

*Executive Summary of  
Environmental Impact Assessment of Proposed Construction of  
New approach trestle with expansion of existing Fish terminal  
at Ferry wharf by Mumbai Port Trust*

*Project Proponent*

**MUMBAI PORT TRUST**



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## **INTRODUCTION**

The Mumbai Port Authority has proposed for extension of existing fishery Terminal at Mallet Bunder to provide fish landing facilities to the increased number of fishing vessels along with facilities for unloading and marketing of the fishcatch for the fishermen of Mazgaon and nearby fishing villages at Mallet Bunder. The project comprises the following principal components

- i) Provision of safe landing and berthing facilities for Mechanized Fishing Vessels (MFVs) to operate throughout the fishing season.
- ii) Construction of shore-based establishments including facilities for unloading, auction, distribution and marketing of fish catch Terminal to be setup.

Central Institute of Coastal Engineering for Fishery (CICEF) has conducted topographic and Hydrographic survey of the project site. Accordingly, MbPA and CICEF have made a Memorandum of Agreement (MoA) for the Terminal expansion proposal for design fleet size of 1286 nos. of MFVs. There has been continuous increase in the number of mechanized boats both in the cooperative and private sector, as could be seen from below in Table E-1, in the last 5 years.

**Table E-1: Growth of Fishing Boats in Maharashtra**

<b>Year</b>	<b>No. of mechanized boats</b>	<b>No. of non-mechanized boats</b>	<b>Rampan</b>	<b>Total</b>
2014-15	12,831	2,751	104	<b>15,686</b>
2015-16	13,002	2,612	92	<b>15,706</b>
2016-17	13,178	2,934	106	<b>16,218</b>
2017-18	13,548	3,346	86	<b>16,980</b>
2018-19	13,613	3,548	77	<b>17,238</b>



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**NEED OF THE PROJECT:**

Mumbai Port has developed the facilities for the fishing activity at Sasson Dock and the Ferry wharf. MbPA has already taken up the work of modernization of the Sassoon dock fishing harbour. Mumbai Port has now proposed the work of “Construction of New Fish Terminal with Approach Trestle at Mallet Bunder” near the existing fish terminal.

At the ferry wharf there is a requirement of the new facility. The existing fish jetty at ferry wharf was constructed in the year 1979, situated near Bhauccha Dhakka, which caters to the requirement of fishermen and handles fishing related small boats and Trawlers. The existing fish jetty at ferry wharf was constructed and funded by Mazgaon Dock Ltd. (MDL) in the year 1979 at a cost of Rs. 95.98 lakhs, in lieu of Kasara Bunder leased out to MDL. The jetty was originally built only for a capacity of 300 boats.

Due to increased fishing activity, there is a requirement for the expansion of the existing fish terminal with a new approach jetty. There has been persistent demand from fishing community for Expansion with capacity addition of existing fish jetty at Ferry Wharf with separate approach Trestle/Bridge to decongest the roads and facilitate easy trade. Hence it was decided to construct a new fish terminal on the north of the existing fish jetty. Recently there is a development of Ro-Ro Pax terminal and Domestic Cruise Terminal to the south of this jetty. The passenger traffic at Ro-Ro Pax terminal and Domestic Cruise Terminal including passenger traffic coming to the Bhaucha Dhakka needs to be segregated from the fishing related traffic from the fish jetty. Therefore, separate approach trestle is proposed from Mallet Bunder Wharf to ensure separation of Passenger and fish movement.



