

GOVERNMENT OF MAHARASHTRA
COMMISSIONERATE OF FISHERIES

**ENVIRONMENTAL IMPACT ASSESSMENT STUDY
FOR MIRKARWADA FISHERIES HARBOUR
PHASE-II, DISTRICT RATNAGIRI**



EXECUTIVE SUMMARY



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CONTENTS

CONTENTS

EXECUTIVE SUMMARY

1.	INTRODUCTION	1
2.	PROJECT DESCRIPTION	1
2.1	MIRKARWAD FISHERY HARBOUR PHASE-I	1
2.2	MIRKARWADA FISHERY HARBOUR PHASE-II	2
3.	HTL/LTL DEMARCATION	3
4.	POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK	3
5	ENVIRONMENTAL IMPACT ASSESSMENT	3
6.	ENVIRONMENTAL BASELINE STATUS	5
7.	ASSESSMENT OF IMPACTS	7
7.1	IMPACTS ON LAND ENVIRONMENT	7
7.2	IMPACTS ON WATER ENVIRONMENT	7
7.3	IMPACTS ON NOISE ENVIRONMENT	8
7.4	IMPACTS ON AIR ENVIRONMENT	8
7.5	IMPACTS ON ECOLOGY	9
7.6	IMPACTS ON SOCIO-ECONOMIC ENVIRONMENT	9
8	ENVIRONMENTAL MANAGEMENT PLAN	9
9	DISASTER MANAGEMENT PLAN	10
10	ENVIRONMENTAL MONITORING PROGRAMME	10
11.	COST ESTIMATES	11
11.1	ENVIRONMENTAL MANAGEMENT PLAN	11
11.2	ENVIRONMENTAL MONITORING PROGRAMME	11

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1. INTRODUCTION

The state government of Maharashtra proposes to develop Fisheries Harbour at Mirkarwada, Phase-II in District Ratnagiri, Maharashtra. The proposed Mirkarwada fishery harbour phase-II site is situated to the north of and adjacent to the existing stage-I fishery harbour in Ratnagiri district of Maharashtra. The coordinates of the proposed fishing harbour site are $16^{\circ}59'41''$ N and $73^{\circ}18'41''$ E. Techno Economic Feasibility Report for the project has been prepared by Central Institute of Coastal Engineering for Fisheries (CICEF), Bangalore.

Ratnagiri harbour has been operational since October, 1986 and designed to cater to the requirements of 390 mechanised fishing vessels comprising 12 m and 16 m of 350 and 40 numbers respectively. The need for developing a Mirkarwada stage-II fishery harbour has been felt in view of the increased level of fisheries and relative activity in terms of increase in the fleet size and quantum of fish landings.

2. PROJECT DESCRIPTION

2.1 Mirkarwada Fishery harbour Phase-I

The main components of Mirkarwada Fishery harbor Phase-I are as follows:

- | | |
|--|------------------------|
| • Main breakwater (Western) | - 490 m |
| • Leeward breakwater (Northern) | - 420 m |
| • Quays | - 672 |
| • Jetties | - 325 |
| • Retaining Wall | - 24 m |
| • Auction Hall | - 6000 m ² |
| • Internal Roads to connect facilities | - 17000 m ² |
| • Other internal Roads | - 13000 m ² |

Other ancillary facilities at Mirkarwada stage-I includes fuel station, drainage, sewerage and toilets, water supply, power and lighting, offices and fencing. The construction of the harbour commenced in April 1978 and harbour is in operation since 1986. The harbour has not been put to full use due to heavy siltation in the harbour basin and the approach channel. In order to overcome the problems of siltation inside the harbour and to overcome the congestion inside the harbour caused due to increase in fleet size, the Central institute of Coastal Engineering for Fisheries in consultation with the state Fisheries Department and Central Water and

Power Research Station (CWPRS), Pune has proposed for stage-II development of the existing fisheries harbour. Necessary provisions have been made in the cost estimate for providing beacons at the heads of the two breakwaters as guide lights for the fishing vessel to approach safely through the entrance channel in to fishing harbour.

