BEFORE THE HONOURABLE NATIONAL GREEN TRIBUNAL

WESTERN ZONE BENCH, PUNE

IN

APPEAL NO. 60 OF 2026 (WZ)

IN THE MATTER OF:

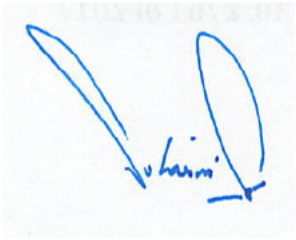
KAMALAKAR PARSHURAM PATIL & 3 ORS …APPELLANTS

Versus

UNION OF INDIA & ANR …RESPONDENTS

INDEX

THROUGH



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New Delhi

Date: 01.07.2026

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

WESTERN ZONE BENCH, PUNE

APPEAL NO.60 OF 2026 (WZ)

IN THE MATTER OF: -

Kamalakar Parshuram Patil & 3 Ors. **...Appellants**

Versus

Union of India & Anr. **... Respondent(s)**

REPLY AFFIDAVIT ON BEHALF OF MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE (RESPONDENT NO. 1)

MOST RESPECTFULLY SHOWETH: -

I, E. Thirunavukkarasu S/o M. Elangovan, aged about 59 years, presently working as Scientist 'F' at the Ministry of Environment, Forest & Climate Change (MoEF&CC), Regional Office, Ground Floor, East Wing, New Secretariat Building, Civil Lines, Nagpur, do solemnly affirm and declare as under: -

1. That I, in my official capacity of Scientist 'F' in the Ministry Environment, Forest and Climate Change, Regional Office (WCZ) i.e. Respondent No. 1 in the above-mentioned matter, am authorized to swear this Affidavit.

2. That the instant reply is being filed by the Answering Respondent without prejudice to his right to file a fuller and more detailed reply at a later stage, if so necessary.

3. That the Appellants, in the present Appeal, has sought directions quashing the Environmental Clearance (EC) dated 11.01.2026 granted by Respondent No. 1 - MoEF&CC in favour of Respondent No. 2 M/s JSW Steel Limited (JSWSL) for its integrated steel plant at Dolvi for enhancement of production capacity of steel from 10 MTPA to 15 MTPA under entry 3(a) of the EIA Notification, 2006. The Appellants have alleged that the impugned EC was granted illegally by segmenting various interconnected and interrelated projects in violation of Office Memorandum (O.M.) dated 24.12.2010.

4. At the outset, it is respectfully submitted that the allegations raised by the Appellants are erroneous, misconceived and based on an

incorrect interpretation of the Office Memorandum dated 24.12.2010.

5. That the O.M. dated 24.12.2010 lays down the procedure for appraisal of integrated and inter-linked projects and specifically provides that while a common Environmental Impact Assessment (EIA) may be undertaken to assess cumulative environmental impacts, individual project components are required to be appraised separately by the respective sectoral Expert Appraisal Committees (EACs) and processed independently for grant of Environmental Clearance. Thus, the framework itself envisages sector-specific appraisal and separate clearances while ensuring that cumulative environmental impacts are duly assessed.

6. In the present case, primarily two separate projects are involved, namely:

a. Expansion of the Integrated Steel Plant by M/s. JSW Steel Ltd.; and

b. Expansion of the Dharamtar Port Jetty by M/s. JSW Dharamtar Port Private Ltd.

Additionally, there are Linear Facilities, namely conveyors, pipelines, and bridges by M/s. JSW Steel Ltd .

The Appellants' contention that a composite application ought to have been filed overlooks the fact that the expansion of the Integrated Steel Plant itself does not involve any Coastal Regulation Zone (CRZ) area and therefore required only Environmental Clearance.

The Linear Facilities, being in the nature of conveyors, pipelines and bridges, did not attract the requirement of prior Environmental Clearance under the EIA Notification, 2006. However, as portions of such facilities fall within CRZ areas, prior CRZ Clearance was required and the same was duly obtained by the Project Proponent from MoEF&CC vide F. No. 11/1/2025-IA.III dated 19.11.2025.

This fact was specifically brought to the notice of the Expert Appraisal Committee (EAC) at the Terms of Reference (ToR) stage itself. The ToR issued for the Plant's expansion expressly mentions the necessity of obtaining CRZ clearance, demonstrating that the Impugned EC was not granted without considering the requirement of CRZ clearance.

7. It is pertinent to submit that the Plant is located outside the CRZ area, whereas the Linear Facilities are situated partly within CRZ areas.

8. That the contention of the Appellants regarding applicability of the O.M. dated 24.12.2010 requiring disclosure of inter-linked projects is misconceived and inapplicable to the Environmental Clearance granted for expansion of the Integrated Steel Plant. It is submitted that while seeking Environmental Clearance for expansion of the Integrated Steel Plant capacity from 10 MTPA to 15 MTPA at Dolvi Village, Raigad District, Maharashtra, the Project Proponent submitted its application dated 23.10.2025. In Form-I submitted along with the proposal for grant of Terms of Reference (ToR), the Project Proponent specifically declared that no inter-linked or inter-dependent project formed part of the proposal.

*(A copy of the said Form-I is annexed herewith and marked as "**Annexure–R1/1**").*

9. It is submitted that operability of the Plant is not intrinsically dependent upon operability of the Dharamtar Jetty, nor vice versa. The Plant is capable of receiving raw materials and dispatching finished products through alternative transport mechanisms including road and rail, independent of the jetty.

Similarly, the Dharamtar Jetty is capable of and presently operates independently by handling cargo for third-party users.

Accordingly, the relationship between the Plant and the Jetty is one of commercial convenience and logistical preference and not one of functional or scientific dependence as contemplated under the O.M. dated 24.12.2010.

10. It is further submitted that the Dharamtar Jetty cannot be construed as an exclusively captive facility of the Integrated Steel Plant.

The Pre-Feasibility Report demonstrates that, in addition to handling cargo for captive requirements of steel and cement plants (approximately 50.5 MTPA), the Jetty is proposed to handle approximately 6.5 MTPA of third-party cargo including POL, LPG, edible oil, chemicals, containers, fertilizers, FRM and gypsum, serving a wider industrial hinterland across Maharashtra and adjoining States. This establishes that the Jetty is conceived and designed as a multi-user and multi-commodity logistics facility and not merely as an ancillary facility to the Plant.

11. Further, the Pre-Feasibility Report indicates that the Jetty performs a broader regional logistics function by facilitating movement of cargo to hinterland regions including Maharashtra, Madhya Pradesh, Gujarat, Telangana and Andhra Pradesh through inland waterways, road and pipeline networks.

The diversity of cargo and participation of multiple third-party users further reinforce the independent commercial and functional character of the Jetty.

*(A copy of the Pre-Feasibility Report is annexed herewith and marked as "**Annexure–R1/2".)***

12. It is also submitted that the proposed Jetty expansion is being undertaken within the already approved Jetty footprint of 1750 metres and existing land area without requirement of additional land and primarily involves mechanization and augmentation of handling capacity. This further demonstrates that the Jetty expansion is a distinct infrastructure project governed by separate operational and environmental considerations.

13. It is submitted that the Environmental Clearance for the proposed Jetty expansion is presently under appraisal and no final Environmental Clearance has yet been granted. The proposal remains under consideration of the Expert Appraisal Committee (EAC) and shall be decided only after due diligence, technical examination and consideration of all environmental aspects including cumulative impacts and interlinkages in accordance with the EIA Notification, 2006 and applicable guidelines.

14. With regard to the allegation of "segmented clearance", it is submitted that mere functional linkage between projects does not render them legally indivisible. The Pre-Feasibility Report itself establishes that the Jetty is designed as a multi-purpose port facility handling diverse cargo streams beyond the Steel Plant. Therefore, appraisal as a separate project is fully justified under the EIA Notification, 2006. Infrastructure facilities such as jetties, conveyors and logistics systems are routinely appraised under their respective sectors based on prescribed thresholds and environmental considerations.

15. That it is respectfully submitted that the Integrated Steel Plant and the Dharamtar Jetty are owned and operated by separate and independent entities, namely JSW Steel Ltd. and JSW Dharamtar Port Private Ltd., respectively.

16. Accordingly, the allegations regarding violation of the O.M. dated 24.12.2010 and grant of Environmental Clearance in a segmented manner are premature, misconceived and liable to be rejected.

17. That the Answering Respondent respectfully submits that the environmental impacts of the project have been duly examined, and

appropriate safeguards and conditions have been imposed on the project proponent through the Environmental Clearance.

18. That, in light of the foregoing submissions, it is humbly prayed that this Hon'ble Tribunal may be pleased to pass such order(s) as may be deemed fit and proper in the interest of justice.

DEPONENT
(ई. थिरुनावुक्करसु)
(E. Thirunavukkarasu)
वैज्ञानिक 'एफ' / Scientist 'F'
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Min. of Environment, Forest and Climate Change
क्षे.कार्यालय, नागपुर-४४०००१
Regional Office, Nagpur-440001

VERIFICATION

Verified at Nagpur on this 30th day of June, 2026 that the contents of this affidavit based on official record(s) maintained and information available in the office are true and correct, no part of it is false and nothing has been concealed therefrom.

SWORN BEFORE ME ON THIS 30th
DAY OF June 2026 AT NAGPUR BY
SHRI/SMT./KU Kamalakar Patil & E Thirunavukkarasu
R/O. NAGPUR WHO HAS BEEN IDENTIFIED
BY SHRI SMT. Sandhya R. Awale
ADVOCATE, NAGPUR

SANDHYA R. AWALE
NOTARY
NAGPUR DIST. (M.S.) INDIA

DEPONENT
(ई. थिरुनावुक्करसु)
(E. Thirunavukkarasu)
वैज्ञानिक 'एफ' / Scientist 'F'
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Regional Office, Nagpur-440001

NOTARY SANDHYA R. AWALE Dist. Nagpur (M.S.) INDIA Regd. No. 28758 My Term Expires on 19-12-2029 GOVT. OF INDIA

NOTARY SANDHYA R. AWALE Dist. NAGPUR (M.S.) INDIA Regd. No. 28758 GOVT. OF INDIA

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Project Name:	Expansion of Integrated Steel plant Capacity from 10.0 MTPA to 15 MTPA at JSW Steel Ltd., Dolvi Works located at Dolvi village, Raigad District, Maharashtra	**Single Window Number:**	SW/145693/2023
		Proposal Number:	IA/MH/IND1/553173/2025
State:	MAHARASHTRA	**Current Status:**	EC Granted
Submission Date:	23/10/2025	**Project Category:**	A
Sector:	IND1	**Proposal For:**	Expansion EC
Project Proponent Name:	JSW STEEL LIMITED		

Application for ToR (Category A, B1, and B2 Violation)/EC (Category B2) - Form 1

Basic Information

1. Category of the Project/Activity

1.1. Name of the project proposal	Expansion of Integrated Steel plant Capacity from 10.0 MTPA to 15 MTPA at JSW Steel Ltd., Dolvi Works located at Dolvi village, Raigad District, Maharashtra	
1.2. Type of Proposal	Expansion	
1.2.1. Whether proposal expansion is made under 7 (ii) (a)?	No	
1.3. Whether the Project Activity (Construction/ Operation) has been undertaken without obtaining **prior** Environmental Clearance under the provision of EIA Notification 1994/ 2006?	No	
1.4. Whether multiple items (Components) as per the notification involved in the proposal? Yes		
1.4.1. Item No. as per schedule to EIA Notification, 2006 for Major Activity	3(a) Metallurgical Industries (ferrous and non ferrous)	N/A
Capacity	15	MTPA

1.5. Item No. as per schedule to EIA Notification, 2006 for Minor Activity

Activity	Sub Activity	Capacity	Unit
1(d) Thermal Power Plants	Naphtha/ Gas based plants	300	MW

2. Whether project/activity attracts the General Condition specified in the Schedule of EIA Notification?	No
3. Whether any Protected Areas Notified Under the Wild Life (Protection) Act, 1972 are located within 10 km of the project site	No
4. Whether any Severely Polluted Areas as identified by the CPCB from time to time located in proximity to the project site	No
5. Whether any Critically Polluted Areas as identified by the CPCB from time to time located in proximity to the project site	No
6. Whether any Notified Eco-Sensitive area notified under Environmental (Protection) Act, 1986 located in proximity to the project site	No
7. Whether any Inter-State Boundaries and International Boundaries located in proximity to the project site	No
8. Whether any Eco-sensitive Zone notified/proposed to be notified under Environment (Protection) Act, 1986 located within 10 km of the project site	No
9. Whether any forest land present within 10 km of the project site	Yes
9.1. Whether located within/outside Forest land	Outside

Name of Forest	Shortest distance from the project boundary in Km	Remarks
RF Near Navegaon/ Karawikhar Village	0.7	East

10. Category of the Project as per EIA Notification, 2006	A
11. Whether Proposal has interlinked / interdependent projects or activities?	No
11.1. Reason thereof	No interlinked or interdependant project is proposed as part of the proposal.
12. Whether any Forest Land involved in the project or part thereof	No
13. Whether NBWL recommendation is required?	No

14. Land Acquisition Details

Type of Land	In case of non-forest land, please specify	Type of privately owned land	Type of land ownership	Supporting documents			Status of Land Acquisition
				Document Name	Remarks	Document	
Non-forest Land	Privately owned land	Industrial	N/A	7/12	Land ownership document	kharghat 2.1.pdf **Preview**	Acquired

