	13.01.2022	Health Officer Raigad	Sanjay Kumar	30080	M	42	55	45	43%	Severe	NA
46	JSW STEEL LTD	Coke Oven	13.01.2022	Health Officer Raigad	Mudrika Ram	30053	M	44	54	49	49%	Severe	NA
47	JSW STEEL LTD	Coke Oven	13.01.2022	Health Officer Raigad	Rakesh Kumar Pandey	15697	M	38	94	93	94%	Normal	NA
48	JSW STEEL LTD	Coke Oven	13.01.2022	Health Officer Raigad	Pamin Chakrabor ty	16955	M	41	88	83	100 %	Normal	NA
49	JSW STEEL LTD	Coke Oven	13.01.2022	Health Officer Raigad	Rahuldeb Chatterjee	1087885	M	32	93	90	100 %	Normal	NA
50	JSW STEEL LTD	Coke Oven	13.01.2022	Health Officer Raigad	Shashank Tiwari	1016811	M	32	100	81	95%	Normal	NA

DISTRICT HEALTH OFFICER
RAIGAD ZILLA PARISHAD ALIBAG

Normal Values of pulmonary function test

Percentage of predicted PFT value	Result
80% or greater	Normal
70% - 79%	Mildly abnormal
60% - 69%	Moderately abnormal
50% - 59%	Moderate to severely abnormal
35% - 49%	severely abnormal
Less than 35%	very severely abnormal

Annexure-21

Government Of Maharashtra
Department Of Fisheries
ASSISTANT COMMISSIONER OF FISHERIES, RAIGAD- ALIBAG.
3rd Floor, Sidhi Apartment, Pen Road, Alibag - 402 201.
Phone/ Fax : 02141 295221 email : acfalibag@gmail.com

Outward no.ACF/Rai /3068/2022 **Date: 2 /06/ 2022**

To,
Hon. Collector and
District Magistrate, Raigad

Subject: - Hon NGT Order O A No. 165/2020, dtd 25.5.2021
w r t Samita Rajendra Patil V / s J.S.W. & Ors
Concerning convening of sub-committee meeting ..

References: - 1. Letter no. Sam / Rai / Ni / 5850/2021 dt 16/12/2021
2. The meeting held under your chairmanship. 6/1/2022

Respected Sir,

With due respect we would like to inform you that a petition has been filled in a National green tribunal related above said subject. In this regard, an audit report has been requested from the all the fishing organizations in Dharamtar Creek. herewith audit report of all the fishing organizations is being submitted to you for further action.

As per the instructions given in the meeting held on January 6, 2022, revenue production reports of eleven organizations were requested to submit. Reports is being submitted to you for further action.

Yours faithfully,

Attachments:- 0

(S. R. Bharti)
Assistant Commissioner Fisheries
Raigad-Alibag

जिल्हाधिकारी कार्यालय रायगड
कार्यवती नोंदणी शाखा
आवक क्र : 31095
दिनांक : 03 JUN 2022
शाखेचे नांव भाग्या/31-3

Report on The Effect on Fishery of Dharamtar Creek

There are 11 fisheries co-operative societies near Dharamtar creek in Raigad district. These organizations depend on fishing Dharamtar Creek. Under Govt.Order Matsyavi-1113 / Pr.No.307 / Padum-14 dated 9/7/2014 a committee has been set up to study the problems of Dharamtar creek fishermen in the Raigad district. This committee deals with the Industrial projects near the creek and their effect on fish availability.

The functions of the committee are as follows.

1. To study whether the livelihood of the fishermen has been exhausted due to the jetty of 2 companies in Dharamtar Estuary.
2. To check and determine the extent of fisheries in the creek due to shipping in Dharamtar creek.
3. Number of affected fishing families and losses incurred
4. To check effects of Industries on Dharamtar Estuary as well as on the coast of the State.
5. To suggest permanent measures in case of adverse effects on the fisheries in the creek due to shipping in Dharamtar creek and discharge of industrial effluent in the creek.
6. Fish species affected by pollution and measures to be taken for their conservation.

Since the formation of the committee, 8 meetings have been held till date and at once all the committee members have been jointly visited in Dharamtar Estuary. In addition, a declaration of 1937 fishermen from the Dharamtar Creek region has been obtained.

On 2/12/2021 The Collector has directed to submit a report on the decline in fishing in Dharamtar Estuary in the district. However, due to lack of funds, the work of the committee has not been completed.

Revenue production reports of eleven organizations of Dharamtar Creek were requested to submit. This information has been obtained from the offices of District Special Auditor Class-II, Co-operative Societies (ADF), Thane and related organizations. From the reports we can conclude that revenue generation of eight institutions declined. A report is being submitted to you for further action.

The following is the details of the revenue received from the fishery by the co-operative societies near Dharamtar Estuary. This amount is in rupees and is the revenue received by the organization from the sale of fishing.

Revenue received from fishing in Dharamtar Estuary area

Sr. No.	Name fisheries co-operative society	Place of Society	Tahsil	Revenue obtained from Fish Sale in Rs.				
				2015-16	2016-17	2017-18	2018-19	2019-20
1	Bahireswar Fisheries Co-operative Society	Dherand	Alibag	18,95,000	19,37,250	19,91,000	25,40,950	21,61,500
2	Vighnaharta Fisheries Co-operative Society	Mothe Shahapur	Alibag	35,01,000	34,32,000	9,29,800	14,70,000	8,65,200
3	Maridevi Fisheries Co-operative Society	Dhakate Shahapur	Alibag	0	0	10,89,400	21,72,500	7,71,750
4	Kasumata Fisheries Co-operative Society	Shahabaj	Alibag	31,50,000	10,10,000	12,60,000	20,43,200	19,74,000
5	Maheswar Fisheries Co-operative Society	Kovale	Pen	7,300	0	15,100	4,900	4,800
6	Raje Shivkalyan Fisheries Co-operative Society	Beneghat	Pen	41,24,000	26,58,100	10,50,000	25,73,000	21,78,078
7	Vijay Mhasoba Fisheries Co-operative Society	Shirki Chal no.2	Pen	0	0	3,37,900	57,000	16,680
8	Juibandar Fisheries Co-operative Society	Jui	Pen	9,88,000	0	9,02,500	8,74,500	7,13,625
9	Daryavarti Fisheries Co-operative Society	Ghodabandar	Pen	0	0	0	16,500	25,080
10	Amba Bhavani Fisheries Co-operative Society	Mothe Bhal	Pen	16,74,500	1,50,000	90,000	3,31,866	2,22,462
11	Shri Ganesh Fisheries Co-operative Society	Benvale Bedi	Pen	0	0	0	6,200	0

From above information we can conclude that revenue from fisheries of Sr. No. 2, 3, 4, 5, 6, 7, 8 & 10 Fishermen's Co-operative Societies is decreased compared to 2015-16. However, it will not be possible to give a definite report on the decline of fish availability due to pollution of companies or movement of companies' barges or any other reason. Government Resolutions and Government Supplementary Letters regarding this Committee are being attached.

Yours faithfully,

(S. R. Bharti)
Assistant Commissioner of Fisheries
Raigad-Alibag

Government Of Maharashtra
Revenue & Forest Department
Collector & District Magistrate, Raigad
Near Hirakot Lake, Tal. Alibag, Dist.Raigad 402 201
स्वातंत्र्याचा अमृत महोत्सव Phone No.02141-222118, Fax No.02141-227451, Email : tahasildarmahasul@gmail.com

No.R.B./Land/A-03/45274//2022 Date :16/09/2022

To,
The Senior Environmental Engineer,
Central Pollution Control Board,
Regional Directorate, Pune.

Subject:- Report with respect to points in minutes of the meeting of Five- Member committee dated 19.11.2021,constituted as per order of Hon'ble NGT, New Delhi dated 27.05.2021passed in O. A. No.165/2020
(Samita Rajendra Patil V/s Jindal Steel Works Ltd. & Ors.)

Reference:-Your Office E-mail dated 03/08/2022.

In reference to the above referenced email, you have been asked following information in line with National Green Tribunal, New Delhi vide original application no.165/2020. This office has received the information from the concerned department regarding the said issues and the details are as follows.

Sr. no.	Assessment on various activities/studies	Responsible agency/ Sub-committee	Action Taken Report
1	M/s JSW is carrying out repairing activities of damaged Kharbandisti band using waste slag materials without permission from the concerned authority.	Kharland Department	In concern with said issue, information is received from Executive Engineer Kharland Department, Pen vide letter no.2 /2008/2022 dated 05/08/2022. The copy of the same is enclosed herewith for further action. Enclosures:- letter dated 1/06/2016 and 13/04/2018, 24/02/2022.

2	Additional aqquisition of land by M/s JSW in 2012 without following due procedure and permission.	District Revenue Department	In concern with said issue, information is received from Sub Divisional Officer, Pen vide letter no.Land NGT 165-2020/ 2022/1630 dated 08/08/2022. The copy of the same is enclosed herewith for further action.
3	Location of plant (phase-II) is under the CRZ-I, II & III.	District Revenue Department	

16/9/22

(Dr. Padmashree Bainade)
Residential Deputy Collector
Raigad-Alibag

NGT-165-2020

Government of Maharashtra
Revenue and Forest Dept,
Sub Divisional Officer, Sub Division Pen

विभागीय आयुक्त कोकण

❖ Telephone no.2143-253000 ❖ ❖ e-mail:sdopen2013@gmail.com ❖

No : UVA/LAND/2920/NGT-165/2022 Dated.13/09/2022

To,
The District Collector,
Raigad-Alibag

Sub: - Report with respect to points in minutes of the meeting of five-Member committee dated 19.11.2021 constituted as per order of Hon'ble NGT New Delhi dated 27.05.2021 passed in O.A. NO.165-2020 (samita rajendra patil V/s Jindal Steel Works Ltd. & Ors.)

Ref:- Your letter No.MS/Land/A-3/NGT-165/2020/2022, dated 3/08/2022

Respected Sir

The above subject reference letter, The original application no.165/2020 was filed in National Green Tribunal, New Delhi. The Senior Environmental Engineer, Central Pollution Control Board, Regional Directorate, Pune has directed to submit a detailed report as per the e-mail dated 03/08/2022.

Accordingly, w.r.t. email dated 03/08/2022 submitting report related to the point no.02 and 03 in a following format.

S.No.	Assessment on various activities/ studies	Responsible agency/Sub-committee
1.	Additional acquisition of land by M/s JSW in 2012 without following due procedure and permission	As per the available records, the JSW Steel Ltd. and erstwhile Ispat Industries Ltd, Nippon Denro Ispat Ltd. has obtained the permission from the Development Commissioner, Directorate of Industries, Government of Maharashtra for purchase of land. The copies of said permissions are attached herewith. As per the above said permissions, the lands are purchased by executing the Sale Deeds for consideration and the said Sale Deeds are duly registered in the concerned Sub Registrar Offices.

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2.	Location of plant (phase-II) is under the CRZ-I,II & III	JSW Steel has obtained the building permission dated 30th January,2020 from the Collector, Raigad. As per the approved CRZ Map of 2011 and drawings approved by the Additional Director,Town Planning-Alibag and the Collector Raigad, the phase-II plant of the Company in not falling with in the CRZ area. The copy of said approved drawing is attached herewith.

Yours faithfully,

(Vitthal Inamdar)
Sub-Divisional Officer,Pen
Sub-Division,Pen

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महाराष्ट्र शासन
भूमापन विभाग
जमाबंदी अधिकारी, तालुका परिक्षेत्र व भूमापन विभाग, पेण, जि.रायगड
सनियंत्रण, मा.अपर संचालक तथा संचालक भूमि अभिलेख पुणे यांचे यशवंत
दूरध्वनी क्र.०२१४२-२५२२२०
ई-मेल tahsildarpen@gmail.com
दिनांक :-०७/०९/२०२२

To
District Collector
Raigad Alibag

Sub:- Report with respect to points in minutes of the Meeting held on 19.08.2021 conducted as per order of Hon'ble Chief Secretary dtd 17.08.2021 passed in O.A.No.1165/2020 Smita Waghmare and Anr. Vs. Union of India & Ors. Work End & Ors.

Ref:- Tahsildar (Revenue) District Collector Office, Raigad vide letter No. DMN/ D/165/2020 dated 03/08/2022

Reply of point no 2 reference letter is submitted below.

Point No.1 :- M/s JSW IS Carrying out repairing activity of damaged khar bandhara by using the material without permission from concerned authority.

Reply :- In 2016 Hund of khar pachels scheme was largely breached. As a result [illegible] beneficial area / Reclaimed area was substantially affected. Also adjacent area of [illegible] Ghadkamba & Jui habbas were also affected. Human habitations were endangered because [illegible] of saline water. Thus public representative and residents demanded urgent completion of [illegible] regard meetings were conducted at District Collector level as well as Hon. Chief Minister level. However due to lack of funds at Khar land Department it was instructed to complete [illegible] for over JSW.

As stated in point no 2 JSW has obtained permission from Khar land Department for repairing breached portion & repairing of entire bund. The copy of letters are attached herewith.

(S.B.Shinde)
Executive Engineer
Khar land Survey & Investigation
Department,
Pen-Raigad

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1945

महाराष्ट्र शासन
जलसंपदा विभाग
कार्यकारी अभियंता, खारभूमी सर्वेक्षण व अन्वेषण विभाग, पेण, रायगड
खारेपाट, गजानन महाराज मंदिराजवळ, उंबर्डे, ता.पेण,जि.रायगड
ई-मेल - eiswrdeekldpen@gmail.com
दुरध्वनी – २४०५६८६८९०

जा.क्र.खाभूसवअवि/प्रशा-१/४५७/२०२२ दिनांक :-२४/०२/२०२२

To,
General Manager and Public Relations Officer/Manger,
JSW Steel Co. Ltd Dolvi,
Taluka-Pen,Dist- Raigad.

Subject:- Machela Chirbi Kharland Scheme Taluka Pen Dist-Raigad. restoration of bund from ch.3220 Mtr to ch.4820 Mtr & restoration of cd work (Ughadi) for ch. No. 3330 Mtr to ch. No. 3680 Mtr, work to be carried out by company CSR fund.

Ref: - Executive Engineer, kharbhumi Survey & Investigation Department , Field inspection dtd 11.02.2022.

Pursuant to the above reference, subject under the jurisdiction of Kharbhoomi sub-division, pen office, Machela Chirbi Kharbhoomi Yojana taluka Pen district Raigad, [illegible] restoration work from No. 0 Mtr to No. 3320 Mtr has been completed through JSW Company. CD work & Bund from chainge 3320 m to 4820 are damaged. Therefore saline water is entering reclaimed area in a large amount and the benefit area is becoming barren. Therefore restoration of bund from ch. 3220m to ch. 4820m & restoration of CD work of ch.3330m & 3680 should be done by company from CSR fund of company under the technical guidance of this office. The Sub-Divisional Officer has also been informed about this.

This is for your information and further action.

Executive Engineer
Khar and Survey and Investigation Division
Pen-Raigad

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Letter no.301/2016 01.06.2016

To,
Managing Director,
JSW Limited,Dolavi,
Taluka. Pen, District. Raigad

Subject: Regarding closing and opening (bandisti and ughadi) Kharghat, Khar Chibri, Khar Machela creek.

Reference: Letter of Chairman Aai Akadevi Farmer Affected Social Society, Gadab, Taluka. Pen, District. Raigad dtd. 26.05.2016.

The Aai Akadevi Farmer Affected Social Society is located in the Taluka of Gadab District of Pen Raigad has been informed to JSW that they have purchased a land. However, as of the date of land purchase, JSW has not maintained and repaired any bandhara because of this creek water was entered into rice crop land farmland becomes infertile. Also, opening of the creek not repaired and it has been informed to you in writing. This office had already informed to JSW, but no action has been taken by JSW. Further, myself the concerned department engineer, and farmers visited the site on 01/06/2016 to verify that the reference letter issue and observed fact was true and accurate. There is a loss of farmers due to the Kharland scheme. Hence, you company has to be carried out maintenance work prior to rainy season to avoid further loss. Otherwise henceforth JSW will be held as a responsible for loss of farmers.

Enclose: Letter of Chairman Aai Akadevi Farmer Affected Social Society, Gadab, Taluka. Pen, District. Raigad dated 26/5/2016

Assistant, Executive Engineer,
Deputy Kharland Department,
Pen-Raigad

1947

Letter no.843/2018 13.04.2018

To,
Managing Director,
JSW Company,
Vadkhal, Taluka. Pen, District. Raigad.
(Kind Attention:-Shree Arun Shirke Deputy General Manager)

Subject: - Regarding the repair of check dam located at Village. Dhombi, Khaar Machela chirbi Taluka Pen District . Raigad.

Ref: - 1) Your office Letter No. 2017 dtd. 27/05/2017.
2) Deputy Divisional Officer, Pen office letter No. 2018 dtd. 04/04/2018.
3) Your office letter dtd. 07/04/2018.
4) Assistant Executive Engineer, Kharbhumi Development Sub Division, Pen office letter No. KBV/UV/Ad/244, dtd.11/04/2018.

In accordance with the above subject, you are informed that under Machela Chabri Kharbhumi Yojana Taluka Pen division under District Raigad, Machela Chibri Kharbhumi Yojana Taluka Pen Khandi has been damaged due to breach of embankment and inundation of fields of farmers in adjacent areas like Jui Habbas Pale Malsbad Deoli Dhombi etc. This fact is known to you.

According to letter No. 1, your company and management are always positive about the resolving problems of the local people and are always ready to provide the necessary help. However, before the onset of monsoon last year, your company could not do the repair work of the canals in the said area due to field problems.

Since April 2016, Assistant Executive Engineer Kharland Development Sub Division Pen and Sub Divisional Officer Pen have discussed and made correspondence with your company regarding this work, but due to regional difficulties the work has not yet started due to which the loss is increasing at the regional level.

Your company has already purchased 57.82 hectares of land in Machela Chibri Kharbhumi Yojana rehabilitation area. According to the Kharland Act, in case of emergency, repairing the embankment of the salt marsh and protecting the reclaimed area from salt water is the responsibility of the salt marsh department as well as your

company as a beneficiary. Also, as mentioned in Reference Letter No. 1, out of moral responsibility, your company and management are always positive about the problems of the local people and always ready to provide the necessary help. Earlier in our meeting with Sub Divisional Officer, Pen on 23/05/2017, we have agreed to complete the repair of Khandi at our level (Letter of Sub Divisional Officer, Pen dated 24/05/2017).

As no route is available to go to the actual working area in such an emergency, this office requests to adopt an alternative route to work at the actual working level as mentioned earlier by the Assistant Executive Engineer Kharbhumi Development Sub Division, Pen.

1) This office requests to adopt the nearest route of Johnson Company inspected by the Assistant Executive Engineer of the Department on 27/02/2018.

2) To adopt transportation of construction materials by boat from Dharamtar creek, the canal repair work should be started through your company.

Through this department, appropriate follow-up is going on regarding guidance with the revenue department as well. There is still a month and a half to two months before the rainy season of 2018 begins. It is necessary to repair the canal in the said area before this monsoon. Otherwise, there will be more damage to the rice fields of the beneficiaries and there will be public unrest and there is a high possibility of dissatisfaction among the people.

To avoid the said situation and chaos among the people, please, do the repair work of the said canal through your company and this department must be completed before the monsoon.

However, it is requested to start the repair work of canal by adopting the alternative route as mentioned above.

Submitted for information and further action in the matter please.

Executive Engineer
Kharland Survey and Inspection Division
Pen-Raigad

07/09/022

DN NO. 594
Date 14/9/22

महाराष्ट्र शासन
महसूल व वनविभाग
जिल्हाधिकारी व जिल्हादंडाधिकारी कार्यालय, रायगड-अलिबाग
हिराकोट तळवाजवळ, अलिबाग, ता.अलिबाग, जि.रायगड ४०२२०१
❖दुरध्वनी क्र:०२१४१-२२२११८/२२२०९७/२२३३२२❖फॅक्स क्र:०२१४१-२२७४५१❖
❖ई-मेल:- tahsildarmahasul@gmail.com ❖

क्र.मशा/जमीन/अ.०३ /४५२७४/२०२२ दिनांक :२५ /०८/२०२२

प्रति,
वरीष्ठ पर्यावरण अभियंता,
केंद्रिय प्रदुषण नियंत्रण मंडळ,
प्रादेशिक संचालनालय, पुणे

विषय:- Report with respect to points in minutes of the meeting of Five-Member committee dated 19.11.2021, constituted as per order of Hon'ble NGT, New Delhi dated 27.05.2021passed in O. A. No.165/2020
(Samita Rajendra Patil V/s Jindal Steel Works Ltd. & Ors.)

संदर्भ:- आपल्या कार्यालयाकडील दि.०३/०८/२०२२ रोजीचा ई-मेल संदेश.

उपरोक्त संदर्भीय ई-मेल व्दारे आपण मा.राष्ट्रीय हरीत न्यायाधिकरण, नवी दिल्ली यांनी ओरिजनल ॲप्लीकेशन क्र.१६५/२०२० च्या अनुषंगाने खालील मुददयांच्या अनुषंगाने संबंधित विभागाचे अभिप्राय /माहिती मागविलेली आहे. उक्त मुददयांबाबतची संबंधित विभागाची माहिती या कार्यालयाकडे प्राप्त झालेली असून, त्याबाबतचा तपशील खालीलप्रमाणे आहे.

Sr. no.	Assessment on various activities/studies	Responsible agency/ Sub-committee	Action Taken Report
१	M/s JSW is carrying out repairing activities of damaged Kharbandisti band using waste slag materials without permission from the concerned authority.	Kharland Department	उक्त मुददयांच्या अनुषंगाने, या कार्यालयाकडे प्राप्त कार्यकारी अभियंता, खारभूमी सर्वेक्षण व अन्वेषण विभाग, पेण यांचेकडील पत्र जा.क्र.खाभूसवअवि/प्रशा-२/२००८/२०२२,दि.०५/०८/२०२२ रोजीच्या अहवालाची प्रत आवश्यक त्या कार्यवाहीसाठी सोबत जोडली आहे.
२	Additional acquisition of land by M/s JSW in २०१२ without following due procedure and permission.	District Revenue Department	उक्त मुददयांच्या अनुषंगाने, या कार्यालया कडे प्राप्त उपविभागीय अधिकारी पेण यांचेकडील पत्र क्र.उविअ/ जमिनबाब/ NGT१६५-२०२०/२०२२/१६३०, दि.०८/०८/२०२२ रोजीच्या अहवालाची प्रत आवश्यक त्या कार्यवाहीसाठी सोबत जोडली आहे.
३	Location of plant (phase-II) is under the CRZ-I, II & III.	District Revenue Department	

सोबत पाने १ ते ९७ जोडली आहेत.

For m/a, pl.
M-NGT Sc.D
13/9/2022

24/8/22
(डॉ.पद्मजा कलताडे)
निवासी उपजिल्हाधिकारी
रायगड- अलिबाग

महाराष्ट्र शासन
जलसंपदा विभाग
कार्यकारी अभियंता, खारभूमी सर्वेक्षण व अन्वेषण विभाग, पेण, ता.पेण, जि.रायगड
खाचरखिंड, गजानन महाराज मंदिरा जवळ मुंबई गोवा महामार्ग
दुरध्वनी -९४०५६८६८९०
ई.मेल rdwrdeekldpen@gmail.com

जा.क्र.खाभूसवअवि/प्रशा-२/ २००८ /२०२२ दिनांक : ०५ /०८/२०२२

प्रति,
मा.जिल्हाधिकारी
रायगड-अलिबाग

जिल्हाधिकारी कार्यालय रायगड
मध्यवर्ती नोंदणी शाखा
आवक क्र : 45869
दिनांक : 22 AUG 2022
शाखेचे नांव मशा/जमीन

विषय:- Report with respect to points in minutes of the meeting of five Member committee dated 19.11.2021 constituted as per order of Hon ble NFT.New Delhi dated 27-05-2021 passed in O.A.NO. 165-2020(Samita rajendra patil V/s Jindal Steel Works Ltd & Ors).

संदर्भ :- तहसिलदार (महसूल) जिल्हाधिकारी कार्यालय रायगड यांचेकडील पत्रक्र. मशा/जमीन/अ-०३/NGT/१६५/२०२०/दि. ०३/०८/२०२२

संदर्भिय पत्रातील मुद्दा नं. १ बाबतचा या कार्यालयाचा अभिप्राय पुढील प्रमाणे सादर करण्यांत येत आहे.

मुद्दा क्र. १ :- M/s JSW is carrying out repairi ng activities of damaged Kharbandisti bund using waste slag materials without permission from the concerned authority.

अभिप्राय:- खार माचेला खारभूमी योजनेच्या बांधाला सन २०१६ च्या दरम्यान मोठ-मोठया खांडी जावून सदर योजनेच्या लाभक्षेत्राची मोठया प्रमाणात हानी झाली होती. त्याच प्रमाणे सदर योजनेला लागून असलेल्या खारडोंबी, जुई हब्बास या योजनांचे लाभक्षेत्र सुध्दा बाधीत झालेले होते. खा-या पाण्यापासून लोकवस्तीला मोठया प्रमाणात धोका पोहचला होता. सदरचे काम तातडीने करणे बाबत लोकप्रतिनिधी, ग्रामस्थ यांची मागणी होती. तसेच या प्रकरणी मा.पालकमंत्री/ मा. जिल्हाधिकारी यांचेकडे वेळोवेळी बैठका झाल्या होत्या त्यावेळी सुध्दा सदरचे काम खारभूमी खात्याकडे निधी उपलब्ध नसल्यामुळे J.S.W कंपनी मार्फत C.S.R फंडातून काम तात्काळ सुरु करण्याचा सूचना देण्यात आल्या होत्या.

मुद्दा क्र.१ मध्ये नमुद केल्याप्रमाणे जे.एस.डब्ल्यू कंपनीने माचेला चिर्बी खारभूमी योजनेचे खांडी दुरुस्तीचे व बांध दुरुस्तीचे काम करण्यापूर्वी खारभूमी विभागाची परवानगी घेतलेली आहे. त्या पत्रांच्या छायांकीत प्रती सोबत सादर करण्यांत येत आहेत.

कार्यकारी अभियंता,
खारभूमी सर्वेक्षण व अन्वेषण विभाग,
पेण-रायगड

सोबत:-
१) सहा.कार्य.अभि. खा.भू.वि.उप वि.पेण यांच दिनांक १/०६/२०१६ चे पत्र
२) या कार्यालयाचे दि.१३/०४/२०१८ चे पत्र
३) या कार्यालयाचे दि.२४/०२/२०२२ चे पत्र

प्रत:- मा प्रकल्प संचालक व अधीक्षक अभियंता, खारभूमी विकास मंडळ, ठाणे यांना माहितीसाठी सविनय सादर.
प्रत :- उपविभागीय अधिकारी (महसूल) पेण, यांना माहीतीसाठी व पुढील कार्यवाहीसाठी.
प्रत :- उपविभागीय अभियंता, खारभूमी विकास उपविभाग, पेण यांना माहीतीसाठी रवाना.

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मा.उ.व्यापस्थि/उपवि/पेण/प्रका/ 309 /2016
खारभूमी विकास उपविभाग,पेण
दिनांक :- 9/6/2016

प्रति,

मा.व्यवस्थापक,
जे.एस.डब्ल्यू.लि.
डोलवी, ता.पेण, जि.रायगड.

विषय:- खारघाट, खार चिर्वी खार मचेला खाडीच्या बंदिस्ती बाबत व उघाडी बाबत.

संदर्भ:- मा.अध्यक्ष, आई आकादेवी प्रकल्पग्रस्त शेतकरी सामाजिक विकास संस्था, मु.गडब, ता.पेण जि,रायगड यांचे दि. २६.५.२०१६ चे पत्र

उपरोक्त विषयानुसार आई आकादेवी प्रकल्पग्रस्त शेतकरी सामाजिक विकास संस्था, मु.गडब, यांनी आपल्या कंपनीने खरेदी केलेल्या जमिनी खरेदी केल्यापासून त्या जमिनीच्या बांध बंदिस्तीची देखभाल व दुरुस्ती कंपनीने न केल्यामुळे खारघाट, खार चिर्वी, खार मचेला भागातील बांधाला खांडी जाऊन खाडीचे खारे पाणी भात शेतीत घुसून भातशेती नापीक झालेली आहे. तसेच उघाडी देखील नादुरुस्त झाली आहे. असे लेखी कळविले आहे. याबाबत या कार्यालयाने यापूर्वीही आपणास कळविले आहे. तरी आपल्या कंपनीच्या भागातील खांडीची दुरुस्ती आपण केलेली नाही. तसेच याबाबत मी स्वत:, संबधीत शाखा अभियंता व सदर शेतकरी यांनी दि. १.६.२०१६ रोजी सदर ठिकाणाची पहाणी केली असता संदर्भिय अर्जात नमुद केल्या प्रमाणे वस्तुस्थिती खरी आहे. त्यामुळे सदर योजनेच्या प्रापण क्षेत्रातील शेतक-यांचे नुकसान झालेले आहे. तरी आपल्या कंपनीच्यामुळे शेतक-यांचे होणारे नुकसान पावसाळ्यापुर्वी खांडी व उघाडीचे काम तातडीने करुन देऊन टाळावे. अन्यथा पुढील होणा-या शेतक-यांच्या नुकसानीस आपणास जबाबदार धरण्यात येईल.

सहाय्यक कार्यकारी अभियंता,
खारभूमी विकास उपविभाग,
पेण-रायगड.

सोबत :- आई आकादेवी प्रकल्पग्रस्त शेतकरी सामाजिक विकास संस्था, मु.गडब, यांचे पत्र

प्रत :- मा.जिल्हाधिकारी,रायगड-अलिबाग यांना माहितीसाठी सविनय सादर.
प्रत :- मा.कार्यकारी अभियंता, खारभूमी सर्वे.व अन्वे.विभाग, पेण यांना माहितीसाठी सविनय सादर.
प्रत :-मा. उपविभागीय अधिकारी (महसूल) उपविभाग,पेण यांना महितीसाठी सविनय सादर.
प्रत.:-मा.अध्यक्ष, आई आकादेवी प्रकल्पग्रस्त शेतकरी सामाजिक विकास संस्था, मु.गडब, ता.पेण जि,रायगड यांना माहितीसाठी रवाना.

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महाराष्ट्र शासन
जलसंपदा विभाग
कार्यकारी अभियंता, खारभूमी सर्वेक्षण व अन्वेषण विभाग, पेण, ता.पेण, जि.रायगड
खारदांडिद, गजानन महाराज मंदिरा जवळ मुंबई गोवा महामार्ग
दुरध्वनी -०२१४३-२५२२०३ फक्स - ०२१४३-२५२२०३
ई-मेल rdwrdklidee@gmail.com

सत्यमेव जयते

जा.क्र.खाभूसव अवि/प्रशा-६५३ /२०१८ दिनांक :१३/०४/२०१८

प्रति,
मा.कंपनी व्यवस्थापक,
जे.एस.डब्ल्यू. कंपनी,
वडखळ,ता.पेण,जि.रायगड
(लक्षवेध:- श्री.अरुण शिर्के डेप्यूटी जनरल मॅनेजर)

विषय:- मौजे ढोंबी,खार माचेला चिर्बी ता.पेण,जि.रायगड
येथील खांडीच्या बांधाच्या दुरुस्तीबाबत.

संदर्भ :-
१) आपले कार्यालयीन पत्र क्र.२०१७/दि.२७/५/२०१७
२) मा.उप विभागीय अधिकारी,पेण यांचे कार्यालयीन पत्र क्र.२०१८/दि.०४/०४/२०१८
३) आपले कार्यालयीन पत्र दिनांक ०७/०४/२०१८
४) सहाय्यक कार्यकारी अभियंता, खारभूमी विकास उप विभाग,पेण यांचे कार्यालयीन पत्र क्र. खाभूवि/उवि/प्रशा/२४४,दि.११/४/२०१८

वरिल विषयानुसार आपणास कळविणेत येते की, या विभागाच्या अधिपत्याखालील माचेला चिर्बी खारभूमी योजनेस ता.पेण,जि.रायगड खांडी गेल्यामुळे व बंदिस्ती तुटल्यामुळे लगतच्या जुई हव्यास, पाले,म्हेसवाड,देवळी,ढोंबी इत्यादी भागातील शेतक-यांच्या शेतात भरतीचे खारे पाणी शिरल्यामुळे शेतीचे नुकसान झालेले आहे. ही वस्तुस्थिती आपणांस ज्ञात आहे.

संदर्भीय पत्र क्र.१ नुसार आपली कंपनी व व्यवस्थापन सदैव स्थानिक जनतेच्या समस्यांबाबत नेहमीच सकारात्मक असते व त्यासाठी आवश्यक ती मदत करण्यास नेहमी तयार असते. तथापी मागीलवर्षी पावसाळा सुरु होणे पूर्वी क्षेत्रीय अडचणीमुळे आपले कंपनीस सदर भागातील खांडी दुरुस्तीचे काम करता आले नाही.

माहे एप्रिल २०१८ पासून या विभागाकडील सहाय्यक कार्यकारी अभियंता खारभूमी विकास उप विभाग, पेण व उप विभागीयअधिकारी पेण यांचेकडून आपले कंपनीशी पत्रव्यवहार व काम करणे बाबत चर्चा झालेली आहे. परंतु क्षेत्रीय अडचणीमुळे अद्याप कामास सुरुवात झालेली नाही. त्यामुळे क्षेत्रीय स्तरावर नुकसानीत वाढ होत आहे.

माचेला चिर्बी खारभूमी योजनेतील पुन:प्राप्त क्षेत्रातील ५७.८२ हेक्टर इतके क्षेत्र आपले कंपनीने यापूर्वीच खोदी केलेले आहे. आपत्कालीन परिस्थितीत खारभूमी अधिनियमानुसार खारभूमी बांधाची डागडुगी करणे,

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दुरुस्ती करणे व पुर्नःप्रापित क्षेत्राचे खा-या पाण्यापासुन संरक्षण करणे ही जबाबदारी खारभूमी खात्या बरोबरच लाभधारक या नात्याने आपले कंपनीची सुध्दा आहे. तसेच नैतिक जबाबदारीच्या नात्यातून संदर्भीय पत्र क्र.१ मध्ये नमूद केल्याप्रमाणे आपली कंपनी व व्यवस्थापन सदैव स्थानिक जनतेच्या समस्यांबाबत नेहमीच सकारात्मक असते व त्यांसाठी आवश्यक ती मदत करण्यास नेहमी तयार असते. यापूर्वी माहे २३/५/२०१७ रोजी उप विभागीय अधिकारी,पेण यांचेशी झालेल्या बैठकीत आपण खांडी दुरुस्तीचे काम आपले स्तरावरुन पूर्ण करण्याचे मान्य केलेले आहे. (उप विभागीय अधिकारी पेण यांचे पत्र दि.२४/५/२०१७)

अशा आपत्कालीन परिस्थितीत प्रत्यक्ष कार्यक्षेत्रावर जाणेस मार्ग उपलब्ध नसल्यामुळे यापूर्वी सहाय्यक कार्यकारी अभियंता खारभूमी विकास उप विभाग,पेण यांनी सूचीत केल्याप्रमाणे खालील प्रमाणे प्रत्यक्ष कार्यस्तरावर काम करणेसाठी पर्यायी मार्गाच्याअवलंब करणेस हे कार्यालय विनंती करीत आहे.

१) दिनांक २७/२/२०१८ रोजीच्याया विभागाकडील सहाय्यक कार्यकारी अभियंता यांनी पाहणी केलेल्या जॉन्सन कंपनीच्या नजीकच्या मार्गाचा अवलंब करुन खांडीची दुरुस्तीची कार्यवाही आपले कंपनीमार्फत करणेत यावी.

२) धरमतर खाडीतून बोटीने बांधकाम साहित्याची वाहतूक करणेचा मार्ग अवलंबून खांडी दुरुस्तीचे काम आपले कंपनीमार्फत सुरु करणेत यावे.

या विभागामार्फत महसूल खात्याची सुध्दा मार्गदर्शन होणे बाबत योग्य तो पाठपुरावा सुरु आहे. सन २०१८ चा पावसाळा सुरु होणेस अद्याप सीड दो दोन महिन्याचा अवधी आहे. या पावसाळ्यापूर्वीच सदर भागातील खांडीची दुरुस्ती होणे अत्यावश्यक आहे. अन्यथा लाभधारकांच्या घातरोतीचे अधिक प्रमाणात नुकसान होऊन जनक्षोभ उसळणार असुन लोकांच्यामध्ये असंतोष निर्माण होण्याची दाट शक्यता आहे.