2.2 Mirkarwada Fishery Harbour Phase-II

As per the revised Techno-Economic Feasibility Report prepared by Central Institute of Coastal Engineering for Fishery (CICEF), Bangalore in March 2013. The proposed Ratnagiri fishery harbour Stage II has been designed to provide fish landing, outfitting, boat repair, idle-berthing and other infrastructure facilities for 500 fishing boats comprising 300 nos. of 16 m trawlers and 200 nos. of 17 m purse-seiner-cum-trawlers. Considering the requirement of the fishermen, the following facilities were proposed in Stage II expansion:

- Construction of northern breakwater - 675 m long
- Construction of Wharf - 340 m long
- Construction of Jetty - 2 Nos - 90 m long
- Construction of Auction hall - 2 Nos-100m long
- Extension of western breakwater - 150 m
- Net mending sheds - 2 nos.
- Fishermen rest sheds - 2 nos.
- Removal of existing northern breakwater
- Fish handling and auction hall
- Internal asphalted road and WBM surfaces
- RC sloping hard
- Boat repair shop
- Fishery administration Office
- Restaurant
- Radio-Communication Centre
- Public toilet – 2 nos.
- Effluent treatment plant
- Security/guardhouse
- Compound wall
- Green belt
- Fire extinguishers

The proposal also envisages development of water supply, sewerage, electrical power supply, navigational aids, greenery, fire protection etc. Further, the proposal contained provision of repairs to existing facilities.

Based on mathematical model studies conducted by Central Water and Power Research Station (CWPRS), Pune, the layout of fishery harbour has been finalized.

Techno Economic Feasibility Report for the project has been prepared by Central Institute of Coastal Engineering for Fisheries (CICEF), Bangalore. The layout is given in Figure- 1.

3. HTL/LTL DEMARCATION

Since the project is proposed in the coastal area and attracts CRZ Clearance, site specific HTL/LTL demarcation has been done through Institute of Remote Sensing (IRS) Anna University, Chennai.

4. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

As per the list of projects or activities requiring prior environmental clearance given in the EIA Notification issued by MoEF on 14th September 2006, proposed project is listed on S.No. 7e and requires Environmental Clearance from State Environmental Impact Assessment Authority (SEIAA), Government of Maharashtra. Since, the project is proposed in the coastal area, CRZ Clearance would also be required as per the CRZ Notification of January 2011.

5. ENVIRONMENTAL IMPACT ASSESSMENT

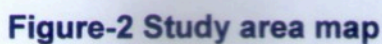
The state Government of Maharashtra awarded the work of consultancy services for conducting the EIA/EMP study of the proposed fisheries harbour at Mirkarwada, Phase-II to M/s WAPCOS Limited.

Environmental Impact Assessment study has been carried out to assess the likely impacts during construction and operation phases of the proposed fishing harbour project on the following:

- Land environment
- Water environment
- Ambient air quality
- Marine ecology
- Terrestrial ecology
- Noise environment
- Socioeconomic environment

Environmental Management Plan (EMP) outlining measures to minimize adverse impacts during construction and operational phases of the proposed project has been formulated. Environmental Monitoring Programme (EMoP) has also been formulated for construction and operation phases. Cost estimation for implementation of Environmental Management Plan and Environmental Monitoring Programme.

The study area or the core area for the EIA study has been considered as the area within radius of 10 km considering the proposed project site at the center (Refer Figure-2). The major portion of the study area is under water. In such setting, impacts likely to accrue as a result of project construction and operation phases are expected to be occurring mainly on water front i.e. on marine environment. Thus, as a part of the EIA study, specific emphasis has been accorded to marine environment. As a part of the EIA study, the baseline status has been collected for various environmental parameters.



The summary of data collected from various sources as a part of the EIA study is outlined in Table-1.