Project Details

15. Details of Earlier EC/CTE/CTO of Existing Projects

15.1. Whether Environment Clearance available for the existing project / activity?	Yes
15.1.1. Proposal No.	IA/MH/IND/117746/2012
15.1.2. Date of environmental clearance	16/06/2020
15.1.3. MoEFCC / SEIAA File Number	J-11011/76/2013- IA.II(I)
15.1.4. Upload EC Letter (in pdf)	EC letter_2020_rp.pdf
15.1.5. Whether any amendment / corrigendum / transfer to the earlier EC has been obtained?	Yes

S.No.	Select (Amendment / Corrigendum / Transfer)	Date of (Amendment / Corrigendum / Transfer)	Upload (Amendment / Corrigendum / Transfer) to the earlier EC
1.	Transfer	22/11/2021	EC transfer 2021.pdf

15.1.5.1. Brief note on the chronology of the clearances and subsequent amendments / corrigendum / transfer, if any	EC Chronology_n.pdf
15.1.6. Status of Implementation of Project or Activity	Project is operational for partial components/units envisaged in the EC

S. No.	Reference Number of consent to establish obtained from SPCB / UTPCC	Date of consent to establish issued	Validity of consent to establish (Valid up to)	Copy of consent to establish order

S. No.	Reference Number of latest consent to operate obtained from SPCB / UTPCC	Date of latest consent to operate issued	Validity of latest consent to operate (Valid up to)	Copy of latest consent to establish order

EC	CTE	CTO	Details of Unimplemented units	Remarks
Project is operational for partial units/ components envisaged in the EC	CTE for 10 MTPA has been obtained from MPCB on 07.02.2018	CTO for 10 MTPA is valid till 30.04.2028	SIP(2 MTPA),COB(0.5 MTPA),Plate mill(5 MTPA),CRM(2.5 MTPA),CRGO(0.4 MTPA),CCL(0.5 MTPA),CPP-Gas based(70 MW+300 MW)	Integrated Steel Plant at 10 MTPA capacity is under operation

16. Whether the project/activity located in Notified Industrial Area?	No
17. Whether the project/activity located in CRZ or ICRZ area?	No
18. Whether the project proposed to be located in Territorial waters (Off-shore)	No
19. Whether project/activity attracts the Specific Condition specified in the Schedule of EIA Notification?	No

Product Details

20. Details of Products & By-products

Name of Product	Product / By Product	Quantity / Capacity				Mode of Transport / Transmission	Remarks
		Existing	Proposed	Total	Unit		
Re- bars/Slabs	Product	1400000	0	1400000	Tons per Annum (TPA)	Combination of two or three modes	Transport via Rail/road
Cold rolled products (as on demand)	Product	0	2500000	2500000	Tons per Annum (TPA)	Combination of two or three modes	Transport via Rail/road
Heavy oil/Light oil/Mix oil	By-Product	37050	0	37050	Tons per Annum (TPA)	Combination of two or three modes	Transport via Rail/road
Billets (for sale)	Product	0	71508	71508	Tons per Annum (TPA)	Combination of two or three modes	Transport via Rail/road
Hot rolled Galvanized products (as on demand)	Product	1200000	0	1200000	Tons per Annum (TPA)	Combination of two or three modes	Transport via Rail/road
Carbon black	By-Product	57616	0	57616	Tons per Annum (TPA)	Combination of two or three modes	Transport via Rail/road
Crude Tar	By-Product	177787	0	177787	Tons per Annum (TPA)	Combination of two or three modes	Transport via Rail/road
Crude BTX	By-Product	20468	0	20468	Tons per Annum (TPA)	Combination of two or three modes	Transport via Rail/road
Sulphur	By-Product	8500	0	8500	Tons per Annum (TPA)	Combination of two or three modes	Transport via Rail/road
CSP /HRM	Product	3500000	4500000	8000000	Tons per Annum (TPA)	Rail	

21. Whether any other Environmental Sensitive area exists within 10 Km from the project/activity boundary?	Yes
21.1. Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	No
21.2. Areas which are important or sensitive for ecological reasons- Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	Yes

Name	Shortest distance from the project boundary in Km	Remarks
Reserve Forests, Coastal a reas with mangroves, Dams & ponds, river and creek within study area	0.1	RF near Navegaon,Nigadi Nadi,Hemnagar,Ramraj&Kamarle at >0.5km, mangrove plantation in Intertidal zone of R. Amba & Bhogeshwar at >5km, Sreegaon,Teenvira,Nigade,Hetavne&Kurdus Dam,Hetavne Right Bank Canal at >2.5km, Rivers Amba,Bhogeshwar,Nigade Nadi at >O.lkm with Dharamtar Creek at >14km.
21.3. Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, overwintering, migration	Yes	
Name	Shortest distance from the project boundary in Km	Remarks
Coastal land with mangroves, Dharamtar Creek, Amba river, Dams, RFs etc	0.1	Mangroves found in coastal areas; marine fauna found in tidal rivers (Amba). Detailed Ecological survey to be included in EIA-EMP study
21.4. Inland, coastal, marine or underground waters	Yes	
Name	Shortest distance from the project boundary in Km	Remarks
Part of Arabian Sea, Dharamtar Creek, tidal rivers Amba&Bhogeshwar etc	0.1	Arabian sea at 18km W & Dharamtar Creek at 14km NW, R. Amba at 0.1 km W of project site
21.5. Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	Yes	
Name	Shortest distance from the project boundary in Km	Remarks
SH- 88 & N NH- 66 highways	0.05	SH- 88 is 0.05km N of project site and NH- 66 is 0.06km Eof project site
21.6. Defence installations	No	
21.7. Densely populated or built-up area	Yes	
Name	Shortest distance from the project boundary in Km	Remarks
Pen, vadhkal and Poynad nearest dense habitations	1.5	Pen (densely populated) at 5.5km NE and closest Vadhkal village at 1.5km NE of project site.
21.8. Areas occupied by sensitive man-made land uses	Yes	
Name	Shortest distance from the project boundary in Km	Remarks
Temples, Mosques, Hospitals, Schools, Village pond, Fort etc.	0.1	Nearest worship places- Dhayareshwor Temple, Jama Masjid Shreegaon,St Alphonso Church Pen; PHCs at Vashi, Gadab &Poynad, Government Primary Health Centre, Govt. & Pvt. Schools in villages etc.
21.9. Areas containing important, high quality or scarce resources	Yes	
Name	Shortest distance from the project boundary in Km	Remarks
Dams & pond, coastal areas, tourist places etc	0.1	Arabian sea-18km w, Dharamtar Creek with marine ecology-14km NW, R. Ambo-0.1km W, Sagargad Fort (tourist place)- 8km SW
21.10. Areas susceptible to natural hazards which could cause the project to present environmental problems similar effects	No	

22. Status of collection of baseline data	Already collected
22.1. Period of baseline data collection	
22.1.1. From	01/10/2022
22.1.2. To	31/12/2022
22.2. Seasons of collection	Post monsoon
22.3. Number of Monitoring locations for	
22.3.1. Meteorology (Nos.)	1
22.3.2. Ambient Air Quality (Nos.)	9
22.3.3. Surface Water Quality (Nos.)	8
22.3.4. Ground Water Quality (Nos.)	6

22.3.5. Ground water level (Nos.)	21
22.3.6. Noise Level (Nos.)	12
22.3.7. Soil Quality (Nos.)	8
22.3.8. Summary on the baseline situation	Summary Baseline_form1.pdf
22.3.9. Map showing the monitoring locations	Baseline maps.pdf

Consultant Details

25. Whether QCI/NABET Accredited EIA Consultant engaged?	Yes
25.1. Accreditation No. / Organization Id	ORG000449
25.2. Name of the EIA Consultant Organization	Mecon Limited
25.3. Address	Vivekananda Path, Doranda, P.O. Ranchi-834002
25.4. Mobile No.	9470193930
25.5. E-mail Id	envenggranchi@meconlimited.co.in
25.6. Category of Accreditation (Eligible for Category A / Eligible for Category B)	A
25.7. Sector(s) of Accreditation	1,2,4,5,7,9,11,8,27,28,30,31,33,39,38
25.8. Validity of Accreditation	09/02/2027

ANNEXURE R1/2

JSW Dharamtar Port Private Limited

EXPANSION OF DHARAMTAR JETTY FACILITY (PHASE III) IN VILLAGE DOLVI OF DISTRICT RAIGAD, MAHARASHTRA

Pre-Feasibility Report

Mumbai, January 2024

Contents

Drawings

Executive Summary

JSW Dharamtar Port Private Ltd. (JSW DPPL) at Beneghat in Raigad District of Maharashtra, is an existing port and terminal facility operational under phase II expansion. The jetty facility is located in Dharamtar Creek in the estuary of Amba River.

JSW DPPL is proposing its Phase III expansion of the jetty facility. At present, cargo handled at the jetty facility is about 33.95 Mt/yr which will be expanded to handle about 57.0 Mt/yr of various cargos. The proposed cargo to be handled will include the Iron Bearing Raw Material (IBRM), Coal Bearing Raw material (CBRM), Fluxes, clinker, cement, HR coil, sheets, CR coils, other steel products, slag, containers, and liquid cargos.

The existing jetty facilities which are under operation at the moment as a part of Phase II development, includes 9 nos. of operational berths (Berth Nos. 1 to 9) constructed over a length of about 1050 m whereas the existing Environmental Clearance is for a total jetty length of 1750 m designed to handle barges upto 6000 DWT and MBC upto 8000 DWT. The total jetty length in Phase-III will remain same as 1750 m and the balance construction and mechanization of Berth Nos. 10, 11, 12 and 13 will be taken up for handling the additional cargo.

The main commodities to be handled at the facility after expansion includes Iron Bearing Raw Materials (IBRM), Coal Bearing Raw Materials (CBRM), fluxes, finished steel, slag, fly ash, cement, clinker, POL (petroleum, oils & lubricant, bunkering fuel, etc.), LPG, propane, butane, edible oil & liquid cargo, container, fertilizer, FRM and gypsum.

The existing JSW Dharamtar Jetty is located at Beneghat village South-East of Mumbai Harbour in Dharamtar Creek in the estuary of Amba River extending to about 12 nautical miles upstream of the river.

The indicative coordinates of the existing and proposed jetty are given below:

Latitudes : 18°42'18" - 18°43'00" N

Longitudes : 73°01'09" - 73°01'58" E

The details of jetty length, barge size, material handling equipment, etc. of existing and proposed expansion of jetty has been below:

Details	Existing	After Expansion
Total Cargo Handling	**33.95 Mt/yr**	**57.0 Mt/yr**
Total Jetty Length	1050 m (9 berths)	1750 m (13 berths)
Barge Size	2000 DWT to 3700 DWT	2000 DWT to 3700 DWT
		6000 DWT
Mini Bulk Carrier Size	8000 DWT	8000 DWT
Barge Unloaders	2 no. x 550 tph	2 no. x 550 tph
	5 no. x 2500 tph	5 no. x 2500 tph
		5 no. x 2500 tph
Mobile Harbour Crane	2 nos. x 900 tph	2 nos. x 900 tph
		1 x 1200 tph
Covered Storage Capacity	Yard A - 125 x 380 m	Yard A - 125 x 380 m
		Yard A1 - 125 x 350 m
	Yard B - 125 x 400 m	Yard B - 125 x 730 m
Stacker	2 Nos.	-
Reclaimer	Bucket wheel reclaimer - 3 Nos.	-
	Portal reclaimer - 2 Nos	-
	Stacker cum reclaimer - 1 No.	-
Cross Country Conveyor	1 No. x 1200 tph	-
	1 No. x 1500 tph	-
	4 Nos. x 3000 tph	-
Sub-station	2 Nos.	-
Pump House	1 No.	-

The existing jetty, covered storage yard, yard conveyors, ancillary buildings, etc. is situated within 58.6 ha of land area. No additional area will be required for the expansion of Jetty and its facilities.

The water requirement for the existing jetty is about 30 m^3/hr and after expansion to 57.0 Mt/yr cargo handling capacity, the water requirement will increase to 45 m^3/hr. This water requirement is proposed to be met from the existing allocation to JSWSL from Amba river, Nagothane, K.T. Bandhara.

The existing power requirement is 36 MVA and after expansion of jetty the power requirement will be about 66 MVA. The power is supplied through Maharashtra State Electricity Distribution Co. Ltd (MSEDCL).

The effluent from storage yard will be treated in a settling tank and the sludge produced mainly coal dust and iron ore dust will be put back in the storage yard. Clean over flow after dust settlement will be collected and recycled for dust suppression and excess overflow will be discharged into outfall drain.

Sewage generated from toilet blocks, etc. would be collected by means of suitable sewer system for treatment in Sewage Treatment Plant (STP). STP of capacity 50 m^3/day has been installed at the Jetty and the same will cater for the proposed expansion.

The existing manpower of 100 direct employees and 400 contract workers will increase to 150 direct employees and 600 contract workers after expansion of jetty. This includes unskilled, semi-skilled, skilled, clerical and managerial staff.

The expansion of jetty will be completed in 36 months after obtaining the Environment Clearance and CRZ Clearance for the proposed project.