सदरची परिस्थिती व लोकामधील रुळाकर टाळणेसाठी कृपया आपले कंपनीमार्फत व यांविभागामार्फत दोघांच्या संयुक्त जबाबदारीतून सदरच्या खांडी दुरुस्तीची काने पावसाळ्यापूर्वी पूर्ण होणे आवश्यक आहे.

तरी कृपया उपरोक्त नमुद केल्या प्रमाणे पर्यायी मार्गाचा अवलंब करुन खांडी दुरुस्तीचे काम सुरु करणेत यावी ही विनंती.

हे आपले माहितीसाठी व पुढील कार्यवाहीसाठी रवाना.

कार्यकारी अभियंता
खारभूमी सर्वेक्षण व अन्वेषण विभाग
पेण-रायगड

प्रत:- मा.प्रकल्प संचालक व अधीक्षक अभियंता, खारभूमी विकास मंडळ,ठाणे यांना माहितीसाठी सविनय सादर.

प्रत:- सहाय्यक कार्यकारी अभियंता,खारभूमी विकास उपविभाग, पेण यांना माहितीसाठी व पुढील पाठपुरावा करण्यासाठी रवाना.

E/PB-1/Company letter

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महाराष्ट्र शासन
जलसंपदा विभाग
कार्यकारी अभियंता, खारभूमी सर्वेक्षण व अन्वेषण विभाग
गजानन महाराजांचे मंदिराजवळ, पाटबंधारे वसाहत, उंबर्डे,
मुंबई गोवा राष्ट्रीय महामार्ग, खाचरखिंड, ता.पेण, जि.रायगड
दूरध्वनी क्र. ०२१४३-२५२२०३ ई मेल - rdswrdkldee@gmail.com

जा.क्र.खाभूसवअवि/प्रशा/माचि/JSW/४५५ /२०२२ दिनांक :- २४ .०२.२०२२

प्रति,
जनरल मॅनेजर तथा जनसंपर्क अधिकारी/व्यवस्थापक,
JSW स्टील कं.लि, डोलवी,
ता.पेण, जि.रायगड.

विषय : माचेला चिर्बी खारभूमी योजना, ता.पेण जि.रायगड.
सा.क्र.३२२० मी. ते सा.क्र.४८२० मी. मधील बांधाचे पुनस्थापनेचे काम व सा.क्र.३३३० मी. ते सा.क्र.३६८० मी.वरील उघाड्यांची कामे CSR फंडाअंतर्गत कंपनी मार्फत करण्याबाबत.

संदर्भ : मा.कार्यकारी अभियंता, खारभूमी सर्वेक्षण व अन्वेषण विभाग, पेण यांनी दि.दि.११.०२.२०२२ रोजी केलेली क्षेत्रीय पहाणी.

उपरोक्त संदर्भीय विषयास अनुसरून या विभागाच्या अधिपत्याखालील खारभूमी उपविभाग, पेण कार्यालयाच्या कार्यकक्षेखालील मचेला चिर्बी खारभूमी योजना, ता.पेण जि.रायगड या योजनेच्या सा.क्र.० मी. ते ३३२० मी. मधील बांधाच्या पुनस्थापनेचे काम JSW कंपनीमार्फत पूर्ण करण्यात आलेले आहे. सा.क्र.३३२० मी. ते ४८२० मी. मधील बांध व उघाड्या नादुरुस्त झालेल्या आहेत. त्यामुळे खारे पाणी मोठ्या प्रमाणात लाभक्षेत्रात घुसत आहे व लाभक्षेत्र नापीक होत आहे. तरी आपल्या कंपनीमार्फत सा.क्र.३२२० मी. ते सा.क्र.४८२० मी. मधील बांधाचे पुनस्थापनेचे काम व सा.क्र.३३३० मी. ते सा.क्र.३६८० मी.वरील उघाड्यांची कामे CSR फंडातून या कार्यालयाच्या तांत्रिक मार्गदर्शनाखाली लवकरात लवकर करण्यात यावी. याबाबत उपविभागीय अधिकारी, पेण उपविभाग-पेण यांनीसुद्धा सूचित केले आहे.

हे आपल्या माहीती व पुढील कार्यवाहीसाठी सस्नेह रवाना.

(सु. ह.सावंत)
कार्यकारी अभियंता
खारभूमी सर्वेक्षण व अन्वेषण विभाग
पेण- रायगड

प्रत : उपविभागीय अधिकारी, पेण उपविभाग-पेण यांना माहीतीसाठी सस्नेह अग्रेषित.
प्रत : वन परिक्षेत्र अधिकारी, वडखळ-पेण यांना माहीतीसाठी कार्यवाहीसाठी सस्नेह रवाना.
शासनाकडे अनुदान उपलब्ध नसल्यामुळे वर उल्लेखित बांधाचे नूतनीकरणाचे काम JSW कंपनीमार्फत करण्यात येत आहे. सदर योजनेला CRZ मधून सूट मिळालेली आहे.
प्रत : उपविभागीय अधिकारी, खारभूमी विकास उपविभाग, पेण यांना माहीतीसाठी तात्काळ कार्यवाहीसाठी रवाना.

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1955

DIC - Extension (Kharmachela chirbi, ghat, jambhela. (93) (1)

Government of Maharashtra
Directorate of Industries

Tel. No. 022-2202 3505
Fax No. 022-2202 6826
E-Mail:- diland@maharashtra.gov.in

No. DI/Land/ Permission/122(2012)/2015/ C-1092.
Directorate of Industries, 2nd floor,
New Administrative Building,
Madam Cama Road, Opp. Mantralaya,
Mumbai 400 032.

Date : 18 FEB 2015

Sub : Permission to purchase agricultural land under the Mumbai Tenancy and Agricultural Land Act, 1948.

Read : 1. This Office Land Purchase Permission Order No. DI/Land/Permission/122(2012)/2013/B-2641, dated 22/2/2013.
2. Request Letter for Extension of validity period received from M/s. JSW Steel Ltd., JSW Centre, Bandra - Kurla Complex, Bandra (East), Mumbai 400 051, dated 1/1/2015.

Extension of Validity Period

Whereas, Directorate of Industries, Mumbai has granted permission to M/s. JSW Ispat Steel Ltd., JSW Centre, Bandra - Kurla Complex, Bandra (East), Mumbai 400 051 vide order at reference No. 1 to purchase agricultural land admeasuring 301.109 hectares (three zero one point one zero nine hectares) at Villages – Kharmachela, Kharchirbi, Kharghat & Kharjambhela, Tal. Pen, Dist. Raigad to set up Coke Oven (2.5 MTPA), Blast Furnace (4.5 MTPA), Sinter Plant (7.0 MTPA), Steel Melt Shop (4.0 MTPA), Cement Plant and Slag Processing Unit (2.7 MTPA) and MSDS (Main Step Down Station).

Whereas, M/s. JSW Steel Ltd. vide application dated 1/1/2015 cited at reference No. 2 has informed alongwith supportive documents that the applicant has purchased total 55.786 hectares (five five point seven eight six hectares) agricultural land and purchase of the balance land is in progress and has further requested to extend validity period of the permission for further two years for purchasing the remaining 245.323 hectares (two four five point three two three hectares) land at Villages – Kharmachela, Kharchirbi, Kharghat & Kharjambhela, Tal. Pen, Dist. Raigad.

Whereas, the name of M/s. JSW Ispat Steel Ltd. has changed to M/s. JSW Steel Ltd. vide High Court order dated 3/5/2013, and accordingly unit has now requested to issue the permission in the name of M/s. JSW Steel Ltd.

Whereas, on scrutiny of the documents, it is found that there is substance in the request. Hence request of the applicant is partially accepted. Therefore, I, Dr. Surendrakumar Bagde, Development Commissioner (Industries), Maharashtra State under the powers vested in me by virtue of amendment to Section 63 (1) (A) of Mumbai Tenancy & Agricultural Land Act, 1948, amendment 1994 & 2005 hereby the order cited at reference No. 1, and permit for purchase of agricultural land admeasuring 245.323 hectares (two four five point three two three hectares) land of Villages – Kharmachela, Kharchirbi, Kharghat & Kharjambhela, Tal.

Pen, Dist. Raigad to set up Coke Oven (2.5 MTPA), Blast Furnace (4.5 MTPA), Sinter Plant (7.0 MTPA), Steel Melt Shop (4.0 MTPA), Cement Plant and Slag Processing Unit (2.7 MTPA) and MSDS (Main Step Down Station) by extending the validity period for one year for purchase of land mentioned in the order under reference No. 1 further up to 21/2/2016. Within this extended period the applicant has to complete the process of acquiring the remaining land.

This order is in connection of original order under reference No. 1. The other terms and conditions of original order remain unchanged and shall be read with it.

(Dr. Surendrakumar Bagde)
Development Commissioner (Industries)

To,

M/s. JSW Steel Ltd.,
JSW Centre,
Bandra - Kurla Complex,
Bandra (East), Mumbai 400 051.

Copy forwarded for information & necessary action:-

1. Principal Secretary (Revenue), Revenue & Forest Department, Mantralaya, Mumbai 400 032.
2. Principal Secretary (Industries), Industries Energy & Labour Department, Mantralaya, Mumbai 400 032.
3. Principal Secretary (Energy), Industries Energy & Labour Department, Mantralaya, Mumbai 400 032.
4. Principal Secretary, Urban Development Department, Mantralaya, Mumbai 32.
5. Metropolitan Commissioner, Mumbai Metropolitan Regional Development Authority (MMRDA), Bandra (East), Mumbai - 400 051.
6. Chief Executive Officer, Maharashtra Industrial Development Corporation, Udyog Sarathi, Mahakali Caves Road, Andheri (East), Mumbai 40 093.
7. Divisional Commissioner, CBD Belapur, Konkan Bhavan, Navi Mumbai, District Thane.
8. Collector, Raigad, with request to take note of this Order No. on 7/12 extract after submission evidence for purchase of land by Developer.
9. Joint Director of Industries, Konkan Region, Thane.
10. General Manager, District Industries Centre, Raigad
11. Select File, Directorate of Industries (Land Branch), H.O., Mumbai 400 032.
    (M/s. M/s. JSW Steel Ltd.)

(Dr. Surendrakumar Bagde)
Development Commissioner (Industries)

1957

DIC - Kharmachela, Kharbi, Ghat, Jambhela, (94) (3)

Government of Maharashtra

Directorate of Industries

Tel No: 022-2202 3505
Fax No: 022-2202 6025
E-Mail: dilland@mahaindustry.gov.in

No: DI/Land/Permission/122(2012)/501/B-2641
Directorate of Industries, 2nd floor,
New Administrative Building, Opp: Mantralaya,
Mumbai 400 032.

Date: 12 2 FEB 2013

Subj: Permission to purchase agriculture land under the Mumbai Tenancy and Agricultural Land (BTAL) Act, 1948

Read:
1. Mumbai Tenancy & Agricultural Land Act, 1948 Amendments dated 28/04/1994 and dated 19/05/2005.
2. Maharashtra Land Revenue Code 1966 (Amendment) dated 26/04/1994
3. Urban Development Department, Mantralaya, Mumbai amendment notice No. TPB 4303/CR-192/03/UD-11, dated 22/01/2004
4. Application dated 25/09/2012 & subsequent compliances dated 20/11/2012, 27/11/2012, 10/12/2012, and 04/01/2013 of M/s. JSW Ispat Steel Ltd., Tower A, 3rd floor, DLF IT Park, 08 Major Arterial Road, Block AF, New Town, Kolkata – 700 156.
5. Affidavit executed by Mr. Arun Mahadeo Shirke, Assistant General Manager (Administration) of M/s. JSW Ispat Steel Ltd., dated 04/01/2013.
6. HDM Acknowledgement from Ministry of Commerce & Industry, Government of India, New Delhi vide No. 2168/SIA/IMO/2012, dated 21/11/2012 and vide No. 2167/SIA/IMO/2011, dated 21/11/2012.
7. सोबा प्रकल्पातून प्रस्तावित प्रकल्पास पाणी आरक्षण बाबत जलसंपदा विभाग यांचे पत्र क्र. डसमात ई.लि (पापु)/८९.०१/(२८/८९)/पा. क्र. ६१ (अ), दिनांक १५/०१/२०१२
8. Environment Clearance for existing plant from Ministry of Environment & Forests, Government of India, New Delhi vide no. J-11011/166/2011-IA-II(I), dated 21/11/2012
9. शेत जमीन खरेदी परवानगी समिती बैठक इतिवृत्त दिनांक १७/०१/२०१३

ORDER

Whereas, M/s. JSW Ispat Steel Ltd., Tower A, 3rd floor, DLF IT Park, 08 Major Arterial Road, Block AF, New Town, Kolkata – 700 156 has submitted application to the Directorate of Industries for obtaining permission to purchase agricultural land at Villages Kharmachela, Kharchirbi, Kharghat and Kharjambhela, Taluka Pen, District Raigad to the extent of 302.649 Ha. (three zero two point six four nine hectares) to establish Coke Oven (2.5 MTPA), Blast furnace (4.5 MTPA), Sinter Plant (7.0 MTPA), Steel Melt Shop (4.0 MTPA), Cement Plant and Slag Processing Unit (2.7 MTPA) and MSDS (Main Step Down Station).

Whereas, applicant has affirmed that the land proposed to be purchased will be used strictly as per project report, the overall land use and land development plan is solely for above project and no other purpose.

Whereas, applicant has affirmed that he will use the land only for bonafide industrial purpose as envisaged in Section 63 (I)(A) of BTAL Act, 1948.

Whereas, applicant has submitted supportive information including affidavit quoted at Sr. No. 5, and the Directorate of Industries has examined the reasonableness of requirement of the said land for the proposed bonafide industrial use.

Whereas, Applicant has submitted separate affidavits dated 04/01/2013 for confirming the use of land and to abide by the said affidavit. No other uses including residential and commercial are permitted other than those included in the definition of Bonafide Industrial purpose in BTAL Act.

Whereas, as informed by Assistance Town Planner, Town Planning Department, Raigad-Alibaug survey numbers of land included in annexure are in Industrial Zone as per regional development plan of the district declared under Maharashtra Regional & Town Planning Act 1966.

Whereas, the applicant had affirmed by affidavit to ascertain from concerned authority that no part of the land under reference shall be in CRZ or in forest area and prior clearances for the land pertaining to CRZ, forest area, or in such zone/area etc., as the case may be, shall be obtained by him from the concerned Departments of the State Government and Central Government, including from the Competent Authority of Town Planning Department under MRTP Act 1966, before commencing the land development for the project.

Whereas, applicant has affirmed under the aforesaid affidavit that he has ascertained and confirmed from appropriate authorities that there is no reservation of any kind on any part of the land and title of the land is clear. Moreover, applicant has ascertained and confirmed that no part of the land under reference belongs to Government or of any public sector undertakings of State / Central Government nor belong to any of the local bodies, land not reserved for any public purpose etc. Further, applicant has affirmed that land under reference does not come under reservation scheme for Town Planning, proposed new road and widening of existing road or proposed to be acquired for any irrigation project or any public purposes.

Whereas, the Applicant has affirmed to comply with the provisions of all the relevant Acts/Rules /Notifications/Government Resolutions/ Instructions including the provisions of Maharashtra Agricultural Land Ceiling Act etc. issued from time to time by State Government / Central Government / Local Authorities or any other competent authority etc. in this regard.

Whereas, applicant has also submitted that he is well acquainted with the proposed land and also with the owners of the land and all the land owners have voluntarily agreed to sell the lands to him at market determined prices prevailing in that area and no land owner has any objection.

Therefore, I, Radhika Rastogi, Development Commissioner (Industries), Maharashtra State under the powers vested in me by virtue of amendment to Section 63 (I)(A) of Mumbai Tenancy & Agricultural Land Act, 1948, amendment 1994 & 2005 permit M/s. JSW Ispat Steel Ltd., Tower A, 3rd floor, DLF IT Park, 08 Major Arterial Road, Block AF, New Town, Kolkata – 700 156 to purchase agricultural land admeasuring 301.169 Ha. (three zero one point one six nine hectares) at Villages Kharmachela, Kharchirbi, Kharghat and Kharjambhela, Taluka Pen, District Raigad to establish Coke Oven (2.5 MTPA), Blast furnace (4.5 MTPA), Sinter Plant (7.0 MTPA), Steel Melt Shop (4.0 MTPA), Cement Plant and Slag Processing Unit (2.7 MTPA) and

MSDS (Main Step Down Station) as per details of land shown in the annexure to this order. This permission is limited only for establishing Coke Oven (2.5 MTPA), Blast furnace (4.5 MTPA), Sinter Plant (7.0 MTPA), Steel Melt Shop (4.0 MTPA), Cement Plant and Slag Processing Unit (2.7 MTPA) and MSDS (Main Step Down Station).

Attention is specifically drawn to the following provisions of the Mumbai Tenancy & Agricultural Land Act of 1948, relating to use of land for industrial purpose and hence, this permission is subject to the following conditions.

1. Applicant has to complete purchase proceedings of the land for which he has sought permission within the period of two years (2 years) from the date of this order, failing which this order lapses automatically. Further extension of period shall be considered on the revised of performance of the applicant.
2. Applicant must put the land purchased using this permission for bonafide industrial use to establish Coke Oven (2.5 MTPA), Blast furnace (4.5 MTPA), Sinter Plant (7.0 MTPA), Steel Melt Shop (4.0 MTPA), Cement Plant and Slag Processing Unit (2.7 MTPA) and MSDS (Main Step Down Station) within the period of five years (5 years) from the date of this order, failing which the person from whom the applicant has purchased the land, shall have a right to re-purchase it at the price at which it was originally sold. Further extension of period shall be considered on the revised of performance of the applicant.
3. Sale of land belonging to Schedule Tribe persons is subject to the provisions of Section 36 & 36A of the Maharashtra Land Revenue Code, 1966 and of the Maharashtra Restoration of Lands to Scheduled Tribes Act, 1974. Applicant is not permitted to purchase such land using this order.
4. A) Applicant has to pay to the District Collector an amount equal to two percent of purchase price within period of one month of the execution of sale deed for the land belonging to occupant class-II. This payment shall be in lieu of any Nazarene or such other charges, which may otherwise be payable by such Occupant Class-II by or under the provisions of the Maharashtra Land Revenue Code, 1966.
   B) Applicant has to pay to the concerned authority an amount equal to 48% of agriculture land assessment for obtaining prior permission to purchase the land received to occupant under Tenancy Act but covered under Section 67 & 115 of the Maharashtra Land Revenue Code, 1966.
5. Upon purchase of land, the applicant has to pay in addition to above any non-agricultural assessment as may be levied by the Collector under Section 67 & 115 of the Maharashtra Land Revenue Code, 1966.
6. Applicant has to give intimation within thirty days to the District Collector the change of use of the land along with date. In case of failure to inform, applicant is liable to pay penalty not exceeding 25 times of the non-agriculture assessment or as the Collector may fix under provisions of MLRC-1966 and rules there-under.
7. It is obligatory on the part of the applicant to inform every six months from the date of this order-the details of progress made by him in respect of purchase and use of the land referred in this order. The information is to be sent to Directorate of Industries, Divisional Commissioner and District Collector.
8. The applicant has to obtain necessary permission / approval from all the concerned departments of Central/State Governments including Maharashtra Pollution Control Board (MPCB) including environment department and all other regulatory agencies

etc. for the proposed project on the referred land.

9. This order is valid only for the appropriate market determined compensation agreed voluntarily between landowners and purchaser in tune with prevailing market terms and paid to the landowners. Applicant has to purchase land with full willingness of the landowners.
10. Applicant has to note that any infrastructure or space of the land is not allowed to be used for pure trading activity not related to industry as per BTAL Act, 1948.
11. Applicant has to ascertain from land records before purchase of land that no pathway is passing through the land under reference, if so has to provide right of way.
12. Applicant is responsible for ascertaining and confirming the status of land before purchase. If it is found subsequently that permission has been granted earlier by this office to the land or any part of the land under reference, this permission will automatically become invalid and stand cancelled.

(Radhika Rastogi)
Development Commissioner (Industries)

To,
M/s. JSW Ispat Steel Ltd.,
Tower A, 3rd floor, DLF IT Park,
08 Major Arterial Road, Block AF,
New Town, Kolkata – 700 156.

Copy forwarded for information & necessary action:-

1. Principal Secretary (Revenue), Revenue & Forest Department, Mantralaya, Mumbai 400 032
2. Principal Secretary (Industries), Industries, Energy & Labour Department, Mantralaya, Mumbai 400 032.
3. Principal Secretary (Energy), Industries Energy & Labour Department, Mantralaya, Mumbai 400 032
4. Principal Secretary, Urban Development Department, Mantralaya, Mumbai 400 032.
5. Metropolitan Commissioner, Mumbai Metropolitan Regional Development Authority (MMRDA), Bandra (East), Mumbai - 400 051.
6. Chief Executive Officer, Maharashtra Industrial Development Corporation, Udyog Sarathi, Mahakali Caves Road, Andheri (East), Mumbai 93.
7. Divisional Commissionner, Konkan Division, Konkan Bhavan, CBD Belapur, Navi Mumbai, District Thane.
8. Collector, Raigad, with request to take note of this order on 7/12 extract after submission evidence for purchase of land by applicant
9. Joint Director of Industries, Konkan Region, Thane.
10. General Manager, District Industries Centre, Raigad.
11. Select File, Land Branch, Head Office, Mumbai 400 032.

Sd/-
(Radhika Rastogi)
Development Commissioner (Industries)

(9)

ANNEXURE - 'A'

Accompanied to Order No. DI/Land/Permission/122(2012)/2013/ B-2641

dated 22 FEB 2013 and should be read with the same.

1.	Name of the purchaser	:	M/s. JSW Ispat Steel Ltd., Tower A, 3rd floor, DLF IT Park, 08 Major Arterial Road, Block AF, New Town, Kolkata – 700 156.
2.	Area of the land (in Ha.)	:	301.109 (three zero one point one zero nine)
3.	Details of the Land to be purchased		
	a) Survey No./Gut No.	:	As per list attached (Annexure-B)
	Villages	:	Kharmachela, Kharchirbi, Kharghat and Kharjambhela,
	Taluka	:	Pen
	District	:	Raigad
	b) Area (in Ha.)	:	301.109 (three zero one point one zero nine)
4.	Details of land use	:	to establish Coke Oven (2.5 MTPA), Blast furnace (4.5 MTPA), Sinter Plant (7.0 MTPA), Steel Melt Shop (4.0 MTPA), Cement Plant and Slag Processing Unit (2.7 MTPA) and MSDS (Main Step Down Station).

(Radhika Rastogi)
Development Commissioner (Industries)

ANNEXURE – B

Accompanied to Order No. DL/Land/Permission/122(2012)/2013/ B-9641

dated 12 2 FEB 2013 and should be read with the same.

M/s. JSW Ispat Steel Ltd., Tower A, 3rd floor, DLF IT Park,
08 Major Arterial Road, Block AF, New Town, Kolkata – 700 156.

Sr. No.	Survey No.	Hissa No.	Area (H.R.)
	Village Kharmachela, Taluka Pen, District Raigad		
1.	1	0	0.273
2.	2	0	0.475
3.	3	1	0.510
4.	3	2	0.510
5.	4	1	1.073
6.	4	2	0.700
7.	5	0	1.196
8.	6	A	0.020
9.	6	B	0.374
10.	7	0	0.847
11.	8	0	0.114
12.	9	0	1.783
13.	10	1	0.721
14.	10	2	0.716
15.	11	0	1.550
16.	12	0	0.296
17.	13	0	0.589
18.	14	0	1.257
19.	15	0	0.430
20.	16	0	0.397
21.	17	0	0.410
22.	18	0	0.435
23.	19	1	0.419
24.	19	2A	0.180
25.	19	2B	0.180
26.	20	0	0.754
27.	21	1	0.617
28.	21	2	0.400
29.	22	0	0.880
30.	23	0	0.420
31.	24	0	0.579
32.	25	0	0.455
33.	26	0	1.052
34	27	0	0.898

(20) (9)

Sl. No.	Survey No.	Hissa No.	Area (H.R.)
55.	28	0	0.309
56.	29	A	0.408
57.	29	B	0.300
58.	30	0	0.536
59.	31	1	0.794
60.	31	2	0.794
61.	32	0	0.422
62.	33	1	1.397
63.	33	2	1.020
64.	33	3	1.020
65.	34	0	1.242
66.	35	0	0.425
67.	36	0	0.215
68.	37	0	0.445
69.	38	1	0.200
70.	38	2	0.660
71.	39	0	0.420
72.	40	1	1.532
73.	40	2	0.120
74.	41	0	0.700
75.	42	0	0.536
76.	43	0	1.042
77.	44	0	0.374
78.	45	1	0.981
79.	45	2A	0.484
80.	45	2B	0.470
81.	46	0	0.632
82.	47	0	0.202
83.	48	0	0.202
84.	49	0	0.450
85.	50	0	0.862
86.	51	1	0.315
87.	51	2	0.848
88.	52	0	0.561
89.	53	0	0.936
90.	54	0	0.468
91.	55	0	0.668
92.	56	0	0.369
93.	57	0	0.420
94.	58	0	0.769
95.	59	0	0.832
96.	60	1	0.980
97.	60	2	0.861
98.	60	3A	0.158
99.	60	3B	0.158

Sr. No.	Survey No	Hissa No.	Area (H.R.)
80.	61	1	0.455
81.	61	2	0.435
82.	62	0	0.521
83.	63	1	0.224
84.	63	2	0.224
85.	64	1	0.431
86.	64	2	0.960
87.	65	0	0.374
88.	66	0	0.951
89.	67	0	0.407
90.	68	0	0.448
91.	69	0	0.802
92.	70	0	0.443
93.	71	0	1.254
94.	72	1	1.333
95.	72	2	0.200
96.	73	1	0.880
97.	73	2	0.880
98.	73	3	0.306
99	74	0	0.473
100.	75	1	1.016
101.	75	2	0.350
102.	76	0	1.285
103.	77	0	0.771
104.	78	0	0.501
105.	79	1	0.354
106.	79	2	0.353
107.	79	3	0.353
108.	80	0	0.440
109.	81	0	0.845
110.	82	A	0.131
111.	82	B1	0.259
112.	82	B2	0.500
113.	83	0	1.310
114.	84	0	0.465
115.	85	0	0.288
116.	86	0	0.210
117.	87	1	1.502
118.	87	2	0.200
119.	88	1	0.956
120.	88	2	0.321
121.	89	0	0.953
122.	90	0	0.339
123.	91	0	0.496
124.	92	0	0.278

(23) (11)

Sr. No.	Survey No.	Hissa No.	Area (H.R.)
125.	93	0	1.560
	(A) Total area in Villge Kharmachela		76.884
	(B) Village Kharchirbi, Taluka Pen, District Raigad		
126.	1	0	0.159
127.	4	0	0.205
128.	5	0	0.233
129.	6	0	0.061
130.	8	2	0.078
131.	10	0	0.744
132.	11	0	0.304
133.	12	0	0.323
134.	13	0	0.501
135.	14	0	1.285
136.	15	0	0.293
137.	16	0	0.202
138.	17	0	0.078
139.	18	0	0.131
140.	19	0	0.461
141.	20	0	0.228
142.	21	0	0.643
143.	22	0	0.043
144.	23	0	0.099
145.	24	0	0.371
146.	25	0	0.165
147.	26	0	0.076
148.	27	0	0.314
149.	28	0	0.245
150.	29	0	0.030
151.	30	0	0.015
152.	31	0	0.379
153.	32	0	0.465
154.	33	0	0.193
155.	34	0	0.078
156.	35	0	0.142
157.	36	0	0.898
158.	37	1	0.341
159.	37	2	0.340
160.	37	3	0.340
161.	38	0	1.073
162.	39	1	0.620
163.	39	2	0.728
164.	40	0	0.678

Sr. No.	Survey No.	Hissa No.	Area (H.R.)
165.	41	0	1.062
166.	42	0	0.587
167.	43	1	0.550
168.	43	2	0.530
169.	44	0	0.320
170.	45	1	0.835
171.	45	2	0.410
172.	46	0	0.475
173.	47	0	0.506
174.	48	1	0.825
175.	48	2	0.562
176.	48	3	0.250
177.	49	1	0.258
178.	49	2	0.561
179.	50	0	0.645
180.	51	0	0.760
181.	52	0	0.749
182.	53	0	0.850
183.	54	0	1.575
184.	55	0	0.336
185.	56	0	0.384
186.	57	0	0.900
187.	58	0	0.697
188.	59	0	0.028
189	60	0	0.384
190.	61	1A	0.216
191.	61	1B	0.200
192.	61	1C	0.200
193.	61	1D	0.200
194.	61	2	0.594
195.	61	3	0.670
196.	61	4	0.163
197.	62	1	0.968
198.	62	2	0.156
199.	63	0	1.708
200.	64	1	0.160
201.	64	2	0.035
202.	65	0	0.336
203.	66	0	0.283
204.	67	1	0.160
205.	67	2	0.336
206.	68	0	1.103
207.	69	0	0.627
208.	70	0	0.609
209.	71	0	0.147

(84) (13)

Sr. No.	Survey No.	Hissa No.	Area (H.R.)
210.	72	0	0.147
211.	73	0	0.177
212.	74	0	1.371
213.	75	0	0.311
214.	76	0	0.567
215.	77	0	0.658
216.	78	1	0.370
217.	78	2	0.369
218.	79	0	0.597
219.	80	0	0.486
220.	81	0	0.549
221.	82	0	0.931
222.	83	0	0.496
223.	84	0	1.530
224.	85	0	0.657
225.	86	0	1.399
226.	87	0	0.539
227.	88	0	0.228
228.	89	0	0.526
229.	90	1	0.665
230.	90	2	0.665
231.	91	0	0.169
232.	92	0	0.843
233.	93	1	0.319
234.	93	2	0.318
235.	94	0	0.415
236.	95	0	0.475
237.	96	1	0.326
238.	96	2	0.326
239.	97	0	0.415
240.	98	0	0.083
241.	99	0	0.587
242.	100	0	1.095
243.	101	0	0.875
244.	102	0	1.283
245.	103	1	0.409
246.	103	2	0.400
247.	104	0	0.698
248.	105	1	0.820
249.	105	2	0.288
250.	106	0	1.123
251.	107	0	0.966
252.	108	0	1.315
253.	109	0	0.819
254.	110	0	1.092

Sr. No.	Survey No.	Hissa No.	Area (H.R.)
255.	111	0	0.496
256.	112	0	1.183
257.	113	0	0.936
258.	114	0	2.719
259.	115	1	0.578
260.	115	2	0.573
261.	116	0	0.759
262.	117	0	0.556
263.	118	0	0.425
264.	119	0	1.359
265.	120	0	0.372
266.	121	0	0.008
267.	122	0	1.714
268.	123	1	0.965
269.	123	2	0.400
270.	124	0	0.567
271.	125	0	0.574
272.	126	0	0.870
273.	127	1	0.247
274.	127	2	0.400
275.	128	0	1.669
276.	129	0	1.002
277.	130	0	1.468
278.	131	0	0.809
279.	132	0	0.278
280.	133	1	0.346
281.	133	2	0.400
282.	134	1	0.886
283.	134	2	0.211
284.	135	0	0.759
285.	136	1	0.225
286.	136	2	0.210
287.	136	3	0.205
288.	136	4	0.210
289.	137	0	0.831
290.	138	0	0.121
291.	139	0	1.002
292.	140	1	0.514
293.	140	2	0.490
294.	140	3	0.420
295.	141	0	0.789
296.	142	0	0.931
297.	143	1	0.630
298.	143	2	0.630
299.	143	3	0.440

(20) (5)

Sr. No.	Survey No.	Hissa No.	Area (H.R.)
300.	144	0	1.119
301.	145	0	0.643
302.	146	0	0.425
303.	147	0	0.303
304.	148	1A	0.760
305.	148	1B	0.407
306.	148	2	0.292
307.	149	0	0.344
308.	150	0	0.769
309.	151	0	1.704
310.	152	0	0.415
311.	153	0	0.450
312.	154	0	0.349
313.	155	0	0.076
314.	156	0	0.051
315.	157	0	0.323
316.	158	0	0.228
317.	159	0	0.152
318.	160	0	0.012
319.	161	0	0.051
320.	162	0	0.276
321.	163	0	0.379
322.	164	0	0.063
323.	165	0	0.031
324.	166	0	0.043
325.	167	0	0.177
326.	168	0	0.278
327.	169	0	0.278
328.	170	0	0.253
	(B) Total area in Village Kharchirbi		**108.422**
	(C) Village Kharghat, Taluka Pen, District Raigad		
329.	1	0	0.465
330.	2	1	1.287
331.		2	0.276
332.	3	1	0.541
333.		2A	0.359
334.		2B	0.200
335.		3A	0.400
336.		3B	0.374
337.	4	1A	0.062
338.		1B	0.390
339.		2	0.453
340.		3	0.567

Sr. No.	Survey No.	Hissa No.	Area (H.R.)
341.	5	1	0.460
342.		2A	0.886
343.		2B	0.303
344.	6	1	0.582
345.		2	0.326
346.		3	1.017
347.	7	1	0.488
348.		2	0.810
349.		3	0.091
350.	8	1	0.028
351.		2	0.172
352.		3	0.298
353.		4	0.549
354.		5	0.496
355.	9	1	0.081
356.		2	0.020
357.		3	0.258
358.		4	0.379
359.		5	0.782
360.		6	0.177
361.	10	1	0.847
362.		2	0.582
363.	11	1	0.486
364.		2	0.344
365.	12	1	0.824
366.		2A	0.377
367.		2B	0.524
368.		3	0.071
369.	13	1	0.172
370.		2A	0.474
371.		2B	0.474
372.	14	1A	0.167
373.		1B	0.400
374.		2A	0.872
375.		2B	0.200
376.		3	0.496
377.	15	1A	0.449
378.		1B	0.436
379.		2	0.976
380.		3	0.496
381.	16	1	0.688
382.		2	0.481
383.		3	0.852
384.	17	1	0.460
385.		2	1.141

Sr. No.	Survey No.	Hissa No.	Area (H.R.)
386.		3	0.475
387.	18	1A	1.048
388.		1B	0.280
389.		2	0.465
390.		3	0.689
391.	19	1A	0.420
392.		1B1	0.457
393.		1B2	0.370
394.		1B3	0.410
395.		1B4	0.405
396.		2	0.465
397.	20	1A	0.253
398.		1B	0.253
399.		2	0.470
400.		3	0.344
401.		4A	0.260
402.		4B	0.737
403.	21	1A	0.563
404.		1B	0.550
405.		2	0.298
406.	22	1	0.658
407.		2	0.733
408.		3	0.359
409.	23	1	1.007
410.		2A	0.374
411.		2B	0.400
412.	24	1	0.921
413.		2	0.253
414.		3	0.473
415.	25	1	0.900
416.		2	0.860
417.	26	1A	0.330
418.		1B	1.037
419.		2	0.742
420.		3	0.395
421.	27	1	0.794
422.		2A	0.668
423.		2B	0.668
	(C) Total area in Village Kharghat		47.629
	(D) Village Kharjambhela, Taluka Pen, District Raigad		
424.	7	0	0.594
425.	8	1	0.301
426.		2	0.885

Sr. No.	Survey No.	Hissa No.	Area (H.R.)
427.	9	1	0.642
428.		2	0.906
429.	10	1A	0.496
430.		1B	0.407
431.		2	0.268
432.		3A/1	0.200
433.		3A/2	0.300
434.		3B	0.158
435.		4	0.298
436.	11	1	0.638
437.		2	0.207
438.	12	0	0.908
439.	13	1A	0.368
440.		1B	0.365
441.		2	0.114
442.	14	1	0.740
443.		2A	0.424
444.		2B	0.160
445.		3	0.395
446.		4	0.223
447.		5	0.071
448.	15	1	0.880
449.		2	0.235
450.		3	0.233
451.		4	0.091
452.	16	1A	0.593
453.		1B	0.591
454.		2	0.448
455.		3	0.040
456.	17	1	0.030
457.		2	0.066
458.		3	0.218
459.		4	0.068
460.		5	0.020
461.	18	1	0.106
462.		2	0.455
463.		3A	0.283
464.		3B	0.268
465.		4	0.142
466.	19	1	0.637
467.		2	0.843
468.	20	1	0.589
469.		2	0.746
470.		3A	0.247
471.		3B	0.204

(39) (19)

Sr. No.	Survey No.	Hissa No.	Area (H.R.)
472.		3C	0.217
473.	21	1	0.286
474.		2	0.546
475.		3	0.752
476.		4	0.106
477.	22	1	0.352
478.		2	0.472
479.		3	0.341
480.		4A	0.306
481.		4B	0.301
482.		5	0.071
483.		6A	0.329
484.		6B	0.329
485.	23	1	0.733
486.		2	0.200
487.	24	1A	0.433
488.		1B	0.813
489.		2	0.266
490.		3	0.114
491.	25	1	0.369
492.		2	0.147
493.		3	0.840
494.		4	0.326
495.		5	0.043
496.		6A	0.215
497.		6B	0.200
498.	26	1	0.316
499.		2	0.374
500.		3	0.683
501.		4	0.233
502.	27	1A	0.413
503.		1B	0.412
504.		2	0.723
505.	28	1	0.511
506.		2	0.534
507.		3	0.561
508.		4	0.455
509.	29	1	0.283
510.		2	0.354
511.		3	0.339
512.		4	0.142
513.		5	0.116
514.		6	0.073
515.		7	0.248
516.		8	0.357

Sr. No.	Survey No.	Hissa No.	Area (H.R.)
517.	30	1	0.339
518.		2	0.213
519.		3	0.642
520.	31	1	0.400
521.		2	0.576
522.		3	0.324
523.		4	0.425
524.	32	1	0.491
525.		2	0.460
526.		3	0.587
527.	33	1	0.223
528.		2A	0.182
529.		2B	0.182
530.		3	0.344
531.		4	0.662
532.		5	0.314
533.	34	1	0.551
534.		2	0.820
535.		3	0.144
536.		4	0.491
537.	35	1	0.309
538.		2	0.435
539.		3	0.667
540.		4	0.405
541.		5	0.344
542.	36	1A	0.400
543.		1B	0.303
544.		2	0.597
545.		3	0.526
546.	37	1	0.091
547.		2	0.306
548.	38	1A	0.563
549.		1A1	0.202
550.		1A2	0.202
551.		1A3	0.202
552.		2	0.035
553.		3	0.263
554.	39	1	0.496
555.		2	0.005
556.		3	0.040
557.		4A	0.376
558.		4B	0.400
559.		5	0.435
560.	40	1	0.557
561.		2	0.278

(33) (21)

Sr. No.	Survey No.	Hissa No.	Area (H.R.)
562.		3	0.384
563.		4	0.341
564.		5	0.304
565.	41	1	0.051
566.		2A	0.200
567.		2B	0.303
568.		3	0.088
569.		4	0.367
570.		5	0.486
571.	42	1	0.293
572.		2	0.038
573.		3	0.458
574.		4	0.653
575.		5	1.027
576.	43	1	0.106
577.		2	0.561
578.		3	0.177
579.		4	0.689
580.		5	0.324
581.		6	0.192
582.	44	1A	0.200
583.		1B1	0.210
584.		1B2	1.002
585.		2	0.250
586.		3	0.210
587.		4	0.253
588.		5	0.149
589.		6	0.253
590.	45	1	0.637
591.		2A	0.587
592.		2B	0.589
593.		3	0.526
594.		4	0.094
595.		5	0.334
596.	46	1	0.491
597.		2	0.728
598.	47	1	0.496
599.		2A1	0.272
600.		2A2	0.254
601.		2B	0.525
602.		3	0.830
603.		4	0.076
604.	48	1	0.298
605.		2A	0.362

Sr. No.	Survey No.	Hissa No.	Area (H.R.)
606.		2B	0.362
Total area in Village Kharjambhela			68.174
Gtrand total area in Villages Kharmachela, Kharchirbi, Kharghat and Kharjambhela, Taluka Pen, District Raigad			301.109 Ha. (three zero one point one zero nine Ha.)