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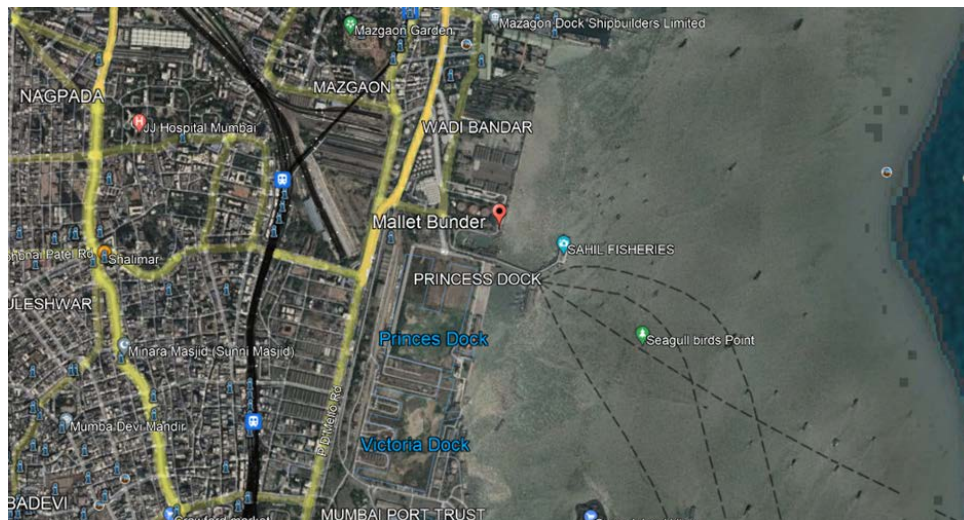


Details of the existing Fish Jetty are presented in the following Table E-2.

**Table E-2: Details of Existing Fish Jetty**

Sr. No.	Description	Details of existing Jetty	Year of construction	Remarks
1.	Size of the Jetty	122.35 m X 38.15 m	1979	Presently the existing old fish jetty has been used beyond its capacity, which was originally designed to handle maximum 300 fishing boats. Whereas, now-a-days around 1500 boats are utilizing the jetty which is very much beyond its capacity therefore there is urgent need to provide additional fish jetty with separate approach.
2.	Length of the existing approach trestle	270 m		
3.	Jetty originally designed and built by MDL with capacity for number of boats	300 Boats		
4.	Presently no. of boats visiting and using this Jetty	1500 Boats		
5.	Per day unloading of fish for supply to export companies	800 – 1000 ton		
6.	Daily No. of people visiting the Jetty including fishermen	15000		
7.	Daily No. of Vehicle visiting existing old fish jetty	200 Vehicles		

**Figure E-1: Satellite Imagery of Mallet Bunder**





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## DETAILS OF PROPOSED PROJECT

### Size of Terminal

The existing fish jetty at New Ferry Wharf (Bhaucha Dhakka) has been designed to cater to 300 boats. The jetty is now being used by more than 1500 boats which is resulting in acute congestion, creating unhygienic conditions. It has been a long and consistent demand from the local fishermen to expand the current facilities to cater to more fishing vessels. Therefore, MbPA has formulated the proposal for the expansion of the existing jetty.

Based on the consultations with the stake holders and assessing the ground situation, it has been decided mutually to design the New Fish Jetty for the following design fleet size (Table E-3)

**Table E-3: Design Fleet Size**

Sl. No.	Size and type of Fishing Boats	No. of Fishing Boats
1	14 m Trawlers	36
2	16 m Trawlers	194
3	18 m Trawlers	740
4	Migrated 18 m Trawlers	202
5	20 m Trawlers	114
<b>Total</b>		<b>1,286</b>

### Design Data

The details of the fleet using the Terminal such as overall length of boats, average landing per trip, duration of each fishing trip etc. are given in **Table E.4**



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**Table E-4: Design data**

<b>Overall length of boats (average)</b>	<b>No. of boats</b>	<b>Average landing per boat (kg) per trip</b>	<b>No. of days in fishing season</b>	<b>No. of fishing days</b>	<b>Rest days</b>	<b>Duration of each trip (days)</b>
14 m Trawlers	36	4000	270	220	50	4
16 m Trawlers	194	4500	270	220	50	4
18 m Trawlers	740	5000	270	220	50	8
18 m Trawlers Migratory	202	5000	270	220	50	8
20 m Trawlers	114	6000	270	220	50	10

**1.1.1 Depth of the Terminal**

The mean low water spring (MLWS) at Mumbai Harbour is (+) 0.76 Mtrs. The maximum draft of the fishing vessel using the Terminal is about 3.50 m. In order to have better maneuverability, Terminal basin to an extent of 60 m all around the fish landing jetty is proposed to be maintained to (-)3.0 m by carrying out maintenance dredging to ensure a safe under keel clearance of 0.26 m which accounts for the allowances such as squat, likely siltation etc.

**1.1.2 Jetty Length Required for Landing**

The jetty length required for landing at the Terminal is based on the number and size of the fishing vessels using the Terminal and the annual average fish landings per vessel.