The total capital investment in the proposed Jetty expansion will be Rs. 950 Crores which includes cost of jetty development, barge unloader, jetty conveyors, covered storage yard, conveyor system for outgoing material, civil works, structural steel works and erection and commissioning.

The proposed investment will boost the socio-economic profile of the region and will act as an engine of economic growth for the country and will open up employment opportunities for the local people in the region.

Introduction of the Project

Identification of the Project & Project Proponent

The JSW Group has emerged as a dynamic US$ 22 billion conglomerate. The Group is a multi-location, multi-product business with interest spanning across Steel, Energy, Ports & Infrastructure, Cement, Paints, Venture Capital and Sports. “Growth with a social conscience” is a paradigm the Group lives by Its strength lies in its individual companies, with each one committed to consolidate its core strength and excelling in its field of specialization.

JSW Infrastructure Limited (JSWIL), ranked the second-largest private port operator in the country and among the fastest-growing infrastructure companies in the country. The company is engaged in developing and operating seaports, shipyards, railway projects, transportation through pipeline, and providing end-to-end logistic solutions. The total cargo handling capacity in India is about 153 Mt/yr and in UAE is about 41 Mt/yr.

JSWIL operate environmentally friendly ports and terminals across East, West and Southern regions of India, and in Fujairah, UAE through its following subsidiary companies.

South West Port Limited (SWPL) was acquired by the JSW Group in 2002 and commenced operations in 2004. JSW Steel relies on the South West Port for key logistical support for its facility in Karnataka. It currently operates two bulk cargo berths (5A & 6A) at Mormugao Port Authority at Goa, on a Build, Own, Operate and Transfer (BOOT) license agreement. The total installed capacity is 8.5 Mt/yr.

JSW Jaigarh Port Ltd. (JSWJPL) has constructed a deep water commercial port in Jaigarh, near Ratnagiri, in Maharashtra, with 7 berths having a cargo handling capacity of 50 Mt/yr.

JSW Dharamtar Port Private Ltd. (JSWDPPL) at Beneghat in Raigad District of Maharashtra, is an existing port and terminal facility, located in Amba River about 23 Nautical Miles away from Mumbai Harbour by sea route.

The existing jetty facilities which are under operation at the moment as a part of Phase II development, includes 9 nos. of operational berths (Berth Nos. 1 to 9) constructed over a length of about 1050 m whereas the existing Environmental Clearance is for a total jetty length of 1750 m designed to handle barges upto 6000 DWT and MBC upto 8000 DWT. The total jetty length in Phase-III will remain same as 1750 m and the balance construction and mechanization of Berth Nos. 10, 11, 12 and 13 will be taken up for handling the additional cargo.

JSW Dharamtar Port can handle bulk and break-bulk cargo. The Port currently handles cargo for JSW Steel's steel manufacturing facility, and a portion of JSW Cement's cement manufacturing facilities at Dolvi (Maharashtra). The cargo being handled includes Iron Bearing Raw Materials, Coal Bearing Raw materials, Fluxes, clinkers, slag and other steel finished products.

Paradip Terminal Private Ltd. (PTPL) is an Iron Ore export terminal located in Paradip Port Trust, Odisha with a capacity of 10 Mt/yr.

The terminal is strategically situated 210 nautical miles south of Kolkata and 260 nautical miles north of Visakhapatnam. The port is operational with a 370-meter berth with draft of 16 meters. It is built to handle Cape size vessels for iron ore and pellets.

Mangalore Coal Terminal Private Ltd. Is located in New Mangalore Port Authority (NMPA) and is a modern all-weather Port situated at Panambur, Mangalore, Karnataka on the West Coast of India, 170 nautical miles South of Mormugao Port and 191 nautical miles North of Cochin Port. The terminal has an installed capacity of 6.73 Mt/yr. The terminal has a berth which is 315 meters long and has a draft of 14 meters at berth pocket.

Ennore Coal Terminal Private Ltd. Is located in Kamarajar Port, Ennore, Tamil Nadu. It is a mechanized terminal having an installed capacity of 8 Mt/yr. The terminal has a berth which is 347.5 meters long and has a draft of 16 meters at berth pocket. The terminal handles coal.

JSW Mangalore Container Terminal Pvt. Ltd. Is located on berth no. 14 of New Mangalore Port Authority (NMPA). It is fully mechanized for handling containers and other cargoes on DBFOT basis. This Container terminal currently has an installed capacity of 4.2 Mt/yr with a total berth length of 350 meters and can accommodate vessels of up to 9000 TEUs. It has a backup storage area of 6.5 hectares (for storage of containers).

Paradip East Quay Coal Terminal Private Ltd. (PEQCTPL) is a Coal export terminal at Paradip Port Trust, Odisha through BOT basis with a capacity of 30 Mt/yr. It has secured the contract for mechanization of EQ1, EQ2 and EQ3 berths of Paradip Port and operates a mechanized terminal to handle cargo for exporting / coastal movement of domestic coal.

Ennore Bulk Terminal Private Ltd. Is located in Kamarajar Port, Ennore, Tamil Nadu. Ennore Bulk Terminal is a mechanized terminal having a capacity of 2 Mt/yr. The terminal has a berth which is 270 meters long and has a draft of 14.50 meters at berth pocket. The terminal can handle Clean Cargo other than Coal, Iron Ore, POL and Automobile units.

JSW Fujairah Terminal is located in Fujairah, UAE. It is operating bulk terminal and variety of cargo including dry & liquid bulk and limestone at Port of Fujairah, UAE with capacity of 24 Mt/yr. It has two berths of length 610 meters.

JSW Dibba Terminal is also located in Fujairah, UAE. The Dibba Terminal has a cargo handling capacity of 17 Mt/yr to handle limestone and clinker. It has one berth of length 650 meters.

Brief Description of Nature of the Project

JSW Dharamtar Port Private Limited (JSWDPPL) operates a Jetty facility on the right bank of Amba river/Dharamtar creek. It is a Special Purpose Vehicle under the aegis of JSWIL. It handles the inbound raw material and outbound products of JSW Steel Limited and JSW Cement Plant located at Dolvi. The Jetty facility is located to the south-east of the Mumbai Harbour.

Currently total cargo handling of the Jetty is 33.95 Mt/yr. This is handled in the existing jetty facilities which includes 9 nos. of operational berths (Berth Nos. 1 to 9) constructed over a length of about 1050m whereas the existing Environmental Clearance is for a total jetty length of 1750 m. To cater to the increase in the cargo to be handled at the jetty due to proposed expansion of the steel plant to 15 Mt/yr the cargo handling will increase upto 57 Mt/yr, which includes 50.5 MTPA of cargo for Dolvi steel plant and cement plant and 6.5 MTPA of third-party cargo. The main commodities to be handled at the facility after expansion includes Iron Bearing Raw Materials (IBRM), Coal Bearing Raw Materials (CBRM), fluxes, finished steel, slag, fly ash, cement, clinker, POL (petroleum, oil & lubricant, bunkering fuel, etc.), LPG, propane, butane, edible oil & liquid cargo, container, fertilizer, FRM and gypsum.

The existing facility at Dharamtar is presently handling barges up to 3700 DWT and Mini Bulk Carriers (MBC) of 8000 DWT. After expansion, upgradation and further mechanization of the jetty facilities, barges upto 6000 DWT and MBC of 8000 DWT shall be handled. The total jetty length in Phase-III will be 1750 m, which is within the existing environmental clearance. Only the balance construction and mechanization of Berth Nos. 10, 11, 12 and 13 will be completed for handling the additional cargo. The material will be conveyed to the Steel Plant / Cement Plant by using a network of jetty conveyors, which will feed the outgoing conveyors of JSW Dolvi steel plant and JSW Cement plant.

A simple logistic chain is presently followed at the Dharamtar facility. For cargo handling in the fair weather, the mother vessels are moored at the Mumbai

Offshore anchorage (Bravo East) and at Jaigarh Port. However, in the monsoon the inner anchorage opposite Nhava Island is used. The mother ships load the barges using ship's gears. The barges then move in to the creek and travel to the berth and gets unloaded. The material is unloaded using 7 barge unloaders and 2 Mobile Harbour Cranes and sent to the raw material storage yard of the steel plant.

To handle the increased cargo, additional equipment will be added at the Jetty which includes 5 nos. of Barge Unloaders and 1 no. of Mobile Harbour Crane.

Environmental Clearance (EC) and CRZ Clearance for the existing Dharamtar Jetty facility comprising quay of 1750 m with cargo handling capacity of 33.95 Mt/yr has been obtained from MoEF&CC, New Delhi *vide* letter dated 26.11.2015 and was subsequently amended *vide* letters dated 26.03.2016 and 10.01.2020.

Need for the Project and its importance to the country

The proposed expansion of JSW Dolvi Steel Plant from 10 MTPA to 15 MTPA would require raw material including Iron Bearing Raw material, Coal Bearing Raw Material (CBRM), Fluxes (lime stone, quartzite), clinker, etc. In addition to the raw materials, finished products from the ISP namely steel and cement has to be exported.

DPPL also proposed to handle third party cargo for handling finished steel products, POL (petroleum, oil & lubricant, bunkering fuel, etc.), LPG, propane, butane, edible oil & liquid cargo, container, fertilizer, FRM and gypsum.

The rail network is already heavily booked and the road network too is congested. Hence, to cater to the additional cargo, it is proposed to expand the existing Dharamtar Jetty facility from 33.95 Mt/yr to 57.0 Mt/yr of cargo handling.

Demand-Supply Gap

Traffic on National Waterways (NWs)

The traffic on Inland Waterways has witnessed exponential growth in the last four years with CAGR of 10.81% and reached to 83.61 million tons in the year 2020-21 despite the pandemic.

Tapping the potential, Inland Waterways Authority of India (IWAI) aims at increasing the modal share of freight movement through IWT from 2% to 2.5% by FY 2030. The trends of traffic on National Waterways during the three financial years is presented below in Table 1.

Table 1: Cargo/Traffic Movement National Waterways

National Waterways	Quantity in tonnes		
	FY 18-19	FY 19-20	FY 20-21
NW-1 (Ganga-Bhagirathi-Hooghly River System)	6,793,981	9,113,297	9,206,984
NW-2 (Brahmaputra River)	502,003	392,768	307,191
NW-3 (West Coast Canal)	408,790	546,051	733,977
NW-4 (Krishna Godavari River Systems)	452,066	82,226	6,831,824
Sub Total (National Waterways 1-4)	**8,156,840**	**1,01,34,342**	**17,079,977**
Maharashtra Waterways			
NW-10 (Amba River)	22,381,100	22,014,466	17,685,737
NW-83 (Rajpuri Creek)	816,205	666,755	205,567
NW-85 (Revadanda Creek-Kundalika River System)	1,769,947	1,592,477	1,083,701
NW-91 (Shastri River – Jaigad Creek System)	3,374,399	119,443	9,234,983
Total	**28,341,651**	**24,393,141**	**28,209,987**
Goa Waterways			
NW-68 (Mandovi River)	1,653,751	1,575,640	3,996,431
NW-111 (Zuari River)	2,104,219	1,358,202	4,464,662
Total	3,757,970	2,933,842	8,461,093
Gujarat Waterways			
NW-73 (Narmada River)	40,941	99,614	82,311
NW-100 (Tapi River)	28,780,183	30,916,062	25,629,554
Total	28,821,124	31,015,676	25,711,865
Others			
NW-16 (Barak River)	-	4,417	1,032
NW-44 (Ichamati River)	-	898,641	280,353
NW-94 (Sone River)	-	800,000	-
NW-97 (Sunderbans Waterway)	3,227,460	3,459,540	3,861,439
NW-86 (Rupnarayan River)	-	0	1,443
Grand Total (tonnes)	**72,305,045**	**73,639,599**	**83,607,189**
Grand Total (Million tonnes)	**72.30**	**73.64**	**83.61**

Source: Annual Report of IWAI

The above comparative analysis of cargo/ traffic movement shows that during the FY 2018-19 about 72.30 Mt of cargo has been handled. In FY 2019-20 about 73.64 Mt and FY 2020-21 about 83.61 Mt cargo has been handled. It may be observed that despite pandemic, there is a steep increase in the traffic movement in the FY 2020-21 at 15.6% as compared to FY 2019-20.

National Waterways-wise Share of Traffic

National Waterways-wise share of traffic during the financial year 2020-21 is mostly shared by Maharashtra Waterways (34%) followed by Gujarat Waterways (31%), NW-1 (11%), Goa Waterways (10%), NW-4 (8%) and Sunderbans Waterways (5%). This is as presented in the Figure 1.