Additional Director of Industries
For Development Commissioner (Industries)

1977

DIC - Kharkonavi (24) (25)

No.DI/Land/Permission/17/94/P-33545
Office of Development Commissioner,
Maharashtra State,
New Administrative Building,
Opp. Mantralaya, Bombay - 400 032.

Date : 16 SEP 1995

Sub : Permission under the Bombay Tenancy and Agricultural Land Act, 1948 as per the amendments to the Section 63 I A (11), dated 28/04/1994.

Read:1) Maharashtra Tenency & Agricultural Land Laws (Amendment) Act 1994 dt.28/04/94..

2) Application from M/S. Ispat Mettalics India Ltd., dated 8/6/95.

3) Affidavit of Shri C. Mamutty on behalf M/s. Ispat Mettalics India Ltd., dt. 12/6/95.

O R D E R

Where as M/S.Ispat Mettalics India Ltd., have put up an application to the Directorate of Industries for purchase of land upto 157.43 Hectors (One hundred fifty seven point forty three hectors) and where as this Directorate of Industries has examined the reasonableness of requirement of the said land on the basis of information and an Affidavit quoted as above.

I, Shri. Y.S. Bhave, Development Commissioner (Industries), Maharashtra, Bombay-32 under the powers vested in me by virtue of amendments to Section 63 I A(11) as per the above amended act 1994, permit M/S. Ispat Mettalics India Ltd., to purchase land admeasuring 137.45 Hectors. (one hundred thirty seven point forty five hectors) As per details of land use shown in the annexure. This permission is limited only for the purchase of land shown in the annexure to this order.

Attention is specifically drawn to the following clauses mentioned in the Maharashtra Tenancy & Agricultural Land Laws (Amendment) Act of 1994, relating to use of land for industrial purpose.

1. The land to be purchased shall be put to industrial use within a period of 5 years from the date of purchase, failing which the person from whom the land has purchased, shall have a right to re-purchase the land at the price for which it was originally sold.

2. If the land belongs to Scheduled Tribe, such sale of land shall be subject to the provisions of Section 36 and 36A of the Maharashtra Land Revenue Code, 1966 and of the Maharashtra Restoration of Lands to Scheduled Tribes Act, 1974.

3. If the land being purchased as above, is held by Occupant-Class II, the purchaser shall pay to the Collector, an amount equal to two per cent, of the purchase price within one month of the execution of the sale deed irrespective of the tenure of such land. This payment shall be in lieu of any nazrana or such other charges which may otherwise be payable by such Occupant Class II by or under the provisions of the Maharashtra Land Revenue Code, 1966.

4. In addition to the above, the purchaser of such land shall pay the non-agricultural assessment as may be levied by the Collector under Sections 67 & 115 of the Maharashtra Land Revenue Code, 1966.

5. The person purchasing the land under sub-Section 63 (1)A for conversion thereof for a bonafied industrial use shall give intimation of the date, on which the change of user of land commenced, within thirty days from such date, to the Collector of the district.

6. If the person fails to inform the Collector within the period specified in sub-section 63IA III he shall be liable to pay in addition to the non-agricultural assessment which may be leviable by or under the provisions of the Maharashtra Land Revenue Code, 1966. Such penalty not exceeding twenty times the amount of non-agricultural assessment as the Collector may, fix subject to rules made by the State Govt. in this behalf.

7. This permission for the purchase of land is granted only on the basis of the details submitted by the applicant from the point of reasonableness of the requirement.

8. The permission is granted for the purchase of land as specified by the applicant in their application and as per the affidavit given by the applicant to the Directorate of Industries. Applicant will have to ascertain from appropriate authorities that there is no reservation of any kind on any part of the land and title of the land is clear. Details of land purchased may be communicated to this office immediately.

9. The applicant will have to comply with the provisions of all other Acts/Rules/Notifications issued from time to time by State Govt./Central Govt. in this behalf.

10. The applicant should not purchase land more than 137.45 Hectors (one hundred thirty seven point forty five hectors) (total) for this project in the Dist. of Raigad for which permission has been granted and the applicant should abide by the provisions of Maharashtra Tenency & Agricultural Land Laws (Amendment) Act of 1994 dated 28/04/94.

(Y.S. Bhave)
Development Commissioner (Industries)

To

M/S. Ispat Mettalics India Ltd.,
219, Vardhaman Chambers,
Sector 17, Vashi,
New Bombay 400 705.

Copy forwarded to the Collector, Raigad for information and necessary action.

(Y.S. Bhave)
Development Commissioner (Industries)

Encl. : Annexure - A.

ANNEXURE - A

(If the details mentioned below are given by the applicant, then this annexure will be accompanied to the order for permission for the purchase of the agricultural land for bonafied industrial use.)

1. Name of the purchaser : M/S. Ispat Mettalics India Ltd.,

2. Area of the land in hectres : 137.45 Hectors (one hundred thirty seven point forty five hectors)

Village :- Khar Karavi, Taluka :- Pen, District :- Raigad.

3. Details of Land to be purchased. : List Enclosed.

4. Details of land use : For Sponge Iron Plant.

DETAILS OF SURVEY NOS. VILLAGE - KHAR KARAVI

Tal-Pen, Dist - Raigad

Sl. No.	Survey No.	Hissa No.	Name	Total Area H.A.
1	1	0	Kashinath Hiru Mokal	0-92-0
2	4	0	Hashibai Joma Patil	0-04-4
3	9	1	Subhash Gopinath Patil	0-79-8
4	9	2	Satish Shanrao Patil	0-40-0
5	9	3	Sharda Sudhakar Patil	0-40-0
6	9	4	Surendra Gopinath Patil	1-77-1
7	10	0	Janardan Khandu Mokal	0-84-0
8	21	0	Pandurang Nagu Mhatre etc.1	0-42-5
9	23	0	Tukaram Dharma Patil	1-57-4
10	24	0	Goveardhan Jagannath Patil	0-03-0
11	26	0	Dani Hari Borkar	0-52-9
12	28	0	Bayobai Rama Patil	0-45-5
13	30	0	Jomibai Damoji Patil	0-41-5
14	31	0	Raghu Janu Chawarkar	2-21-1
15	33	0	Jagdish Rama Patil	0-53-1
16	34	0	Janardan Nash Mhatra	1-20-9
17	35	0	Murlidhar Kashinath Patil	0-52-0
18	36	1	Nathu Pandu Mokal	0-74-6
19	36	2	Damodar Pandurang Mokal	0-60-0
20	37	0	Pandu Parsha Mhatre	0-31-4
21	39	0	Davendre Parshiram Raut	0-42-5

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Sl. No.	Survey No.	Hissa No.	Name	Total Area H.A.
22	40	1	Murlidhar Kasinath Patil	1-68-0
23	40	2	Vasudeo Kashnath Patil	1-68-4
24	41	A	Pandu Hasha Mhatre	0-05-0
25	41	B	Pandu Hasha Mhatre	0-57-5
26	42	0	Jankibai Soma Patil	0-25-3
27	43	0	Sakharam Raghu Mhatre	0-95-1
28	44	0	Jankibai Soma Patil	0-16-12
29	45	0	Ruknini Soma Patil	0-45-8
30	46	0	Chandrakant Naga Mhatre	1-61-2
31	41	0	Namdeo Bhau Mali	1-28-5
32	48	0	Damodar Nagu Kathakar etc.3	0-58-2
33	49	1	Balaram Vishnu Mokal	1-24-6
34	49	2	Jayshri Sadashiv Mhatre	0-40-0
35	49	3/1	Jankibai Yashwant Mokal	0-82-0
36	50	0	Namdeo Mahadev Mokal	1-45-9
37	51	0	Joma Vitu Mokal	0-95-0
38	52	0	Hirya Rama Mhatre	0-89-0
39	53	0	Changa Pandurang Kathakar	0-53-6
40	54	0	Laximan Mahadeo Mhatre	1-07-7
41	55	0	Anandibai Maruti Kathaker	0-50-1
42	56	A	Rama Change Patil	1-01-2
43	56	B	Jagdish Rama Patil	0-55-9
44	57	0	Jagnnath Soma Mhatre	1-12-8
45	58	1	Dhahubai Narayan Chawarkar	0-17-5

Sl. No.	Survey No.	Hissa No.	Name	Total Area H.A.
46	58	1/2	Ranji Changa Chawarkar	0-30-0
47	58	2	Budhaji Nagu Patil	0-41-0
48	59	0	Dahubai Naryan Chawarkar	0-20-7
49	60	0	Bama Nagu Mokal	0-23-0
50	61	0	Tukaran Janu Mhatre	0-44-5
51	62	0	Bayabai Danoji Mhatre	0-46-0
52	63	1	Yashwant Magadhu Mhatre	0-29-4
53	63	2	Anil Mahadhu Mhatre	0-27-0
54	64	0	Moreshwar Damodar Mhtre	0-34-9
55	65	0	Changa Pandu Kathaker	0-41-7
56	66	0	Keshar Damodar Mhatre	0-24-0
57	67	0	Dehubai Sakharam Mhatre	0-59-7
58	68	0	Bhiva Kamal Mhatre	0-15-0
59	68	0	Murlidhar Sakharam Mhatre	0-71-1
60	69	0	Devaji Damodar Mhatre	0-34-4
61	70	0	Gajannan Soma Mhatre	0-59-4
62	72	0	Dhawaji Vithu Mokal	1-00-2
63	73	0	Balibhai Mahadeo Mokal	0-52-4
64	74	0	Damodar Nagu Kothekar	0-48-6
65	75	0	Bayobai Rama Patil	0-31-9
66	76	0	Harishchandra Vishwanath Mokal	1-24-4
67	77	0	Kisan Changa Patil	0-32-9
68	78	0	Radhunath Vithu Mokal	0-46-5
69	79	0	Pundlik Pandu Kothekar	0-60-4

Sl. No.	Survey No.	Hissa No.	Name	Total Area H.A.
70	80	0	Bhau Krishna Patil	0-91-6
71	81	0	Murlidhar Sakharam Mhatre	0-63-2
72	82	0	Davji Damodar Mhatre	0-51-0
73	83	0	Janu Pandu Mhatre	0-64-7
74	84	0	Bhimrao Vaman Rodekar	0-20-5
75	85	0	Jagnnath Jona Mhatre	1-12-6
76	86	0	Dhawaji Hasha Chawarkar	1-94-2
77	87	0	Ranbhau Vithu Mokal	1-30-5
78	88	0	Kishan Changa Patil	0-41-5
79	89	0	Motiram Vaman Rodekar	1-08-2
80	90	0	Damodar Nagu Kodhekar etc.3	0-77-9
81	91	0	Gopinath Bhau Mali	1-17-4
82	92	1	Tukaram Namaji Patil	0-52-3
83	92	2	Hemant Tukaram Patil	0-60-0
84	94	0	Parshuram Changu Mokal	1-27-0
85	95	1	Poshibai Jona Shirke	0-46-5
86	95	2	Ganu Shankar Shirke	0-46-3
87	95	3	Sakharam Shankar Shirke	0-46-3
88	95	4	Dharma Shankar Shirke	0-46-3
89	96	1	Sakharam Pandu Mhatre	0-57-6
90	96	2	Dhaya Pandu Mhatre	0-24-1
91	97	0	Hirabai Hiru Mokal	0-63-7
92	98	1	Balaram Bhau Shirke	0-40-4

Sl. No.	Survey No.	Hissa No.	Name	Total Area H.A.
93	98	2	Laxman Bhau Shirke	0-40-0
94	98	3	Balchandra Bhau Shirke	0-40-0
95	99	1	Surykant Shankar Shirke	0-29-9
96	99	2	Rambhau Shankar Shirke	0-29-8
97	100	1	Ambibai Ramchandre Mokal etc.	0-52-0
98	100	2	Devji Jakhu Mokal	0-52-0
99	100	3	Devji Jakhu Mokal	0-23-0
100	100	4	Harichandra Jakhu Mokal	0-23-2
101	101	0	Yeswant Pandu Madhavi	0-50-8
102	102	0	Raghunath Vithu Mokal	0-29-3
103	103	0	Yeswant Pandu Madhavi	0-37-2
104	104	0	Hiru Pandu Mhadhavi	0-37-4
105	105	0	Poshiam Janu Bhoir	0-51-1
106	106	0	Janu Rama Mokal	0-87-0
107	107	A	Motiram Hiraman Baiker	0-22-0
108	107	B	Motiram Hiraman Baiker	0-39-5
109	108	0	Hiru Pandu Mhadhavi	0-32-4
110	109	0	Namubai Balkrishna Mhatre	0-76-6
111	110	1	Posha Kalu Shirke	0-11-6
112	110	2/1	Posha Joma Mhatre	0-24-9
113	110	2/2	Yadav Nagu Patil	0-35-0
114	110	3	Hasha Govind Patil	0-15-7
115	110	4	Motiram Hiraman Baiker	0-41-5

Sl. No.	Survey No.	Hissa No.	Name	Total Area H.A.
116	111	0	Mahadeo Hiru Mokal	0-60-7
117	112	0	Hiru Pandu Madhavi	1-02-9
118	113	0	Posha Joma Mhatre	0-83-0
119	114	0	Mahadeo Hiru Mokal etc.5	1-53-0
120	115	0	Hiru Mahadu Patil etc.2	0-55-6
121	116	0	Posha Kalu Shirke	0-87-3
122	117	0	Posha Joma Mhatre	0-05-2
123	118	0	Hasha Govind Patil	0-10-6
124	119	0	Soma Kasha Bhoir	0-96-1
125	120	0	Namdeo Mahadeo Mokal etc.9	0-66-8
126	121	1	Namdeo Bhau Mali	1-67-9
127	121	2	Dipak Namdeo Mali	0-42-0
128	122	0	Dehubai Panduji Patil etc.8	0-60-7
129	123	1	Jairam Narayan Patil etc.3	2-70-6
130	123	2	Vatsala Harichandre Mhatre	0-40-0
131	124	0	Gangubai Mahadeo Patil	1-28-8
132	125	0	Narayan Mahad Mokal etc.3	2-26-6
133	126	0	Parvatibai Damodar Shirke	0-60-7
134	127	0	Pandurang Soma Patil	0-35-4
135	128	0	Pandurang Soma Patil	0-42-5
136	129	0	Parvatibai Damodar Shirke	1-31-5
137	130	A	Damodar Bama Patil etc.1	0-78-6
138	130	B	Sakharam Sankar Shirke	0-40-0
139	131	0	Namubai Narayan Patil	0-52-6

Sl. No.	Survey No.	Hissa No.	Name	Total Area H.A.
140	132	0	Changubai Changu Mokal etc.8	0-48-3
141	133	0	Kashinath Rama Mokal	0-40-5
142	134	0	Harischandra Laximan Mokal	0-40-2
143	135	0	Janu Rama Mokal	0-47-3
144	136	0	Pandurang Soma Patil	0-51-6
145	137	0	Gangubai Mahadeo Patil etc	0-35-4
146	138	0	Ganpat Kather Bhoir	0-63-7
147	139	0	Poshiram Mayaji Patil	1-38-9
148	140	1	Gangubai Kashinath Mokal etc.6	0-94-3
149	140	2(1)	Krishna Ganpat Mali	0-31-3
150	140	2(2)	Mangesh Ganpat Mane	0-29-2
151	141	0	Jankibai Sona Patil	0-21-2
152	142	0	Mayaji Pandurang Mokal	0-89-8
153	143	1	Bhiva Naga Patil	0-65-2
154	143	2	Poshiram Nagu Patil	0-63-0
155	143	3	Vithabai Hiraji Patil	0-62-0
156	144	0	Vithabai Bosha Kothaker	0-80-9
157	145	1	Balaram Damodar Patil	1-17-1
158	145	2	Changuna Mahadeo Mokal	0-40-0
159	146	0	Tulshidas Gana Baikar	0-58-7
160	147	0	Sadanand Maharaj (Karavi) (Rama Changu Pal)	0-79-4
161	148	0	Balaram Bhau Patil	0-12-4

Sl. No.	Survey No.	Hissa No.	Name	Total Area H.A.
162	149	0	Murlidhar Kashirinath Patil etc.1	0-37-4
163	150	0	Bhavrinath Harshd Dhnvent	0-52-1
164	151	0	Mahadeo Maniram Mokal	1-01-2
165	152	0	Mahadeo Maniram Mokal	0-80-7
166	153	0	Balaram Bhiku Patil	0-43-5
167	154	0	Yashoda Keshav Patil etc.4	1-30-7
168	155	0	Yashoda Keshav Patil etc.4	1-44-7
169	156	0	Balibai Mahadeo Mokal etc.3	0-57-2
170	157	0	Ranibai Ramchandra Mokal etc.9	2-30-0
171	158	1	Bhagubai Rambhau Mokal etc.5	0-99-8
172	158	2	Pandurang Damoji Mokal	0-55-0
173	159	1	Ambaji Joma Mokal	0-49-9
174	159	2	Krisna Joma Mokal	0-47-0
175	160	A	Narayan Rambhau Jambhale	0-32-9
176	160	B(1)	Gopal Rambhau Jambhale	0-86-8
177	160	B(2)	Narayan Rambhau Jambale	0-48-0
178	161	0	Nathu Pandu Mokal	0-70-8
179	162	0	Soma Mahadu Mhatre	0-47-5
180	163	0	Narayan Joma Kothrkar	0-42-0
181	164	0	Hashibai Joma Patil	2-03-3
182	165	1	Dhaya Pandu Mhatre	0-15-4
183	165	2	Gopal Pandu Mhatre	0-39-1
184	166	1	Nandeo Devji Mhatre	0-42-5

Sl. No.	Survey No.	Hissa No.	Name	Total Area H.A.
185	166	2	Vithal Devji Mhatre	0-42-5
186	167	0	Dharma Ganpat Mokal	0-23-3
187	168	0	Keshav Damodar Mhatre	0-21-2
188	169	0	Damoji Pandu Patil	0-52-6
189	170	0	Dipak Harishchandra Patil	0-61-7
190	171	1	Balaram Vishnu Mokal	0-26-3
191	171	2	Jankibai Yashwant Mokal	0-25-8
192	171	3	Suresh Vishnu Mokal	0-25-8
193	172	0	Posha Kanu Shirke	0-44-5
194	173	0	Bhau Ambaji Mali	0-55-6
195	174	0	Mahadeo Jakhu Mokal	0-21-7
196	175	0	Mahadeo Joma Mhatre	0-12-6
197	176	1	Suvarna Laxman Patil	0-31-9
198	176	2	Harichandrea Mahadeo Mhatre	0-31-9
199	177	0	Balaram Pandu Mhatre	0-21-2
200	178	0	Nagya Bama Mhatre	0-24-3
201	179	A/1	Harichandra Bhaurao Patil	0-20-0
202	179	A/1/2	Vatsala Harichandra Patil	0-25-0
203	179	A/2	Manda Harichandra Patil	0-41-9
204	179	B	Sakharam Sahaji Kothekar	0-53-0
205	180	0	Hashibai Joma Patil	0-51-9
206	181	0	Vatsala Harichandra Patil	0-81-9
207	182	0	Bhagubai Rama Patil	0-11-6

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Sl. No.	Survey No.	Hissa No.	Name	Total Area H.A.
208	183	0	Dharmaji Vithu Mokal	0-53-6
209	184	0	Bayobai Rama Patil	0-29-1
210	93	0	Government Land	4-53-0
211	49	3/2	Suresh Vishnu Mokal	0-41-0
			TOTAL	137-45-02

Dt- Jwibapuji (99) (87)

1992

No.DI. Land, Permission, 17/94, B-1705
Office of Development Commissioner,
Maharashtra State,
New Administrative Building,
Opp. Mantralaya, Bombay - 400 032.

Date : 13 JAN 1995

Sub : Permission under the Bombay Tenancy and Agricultural Land Act, 1948 as per the amendments to the Section 63 I A (II), dated 28/04/1994.

Read: 1) Maharashtra Tenancy & Agricultural Land Laws (Amendment) Act 1994 dt.28/04/94..

2) Application from M/S. Nippon Denro Ispat Limited, dated 14th August 1994.

3) Affidavit of Shri S. K. Thakur on behalf M.s. Nippon Denro Ispat Ltd., dt.16th November 1994.

O R D E R

Where as M/S. Nippon Denro Ispat Limited have put up an application to the Directorate of Industries for purchase of land upto 100 Hectors (One hundred hectors) and where as this Directorate of Industries has examined the reasonableness of requirement of the said land on the basis of information and an Affidavit quoted as above.

I, Shri. Y.S. Bhave, Development Commissioner (Industries), Maharashtra, Bombay-32 under the powers vested in me by virtue of amendments to Section 63 I A(II) as per the above amended act, 1994, permit M/S. Nippon Denro Ispat Limited, to purchase land admeasuring 100 Hectors (One hundred hectors). As perdetails of land use shown in the annexure. This permission is limited only for the purchase of land shown in the annexure to this order.

Attention is specifically drawn to the following clauses mentioned in the Maharashtra Tenancy & Land Laws (Amendment) Act of 1984, relating to use of land for industrial purpose.

1. The land to be purchased shall be put to industrial use within a period of 5 years from the date of purchase, failing which the person from whom the land has purchased, shall have a right to re-purchase the land at the price for which it was originally sold.

2. If the land belongs to Scheduled Tribe, such sale of land shall be subject to the provisions of section 36 and 36A of the Maharashtra Land Revenue Code, 1966 and of the Maharashtra Restoration of Lands to Scheduled Tribes Act, 1974.

3. If the land being purchased as above, is held by Occupant-Class II, the purchaser shall pay to the Collector, an amount equal to two per cent, of the purchase price within one month of the execution of the sale deed irrespective of the tenure of such land. This payment shall be in lieu of any nazrana or such other charges which may otherwise be payable by such Occupant Class II by or under the provisions of the Maharashtra Land Revenue Code, 1966.

4. In addition to the above, the purchaser of such land shall pay the non-agricultural assessment as may be levied by the Collector under Sections 67 & 115 of the Maharashtra Land Revenue Code, 1966.

The person purchasing the land under sub-section 63 (1-A) for conversion thereof for a bonafied industrial use shall give intimation of the date, on which the change of user of land commenced, within thirty days from such date, to the Collector of the district.

If the person fails to inform the Collector within the period specified in sub-section 63(1-A) (1) he shall be liable to pay in addition to the non-agricultural assessment which may be leviable by or under the provisions of the Maharasntra Land Revenue Code, 1966. Such penalty not exceeding twenty times the amount of non-agricultural assessment as the Collector may, fix subject to rules made by the State Govt. in this behalf.

7. This permission for the purchase of land is granted only on the basis of the details submitted by the applicant from the point of reasonableness of the requirement.

8. The permission is granted for the purchase of land as specified by the applicant in their application and as per the affidavit given by the applicant to the Directorate of Industries. Applicant will have to ascertain from appropriate authorities that there is no reservation of any kind on any part of the land and title of the land is clear. Details of land purchased may be communicated to this office immediately.

9. The applicant will have to comply with the provisions of all other Acts/Rules/Notifications issued from time to time by State Govt./Central Govt. in this behalf.

10. The applicant should not purchase more than 100 (One hundred hectors) (total) for this project in the Dist. of Raigad for which permission has been granted and the applicant should abide by the provisions of Maharashtra Tenency & Agricultural Land Laws (Amendment) Act of 1994 dated 28/04/94.

(Y.S. Bhave)
Development Commissioner (Industries)

To

M/S. Nippon Denro Ispat Limited,
219, Vardhaman Chambers, 2nd Floor,
Sector 17, Vashi,
New Bombay 400 705.

Copy forwarded to the Collector, Raigad for information and necessary action.

(Y.S. Bhave)
Development Commissioner (Industries)

Encl. : Annexure - A.

ANNEXURE - A

(If the details mentioned below are given by the applicant, then this annexure will be accompanied to the order for permission for the purchase of the agricultural land for bonafied industrial use.)

1. Name of the purchaser : M/S. Nippon Denro Ispat Ltd.,

2. Area of the land in hectres : 100 Hectors (One hundred)

Village: Jai Bapuji, Tal. Alibag, District: Raigad.

Purchased Details of Land to be : List enclosed

Sr. No./Gat No. _____ area. _____.

4. Details of land use : Pelletisation, Sintering and Iron making plants, Storage of materials and recycling of oxide fines

Annexure

Details of Survey Nos. Village - JUIBAPUJI,
Taluka - Alibag, Dist - Raigad

Sr. No.	Survey No.	Hissa No.	Name	Total (Hects.)
1.	1	1A	Ramibai Vithu Mokal	0-38.7
2.	1	1B	Nathu Pandurang Mokal	0-59.4
3.	1	2	Hirachand Janu Patil	1-02.2
4.	2	1A	Meru Harshat Tarde	0-30.1
5.	2	1B	Gangubai Maradev Patil	0-62.5
6.	3	1	Renubai Sakharam Mhatre	0-11.1
7.	3	2	Namdev Narayan Patil	1-15.6
8.	4	1	Hairachand Janu Patil	0-29.2
9.	4	2	Gangubai Padaji Kothekar	0-23.6
10.	4	3	Sheelavati Laxman Kothekar	0-22.5
11.	5	1	Kamalakar Nagu Patil	0-28.6
12.	5	2	Harishchandra Ganpat Mali	0-78.9
13.	5	3	Bhimabai Laxman Patil	0-59.4
14.	6	1	Dharma Ambu Patil	0-42.3
15.	6	2	Shankar Bhau Patil	0-32.0
16.	6	3	Yadav Nagu Patil	0-90.1
17.	7	1	Krishnabai Kathor Mokal	0-64.2
18.	7	2	Ramchandra Vithoba Mhatre	0-07.3
19.	7	3	Krishnabai Kathor Mokal	0-45.1
20.	7	4	Madhukar Dhauji Patil	0-16.9
21.	7	5	-------do--------	0-20.0
22.	8	1	Gangabai Padaji Kothekar	1-23.7
23.	8	2	Dhanaji Narayan Patil	1-07.2
24.	9	1	Ramchandra Vithoba Mhatre	0-38.4
25.	9	2	Gajanan Pandurang Kothekar	0-31.4
26.	9	3	Krishnabai Jana Kothekar	0-26.1
27.	9	4A	Arun Kamal Patil	0-40.0
28.	9	4B	Bhaskar Sakharam Patil	0-40.3
29.	9	5A	Surekha Keshav Patil	0-42.2
30.	9	5B	Vilas Dana Patil	0-33.6

Sr. No.	Survey No.	Hissa No.	Name	Total Area
31.	10	1(B)3	Madhukar Dhanji Patil	0-30.1
32.	10	1A+1B (1)	Mahadeo Tukaram Mhatre	0-30.1
33.	10	1B(2)	Jankibai Krishna Patil	0-73.5
34.	10	2	Madhukar Dhanji Patil	0-19.7
35.	11	1	Hirachand Ganu Patil	0-43.0
36.	11	2	Draupadi Damodar Kothekar	0-48.1
37.	11	3	Yashwant Antu Patil	0-37.2
38.	11	4	Kashinath Rama Mokal	0-77.6
39.	12	1/1	Ganpat Changu Patil	0-84.0
40.	12	1/2	Gajanan Antu Patil	0-42.0
41.	12	2A	Janabai Ganu Patil	0-43.0
42.	12	2B	Dattatray Pandurang Patil	0-42.0
43.	13	1A	Yashwant Antu Patil	0-26.1
44.	13	1B	Ganpat Changu Patil	0-52.0
45.	13	2	Jomibai Ganpat Kothekar	0-24.5
46.	13	3	Sakharam Ambu Patil	0-63.3
47.	13	4	Hirabai Sakharam Kothekar	0-24.3
48.	14	1A	Balaram Hiru Mokal	0-40.0
49.	14	1B	Hiraman Babaji Kothekar	0-34.4
50.	14	1C	Bhau Krishna Patil	0-71.3
51.	14	2	Hirabai Sakharam Kothekar	0-25.3
52.	14	3	Dilip Ganpat Kothekar	0-75.9
53.	14	4	Dharmaji Ganpat Kothekar	0-41.2
54.	15	1	Joma Mariya Kothekar	0-21.7
55.	15	2	Bhau Krishna Patil	0-76.4
56.	15	3/1	Dharmaji Ganpat Kothekar	0-28.8
57.	15	3/2	Laxman Ganpat Kothekar	0-49.6
58.	15	4	Keshav Dagdu Langi	0-79.4
59.	16	1	Joma Mariya Kothekar	0-32.4
60.	16	2/1	Gajanan Antu Patil	0-34.0
61.	16	2/2	[illegible]	0-34.0

Sr. No.	Gat No.	Hissa No.	Name	Total Area
62.	16	1/1A	Sitaram Pandurang Mhatre	0-23.1
63.	16	1/1B	Krishnaji Dharma Dalvi	0-18.2
64.	16	2	Jaanabai Ganu Patil	0-31.4
65.	17	1/1A	Kashi Alya Kothekar	0-22.1
66.	17	1/2A	Gopinath Changu Mokal	0-11.6
67.	17	1/1B	--------do----------	0-13.3
68.	17	1/2B	Ganesh Haribhau Mokal	0-25.0
69.	17	2	Joma Marya Kothekar	0-12.0
70.	17	3	Ganapat Pandurang Kothekar	0-53.0
71.	17	4/1	Anandibai Maruti Kothekar	0-30.8
72.	17	4/2	Joma Marya Kothekar	0-34.9
73.	18	1	Sitaram Hari Kothekar	0-59.9
74.	18	2	Balaram Hiru Mokal	0-47.3
75.	18	3/1	Haribhau Dattatray Mhatre	0-55.1
76.	18	3/2	Radhibai Parshuram Mharte	0-47.6
77.	19	1A	Krishnibai Dattatray Mhatre	0-46.8
78.	19	1B	Babibai Balya Patil	0-40.0
79.	19	2	Balibai Balaram Mokal	0-69.3
80.	19	3	Poshi Laxman Tandel	0-15.4
81.	19	4	Radhibai Parshuram Mhatre	0-42.0
82.	20	1	Baliram Kashinath Patil	0-64.9
83.	20	2A	Anant Narayan Mhatre	1-06.8
84.	20	2B	Kishor Bhaskar Patil	0-20.0
85.	21	1	Indubai Balu Kothekar	0-43.0
86.	21	2	Shankar Alya Kothekar	0-78.0
87.	21	3	Harichandra Alya Kothekar	0-44.7
88.	22	1	Krishna Mahadeo Thakur	0-76.4
89.	22	2	Yashoda Keshav Patil	0-41.1
90.	22	3	----------do----------	0-32.7
91.	23	1	Krishna Dhondiram Kothekar	0-49.1
92.	23	2/1	Tukaram Dhondu Kothekar	0-54.0

Contd...