The summary of total jetty length required for landing for fishing vessels is given in the following table:



**Table E-5: Proposed Jetty Lengths**

Type of jetty	As per calculations					Total requirements in meters
	14m	16m	18 m	18m (migratory)	20m	
Landing jetty	15	106	257	79	44	501
<b>Total</b>	<b>15</b>	<b>106</b>	<b>257</b>	<b>79</b>	<b>44</b>	<b>501 m</b>

The requirement of landing jetty length for a design fleet of 1,286 MFVs works out to 501m. The length of New Fish Jetty proposed is 131 m, designed to facilitate the fishing vessels to come along the jetty on both sides for berthing to unload fish catch. Taking into account, the existing fish landing jetty of 122 m long, the overall length of jetty available for fish landing comes to 506 m against a total requirement of 501m.

### 1.1.3 Fishery Terminal Layout

The Mallet Bunder is situated in a sheltered region of the MbPA water limits and as such the tranquility conditions for the safe maneuvering operations of the fishing vessels is ensured during all times of the tide. The Mallet Bunder is well connected to the city of Mumbai by means of a good network of roads belonging to Mumbai Port Authority (MbPA) and Brihanmumbai Municipal Corporation (MCGM).

The construction of new fish jetty with approach trestle is proposed as an extension of the existing fish jetty popularly known as New ferry wharf or Bhaucha Dhakka. The existing fish jetty of 122.35 m is proposed to be further expanded by addition of another 131.00 m of landing jetty. The expansion of the landing jetty is limited to 131.00 m considering the navigation aspects of the Mazgaon Dock. The landing jetty is proposed to be connected to the Mallet Wharf by means of a 250 m long new approach trestle having a width of 16.30 m to cater to the two-lane traffic. Two fish auction halls of 100.00 m x 10.23 m size are proposed to be built over the landing jetty to facilitate auctioning, cleaning and packing of the landed fish catch. The refrigerated vehicles would be entering the landing jetty through the approach trestle so as to





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enable the cleaned, packed and weighed fish to be loaded directly to the vehicles parked right in front of the auction halls under a covered roof. Effluent treatment Plants to treat the effluents generated and a toilet block are also proposed to be built closer to the auction halls. The proposed landing jetty would be 61.50 m wide to house two auction halls and as well as providing pathway in-between these two auction halls. An area to the extent of 60m wide around the landing jetty is proposed to be maintained to -3.0m cd by maintenance dredging to enable smooth maneuvering of vessels during the landing.

The fishery terminal is proposed to have entrance gate at Mallet bunder with access control by means of security and establishing compound wall all around the bunder premises.

The proposal mainly consists of following land and waterside facilities given in **Table E.6**.

**Table E-6: Landside and Waterside Facilities**

S.No	Particular	Dimensions
1	Approach Trestle	250.00 m x 16.30 m
2	Landing Jetty	131 m x 61.50 m
3	Maintenance Dredging around landing jetty	(-3 m CD)
4	Double lane Cement Concrete roads	4075 Sq.m
5	Fish Handling and Auction Hall	2 Numbers (100.00 x 10.23m)
6	Net mending shed	1 No. (206.95 sq.m)
7	Fish Market	1 No. (200 sq.m)
8	Restaurant cum Rest Shed	1 No. (268.16 sq.m)
9	Workshop	1 No. (95.34 sq.m)
10	Toilet Blocks	2 Nos. (53.50 & 67.73 sq.m)
11	Sloping Hard	(525 sq.m)
12	Security/guard house with main gate	(32.50 sq.m)





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Apart from above mentioned facilities following particulars are also considered in the proposal

1. dismantling of existing approach trestle
2. Repairs and renovation to existing facilities
3. Conversion of export shed as fish peeling shed
4. Fresh water supply and distribution system
5. Provision of solid, liquid and toxic waste disposal systems including drainage, sewerage treatment facilities, bilge oil separators, spent oil reception sheds, toxic waste collection sheds, effluent treatment plant etc.
6. Internal electrical supply and distribution system including general lighting etc.
7. Navigation aids and radio communication equipment.
8. Greeneries and landscaping

The project details are as per approved DPR by CICEF. Detailed layout of proposed fishing harbor is attached as **Annexure III**.