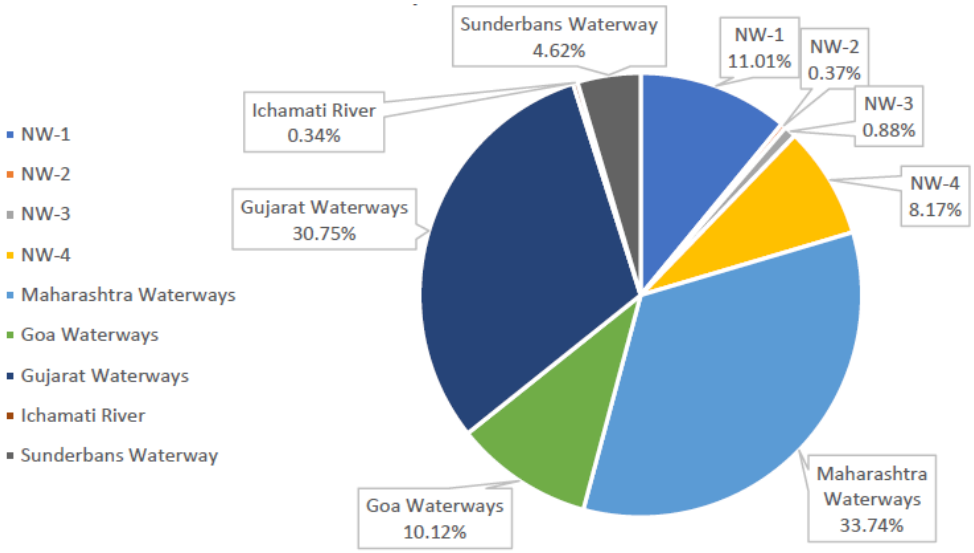


Figure 1 : National Waterways-Wise Share of Traffic in FY 2020-21

National Waterways – Commodity Profile of Traffic

The most preferred commodity in the overall traffic is Iron Ore (34%) followed by Coal & Coke (31%), Fly-Ash (8%), Limestone (4%) and Steel (3%). Others (20%) mainly includes sand, stone chips, cement, etc., as presented in the Figure 2.

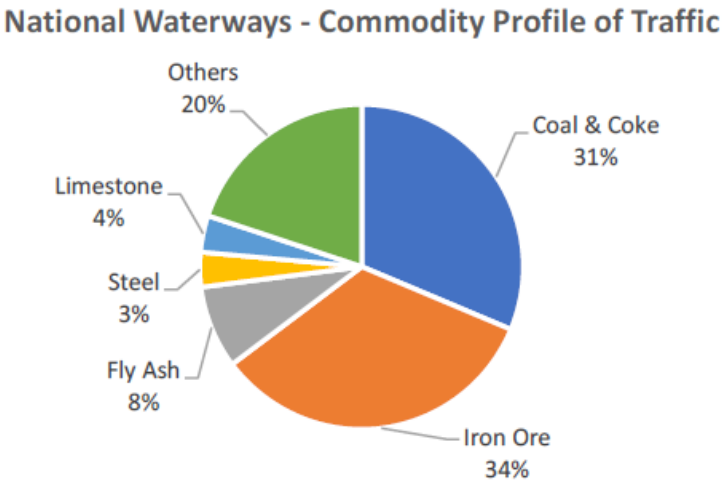


Figure 2: National Waterways – Commodity Profile of Traffic in FY 2020-21

Maharashtra Waterways

Maharashtra has four operational NWs which are NW-10 (Amba River), NW-83 (Rajpuri creek), NW-85 (Revdanda creek/ Kundalika River) and NW-91 (Shastri River/Jaigad Fort Creek).

Maharashtra Waterways handled traffic about 28.21 Mt which constituted pprox.. 34% of the total traffic handled on all National Waterways in the country in the FY 2020-21. Industrial units, Ports, Lighterage points located at the interface of Coastal and Inland Waterways drive this traffic.

NW-10 (Amba River) handles about 17.7 Mt of traffic on Maharashtra Waterways followed by NW-91 handles about 9.2 Mt and NW-85 (Revdanda Creek / Kundalika River) handles about 1.1 Mt of traffic on Maharashtra Waterways.

Coal about 51% followed by Iron Ore about 33% account for 84% of the traffic moved on the Maharashtra Waterways. Limestone and Steel coils each account for 5% of the traffic moved, whereas commodities such as Dolomite, Clinker and lose cement make up for most of the other category of commodities.

Of the total traffic moving on the Maharashtra Waterways, approx. 40% originates from the jetties present on the Maharashtra Waterways while 60%

originates either from foreign ports or from the coastal ports of India. Of this 40% which originates on the Maharashtra Waterways, approx. 96% is handled by Jaigarh and close to 4% is handled by Revdanda/Salav Jetty. There is no originating traffic from Dighi or Sanegaon Jetty while Dharamtar jetty handles a very limited share of the originating traffic.

Of the total traffic moving on the Maharashtra Waterways, 99% goes to jetties present on the Maharashtra Waterways while the remaining 1% is destined for coastal ports of India. Of this 99% which is destined for the Maharashtra Waterways, Dharamtar handles 91%, Sanegaon handles 5%, Dighi handles 3% and Revdanda/Salav Jetty handles 2%.

The NW-10 Dharamtar Jetty loaded commodities in FY-20 is shown in Figure 3.

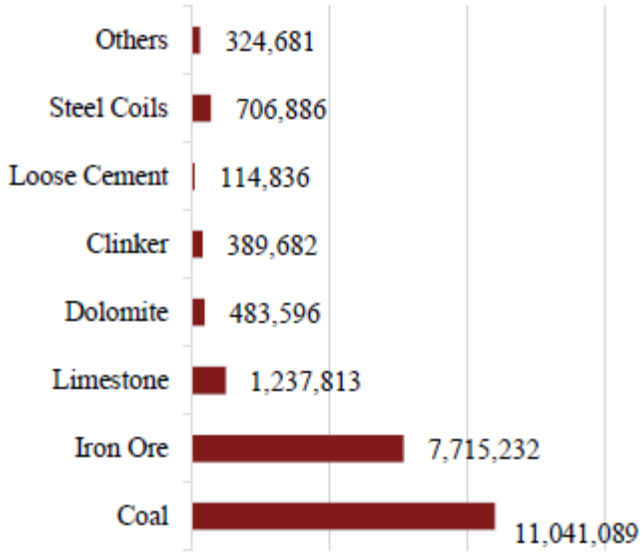


Figure 3 : NW-10 Dharamtar Jetty loaded commodities in FY-20

It can be observed that Dharamtar Jetty (on NW-10) handled majority of the unloaded traffic on the Maharashtra waterways which included mainly Coal, Iron ore and Limestone.

POL, LPG, Propane, Butane, etc.

The annual volume of POL, LPG, Propane, Butane, etc. is expected to be in the range of 3,000,000 MT at Dharamtar Port.

Petroleum Products and Lubricants

India's refining capacity stands at 251 MMT per year, making it the fourth largest in the world. Oil consumption and imports have grown rapidly on account of industrialisation and rising vehicle ownership, road transport use etc. Total consumption of petroleum products in the country during FY 2021-22 was 204.23 MMTPA registering positive growth rate of 3.9% vis-à-vis FY 2020-21 (194.30 MMT). During FY 2021-22, Diesel (HSD+LDO) accounted for the highest consumption share (38%) followed by Petrol/Motor Spirit (15.1%), LPG (13.9%), Petroleum Coke (7.7%), Naphtha (7%), Bitumen (3.9%), Fuel Oil (3.1%), ATF (2.5%), Lubes & Greases (2.2%) and Kerosene (0.7%). The import and exports of petroleum products during 2021-22 was 42.06 MMTPA and 62.71 MMT respectively.

POL products namely Diesel (HSD+LDO), Petrol/Motor Spirit, Naphtha, Bitumen, Fuel Oil, ATF, Lubes & Greases, Kerosene, Bunker fuel, etc. is expected to be handled (import / export) at Dharamtar Port. The products will be sourced by Oil Marketing Companies (HPCL, BPCL, IOCL, etc.) and other private players (Reliance Industries, Shell, Nayara, etc). The products will be brought in vessels which will be directly handled at the jetty or moved in smaller vessels at Mumbai anchorage. The parcel size will be in the range from 1000 – 7000 MT based on customer requirements. The cargo will be then moved to Dharmatar Liquid Terminal and stored in tanks. The POL cargo will be then loaded on to the tankers / trucks via loading bays or pipelines. The POL cargo shall move to the hinterland of Maharashtra, Madhya Pradesh, Southern Gujarat, Andhra Pradesh, Telangana region for domestic and industrial consumption.

LPG, Propane and Butane Cargo

LPG market in India is 28.6 Mn MT in FY 2023, growing at a rate of around 7% since FY 2014. Domestic production has been slow around 11-12 Mn MT since FY 2016. This has led to the increased reliance on imports in India. LPG imports now account for 64% of LPG consumption, a sharp increase from the

40% in FY 2014. India imported 18.30 Mn MT of LPG in FY 2023 growing at a CAGR of around 12% during the same period.

LPG will be sourced by Oil Marketing Companies (HPCL, BPCL, IOCL) and other private companies. Propane, Butane and Mix LPG will be brought in pressurised vessels or customised refrigerated vessels. The parcel size will be in the range from 1000 – 7000 MT based on customer requirements. The cargo will be then transferred into LPG terminal at Dharmatar and stored in LPG tanks. The LPG cargo will be then loaded on to the LPG tankers via LPG loading bays or pipelines. The LPG cargo shall move to the hinterland of Maharashtra, Madhya Pradesh, Telangana, Andhra Pradesh and Southern Gujarat region for domestic and retail consumption.

Edible Oil and Other Liquid cargo.

The annual Edible Oil and other liquid volume is expected to be in the range of 1,000,000 MT at Dharamtar Port.

Edible Oil

The India edible oil market size reached 26.71 MMTPA in FY 2022 from 14.10 MMTPA in 2009. As per the estimates the market is expected to reach 30.00 MMTPA by 2030. Domestic production has not been able to cope up with the growing domestic consumption. Hence Imports have grown substantially and currently is the world's largest importer of edible oil in the world importing almost 14 MMTPA in FY2022. Increasing disposable incomes, rising urbanization rates, changing dietary habits and the growth of the food processing sector represent some of the key factors driving the demand of edible oil in India. Palm oil, Soya bean, Sunflower oil are the major edible oil which are being imported into India.

The edible oil will be sourced at Dharamtar by leading Edible oil refineries and trading companies. The edible oil will be imported using liquid tankers of the size ranging from 5000-10000 MT based on the business requirements of the

various companies in the hinterland. The edible oil will be transferred to smaller barges having a capacity of 300 MT at Mumbai Anchorage and move to Dharamtar for discharge. The discharge operations will be carried out via hose operation. Depending on the requirement the cargo will be transferred into shore tanks having capacity of 5000 MT each. Some portion of the cargo will be moved to the moved directly to the customer's factories located in the hinterland. Loading bays will be created for loading the cargo on to the road tankers. The cargo shall move to the hinterland of Maharashtra like Khopoli, Pune, Akola, Ahmednagar, Hingoli, Latur, Jalna and Mumbai.

Chemical Cargo

The Indian chemicals industry stood at US$ 178 billion in 2019 and is expected to reach US$ 304 billion by 2025 registering a CAGR of 9.3%. The demand for chemicals is expected to expand by 9% per annum by 2025. The chemical industry is expected to contribute US$ 383 billion to India's GDP by 2030. Indian manufacturers have recorded a CAGR of 11% in revenue between FY15 and FY21, increasing India's share in the global specialty chemicals market to 4% from 3%, according to the Crisil report. A shift in the global supply chain brought on by the China+1 strategy and a resurgence in domestic end-user demand will fuel significant revenue growth of 18–20% in 2022 and 14–15% in 2023.

The major chemicals that will be handled are Basic, speciality and agrochemicals. Maharashtra contributes to 25% of fertiliser, 18% of organic and 12% of inorganic chemicals in India.

The chemical cargo will be handled at Dharamtar by leading chemical and fertiliser and trading companies in the hinterland. The chemical cargo will be handled using liquid tankers of the size ranging from 1000-10000 MT based on the business requirements of the various companies in the hinterland. The discharge operations will be carried out via hose operation and stored in the liquid terminal at Dharamtar in MS and SS Tanks. The cargo will be then

loaded / unloaded on/from the tankers / trucks via loading bays. The cargo will be sourced and handled by for Maharastra's key chemical zones at Ambernath, Badlapur, Butibori, Dombivali, Kalyan- Bhiwandi, Kurkumbh, Lote Parshuram, Mahad, Patalganga, Roha, Taloja, Tarapur, and TTC, Southern Gujarat and Telangana companies.

Other Clean Cargo (Fertilizer, FRM, Gypsum, etc.)

The annual volumes of Clean Cargo namely Fertilizer, FRM, Gypsum etc. is expected to be in the range of 1,000,000 MT at Dharamtar Port.

Fertiliser and FRM

India is the second biggest consumer of fertilizer in the world next only to China. The India Fertilizers Market stood at 28.56 billion USD in 2022 and is projected to register a CAGR of 6.25% to reach 41.08 billion USD in 2028. The fertiliser cargo mainly comprises of cargos like Urea, MOP, DAP, Rock Phosphate and Ammonium Sulphate.

The Fertilizer discharged at Dharamtar shall be both Fertilizer and Fertiliser Raw Material (FRM) used by the Fertilizer manufacturing plants and the actual Fertilizer used for the farmers in the hinterland of Maharashtra, Gujarat, Telangana, Madhya Pradesh, Tamil Nadu etc. The mother vessel carrying approx. 35,000 – 50,000 MT of cargo shall be unloaded onto the barges at the Mumbai anchorage and subsequently will be transported to Dharamatar Port using barges having a capacity of 500-2000 MT. The barges will be discharged at Dharamtar Port using shore cranes onto the hopper and shall be taken to the covered storage yard by the dumpers. The cargo shall then be bagged according to the market needs and will be dispatched via Road.