Sr. No.	Gat No.	Hissa No.	Name	Area
95.	23	2/2	Parashram Bhaya Kothekar	0-21.5
96.	23	2/3	Bamji Dhaya Kothekar	0-40.3
97.	23	2/4A	Sunil Vitthal Kothekar	0-36.2
98.	23	2/4B	Indiratai Ambu Kothekar	0-35.1
97.	24	1	Dharmaji Ganpat Kothekar	0-30.2
98.	24	2	Krishna Maniram Kothekar	0-08.1
99.	25	1	Amtaji Alya Kothekar	0-29.3
100.	25	2A	Ganpat Posha Kothekar	0-08.0
101.	25	2B	Krishna Maniram Kothekar	0-06.6
102.	25	3	Mahadeo Motiram Kothekar	0-15.5
103.	26	1	Manadeo Motiram Kothekar	0-36.4
104.	26	2	Nathuram Maniram Kothekar	0-38.7
105.	27	2A	Bala Joma Patil	0-60.2
106.	27	2B	Joma Hasra Kothekar	0-82.1
107.	26	1	Janardan Keshav Patil	0-80.1
108.	28	2	Vasant Sakharam Patil	0-40.48
109.	29	1	Mahadeo Motiram Kothekar	0-20.2
110.	29	2	Nat nuram Maniram Kothekar	0-21.3
111.	30	0	Ganpat Bamaji Kothekar	0-46.3
112.	31	0	Arjun Manadeo Kothekar	1-38.1
113.	32	0	Kashinath Manadeo Kothekar	0-93.8
114.	33	0	Indirabai Balaji Mhatre	0-84.2
115.	34	1/1	Raghunath Kashinath Patil	1-13.0
116.	34	1/2	Ramibai Ramdas Patil	1-01.0
117.	34	2A	Pandurang Parshuram Mhatre	0-42.0
118.	34	2B	Laxman Padaji Chavarkar	1-34.0
119.	35	1	Dhanji Ambu Kothekar	2-29.4
120.	35	2	Tukaram Kashinath Mokal	0-35.4
121.	36	1	Eknath Ramji Nandru Patil	1-59.6
122.	36	2A	Hiraschandra Mahadeo Mhatre	0-61.4
123.	36	2B	Mukundnath Dhaya Kothekar	1-02.0
124.	37	1	Ramji Bhau Kothekar	0-31.0
125.	37	2	Balaram Kashinath Patil	0-37.0

Sr. No.	Survey No.	Hissa No.	Name	Assessment
126.	38	1	Dhondu Balaram Patil	0-48.0
127.	38	2	Baliram Krishna Kothekar	0-81.0
128.	39	1/1A	Dattatray Shankar Mhatre	0-19.0
129.	39	1/2A(1)	Baliram Kashinath Patil	0-65.5
130.	39	1/2A(2)	Kashibai Yashwant Patil	0-43.0
131.	39	1/3A	Dattatray Shankar Mhatre	1-09.1
132.	39	1B	---------do---------	0-10.3
133.	40	1	Sitaram Hari Kothekar	0-20.6
134.	40	2	Balaram Hiru Patil	0-25.7
135.	40	3	Hiraman Bataji Kothekar	0-22.8
136.	40	4	Sunil Ganpat Kothekar	0-23.5
137.	40	5	Hiraman Bataji Kothekar	0-45.7
138.	40	6	Sakharam Antu Patil	0-17.2
139.	41	1	---------do---------	0-48.1
140	41	2A/1	Dattaram Chintaman Patil	0-61.0
141.	41	2A/2	Shankar Baburao Patil	0-78.3
142.	41	2A/3	Premnath Chintaman Patil	0-41.0
143.	41	2A/4	Ashok Chintaman Patil	0-41.0
144.	42	1A/1	Shankar Baburao Patil	0-76.41
145.	42	1A/2	Parshuram Narayan Mhatre	0-50.59
146.	42	1B	Vasudeo Changu Patil	0-44.0
147.	42	2	Shankar Baburao Patil	0-16.2
148.	43	1/1	Jana Marya Kothekar	0-91.3
149.	43	1/2	Mahdeo Marya Kothekar	0-89.6
150.	43	2	Posubai Laxman Tandel	0-20.7
151.	44	1	Balibai Balaram Mokal	0-21.7
152.	44	2	Nagu Parsha Pednvi	0-23.6
153.	44	3	Hiru Balya Kothekar	0-39.9
154.	44	4	Draupadi Devadas Kothekar	0-46.5
155.	44	5	Hiru Balya Kothekar	0-33.5
156.	44	6	Draupadi Devadas Kothekar	0-33.1
157.	44	7	Sunil [illegible]	0-21.4
158.	45	1	[illegible]	0-31.1

No.	Hissa No.	Subdivision No.	Name	Area
159.	45	2	Patil Laxman [illegible]	1-30..
160.	45	3	Balachandra Jangat Kothekar	0-37..
161	45	4	Anandibai Yag. Patkari	0-31.0
162.	45	5A	Bambai Vithu Mokal	0-04.3
163.	45	5B	Shantabai Parsi Daniel	0-07.7
164.	46	1	Ramibai Hasma Kothekar	3-50.0
165.	46	2	Kanchan Bhalchandra Kothekar	0-49.7
166.	46	3	Jayprakash Bhalchandra Kothekar	0-49.3
167.	46	4A	Gotichotun Indl and Mavesti	0-27.3
168.	46	4B	Manadeo Sitaram Mhatre	0-21.2
169.	46	5A	Gangubai Manadeo Patil	0-06.1
170.	46	5B1	Rama Krishna Kothekar	0-05.0
171.	46	5B2	Durgabai Keshav Patil	0-42.0
172.	47	1	Krishnabai Jana Kothekar	0-53.4
173.	47	2A	Jamabai Jangat Kothekar	0-60.1
174.	47	2B	Kisbore Jangat Kothekar	0-42.6
175.	47	3	Jayprakash Bhalchandra Kothekar	0-51.6
176.	48	1	Ravindra Sitaram Mali/	1-01.4
177.	48	2	Ambaji Ganpat Patil	1-01.4
178.	49	0	Moru Narusheth Terde	0-34.6
179.	50	A	Devubai Sakharam Mhatre	0-12.6
180.	50B	1	Chandrakala Ramachandra Patil	1-40.0
181.	50B	2	Rekha Ramachandra Patil	1-39.0
182.	50C	1	Rajendra Ramchandra Patil	1-32.0
183.	50C	2	Seema Ramchandra Patil	1-32.0
184.	50D	1	Namdeo Kashinath Patil	0-50.0
185.	50D	2	Yashwant Naga Patil	0-50.0
186.	50D	3	Tukaram Bendu Kothekar	0-50.0
187.	50D	4	Lakhuma Dhanaji Patil	0-50.0
188.	50D	5	Dinanath Krishna Talkar	0-50.0
189.	50D	6	Shanti Ram Ramchandra Patil	1-00.0
190.	51		[illegible]	0-16.0

Sr. No.	Sub No.	Hissa No.	Name	Total Area
191.	50F		Khagan	3-19.0
192.	51		Devubai Sakharam Mhatre	0-14.2
193.	52	3	Ganpat Damji Ketrekar	0-00.5
194.	53	1A	Narayan Benzu Mhatre	0-02.0
195.	53	2	Narayan Benzu Mhatre	0-33.2
196.	53	1B	Bhimrao Narayan Mhatre	0-00.0

order - DIC not required

(57)

(63) 2004

BY RPAD

क्र. उसं/जमीन/ख.प./१२२(२०१२)/२०१६/ 2nd-1434
उद्योग संचालनालय, २ रा मजला,
नवीन प्रशासन भवन, मंत्रालयासमोर,
मुंबई ४०० ०३२.
दिनांक : 20 FEB 2016

प्रति,

मे. जेएसडब्ल्यू स्टील लि.,
मौजे - गितापूरम, डोलवी,
ता. पेण, जि. रायगड.

विषय : मुंबई कुळ वहिवाट व शेत जमीन अधिनियम १९४८ (सुधारणा १९९४ व २००५) अंतर्गत खऱ्याखुऱ्या औद्योगिक वापराकरीता दिलेल्या शेत जमीन खरेदीस परवानगी आदेशास मुदतवाढ मिळणेबाबत.

संदर्भ : १) आपला अर्ज दिनांक १९.१.२०१६.
२) शासन, महसूल व वन विभागाची अधिसूचना दिनांक १.१.२०१६.

महोदय,

उपरोक्त अर्जान्वये आपण या कार्यालयाने आपणांस दिनांक २२.२.२०१३ रोजीच्या आदेशान्वये Coke Oven (२.५ MTPA), Blast Furnace (४.५ MTPA), Sinter Plant (७.० MTPA), Steel Melt Shop (४.० MTPA), Cement Plant and Slag Processing Unit (२.७ MTPA) and MSDS (Main Step Down Station) करण्यासाठी मौजे – खारमाचेला, खारचिरवी, खारघाट व खारजांभेला, ता. पेण, जि. रायगड येथील ३०१.१०९ हेक्टर शेत जमीन खरेदी करण्यासाठी दिलेल्या परवानगी आदेशास मुदतवाढ मिळावी अशी विनंती केली आहे.

शासनाच्या महसूल व वन विभागाने दिनांक १.१.२०१६ रोजी मुंबई कुळ वहिवाट व शेत जमीन अधिनियम १९४८, हैद्राबाद कुळ वहिवाट व शेत जमीन अधिनियम १९५० आणि महाराष्ट्र कुळ वहिवाट व शेत जमीन (विदर्भ प्रदेश) अधिनियम, १९५८ संदर्भात सुधारीत अधिसूचना निर्गमित केली आहे.

सदर अधिसूचनेनुसार खऱ्याखुऱ्या औद्योगिक वापरासाठी शेत जमीन खरेदी करण्यासाठी तसेच मुदतवाढीसाठी मा. विकास आयुक्त (उद्योग) यांचे पूर्वपरवानगीची आवश्यकता नाही. मात्र, संदर्भ क्र. २ च्या अधिसूचनेत विहित करण्यात आलेल्या तरतूदी अशा खरेदीसाठी लागू राहतील.

सबब, आपला मुदतवाढ मिळणेबाबतचा अर्ज नस्तीबंद करण्यात येत आहे, याची कृपया नोंद घ्यावी.

आपली विश्वासू,

उद्योग उप संचालक (जमीन)
विकास आयुक्त (उद्योग) यांचेकरीता

DIC - Extension - Vave, Kolve, Beneghat

53

64

2005

Government of Maharashtra
Directorate of Industries

Tel. No. 022-2202 3505
Fax No. 022-2202 6826
E-Mail:- diland@maharashtra.gov.in

No. DI/Land/Permission/454(2008)/2016/
Directorate of Industries, 2nd floor, B-93
New Administrative Building,
Opp. Mantralaya, Mumbai 400 032.

Date : 7 JAN 2016

Sub : Permission to purchase agriculture land under Section 63(1)(A) of the Mumbai Tenancy and Agricultural Land Act, 1948.

Read : 1. This Office Land Purchase Permission Order No. DI/Land/Permission/454/2008/B-41460, dated 18/11/2008.
2. This Office Order-cum-Addendum No. DI/Land/Permission/454(2008)/2010/C-5589, dated 26/4/2010.
3. This Office Extension of Validity Period Order No. DI/Land/Permission/454(2008)/2010/B-14437, dated 18/7/2011.
4. Application dated 9/12/2015 from M/s. JSW Steel Ltd., Geetapuram, Dolvi, Tal. Pen, Dist. Raigad 402 107.

Extension of Validity Period

Whereas, Directorate of Industries, Mumbai has granted permission to M/s. Ispat Industries Ltd., Geetapuram, Dolvi, Tal. Pen, Dist. Raigad 402 107 vide orders at reference No. 1 & 2, to purchase agricultural land admeasuring 166.361 hectares (one six six point three six one hectares) at Villages – Vave, Kolve & Beneghat, Tal. Pen, Dist. Raigad to establish Infrastructure, Construction of Railway Siding, Jetty and Port Backup Facilities, and as per the request of the applicant, the validity period of the aforesaid permission was extended up to 30/6/2012 vide reference No. 3 above.

Whereas, M/s. JSW Steel Ltd. vide application dated 9/12/2015 cited at reference No. 4 has informed alongwith supporting documents that the applicant has purchased total 14.406 hectares (one four point four zero six hectares) agricultural land and purchase of the balance land is in progress and has further requested to extend validity period of the permission for further five years for purchasing remaining land to the extent of 151.955 hectares (one five one point nine five five hectares) land at Villages – Vave, Kolve & Beneghat, Tal. Pen, Dist. Raigad as per orders at reference No. 1 & 2 above.

Whereas, the name of M/s. Ispat Industries Ltd. has changed to M/s. JSW Steel Ltd. vide High Court Order dated 22/2/2008, and accordingly unit has now requested to issue the permission in the name of M/s. JSW Steel Ltd.

Whereas, on scrutiny of the documents, it is found that there is substance in the request. Hence, request of the applicant is accepted. Therefore, I, Dr. Narendrakumar Bagde, Development Commissioner (Industries), Maharashtra State

under the powers vested in me by virtue of amendment to Section 63 (1) (A) of Mumbai Tenancy & Agricultural Land Act, 1948, amendment 1994 & 2005 amend the order cited at reference No. 1, and permit M/s. JSW Steel Ltd. for purchase of balance agricultural land admeasuring 151.955 hectares (one five one point nine five five hectares) at Villages – Vave, Kolve & Beneghat, Tal. Pen, Dist. Raigad to establish Infrastructure, Construction of Railway Siding, Jetty and Port Backup Facilities by extending the validity period for five years for purchase of land mentioned in the order under reference No. 1 & 2 further up to 31/01/2017. Within this extended period the applicant has to complete the process of acquiring the remaining land.

This order is in continuation of original order under reference No. 1. The other terms and conditions of original order remain unchanged and shall be read with it.

(Dr. Surendrakumar Bagde)
Development Commissioner (Industries)

To,

M/s. JSW Steel Ltd.,
Geetapuram, Dolvi,
Tal. Pen, Dist. Raigad 402 107.

Copy forwarded for information & necessary action:-

1. Principal Secretary (Revenue), Revenue & Forest Department, Mantralaya, Mumbai 400 032.
2. Principal Secretary (Industries), Industries Energy & Labour Department, Mantralaya, Mumbai 400 032.
3. Principal Secretary, Urban Development Department, Mantralaya, Mumbai 32.
4. Principal Secretary (Energy), Industries Energy & Labour Department, Mantralaya, Mumbai 400 032.
5. Metropolitan Commissioner, Mumbai Metropolitan Regional Development Authority (MMRDA), Bandra (East), Mumbai - 400 051.
6. Divisional Commissioner, CBD Belapur, Konkan Bhavan, Navi Mumbai, Thane.
7. Collector, Raigad, with request to take note of this Order No. on 7/12 extract after submission evidence for purchase of land by Developer
8. Joint Director of Industries, Konkan Region, Thane.
9. General Manager, District Industries Centre, Raigad.
10. Select File, Directorate of Industries (Land Branch), H.O., Mumbai 400 032. **(M/s. JSW Steel Ltd.)**

(Dr. Surendrakumar Bagde)
Development Commissioner (Industries)

order-cum-Addendum - Vave, Kolve, Beneghat

2007

(610) (55)

Government of Maharashtra

Directorate of Industries

Tel. No. 022-2202 3505
Fax No. 022-2202 6826
E-Mail:- dilland@maharashtra.gov.in

No. DI/Land/ Permission/454(2008)/2010/ C-558
Directorate of Industries, 2nd floor,
New Administrative Building,
Opp. Mantralaya, Madam Cama Road,
Mumbai 400 032.
Date:- 26 APR 2010

Sub :- Permission to purchase agriculture land under the Mumbai Tenancy and Agricultural Land Act, 1948

Read:- 1. This Office Land Purchase Permission Order No. **DI/Land/Permission/454/2008/B-41460,** dated **18/11/2008**
2. Application from **M/s. Ispat Industries Ltd., Plot No. 45, Casablanca, Sector 11, CBD Belapur, Navi Mumbai 400 614** dated **21/10/2009** & subsequent compliances dated **16/01/2010** and **20/03/2010.**
3. Affidavit executed by **Mr. S. N. Singh,** Manager, **M/s. Ispat Industries Ltd.,** dated **18/02/2008** & **17/04/2010**

ORDER - CUM - ADDENDUM

Whereas, this Directorate has granted permission to **M/s. Ispat Industries Ltd., Plot No. 45, Casablanca, Sector 11, CBD Belapur, Navi Mumbai 400 614** vide order reference no. 1 to purchase agriculture land admeasuring **153.388 Ha. (one five three point three eight eight Ha.)** at Villages **Vave, Kolve & Beneghat,** Taluka **Pen,** District **Raigad** for **Infrastructure, construction of Railway Siding, Jetty and Port backup facilities.**

Whereas, request from **M/s. Ispat Industries Ltd.,** referred at Sr. No. 2 above for purchase of additional land admeasuring **12.973 Ha. (one two point nine seven three Ha.)** at Villages **Vave & Beneghat,** Taluka **Pen,** District **Raigad.**

Whereas, **M/s. Ispat Industries Ltd.,** has submitted land purchase permission progress report dated **20/03/2010.** According to the report the applicant has acquired **33.734 Ha. (three three point seven three four Ha.) (21.99%)** of agriculture land and the acquisition of process of balance land is in progress.

Whereas, on scrutiny of the documents, it is found that there is substance in the request. Hence request of the applicant is accepted. Therefore, I, Sanjay J. Sethi, Development Commissioner (Industries), amend the order No. **DI/Land/Permission/454/2008/B-41460, dated 18/11/2008** permitting to purchase additional agriculture land admeasuring **12.973 Ha. (one two point nine seven three Ha.)** at Villages **Vave & Beneghat,** Taluka **Pen,** District **Raigad** for **Infrastructure, construction of Railway Siding, Jetty and Port backup facilities** and issue revised **Annexure "A" & "B".**

With this amendment, M/s. Ispat Industries Ltd., Plot No. 45, Casablanca, Sector II, CBD Belapur, Navi Mumbai 400 614 is permitted to purchase aggregate 166.361 Ha. (one six six point three six one Ha.) agriculture land as detailed in Annexures A & B.

This order is continuation of original order under reference no. 1 & 2. The other terms and condition of original order are remain unchanged and are applicable and shall be read with it.

(Sanjay J. Sethi)
Development Commissioner (Industries)

To,

M/s. Ispat Industries Ltd.,
Plot No. 45, Casablanca,
Sector II, CBD Belapur,
Navi Mumbai 400 614.

Copy forwarded for information & necessary action:-

1. Principal Secretary (Revenue), Revenue & Forest Department, Mantralaya, Mumbai 400 032.
2. Principal Secretary (Industries), Industries Energy & Labour Department, Mantralaya, Mumbai 400 032.
3. Principal Secretary (Energy), Industries Energy & Labour Department, Mantralaya, Mumbai 400 032.
4. Principal Secretary, Urban Development Department, Mantralaya, Mumbai 400 032.
5. Managing Director, Mumbai Metropolitan Regional Development Authority (MMRDA), Bandra (East), Mumbai - 400 051.
6. Divisional Commissioner, Konkan Division, Konkan Bhavan, CBD Belapur, Navi Mumbai, District Thane.
7. Collector, Raigad, with request to take note of this Order No. on 7/12 extract after submission evidence for purchase of land by Developer.
8. The Chief Executive Officer, Maharashtra Maritime Board (A Govt. of Maharashtra Undertaking), Indian Mercantile Chambers, 3rd floor, Ramjibhai Kamani Marg, Ballard Estate, Mumbai 400 038.
9. Joint Director of Industries, Konkan Region, Thane.
10. General Manager, District Industries Centre, Raigad.
11. Select File, Directorate of Industries (Land Branch), H.O., Mumbai 400 032.

Sd/-
(Sanjay J. Sethi)
Development Commissioner (Industries)

(66) 57

ANNEXURE - A (Additional)

Accompanied to Order No. DI/Land/Permission/454(2008)/2010/ C-5589

dated 26 APR 2010 and should be read with it

1.	Name of the purchaser.	:	M/s. Ispat Industries Ltd., Plot No. 45, Casablanca, Sector 11, CBD Belapur, Navi Mumbai - 400 614.
2.	Area of Land for which purchase permission is granted vide order dated 18/11/2008	:	153.388 Ha. (one five three point three eight eight Ha.)
3.	Area of additional land in Villages Vave & Beneghat (Details in Annexure B)		12.973 Ha. (one two point nine seven three Ha.)
4.	Villages	:	Vave, Kolve & Beneghat
	Taluka	:	Pen
	District	:	Raigad
5.	Total area permitted (2+3)	:	166.361 Ha. (one six six point three six one Ha.)
6.	Details of land use.	:	For Infrastructure, construction of Railway Siding, Jetty and Port backup facilities

Sanjay Sethi

(Sanjay J. Sethi)
Development Commissioner (Industries)

ANNEXURE – B (Additional)

Accompanied to Order No. DI/Land/Permission/454(2008)/2010/ C-5589

dated 12 6 APR 2010 and should be read with it

M/s. Ispat Industries Ltd., Plot No. 45, Casablanca, Sector 11, CBD Belapur, Navi Mumbai 400 614

(in Ha.)

Sr. No.	Gut No.	Hissa No.	Total Land Area
	(A) Village Vave, Taluka Pen, District Raigad		
1.	51	1	0.394
2.	51	2	0.263
3.	51	3	0.190
4.	51	4 अ	0.246
5.	55	1 ब	0.190
6.	55	1 क	0.190
7.	55	1 ड	0.329
8.	55	1 इ	0.330
9.	72	3	0.192
10.	83	2 ब	0.316
11.	84	2 क	0.215
12.	85	4	0.458
13.	87	4	0.759
14.	91	1अ1अ1	0.275
15.	93	0	0.088
16.	96	3	0.281
17.	103	1 अ	0.166
18.	103	1 ब	0.160
19.	103	1 ड	0.174
20.	103	1 इ	0.205
21.	103	1 फ	0.215
22.	106	1	0.263
23.	108	1	1.027
24.	108	3	0.339
25.	110	1	0.587
26.	110	2	0.106
27.	110	4 अ	0.202
28.	110	5	0.212
29.	115	5 ब	0.225
30.	117	1ब 2	0.329
31.	119	1ब	0.680
32.	125	1ब	0.150
33.	125	3	0.096

(in Ha.)

Sr. No.	Gut No.	Hissa No.	Total Land Area
34.	125	4	0.276
35.	125	5B	0.182
36.	191	1B	0.430
(A) Total Area in Village Vave,			10.749
(B) Village Beneghat, Taluka Pen, District Raigad			
37.	9	0	0.370
38.	52	0	0.276
39.	53	0	0.339
40.	63	0	0.789
41.	64	0	0.450
(B) Total Area in Village Beneghat,			2.224
Total Additional Land in Villages Vave & Beneghat, Taluka Pen, District Raigad			12.973 Ha. (one two point nine seven three Ha.)
Area of Land for which purchase permission is granted vide order dated 18/11/2008			153.388 Ha (one five three point three eight eight Ha.)
Grand Total Land Area in Villages Vave, Kolve & Beneghat, Taluka Pen, District Raigad			166.361 Ha. (one six six point three six one Ha.)

Industries Officer (Land)
for Development Commissioner (Industries)

DIC- Vave, Kolve + Beneghat

(V3) 2012

No. DI/Land/Permission/454/2008/B.K.M.C.
Directorate of Industries, 2nd floor,
New Administrative Building,
Opp. Mantralaya, Mumbai 400 032.
Tel. No. 022-2202 3505
Fax No. 022-2202 6826
E-Mail:- diland@maharashtra.gov.in

Date:- 18 NOV 2008

Sub:- Permission under the Mumbai Tenancy and Agricultural Land Act, 1948, as per the amendment to the section 63 I A (ii), dated 28/04/1994 & 19/05/2005.

Read:-
1. Mumbai Tenancy & Agricultural Land Act 1948 (Amendment-1994) dated 28/04/1994 & 19/05/2005.
2. Maharashtra Tenancy & Agricultural Land Laws (Amendment) Act 1994, dated 28/04/1994
3. Government Notification dated 19/05/2005.
4. Urban Development Department, Mantralaya, Mumbai amendment NOTICE No. TPB 4303/CR-192/03/UD-11, dated 22/01/2004
5. Application dated 19/02/2008 and dated 09/04/2008 from M/s. Ispat Industries Ltd., 'CASABLANCA' Sector 11, C.B.D. Belapur, Navi Mumbai – 400 614.
6. महाराष्ट्र औद्योगिक विकास महामंडळ, मुंबई यांचे ना हरकत प्रमाणपत्र क्र. मऔविम/मुंबपए.इस्पात इंडस्ट्रीज/१७८७, दिनांक ०१/१०/२००८.
7. महाराष्ट्र मेरीटाईम बोर्ड, मुंबई यांचे ना हरकत प्रमाणपत्र क्र. एमएमबी/ नियोजन/ इस्पात/जमीन/ ३१६, दिनांक १६/१०/२००८.
8. Affidavit of Mr. S. N. Singh, Manager (Legal), M/s. Ispat Industries Ltd., 'CASABLANCA' Sector 11, C.B.D. Belapur, Navi Mumbai – 400 614, dated 18/02/2008.
9. शेत जमीन खरेदी परवानगी पुनर्गठीत समिती ची बैठक दिनांक १०/०९/२००८.

ORDER

Whereas M/s. Ispat Industries Ltd., 'CASABLANCA' Sector 11, C.B.D. Belapur, Navi Mumbai – 400 614 has submitted an application to the Directorate of Industries for purchase of agricultural land at Villages Vave, Kolve & Beneghat, Taluka Pen, District Raigad upto 185.00 Ha. (one eight five point zero zero Ha.) to establish Infrastructure Construction of Railway Siding, Jetty and Port backup facilities. The Directorate has examined the reasonableness of requirement of the said land for the proposed use on the basis of information supplied by the applicant by way of Affidavits quoted at above at Sr. No. 8 & NOC from Maharashtra Industrial Development Corporation & Maharashtra Maritime Board quoted at Sr. No. 6 & 7.

I, Malini V. Shankar, Development Commissioner (Industries), Maharashtra, Mumbai 400 032 under the powers vested in me by virtue of amendment to Section 63-I(i)

Act of Mumbai Tenancy & Agricultural Land Act 1948, amended as per Maharashtra Tenancy & Agricultural Land Laws Act 1994 & 2005 permit **M/s. Ispat Industries Ltd., 'CASABLANCA' Sector 11,** C.B.D. Belapur, **Navi Mumbai – 400 614,** to purchase land admeasuring **153.388 Ha.** (one five three point three eight eight Ha.) to establish **Infrastructure, construction** of Railway **Siding, Jetty and Port backup facilities** as per details of land shown in the Annexure. This permission is limited only for the purchase of land shown in the Annexure to this Order to establish **Infrastructure, construction of Railway Siding,** Jetty **and Port backup facilities.**

As informed by Assistant Director from Town Planning Department, Raigad, the Villages **Vave, Beneghat & Kolve,** Taluka **Pen, District Raigad** are in **Green Zone** I&2 and **Proposed Jetty & Warehousing facilities,** as per the Maharashtra Regional & Town planning Act 1966. You have given separate affidavit on **18/02/2008.** As per the affidavits you have contacted the office of the Regional Town Planning Authority, upon confirmation that it may be converted for bonafide industrial use. You shall obtain the change in zone from Town Planning Department.

You have affirmed that you will use the land only for bonafide industrial purpose as defined in Section 63 (1) A (a) of BTAL Act 1948. Kindly note that pure trading activity not related to industry is not allowed as per BTAL Act 1948. You have given separate affidavit regarding land use dated **18/02/2008,** and you shall abide by the said affidavit. No other use including residential and commercial use will be permitted other than those included in the definition of Bonafide Industrial purpose in BTAL Act.

You are also informed that the proposed land use shall be strictly as per your project report, wherein the proposed overall land use and development plan would be solely for above project. Land use for any other purpose shall not be allowed.

You have also submitted that you are well acquainted with the proposed land and also with the owners of the land and all the land owners have voluntarily agreed to sell the lands to you voluntarily at market determined prices prevailing in that area and no land owner has any objection to it.

Attention is specifically drawn to the following provisions of the Mumbai Tenancy & Agricultural Land Act of 1948, relating to use of land for industrial purpose and hence, this permission is further subject to the following conditions.

1. The land to be purchased must be put to bonafide industrial use to establish **Infrastructure, construction** of Railway **Siding, Jetty and Port backup facilities** within a period of **5 years** (five years) from the date of purchase of land, failing which the person from whom the land has purchased, shall have a right to re-purchase the land at the price at which it was originally sold.

2. If the land belongs to a person belonging to a Scheduled Tribe, sale of such land shall be subject to the provisions of Section 36 & 36A of the Maharashtra Land Revenue Code, 1966 and of the Maharashtra Restoration of Lands to Scheduled Tribes Act, 1974 & the applicant will have to ascertain and confirm that the land for which permission is applied for does not belongs to any member of the Schedule Tribe.
3. If the land being purchased as above is held by Occupant Class-II, the purchaser shall pay to the Collector, an amount equal to two percent of the purchase price within one month of the execution of the sale deed irrespective of the tenure of such land. This payment shall be in lieu of any Nazarane or such other charges, which may otherwise be payable by such Occupant Class-II by or under the provisions of the Maharashtra Land Revenue Code, 1966.
4. In addition to above, the purchaser of such land shall pay non-agricultural assessment as may be levied by the Collector under Section 67 & 115 of the Maharashtra Land Revenue Code, 1966.
5. **M/s. Ispat Industries Ltd., 'CASABLANCA' Sector 11,** C.B.D. Belapur, Navi Mumbai – 400 614 purchasing the land under sub-Section 63 (1) A (ii) for conversion thereof for a bonafide industrial to establish **Infrastructure, construction of Railway Siding,** Jetty and **Port backup facilities** shall give intimation of the date, on which the change of user of land commence, within thirty days from such date, to the Collector of the district.
6. If **M/s. Ispat Industries Ltd., 'CASABLANCA' Sector 11, C.B.D. Belapur, Navi Mumbai – 400** 614 fails to inform the Collector within the period specified in sub-section 63 (I) A (ii), he shall be liable to pay in addition the non-agricultural assessment which may be leviable by or under the provisions of the Maharashtra Land Revenue Code, 1966, such penalty not exceeding twenty times the amount of non-agricultural assessment as the Collector may fix, subject to rules made by the State Government in this behalf.
7. This permission for the purchase of land is granted only on the basis of the details submitted by the applicant from the point of reasonableness of the requirement for bonafide industrial activities to establish **Infrastructure, construction of Railway Siding, Jetty** and Port **backup facilities** by the applicant vide refer cited 5th above along with its enclosed documents.
8. The permission is granted for the purchase of land as specified by the applicant in his application and as per the affidavit submitted by the applicant to the Directorate of Industries. The applicant will have to ascertain and confirm from appropriate authorities that there is no reservation of any kind on any part of the land and title of the land is clear. Applicant must ascertain and confirm that no part of the above land belongs to public land or Govt. land or of any public sector undertakings of State / Govt. of India, nor does it belong to any of the local bodies, nor reserved for any public purpose etc. Details of land purchased will also be communicated to this office as well as to concerned District Collector and Divisional Commissioner etc. immediately.

9. The Applicant will have to comply with the provisions of all the relevant Acts / Rules / Notifications /GRs / instructions including the provisions of Maharashtra Agricultural Land Ceiling Act etc. issued from time to time by State Government / Central Government / local authorities or any other competent authority etc. in this regard.

10. The applicant will have to inform every six months from the date of issue of this order, the details of progress made by him in respect of purchase and use of the land mentioned in this order.

11. The applicant will have to obtain all permissions from Maharashtra Pollution Control Board (MPCB) including environment department and all other regulatory agencies etc. for the proposed project.

12. The applicant will have to obtain necessary permission / approval from all the concerned departments of Central / State Governments for their proposed project.

13. Prior to initiating the purchase of land, the applicant will have to ascertain and confirm from appropriate authority that the land for which, the permission is sought does not come under reservation scheme for Town Planning, proposed new road and widening of existing, or proposed to be acquired for any irrigation project or any public purposes and the above land is not Government Land, not Public Land nor kept for any public purpose by any Government Agency nor by Local Bodies.

14. The applicant will have to ascertain that no part of the land belongs to Green Zone, No Development Zone, CRZ Area etc. and if so, then prior clearances for the land pertaining to the Green Zone, No Development Zone, CRZ Area, Aforestation Area, or in such zone area etc., as the case may be, should be obtained from the concerned Departments of the State Government and Central Government, including from the Competent Authority of Town Planning Department in MRTP Act 1966, before the development of the project.

15. The land will have to be purchased within **2 Years (Two Years)** from the date of the issue of this order failing which this purchase permission laps automatically.

16. If permission has been granted earlier by this office to the above land or any part of the above land under reference, then, this permission will automatically become null and void and will stand cancelled. The applicant is responsible for ascertaining and confirming the status before purchasing the land.

17. Under BTAL Act, permission for using the land or any part of it or any infrastructure of this land or space for trade not related to industry is not allowed. Hence the above land or area or space must not be used for trading not related to above industrial activities.

18. This order will be valid only if appropriate market determined compensation is agreed voluntarily between land owners and purchaser in tune with prevailing market terms and paid to the land owners and the land has to be purchased with full willingness of the land owners.

19. The applicant is not permitted to take any development activity on the land where the Indian Petroleum Corporation Ltd., Mumbai & NOCIL has laid down the pipeline.

15/11/04

(Malini V. Shankar)
Development Commissioner (Industries)

To,

M/s. Ispat Industries Ltd.,
'CASABLANCA' Sector 11,
C.B.D. Belapur,
Navi Mumbai – 400 614.

Copy forwarded for information & necessary action:-

1. Principal Secretary (Revenue), Revenue & Forest Department, Mantralaya, Mumbai 400 032.
2. Principal Secretary (Industries), Industries Energy & Labour Department, Mantralaya, Mumbai 400 032.
3. Principal Secretary, Urban Development Department, Mantralaya, Mumbai 400 032.
4. Principal Secretary (Energy), Industries Energy & Labour Department, Mantralaya, Mumbai 400 032.
5. Managing Director, Mumbai Metropolitan Regional Development Authority (MMRDA), Bandra (East), Mumbai - 400 051.
6. Divisional Commissioner, CBD Belapur, Konkan Bhavan, Navi Mumbai, Thane
7. Collector, Raigad, with request to take note of this Order No. on 7/12 extract after submission evidence for purchase of land by Developer
8. Joint Director of Industries, Konkan Region, Thane.
9. General Manager, District Industries Centre, Raigad.
10. Select File, Directorate of Industries (Land Branch), H.O., Mumbai 400 032.

Sd/-

(Malini V. Shankar)
Development Commissioner (Industries)

ANNEXURE - 'A'

Accompanied to Order No. DI/Land/Permission/454/2008/R.M/1460

dated 18 NOV 2008 and should be read with the same.

1.	Name of the purchaser	:	M/s. Ispat Industries Ltd., 'CASABLANCA' Sector 11, C.B.D. Belapur, Navi Mumbai – 400 614
2.	Area of the land in Ha.	:	153.388 Ha. (one five three point three eight eight Ha.)
3.	Details of the Land to be purchased		
	a) Survey No./Gat No.	:	As per list attached (Annexure-B)
	Village	:	Vave, Kolve & Beneghat
	Taluka	:	Pen,
	District	:	Raigad
	b) Area	:	153.388 Ha. (one five three point three eight eight Ha.)
4.	Details of land use	:	To establish Infrastructure, construction of Railway Siding, Jetty and Port backup facilities.

18/11/08

(Malini V. Shankar)
Development Commissioner (Industries)

(62) (62)

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ANNEXURE – B

Accompanied to Order No. DI/Land/Permission/454/2008/13 41160
dated 18 NOV 2008 and should be read with the same.

M/s. Ispat Industries Ltd., 'CASABLANCA' Sector 11, C.B.D. Belapur, Navi Mumbai – 400 614

(in Ha.)

Sr. No.	Survey No.	Hissa No.	Total Land Area
	Village: Vave, Taluka Pen, District Raigad		
1.	47	1A 1	0.385
2.	47	1 A 3	0.005
3.	47	1B 1	0.405
4.	47	2A	0.010
5.	48	1A	0.964
6.	48	2A	0.157
7.	48	3A	0.025
8.	48	3A	0.025
9.	48	4A	0.301
10.	49	1A	0.673
11.	50	1A	0.190
12.	50	2A	0.423
13.	51	5A	0.263
14.	51	6A1	0.152
15.	51	6A2	0.119
16.	51	7A	0.103
17.	52	1A	0.398
18.	52	2	0.276
19.	53	1A	0.628
20.	53	2	0.260
21.	53	3A	0.481
22.	54	1	0.364
23.	54	2	0.554
24.	54	3	0.698
25.	54	4A	0.373
26.	54	5A	0.205
27.	54	6A	0.202
28.	55	1A	0.330
29.	55	2A	0.198
30.	57	1A	0.152
31.	57	1B	0.388

(in Ha.)

Sr. No.	Survey No.	Hissa No.	Total Land Area
32.	57	1C	0.407
33.	57	2A	0.145
34.	57	2B	0.350
35.	57	3	0.182
36.	58	1	0.140
37.	58	2	0.759
38.	58	3	0.942
39.	72	1A 1	0.442
40.	72	1B	0.242
41.	72	1C	0.014
42.	72	2	0.217
43.	72	4	0.258
44.	73	1 A	0.215
45.	73	2	0.018
46.	73	3	0.152
47.	73	4	0.355
48.	73	5	0.169
49.	81	1	0.220
50.	81	3	0.610
51.	81	4	0.668
52.	83	1	0.493
53.	83	2	0.316
54.	84	2A	0.320
55.	84	2B	0.269
56.	85	1	0.091
57.	85	2	0.425
58.	85	3	0.096
59.	86	1	0.302
60.	86	2	0.518
61.	87	1	0.764
62.	87	2	0.612
63.	87	3	0.536
64.	88	1	0.273
65.	88	2	0.210
66.	88	3	0.129
67.	88	4	0.033
68.	89	1	0.604
69.	89	2	0.942
70.	89	3A	0.283

(in Ha.)