**Baseline Environment**

It is necessary to evaluate the impacts of the project activities, so that the surrounding area and communities are least affected from the negative impacts. For studying the environmental sensitivity in a radius of 10 km, secondary data was also obtained. The sampling locations of the study area are indicated below:

**TableE-7: Baseline Monitoring Plan for EIA of Fishing Jetty**

Sr. No.	Attributes	Parameters	Frequency	No of Locations
1	Ambient Air Quality	PM <sub>10</sub> , PM <sub>2.5</sub> , NO <sub>x</sub> , SO <sub>2</sub> , CO and other relevant parameters	24 hourly samples, twice a week for 12 weeks	8 locations



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Sr. No.	Attributes	Parameters	Frequency	No of Locations
2	Noise Levels	$L_{day}$ , $L_{night}$ , $L_{eq}$	Once in season. Hourly reading for 24 hrs	8 locations
3	Fresh Water	As per IS:10500	Once in season	1 location
4	Seawater and Sediment	Physical and chemical parameters as per TOR	Once in season	10 locations
5	Soil Quality	Soil profile with chemical constituents	Once in season	5 locations
6	GIS	Land use and land classification	Based on secondary data and satellite imagery	10 km Study area
7	Ecology	Terrestrial and aquatic flora and fauna in the study area	Primary survey through field studies during study period	10 km Study area
8	Socioeconomic aspects	Based on data published in census handbooks and field study	Primary survey through field studies during study period	10 km Study area

### Ambient Air Quality Monitoring Results:

The results of the monitored data, except maximum value of PM10 and Benzene, indicate that the ambient air quality of the region is in conformity with respect to residential norms of the National Ambient Air Quality Standards of CPCB with present level of activities. Ambient air quality monitoring results attached as **Appendix I** of EIA report

### Noise level observations:

The noise level of the study area for industrial zone varied from 60.3 to 72.5dB (A) during day time and 53.8 to 67.5 dB (A) during night time which are within limits of the specified standards stated above in Table 3.9.

The noise level of the study area for residential zone varied from 53.4 to 59.4 dB (A) during day time and 43.1 to 49.9 dB (A) during night time which are exceeding the limits of the specified standards stated above in Table 3.13. The location is located near Ghatkopar – Mankhurd Link



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Road which is always crowded by the traffic. Hence, the results are exceeding the standard limits. The noise level of the study area for commercial zone varied from 59.4 dB (A) during day time and 46.9 dB (A) during night time which are within limits of the specified standards

### **Marine Water observations**

pH is in the range of 7.4-7.8. The electrical conductivity ranges of 37500 to 55800 mS/cm. Dissolved oxygen is found between the range of 5.1 - 6.1 mg/L. Total dissolved solids detected in range of 24320 to 36180 mg/L. Chlorides are found in the range of 14035-19733 mg/L. Nitrate is found in between 0.19-0.58 mg/L.

### **Marine Sediments observations**

It was observed that the sediments are slightly alkaline as their pH is in the range of 7.3 to 8.2. Organic matter present in sediment influences its physical and chemical properties. Coastal sediment analysis shows that the concentration of organic matter is in the range of 1.4 – 2.5% and organic carbon is in the range of 0.8 – 1.5%. Sediment analysis shows lower values of organic carbon. Nickel is in the range of 21-40 mg/kg, Zinc is in the range of 36-134 mg/kg, Iron in the range of 22143-54621 mg/kg and Manganese in the range of 325-852 mg/kg. The concentration of heavy metals found in high range.

### **Biological Environment**

No Rare, Endangered and Threatened (RET) mammals were observed in the study area as per IUCN Red List of threatened animals. The mammals reported in project area along with their conservation status as per IUCN are listed in Table-3.3 MSRDC in consultation with JICA have conducted detailed study on Flamingo population dynamics in Thane Creek. Figure 3.14 shows areas of Flamingo habitats in Thane Creek and their local migration routes. From this study it is evident that proposed Project site is not falling within Flamingo migration route.