Gypsum

India imported almost 5.54 MMTPA of gypsum in 2022. Majority of the gypsum almost 87% is imported from Oman. The cement industry in India is continuously growing. According to various research reports and in view of the

upcoming massive infrastructure developments, the Indian cement consumption is expected to increase at a rate of 9-11 % per year. Going forward the gypsum imports are expected to increase. Major cement companies and ceramic companies are situated near the hinterland of Dharamtar Port making it ideal to import Gypsum from Middle East countries.

The mother vessel carrying approx. 30,000 -55,000 MT of Gypsum cargo shall be unloaded onto the barges at the Mumbai anchorage and subsequently will be transported to Dharamatar Port using barges having a capacity of 500-300 MT. The barges will be discharged at Dharamtar Port using shore cranes onto the hopper and shall be taken to the covered storage yard by the dumpers. The cargo shall then be bagged according to the market needs and will be dispatched via Road to various hinterland locations.

Container Cargo

The annual volumes of Container Cargo is expected to be in the range of 1,000,000 MT at Dharamtar Port. JSW Steel, Dolvi plant is expected to export its finished products to various countries and import some of the consumables such as refractories, zinc etc. in container form. Further, the industrial hinterland of the jetty is expected to add further container volumes. These container volumes are proposed to be handled from Dharamtar Jetty and to be transported through inland waterways/ sea passage to/from major container port hubs such as JNPT etc.

Employment Generation (Direct and Indirect)

In the construction & operation phases of the proposed jetty expansion, both direct & indirect deployment of local work force would be employed.

The proposed jetty expansion will not only require management and executive manpower but also, skilled, semi-skilled, unskilled and clerical manpower. However, a number of jobs like major repair and maintenance, cleaning, transportation, etc. will be done by engaging outside agencies.

Project Description

Type of Project

DPPL is proposing its Phase III expansion of the jetty facility. The cargo handled at the jetty facility is about 33.95 Mt/yr which will be expanded to handle about 57 Mt/yr of various cargos. The proposed cargo to be handled will include the Iron Bearing Raw Material (IBRM), Coal Bearing Raw material (CBRM), Fluxes, clinker, cement, HR coil, sheets, CR coils, other steel products, slag, containers, and liquid cargo.

The existing jetty facilities which are under operation at the moment as a part of Phase II development, includes 9 nos. of operational berths (Berth Nos. 1 to 9) constructed over a length of about 1050 m whereas the existing Environmental Clearance is for a total jetty length of 1750 m designed to handle barges upto 6000 DWT and MBC upto 8000 DWT. The total jetty length in Phase-III will remain same as 1750 m and the balance construction and mechanization of Berth Nos. 10, 11, 12 and 13 will be taken up for handling the additional cargo. The material will be conveyed to the Steel Plant / Cement Plant using a network of jetty conveyors, and outgoing conveyors of Dolvi steel plant and Cement Plant.

A simple logistic chain presently followed at the Dharamtar facility. For cargo handling in the fair weather, the mother vessels are moored at the Mumbai Offshore anchorage (Bravo East) and at Jaigarh Port. However, in the monsoon the inner anchorage opposite Nhava Island is used. The mother ships load the barges using ship's gears. The barges then move in to the creek and travel to the berth and gets unloaded. The material is unloaded using 7 barge unloaders and 2 Mobile Harbour Cranes and sent to the raw material storage yard of the steel plant situated behind the jetty.

To handle the increased cargo, additional equipment will be added at the Jetty which includes 5 nos. of Barge Unloaders and 1 no. of Mobile Harbour Crane.

Location

The existing JSW Dharamtar Jetty is located at Beneghat village South-East of Mumbai Harbour in Dharamtar Creek in the estuary of Amba River extending to about 12 nautical miles upstream of the river.

The indicative coordinates of the existing and proposed jetty are given below:

Latitudes : 18°42’18” - 18°43’00” N

Longitudes : 73°01’09” - 73°01’58” E

The jetty is located equidistant about 18 nautical miles from Jawaharlal Nehru Port and 23 nautical miles from Mumbai Port. The jetty is accessible by road and is 68 km from Mumbai city. It is well connected to national highway NH-17 that joins the coastal highway. The region is well connected to railway as well. Pen railway station is in close proximity. The location map and the regional map of the proposed site have been shown in the Figure 4 and Figure 5 respectively.

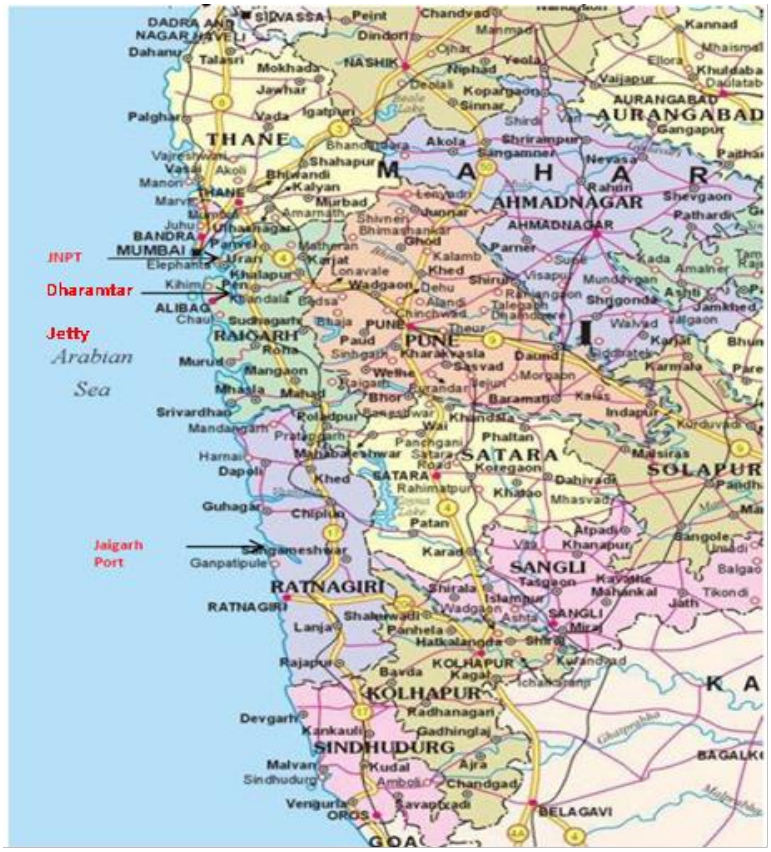


Figure 4: Location map

Figure 5: Regional Map

Details of Alternate Sites considered and the basis of selecting the proposed site

Alternative site was not examined as the capacity enhancement is proposed within the approved jetty facility.

Size or Magnitude of Operation

The existing facility at Dharamtar is presently handling barges up to 3700 DWT and Mini Bulk Carriers (MBC) of 8000 DWT. After expansion, upgradation and further mechanization of the jetty facilities, barges upto 6000 DWT and MBC of 8000 DWT shall be handled. The total jetty length in Phase-III will be 1750 m, which is within the existing environmental clearance. Only the balance construction and mechanization of Berth Nos. 10, 11, 12 and 13 will be completed for handling the additional cargo.

A simple logistic chain is presently followed at the Dharamtar facility. For cargo handling in the fair weather, the mother vessels are moored at the Mumbai Offshore anchorage (Bravo East) and at Jaigarh Port. However, in the monsoon the inner anchorage opposite Nhava Island is used. The mother ships load the barges using ship's gears. The barges then move in to the creek and travel to the berth and gets unloaded. The material is unloaded using 7 barge unloaders and 2 Mobile Harbour Cranes and sent to the raw material storage yard of the steel plant.

To handle the increased cargo, additional equipment will be added at the Jetty which includes 5 nos. of Barge Unloaders and 1 no. of Mobile Harbour Crane.

Project Description with Process Details

Cargo Handling

JSW Steel Limited Dolvi Works proposes to expand its steel plant capacity from existing 10.0 Mt/yr to 15 Mt/yr. The proposed expansion will result in the increase in the demand for raw material. The total cargo to be handled would increase from present 33.95 Mt/yr to 57 Mt/yr, which includes 50.5 MTPA of Cargo of the Dolvi steel plant and Cement plant and 6.5 MTPA of third-party cargo. The main commodities to be handled at the facility after expansion includes Iron Bearing Raw Materials (IBRM), Coal Bearing Raw Materials (CBRM), fluxes, finished steel, slag, fly ash, cement, clinker, POL (petroleum, oil & lubricant, bunkering fuel, etc.), LPG, propane, butane, edible oil & liquid cargo, container, fertilizer, FRM and gypsum. Breakup of different cargos to be handled after completion of Phase-III is shown in Table 2.

Table 2 : Cargo Handling of Existing and After Expansion of the Jetty

Sl. No.	Commodity	Existing Quantity (Mt/yr)	Total Qty. after Expansion (Mt/yr)
1.	IBRM - Iron Ore fines, Pellets, CLO, etc.	17.0	26.0
2.	CBRM – All types of coal, coke, coking coal, PCI, anthracite, etc.	8.00	10.0
3.	Fluxes – Limestone, Dolomite, Bentonite, Quartz, etc.	3.00	7.00
4.	HR coil, Sheets, CR coil in containers, Finished Steel Products	2.50	3.00
5.	Slag / Fly Ash	1.00	1.00
6.	Cement & Clinker	1.60	4.00
9.	POL, LPG, Propane, Butane, etc.	-	3.00
10.	Edible Oil & Chemical cargo	-	1.00
11.	Containers	0.85	1.00
12.	Fertilizer, FRM, Gypsum, etc.	-	1.00
	Grand Total (Mt/yr)	**33.95**	**57.0**

The port will offer efficient and environment friendly cargo and vessel handling. Adequate capacities will be created, maintained and all the berths will be provided with appropriate equipment for handling the cargoes. JSW Steel plant cargo includes Iron Bearing Raw Materials (IBRM), Coal Bearing Raw Materials (CBRM), fluxes, finished steel, slag, fly ash, cement and clinker. The third-party cargo to be handled at the facility includes finished steel, POL (petroleum, oil & lubricant, bunkering fuel, etc.), LPG, propane, butane, edible oil & liquid cargo, container, fertilizer, FRM and gypsum. The breakup of commodity of JSW Group and third-party cargo after expansion is given in Table 3.

Table 3 : Breakup of JSW Group and Third Party Cargo After Expansion

Sl. No.	Commodity	JSW Group Cargo (Mt/yr)	Third Party Cargo (Mt/yr)	Total Cargo (Mt/yr)
1.	IBRM - Iron Ore fines, Pellets, CLO, etc.	26.0	-	26.0
2.	CBRM – All types of coal, coke, coking coal, PCI, anthracite, etc.	10.0	-	10.0
3.	Fluxes - Limestone, Dolomite, Bentonite, Quartz, etc.	7.00	-	7.00
4.	HR coil, Sheets, CR coil in containers, Finished Steel Product	2.50	0.50	3.00
5.	Slag, Fly ash	1.00	-	1.00
6.	Cement, Clinker	4.00	-	4.00
9.	POL, LPG, Propane, Butane, etc.	-	3.0	3.00
10.	Edible Oil & Chemical cargo	-	1.0	1.00
11.	Containers	-	1.0	1.00
12.	Fertilizer, FRM, Gypsum, etc.	-	1.0	1.00
	Grand Total (Mt/yr)	**50.50**	**6.50**	**57.0**

Jetty Details

The existing jetty facilities includes 9 nos. of operational berths (Berth Nos. 1 to 9) constructed over a length of about 1050 m whereas the existing Environmental Clearance is for a total jetty length of 1750 m. To cater to the increase in the cargo to be handled at the jetty due to proposed expansion of the steel plant to 15 Mt/yr, the cargo handling will increase upto 57 Mt/yr, which includes 50.5 MTPA of captive cargo and 6.5 MTPA of third-party cargo.

The existing facility at Dharamtar is presently handling barges up to 3700 DWT and Mini Bulk Carriers (MBC) of 8000 DWT. After expansion, upgradation and further mechanization of the jetty facilities, barges upto 6000 DWT and MBC of 8000 DWT shall be handled. The total jetty length in Phase-III will be 1750m, which is within the existing environmental clearance. Only the balance construction and mechanization of Berth Nos. 10, 11, 12 and 13 will be completed for handling the additional cargo. The material is unloaded using 7 barge unloaders and 2 Mobile Harbour Cranes and sent to the raw material storage yard and then to the steel plant through outgoing conveyors of the Steel / Cement Plant. To handle the increased cargo, additional equipment will be added at the Jetty which includes 5 nos. of Barge Unloaders and 1 no. of Mobile Harbour Crane (MHC).

The details of jetty length, barge size, material handling equipment, etc. of existing and proposed expansion of jetty has been given in Table 4.