Sr. No.	Survey No.	Hissa No.	Total Land Area
71.	89	3B	0.253
72.	90	1	0.286
73.	90	2	0.238
74.	90	3	0.159
75.	91A	1A1A-1/2	0.275
76.	91A	1A1A - 1/3	0.749
77.	91A	1A1A - 1/4	0.231
78.	91A	1A1A - 1/5	0.275
79.	91A	1A1A - 1/6	0.276
80.	91A	1A1A - 1/7	0.276
81.	91A	1A1A - 1/8	0.423
82.	91A	1A1A - 1/9	0.276
83.	91A	1B	0.091
84.	91A	2	0.051
85.	91A 1A	2	0.202
86.	91A 1A	B	0.020
87.	91A1A1A	2	0.275
88.	91B		0.010
89.	92A		0.389
90.	92B		0.020
91.	94	2	0.025
92.	94	3	0.425
93.	95	1	0.243
94.	96	1	0.073
95.	96	2	0.276
96.	96	4	0.756
97.	98	3	0.068
98.	99	0	0.974
99.	100	1	0.534
100.	100	2	1.090
101.	100	1A	0.550
102.	101	1B1	0.200
103.	101	1B2	0.168
104.	101	1B3	0.150
105.	101	2	0.432
106.	102	1	0.296
107.	102	2A	0.200
108.	102	2B	0.649
109.	102	3	0.787

(in Ha.)

Sr. No.	Survey No.	Hissa No.	Total Land Area
110.	102	4A	0.280
111.	102	4B	0.152
112.	103	1A2	0.219
113.	103	2 B	0.274
114.	103	1C	0.171
115.	103	2A	0.336
116.	104	3	0.322
117.	105	0	0.481
118.	106	2	0.374
119.	107	1	0.382
120.	108	2	0.733
121.	109	1	0.903
122.	109	2	0.372
123.	109	3	0.010
124.	110	3	0.167
125.	110	4B	0.193
126.	110	6	0.121
127.	111	1	0.260
128.	111	2	0.453
129.	112	1	0.331
130.	112	2	0.326
131.	112	3	0.453
132.	112	4A	0.516
133.	112	4B	0.514
134.	113	1	0.210
135.	113	2	0.116
136.	113	3	0.480
137.	113	4	1.141
138.	114	1	0.223
139.	114	2	0.404
140.	114	3	1.004
141.	115	1	0.144
142.	115	2	0.278
143.	115	3	0.111
144.	115	4	0.142
145.	115	5A	0.225
146.	115	6	0.344
147.	115	7	0.051
148.	115	8	0.412

(in Ha.)

Sr. No.	Survey No.	Hissa No.	Total Land Area
149.	116	1	0.192
150.	116	2	0.200
151.	116	3A	0.202
152.	116	3B	0.253
153.	116	3C	0.253
154.	117	1A	0.420
155.	117	1B1	0.417
156.	117	2	0.296
157.	118	1	0.240
158.	118	2	0.435
159.	118	3	0.622
160.	119	1	0.223
161.	119	2A	0.824
162.	119	2B	0.354
163.	119	3A	0.203
164.	120	1A	0.577
165.	120	1B	0.526
166.	120	2	0.202
167.	120	3	0.144
168.	121	1	0.659
169.	121	2	0.415
170.	121	3	0.756
171.	121	4	0.574
172.	122	1	0.723
173.	122	2	0.610
174.	122	3	0.243
175.	122	4	0.250
176.	122	5	0.288
177.	123	1	0.417
178.	123	2	0.407
179.	124	1	0.402
180.	124	2	0.028
181.	124	3	0.096
182.	125	1A	0.175
183.	125	1C	0.159
184.	125	1D	0.212
185.	125	2	0.243
186.	125	5A	0.183
187.	125	6	0.283

(in Ha.)

Sr. No.	Survey No.	Hissa No.	Total Land Area
188.	126		1.024
189.	127	1	0.018
190.	127	2	0.374
191.	127	3	0.025
192.	127	4	0.587
193.	128		0.741
194.	129		0.172
195.	130	1	1.002
196.	130	2	0.202
197.	131	1	0.852
198.	131	2	0.379
199.	131	3	0.104
200.	142	1	0.169
201.	142	2	0.185
202.	143	1	0.509
203.	143	2	0.849
204.	144	1	0.577
205.	144	2	0.622
206.	144	3	0.718
207.	144	4	0.488
208.	145	1A	1.055
209.	145	1B	0.202
210.	145	2	0.051
211.	146	1	0.405
212.	146	2	0.220
213.	146	3A	0.389
214.	146	3B	0.382
215.	147	1	0.229
216.	147	2	0.174
217.	147	3	0.171
218.	148	1A	1.259
219.	148	1B	0.172
220.	148	2	0.602
221.	149		0.809
222.	150	1	1.381
223.	150	2	0.395
224.	187	1	0.405
225.	187	2A	0.142
226.	187	2B	0.240

(in Ha.)

Sr. No.	Survey No.	Hissa No.	Total Land Area
227.	187	3	0.316
228.	187	4A	0.435
229.	187	4B	0.336
230.	187	5	0.253
231.	187	6	0.061
232.	191	1A	0.441
233.	191	2A 1	0.486
234.	191	2B	0.344
235.	191	3A 1	0.354
236.	191	3B	0.438
237.	191	4A	0.476
(A) Total area in Village Wave			**85.810**
(B) Village Kolve Taluka Pen, District Raigad			
238.	33	1	0.329
239.	33	2	0.116
240.	33	3	0.051
241.	33	4	0.147
242.	33	5A	0.261
243.	33	5B	0.240
244.	33	6	0.250
245.	34	1	0.405
246.	34	2	0.721
247.	34	3	0.134
248.	34	4	0.326
249.	35	1	0.364
250.	35	2	1.245
251.	35	3	0.144
252.	35	4	0.142
253.	35	5	0.240
254.	36	1	0.723
255.	36	2	0.802
256.	37	1	0.210
257.	37	2	0.010
258.	38	2A	0.147
259.	38	1	0.491
260.	38	2B	0.146
261.	38	3	0.033
262.	38	4A	0.345
263.	38	4B	0.345

(in Ha.)

Sr. No.	Survey No.	Hissa No.	Total Land Area
264.	39	1A	0.395
265.	39	1B	0.397
266.	39	2	0.400
267.	39	3	0.260
268.	39	4	0.493
269.	40	1	0.743
270.	40	2A	0.359
271.	40	2B	0.362
272.	40	3	0.152
273.	40	4	0.470
274.	40	5	0.228
275.	41	1	0.597
276.	41	2	0.207
277.	41	3A	0.433
278.	41	3B	0.453
279.	42	1	0.493
280.	42	2A	0.263
281.	42	3	0.389
282.	42	2B	0.182
283.	42	5	0.139
284.	42	4	0.202
285.	42	6A	0.251
286.	42	6B	0.385
287.	43	1	1.049
288.	43	2	0.392
289.	43	3	0.832
290.	43	4	0.405
291.	44	1	0.260
292.	44	2	0.678
293.	44	3	0.516
294.	45	1A	0.253
295.	45	2	1.467
296.	45	1B	0.354
297.	46	1	0.187
298.	46	2	0.276
299.	46	4	0.197
300.	46	3A	0.301
301.	46	5	0.885
302.	47	1	0.139

(in Ha.)

Sr. No.	Survey No.	Hissa No.	Total Land Area
303.	47	2	0.422
304.	47	3	0.474
305.	47	4	0.182
306.	48	1	0.640
307.	48	2	0.230
308.	49	1	0.200
309.	49	2	0.407
310.	50	1	0.765
311.	50	2	0.775
312.	51	-	0.420
313.	52	1A	0.405
314.	52	1B	0.407
315.	52	2A	0.356
316.	52	2B	0.256
317.	52	3	0.099
318.	53	1	0.345
319.	53	2	0.255
320.	53	3	0.217
321.	54	1	0.645
322.	54	2	0.506
323.	54	3	0.159
324.	54	4A	0.490
325.	54	4B	0.165
326.	55	1	0.589
327.	55	2	0.678
328.	56	1	0.933
329.	56	2	0.850
330.	57	1	1.300
331.	57	2A	0.485
332.	57	2B	0.101
333.	57	3	0.597
(B) Total area in Village Kolve			**39.164**
(C) Village Beneghat, Taluka Pen, District Raigad			
334.	2	0	0.597
335.	3	0	0.728
336.	4	0	0.314
337.	5	0	0.344
338.	6	0	0.359
339.	7	0	0.534

(in Ha.)

Sr. No.	Survey No.	Hissa No.	Total Land Area
340.	8	0	0.130
341.	10	0	0.670
342.	11	0	1.077
343.	12	0	0.592
344.	13	0	0.250
345.	14	0	0.465
346.	15	0	0.207
347.	16	0	0.271
348.	17	0	0.116
349.	18	0	0.711
350.	19	0	0.286
351.	20	0	0.111
352.	21	0	0.129
353.	22	0	0.430
354.	23	0	0.662
355.	24	0	0.018
356.	25	0	0.526
357.	26	0	0.076
358.	27	0	1.088
359.	28	0	0.076
360.	29	0	0.040
361.	31	0	0.296
362.	32	0	1.379
363.	34	0	0.213
364.	35	0	0.106
365.	36	0	0.303
366.	37	0	0.468
367.	38	0	0.379
368.	39	0	0.549
369.	40	0	0.283
370.	41	0	0.319
371.	43	0	0.544
372.	44	0	0.080
373.	45	0	1.034
374.	46	0	0.233
375.	47	0	0.531
376.	48	0	0.134
377.	49	0	0.130
378.	50	0	0.953

(in Ha.)

Sr. No.	Survey No.	Hissa No.	Total Land Area
379.	51	0	0.147
380.	54	0	0.640
381.	55	0	0.746
382.	56	0	0.395
383.	57	0	0.129
384.	58	0	0.546
385.	59	0	0.129
386.	60	0	0.164
387.	61	0	0.529
388.	65	0	0.710
389.	66	0	1.715
390.	67	0	0.857
391.	69	0	0.172
392.	70	0	0.190
393.	74	0	0.693
394.	75	0	0.078
395.	76	0	0.334
396.	77	0	0.680
397.	78	0	0.539
398.	79	0	0.460
399.	81	0	0.080
(C) Total Land Area in Village Beneghat			28.414
Total area in Villages Vave, Kolve & Beneghat, Taluka Pen, District Raigad			153.388

Deputy Director of Industries (Land)
Development Commissioner (Industries)

Annexure-23

Report with respect to points in munutes of the meeting of Principa; and joint committee dated 12-09-2022, constituted as per order of Hon's ble NGT, New Delhi dated 27.05.2021 passed in O.A.No. 165-2020 (samita rajendra patil

From : tahasildarmahasul@gmail.com Tue, Oct 25, 2022 11:56 AM

Subject : Report with respect to points in munutes of the meeting of Principa; and joint committee dated 12-09-2022, constituted as per order of Hon's ble NGT, New Delhi dated 27.05.2021 passed in O.A.No. 165-2020 (samita rajendra patil

1 attachment

To : cpcbpune@gmail.com, NISHCHAL C <nischal.cpcb@nic.in>

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महोदय/महोदया,

कृपया सोबत जोडलेले पत्र पहावे.

प्रेषक,
तहसिलदार (महसूल)
जिल्हाधिकारी कार्यालय रायगड अलिबाग
दुरध्वनी क्र.02141-222118

Report with respect to points in munutes of the meeting of Principa; and joint committee dated 12-09-2022, constituted as per order of Hon's ble NGT, New Delhi dated 27.05.2021 passed in O.A.No. 165-2020 (samita rajendra patil.pdf
6 MB

Government Of Maharashtra
Revenue & Forest Department
Collector & District Magistrate, Raigad
Near Hirakot Lake, Tal. Alibag, Dist.Raigad 402 201
स्वातंत्र्याचा अमृत महोत्सव Phone No.02141-222118, Fax No.02141-227451, Email :- tahasildarmahasul@gmail.com

No.R.B./Land/A-03/45274//2022 Date :25/10/2022

To,
The Senior Environmental Engineer,
Central Pollution Control Board,
Regional Directorate, Pune.

Subject:- Report with respect to points in minutes of the meeting of Principal and joint committee dated 12/09/2022,constituted as per order of Hon'ble NGT, New Delhi dated 27.05.2021passed in O. A.No.165/2020 (Samita Rajendra Patil V/s Jindal Steel Works Ltd.& Ors.)

Reference:- Prociding of meeting dated 12/09/2022 held with principal committee

In reference to the above referenced email, you have been asked following information in line with National Green Tribunal, New Delhi vide original application no.165/2020. This office has received the information from the concerned department regarding the said issues and the details are as follows.

Point no.	Assessment on various activities /studies	Responsible agency/Sub-committee	Action Taken Report
2	The loss of mangroves due to activities of M/s JSW & its associated activities (jetty, conveyor belt & other industrial activities etc.) clearly figured-out by MRSAC, RFO-Mangrove Cell and NCSCM in coordination with District Collector-Raigad considering the following since 2011 to 2021: a. The mangrove loss area (in ha) below the conveyor belt occurred because of (1) conveyor belt expansion works and (II) due to dumping of municipal solid waste, separately. b. Total mangrove loss area in ha (irrespective of sparse or dense). c. Break-up of (b), as above in terms of activities due to M/s JSW & its associated activates (jetty, conveyor belt & other industrial activities etc.), natural/calamities loss such as shoreline erosion & cyclone and due to dumping of municipal solid waste if any d. Earlier worked-out mangrove loss of 2.25 ha (due construction of conveyor belt and other industrial uses) byMRSAC & NCSCM should be differentiated from the mangrove loss estimated by RFO	RFO-Mangrove Cell, Raigad	The Loss of mangrove area due to activities of M / s JSW & it's associated activities (Jetty , Conveyor's belt & other industrial activities etc.) were thoroughly examined by actual ground truthing (GPS) & data / report obtained from studies carried out by MRSAC & NCSCM. On the Basis of site visits (05/01/2022 and 23/01/2022) and MRSAC / NCSCM high Resolution Satellite data and combine reports, It is Clearly seen that loss of mangrove area and creek area near JSW premises . It was observed that in MRSAC / NCSCM combine report 2.25 ha area loss were seen but at the time of site visit during survey and ground truthing by GPS the actual loss of mangrove was 2.60 Ha which includes 0.71 ha area destructed by dumping of solid waste & domestic waste near conveyor belt of Dolvi . It was also noticed that the area of extent of elevated conveyor belt and extent of jetty are lying in mangrove buffer area 1.52Ha. &0.79Ha. respectively and necessary permission are in place..

	(below the conveyor belt area). e. All the above reporting's be based on satellite images, records available with respective agencies and area of total mangrove loss due to M/s JSW & its associated activates in the mangrove area as well as mangrove buffer area. f. Map demarcating conveyor belt or its foundation (part/fully, as applicable) falling under the mangrove area as per the CRZ/ CZMP maps and associated impacted area (in ha)..		After enquiry it was concluded that this waste was dumped by three Gram panchayats of nearby area. Because of this dumping of waste some mangrove areas were affected and destructed. This affected area can be restored by removing waste and reforestation of mangroves . During field visit it was observed that dense forest of mangroves near creek of Dolvi , Juibapuji , Kirki , Wave and Beneghat . On the basis of evaluation of MRSAC Maps and comparative ground truthing it was observed that some newly formed mangrove parcel / Mangrove area was evolved near JSW premises but this area is outside the boundaries of JSW Premises . After discussion with local people & fisherman, they said because of cyclones / floods in 15 to 20 years new mudflat areas were formed & eventually new mangrove area evolved as well as some mangrove areas were destructed . It was confirmed that during the year 2011 to 2021 significant loss of mangroves were noticed near construction area of conveyor belt Respective conveyor belt was constructed within the boundaries of Wave and Dolvi village. On the basis of field studies and Joint report by MRSAC and NCSCM it was confirmed that significant loss of mangroves were observed due to dumping solid and domestic waste , extent construction of conveyor belt and extent of jetty area . **Table -Loss of Creek & Mangrove Area :**
3	Loss of creek area in ha and demarcation off the same in map due to M/s JSW & its associated activates. All the above reporting be based on satellite images, records available with respective agencies and area of total creek loss due to M/s JSW & its associated activates.	RFO-Mangrove Cell, Raigad	

Sr.no	Ecosystem	Area Loss (Ha)
1	Creek	0.77
2	Mangrove Area	1.89
3	Dumping Area by Gram Panchayat	0.71

Note : On the basis of report submitted by MRSAC & NCSCM at actual site did survey and the figures shown as per survey conducted.

4	Kharland Dept, SOO-Pen and MPCB shall submit report on Quantification of slag disposed/used by M/S JSW for carrying-out the repairing of kharbandasti bandh and duration of such disposal/use.	Kharland Department	Emergency repairs to the Machela-Chirbi on Khar Land Scheme, Tal. Pen, Dist. Raigad was requested to M/s. JSW Ltd through of their CSR fund. M/s. JSW Ltd completed work during 2019 to 2020, with use of slag material from Ch. 0 to 3500m out of total 5000m length, total qty. of slag used for bund is about 19000.00 cum. On similar grounds works of repairs to the Jui-Habbas Khar Land Scheme, Tal. Pen, Dist. Raigad was requested to M/s. JSW Ltd. through CSR Fund. Estimate was prepared and handed over to M/s. JSW Ltd. Total length of bund 4820m is renovated during 2021-22 with qty. about 48400.00 Cum., the work is yet to complete upto designed top level.
5	District Health Officer shall provide conclusion about whether PFT(<75%) of 08 no. of employees working in the coke oven plant are associated due to industrial activities or not.	District Health Officer	**Compliance –** **<u>i) Activities performed-</u>** Reassessment of 08 no employees with PFT(<75%)was carried out with respect to tobacco use which by itself is risk factor for abnormal PFT. It is found that 06 employees out of 08, use tobacco (04 smokers, 02 tobacco chiewers) **<u>ii)Conclusion</u>** As per available literature smoking is independent risk factor which can lead to abnormal PFT. Coke oven emission & smoking can synergise the process of COPD (Chronic Obstructive Pulmonary Disease) in which abnormal PFT occurs. To assaign either industrial activities or smoking as cause for abnormal PFT,study by higher center/institution, where facility for chemical analysis & specialist to quote exact cause are available, is suggested.

<table>
<tr>
<td>6</td>
<td>District Collector-Raigad shall submit details of declaration of mangrove reserved area under Indian Forest Act, 1927 (village wise) in Pen and Alibag taluka and status of their mangroves development</td>
<td>District Revenue Department</td>
<td>In concern with said issue, our office vide letter dated 21/09/2022. The copy of the same is enclosed herewith for further action.
Attached Mangroves notification of Pen and Alibag Taluka . notified as protected forest under provisions of section 20 of the Indian Forests Act,1927.
<table>
<tr><td>Sr. no</td><td>Taluka</td><td>Section-20 notified area</td></tr>
<tr><td>1</td><td>Alibag</td><td>409.2916</td></tr>
<tr><td>2</td><td>Pen</td><td>242.1230</td></tr>
<tr><td colspan="3">Indian Forests Act,1927 Under Section-4 Praposal send to Hon.Divisional Commissioner, Kokan for published in Gov.Gazzette.</td></tr>
<tr><td>Sr. no</td><td>Taluka</td><td>Section-4 praposed area</td></tr>
<tr><td>1</td><td>Alibag</td><td>721.1537</td></tr>
<tr><td>2</td><td>Pen</td><td>72.9441</td></tr>
</table>
</td>
</tr>
</table>

Hence report with respect to points in minutes of meeting of Hon. Committee are submitted. (Attached concern deparment Reports)

Thanking You.

(Dr.Mahendra Kalyankar)
Collector Raigad

. आरोग्य विभाग
जिल्हा परिषद अलिबाग

फोन नं. ०२१४१-२२२०७७
ई मेल dhozpraigad@gmail.com

जाक्र/राजिप /आरोग्य/ 2488 /२०२२
दिनांक 23/09/२०२२

To,
Hon. District Collector Sir,
Raigad,Alibag

Subject:- Constituted of joint Commitee as per Hon.NGT Order OA No 165/2020 dated 25.05.2021 with respect to Samita Rajendra Patil V/s Jindal Steel Works Ltd & Ors.

Reference:- Hon NGT Order New Delhi Dated- 27.05.2021, Sub Committee VC dated 12.09.2022.

Respected Sir,

With reference of above subject as per sub committee's instruction given in VC dated 12.09.2022 following compliance is being submitted.

Instruction given:

District Health Officer shall provide conclusion about whether PFT (<75%) of 08 no. of employees working in the coke oven plant are associated due to industrial activities or not.

Compliance

(i) Activities performed

Reassessment of 08 no employees with PFT (<75%)was carried out with respect to tobacco use which by itself is risk factor for abnormal PFT. It is found that 06 employees out of 08, use tobacco (04 smokers, 02 tobacco chiewers)

2035

(ii) Conclusion

23

As per available literature smoking is independent risk factor which can lead to abnormal PFT. Coke oven emission & smoking can synergise the process of COPD (Chronic Obstructive Pulmonary Disease) in which abnormal PFT occurs.

To assaign either industrial activities or smoking as cause for abnormal PFT,study by higher center / institution, where facility for chemical analysis & specialist to quote exact cause are available, is suggested.

23/09/2022

for DISTRICT HEALTH OFFICER
RAIGAD ZILLA PARISHAD ALIBAG

29

NGT-१६५-२०२२

स्वातंत्र्याचा अमृत महोत्सव

महाराष्ट्र शासन
महसूल व वन विभाग
उपविभागीय दंडाधिकारी,उप विभाग पेण

❖ दुरध्वनी क्र:०२१४३-२५३००० ❖ ❖ ई.मेल:sdopen२०१३@gmail.com ❖

क्र.उविअ/जमीनवाद/NGT-१६५/२०२२ दि.२१/०९/२०२२

प्रति,
मा.जिल्हाधिकारी रायगड

विषय:- Hon.NGT Order O A No.१६५/२०२० dtd २७.०५.२०२१ w r t Samita Rajendra Patil V/s J.S.W. & Ors.
च्या अनुषंगाने मुख्य समिती समवेत दि.१२/०९/२०२२ रोजीच्या बैठकीचे इतिवृत्तात दिलेल्या सुचनेनूसार अहवाल सादर करणेबाबत.

संदर्भ:-१) आपलेकडील पत्र क्र.आरबी/जमीन/अ-३/NGT-१६५-२०२०/२१,दि.२१/९/२०२२ रोजीचा ई-मेल संदेश.
२) या कार्यालयाचे पत्र क्र.उविअ/जमीनवाद/NGT-१६५/२०२२, दि.२१/०९/२०२२
३) कार्यकारी अभियंता, खारभूमी सर्वेक्षण व अन्वेषण विभाग,पेण-रायगड यांचेकडील पत्र क्र.खाभूविउवि/प्रशा/NGT/२२६९/२०२२,दि.२२/०९/२०२२

महोदय

उपरोक्त विषयांकित संदर्भिय पत्र क्र.१ ला अनुसरुन सादर करण्यांत येते की, मा.राष्ट्रीय हरीत न्यायाधिकरण,नवी दिल्ली यांनी ओरिजनल ॲप्लीकेशन क्र.१६५/२०२०, मध्ये दि.२७/०५/२०२१ रोजीचे आदेशान्वये दिलेल्या निर्देशानूसार ५ सदस्य समिती गठीत केली असून मुख्य समिती व उपसमिती यांचे समवेत झालेल्या दि.१२/०९/२०२२ बैठकीचे इतिवृत्तामध्ये नमूद केलेल्या मुद्यांचे अनुपंगाने या कार्यालयाचे संदर्भिय पत्र क्र.२ अन्वये १) तहसिलदार पेण, २) कार्यकारी अभियंता, खारभूमी सर्वेक्षण व अन्वेषण विभाग,पेण व ३) वनपरिक्षेत्र अधिकारी, वडखळ यांना कळविण्यांत आले आहे.

त्यानूसार कार्यकारी अभियंता, खारभूमी सर्वेक्षण व अन्वेषण विभाग,पेण-रायगड यांनी संदर्भिय पत्र क्र.३ अन्वये मा.राष्ट्रीय हरीत न्यायाधिकरण,नवी दिल्ली यांनी ओरिजनल ॲप्लीकेशन क्र.१६५/२०२०, मध्ये दि.२७/०५/२०२१ रोजीच्या बैठकीच्या इतिवृत्तातील मुद्यांची पुर्तता करुन अहवाल सोबत सादर करण्यांत येत आहे.

आपला विश्वासू

(विठ्ठल इनामदार)
उपविभागीय अधिकारी,पेण
उपविभाग,पेण

Scanned with CamScanner

(20)

महाराष्ट्र शासन
जलसंपदा विभाग
उपविभागीय अभियंता, खारभूमी विकास उपविभाग, पेण.
गजानन महाराजांचे मंदिराजवळ, पाटपंधारे वसाहत, उंबर्डे, ता.पेण, जि.रायगड
ई-मेल: gdpnwalkhlsde@gmail.com

जा.क्र.: खाभूविउवि / प्रशा / एनजीटी / २२६९ /२०२२. दि.: २२ / ०९ / २०२२.

प्रति,

जिल्हाधिकारी-रायगड,
जिल्हा रायगड.

विषय: Hon. NGT Order O A No. 165/2020 dtd. 27.05.2021
wrt Samita Rajendra Patil V/s. JSW & Others.
च्या अनुषंगाने मुख्य समिती समक्ष दि. १२.०९.२०२२ रोजी झालेल्या बैठकीचे इतिवृत्तात दिलेल्या सूचनेनुसार अहवाल सादर करणेबाबत.

संदर्भ: १) मा. मुख्य समिती समक्ष दिनांक १२/०९/२०२२ रोजी झालेल्या वि.सं. द्वारे झालेल्या बैठकीचे इतिवृत्त.
2) District Collector – Raigad letter No. R.B./Land/A-03/NGT-165-2020/2022, dtd. 21.09.2022.

उपरोक्त संदर्भिय विषयान्वये मा. राष्ट्रीय हरित न्यायाधिकरण, नवी दिल्ली यांनी गठीत केलेल्या ५ सदस्य समितीच्या दि. १२.०९.२०२२ बैठकीच्या इतिवृत्तातील या विभागाशी संबंधित मुद्याचा पुर्तता अहवाल खालीलप्रमाणे सादर करण्यात येत आहे.

Sr. No.	Minute of Meeting	Compliance
4	Kharland Dept., SDO-Pen and MPCB shall submit report on quantification of slag disposed / used by M/s. JSW for carrying out the repairing of kharbandisti bandh and duration of such disposal/use.	Emergency repairs to the Machela-Chirbi Khar Land Scheme, Tal. Pen, Dist. Raigad was requested to M/s. JSW Ltd through their CSR fund. M/s. JSW Ltd completed work during 2019 to 2020, with use of slag material from Ch. 0 to 3500m out of total 5000m length, total qty. of slag used for bund is about 19000.00 cum. On similar grounds works of repairs to the Jui-Habbas Khar Land Scheme, Tal. Pen, Dist. Raigad was requested to M/s. JSW Ltd. through CSR Fund. Estimate was prepared and handed over to M/s. JSW Ltd. Total length of bund 4820m is renovated during 2021-22 with qty. about 48400.00 Cum., the work is yet to complete upto designed top level.

हे आपले माहितीसाठी व पुढील कार्यवाहीसाठी सविनय सादर.

कार्यकारी अभियंता,
खारभूमी सर्वेक्षण व अन्वेषण विभाग,
पेण-रायगड.

प्रत: उपविभागीय अधिकारी पेण, ता. पेण, जि. रायगड यांना माहितीसाठी व पुढील कार्यवाहीसाठी अग्रेषित.

Scanned with CamScanner

Range Forest office, Mangrove Cell, Alibag Raigad
At.Bamnoli,Alibag Revas Road, Post-Thal, Tal.Alibag, Dist-Raigad, Pin. 402207
Email: rfoalibaugmangrovecell@gmail.com

जा.क्र.अ/कां.क/१२५/२०२१-२२ अलिबाग. दिनांक २३/०९/२०२२.

प्रति,

मा.जिल्हाधिकारी साहेब
रायगड – अलिबाग.

विषय – Hon.NGT Order O A No. १६५/२०२०, date.२५/०५/२०२१ w.r.t Samita Rajendra Patil V/s J.S.W.&Ors.

संदर्भ –१) आपले कार्यालयाकडील पत्र क्र. मशा/जमीन/अ-३/NGT/१६५-२०२० बैठक/२०२२ दिनांक ०३.०१.२०२२ रोजीचे पत्र

२) या कार्यालयाकडील पत्र क्र. कां.क/४२९/सन २०२१-२२ अलिबाग, दि. ०१/०२/२०२२ रोजीचे पत्र.

३) आपले कार्यालयाकडील पत्र क्र.मशा/जमीन/अ-०३/NGT/JSW/२०२२ दि.१८.०२.२०२२

४) या कार्यालयाकडील पत्र क्र. अ/कां.क/५२०/२०२१-२२ दिनांक ०३/०३/२०२२ रोजीचे पत्र

५) आपले कार्यालयाकडील पत्र क्र. R.B/Land/A-३/NGT-१६५-२०२०/२०२२ दिनांक २१/०९/२०२२ रोजीचे पत्र

महोदय,

वरील विषयान्वये संदर्भित पत्र क्र. १ अन्वये आपले कार्यालयातून स्वयंस्पष्ट अहवाल सादर करणेस कळविले होते. संदर्भिय पत्र २ अन्वये अहवाल सादर करणेत आला होता. तथापी आपले कार्यालयाकडील संदर्भिय पत्र क्र. ३ अन्वये कार्यालयीन अधिकारी/ कर्मचारी तसेच MRSAC अधिकारी यांचे समवेत स्थळपाहणी बाबतचा अहवाल संदर्भिय पत्र क्र. ४ अन्वये आपले कार्यालयास फेरअहवाल सादर करणेत आले होते.

दिनांक १२/०९/२०२२ रोजी संपन्न झालेली बैठकीच्या इतिवृत्तातील दिलेल्या निर्देशानुसार संदर्भित पत्र क्र. ५ अन्वये आपले कार्यालयाकडील फेरअहवाल सादर करण्याचे आदेश प्राप्त झाले होते. त्याअनुषंगाने MRSAC/NCSCM याच्या अहवालाचा अभ्यास करुन व जागेवरील जाऊन GPS सर्वेक्षणानुसार या कार्यालयाकडील फेरअहवाल सोबत सादर करीत आहोत.

सहपत्र – वरील प्रमाणे

जिल्हाधिकारी कार्यालय रायगड
कार्यालयीन पोहोच शाखा
क्रमांक : ६१६७
दिनांक : 27 SEP 2022
मशा/अ-३

समीर दि.शिंदे
वनपरिक्षेत्र अधिकारी
कांदळवन कक्ष अलिबाग-रायगड

MANGROVE CELL REPORT

Field Study of mangroves & Creek using GPS & MRSAC Satellite data with Respect to Hon'ble Collector Raigad

Order dated 27.05.2021 in the Matter OA No. 165 of 2020 Samita Rajendra Patil Vs.Jindal Steel works Limited. & Others.

Hon'ble district collector, Raigad, Alibag order reference Letter No. R.B./Land/A-03/NGT 165.2020/2022 on dated 21/09/2022.

The Loss of mangrove area due to activities of M/s JSW & it's associated activities (Jetty, Conveyor's belt & other industrial activities etc.) Were thoroughly examined by actual ground truthing (GPS) & data/report obtained from studies carried out by MRSAC & NCSCM. On the Basis of site visits (05/01/2022 and 23/01/2022) and MRSAC /NCSCM high Resolution Satellite data and combine reports, It is Clearly seen that loss of mangrove area and creek area near JSW premises.

It was observed that in MRSAC /NCSCM combine report 2.25 ha area loss were seen but at the time of site visit during survey and ground truthing by GPS the actual loss of mangrove was 2.60 Ha which includes 0.71 ha area destructed by dumping of solid waste & domestic waste near conveyor belt of Dolvi. It was also noticed that the area of extent of elevated conveyor belt and extent of jetty are lying in mangrove buffer area 1.52 Ha & 0.79 Ha respectively and necessary permission are in place. After enquiry it was concluded that this waste was dumped by three Gram panchayats of nearby area. Because of this dumping of waste some mangrove areas were affected and destructed. This affected area can be restored by removing waste and reforestation of mangroves.

During field visit it was observed that dense forest of mangroves near creek of Dolvi, Juibapuji, Kirki, Wave and Beneghat. On the basis of evaluation of MRSAC Maps and comparative ground truthing it was observed that some newly formed mangrove parcel / Mangrove area was evolved near JSW premises but this area is outside the boundaries of JSW Premises. After discussion with local people & fisherman, they said because of cyclones/floods in 15 to 20 Years new mudflat areas were formed & eventually new mangrove area evolved as well as some mangrove areas were destructed.

It was confirmed that during the year 2011 to 2021 significant loss of mangroves were noticed near construction area of conveyor belt. Respective conveyor belt was constructed within the boundaries of Wave and Dolvi village.

On the basis of field studies and Joint report by MRSAC and NCSCM it was confirmed that significant loss of mangroves were observed due to dumping solid and domestic waste, extent construction of conveyor belt and extent of jetty area.

Table – Loss of Creek & Mangrove Area:

Sr.No	Ecosystem	Area Loss (Ha)
1	Creek	0.77
2	Mangrove Area	1.89
3	Dumping Area by Gram Panchayat	0.71

Note : On the basis of report submitted by MRSAC & NCSCM, at actual site did survey and the figures shown as per survey conducted.

23/09/22

(Sameer D Shinde)
Range forest officer
Mangrove Cell, Alibag -Raigad

ASSESSMENT OF COASTAL AND MARINE ECOSYSTEM GOODS AND SERVICES – LINKING COASTAL ZONE MANAGEMENT TO ECOSYSTEM SERVICES IN INDIA

FINAL REPORT

MANGROVES

ISE DIVISION
National Centre for Sustainable Coastal Management
Ministry of Environment, Forest & Climate Change

2017 - 18
Chennai

ASSESSMENT OF COASTAL AND MARINE ECOSYSTEM GOODS AND SERVICES - LINKING COASTAL ZONE MANAGEMENT TO ECOSYSTEM SERVICES IN INDIA

MANGROVES

INTEGRATED SOCIAL SCIENCES AND ECONOMICS (ISE) DIVISION
NATIONAL CENTRE FOR SUSTAINABLE COASTAL MANAGEMENT
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
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SUMMARY

Mangroves are a group of trees and shrubs that live in the coastal intertidal zone. Mangroves have been distributed in low-energy, tidal shorelines between latitudes in tropical and subtropical areas. Mangroves are important productive ecosystems in the coastal areas. Mangrove ecosystems are rich in biodiversity and provide a wide range of goods and services to human communities living in coastal areas including wood and non-wood forest products, fisheries, medicines, tannins, apiculture, wildlife resources, fishery, recreation, ecotourism, bio-filtration, nursery grounds, coastal protection, and carbon sequestration. Mangroves are bio shields of the coast and protect people from disasters like tsunamis, cyclones. Mangroves support shoreline protection, sediment accretion and other functions. Mangroves are a rich source of fisheries, providing nursery ground for many marine fishes and capture fisheries. It is the livelihood of many important coastal communities.

Status of mangroves has been influenced by natural process including climate change and manmade activities. Manmade activities such as reclamation, agriculture, aquaculture, fuel wood, timber, damming, oil pollution and mining operation etc., degrade the ecosystem function. Mangrove products and services are often undervalued or even ignored in the economy, by industry and local inhabitants. Economic valuation of various benefits out of mangroves is a useful tool to support conservation and the decisions of mangrove ecosystem management and governance.

Mangrove cover in coastal areas of India is 559098.62 ha. They have been discontinuously distributed in 42859 patches of the coastal areas. All coastal States and UTs of India are distributed with mangrove ecosystems except, the UT of Lakshadweep. There are many economic studies to value the goods and services of mangrove ecosystem of the world. Using Benefit cost Transfer (BT) method, the values (existing values) have been applied to estimate the economic benefits of India's' mangrove patches (policy site). In this present study, ISE Division of NCSCM has estimated aggregated economic value of India's' mangroves. Accordingly, economic values of mangroves range between Rs. 92662/-/ha/yr. (minimum) and Rs. 3361144/-/ha/yr. (maximum) with an average total economic benefit of goods and services of mangroves to be Rs. 958766/ha-/yr. Regulatory services of mangroves contribute maximum (Avg. Rs. 602074/-/yr./ha.) followed by support service (Rs. 287401/-/yr./ha.), provisional service (Avg.Rs.36908/-/yr./ha.) and cultural service (Avg. Rs. 32383/-/yr./ha.). Application of the maximum value estimated by the present study (NCSCM) TEV of economic value of India mangroves amounts to 187921crore Rs. / yr. and average value estimated from this study arrives to Rs. 53604 crore Rs./yr. Among the coastal States and UTs, West Bengal has huge area (218209ha.) of mangroves which shares 20921crore Rs. / yr., economic value equivalent to about 39% of total mangrove benefit out of economic share in the National Green Account has been described in this report.