### **Anticipated Environmental Impact**

Depending on the nature of interaction and the degree of impact made on the environment, aspects have been considered as significant/insignificant. The significant impacts are further



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classified as reversible and irreversible. Reversible impacts are those which have the ability to restore natural conditions if suitable mitigating measures are taken to avoid, reduce or offset negative environmental impacts. Irreversible impacts are those which cannot be restored to natural conditions/avoided.

### **Impact on Land Use**

The proposed project is of expansion of fish terminal at Ferry wharf. The development is an offshore structure and hence, no significant changes in the land use are envisaged. These impacts are closely linked with the methodologies adopted for construction and the duration of construction. Construction activities may lead to changes in sediment texture in localized areas particularly along the intertidal segments and increase in turbidity level. However, these changes would be minor and non-consequential to the overall sediment quality of the area. .

Appropriate measures will be taken for the storage, handling, and transportation of construction materials as well as the minimal construction waste arising during the construction activities. MbPA should propose a waste management plan and submit the same to the engineer for approval, prior to commencing work. All the marine construction activities to be monitored by the Site Engineer.

### **Impacts on Air Environment**

The major pollutant in the construction phase will be Particulate Matter (PM); being airborne to various construction activities. The vehicular movement generates pollutants such as NO<sub>x</sub>, CO and HC. But the vehicular pollution is not expected to lead to any major impacts.

Transportation of construction material results in use of public infrastructure like roads and during material transportation, there is a possibility of impact on air quality along the route due to exhaust emissions, fugitive dust suspension and traffic congestion.

Fugitive dust is expected particularly during dry weather conditions due to the site preparation, demolition of existing approach trestle and movement of transport vehicles for materials and personnel. Emissions from Diesel power generators, construction equipment and transport



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vehicles will affect the air quality within the work areas, if not adequately managed. Proposed construction activities are envisaged to result in only mild build-up of air pollutants.

Proper safety will be taken during demolition work. Water sprinkling will be done to suppress the dust generated due to demolition work. Adequately sized temporary construction structures will be provided at the site for storage of construction materials, equipment tools, earthmoving equipment, etc. In addition, temporary worker amenities will be provided at site. To lessen the gaseous emissions necessary steps will be followed like, only vehicles having PUC shall be allowed, well equipped handling & transportation facilities shall be provided throughout the construction phase. Proper area will be demarcated for storage of construction material. Movement of material will be mostly during non-peak hours and regulated during peak hours. Construction equipment and transport vehicles will be periodically washed to remove accumulated dirt. Dust generated from handling of construction materials and to suppress fugitive dust at construction site & on the approach road will be done through water sprinkling. Environmental awareness program/training will be organized to the personnel involved in developmental works. All mitigation measures will be taken to control dust and odor to meet MPCB norms.

### **Impact on Noise Level**

Equipment and machinery such as Dozers, Cranes, Trucks and DG sets are likely to be used thus generating noise levels. During the operation phase the major source expected to increase the noise level at the terminal area are arrival of boats, vehicular movement and operation of D.G set for emergency power supply.

All noise generating equipment shall be regularly maintained. Fitting of sound insulating sheet shall be done during construction period. Proper lubrication, muffling and modernization of equipment shall be done to reduce the noise, D.G. set with sound proof enclosures shall be carried forward. If any machine is damaged repair and maintenance should be done



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## **Impacts on Water Environment**

No fresh water surface bodies are present at site. Moreover, construction activities are confined to marine areas. Hence, there will be no significant impacts on fresh water. No direct impacts are envisaged on surface water bodies during operation phase. Domestic waste water will be generated during operation phase which will be treated in STP.

Maximum care shall be taken during construction phase to avoid misuse of water. Proper sanitation facilities shall be provided for construction workers. No direct impacts are envisaged on surface water bodies during operation phase.

## **Impacts on Marine Environment**

The proposed developments involve drilling of piles and construction of approach trestle and will create disturbance of bed sediment in water column. The impacts envisaged on marine water quality due to construction activities will be significant but reversible.

As a result of dredging impacts on marine ecology are anticipated. During dredging there will be increase in turbidity. However, most of sediment is coarse sand which will settle down quickly and dredged spoil plume is not envisaged. In the areas to be dredged, the existing marine life would be affected, however, such sites re-colonized in short duration after the cessation of the dredging activities. It was observed during the marine ecological survey that the project area has moderate productivity. Hence, major impacts are not anticipated on marine plankton ecology due to construction of the proposed project.