Table 4 : Details of Existing and Proposed Expansion of Jetty

Details	Existing	After Expansion
Total Cargo Handling	**33.95 Mt/yr**	**57.0 Mt/yr**
Total Jetty Length	1050 m (9 berths)	1750 m (13 berths)
Barge Size	2000 DWT to 3700 DWT	2000 DWT to 3700 DWT
		6000 DWT
Mini Bulk Carrier Size	8000 DWT	8000 DWT
Barge Unloaders	2 no. x 550 tph	2 no. x 550 tph
	5 no. x 2500 tph	5 no. x 2500 tph
		5 no. x 2500 tph
Mobile Harbour Crane	2 nos. x 900 tph	2 nos. x 900 tph
		1 x 1200 tph
Covered Storage Capacity	Yard A - 125 x 380 m	Yard A - 125 x 380 m
		Yard A1 - 125 x 350 m
	Yard B - 125 x 400 m	Yard B - 125 x 730 m
Stacker	2 Nos.	-
Reclaimer	Bucket wheel reclaimer - 3 Nos.	-
	Portal reclaimer - 2 Nos	-
	Stacker cum reclaimer - 1 No.	-
Cross Country Conveyor	1 No. x 1200 tph	-
	1 No. x 1500 tph	-
	4 Nos. x 3000 tph	-
Sub-station	2 Nos.	-
Pump House	1 No.	-

Operational Logistics

A simple logistic chain is presently followed at the Dharamtar facility. For cargo handling in the fair weather, the mother vessels are moored at the Mumbai Offshore anchorage (Bravo East) and at Jaigarh Port. However, in the monsoon the inner anchorage opposite Nhava Island is used. The mother ships load the barges using ship's gears. The barges then move in to the creek and travel to the berth and gets unloaded. The material is unloaded using 7 barge unloaders and 2 Mobile Harbour Cranes and sent to the raw material storage yard of the steel plant.

To handle the increased cargo, additional equipment will be added at the Jetty which includes 5 nos. of Barge Unloaders and 1 no. of Mobile Harbour Crane.

In the expansion phase, with an increase in the cargo to be handled at the jetty, a detailed cargo handling logistics have been planned. Ships ranging from

Panamax to Cape size shall be harboured and unloaded at the Jaigarh Port or shall be moored at Mumbai offshore anchorage during the fair season.

Barges up to 6000 DWT and Mini Bulk Carriers (MBC) of 8000 DWT shall be loaded at Jaigarh Port or Mumbai anchorage at regular intervals. The barges and MBCs shall travel to the Dharamtar jetty through the creek where they would be unloaded by barge unloaders.

The material will be conveyed to the Steel Plant / Cement Plant by using a network of jetty conveyors, which will feed the outgoing conveyors of JSW Dolvi steel plant and JSW Cement plant. Third party cargo will be handled through road.

Dedicated berth and backup facilities shall be provided for Liquid Cargo like POL, LPG, Propane, Butane, Bunkering fuel, Edible Oil, etc. Necessary container handling and storage facility shall be envisaged. The Jetty shall also be equipped to handle other clean cargo like Fertilizer, Fertilizer Raw Materials (FRM), Gypsum, etc. for which necessary handling and backup facilities shall be created.

Master Plan and Berth Layout

The jetty is aligned along the river bank and to the current. Though there is a small angle between the ebb and the flood flows, the alignment would take care of this without any appreciable set up. In the master plan scenario, the length of the berth would be 1750 m.

The general layout of existing jetty and the proposed jetty expansion is shown in the drawing no. JSW/DPPL/CIVIL/000.

Land Requirement

The total land area required for the port operations and the ancillary facilities is about 58.6 ha of the existing area The majority of the stacking area is on the back of the jetty, beyond the shore line.

Dredging and Reclamation

Navigation of 8000 DWT MBCs would require minimum 5m dredging below the chart datum. This depth would ensure safe movement of the design vessels and handle the required cargo. At the berth, a dredged depth of about 5.0 m CD is required to be created with a MSLW of about 0.45 m; this will afford about 10% under keel clearance at low waters. Since the location is inside a very tranquil and protected environment, this under keel clearance would be sufficient even for the rocky beds. This would involve Capital Dredging of about 4,155,300 m^3. Out of this, the hard material dredged will be about 1,000,000 m^3, which will be used for reclamation of low-lying areas behind the berths. The balance of about 3,155,300 m^3 of soft material will be dumped at designated locations near Mumbai Port Area as identified by MMB through CWPRS Model Report. Maintenance Dredging quantity shall remain same as 2,000,000 m^3 as per existing MOEFCC clearance and the dredged material from maintenance dredging will also be dumped at designated locations near Mumbai Port Area as identified by MMB through CWPRS Model Report. Dredging shall be carried out through Maharashtra Maritime Board (MMB) or Inland Waterways Authority of India (IWAI).

Navigational Channel

Presently barges of capacity 3000 DWT and MBC of capacity 8000 DWT are used for cargo transportation to the jetties. The operational days in a year can be considered as 330. Barges of 3000 DWT take about 10 trips per day and MBC of 8000 DWT take about 10 trips per day to carry the requisite cargo. With the expansion of the steel plant the requirement for the raw material shall increase and concurrently there is a need to expand the jetty and deploy barges of higher DWT for cargo transportation. The barges of 6000 DWT and additional MBC of 8000 DWT would also be required after complete expansion of the jetty to cater to about 57 Mt/yr cargo.

The navigation channel details are given below :

Chanel Depth : (–) 5.0m CD

Channel Length : 19km

Navigation Channel Width : 120m

The break-up of barge movement is depicted in the Table 5 below.

Table 5: Barge movement in the Navigational Channel

Details	Barge/MBC Size	Traffic in Mt/yr	Barge trips per year	Barge trips per day
Existing				
Barge	3000 DWT	9.9	3300	10
MBC	8000 DWT	24.05	3007	10
Total Existing		**33.95**		
After Expansion				
Barge	3000 DWT	5.0	1667	6
Barge	6000 DWT	12.0	2000	7
MBC	8000 DWT	40.0	5000	16
Total After Expansion		**57.0**		

Existing Port Buildings

The existing port buildings consists of the following;

- Administration building
- Operational building
- Electrical building
- Maintenance building
- Gate Complex

The existing port administration building consists of administration, finance department, planning and environmental department, canteen etc. Existing maintenance building consist of workshop and stores, service facilities for mechanical and electrical equipment, electrical rooms, etc. This shall take care of additional plant manpower also.

Navigational Aids

The terminal will have operations round the clock. The required navigational aids will be provided to enable night navigation. Differential Global Positioning System (DGPS) tracking and Vessel Transit Management System also would

be deployed, for better management of traffic. Navigational aids will conform to the International Association of Lighthouse Authorities Regulations.

Raw Material and Finished Product

JSW Steel Limited Dolvi Works proposes to expand its steel plant capacity from existing 10.0 Mt/yr to 15 Mt/yr. The proposed expansion will result in the increase in the demand for raw material. The total cargo to be handled would increase from present 33.95 Mt/yr to 57.0 Mt/yr, which includes 50.5 MTPA of JSW Group Cargo and 6.5 MTPA of third-party cargo. The breakup of commodity of JSW Group and third-party cargo after expansion is given in Table 3 above earlier in the chapter.

The port will offer efficient and environment friendly cargo and vessel handling. Adequate capacities will be created, maintained and all the berths will be provided with appropriate equipment for handling the cargoes. JSW Group cargo includes Iron Bearing Raw Materials (IBRM), Coal Bearing Raw Materials (CBRM), fluxes, finished steel, slag, fly ash, cement and clinker.

The third-party cargo to be handled at the facility includes finished steel, POL (petroleum, oil & lubricant, bunkering fuel, etc.), LPG, propane, butane, edible oil & chemical cargo, container, fertilizer, FRM and gypsum.

Resource Optimization / Recycling and Reuse Envisaged in the Project

Navigation of 8000 DWT MBCs would require 5m dredging below the chart datum. This depth would ensure movement of the design vessels and handle the required cargo. This would involve Capital Dredging of about 4,155,300 m^3. Out of this, the hard material dredged will be about 1,000,000 m^3, which will be used for reclamation of low-lying areas behind the berths. The areas reclaimed by using material obtained from dredging would be utilized as storage areas for incoming and outgoing cargo and will result in effective resource optimization.

Availability of Water and Power

Water

The water requirement for the existing jetty is about 30 m^3/hr and after expansion the water requirement will increase to 45 m^3/hr. Water shall be required for drinking and domestic purpose, sprinkling at material handling yard and gardening. This water requirement is proposed to be met from the existing allocation to JSWSL from Amba river, Nagothane, K.T. Bandhara. This water shall also be used for fire-fighting. The break-up of the water requirement after expansion is given in Table 6.

Table 6 : Requirement of Make-up Water for Jetty after Expansion

Sl. No.	Facility	Quantity
1	Domestic	4 m^3/hr
2	Sprinkling at Yard	36 m^3/hr
3	Green Belt / Gardening	5 m^3/hr
	Total Make-up Water	**45 m^3/hr**

Power

The material handling facility at JSWDPPL is fully mechanized. Power would be required for bulk handling equipment viz. barge unloader, jetty conveyor & stacker & reclaimer, cross country conveyor, illumination of storage yard, jetty, road, sheds, port building, fire-fighting system, dust suppression system, etc. The existing power requirement is 36 MVA and after expansion of jetty the power requirement will be about 66 MVA.

Waste Generation and Management

Wastewater Generation and Management

The effluent form storage 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 and iron ore dust, which will be put back in the storage yard. Clean over flow after dust settlement will be collected and recycled for dust suppression and excess overflow will be discharged into outfall drain.

Sewage generated from toilet blocks etc would be collected by means of suitable sewer system for treatment in Sewage Treatment Plant (STP). STP of capacity 50 m3/day has been installed at the Jetty and the same will cater for the proposed expansion of Jetty.

Biological solid waste generated from STP shall be disposed as per MPCB norms. The treated sewage water shall be reused for green belt development and/or will be disposed off in local drains, which will not impact the ground or surface water quality of the area.

The Jetty operations will ensure that there will be no impact on surface or groundwater quality in the region.

Drainage System

Storm water run-off from the jetty facility would be collected using a network of catch basins and inter connecting pipes. The runoff would be led to the waterway behind berths using multiple discharge points. For the bulk handling facilities area, a system of open drains will be provided through garland basins to discharge the collected runoff after treatment through a dump pond.

Solid Waste Management

The Jetty operations would also produce solid waste such as garbage, debris, and left-over plastic items, containers, etc. which if not properly disposed might influence the near shore areas. Approved dumpsites and recycling measures will be taken to responsibly dispose off other wastes and send used batteries, used oil, and used oil filters for recycling.

Air Pollution Management

Vehicular movements at the proposed Jetty during the operational phase will not contribute significantly to the ambient air quality. Fugitive emissions from storage yard, conveyors, transfer towers, emissions from ships are not expected to contribute significantly to the ambient air quality in the project area.

Control of stockpile dust emissions would be achieved by water sprinkling. Plain water type dust suppression system will be provided at the all around the coal / raw material stockpiles. As water application is usually only needed under windy or drying conditions it is proposed to be automatically controlled by anemometer.

Water runoff would be arranged and drainage would be effective and care taken of stockpiles during periods of monsoon weather to monitor any potential stockpile slump. The drain water can be collected in a pond, filtered and recycled.

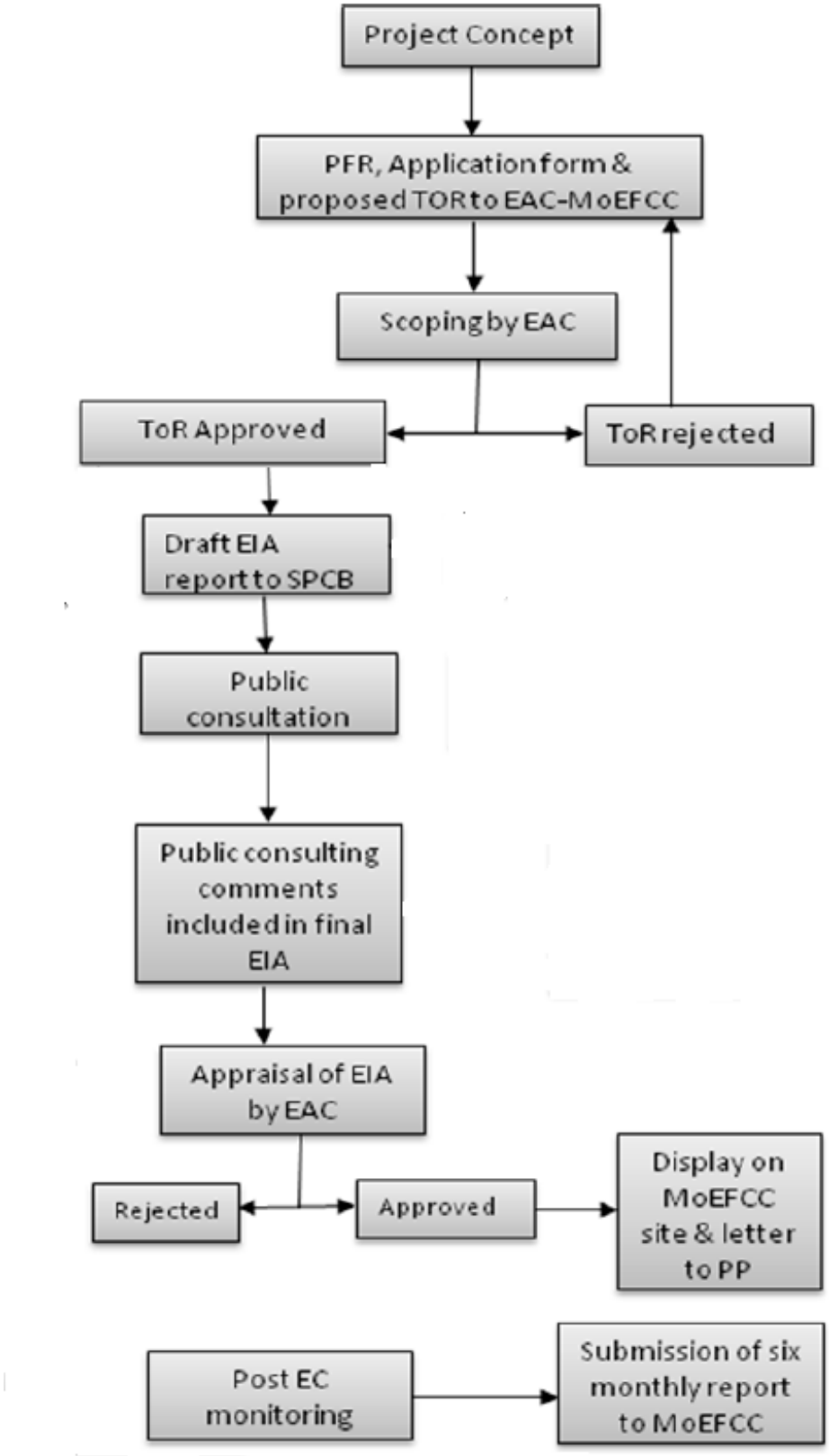
Noise Environment

The material handling equipments and vehicular movement are the main sources of noise pollution during the operational phase. The proper mitigation measure can reduce the noise pollution.