1 INTRODUCTION

Mangroves are a group of trees and shrubs that live in the coastal intertidal zone. The word 'mangrove' is usually referred to both vegetation and the habitat. Mangroves have been called as tidal forest, swamp, wetland, and mangal (Spalding et al., 2010; FAO, 2007). Mangroves have been distributed in low-energy, tidal shorelines between latitudes in tropical and subtropical areas (approximately between 30°N and 30°S). Topography, fresh water flow, and substrate are the other important parameters for the development of mangroves.

Mangroves are important productive ecosystems in the coastal areas (Lee et al., 2014). Mangrove ecosystems are rich in biodiversity and provide a wide range of goods and services to human communities living in coastal areas including wood and non-wood forest products, fisheries, medicines, tannins, apiculture, wildlife resources, fishery, recreation, ecotourism, bio-filtration, nursery grounds, coastal protection, and carbon sequestration. Mangroves are bio shields of the coast and protecting people from disasters like tsunamis, cyclones. Mangroves support shoreline protection, sediment accretion and other functions (James Spurgeon., 2002). Mangroves are a rich source of fisheries, providing nursery ground for many marine fishes and capture fisheries. It is the livelihood of many important coastal communities.

Status of mangroves has been influenced by natural process including climate change and manmade activities. Man-made activities such as reclamation, agriculture, aquaculture, fuel wood, timber, damming, oil pollution and mining operation etc., degrade the ecosystem function. To protect the mangrove ecosystems, CRZ 2011 Notification classified the mangroves as Ecologically Sensitive Areas (ESAs) and restricts development activities in the areas. The National Environment Policy (NEP., 2006) of India has emphasised public investments for forest conservation including mangroves and it recommends adopting community based practices.

Mangrove products and services are often undervalued or even ignored in the economy by industry and local inhabitants (Ong and Gong. 2013). Mangrove ecosystem destructions are mainly because; the conservation benefits of mangroves do not receive adequate importance and there is very little understanding of the role mangroves in economic systems. This has led to mangroves being considered as wastelands with little use, and no value (IUCN. 2006). Economic valuation of various benefits out of mangroves is a useful tool to support conservation and the decisions of mangrove ecosystem management and governance (Lauran's et.al. 2013).

This report estimated the value of various goods and services of mangrove ecosystem. Recommendations to incorporate the value in various policy decisions have been given in the final parts of this report.

2 MANGROVES OF INDIA

All coastal States and UTs of India have mangrove ecosystems in the coastal areas except the UT of Lakshadweep. Mangrove cover in coastal areas of India is 559098.62 ha and they have been discontinuously distributed in 42859 patches of the coastal areas (NCSCM. 2015). Indian part of Sundarbans falling in West Bengal State has 218209ha which is about 40% of total mangrove areas of India. North 24 Parganas district of West Bengal has the most (196995 ha.) mangrove distributed (36%) district in India. Details of mangrove patches in various coastal States and districts have been given in table – 2.1. Various mangrove patch locations in various coastal districts have been given below

The Indian mangroves comprise approximately 59 species in 41 genera and 29 families. The species composition vary between east coast, west coast and island mangroves. However, the uses and benefits out of mangroves are equal.

Mangrove Patches in Coastal States of India

The India's' mangroves provide a range of non-market as well as marketed goods and services, both on and off-site. Various economic valuation methods were applied to the various mangrove patches towards comprehensive assessment of many goods and services of mangrove ecosystems of India and the same has been explained in the following chapters.

Table – 2.1. Mangroves distribution

Sl.No	State / Union Territory	District	Number of Mangroves patches	Mangroves distribution - ha.
1	**Gujarat**	Ahmedabad	48	5885.96
2		Amreli	150	632.35
3		Anand	13	2822.22
4		Bharuch	77	5698.17
5		Bhavnagar	126	3507.90
6		Devbhumi Dwarka	231	9161.58
7		Gir Somnath	94	434.79
8		Jamnagar	530	20570.54
9		Kachchh	1410	34650.71
10		Morvi	287	9963.29
11		Navsari	186	2005.68
12		Porbandar	41	111.21
13		Rann of Kachchh	755	42808.99
14		Surat	179	3375.22
15		Valsad	436	504.62
		Sub total	**4563**	**142133.2**
16	**Maharashtra**	Mumbai city	46	255.84
17		Mumbai suburban	617	6430.48
18		Ratnagiri	1637	3176.43
19		Raygad	4476	13322.17
20		Sindhudurg	1154	1292.59
21		Thane	3882	7246.79
		Sub total	**11812**	**31724.29**
22	**Goa**	North goa	1614	2809.86
23		South goa	609	478.22
		Sub total	**2223**	**3288**
24	**Karnataka**	Dakshina Kannada	214	172.39
25		Udupi	574	368.02
26		Uttara Kannada	980	1106.47
		Sub total	**1768**	**1646.87**
27	**Kerala**	Alappuzha	1079	138.68
28		Ernakulam	5490	555.81
29		Kannur	3563	914.23

Table – 2.1. Mangroves distribution				
Sl.No	**State / Union Territory**	**District**	**Number of Mangroves patches**	**Mangroves distribution - ha.**
30		Kasaragod	634	116.59
31		Kollam	756	79.45
32		Kottayam	25	0.87
33		Kozhikode	834	114.87
34		Malappuram	373	59.43
35		Thiruvananthapuram	49	1.12
36		Trishshur	819	130.60
		Sub total	**13622**	**2111.65**
37	**Daman & Diu**	Daman	97	117.14
38	**UT**	Diu	129	405.05
		Sub total	**226**	**522.18**
39		Cuddalore	178	1287.45
40		Kanchipuram	12	3.25
41		Nagappattinam	234	2186.46
42		Pudukkottai	99	407.17
43	**Tamil Nadu**	Ramanathapuram	90	785.68
44		Thanjavur	211	3547.80
45		Thiruvarur	42	2725.17
46		Thoothukudi	351	545.21
47		Tiruvallur	123	132.86
48		Villupuram	115	288.49
		Sub total	**1455**	**11909.55**
49	**Andhra**	East godavari	402	19988.38
50	**Pradesh**	Guntur	265	8470.08
51		Krishna	422	20243.43
52		Nellore	441	1143.57
53		Prakasam	445	327.49
54		Srikakulam	127	215.77
55		Vishakhapatnam	285	227.53
56		West godavari	71	112.75
		Sub total	**2458**	**50729**
57	**Odisha**	Baleshwar	112	791.62
58		Bhadrak	20	4979.10
59		Jagatsinghapur	87	974.05
60		Kendraparha	289	19606.26
61		Puri	47	111.99
		Sub total	**555**	**26463**
62	**West Bengal**	North 24 parganas	1364	196988.75
63		Purba medinipur	196	764.16

Table – 2.1. Mangroves distribution				
Sl.No	**State / Union Territory**	**District**	**Number of Mangroves patches**	**Mangroves distribution - ha.**
64		South 24 parganas	1113	20456.30
		Sub total	**2673**	**218209.21**
65	**Puducherry**	Karaikal	25	13.41
66		Mahe	13	2.63
67		Puducherry	41	27.96
68		Yanam	12	391.95
		Sub total	**91**	**435.96**
69	**Andaman & Nicobar Islands**	Andaman & Nicobar Islands	**1413**	**69925.55**
		Sub total	**1413**	**69925.55**
		Total	**42859**	**559098.62**

3 META ANALYSIS OF MANGROVE VALUATION

Meta-analysis is a method of synthesising the results of multiple studies to examine the phenomenon, which is then 'explained' using regression techniques (Stanley, 2001). Meta-analysis shall also be applied to identify the common goods and services of mangrove ecosystem and value that by using benefit transfer method (Navrud and Ready, 2007).

There are many economic analyses to value the goods and services of mangrove ecosystem of the world (VO, Q.T., et.al. 2012). Using benefit cost transfer method, the values (existing values) can be applied to estimate the economic benefits of India's' mangrove patches (policy site). These values can be applied to estimate the economic loss of the damages caused on the mangrove ecosystems (Brouwer, 2000). These values shall provide primary values for various goods and services of mangrove at low cost and limited time (Rosenberger and Stanley, 2006).

Average physical quantities of goods and services or values from mangrove areas have been analysed using 73 studies encompassing 352 observations by Marwa etal (2012). Average quantities of mangrove goods and services (ha/yr.) and important goods and services have been identified through the above study. Important goods and services identified from the above study include fishery (fish, shellfish, molluscs), shrimp, timber, fuel wood, charcoal, and carbon. The above quantitative and qualitative results can be referred and applied for mangrove ecosystems.

TEV of mangrove habitat has been estimated by many studies, the global value was estimated at US$181 billion (Alongi 2002), or US$10,000 ha-1 (Ronnback 1999). The above value is the result of regression analysis of many studies. The above global average for the mangrove ecosystems was evaluated by Brander et.al (2002) at US $ 4185 ha/ yr. Similar to the global averages, country wise, and patch wise mangrove goods and service values have been estimated. Total Economic Value of Mangroves of Mekong basin region amounted to US$2,670/ha/year (Lucy Emerton., 2013); Rekawa mangrove–lagoon, Sri Lanka was estimated at US$ 1088/ha/yr. (Gunawardena, M and J. S. Rowan., 2005); Gazi mangroves, Kenya was estimated at US$ 1,092.3 ha-1y-1 (Janis Hoberg., 2011); Ca Mau Province of Vietnam was estimated at US$3,000/ha/year (Vo Quoc Tuan., 2013). In India, TEV of Pitchavaram mangrove (1100 ha.), Tamil Nadu was estimated at Rs. 353, 52, 31,312 (Piyashi DebRoy and R. Jayaraman., 2012). Following the mangrove valuation studies conducted all over the world, TEV of India's' mangrove patches have been estimated. To get the TEV of mangroves, the goods and services have been classified as provisional, regulation, cultural and supporting service followed by Millennium Ecosystem Assessment (2005).

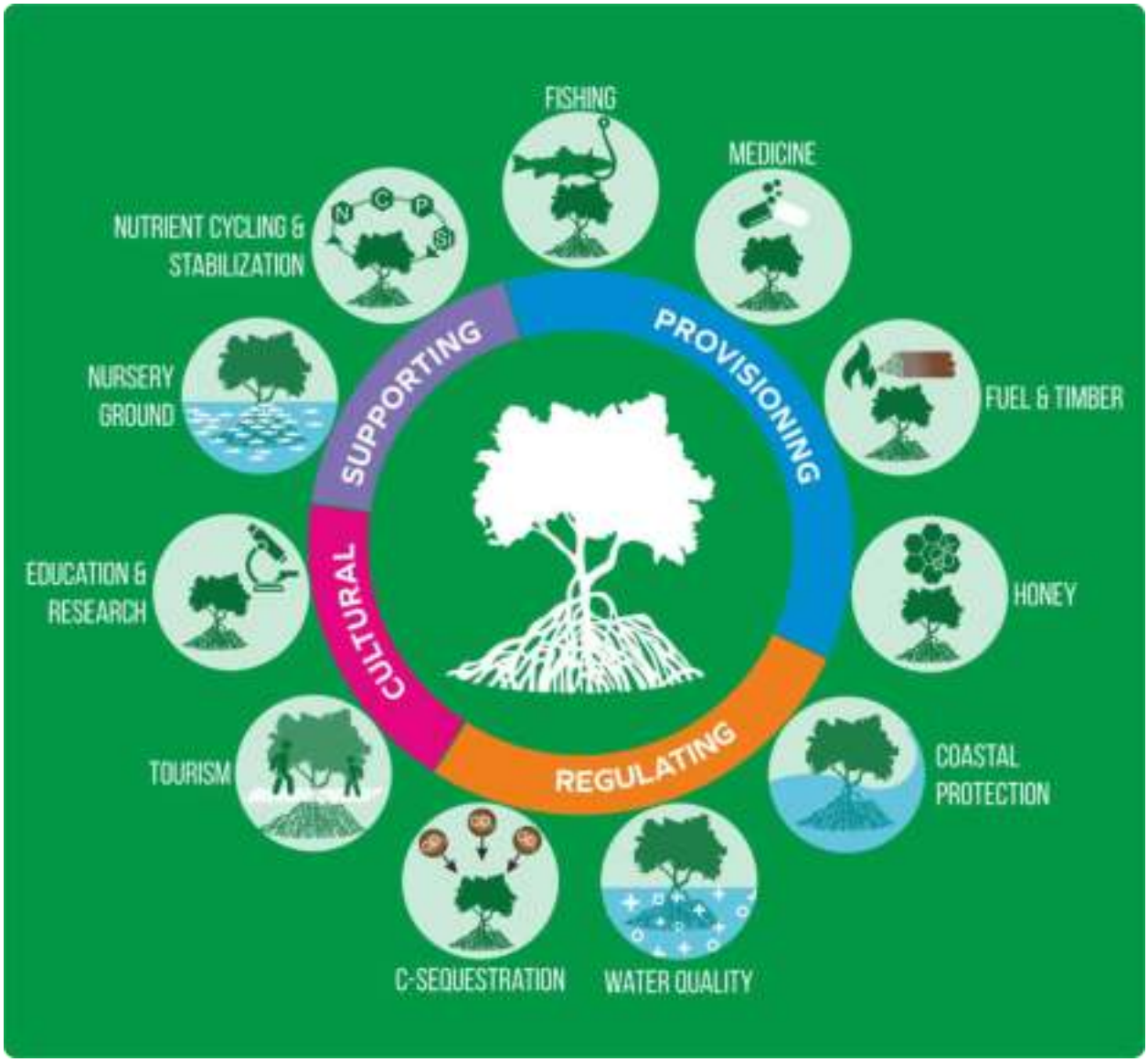

Figure 3.1. Various goods and services of mangrove ecosystem

3.1 Provisioning services of mangrove

Provisioning services are the goods that can be extracted from mangroves for human requirements. Mangroves are highly productive ecosystems and they generate a number of direct and indirect goods and services that are very useful to human being (Ruitenbeek, 1994). Coastal communities, especially fishermen depend on mangrove forests to fulfil their needs for food and raw materials (Saenger 2002; Van Oudenhoven et.al. 2014).

Fishery, aquaculture support, timber, fuel wood, honey, pharmaceuticals, fodder etc. (Nibedita Mukherjee et.al. 2014) are the important provisional services provided by the mangroves. Economic values of various provisioning services of mangroves are discussed below in the following chapters.

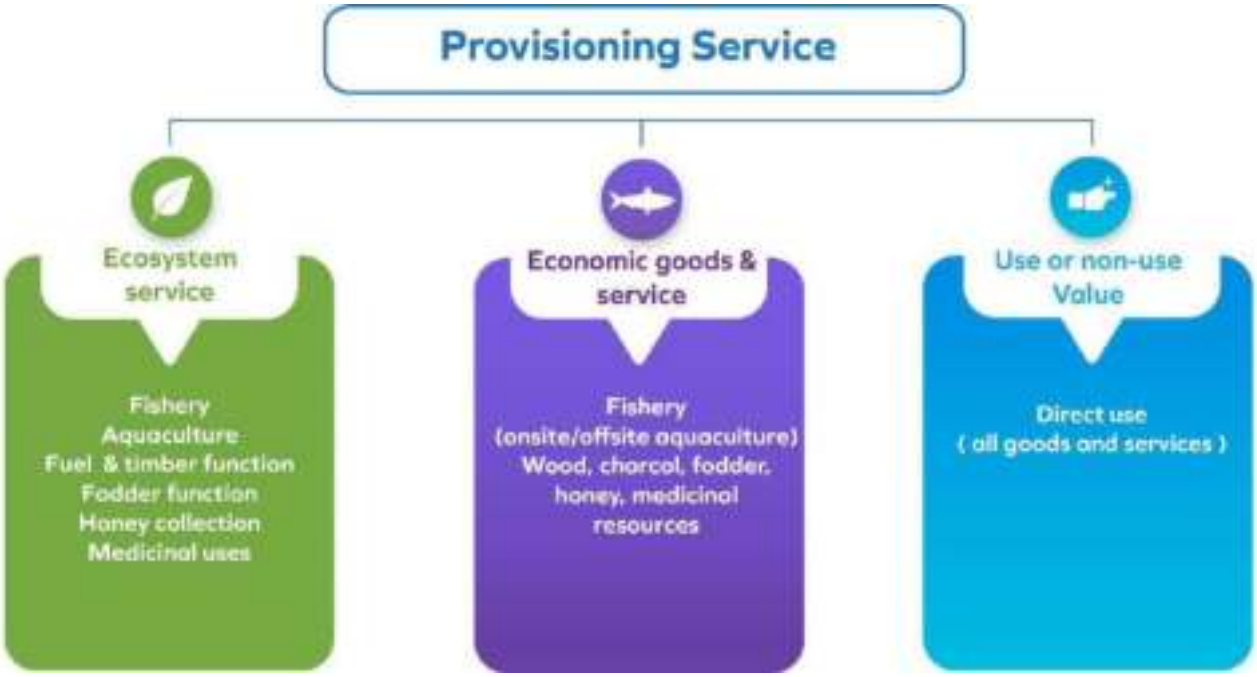

Figure 3.2. Estimation of benefits under provisioning service

3.1.1 Fishery

Mangrove forests are the home, nursery and breeding ground for many fish, crab, shrimp, and mollusc species. Most of the fishes, crustaceans, and molluscs have high protein, mineral and micro nutrient content hence they are commercially highly valuable (Lal, P.N., 1990). In addition to consumption, the mangrove fisheries have significant recreational value in Florida, USA (Fredrik Moberga and Patrik Ronnback., 2003). It was also reported that 1ha of mangroves generates 1,100 kg to 11,800 kg fisheries catch, which in developing countries corresponding to a market value of $900 to $12,400 annually (Ronnback, 2000). In another study, Ronnback (2001) has estimated the annual market value of fisheries supported by mangroves in developing countries to be US$ 3,400/ha/year. The above value can be comparable with the study of Ronnback (1999) who estimated the average value of the fishery harvest at US$800–12,000/ha/yr using the average of many mangrove areas of the world.

However, Ruitenbeek (1992) estimated the fisheries harvest from mangroves in Indonesia at US $ 67/ha/yr. In another study in Philippines, mangrove fish harvest value was estimated between US$ 42 to US$ 156/ha/yr. (Schatz (1991). Similarly, in another study in Philippines', mangrove fishery was estimated at US$16/ha/yr. (Giselle and Alan. 2007). Costanzo et al. (1989) estimated the mangrove productivity in relation to commercial fish harvest in U.S. for US$ 62.66/ha./yr. Cabahug et al. (1986) estimated fish harvests from mangroves in Philippines for US $ 1071 / ha. /Yr. Aburto-Oropeza et.al. (2008) fixed the median value of mangrove related fish and crab harvest in Gulf of California at US$ 37,500. Christensen (1982) valued onsite fisheries of mangroves for US$30/ha/yr. Lal, (1990) applied market price of mangrove associated fishery in Fiji, and estimated that the fish harvest of 331 kg/ha./yr., fetched a market price of US$60-

US$240/ha/yr., with an average of US$100/ha/year. In Egypt, the mangrove fishery value was estimated at US$ 13,000/ha/yr. (Spurgeon, 2002). In Gazi mangroves of Kenya, the value of mangrove fishery was estimated at Ksh 3,664/ha/yr., or an equivalent of US$ 44 ha/yr. (Janis Hoberg., 2011). Christense (1982) estimated the value of fish harvest in the mangrove area of Thailand at US$0.30/ha/year. Lal (1990) estimated that annual production of commercial fishery in Fiji mangroves is 147/kg and the value was estimated between US$60 - US$240/ha/year. In Sri Lanka, Rekawa mangrove, lagoon fisheries were estimated for US$ 493/ha/year (Gunawardena and Rowan. 2005). In the Millennium Ecosystem Assessment, the market value of seafood from mangroves has been valued at $7,500 to $167,500/km²/year (875/ha) (Millennium Ecosystem Assessment, 2005 cited in UNEP-WCMC, 2006). In 1997, annual commercial fish harvests from mangroves were valued $6,200 per km² in the United States to $60,000 per km² (331/ha) in Indonesia (Bann, 1997).

There are many estimates on mangrove associated fishery economic value (offsite) that were valued in the open water, near shore water and inshore waters around the mangrove areas. Off-site fisheries of mangroves of Thailand were estimated at US $ 189/ha/yr. (Christensen. 1982). In another study in Thailand, off-site fisheries were estimated at US$ 92-147/ha/yr. (Sathirathai. 1998). A Gulf of California, USA mangrove area fringes (offsite) economic value was estimated at US $37,500/ha (Aburto-Oropeza et.al. 2008). Near shore fisheries of mangroves of Sri Lanka was studied by Ranasinghe and Kallesoe (2006) and its value was estimated between US $ 4,861 to US $ 12,964/ha/yr. It has been estimated that, income from the inshore fishing in the mangroves of Ngoc Hien, Vietnam amounted to 50 USD/ ha/year (UNEP. 2015). In Matang, west Malaysia, a 2006 study estimated that with fish catches averaging 1.3–8.8 kg an hour, a 400-km² managed mangrove forest supported a fishery worth $100.0 million a year ($250,000/km²/year) (UNEP-WCMC, 2006). Christensen (1982) valued the offsite fisheries of mangroves (Asia and Pacific) at US$100/ha/year. Mangrove area reduction shall reduce the fishery harvest in the regions. Barbier (2007) valued the fishery reduction using the mangrove reduction estimates of FAO and Thai Forests Department and applied the value to the fishery harvest and estimated the loss to be USD 123/ha/yr. and USD 3.1 ha/yr. respectively. Sathirathai and Barbier (2001) estimated US$21-69/ha/yr. for the contribution of mangroves to offshore fisheries productivity.

In addition to general fisheries related valuation estimates, there are estimations for individual groups such as molluscs, shrimps, crabs and echinoderms that are associated with mangroves. Though this study focuses on general fisheries of mangroves the special group values have also been listed for information for further special studies and policy decisions. Giselle and Alan (2007) estimated the mangrove associated molluscs and echinoderms (sea cucumber, sea urchin, etc.) for US$33/ha/yr. On-site crustacean and mollusc harvests from mangroves of Vietnam were estimated for US $ 126/ha/yr. (Nielson et al., 1998). Cabahug et al. (1986) estimated the molluscs harvested from mangroves in Philippines for US $675 per ha per year.

It has been estimated that, in developing countries, the annual market of fisheries supported by mangroves ranges from US$ 900 to US$ 12,400/ha/yr., with US$ 3,400/ha/yr. as a mean (Ronnback, 2001). Shrimp fishery dependent on mangroves in Pakistan was studied by Khalil (1999) and estimated its market value for US$ 100 million per year. Shrimp harvest from mangroves of Bintuni Bay, Indonesia was estimated for a price of US$94/ha/yr. Kapestky (1985) estimated the average yield of fish and shellfish in mangrove areas to be about 90 kg/ha/yr., with the maximum of about 225 kg/ha/yr. Cabahug et al. (1986) reported high valuation estimates for shrimp harvests from mangroves in Philippines at US $ 254 per ha per year. Cabahug et al. (1986) also estimated the economic value of crab harvested from mangroves in Philippines at US $720 per year.

3.1.2 Aquaculture

Wild seed collection activity in Sagar Island, West Bengal

Shrimps belonging to the genus Penaeus have a life cycle where they spawn at sea and, after a few weeks, the post larval shrimps settle in inshore and estuarine waters, which they use as nurseries during their critical early life stages (Dall et al., 1990). The wild shrimp post larvae (seed) that are stocked in grow-out ponds are either allowed to enter traditional ponds with incoming tidal waters or caught by seed fishers and subsequently stocked in ponds. Shrimp post larvae can also be produced in hatcheries, which depend upon continual inputs of wild-caught brood stock. The shrimp hatchery industry is heavily dependent on the continuous input of wild-caught Penaeus monodon spawners generated by mangrove ecosystems (Ronnback et.al. 2013). Apart from shrimp post larvae and brood stock, mangrove ecosystems also provide feed inputs, water quality maintenance (Ronnback 1999). Robertson and Phillips (1995) estimated that 3 ha of mangrove forest would be required to filter the nitrogen and phosphorus loads from effluents produced from 1 ha of semi intensive shrimp pond, and 22 ha of mangrove forest would be required for 1 ha of intensive shrimp pond. It has been estimated that, each hectare of mangrove in the Godavari River delta generated an annual Penaues monodon spawer catch of 0.8 – 1.5 (gravid females), valued at US$ 92–184 ha. Accordingly, the entire Godavari mangrove delta was estimated for partial gross economic value of US$ 3.0–6.0 million per year for the provision of shrimp spawners alone (Ronnback et.al. 2003).

3.1.3 Fuelwood and timber function

Mangrove trees have been the source of firewood in India since ancient time (Bandarnayake, WM., 1998). Because of the high specific gravity of rhizophoraceous wood, the species of Rhizophora, Kandelia, Ceriops and Bruguiera are preferred for firewood. The value of mangroves for fuel can be determined based on the cost of alternative supplies of fuel (i.e. substitute price). Khalil (1999) estimated that the daily household use of mangrove wood in Indu Delta, Karachi, Pakistan was 4.5 kg/household/day. At an average price of RS 1.45 per kg, it was estimated that the overall value of mangrove fuel wood in the Indu Delta was estimated to be Rs 22.5 million per year (approximately US$ 385,000/yr). Similarly, in Sri Lanka, household's dependent firewood was estimated as 20.5 kg/week which was equivalent to 982 kg/year. In the local markets, the equivalent firewood sold for 1.2 Rs/kg was interpreted for annual value of the harvest and it was estimated at US$24 /ha/year (Gunawardena, M and J. S. Rowan., 2005).

It was estimated that net income from timber and firewood of Ngoc Hien mangroves of Vietnam ranged from 2,133 to 3,061USD/ha, per cycle. One cycle is 12-15 years, so the net income from the exploitation of mangrove forests for fuel and timber was estimated within the range of $164–235 /ha/year (UNEP. 2015). It was estimated that, the income from fuel wood collection in Gazi mangroves, Kenya was Ksh 864,000 or Ksh 1,394/ha/yr. (equivalent to US$ 16.8/ha/yr.) (Janis Hoberg., 2011). Special study on value estimation of fire wood and charcoal from MEDA creek mangrove of Kenya was valued at US$166/ha/yr., whereas, in Tana creek, Kenya, it was estimated at US$27/ha/yr. (UoN & UNEP., 2016).

Value added product, the mangrove wood costs more than the fuel and timber. In Terminos Lagoon mangroves, Mexico, economic value of one ha mangrove for charcoal production was estimated for US$451/year and for rustic housing at US$631/year (Cabrera., et.al.1998). Christensen (1982) has estimated the charcoal production use of mangrove to be 1m^3/ha/yr. (potential of 12 m^3/ha/yr.) and estimated the economic value of charcoal production value to be US$30/ha/year. Christense (1982) estimated the charcoal production service from Thailand mangroves at US$30/ha/year.

Mangrove forest produces construction materials and support subsistence economies of coastal communities (Fredrik moberga and patrik Ronnback., 2003). In addition, they have been used to construct local canoes (Wilson, J.S., 1858). Strength and durability including pest and rot resistance make the mangrove wood suited for use in construction (Kairo et al. 2002). Economic value of building materials extracted from MEDA creek, Kenya mangrove ecosystem was valued at US$16/ha/yr., whereas, in Tana creek, Kenya, mangrove timber was estimated at US$15/ha/yr. (UoN & UNEP., 2016). Export price of mangrove wood of Indonesia cost about US$67/ha/yr. (Ruitenbeek. 1992). Sathirathai, (1998) estimated the Thailand mangrove forest products at 140-1059 US$/ha/yr using economic assumption method. Lal (1990) estimated that annual production forestry products from mangroves of Fiji for US$6/ha/yr. Gilbert AJ and Janssen (1998) were estimated the wood market price of mangroves of many mangrove areas and set value as 251 US$/ha/year. Tri (2000), estimated the annual value of wood products from routine thinning to be US$34,438 or US$47.5/ha, while thatch obtained from nipa palm is worth US$0.2/ha in Can Gio mangrove reserve, Vietnam.

Mangrove harvest for charcoal and timber in Kuala Sepetang, Malaysia

Mangrove charcoal, Vietnam

3.1.4 Fodder function

Mangroves grazing ground for many cattle. Mangrove leaves are used for camel fodder in Gujarat. Similarly, mangroves are used as camel fodder throughout northeast Africa, Middle East and in Pakistan (Wilke, 1995). Khalil (1999) estimated that mangrove leaves of the Indus, Pakistan are very nutritious, and it helps food support to 16,000 camels and 11,000 cattle. Faya (1993) studied nutritional value of Avicennia marina for browsing animals and indicated that it has poor nutritional value when it was given as a lone feed while, it was also given with alternative fodder, and it is a nutritious source of cattle food.

The most suitable valuation technique would be based on the volume of leaves eaten and the market price of providing an equivalent amount of fodder (i.e. substitute product price) (James Spurgeon., 2002). Based on data from a household survey it was estimated that the Indus delta yielded 2 million kg of fodder per year worth RS 2.56 million per year, based on a price of RS 1.25 per kg of mangrove fodder. Memon reports that

the area of mangrove forests was 263,000 hectares in 1977 and 158,500 ha (392,000 acres) in 1990. This will value the use of mangrove as fodder at US$16.15 ha/yr.

Mangrove are grazing for camels, Kutch district

3.1.5 Honey collection

The links between bees and mangroves are inextricable and have been exploited by humans for thousands of years. Since the mangroves naturally provide a safe habitat by providing year round supply of nectar, pollen, unlimited water source, stability of trees, resilience against forest fires and deters termites and ants (Jonathan Baines and Manon Whittaker., 2016). Honey collection from the mangrove forest is a traditional activity in India.

It has been estimated that Sundarbans mangrove alone produce 111 tons of honey annually (http://www.niobioinformatics.in/mangroves/MANGCD/fact.htm visited on 13/03/2017). Honey and bee wax contribute around Rs. 4500 (3.5%) on an average to the average annual household income in the Sunderban villages (Anshu Singh et.al. 2010). About 35,000 tonnes of honey was collected from the India part of Sundarbans mangrove forests last year and sold through the State's Forest Development Corporation (Debashis Chattopadh., 2003). Sundarbans tiger reserve of India has estimated that honey collection during 2014-15 was 47,412 kg and it was sold for Rs. 47, 41,200 /- (http://sundarbantigerreserve.org/urls/non-timber-forest-produce.html# visited on 14/03/2017).

India's part of Sundarbans mangrove covers an area of about 426200 ha and the honey potential in this area can be estimated for Rs. 11/ha. According to Tri et al (1998) around 0.2 kg/ha/yr. of honey can be collected from mangroves in Vietnam. The value was based on potential volumes of honey produced and the market price (US$ 4 to 5 per kg in Cairo) of honey. After deducting the production cost, the value was estimated at US$ 0.8 to 1/ha/yr. Economic value of honey collection from MEDA creek of Kenya mangrove was estimated at US$22/ha/yr., whereas, in Tana creek mangroves of Kenya it was estimated at US$2/ha/yr. (UoN & UNEP., 2016). The values have been applied to total mangrove areas of India and have been incorporated in the table 4.1

Mangrove honey is a popular product in USA

Honey collection activity in Sundarbans Mangroves

3.1.6 Medicinal uses

Extracts and chemicals from mangroves are used mainly in folkloric medicine (e.g. bush medicine), as insecticides and pesticides and these practices continue to this day (Bandaranayake, 1998). Ethno-botanical studies revealed therapeutic potential of nearly 17 applications from eleven plant species of mangrove and associated species including medicinal properties to treat different diseases and ailments. The important traditional therapeutic applications of mangrove in Pitchavaram fishing community are; cure for snakebite, Small pox, ulcer, detoxification, birth control, urinary disorders, stomach disorders, tumour inhibitors, jaundice, malaria, toothache, skin diseases, diarrhoea, nausea, vomiting, cholera etc. (Ravindran et.al. 2005). Extracts from Rhizophora and Avicennia spp have been used for making tonics, wines and fruit drinks. The leaves, fruits and seeds of Avicennia marina have been used as vegetables. Extracts from Avicennia marina are believed to cure rheumatism, smallpox and ulcers. Extracts from Rhizophora mucronata are believed to cure diarrhoea, elephantiasis, haematoma, hepatitis and ulcers (Bandaranayke, 1998). Rhizophora bark has been found to be important as a source of tannins, used in leather work and for curing and dyeing of fishing nets made of natural fibre (FAO, 1994).

Traditionally mangroves have been used for the treatment of diabetes (Bandaranayake, 2002; Revathi etal. 2013). Kathiresan et al. (2006) found biochemical components related to the medicines of cancer and other diseases. Extracts from mangroves and mangrove dependent species have proven effective against human, animal and plant pathogens, but only limited investigations have been carried out to identify the metabolites responsible for their bioactivities (Roome et al., 2011).

Ruitenbeek (1992) estimated that an annual benefit for medicinal plants of US$ 15/ha for mangroves in Indonesia. In another study, pharmaceutical values of mangroves were suggested for US$ 0.1 to US$ 60/ ha, using values of similar components of other studies (Bann, 1997).

3.2 Regulation services

The benefits that mangrove systems provide in terms of regulating services have been acknowledged extensively. Regulating services that have been analysed in most detail include water quality maintenance, storm, flood and erosion control and climate regulation (Saenger 2002). Mangroves protect life and livelihoods of coastal communities since they border the shoreline. They protect the coastal communities from coastal extreme events such as floods, storms and tsunamis (Ong and Gong, 2013). It prevents erosion and supports soil deposition. Mangroves filter the nutrients from river discharge.

Figure 3.3. Estimation of benefits under regulation service

It protects the coastal aquifers from seawater intrusion wastewater treatment and pollution prevention through its biological activity of micro-organisms in the soil. It sequesters greenhouse gases and regulate the global climate. It regulates air quality by removing pollutants from the atmosphere. Details of various functions of mangroves ecosystems are given the following chapters. To summarise, the regulation functions of the mangroves have been classified under the following functions; (i) protection function (ii) erosion prevention function (iii) soil deposition and nutrient enrichment function (iv) water quality maintenance function and (v) carbon sequestration function. Details of the various functions under the regulation services are given in the following chapters.

3.2.1 Protection function

Mangrove forests are natural barriers that protect life and livelihoods of coastal communities from storms and cyclones (Gilbert and Janssen 1998). Generally mangrove patches are predominant where the tropical cyclones are dominant and prone to atmospheric disturbance (Storch and Woth 2008). Mangroves naturally form barriers and thus inevitably provide some shore protection. Mangrove forests reduce risk from coastal hazards, such as waves, storm surges, and tsunamis. They reduce flood depths and

wave heights, lessening damage to property behind mangrove forests. The level of risk reduction depends on the type of hazard, as well as mangrove characteristics (World Bank. 2016; Van Oudenhoven et.al. 2014; Bao, 2011). McIvor et al. (2012) analysed several recordings of Louisiana during the Rita hurricane and found that the mangroves reduce the water level by 15.8 cm per km. The most important characteristics that determine mangrove areas' ability to attenuate waves include the extent or width of the forest, species composition, water depth, density and type of roots and branches, and age of trees (Brinkman et al. 1997; Barbier et al., 2008; Gedan et al., 2011; Sandilyan and Kathiresan, 2015). The protection service of mangroves are particularly important to poor communities since they are less resilient to flooding and other damages (BCA, FORES, FORWET. 2013). The mangroves protect the coastal communities from the extreme coastal events such as tsunamis. Evidence from the 12 Indian Ocean countries affected by the tsunami disaster, suggests that those coastal areas that had dense and healthy mangrove forests suffered fewer losses and less damage to property than those areas in which mangroves had been degraded or converted to other land uses (Wetlands International, 2005; Chong, 2005).