## **Impacts on Biological Environment**

There are no mangroves in and around proposed Project site. Mangroves are almost 6 km away from project site. Hence, no further impact on the mangroves is anticipated

As per baseline environmental survey, no REET species of flora and fauna are observed in project site. Project site is devoid of any vegetation. No tree cutting involved in proposed project since the site is on the sea water



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Discharge of wastes/waste water during the construction and operation would not be allowed. Fauna that occur in the study area may get disturbed with the sound of vehicles, construction and construction equipment. Noise generated during construction phase may have negative impacts on birds and fauna of the respective area. However these impacts will be limited period and reversible.

Spraying of water during handling of construction materials like sand and gravel will minimise dust emission. Properly maintained vehicles will produce reduced noxious emission. During the operation phase there is a possibility of aqueous discharges from the project site such as leakage of fuel from vessels and dumping of solid wastes material

The impact on fisheries may be either due to physical impacts of suspended solids or due to changes caused in the food chain. In fact, the construction activities of the proposed development at Bhaucha Dhakka is limited for a short period (24 months) and hence, no long-term impact on the fishery of this area is envisaged due to the project. A temporary disturbance of the benthic habitat may locally disturb the demersal fishery resources of the area for a short period. Benthos forms the main food for most bottom dwellers and hence, changes in the benthic standing crop will have its consequences on the demersal resource, at least temporarily.

In general, an increase in turbidity due to dispersion of fine grained sediment in water can lead to reduced light transmittance which in turn may influence photosynthesis and consequently may affect the primary productivity. The recovery of phytoplankton production will be fast after the completion of construction activities. Construction of Proposed project will increase the noise generation and human activities. Therefore, there is a possibility that some groups of migratory birds avoid the adjacent area and move to other areas of Mumbai Bay temporarily.

MSRDC in consultation with JICA have conducted detailed study on Flamingo population dynamics in Thane Creek. Figure 4.1 shows areas of Flamingo habitats in Thane Creek and their local migration routes. From this study it is evident that proposed project site is not falling within Flamingo migratory path. No Mitigation measure is suggested, since remarkable negative impact is not anticipated





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## **Impacts on Coastal Hydrodynamics and Shoreline**

As per studies conducted by SAC and presented in chapter-2 of this EIA, coastline along eastern coast of Mumbai is stable. Further proposed Fish Jetty will be constructed in continuation with existing Jetty. Any additional breakwater or structure which can obstruct tidal flow is not proposed. Hence, there will be no negative impact on shoreline change.

## **Impacts on Socioeconomic Environment**

The project does not involve any displacement of inhabitants and so issues like resettlement and rehabilitation does not figure. The project would contribute substantially to increase the fish and crustacean supplies to both domestic and export markets. There will be scope for growth in production quantity and quality of fishing, Marketing, export. There would be addition in commercial development of the fishing sector, which will improve the economic growth at local and regional fisherman. The project is likely to create direct and indirect employment opportunities. Due to the project activity, influx of population may increase during the construction phase. This may lead to strain on infrastructure facilities in the area as well as increase in population at local level. However, this impact is only for the short duration and temporary in nature. The construction activity could lead to increased nuisance level from air emissions and noise due to transportation of material and equipment as well as laborers. Vehicular traffic and construction activities may create noise pollution also it will effect on Fishing trawler traffic.

Communication with the local community (fisherman, Traders, boat owners) should be institutionalized and done on a regular basis. The forum could provide opportunities to discuss local critical issues and prepare programmers of mutual benefits. Information regarding the proposed development plan, community programs etc. should be communicated to the local community in the form of display Poster, booklets and audio-visuals at project site. Project proponent should take appropriate steps to keep environment clean and healthy during construction phase. Provision of adequate drinking water, toilet and bathing facilities should be made available on project site. Proper living condition with appropriate facilities for residential labours should be provided.



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### **Impacts due to Solid Waste Generation**

Solid waste comprises all bulky rubbish, old pieces of rope and netting, broken fish boxes etc. is likely to be generated in project operation phase. Metal items shall be collected and sold to scrap dealers. Tyres can be turned into fenders and timber fish boxes can be sold as fuel wood. Styrofoam boxes should be avoided, as they break easily and cannot be recycled safely.