- All the equipments and vehicles shall adhere to high quality and good working conditions with noise generated within the permissible standards.
- The company will ensure that the Jetty will be designed such that the sound pressure level in any situation (including emergencies such as blowing of safety/relief valves) shall not exceed 115 dB (A) and that the impulse noise level shall not exceed 135 dB (A).
- The noise levels will not exceed permissible limits 60 dB (A) at the perimeter of the terminal area.

Schematic Representation of the Feasibility Drawing which give information of EIA Purpose

As per the Environment Impact Assessment (EIA) notification dated 14th September 2006 and subsequent amendments, this project falls under category A. It would be required to prepare EIA/EMP report to obtain the Environmental Clearance (EC) for the project from the MoEFCC. The schematic diagram given below represents the steps required for EIA to obtain the EC.


Project Concept
PFR, Application form & proposed TOR to EAC-MoEFCC
Scoping by EAC
ToR Approved
ToR rejected
Draft EIA report to SPCB
Public consultation
Public consulting comments included in final EIA
Appraisal of EIA by EAC
Rejected
Approved
Display on MoEFCC site & letter to PP
Post EC monitoring
Submission of six monthly report to MoEFCC

Site Analysis

Connectivity

Road

The State Highway SH-166A (Pen-Alibaug) passes on the south side of the jetty. The National Highway NH-66 (Mumbai-Goa) lies 5 km away from the plant on the south side of the jetty. Mumbai city is located at about 68 km on the North-West side of the site.

Railways

The nearest railway station Pen RS is about 8 km from the site and is located in the east on the Konkan Railway Mumbai - Mangalore main line.

Air Connectivity

The nearest Mumbai airport is 80 km from site connected through major road. The proposed Navi-Mumbai International airport is 40 km away from plant site.

Land Form, Land Use and Land Ownership

The total length of the Jetty after completion of balance construction and mechanization, as explained earlier in the report, shall remain 1750m as per existing Environmental Clearance. The Jetty is situated in Beneghat village of Raigad district in the state of Maharashtra along the right bank of Amba River.

The existing jetty facilities including backup areas covers 58.6 ha of land area. No additional land area will be required for the expansion proposal. The land use for backup facilities includes covered storage yard, conveyors, tank farms, bunkering facility, silos, roads, green belt, buildings, utility services and other related infrastructures. The area requirement for the proposed jetty has been minimized since the infrastructure and auxiliary facilities are already existing. Special attention has been made to provide connectivity to the existing facilities.

Topography & Land Use Pattern

The terrain of the site is fairly flat with some hillocks falling just outside the project boundary. The existing level in proposed area on an average is about +6 m CD and the highest tide level of the existing creek/river abutting the site is +5.4 m CD. The details of the jetty site are given in Table 7.

Table 7: Details of the Jetty Site

Details	Parameters
Latitude	Between 18°42'18" N & 18°43'00" N
Longitude	Between 73°01'09" E & 73°01'58" E
Elevation above MSL	1.7 m (Average)
Study Area Topography	Plain Area with slight undulating terrain
Nearest State Highway	State Highway SH-166A (Pen-Alibaug) passes on the south side of jetty site
Nearest Railway Station	The nearest Railway Station Pen RS is about 8.0 km from jetty site
Air Port	Mumbai airport is 80 km away and proposed Navi Mumbai International airport is 40 km away.
Ecological Sensitive Areas	No Wild Life Sanctuary (WLS) / National Park / Biosphere Reserve within 10 km radius.
RF / PF in Project Site	No forest land within the Project Site.
RF / PF In Study Area	4 Reserve Forest (RF) exist in 15 km radius as listed below: RF near Kharkhara village (1 km, E) RF near Katkariwadi village (5.3 km, NE) RF near Turmal village (4.6 km, E) RF near Katvira village (5.1 km, SW)
Nearest River / Dam	Amba River 0.80 km W of project site Bhogeswari river 7.8 km N of project site
Seismic Zone	Seismic Zone III – As per Seismic Zone India Map IS-1893 (Part-I):2002
Study Area : Industries	Steel, Cement & Tile industries exist within 10km radius
Agro-ecological Zones	Hilly Region
Forest Type	Open Scrub & Mixed Jungle in E & SW direction
Mean Annual Rainfall	526 mm
Mean Temperature	17.6°C (Mean Minimum) and 34.4°C (Mean Maximum)

Geology

Raigad District, formerly known as Kolaba District is situated in the western part of Konkan belt of Maharashtra State along the west coast of India. It lies between 17°52' and 19°08' north latitude and 72°51' and 73°40' east longitude. The district stretches 160 km from north to south while it ranges 24-48 km from east to west. It forms part of the Konkan coastal low lands and is flanked by Thane District on north, Ratnagiri District on south, Pune and Satara Districts on east and bounded by Arabian Sea on west. The coastline is 250 km long. Raigad District can be divided into three characteristic zones based on topographic features viz. coastal zone, central zone and hilly zone. Though the district forms part of Konkan plains, the topographic set-up is very uneven and rugged.

The coastline is characterized by alternative bluffs and curved bays having narrow hinterlands. The central region of District has many plateaus and hills rising from valleys. The eastern part is rugged and merging with the Sahyadris existing in north-south direction. The eastern horizon is marked by Sahyadri hills with good forest cover. The district spreads 48 km in the western direction with a steep slope descending from 869 m at Raigad to 3 m above MSL at Shrivardhan. Physio-graphically, the district can be divided into three main groups. The portion covering north-south alignment of Sahyadri ranges with several traverses, system of subsidiary hills with varying heights covers more than 45% of the total area of the district. The portion between coastal region and Sahyadri hill ranges, moderately undulating terrain with low lying area covering about 35% of the total area of the district. The extreme western portion in vicinity of Arabian Sea covers about 20% of the total area of the district.

Bathymetric and Geotechnical Investigations

The bathymetric and geophysical surveys in Dharamtar Creek near jetty area indicate a highly undulated seabed comprised of top layer of soft silty clay sediments with sand followed by very hard strata at 0 to 6 m below it. The exact

nature of this hard stratum which in many places occurs on top of seabed is consolidated sediments with pebble and gravel or highly weathered rock.

Most of the channel area of the river presumably comprises of silty clay sediment with sand except at the places where hard strata which may be consolidated sediments with pebble and gravel or highly weathered rock exist.

Existing Infrastructure

The existing Jetty of JSW Dharamtar Port Private Ltd. (JSWDPPL) at Beneghat, Raigad district in the state of Maharashtra operates a 33.95 Mt/yr of Cargo handling. The incoming raw material is stored at the covered storage yard and further transported through cross-country conveyor to JSW Steel Plant. Adequate road connectivity along with sufficient water and power allocation is available.

Soil Classification

Soil is here defined as the top layer if the land surface of the earth composed of small rock particles, humus (organic matter), water and air and geology concern the rocks beneath the soil. Some types of development have effects on the underlying geology, and almost all have an effect on the soil. Soil is a major factor affecting plants, including agricultural crops, and plants provide the food and habitats for animals. Thus, avoiding major impacts of a development on the soil can go long way towards preventing the degradation of a whole ecosystem. The plot area generally forms the part of Western region of Deccan trap.

Climate

Temperature

The region experiences moderate temperature variations, the mean day bulb temperature in the hottest (May) and in coldest (January) months being 31.1°C and 22.3°C respectively. The mean annual daily maximum and minimum temperature are 34.4°C and 17.6°C. In recent years this region has experienced high temperatures up to 36°C and low up to 12°C.

Relative Humidity

The relative humidity is moderate to high and varies between 68% and 99%. Average relative humidity is 78%.

Rainfall

Rainfall mainly occurs during the South-West Monsoon in the months of June to September. The mean annual rainfall in the wettest months is 526 mm. Maximum rainfalls observed are 75 mm for 3 hours continuously and 396 mm on 24 hours basis.

Winds

The region generally experiences a regular seasonal wind variation and predominantly subject to the influences of the south West monsoon winds lasting 'from the middle of June till about the end of September where after, fair weather sets in. In general wind directions vary from North-West during the winter and summer is however now as uniform as during the monsoon period. Calm wind (means speeds ranging from 6.4 m/sec in the fair-weather period to 0.1 m/sec (in the monsoon), generally prevails in the mornings only. The prominent wind direction was found to be North-West (NW) except during Monsoon (June, July, August). The average wind speed in the area during the study period was found to be 1.51 m/sec.

Earthquake Zone

The proposed project site falls in Zone-III as per IS-1893 (Part-I):2002.

Visibility

From November to March smog hangs over the land towards Mumbai. This happens only for short periods, most often shortly after sunrise but occasionally in the evening. Visibility is generally good for most part of the year, the number of days on which visibility is poor being negligible.

Currents

The current near Dharamtar area are tide induced and with reversal at high and low waters. The current strength in the estuary is of the order of 0.75 to 1.50

m/s (1.5 to 3.0 knots). The currents in the creek are affected by the freshet, which results in not only increasing the strength of current but also limiting the propagation of the tide upstream.

Waves

Latitude 15°N to 25°N and longitude 70°E to 75°E shows that during monsoon the predominant wave directions is from southwest to west. During this period, waves of 4 to 5 m in height occur outside. However, the area in front of Dharamtar Port and proposed area near Dharamtar, are considered to be without any wave effect and near tranquil conditions exist near the proposed berth area. October and November are transition months during which the predominant wave direction changes North to North-East. During December and January, the waves mainly occur from North to North-East and from February to May waves predominantly come from the North-West quadrant, which are relevant from navigational operations near the creek entrance.

Social Infrastructure Available

The existing Jetty is situated in Beneghat village of Raigad district in the state of Maharashtra. Pen Railway Station and Kasu Railway Station are the very nearby railway stations to Beneghat. Nearby hospital is located at Dolvi. Mandwa beach is situated about 30 km and Alibaug beach is situated about 22km from the jetty site. Structured townships with adequate greenbelt, luxury hotels and restaurants are available in the district. High traffic connecting routes are wider and in good condition along with strong transport links.

Planning

Planning Concept

DPPL is proposing its Phase III expansion of the jetty facility in anticipation of increased cargo volume. The cargo handled at the jetty facility is about 33.95 Mt/yr which will be expanded to handle about 57 Mt/yr of various cargos. The proposed cargo to be handled will include the Iron Bearing Raw Material (IBRM), Coal Bearing Raw material (CBRM), Fluxes, clinker, cement, HR coil, sheets, CR coils, other steel products, slag, containers, and liquid cargo.

Jetty Facilities

The existing jetty facilities which are under operation at the moment as a part of Phase II development, includes 9 nos. of operational berths (Berth Nos. 1 to 9) constructed over a length of about 1050m whereas the existing Environmental Clearance is for a total jetty length of 1750 m designed to handle barges upto 6000 DWT and MBC upto 8000 DWT. The total jetty length in Phase-III will remain same as 1750m and the balance construction and mechanization of Berth Nos. 10, 11, 12 and 13 will be taken up for handling the additional cargo. The material will be unloaded on jetty conveyors which will then feed the outgoing conveyors of the steel plant for onward conveying to their storage yard / plant.

Logistics and Material Handling

A simple logistic chain is presently followed at the Dharamtar facility. For cargo handling in the fair weather, the mother vessels are moored at the Mumbai Offshore anchorage (Bravo East) and at Jaigarh Port. However, in the monsoon the inner anchorage opposite Nhava Island is used. The mother ships load the barges using ship's gears. The barges then move in to the creek and travel to the berth and gets unloaded. The material is unloaded using 7 barge unloaders and 2 Mobile Harbour Cranes and sent to the raw material storage yard and then to the steel plant through outgoing conveyors. To handle the

increased cargo, additional equipment will be added at the Jetty which includes 5 nos. of Barge Unloaders and 1 no. of Mobile Harbour Crane.