While calculating the NPV of mangroves forest of India, it was estimated that 1 ha of mangrove forests shall save 0.0148 lives (Verma M, N., etal., 2013). It was estimated that the average opportunity cost of saving a life by retaining mangrove forests was 11.7 million rupees per life saved during the Orissa super cyclone (Das and Vincent. 2009). The value of the mangrove buffer in Srilanka was estimated at 21,000 Rs/ha/year or US$ 300/ha/year (Gunawardena, M and J. S. Rowan., 2005). Constanza and others (1997) estimated the disturbance regulation function of mangroves at US$ 1800/ha/yr. In southern Thailand, Sathirathai (1998) estimated the coastline protection service of mangroves and valued it for US$3,000/ha/yr. Following the above estimate of southern Thailand, Sathirathai and Barbier (2001) revisited the value and refined it to US$3,679/ha/yr. However, Barbier et al. (2007) estimated an average value for the storm protection value of mangroves of Thailand at $1879/ha/yr. The value of coastal protection provided by mangroves in India has been estimated to be 653.98 billion Rs for 4, 62,763 ha or 1413207 Rs/ha/yrin 2013 price using benefit transfer (Kavi Kumar et.al. 2016)

Protection function of Ngoc Hien, Vietnam mangrove forests was valued between the range of 742 and 756 USD/ha/yr (UNEP. 2015). Protection service of mangroves during extreme events in south of Viet Nam was estimated at USD 5,000/km2/yr. (Tri et al. 1998). Using the estimates on the cost of house construction Koh Kapik, Vietnam being suffered by storm destruction, the loss to property was equated with the protection service of mangroves ad equated to beUS$391,816 (Bann. 1997).

Economic value of flood control protection service of MEDA creek, Kenya mangrove was estimated at US$154/ha/yr (UoN & UNEP., 2016). Economic value of shoreline protection service of mangroves in MEDA creek, Kenya was estimated at US$911/ha/yr., whereas, in Tana creek, Kenya, it was estimated at US$44/ha/yr. (UoN & UNEP., 2016). While estimating restoration benefits of mangroves, Barbier (2009) estimated that flood

protection at $11000 per/ha. And suggested that restoration was profitable. Salem and Mercer (2012) used meta-analysis to value the protection service of mangroves to be 10.45-8044 USD/ha/yr. Ranasinghe and Kallesoe (2006) and IUCN (2006) have estimated the average values of protection service of mangroves in east coast of Srilanka at US$ 3300 – 9500. The value of the shoreline protection function of panama village mangroves, south east coast of Sri Lanka was estimated at US$ 392.5/haIUCN. 2006). The protection value of mangrove forests of Orissa, India was estimated at Rs.51168/-/ha/yr (Saudamini Das., 2009). Storm protection services of mangroves in Sri Lanka were estimated at USD 8,000/km2/yr. (Batagoda 2003).

In Bhitarkanika of India, storm abatement function of mangroves was estimated at 116.28 US$/household using damage cost avoided method (Ruchi Badola and S A Hussain., 2003). Strom surge protection using seawalls in Bamburi, Kenya to protect property against the high sea storm surges cost around US$952/mtr with 1% maintenance cost as equal to the mangrove protection service in the natural coast (UNEP, 2011). Further, the shoreline protection value from severe weather events of Gazi mangroves, Kenya was estimated at US$ 91.7/ha/yr (Janis Hoberg., 2011). Similar to that, the protection service of 8000 metre length of Pitchavaram mangrove in India from tsunami was estimated between Rs. 160,00,00,000 and Rs. 320,00,00,000 (without maintenance) which is equivalent to Rs. 1454545 /ha to Rs. 2909090 /ha (Piyashi DebRoy and R. Jayaraman., 2012).

3.2.2 Erosion prevention and soil accretion

Mangroves protect the coastlines from erosion, thus preventing the loss of producing land service and the properties located (McIvor et al. 2013). Shoreline erosion and deterioration have been reduced by mangrove by its ability to retain soil and stabilize the sediment (BCA, FORES, and FORWET. 2013). Erosion protection function of mangrove of Philippines was estimated at US$672/ha/yr. (Giselle and Alan. 2007; Samonte-Tan et al., 2007). Ruitenbeek (1992) estimated the value of damage cost avoided for agriculture farming by the erosion protection function of mangroves of Bintuni Bay, Indonesia at US$ 240/ha.

Erosion in Goa – Agriculture and Land

Soil deposition in Sundarbans mangroves

In Indonesia, prevention of coastline erosion service of mangrove was estimated within the range 1192 kUSD to 6475 kUSD or 694 USD/ha to 3767 USD/ha (Abdul Malik etal., 2015). (Both erosion and sea water intrusion value)

Similarly, Christensen (1982) estimated erosion protection function of Asia–Pacific region mangroves at $165/ha/year. Sathirathai and Barbier (2001) have estimated the cost of constructing breakwaters to prevent coastal erosion in Southern Thailand and equated the potential economic service of mangroves for US$3679/ha (coastline protection). A 2005 assessment of the Rekawa mangrove-lagoon ecosystem, Sri Lanka, found that the Total Economic Value was about $1,088/ha/year, or $217,600/year based on 200-ha of mangrove. Erosion control and buffer against storm damage accounted for $300/ha/year or $60,000 per year (Gunawardena and Rowan, 2005).

Unit cost of constructing artificial breakwaters to prevent coastal erosion and damages from storm surges was US$1011/mtr (1996 price). Based on the estimate, Barbier (2007) estimated the erosion prevention service of mangroves of Thailand for protecting the shoreline with a 75-metre width stand of mangrove to be approximately US$13.48 per m^2, or US$134800/ha (1996 prices) (Barbier., 2007). Shoreline loss after mangrove removal and hard structures establishment and maintainance to protect Kenya coast was estimated at US$ 20.81 m^2/yr, US$ 395/ ha (Mark Huxham etal. 2015).

Mangroves are 'land stabilizers', where mangrove roots consolidate and accrete mineral sediment. Although some studies have highlighted the ability of mangroves to prevent coastal erosion, others consider coastal erosion prevention to be part of a bigger process, namely soil surface elevation (McIvor et al. 2013). Soil surface elevation, in response to sea level rise is an important ecosystem service provided by mangroves. Mangroves slow water flows and reduce wave energy that allows deposition of sediment particles and increased soil volume (Krauss et al. 2003, McIvor et al. 2013). Stabilization of sediments provides protection to shorelines and associated shore based activities and can lead to land gains (Spaninks & van Beukering 1997). Positive elevation change allows mangrove vegetation to remain in the same relative position in the tidal frame as sea levels rise over the long-term, and a reduction in sediment input is a key factor in mangrove vulnerability to sea level (Lovelock etal., 2015). In Bhitakanika mangroves of India, land accretion function was estimated to be 983795.7 US$ over a period of 111 years (Ruchi Badola and S AHussain., 2003).

3.2.3 Water quality maintenance

Mangroves help to purify and maintain freshwater sources in coastal areas. Further, it acts as a barrier against siltation and pollution from land based sources, which protects coral reefs, sea grass beds and the coastal wetlands (BCA, FORES, FORWET, 2013). Water flow regulation and prevention of salt water intrusion to agriculture, aquaculture and aquifers are important functions of the mangroves (Ilman et al. 2011; Semesi 1998). Abdul Malik etal (2015) revealed that abrasion and seawater intrusion occurred in several places in the region where mangroves are absent. Mangroves maintain coastal water quality by abiotic and biotic retention, removal, and cycling of nutrients, pollutants, and particulate matter from land-based sources, filtering these materials from water before they reach seaward coral reef and seagrass habitats (Ewel etal., 1998).

Lal (1990) estimated the nutrient (waste) filtering service derived from Fiji mangroves worth of US$5,820/ha / year using alternative cost approach. Harahab (2010), estimated the mangrove service of prevention of seawater intrusion in to the coastal aquifers of Probolinggo district, East Java for USD 7 kUSD/ha/year. In Indonesia protection of aquifer and prevention of seawater service of mangroves were estimated at 476 kUSD or 277 USD/ha, (Abdul Malik etal., 2015).

3.2.4 Carbon sequestration

Mangroves are the most productive and bio-geochemically active ecosystems and important sinks of carbon in the biosphere (.2003; Ong 1993; Walters et al. 2008). The carbon stock per unit area of mangrove forest are high since the photosynthesis rates of mangrove trees and top layers of mangrove sediments store large amounts of organic carbon (Alongi 2012; Bouillon et al., 2008). This carbon sequestration and storage service by mangroves provides global benefits by removing the harmful greenhouse gas carbon dioxide from the atmosphere (Meenakshi Jerath etal., 2012).

Ong (1993), reported that mangroves could store 100 to 200 ton C/ha above ground, whereas below ground carbon can reach 700 ton C/1 m soil thickness/ha (with an estimated carbon sink rate of 1.5 ton C/ha/year). A 20-year old plantation of Rhizophora mangroves stores 11.6 kg m2 of carbon with a C burial rate of 580 g m2 /yr (Fujimoto 2000). It has been reported that the carbon sequestration potential of India mangrove was estimated at 2.27 tC/ha/yr and the functioning of avoided emission was estimated at 1.61 tC/ ha/yr (Lucy Emerton., 2014). If mangrove ecosystems are influenced by environmental change, the benefits accrued will be changed (Rebecca Shaw., etal., 2011). Experimental work using small-scale forest cutting of mangrove forests lead to the carbon loss of 4.85 tC/ha/yr by sediment following forest removal (Lang'at et al., 2014).

The market price for carbon ranges from $6.86/tC in the Regional Greenhouse Gas Initiative (RGGI) market in the United States to $75.24/tC in the European Union's Emissions Trading System (Meenakshi Jerath etal., 2012). It has been estimated that the carbon sequestration potential of all mangroves of the globe were valued at $30.50ha/yr (Chumra et al. 2003). Economic value of carbon sequestration service of the mangroves of MEDA creek, Kenya was estimated at US$177/ha/yr (UoN & UNEP., 2016). The economic value of carbon sequestration from mangroves in Ngoc Hien District, Vietnam was about 325 USD/ha/year (UNEP., 2015). In southern Thailand, carbon sequestration potential of mangroves was estimated at US$100/ha/yr (Sathirathai, 1998). In Indonesia, carbon sequestration services were estimated at 945 kUSD to 1891 kUSD or 550 USD/ha to 1100 USD/ha. (Abdul Malik etal., 2015).

A study assumes a carbon price of US$ 7/ tonne, and estimated the Gazi mangroves, Kenya 'carbon sequestration potential to be US$ 126 ha/ yr (Janis Hoberg., 2011). De Lopez et al (2001) estimated the carbon storage value of mangroves in Cambodia at US$ 2/ha/yr (James Spurgeon., 2002). In India, Hirway and Goswami (2007) assumed the carbon value as $ 150/ton C. The value of carbon sequestration provided by mangroves in India has been estimated using direct market pricing average value 1.21 billion Rs for 4,62,763 ha or 2614 Rs/ha/yr in 2013 price (Kavi Kumar et.al. 2016) The value was applied in Pichavaram mangroves (1158 ha), India by Piyashi DebRoy and R. Jayaraman (2012) and estimated that the total carbon sequestered ranged between $ 3,303,000 and Rs. 15,27,63,627/yr.

3.3 Cultural services

Cultural services of mangrove include economic benefits through aesthetic, spiritual, recreational, education and other cultural values. Mangroves are traditionally and culturally important habitat for many coastal communities and maritime peoples (Polunin 1983). Coast communities traditionally use the mangroves for firewood, constructions, furniture, boats, fishing gear, folk medicine (e.g. bush medicine) and tannins. In addition, mangrove ecosystems are attractive for recreation purposes especially, eco-tourists,

hunters, and birdwatchers (Hussain and Badola 2010; Janis Hoberg., 2011; Thiagarajah, 2015).

The traditional uses of mangroves have little information since they have not documented (Bandaranayake. W.M., 1999) except recreation and tourism. Anthropologists have mentioned that there was a strong spiritual link between mangrove forest and local communities in many coastal communities of various coastal Nations. Mangroves were viewed as dangerous as they were seen to be the refuge or hiding place of 'dangerous' indigenous communities (Birtles, T.G., 1997). In addition, Mangrove forests lands were used as graveyard or burial ground among coastal communities especially aboriginals (MacDonald, J.D., 1857; Wake, C.S., 1866; James, G.K., 2013).

The mangrove species Excoecaria agallocha is worshipped as a 'sacred grove' in the Lord Nataraja temple in Chidambaram town. The rock carvings depicting mangrove as "Thillai" are very much present in the temple. There was a belief that a dip in the temple's pond water lined with the mangrove species cures many incurable human diseases. To these unscientific beliefs, our research work has given scientific validation.

Mangroves have a long historical link with human culture and civilization. A group of fishermen in Andhra Pradesh, India worship a mangrove tree (Excoecaria agallocha) before they venture into sea for fishing.

In Kenya, Shrines built in the mangrove forests are worshipped by the local people, who believe that spirits of the shrine will bring death to those who cut the surrounding trees. In Soloman Island, the dead bodies are disposed of and special rites are performed in the mangrove waters.

Traditional uses of mangroves – Thomas Dick picture 1927 in New England

Figure 3.4. Estimation of benefits under cultural service

Bennet and Reynolds (1993) estimated the tourism value of mangroves of Sarawak mangrove reserve forest, Malaysia at US$ 424 /ha. The mangroves reserve of Ras Mohammed, Egypt was estimated at US$ 130,000/ha/year (James Spurgeon., 2002). The mangroves of Ngoc Hien District, Vietnam were estimated at 25 USD/ha/year (UNEP. 2015). The income from eco-tourism in Gazi mangroves, Kenya in 2010 was estimated at Ksh 334700/yr or Ksh 540/ha/yr, which is equivalent to US$ 6.5 ha/yr (Janis Hoberg., 2010). The above tourism estimate is very near (US$ 9.3/ha/yr) to the similar economic valuation exercise carried out in the same mangrove area by Kairo et al., (2009). Ecotourism value for Pitchavaram mangrove, India was estimated for Rs. 157500000 /- or Rs.143182/yr/ha. (Piyashi DebRoy and R. Jayaraman., 2012). Tourism and recreation benefit of MEDA creek, Kenya mangrove were estimated at US$155/ha/yr, whereas, in Tana creek, Kenya, it was estimated at US$84/ha/yr (UNEP, 2016).

3.3.1 Bird nesting ground patches

Many bird nesting grounds of India are located inside the mangrove areas. Since the bird nesting grounds are classified as separate ESA under CRZ 2011 Notification, their economic value has been estimated separately with detail economic assessments. The value shall be incorporated to the relevant mangrove patches as an added value (Annexure-2).

3.3.2 Education

The mangroves are valuable asset for education to students and environmental awareness to general public. The benefits derived relate to expenditures within the local and national economy (i.e. economic impact) and from the additional knowledge and enjoyment gained. It was estimated that the contribution of Gazi mangroves, Kenya to

research value per year is US$ 114,000 or US$ 184.4 ha-1y-1 (Janis Hoberg., 2011). Economic value of education and research service of MEDA creek mangroves, Kenya was estimated to be US$22/ha/yr (UoN & UNEP., 2016).

3.4 Supporting service

Supporting services: ecosystem services that are necessary for the production of all other ecosystem services such as biomass production, soil formation and retention, nutrient cycling, etc (Vermeetal., 2013). In this study, supporting services of mangroves are classified under two heads viz., (1) biodiversity and nursery ground support (2) nutrient and soil formation support.

Figure 3.5. Estimation of benefits under supporting service

3.4.1 Biodiversity and nursery ground support

Mangroves are home to many uniquely adapted biodiversity. The mangrove ecosystem plays a key role by providing the link between marine and terrestrial ecosystems. This link will provide and maintain the stability, not only to the mangrove habitats itself, but also to the other related coastal ecosystems, such as sea grass beds, coral reefs (IUCN., 2006). In Bintuni Bay, Indonesia, a value of $US 15 /ha/yr was estimated for biodiversity benefit from mangroves (Jack Ruitenbeek., 1992). Similar study to value mangrove biodiversity in Bohol Marine Triangle, Philippines estimated for US$19/ha/yr (Giselle and Alan., 2007). Economic value of biodiversity service of MEDA creek mangroves of Kenya was estimated for US$40/ha/yr (UoN & UNEP., 2016).

It serves as a nursery and feeding ground for juvenile fish and prawn (Sasekumar et al., 1992). Extracts from different mangrove plants have reported to possess diverse medicinal properties (FAO 1985). It has been estimated that in Indonesia, provision of

nursery ground service of mangroves were estimated for 1403 kUSD or 2292 USD/ha./ yr (Abdul Malik etal., 2015). In Bohol Marine Triangle, Philippines, supporting nursery service of mangrove were estimated at US$243/ha/year (Giselle and Alan., 2007). Economic value of the fish breeding and nursery service in MEDA creek, Kenya mangrove ecosystem service was estimated at US$585/ha/yr, whereas, in Tana creek, Kenya, it was estimated at US$626/ha/yr (UNEP., 2016).

3.4.2 Nutrient and soil formation support

Mangrove soils play an important role in uptake of N and P (Robertson and Phillips., 1995). The waters around mangroves are generally rich in nutrients, as a result of the organic matter produced by the trees and plants themselves, and also from the sediment that is trapped around the roots. Mangroves produce about 1 kg litter/m2 annually, which forms the basis of a complex food chain and some of which is exported with the tide (Mumby et al., 2004). In Bhitakanika mangroves of India, the nutrient retention function was valued for US$350 /acre/year (Ruchi Badola and S A Hussain ., 2003). Oyster reefs are located inside mangroves, and counteract increases of nitrogen loading by promoting bacterially mediated denitrification induced by concentrated bottom deposits of feces and pseudofeces. Filtration by oysters also benefits submerged aquatic vegetation (SAV), a habitat long recognized as critical for many fish species by filtering sediments and phytoplankton from the water column—thereby increasing light penetration—and by continuous fertilization of the benthic plants through deposition of bio deposits (Newell et al. 2002). It has been estimated that the economic value of oyster reef services in nutrient cycling was estimated at $5500 and $99,000 per hectare per year with an average of 10,325 US $/ha/yr. (Jonathan etal., 2012).

4 BENEFIT TRANSFER AND META-ANALYSIS OF MANGROVE ECOSYSTEM

Table – 4.1. Mangroves service and function values - ha / Yr.							
Sl. No.	**Valuation methods**	**Value estimation study**	**Year & Estimated value**	**Value in 2011 (US $)**	**Value in 2011 (Rs)**		**Average value of Mangroves/ ha**
1	**Provisioning service**						
1.1	**Fishery**						
1	Meta-analysis (Market Price method)	Ronnback	1999 6400 $	8258	383666	on & off site fishery	18177/ ha
2	Meta-analysis (Market Price method)	Ronnback	2000 6650 $	8390	389799		
3	Meta-analysis (Market Price method)	Ronnback	2001 3400 $	4194	194853		
4	Market Price Method	UNEP-WCMC	2006 875 $	953	44276	On-site fishery	
5	Market Price Method	Bann	1997 331 $	438	20349		
6	Market Price Method	Ruitenbeek	1992 67 $	98	4553		
7	Market Price Method	Schatz	1991 99 $	148	6876		
8	Benefit transfer method	Giselle & Alan	2007 16$	17	790		
9	Production function	Costanza et al.	1989 62.66 $	101	4692		
10	Market Price Method	Cabahug et al.	1986 1071$	1895	88042		
11	Market Price Method	Christensen	1982 30 $	60	2788		
12	Market Price Method	Lal	1990 100 $	155	7201		
13	Market / Shadow price	Lal	1990 150 $	232	10779		

Table – 4.1. Mangroves service and function values - ha / Yr.							
Sl. No.	**Valuation methods**	**Value estimation study**	**Year & Estimated value**	**Value in 2011 (US $)**	**Value in 2011 (Rs)**		**Average value of Mangroves/ ha**
14	Market Price Method	Janis Hoberg	2011 44 $	44	2044		
15	Gross revenue Method	Gunawardena & Rowan	2005 493 $	554	25739		
16	Production function	Aburto-Oropeza etal.	2008 37500 $	39036	1813610	Off-site fishery	
17	Production function	UNEP-WCMC	2006 2500 $	2742	126557		
18	Market Price Method (NPV)	Spurgeon	2002 13000 $	15793	733742		
19	Market Price Method	Christensen	1982 189 $	379	17608		
20	Market Price Method	Christensen	1982 100 $	200	9292		
21	Market Price Method	Sathirathai	1998 120 $	157	7294		
22	Market Price Method	Ranasinghe & Kallesoe	2006 8913 $	9712	451219		
23	Market Price Method	UNEP	2015 50 $	47	2184		
24	Market Price Method	Barbier	2007 63 $	67	3113		
25	Net factor income /production function	Sathirathai & Barbier	2001 45 $	56	2602		
26	Market Price/ production function (molluscs & echinoderms)	Giselle &Alan	2007 33 $	35	1626	Individual species (crustacean & mollusc, shrimp, crab)	
27	Market Price Method	Nielson et al	1998 126 $	165	7666		
28	Market Price Method	Cabahug et al	1986 675 $	1194	55473		

Table – 4.1. Mangroves service and function values - ha / Yr.							
Sl. No.	**Valuation methods**	**Value estimation study**	**Year & Estimated value**	**Value in 2011 (US $)**	**Value in 2011 (Rs)**		**Average value of Mangroves/ ha**
29	Gross revenue Method	Khalil	1999 94 $	121	5622		
30	Market Price Method	Kapestky	1985 158	285	13241		
31	Market Price Method	Cabahug et al.	1986 254 $	449	20861		
32	Market Price Method	Cabahug et al.	1986 720 $	1274	59190		
1.2	**Aquaculture**						
1	Market Price/ production function	Ronnback etal	2003 138 $	164	7619	Shrimp spawner	7619 / ha
1.3	**Fuel and timber function**						
1	Market Price Method	Gunawardena, M & J. S. Rowan	2005 24 $	27	1254	Firewood	8531/ ha
2	Market Price Method	Janis Hoberg	2011 16.8 $	16.8	781		
3	Shadow price	Ruitenbeek	1992 67 $	98	4553		
4	Market Price Method	Gilbert AJ and Janssen	1998 251 $	329	15285		
5	Market Price Method	Tri	2000 47.5 $	60	2788		
6	Market Price/ net factor income method	UNEP	2015 200 $	188	8734		
7	Market Price Method	UoN & UNEP	2016 97 $	90	4181		
8	Net Revenue Method	Cabrera et.al	1998 541 $	709	32940		
9	Market Price Method	Christensen	1982 30 $	60	2788		

Table – 4.1. Mangroves service and function values - ha / Yr.							
Sl. No.	**Valuation methods**	**Value estimation study**	**Year & Estimated value**	**Value in 2011 (US $)**	**Value in 2011 (Rs)**		**Average value of Mangroves/ ha**
10	Market Price Method	UoN & UNEP	2016 15.5 $	14	650		
11	Cost and benefit analysis	Sathirathai	1998 600 $	786	36518		
12	Gross revenue (forestry products)	Lal	1990 6 $	9	418		
13	Net factor income	Tri	2000 0.2 $	0.25	12	thatch	
1.4	**Fodder function**						
1	Substitute product price method	James Spurgeon	2002 16.15 $	20	929	Fodder	929/ ha
1.5	**Honey collection**						
1	Market Price Method	Sundarban tiger reserve.org	2015 11Rs	0.17	8	Honey	188/ ha
2	Market Price Method	Tri et.al	1998 0.9 $	1	46		
3	Market Price Method	UoN & UNEP	2016 12 $	11	511		
1.6	**Medicinal uses**						
1	Market Price Method	Ruitenbeek	1992 15 $	22	1022	Medicine	1464/ ha
2	Direct market pricing	Bann	1997 31 $	41	1905		
2	**Regulation services**						
2.1	**Protection function**						
1	NPV Avoided mortality method	Verma & Das et.al	2009 173333 Rs	4405	204656	Storm protection	310437/ ha
2	Expected damage avoided	Barbier et.al.	2007 1879 $	1994	92641		
3	Benefit transfer method	Batagoda	2003	95	4414		

Table – 4.1. Mangroves service and function values - ha / Yr.							
Sl. No.	**Valuation methods**	**Value estimation study**	**Year & Estimated value**	**Value in 2011 (US $)**	**Value in 2011 (Rs)**		**Average value of Mangroves/ ha**
			80 $				
4	Replacement cost	Gunawardena et.al	2005 21000 Rs	742	34473		
5	Damage avoided cost method	Saudamini Das	2009 51168 Rs	1300	60232		
6	Replacement cost	Piyashi DebRoy	2012 2181818 Rs	42919	1994013		
7	Benefit transfer & net present value	Barbier et.al.	2009 11000 $	11364			
8	Benefit Transfer	Kavi kumar et.al	2013 1413207 Rs	25259	1170011		
9	Choice experiments approach	UoN & UNEP	2016 154 $	142	6597	Coastline & shoreline protection	
10	Cost benefit analysis	Sathirathai	1998 3000$	3930	182588		
11	Replacement cost	Sathirathai & Barbier	2001 3679 $	4538	210835		
12	Choice experiments approach	UoN & UNEP	2016 478 $	443	20582		
13	Damage cost avoided method	IUCN	2006 392.5 $	428	19885		
14	Damage cost avoided method	Janis Hoberg	2011 91.7 $	91. 7	4260		
15	Damage cost avoided method	Ranasinghe et.al & IUCN	2006 6400 $	6974	324012		
16	Contingent valuation method	Costanza	1997 1800 $	2384	110761	Overall protection service	
17	meta-analysis	Salem and Mercer	2012 4027 $	3954	183703		
18	Expected Damage Function	UNEP	2015	703	32661		

Table – 4.1. Mangroves service and function values - ha / Yr.							
Sl. No.	**Valuation methods**	**Value estimation study**	**Year & Estimated value**	**Value in 2011 (US $)**	**Value in 2011 (Rs)**		**Average value of Mangroves/ ha**
			749 $				
2.2	**Erosion prevention and soil accretion**						
1	Benefit transfer	Giselle & Alan	2007 672 $	713	33126	Erosion prevention	19578/ ha
2	Damage cost avoided	Ruitenbeek	1992 240 $	351	16307		
3	Substitute Market price	Christensen	1982 165 $	331	15378		
4	Benefit transfer	Mark Huxham et.al	2014 395 $	375	17422		
5	Damage cost avoided	Gunawardena et.al	2005 300 $	337	15657		
2.3	**Water quality maintenance**						
1	Alternative cost approach	Lal	1990 5820 $	9005	418372	Waste water filtering	254136 / ha
2	Annual benefit value	Harahab	2010 7000 $	7145	331956		
3	Replacement cost /benefit transfer	Abdul Malik et.al	2015 277 $	260	12080	Sea water intrusion prevention	
2.4	**Carbon sequestration**						
1	Global market price	Chumra et.al.	2003 30.50 $	36	1673	Carbon sequestration	17923/ ha
2	Global Market price	UoN &UNEP	2016 177 $	164	7619		
3	Market price	UNEP	2015 325 $	305	14170		
4	Meta-analysis	Salem & Mercer	2012 967 $	950	44137		

Table – 4.1. Mangroves service and function values - ha / Yr.							
Sl. No.	**Valuation methods**	**Value estimation study**	**Year & Estimated value**	**Value in 2011 (US $)**	**Value in 2011 (Rs)**		**Average value of Mangroves/ ha**
5	Replacement Cost	Sathirathai	1998 100 $	131	6086		
6	Benefit transfer	Abdul Malik et.al	2015 825 $	775	36006		
7	Benefit transfer	Janis Hoiberg	2011 126 $	126	5854		
8	Market price	De Lopez et.al	2001 2 $	2.5	116		
9	Surrogate pricing & replacement cost	Piyashi DebRoy et.al	2012 67386 Rs	1323	61400		
10	Direct Market Pricing	Kavi kumar et.al	2013 2614 Rs	47	2164		
3	**Cultural services**						
3.1	**Tourism**						
1	Factor Income/ Production Function	Bennet & Reynolds	1993 424 $	606	28155	Tourism	27623/ ha
2	Travel cost	UNEP	2015 25 $	24	1115		
3	Travel cost	Janis Hoberg	2010 6.5 $	6.6	307		
4	Market price, Net Income	Kairo et.al	2009 9.3 $	9.6	446		
5	Travel cost	UNEP	2016 120 $	113	5250		
6	Factor Income/ Production Function (Travel cost)	Piyashi DebRoy et.al	2012 143182 Rs	2812	130462		
3.2	**Bird nesting ground**						
1	Benefit transfer meta-analysis)	NCSCM	2017	Annexure**			
3.3	**Education**						

Table – 4.1. Mangroves service and function values - ha / Yr.							
Sl. No.	**Valuation methods**	**Value estimation study**	**Year & Estimated value**	**Value in 2011 (US $)**	**Value in 2011 (Rs)**		**Average value of Mangroves/ ha**
1	Benefit transfer	Janis Hoberg	2011 184.4 $	184.4	8567	Education	4760/ha
2	Choice experiment approach	UoN & UNEP	2016 22 $	20.5	952		
4	**Supporting service**						
4.1	**Biodiversity and nursery ground support**						
1	International transfers for rainforest	Ruitenbeek	1992 15 $	22	1022	Biodiversity	23625/ha
2	Benefit transfer	Giselle & Alan	2007 19 $	20	929		
3	Choice experiments approach	UoN & UNEP	2016 40 $	37	1719		
4	Benefit transfer	Abdul Malik et.al	2015 2292 $	2152	99982	Nursery	
5	Benefit transfer	Giselle & Alan	2007 243 $	258	11987		
6	A choice experiments approach	UNEP	2016 606 $	562	26110		
4.2	**Nutrient and soil formation support**						
1	Benefit transfer	Jonathan et.al	2011 10325 $	10325	479698	Nutrient retention	263776/ ha
2	Replacement cost approach	Badola , Hussain	2003 865 $	1030	47854		

Note: ** = values incorporated innesting grounds of birds report;**() =**converted to 2011 Indian Rs. value**.**

Table – 4.2. Average TEV for the Mangrove Habitat in 2011 Indian Rs/ ha/ Yr:		
Sl. No	**Mangrove Ecosystem service**	**TEV Value in 2011 Rs/ ha/ Yr.**
I.	**Provisioning service**	
1.	Fishery	18177
2.	Aquaculture	7619
3.	Fuel and timber	8531
4.	Fodder	929
5.	Honey collection	188
6.	Medicinal uses	1464
II.	**Regulating service**	
7.	Protection function	310437
8.	Erosion prevention & soil accretion	19578
9.	Water quality maintenance	254136
10.	Carbon sequestration	17923
III.	**Cultural service**	
11	Tourism	27623
12.	Bird nesting ground	Patch wise*
13.	Education	4760
IV.	**Supporting service**	
14.	Biodiversity & nursery ground support	23625
15.	Nutrient & soil formation support	263776
TEV in 2011 Rs/ ha/ Yr.		**958766**

Note: *=value incorporated in nesting grounds of birds ESA

Aggregated economic value of India's' mangroves range between Rs.92662 /- / ha/yr. (minimum) and Rs. 3361144/-/ha /yr (maximum). In meta-analysis, averages of various services has been used to value total economic value per ha. /year. consequently, average total economic benefit out of goods and services of mangroves amounts to Rs.9,58,766/- / yr. ha. This value is very close to the similar TEV study on mangroves conducted by global meta-analysis estimate by Salem & Mercer (2012) 13,07,568 Rs / ha/ Yr) amounts to 28,144$/ ha/yr (value converted for 2011). Similarly net present value of global mangroves estimated by Abdul Malik et al (10,80,286 Rs/ ha/ Yr) amounts to 23,252$/ ha/yr (value converted for 2011). Also compared with Southeast Asian country (Thailand) net present value ranges from 27,400$ to 37500$/ ha/ yr as estimated by Sathirathai & Barbier (2001). Similarly the maximum value of 33,61,144/-/ha /yr is close to TEV study on mangroves conducted by Costanza (2014). His estimated TEV value of mangroves is 194,000 $/ha/yr.

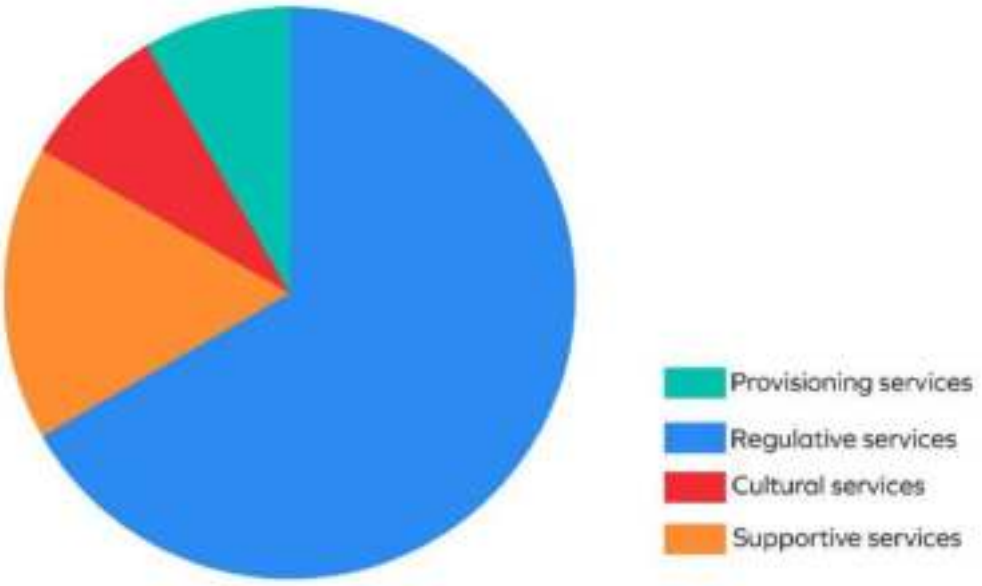

Figure 4.1. Economic contribution of various goods & services in TEV of Mangroves in India

Table – 4.3. Mangroves ecosystem service values - minimum, maximum, average and total ha/ yr/ Rs.

Service	Minimum	Maximum	Average
I. Provisioning service			
Fishery	790	88042	18177
Aquaculture	7619	7619	7619
Fuel and timber	418	36518	8531
Fodder	929	929	929
Honey collection	8	511	188
Medicinal uses	1022	1905	1464
II. Regulating service			
Protection function	4260	1994013	310437
Erosion prevention & soil accretion	15378	33126	19578
Water quality maintenance	12080	418372	254136
Carbon sequestration	116	61400	17923
Biodiversity & nursery ground support	929	99982	23625
Nutrient & soil formation support	47854	479698	263776
III. Cultural service			
Tourism	307	130462	27623
Bird nesting ground	Patch wise	Patch wise	Patch wise
Education	952	8567	4760
Total	**92,662**	**33,61,144**	**9,58,766**

Mangroves economic benefits through various services and functions of India are given in table 4.3. Accordingly, the regulatory service contribute maximum (Avg. Rs. 602074/- / yr/ha.) followed by support service (Rs. 287401/- / yr/ha.), provisional service (Avg.Rs. 36908/- / yr/ha.) and cultural service (Avg. Rs32383/- / yr/ha.), Chart – fig 6 describe various service contribution in economic values of mangroves services.