Fish shall be cleaned and gutted on the journey back to the landing center. Offal shall not be allowed to be dumped inside the fish landing center or discarded in corners within the fish landing center area as, it not only give offensive smells, but also poses a health hazard by attracting pests. Plastic 100-liter drums with airtight lids shall be bought and used to collect offal from various sources or in the fishing Terminal. Fish offal can be sold to fish meal manufactures.

### **Impacts due to Liquid Waste Generation**

Waste waters including those generated from cleaning operations, ice melt water, live shellfish transport, unloading of pelagic tank boats and staff facilities will be discharged after proper treatment and disinfection in ETP.

### **Environmental Monitoring Plan**

Environmental Monitoring Programme/systems can help improve safety and enhance operational efficiency by monitoring meteorological and marine conditions. The main objectives of the environmental monitoring are said to be:

- To ensure the effective implementation of EMP
- To comply with all relevant environmental legislatives of Government of India
- To modify the mitigation measures and implementation arrangements, if any

The institutional mechanism to implement the planned mitigation and monitoring measures during all stages of the project are discussed in Chapter 10. The project management should always go for a rational approach with regards to environmental monitoring. This includes judicious decision making in consultation with responsible agencies such as Maharashtra Pollution Control Board (MPCB) or reputed environmental consultants for appropriate changes



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in the monitoring strategy, changes in the sampling/monitoring frequency, sampling location, monitoring parameters and any new/additional requirements.

The environmental attributes to be monitored during construction and operational phases of the project, sampling locations and frequency of monitoring, applicable standards, etc. are presented in Table E-8.



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**Table E-7: Environmental Monitoring Plan**

<b>Environmental Attributes</b>	<b>Parameters to be monitored</b>	<b>Frequency of Monitoring</b>	<b>No. of Sampling Location</b>	<b>Standards Methods for Sampling &amp; Analysis</b>	<b>Compliance</b>
<b>Construction Phase</b>					
Ambient Air Quality	PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>2</sub> , CO and HC	Twice in a week	Project site	Fine Particulate Samplers for PM <sub>10</sub> , PM <sub>2.5</sub> , Respirable Dust Sampler for SO <sub>2</sub> and NOX, CO analyser/portable CO meter for CO and portable HC meter for HC	NAAQ Standards, 2009
Noise Levels	Day and night noise levels	Once in a month during entire construction period	Project site	Portable hand-held sound pressure level meter.	CPCB Standards
Marine Water Quality	Physical, Chemical and Biological	Once in a month both for low tide and high tide periods during construction period	Two (02) <ul style="list-style-type: none"> <li>• Near Ferry Wharf</li> <li>• Monitoring within 5 km area of proposed trenching/ construction activities</li> </ul>	Bottom sampler (Nishkin Sampler) and analysis by using standard methods.	Primary water quality standards for coastal water (SW –IV)



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Environmental Attributes	Parameters to be monitored	Frequency of Monitoring	No. of Sampling Location	Standards Methods for Sampling & Analysis	Compliance
Sediment Quality	Physical and Chemical	Once in a month both for low tide and high tide periods during construction period	Two (02) <ul style="list-style-type: none"> <li>Near Ferry Wharf</li> <li>Monitoring within 5 km area of proposed trenching/ construction activities</li> </ul>	Peterson's Grab Sampler and analysis by using standard methods	Baseline data
Plankton and Benthic Communities	Phytoplankton, Zooplankton and Benthic Communities	Once in a month both for low tide and high tide periods during construction period	Two (02) <ul style="list-style-type: none"> <li>Near Ferry Wharf</li> <li>Monitoring within 5 km area of proposed trenching/ construction activities</li> </ul>	Plankton net of diameter of 0.35 m, No.25 mesh size 63 μ and analysis by using standard methods.	Baseline data
<b>Operation Phase</b>					
Ambient Air Quality	PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>2</sub> , CO and HC	Twice in a week	Two (02) <ul style="list-style-type: none"> <li>At Ferry Wharf</li> <li>With 2 km radius of the proposed construction activities</li> </ul>	Fine Particulate Samplers for PM <sub>10</sub> , PM <sub>2.5</sub> , Respirable Dust Sampler for SO <sub>2</sub> and NOX, CO analyser/portable CO meter for CO and	National Ambient Air Quality Standards released during November, 2009