TABLE-1
Summary of data collection from various sources

Aspect	Mode of Data collection	Parameters monitored	Frequency	Source(s)
Meteorology	Secondary	Temperature, humidity, rainfall	-	India Meteorological Department
Water quality	Primary	Physico-chemical biological parameters	Once	Field studies
Ambient air quality	Primary	PM ₁₀ , PM _{2.5} , SO ₂ , and NO ₂	Twice a week for twelve consecutive weeks at 4 location	Field studies
Noise	Primary	Hourly noise and equivalent noise level	Once	Field studies
Landuse	Primary and Secondary	Landuse pattern	Once	Resourcesat-2, LISS-IV FMX digital satellite data
Terrestrial Ecology	Secondary sources	Inventory of major floral and faunal species Rare and endangered species, if any		Forest Department and literature review
Marine Ecology	Primary and Secondary	Presence and abundance of various species	Once	Field studies, and literature review
Socio-economic aspects	Secondary data	Demographic and socio-economic, Public health cultural aspects	-	Revenue Department and Literature review
HTL/LTL demarcation	Primary	CRZ classification	Once	IRS, Anna University, Chennai

7. ASSESSMENT OF IMPACTS

Based on the project details and the baseline environmental status, potential impacts that are expected to accrue as a result of the construction and operation of the proposed project have been identified.

7.1 IMPACTS ON LAND ENVIRONMENT

a) Construction phase

No land acquisition is envisaged for the proposed project. Construction material include fine and the coarse aggregates materials proposed to be excavated from existing quarries and no new quarries are proposed to be opened for Mirakarwada Fisheries Harbour Stage-II. Hence, no major impacts are anticipated.

b) Operation phase

Generation of garbage at fishing harbour site and solid waste comprising of old pieces of rope and nets, broken fish boxes, metal items, etc. will be the source of pollution during operation phase. Generation of Offal generated due to fish handling is one of the major source of pollution in a fishery harbour project

7.2 IMPACTS ON WATER ENVIRONMENT

a) Construction phase

Impacts due to effluents from labour camps

The total water requirement works out to be about 25 m³/day. The sewage generated is normally taken as 80% of the total water requirement. Hence, quantity of sewage will be 20 m³/day.

Impacts due to dredging

The dredging and other construction activities normally increase the turbidity levels in the water column. The total quantity of material to be dredged is 2.88 lakh m³. A part of the dredged material (2.22 lakh m³) is to be disposed at Mirya Bay and used for Beach Nourishment.

Impacts due to reclamation

About 38,800 sq.m of area is to be reclaimed partially utilizing the removed material and partially utilizing the dredged material. The quality of sediments in the area was found good. Hence, adverse impacts on marine water quality are not anticipated.

b) Operation phase

Pollution during project operation phase

The major sources of pollution during operation phase of the proposed fisheries harbour are, dumping of garbage, fish waste, used engine oil, pumping of oily bilge water into harbour waters and disposal of untreated sewage from the port.

The total water requirement during operation phase is 425 m³/day. The sullage generated from auction hall, pre-processing unit, Ice plant etc. will be collected in the manholes at the respective location and finally let into the Effluent Treatment Plant. The sewage from various buildings will be treated in septic tank and disposed in sewerage network.

7.3 IMPACTS ON NOISE ENVIRONMENT

(a) Construction phase

The major sources of noise during construction phase are due to operation of various construction equipments. Modeling studies were conducted to assess the increase in noise level and it was observed that the increase in noise levels will be about 10 dB(A) and 15 dB(A) at a distance of 100 m and 200 m from the construction site respectively.

b) Operation phase

The major source of noise in the operation phase in the fishing harbour area could be the increased vehicular movement. No significant increase in noise levels in operation phase of the proposed fishing harbour project is envisaged.

7.4 IMPACTS ON AIR ENVIRONMENT

(a) Construction phase

Impacts due to fugitive emissions

The major pollutant in the construction phase are the emissions from vehicular movement and combustion of diesel in various construction equipment. However, the fugitive emissions generated due to vehicular movement are not expected to travel beyond a distance of 200 to 300 m. Hence, impact on air environment during construction phase is not expected to be significant.

(b) Operation phase

The major source of air pollution in the post-project phase is the vehicular movement for transportation of fish catch to different destinations of markets. On an average about 50 to 60 trucks per day will move in the area. The pollution

levels due to those are not expected to be significant to cause significant adverse impact on ambient air quality.

7.5 IMPACTS ON ECOLOGY

a) Impacts on terrestrial flora

There is no forest with tree cover in the vicinity of the project site. The study area has no major forest cover. Hence, no significant impacts are envisaged on terrestrial flora as a result of the proposed project.

b) Impacts on marine ecology

Removal and burial of benthic organisms due to dredging and release of suspended sediments during dredging will cause disturbance to marine life in the area.