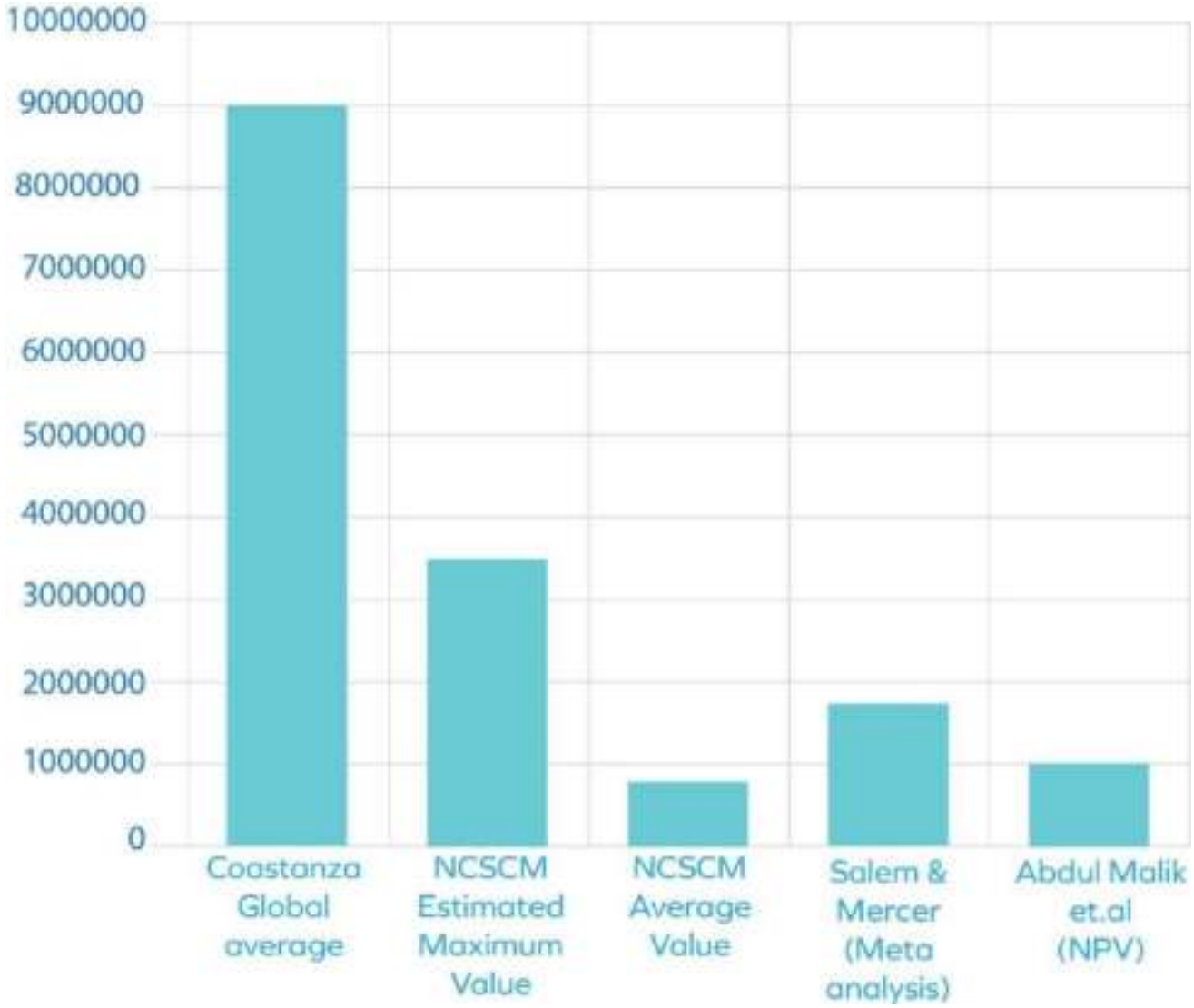

Figure 4.2. Comparative values - Present study and other significant international studies

Economic values of mangroves using global average estimate (Costanza. 2014), India's mangroves total value is 5062067723508 (506206 crore) Rs. /yr. Application of the maximum value estimated by this present study (NCSCM) for India mangroves is 1879210972021(187921 crore) Rs. / yr. Average value estimated from this study value the India's' mangroves at 536044746143(53604 crore) Rs. /yr. Chart fig 7 shows the comparative economic value given in various global studies and NCSCM study estimate. Among the coastal States and UTs, West Bengal has huge area (218209 ha.) of mangroves which shares 209211573934 (20921 crore)Rs. / yr. which is 39 % of total mangroves benefit out of National Green Account. State / UTs mangroves economic share in National Green Account is given in Table 4.4.

Table – 4.4. Total economic value of mangroves services Rs. / Yr.			
S. No	**State / Union Territories**	**Mangroves distribution - ha**	**Total Economic Value of Mangroves**
1.	Gujarat	142133.23	136272508720
2.	Maharashtra	31724.29	30416180101
3.	Goa	3288.07	3152498728
4.	Karnataka	1646.87	1578969328
5.	Kerala	2111.65	2024585519
6.	Diu & Daman	522.18	500650163
7.	Tamil Nadu	11909.55	11418474666
8.	Andhra Pradesh	50729	48637249507
9.	Odisha	26463	25371835947
10.	West Bengal	218209.21	209211573934
11.	Pondicherry	435.96	417981288
12.	Andaman & Nicobar Island	69925.55	67042238243
	Total	**559098.62**	**536044746143 (53604 crore)**

Table – 4.5. Mangroves – Indian Coastal Districts Patch wise valuation				
Sl. No.	**State / Union Territory**	**District**	**Mangroves distribution - ha.**	**TEV Value/year 2011 price**
1	**Gujarat**	Ahmedabad	5885.96	5643261424
2		Amreli	632.35	606278201
3		Anand	2822.22	2705846102
4		Bharuch	5698.17	5463213436
5		Bhavnagar	3507.9	3363251763
6		Devbhumi Dwarka	9161.58	8783808093
7		Gir Somnath	434.79	416860463
8		Jamnagar	20570.54	19722330311
9		Kachchh	34650.71	33221923298
10		Morvi	9963.29	9552466462
11		Navsari	2005.68	1922977727
12		Porbandar	111.21	106628745
13		Rann of Kachchh	42808.99	41043808467
14		Surat	3375.22	3236044817
15		Valsad	504.62	483809413
		Sub Total	**142133**	**136272508720**
16	**Maharashtra**	Mumbai city	255.84	245291887
17		Mumbai suburban	6430.48	6165326528
18		Ratnagiri	3176.43	3045448820
19		Raygad	13322.17	12772843138
20		Sindhudurg	1292.59	1239291928
21		Thane	7246.79	6947977799
		Sub Total	**31724.3**	**30416180101**
22	**Goa**	**North goa**	2809.86	2693998966

Table – 4.5. Mangroves – Indian Coastal Districts Patch wise valuation				
Sl. No.	State / Union Territory	District	Mangroves distribution - ha.	TEV Value/year 2011 price
23		South goa	478.22	458499762
		Sub Total	**3288**	**3152498728**
24	**Karnataka**	Dakshina Kannada	172.39	165282936
25		Udupi	368.02	352845224
26		Uttara Kannada	1106.47	1060841168
		Sub Total	**1646.88**	**1578969328**
27	**Kerala**	**Alappuzha**	138.68	132961302
28		Ernakulam	555.81	532893350
29		Kannur	914.23	876536143
30		Kasaragod	116.59	111784976
31		Kollam	79.45	76172216
32		Kottayam	0.87	832576
33		Kozhikode	114.87	110137565
34		Malappuram	59.43	56978556
35		Thiruvananthapuram	1.12	1075140
36		Trishshur	130.6	125213693
		Sub Total	**2111.65**	**2024585519**
37	**Tamil Nadu**	Cuddalore	1287.45	1234364804
38		Kanchipuram	3.25	3118541.574
39		Nagappattinam	2186.46	2096308262
40		Pudukkottai	407.17	390376030.5
41		Ramanathapuram	785.68	753287112.1
42		Thanjavur	3547.8	3401510329
43		Thiruvarur	2725.17	2612799946
44		Thoothukudi	545.21	522729094
45		Tiruvallur	132.86	127386420
46		Villupuram	288.49	276594126
		Sub Total	**11909.54**	**11418474666**
47	**Andhra Pradesh**	East godavari	19988.38	19164180894
48		Guntur	8470.08	8120827599
49		Krishna	20243.43	19408711957
50		Nellore	1143.57	1096413574
51		Prakasam	327.49	313989798
52		Srikakulam	215.77	206872794
53		Vishakhapatnam	227.53	218148488
54		West godavari	112.75	108104403
		Sub Total	**50729**	**48637249507**
55	**Odisha**	Baleshwar	791.62	758978801
56		Bhadrak	4979.1	4773788575
57		Jagatsinghapur	974.05	933885611
58		Kendraparha	19606.26	18797813467
59		Puri	111.99	107369493

Table – 4.5. Mangroves – Indian Coastal Districts Patch wise valuation				
Sl. No.	State / Union Territory	District	Mangroves distribution - ha.	TEV Value/year 2011 price
		Sub Total	**26463.02**	**25371835947**
60	**West Bengal**	North 24 parganas	196988.75	188866118181
61		Purba medinipur	764.16	732647231
62		South 24 parganas	20456.3	19612808522
		Sub Total	**218209.21**	**209211573934**
63	**UT**	Daman	117.14	112306130
64	**Diu & Daman**	Diu	405.05	388344033
		Sub Total	**522**	**500650163**
65	**UT Puducherry**	Karaikal	13.41	12856237
66		Mahe	2.63	2522244
67		Puducherry	27.96	26809857
68		Yanam	391.95	375792949
		Sub Total	**435.95**	**417981288**
69	**Andaman & Nicobar Islands**	Andaman & Nicobar Islands	69925.55	67042238243
		Sub Total	**69925.55**	**67042238243**
Total			**559098**	**536044746143** (53604 crore)

5 CONCLUSION

Mangroves are important productive ecosystems in the coastal areas. The India's' mangroves provide a range of non-market as well as marketed goods and services, both on and off-site. Mangrove products and services are often undervalued or even ignored in the economy, by industry and local inhabitants. Economic valuation of various benefits out of mangroves is a useful tool to support conservation and the decisions of mangrove ecosystem management and governance. Economic values of mangroves range between Rs. 92662/-/ha/yr. (minimum) and Rs. 3361144/-/ha/yr. (maximum) with an average total economic benefit of goods and services of mangroves to be Rs. 958766/ha-/yr. Application of the maximum value estimated by the present study (NCSCM) TEV of economic value of India mangroves amounts to 187921crore Rs. / yr. and average value estimated from this study arrives to Rs. 53604 crore Rs./yr. Among the coastal States and UTs, West Bengal has huge area (218209ha.) of mangroves which shares 20921crore Rs. / yr., economic value equivalent to about 39% of total mangrove benefit out of economic share in the National Green Account.

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Annexure-1

Mangroves – Services, Functions & Methods							
Sl. No	Year	Value estimation study	Location	Ecosystem Service		Ecosystem function in study	Methods
				Ecosystem Service	Ecosystem Sub-Service		
1.	1999	Ronnback	Global	Provisioning service	Fishery	Fishery (All mangrove)	Meta-analysis (Market Price)
2.	2000	Ronnback	Global			Fishery (All mangrove)	Meta-analysis (Market Price)
3.	2001	Ronnback	Global (developing countries)			Fishery (All mangrove)	Meta-analysis (Market Price)
4.	1992	Ruitenbeek	Indonesia			Fishery (On-site)	Shadow price
5.	1991	Schatz	Philippines			Fishery (On-site)	Market Price
6.	2007	Giselle & Alan	Philippines			Fishery (On-site)	Benefit transfer
7.	1989	Costanza et al.	US			Fishery (On-site)	Production function
8.	1986	Cabahug et al.	Philippines			Fishery (On-site)	Market Price
9.	1982	Christensen	Thailand			Fishery (On-site)	Gross revenue
10.	1990	Lal	Fiji islands			Fishery (On-site)	Market Price
11.	1990	Lal	Fiji islands			Fishery (On-site)	Market / Shadow price
12.	2011	Janis Hoberg	Kenya			Fishery (On-site)	Market Price
13.	2005	Gunawardena & Rowan	Sri Lanka			Fishery (On-site)	Gross revenue
14.	2008	Aburto-Oropeza etal.	Mexico			Fishery (Off-site fringe mangrove)	Production function (discounted values)
15.	1982	Christensen	Thailand			Fishery (Off-site)	Market Price
16.	1982	Christensen	Thailand			Fishery (Off-site)	Market Price
17.	1998	Sathirathai	Thailand			Fishery (Off-site)	Market Price
18.	2006	Ranasinghe & Kallesoe	Srilanka			Fishery (Off-site)	Market Price

Mangroves – Services, Functions & Methods							
Sl. No	Year	Value estimation study	Location	Ecosystem Service		Ecosystem function in study	Methods
				Ecosystem Service	Ecosystem Sub-Service		
19.	2015	UNEP	Vietnam			Fishery (Off-site)	Market Price
20.	2007	Barbier	Thailand			Fishery (Off-site)	Market Price
21.	2001	Sathirathai & Barbier	Thailand			Fishery (Off-site)	Net factor income /production function
22.	2002	Spurgeon	Egypt			Fishery (Off-site)	Market Price
23.	2007	Giselle &Alan	Philippines			Fishery (Individual group)	Market Price/ production function
24.	1998	Nielson et al	Vietnam			Fishery (Individual group)	Market Price
25.	1986	Cabahug et al	Philippines			Fishery (Individual group)	Market Price
26.	1999	Khalil	Pakistan			Fishery (Individual group)	Gross revenue
27.	1985	Kapestky	Egypt			Fishery (Individual group)	Market Price
28.	1986	Cabahug et al.	Philippines			Fishery (Individual group)	Market Price
29.	1986	Cabahug et al.	Philippines			Fishery (Individual group)	Market Price
1.	2003	Ronnback etal	India		**Aquaculture**	Shrimp spawner	Market Price/ production function
1.	2005	Gunawardena, M&J. S.	Sri Lanka		**Fuel & timber**	Firewood	Market Price
2.	2011	Janis Hoberg	Kenya			Fuel wood	Market Price
3.	1992	Ruitenbeek	Indonesia			Wood	Shadow price
4.	1998	Gilbert AJ & Janssen	Selected countries			Wood	Market Price
5.	2000	Tri	Vietnam			Wood product	Net factor income
6.	2015	UNEP	Vietnam			Timber & firewood	Market Price/ net factor income

Mangroves – Services, Functions & Methods							
Sl. No	**Year**	**Value estimation study**	**Location**	**Ecosystem Service**		**Ecosystem function in study**	**Methods**
				Ecosystem Service	**Ecosystem Sub-Service**		
7.	2016	UoN & UNEP	Kenya			Fire wood & charcoal	Market Price
8.	1998	Cabrera et.al	Mexico			Charcoal	Net Revenue
9.	1982	Christensen	Thailand			Charcoal	Market Price
10.	2016	UoN & UNEP	Kenya			Building materials	Market Price
11.	1998	Sathirathai	Thailand			Forestry products	Cost benefit analysis
12.	1990	Lal	Fiji			Forestry products	Gross revenue
13.	2000	Tri	Vietnam			Thatch	Net factor income
1.	2002	James Spurgeon	Egypt		**Fodder**	Fodder	Substitute product pricing
1.	2015	Sundarban tiger reserve.org	India		**Honey collection**	Honey	Market Price
2.	1998	Tri et.al	Vietnam			Honey	Market Price
3.	2016	UoN & UNEP	Kenya			Honey	Market Price
1.	1992	Ruitenbeek	Indonesia		**Medicinaluses**	Medicine	Market Price
2.	1997	Bann	Cambodia			Medicine	Gross revenue
1.	2009	Verma & Das et.al	India	**Regulating service**	**Protection function**	Storm Protection	Avoided mortality
2.	2007	Barbier et.al.	Thailand			Storm protection	Expected damage function
3.	2003	Batagoda	Srilanka			Storm protection	Benefit transfer
4.	2003	Ruchi Badola et.al	India			Storm protection	Damage cost avoided
5.	2005	Gunawardena et.al	Srilanka			Erosion control / Storm protection	Replacement cost
6.	2009	Saudamini Das	India			Storm Protection. ..	Damage cost avoided
7.	2012	Piyashi DebRoy	India			Storm Protection	Surrogate pricing method

Mangroves – Services, Functions & Methods							
Sl. No	Year	Value estimation study	Location	Ecosystem Service		Ecosystem function in study	Methods
				Ecosystem Service	Ecosystem Sub-Service		
8.	2009	Barbier et.al.	Thailand			Flood protection	Benefit transfer & net present value
9.	2016	UoN & UNEP	Kenya			Flood protection	Choice experiments approach
10.	1998	Sathirathai	Thailand			Coastline protection & Stabilization service	Cost benefit analysis
11.	2001	Sathirathai & Barbier	Thailand			Coastline protection	Replacement cost
12.	2016	UoN & UNEP	Kenya			Shoreline protection	Choice experiments approach
13.	2006	IUCN	Srilanka			Shoreline protection	Damage cost avoided
14.	2011	Janis Hoberg	Kenya			Shoreline protection	Damage cost avoided
15.	2006	Ranasinghe et.al & IUCN	Srilanka			Protection service	Damage cost avoided
16.	1997	Costanza	Global			Disturbance regulation	Contingent valuation
17.	2012	Salem and Mercer	Global			Coastal protection	Meta-analysis
18.	2015	UNEP	Vietnam			Coastal protection	Expected Damage Function
1.	2007	Giselle & Alan	Philippines		**Erosion prevention & soil accretion**	Erosion prevention	Benefit transfer
2.	1992	Ruitenbeek	Indonesia			Erosion prevention	Damage cost avoided
3.	1982	Christensen	Thailand			Erosion prevention	Substitute Market price
4.	2014	Mark Huxham et.al	Kenya			Shoreline protection	Benefit transfer
1.	1990	Lal	Fiji islands		**Water quality maintenance**	Nutrient filtering	Alternative cost approach

Mangroves – Services, Functions & Methods							
Sl. No	Year	Value estimation study	Location	Ecosystem Service		Ecosystem function in study	Methods
				Ecosystem Service	Ecosystem Sub-Service		
2.	2010	Harahab	Indonesia			Seawater intrusion prevention	Annual benefit value
3.	2015	Abdul Malik et.al	Indonesia			Seawater intrusion prevention	Replacement cost /benefit transfer
1.	2003	Chumra et.al.	Global		**Carbon sequestration**	Carbon sequestration	Global carbon sequestration rate
2.	2016	UoN & UNEP	Global			Carbon sequestration	Global Market price
3.	2012	Salem & Mercer	Global			Carbon sequestration	Meta-analysis
4.	2015	UNEP	Kenya			Carbon sequestration	Market price
5.	1998	Sathirathai	Thailand			Carbon sequestration	Replacement Cost
6.	2015	Abdul Malik et.al	Indonesia			Carbon sequestration	Benefit transfer
7.	2011	Janis Hoberg	Kenya			Carbon sequestration	Benefit transfer
8.	2001	De Lopez et.al	Cambodia			Carbon sequestration	Market price
9.	2012	Piyashi DebRoy et.al	India			Carbon sequestration	Surrogate pricing & replacement cost
1.	1993	Bennet & Reynolds	Malaysia	**Cultural service**	**Tourism**	Tourism	Factor Income / Production Function
2.	2015	UNEP	Kenya			Tourism	Travel cost
3.	2010	Janis Hoberg	Kenya			Tourism	Travel cost
4.	2009	Kairo et.al	Costa Rica			Tourism	Market price, Net Income
5.	2012	Piyashi DebRoy et.al	India			Tourism	Factor Income/

Mangroves – Services, Functions & Methods							
Sl. No	Year	Value estimation study	Location	Ecosystem Service		Ecosystem function in study	Methods
				Ecosystem Service	Ecosystem Sub-Service		
							Production Function (Travel cost)
7.	2016	UNEP	Kenya			Tourism	Travel cost
1.	2017	NCSCM	India		**Bird nesting ground**	Bird nesting ground	Benefit transfer (meta-analysis)
1.	2011	Janis Hoberg	Kenya		**Education**	Research	Benefit transfer
2.	2016	UoN & UNEP	Global			Research	Choice experiments approach
1.	1992	Ruitenbeek	Indonesia	**Supporting service**	**Biodiversity & Nursery ground support**	Biodiversity	International agriculture benefit transfer
2.	2007	Giselle & Alan	Philippines			Biodiversity	Benefit transfer
3.	2016	UoN & UNEP	Global			Biodiversity	Choice experiments approach
4.	2015	Abdul Malik et.al	Indonesia			Nursery service	Replacement cost/ benefit transfer
5.	2007	Giselle & Alan	Philippines			Nursery service	Benefit transfer
6.	2016	UNEP	Kenya			Nursery service	A choice experiments approach
1.	2012	Jonathan et.al	Global		**Nutrient & soil formation support**	Oyster Nutrient retention	Benefit transfer
2.	2003	Badola, R., Hussain	India Bhitarkanika			Nutrient retention	Market price

Annexure-2

Nestinggrounds of bird table:

No of overlapped nesting grounds of birds patches	State	Overlapped patch	Total economic value	Nesting grounds of birds (mangroves) distribution - ha
1	Gujarat	Khijadia Bet	251122925	982.4
1	Maharastra	Madangad	2865855	11.1
14	Tamil Nadu	Muthupet Mangrove	1455720428	5696.3
28	Tamil Nadu	Pichavaram Mangrove	297580310	981.8
1	Andhra Pradesh	Pulicat Lake	25684603257	99387.4
5	Odisha	Bhitarkanika Mangrove	18629029969	72397.4
1	West Bengal	Sajenkhali	11037918810	43092.5
3	West Bengal	Sagar Island	69859034	273.3
1	West Bengal	Sunderbans	55750075364	217787.3
1	West Bengal	Bulcherry Island	551558468	2158.2
30	Andaman & Nicobar	Hanspuri	1549664260	6061.4
1	Andaman & Nicobar	Car Nicobar Island	122463199	479.1
1	Andaman & Nicobar	Chidiya Tapu	5019762	19.6
1	Andaman & Nicobar	Henry Lawrence Island	1393210208	5450.7
1	Andaman & Nicobar	Interview Island	2624602822	10253.3
1	Andaman & Nicobar	Mahatma Gandhi Marine National Park	7820397864	30601.7
1	Andaman & Nicobar	Montgommery Island	6363398	20.4
1	Andaman & Nicobar	Passage Island	328604698	1283.8
1	Andaman & Nicobar	Petrie Island	3112941	12
1	Andaman & Nicobar	Reef Island	17435299	68.2
1	Andaman & Nicobar	Reing-Reing	169378139	662.7
1	Andaman & Nicobar	Rafters Creek	162119381	600.9
1	Andaman & Nicobar	Shearme Island Wildlife sanctuary	3859425	15.1
1	Andaman & Nicobar	Trinkut	328598504	1285.3
99			**128265164320 (12826 crore)**	**499583.2 ha**

Annexure-3

Physical flow of mangroves ecosystem service					
S.No	**Ecosystem services**	**Production Capacity / ha /yr**	**Value / ha**	**Source**	**Country**
1	**Provisioning service**				
1.1	**Fishery**	1,100 kg to 11,800 kg / ha	900-12400 $	Ronnback (2000)	Indonesia
		90 - 225 kg / ha	94 $	Kapestky (1985)	Egypt
		10 – 50 kg / ha	30 – 150 $	Spurgeon (2002)	Egypt
		32 kg / ha (22.1538 tons / 620 ha)	44 $	Janis Hoberg (2011)	Kenya
		164 kg / ha (36 tons / 200 ha)	493 $	Gunawardena and Rowan., (2005)	Srilanka
		349 kg / ha (24020 tons / 62436 ha)	50 $	UNEP (2015)	Vietnam
		3577 kg / ha (on & off shore) 1739 kg / HH 144 tot HH	4,861 - 12,964 $	Ranasinghe and Kallesoe (2006)	Srilanka
		8655 kg / ha (on & off shore) 3462000 kg / 400 ha	21- 69 $	Sathirathai and Barbier (2001)	Thailand
		147 - 331 kg / ha	60-240 $	Lal (1990)	Fiji islands
	Crustaceans, Penaeid shrimp	16–165 kg / ha	112-1155 $	Ronnback (1999)	Indonesia
		13–756 kg / ha	91-5292 $	Turner (1977)	Worldwide survey
		515 kg / ha	3.605 $	Gedney et al. (1982)	Peninsular malaysia
		130-350 kg / ha	910-2450 $	Pauly and ingles (1986)	Philippines
		161 kg / ha	1.127 $	Naamin (1990)	Java, Indonesia
		18 kg / ha	126 $	Ruitenbeek (1994)	Irian jaya, Indonesia
		670 kg / ha	4.690 $	Singh et al. (1994) chan et al. (1993)	Perak, Malaysia
		274 kg / ha	1.918 $	Hambrey (1996)	Sumatra, Indonesia
	Suggested shrimp	63 kg / ha	19 $	Gedney (1982)	Peninsular malaysia
		29 kg / ha	9 $	FAO (1998), Spalding et al., (1997)	Malaysia
		113 kg / ha	34 $	FAO (1998), Spalding et al., (1997)	Philippaines

Physical flow of mangroves ecosystem service					
S.No	**Ecosystem services**	**Production Capacity / ha /yr**	**Value / ha**	**Source**	**Country**
		89 kg / ha	27 $	FAO (1998), Spalding et al., (1997)	Thailand
	Mangrove mud crab	34 kg / ha	102 $	Hill (1975)	Kowie, south africa
		13 kg / ha	39 $	Christensen (1982)	Chanthaburi, Thailand
		15 kg / ha	45 $	Gedney et al (1982)	Peninsular Malaysia
		17 kg / ha	51 $	Macintosh (1982)	Andrah Pradesh, India
		17-23 kg / ha	51-69 $	Sivasubramaniam and Angell (1992)	India, Madagaskar, Thailand
		64 kg / ha	352 $	Naylor and Drew (1999)	Kosrare, micronesia
	Fish	549 kg / ha	549 $	Gedney et al. (1982)	Peninsular Malaysia
		257 kg / ha	475 $	Lal (1990)	Fiji
		5.840 kg / ha	5330 $	Morton (1990)	Queenslan d, Australia
		900 kg / ha	713 $	Singh et al (1994). Chan et al (1993)	Perak, Malaysia
	Molluscs _ Blood Cockles	500-750 kg / ha	140-210 $	Macintosh (1982)	Perak Malaysia
	Edible Molluscs	979 kg / ha	274 $	NRMC and NMC (1986)	Negros Oriental, Philippines
1.2	**Aquaculture**	0.8-1.5 kg / ha	92-184 $	Ronnback (2003)	India
1.3	**Fuelwood and timber function**	1.2 kg / ha	24 $	gunawardena M .J. S. Rowan (2005)	Sri lanka
		1.5 kg / ha	164–235 $	UNEP (2015)	Vietnam
		13200 bundles / yr (21 bundles / ha)	16.8 $	Janis Hoberg (2011)	Kenya
		1 - 12 m3 / ha	30 $	Christensen (1982)	Thailand
1.4	**Fodder function**	4.5 kg/household/day	16.15 $	James spurgeon (2002)	Egypt
1.5	**Honey Collection**	47,412 kgs / Sunderban tiger reserve (0.11 kg/ ha)	11 $ (Rs)	Sundarban tiger reserve data (2015)	India
		0.2 kg/ha	4-5 $	Tri et al (1998)	Vietnam

Physical flow of mangroves ecosystem service					
S.No	**Ecosystem services**	**Production Capacity / ha /yr**	**Value / ha**	**Source**	**Country**
1.6	**Medicinal uses**	-	0.1 - 60 $	Ruitenbeek (1992), Bann (1997)	Indonesia
2	**Regulation service**				
2.1	**Protection Function**	Avoided mortality method - 0.0148 lives saves / ha 11.7 million rupees / life saved (Orissa super cyclone)	173333 Rs	Verma & Das et.al (2009)	India
		Replacement cost analysis - costs incurred to have erosion control and/or storm-control structures such as sea walls, revetments, or groins / km = study area km value / mangrove ha	300 $	Gunawardena et.al (2005)	Srilanka
		Replacement cost analysis - 1 mtr = 75 m width stand of mangroves., over 20 yrs period of annualized benefit	1800 $	Sathirathai (1998)	Thailand
		Replacement cost analysis - 1 mtr = 75 m width stand of mangroves., over 20 yrs period of 10% discount rate for annualized benefit	3000 $	Sathirathai & Barbier (2001)	Thailand
		Expected damage cost analysis change in 1 km2 mangrove area / yr = economic damages per coastal event / yr	3679 $	Barbier (2007)	Thailand
		Based on expected damage avoided value per ha from Barbier (2007) includes Net present value per ha (10–15% discount rate)	11000 $	Barbier (2009)	Thailand

Physical flow of mangroves ecosystem service					
S.No	**Ecosystem services**	**Production Capacity / ha /yr**	**Value / ha**	**Source**	**Country**
		InVEST Coastal vulnarability model - Epected damage cost analysis Vulnerability index in the coastal area with presence of mangrove and without mangrove no. of disasters (8) dead/ missing (3) injured (2) destroyed houses (46) destroyed boats (4) / yr = mangrove area ha	742-756 $	UNEP (2015)	Vietnam
		Benefit transferred value / ha from (Das, S. 2007) storm protection by mangroves in orissa super cyclone	653.98 $	Kavi kumar et.al (2016)	India
		Expected damage cost analysis - 990 dead and injured people for 20 yrs = economic damages for 20 yrs coastal event Replacement cost analysis - costs incurred to sea dike system Restoration cost - plantation cost / ha	391816 $	Bann (1997)	Vietnam
		Actual damages avoided method per household - October 1999 cyclone - Eleven variables were used to compare damage in the villages (Damage to houses, Tree damage ,Damage to other personal property, Damage to livestock in money terms , Flooding in premises, Flooding in fields, Water logging in fields, Cost of repair and reconstruction, Yield (kg ha−1), Loss of fish seedlings, total quantifiable variables) one protected by mangroves one unprotected by	116.28 $	Ruchi Badola (2003)	India

Physical flow of mangroves ecosystem service					
S.No	**Ecosystem services**	**Production Capacity / ha /yr**	**Value / ha**	**Source**	**Country**
		mangroves possessing an embankment on its seaward side.			
		Epected damage cost analysis - D = d Vi Wi Pi Si where i represents the location (villages), Di is the damage suffered, Vi is velocity of wind, Wi is velocity of storm surge or the severity of flooding due to surge, Pi is population or property at risk and, Si is the group of socio-economic factors at the location using OLS & WLS estimate	51168 $(Rs)	Saudamini Das (2009)	Orrisha
		Surrogate pricing - The cost of constructing tsunami wall along the coast (pichavaram)	218181 8 Rs	Piyashi DebRoy (2012)	India
		Assuming 700 houses value, Likelihood of any severe weather event at the Kenyan coastline per year 5% Epected damage cost analysis - 5% value taken out of total value / Mangroves (ha)	91.7 $	Janis Hoberg (2011)	Kenya
		Epected damage cost analysis - loss of agricultural crops,human injuries, and loss of income during the period of disability	3300 – 9500 $	Ranasinghe et.al & IUCN (2006)	Srilanka
2.2	**Erosion prevention and soil accretion**	Based on agricultural output from local production	240 $	Ruitenbeek (1992)	Indonesia
		Benefit transferred value / ha from Tridoyo, 1998	672 $	Giselle & Alan (2007)	Philippines
		Coastline prevention value (CPV) CPV =	694 - 3767 $	Abdul Malik et.al (2015)	Indonesia

Physical flow of mangroves ecosystem service					
S.No	**Ecosystem services**	**Production Capacity / ha /yr**	**Value / ha**	**Source**	**Country**
		coastal length (m) ×cost of breakwater construction (USD)			
		Ref. protection function	-	Gunawardena et.al (2005), Barbier (2007),Barbier (2009), Ruchi Badola (2003)	
2.3	**Water quality maintenance**	32 ha mangrove land = cost incured for sewage treatment (oxidation ponds) sewerage volume cm3 / yr = cost of oxidation ponds 0.8 million (Green 1983)	5820 $	Lal (1990)	Fiji islands
		Replacement cost - Seawater intrusion prevention value (SwIPV) SwIPV = household population x number of water supply (gallon/day) × Price (USD/gallon) ×365 days (gallon/yr = mangrove area ha)	476 $	Abdul Malik et.al (2015)	Indonesia
2.4	**Carbon Sequestration**	1.5 tC / ha	***	Ong (1993)	Malaysia
		3.3 - 7.2 ton C / ha	30.50 $	Chumra et.al. (2003)	Global
		580 g / m2	-	Fujimoto (2000)	Japan
		2.27 ton C / ha	-	Lucy Emerton (2014)	Switzerland
		4.85 tC / ha	-	Lang'at et al., (2014)	
		3.67 tC / ha	325 $	UNEP (2015)	Vietnam
		15.1 tC/ ha	100 $	Sathirathai (1998)	Thailand
		15.1 tC/ ha	126 $	Janis Hoberg (2011)	Kenya
		2.8 tC/ ha	2 $	De Lopez et.al (2001)	Cambodia
		20 tC/ ha	3303000 $	Piyashi DebRoy et.al (2012)	India
		6.3 tC / ha	2614 $	Kavi kumar et.al (2016)	India
3	**Cultural services**				

Physical flow of mangroves ecosystem service					
S.No	**Ecosystem services**	**Production Capacity / ha /yr**	**Value / ha**	**Source**	**Country**
3.1	**Tourism**	1380 visitors / tot mangrove ha	6.5 $	Janis Hoberg (2010)	Kenya
		260000 visitors / tot mangrove ha	25 $	UNEP (2015)	Kenya
		911 visitors = tot mangrove ha	9.3 $	Kairo et.al (2009)	Costa Rica
		1lakh visitors , 25000 boats (3 - 4 trip per boat) 150 Rs / boat	143182 $	Piyashi DebRoy et.al (2012)	India
3.2	**Bird nesting ground patches**		patch wise *	NCSCM (Bird nesting ground value)	
3.3	**Education**	tot amount of funding for mangrove research 5 PhD , 9 Msc, 4 Bsc value / yr / tot mangrove area	114000 $	Janis Heberg (2011)	Kenya
4	**Supporting service**				
4.1	**Biodiversity and nursery ground support**	The Indian mangroves comprise approximately 59 species in 41 genera and 29 families. The species composition is varying between east coast, west coast and island mangroves.	-	Deshmukh (1991), ENVIS Centre (2002)	India
		Computed using diver's willingness-to-pay of $4 on Alona Beach, Panglao, Bohol and no.of divers during peak and lean months in the three municipalities	***	Giselle & Alan (2007), Arin & Kramer (2002)	Philippines
		Provision of nursery grounds value (PNGV) PNGV =loss volume of fish catch (kg/year) x fish price (USD/kg)/total loss of mangrove area during the period 2003–2011 (612 ha)	2292 $	Abdul Malik et.al (2015)	Indonesia
4.2	**Nutrient & soil Formation**	1 kg litter / m2	-	Mumby et al (2004)	Belize & Mexico
		143.5 Kg N/ ha (Nitrogen removal by oyster reef habitat)	10325 $	Jonathan et al (2012)	Global
		2907kg N , 28.1kg P, 1564.55kg K / ha	350 $	Badola , Hussain (2003)	India

Annexure-25

Photograph-1: Discussion of joint committee during its inspection at jetty of M/s JSW and mangrove areas near jetty.

Photograph-2: Discussion of joint committee during its inspection at jetty of M/s JSW and Dharamtar creek.

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Photograph-3: AAQM location no.1. i.e. near labour colony of M/s JSW Ltd., (North-eastern side of M/s JSW), Village Dolvi.

Photograph-4: AAQM location no.2 i.e. on roof top of residence of Shri Dilip Kothekar (South-eastern side of M/s JSW), Village Gadab.

Contd./-

Photograph-5: AAQM location no.3 i.e. Premises of K.E.S. Madhyamik Vidyamandir (Western side of M/s JSW), Village Shahabaj.

Photograph-6: Fugitive emission monitoring near coke oven plant-1 (near quenching tower).

Contd./-

Photograph-7: Fugitive emission monitoring near coke oven plant-1 (near coke pushing side).

Photograph-8: Grab effluent sampling from ETP of coke oven plant-1 of M/s JSW.

Contd./-

Photograph-9: Grab sampling from natural creek passing through M/s JSW.

Photograph-10: Sealing of grab effluent samples collected at M/s JSW during joint committee inspection.

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Photograph-11: Designated area for storage of slag generated from steel melting shop (i.e. from electric arc furnace and ladel furnace).

Photograph-12: Municipal solid waste dumped along the conveyor belt, witin 50 m mangrove buffer area by the gram panchayats viz. Dolvi and Wadkal.

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Photograph-13: Aerial view depciting destruction of mangroves and illegal dumping of municipal solid waste by the gram panchayats viz. Dolvi and Wadkal.

Photograph-14: Aerial view depciting destruction of mangroves and illegal dumping of municipal solid waste by the gram panchayats viz. Dolvi and Wadkal.

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Photograph-15: Aerial view depciting destruction of mangroves and illegal dumping of municipal solid waste by the gram panchayats viz. Dolvi and Wadkal.

Photograph-16: Repairing & augmentaion of damaged kharbandasti bund by M/s JSW using slag generated from steel melting shop (i.e. from electric arc furnace and ladel furnace) to prevent ingress of creek water into adjacent agricultural/pvt. lands.

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Photograph-17: Stretch of natural creek passing though M/s JSW premises (certain stretch reported with loss of area of natural creek by NCSCM & MRSAC based on time series satellite image analysis).

Photograph-18: Stretch of natural creek passing though M/s JSW premises (certain stretch reported with loss of area of natural creek by NCSCM & MRSAC based on time series satellite image analysis).