*Executive Summary*  
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*approach trestle with expansion of existing Fish terminal at Ferry*  
*wharf by Mumbai Port Trust*



Environmental Attributes	Parameters to be monitored	Frequency of Monitoring	No. of Sampling Location	Standards Methods for Sampling & Analysis	Compliance
				portable HC meter for HC	
Stack Emission	PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>2</sub> , HC, CO	Once in a month	One (01) • DG set at Near Ferry Wharf	Standard Stack emission methods	Emission Limits for New Diesel Engines (upto 800 KW) For Generator Sets (Gensets) Applications, Rule 2(C) of The Environment (Protection) Second Amendment Rules, 2002 Notified Vide Notification G.S.R.371(E), Dated 17.5.2002, G.S.R.448(E), dated 12.7.2004, G.S.R.520(E), dated 12.8.2004
Fugitive emissions	Methane and non methane hydrocarbons	Gas detection System	Onshore receiving facility		
Noise Levels	Day and night noise levels	Once in a month	•DG set at Near Ferry Wharf	Portable hand-held sound pressure level meter	CPCB Standards
Marine Water Quality	Physical, Chemical and Biological	Once in a month both for low tide and high tide periods during construction	Two (02) <ul style="list-style-type: none"> <li>• Near Ferry Wharf</li> <li>• Monitoring within 5 km area</li> </ul>	Bottom sampler (Nishkin Sampler) and analysis by using standard methods.	Primary water quality standards for coastal water (SW –IV)



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<b>Environmental Attributes</b>	<b>Parameters to be monitored</b>	<b>Frequency of Monitoring</b>	<b>No. of Sampling Location</b>	<b>Standards Methods for Sampling &amp; Analysis</b>	<b>Compliance</b>
		period	of proposed trenching/ construction activities		
Sediment Quality	Physical and Chemical	Once in a month both for low tide and high tide periods during construction period	Two (02) <ul style="list-style-type: none"> <li>• Near Ferry Wharf</li> <li>• Monitoring within 5 km area of proposed trenching/ construction activities</li> </ul>	Peterson's Grab Sampler and analysis by using standard methods	Baseline data
Plankton and Benthic Communities	Phytoplankton, Zooplankton and Benthic Communities	Once in a month both for low tide and high tide periods during construction period	Two (02) <ul style="list-style-type: none"> <li>• Near Ferry Wharf</li> <li>• Monitoring within 5 km area of proposed trenching/ construction activities</li> </ul>	Plankton net of diameter of 0.35 m, No.25 mesh size 63 $\mu$ and analysis by using standard methods.	Baseline data





## Executive Summary

Environmental Impact Assessment of Proposed Construction of New approach trestle with expansion of existing Fish terminal at Ferry wharf by Mumbai Port Trust



### **Additional Studies**

As per the CRZ map, the construction of new approach trestle with expansion of existing fishing terminal falls under CRZ IV A and it is permissible activity under CRZ notification.

The Disaster Management Plan is to be implemented in the event of an emergency. This Disaster Management Plan sets out the procedures and measures to be taken into account in the event of loss of containment and consequence thereof in the NFJ at Mallet Bunder.

Ship tranquility study report is attached as *Annexure*. Public Hearing will be conducted as per EIA notification 2006 and subsequent amendments.

### **Project Benefits**

The project would contribute substantially to increase the fish and crustacean supplies to both domestic and export markets. The average annual total landings of fish and crustaceans from the year of stabilization of the project would amount to 1, 75,771 tonnes valued at Rs. 1, 50,166 lakhs, at the boat side prices. The project would give employment to 10,250 sea-going fishermen in 1286 fishing vessels comprising of 36 nos. of 14 m Trawler, 194 nos. of 16.0 m trawlers, 740 nos. of 18.0 m trawlers, 202 nos. of 18.0 m migratory trawlers and 114 nos. of 20.0 m Trawler and about 10,000 persons in shore-based establishments, distribution and marketing of fish and crustacean products.

Thus, 20,250 persons would be benefited directly in the fishing industry from project implementation, apart from the indirect benefits that would accrue as a result of developmental activities.