7.6 IMPACTS ON SOCIO-ECONOMIC ENVIRONMENT

About 200 persons will get the employment during construction phase. Apart from the labours transporter and construction material supplier will also get the business during the construction phase. Thus, the project would have a significant positive impact on the overall economy of the area. In the operation stage the project would lead to mushrooming of various allied activities. This will lead to marginal improvement in the employment scenario, which is a positive impact.

8 ENVIRONMENTAL MANAGEMENT PLAN

The Environmental Management Plan (EMP) was delineated to ensure that the adverse impacts likely to accrue are altogether removed or minimized to the extent possible. The Environmental Management Plan (EMP) for the proposed fisheries harbour is classified into the following categories:

- Land Environment
- Water Environment
- Air Environment
- Control of Noise
- Greenbelt Development
- Socio-Economic Environment

The key measures suggested as a part of the Environmental Management Plan are area listed as below:

- ✓ Provision for drinking water
- ✓ Provision of 20 Nos. of community toilets and septic tank

- ✓ Temporary colonies of the construction workers should be established sufficiently away from the HTL and adequate sanitation facilities shall be provided to prevent degrading the environmental quality of the area.
- ✓ Construction activities like dredging, etc will be carried out in the confined manner to reduce the impacts on marine environment.
- ✓ Construction waste including debris shall be disposed safely in the designated areas and in no case shall be disposed in the marine environment.
- ✓ Dredging shall not be undertaken during fish breeding season and other special weather conditions
- ✓ Development of shore-based reception facilities for oily wastes (bilge water and spent oil) from boats.
- ✓ Provision of mobile trawlers to collect oily bilge water from fishing vessels.
- ✓ Mobile trawler shall be fitted with a vacuum pump and an oil resistant hose.
- ✓ Spent engine oil to sold to registered re-cycled

After selection of suitable and feasible environmental mitigation measures, the cost required for implementation of various environmental management measures has been estimated to have an idea of their cost-effectiveness.

9 DISASTER MANAGEMENT PLAN

The nature of the proposed project is such that these are minimal chances of accidents. The project operations do not entail any risk or hazard. DMP has been suggested for even remote possibility of emergency

10 ENVIRONMENTAL MONITORING PROGRAMME

An Environmental Monitoring Programme for implementation during project construction and operation phases has been suggested to oversee the environmental safeguards, to ascertain the agreement between prediction and reality and to suggest the remedial measures not foreseen during the planning stage but during the operation phase and to generate data for further use. The equipment, manpower and cost required for the implementation of environmental monitoring programme were also suggested.

11. COST ESTIMATES

11.1 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

The cost estimates for implementing Environmental Management Plan (EMP) shall be Rs.15.4 million. The details are given in Table-2.

TABLE-2

Summary of cost estimate for implementing EMP

S. No.	Parameter	Cost (Rs. million)
1.	Solid Waste Management	5.4
2.	Sanitary facilities at labour camps	1.1
3.	Greenbelt development	1.0
4.	Purchase of noise meter	0.1
5.	Disaster Management Plan	2.0
6.	Implementation of Environmental Monitoring Programme during construction phase (Refer Table-8.2)	5.8
	Total	15.4

11.2 ENVIRONMENTAL MONITORING PROGRAMME (EMoP)

The cost required for implementation of Environmental Monitoring Programme during construction phase is Rs.5.8 million. The details are given in Table-3.

TABLE-3

Cost estimates for implementation of EMoP during construction phase

S. No.	Parameter	Cost (Rs. million)
1.	Marine Ecology	2.52
2.	Ambient air quality	0.76
3.	Emission from DG sets	2.52
	Total	5.80

The cost required for implementation of Environmental Monitoring Programme during operation phase is Rs.1.56 million/year. The details are given in Table-4.

TABLE-4

Cost estimate for implementing EMoP during operation phase

S. No.	Parameter	Cost (Rs. million/year)
1.	Marine water quality	1.20
2.	Ambient air quality monitoring	0.36
	Total	1.56