The details of jetty length, barge size, material handling equipment, etc. of existing and proposed expansion of jetty has been given in Table 4 under “Project Description”.

Master Plan and Berth Layout

The jetty is aligned along the river bank and to the current. Though there is a small angle between the ebb and the flood flows, the alignment would take care of this without any appreciable set up. In the master plan scenario, the length of the berth would be 1750 m.

The general layout of existing jetty and the proposed jetty expansion is shown in the drawing no. JSW/DPPL/CIVIL/000.

Dredging and Reclamation

Navigation of 8000 DWT MBCs would require 5m dredging below the chart datum. This would involve Capital Dredging of about 4,100,000 m^3. Out of this, the hard material dredged will be about 1,000,000 m^3, which will be used for reclamation of low-lying areas behind the berths. The balance of about 3,100,000 m^3 of soft material will be dumped at designated locations near Mumbai Port Area as identified by MMB through CWPRS Model Report. Maintenance Dredging quantity shall remain same as 2,000,000 m^3 as per existing MOEFCC clearance and the dredged material from maintenance dredging will also be dumped at designated locations near Mumbai Port Area as identified by MMB through CWPRS Model Report. Dredging shall be carried out through Maharashtra Maritime Board (MMB) or Inland Waterways Authority of India (IWAI).

Navigational Channel

Presently barges of capacity 3000 DWT and MBC of capacity 8000 DWT are used for cargo transportation to the jetties. The operational days in a year can be considered as 330. With the expansion of the steel plant the requirement for

the raw material shall increase and concurrently there is a need to expand the jetty and deploy barges of higher DWT for cargo transportation. The barges of 6000 DWT and additional MBC of 8000 DWT would also be required after complete expansion of the jetty to cater to about 57 Mt/yr cargo. The navigation channel details are given below:

Chanel Depth : (–) 5.0m CD
Channel Length : 19 km
Navigation Channel Width : 120m

The break-up of barge movement is depicted in the Table 5 above under “Project Description”.

Port Buildings

The existing port buildings cater to Administration, Operation, Electricals, Maintenance and Gate Complex. The existing administration building consists of administration, finance department, planning and environmental department, canteen etc. Existing maintenance building consist of workshop and stores, service facilities for mechanical and electrical equipment, electrical rooms, etc. This shall take care of additional plant manpower also.

Navigational Aids

The terminal will have operations round the clock. The required navigational aids will be provided to enable night navigation. Differential Global Positioning System (DGPS) tracking and Vessel Transit Management System also would be deployed, for better management of traffic. Navigational aids will conform to the International Association of Lighthouse Authorities Regulations.

Green Belt

33% Green Belt will be provided as per statutory requirements. Local and fast-growing species will be planted to ensure fast and effective development of the green belt.

Population Projection

The proposed expansion of JSW Dharamtar Jetty lies in Beneghat Village. In the construction & operation phases of the proposed jetty expansion, both direct & indirect deployment of local work force would be employed. The proposed jetty expansion require some additional management and executive manpower along with skilled, semi-skilled, unskilled and clerical manpower. Management and Executive manpower would be sourced from inhouse resources and other jobs will be mostly sourced from the local population.

Land Use Planning

The total land area required for the port operations and the ancillary facilities is about 58.6 ha of the existing area. The majority of the stacking area is on the back of the jetty, beyond the shore line.

Assessment of Infrastructure Demand and Amenities/Facilities

The following infrastructure development in the area is being carried out to support the growth of plant and for its sustainable operation:

- Development of road linkage from major roads/distribution roads to the proposed site.
- Provision of safe potable water facilities in surrounding villages is being implemented by the company along with other Government agencies.
- Provision of medical facilities in the project influence area with special emphasis on primary health care through private Mobile Health Units, Government Public Health Centers and medical camps
- Industrial and Vocational training to local youth groups (both girls & boys) for diversification of skills and enhancement of livelihood
- Provision of social infrastructure like that of community toilets, playgrounds, community halls with basic amenities

Proposed Infrastructure

Industrial Area

The existing JSW Dharamtar Jetty is located at Beneghat village South-East of Mumbai Harbour in Dharamtar Creek in the estuary of Amba River extending to about 12 nautical miles upstream of the river.

The State Highway SH-166A (Pen-Alibaug) passes on the south side of the jetty. The National Highway NH-66 (Mumbai-Goa) lies 5 km away from the plant on the south side of the jetty.

The nearest railway station Pen RS is about 8 km from the site and is located in the east on the Konkan Railway Mumbai - Mangalore main line.

The nearest Mumbai airport is 80 km from site connected through major road. The proposed Navi-Mumbai International airport is 40 km away from plant site.

Residential Area

Currently there is no residential area within the jetty site. However, there is a plan by JSW Steel to construct a township nearby, to take care of the accommodation facilities of JSW Dharamtar and JSW Steel Plant employees.

Green Belt

The existing jetty is surrounded by greenery which besides arresting pollution has helped in providing a serene environment for the surrounding population. Greenery will be maintained within the land area. 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 jetty expansion 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 upto 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.

Social Infrastructure

JSW Foundation, the apex agency for implementing CSR activities for the entire JSW Group, over the years, has provided support for the overall socio-economic development the surrounding areas. These include:

- Rural Social Infrastructure including clean water, decent housing, environmental sanitation, personal hygiene and adequate nutrition
- Coordination between multiple funding streams and agencies supporting the surrounding areas.
- Basic education to promote quality, dignity, self-respect, with a sense of belonging as well as political integration.
- Formal and informal education to promote rural productivity
- Development of road linkage from major roads/distribution roads to the proposed site.
- Provision of safe potable water facilities in surrounding villages is being implemented by the company along with other Government agencies.
- Provision of medical facilities in the project influence area with special emphasis on primary health care through private Mobile Health Units, Government Public Health Centers and medical camps
- Industrial and Vocational training to local youth groups (both girls & boys) for diversification of skills and enhancement of livelihood
- Provision of social infrastructure like that of community toilets, playgrounds, community halls with basic amenities

Connectivity

The Plant is well connected to other cities by Road and Waterways. The State Highway SH-166A (Pen-Alibaug) passes on the south side of the jetty. The

National Highway NH-66 (Mumbai-Goa) lies 5 km away from the plant on the south side of the jetty. Mumbai city is located at about 68 km on the North-West side of the site.

The nearest railway station Pen RS is about 8 km from the site and is located in the east on the Konkan Railway Mumbai - Mangalore main line.

The nearest Mumbai airport is 80 km from site connected through major road. The proposed Navi-Mumbai International airport is 40 km away from plant site.

Drinking Water Management

The water requirement for drinking & sanitation will be met from the existing allocation to JSWSL from Amba river, Nagothane, K.T. Bandhara. The water is treated in a Raw Water Treatment Plant (RWTP) and the treated raw water is used for drinking purposes after necessary disinfection.

Sewage System

The jetty has a well-connected sewage network system. Sewage generated from domestic water use would be collected by means of suitable sewer system for treatment in Sewage Treatment Plant (STP). STP of capacity 50 m^3/day has been installed at the Jetty and the same will cater for the proposed expansion of Jetty.

Biological solid waste generated from STP shall be disposed as per MPCB norms. The treated sewage water shall be reused for green belt development and/or will be disposed off in local drains, which will not impact the ground or surface water quality of the area.

Industrial Waste Water Management

The effluent form storage 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 and iron ore dust, which will be put back in the storage yard. Clean

over flow after dust settlement will be collected and recycled for dust suppression and excess overflow will be discharged into outfall drain.

The Jetty operations will ensure that there will be no impact on surface or groundwater quality in the region.

Solid Waste Management

The Jetty operations would also produce solid waste such as garbage, debris, and left-over plastic items, containers, etc. which if not properly disposed might influence the near shore areas. Approved dumpsites and recycling measures will be taken to responsibly dispose off other wastes and send used batteries, used oil, and used oil filters for recycling.

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.

Power Requirement & Supply/Source

The material handling facility at JSWDPPL is fully mechanised. Power would be required for bulk handling equipment viz. barge unloader, jetty conveyor & stacker & reclaimer, cross country conveyor, illumination of storage yard, jetty, road, sheds, port building, fire-fighting system, dust suppression system, etc. The existing power requirement is 36 MVA and after expansion of jetty the power requirement will be about 66 MVA.

Shore Power Electric Supply System

During a stay at Port MBC/Barge emits huge amount greenhouse gases & pollutants like NOx & SOx, to reduce this gases & pollutants it is proposed to provide Shore Electric Power System in all the proposed berths.

Fire Fighting System

A fire protection system is proposed to cover the entire facility. The fire protection system shall be designed as per National Building Code (NBC). The main components of the system include:

Fire Hydrant system

This is the backbone of any fire protection system. A pipeline will be routed around the area as a ring main, and the hydrants will be installed at specified intervals. Along the hydrants, hose cabinets with hoses and branch pipes and hoses will be provided. The hydrant main will be preferably routed underground.

Sprinkler system for Admin building

For the administrative building it is preferable to provide a sprinkler system. The tapping for sprinkler system will be taken from the nearest main hydrant.

Portable extinguishers

Portable fire extinguishers will be provided as per the guidelines of IS-2190, across the entire facility.

Fire water Pump House

The fire water pump house will consist of a motor driven pump, diesel driven pump and a jockey pump to keep the system pressurized at all times. The pumps will use sea water which is abundantly available.

Fire Alarm System

The fire alarm system shall consist of the following:

- Break glass type manual call Points and hooters
- Smoke detectors in the admin building

All the above detectors are connected to solid state electronic Main Fire Alarm Panel (MFAP) located in the control room. When any of the detectors/Manual call point is activated, the Fire alarm panel will sound alarm and alert the personnel concerned. In addition, response indicators will be provided in each room to alert the occupants in case of fire.

Rehabilitation & Resettlement (R&R) Plan

The proposed expansion of the existing jetty shall lead to employment opportunities during construction as well as operation phase. The proposed project will enhance the overall 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.

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 facility are already provided to the workers.

Project Schedule & Cost Estimates

Project Schedule

Implementation of Jetty expansion is a challenging task and calls for meticulous planning, scheduling and monitoring to realize the project goals in budgeted time frame. The goals can be achieved by adopting modern project management techniques. JSW has a highly experienced team set up for the purpose which will execute the project. The expansion of jetty along with the extension of covered storage yard will be completed in 36 months. The schedule considered is based on the conventional project implementation logics for jetty, preliminary vendor information available and in-house analysis.

Capital Cost Estimate

The estimated block capital cost outlay for the Jetty expansion is about Rs. 950 crores. The capital cost includes cost of jetty development, barge unloader, jetty conveyor, extension of covered storage yard, cross country conveyor, civil work and structural steelwork, erection and commissioning. Provision for contingency, design, engineering and administration during construction are included in the capital cost. The breakup of Capital Cost Estimate is given in the Table 8 below:

Table 8: Capital Cost Estimate

Sl. No.	Item	Cost (INR Crores)
1	Engineering	2.0
2	Environment & Statutory Clearances	2.0
3	Equipment and Structural Works	650
4	Civil Works	220
5	Power Supply & Electrics	65
6	Operations Equipment	5.0
Total Project Cost for Jetty Expansion		**944, say 950**

Analysis of Proposal

Financial Benefits

The financial benefits accrued from the project would not only improve the productivity and profitability of the company, but also strengthen the economy of the state due to revenues from taxes and duties derived from the operation of jetty by handling multiple cargoes.

Social Benefits

The construction and commissioning of the jetty expansion will fulfil all the demands needed to increase the production and development and also boost the socio-economic status of the people in the area. The socio-economic benefits envisaged due to the expansion project are:

- Creation of new direct and indirect job opportunities during construction and operational phase of the project.
- The development of various activities, would not only improve the cash flow in the area, but would also provide an impetus to improvement in infrastructure at the local level.
- Contribute to the local economy and the state revenue

The peripheral development activities that would be undertaken by the proposed project will focus on vulnerable communities in the project influence area. The project would bring forward an overall socio-economic development with emphasis in the areas of employment, education, training, health and infrastructure.

Significant Benefits

The jetty is located at about 18.0 nautical miles from Jawaharlal Nehru Port and 18.0 nautical miles from Mumbai Port. The jetty is accessible by road and is 68 km from Mumbai. The region is well connected to railway and road. The strategic location of the jetty makes it easily accessible from road as well as

waterways. The major advantages of the proposed Dharamtar jetty expansion are summarized below:

- Captive port in Dharamtar creek is in operation and can be easily expanded for cargo receipt and handling.
- The expanded jetty shall satisfy the increased demands of the existing steel plant which has expanded its production capacity.
- Shall reduce the pollution as the cargo shall be brought in through the waterways instead of road, thereby reducing the air and noise pollution during transportation.
- Shall significantly contribute to the Socio-economic development of the area

DHARAMTAR PORT PVT. LTD.

DEPT:	CIVIL
LOCATION:	DHARAMTAR
DESIGNED:	
DRAWN:	
CHECKED & VERIFIED:	
APPROVED DATE:	

DPPL PHASE 3 EXPANSION

SCALE:

DRAWING NO: JSW/DPPL/CIVIL/.....

RIV