



Environmental Monitoring Report

Project Number: 40156-023
August 2015

Period: January 2012 – June 2014

IND:MFF - Sustainable Coastal Protection and Management Investment Program - Tranche 1

Submitted by

Project Management Unit, Government of Karnataka, Mangaluru

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GOVERNMENT OF KARNATAKA

[Department of Ports & Inland Water Transport]

No. PMU/ADB/T1/EMR/2014-15 / 503

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Sir,

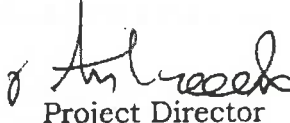
Sub:- MFF0049-IND/Loan No. 2679- Sustainable Coastal
Protection & Management Investment Program -Karnataka-
Submission of Environmental Monitoring Report for
Tranche -I Sub project- Reg.

Following the instructions received by ADB's safeguard specialist during
the ADB's safeguard mission held from 28th to 30th of January 2015, hereby
submitting Environmental Monitoring Report for Tranche-I for the period
January 2012 to June 2014.

Thanking You,

Yours faithfully,

Encl: Environmental Monitoring
Report Jan 2012 to June 2014


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Environmental Monitoring Report

Loan Number: 2679

Reporting period: (January 2012 to June 2014)

(MFF - Sustainable Coastal Protection and
Management Investment Program -Tranche
1)

Implementing Agency: Project Management Unit, Public Works, Ports and Inland
Water Transport Department

Executing Agency:

Date: (28/02/2015)

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List of Abbreviations

ADB	Asian Development Bank
CBO	Community Based Organization
CD	Chart Datum
CIMU	Coastal Infrastructure Management Unit
CMIS	Coastal Management Information System
CMZ	Coastal Management Zone
CPCB	Central Pollution Control Board
CRZ	Coastal Regulation Zone
CWC	Central Water Commission
CWPRS	Central Water and Power Research Station
Db	Decibel
DPR	Detailed Project Report
EIA	Environmental Impact Assessment
EPA	Environment Protection Act
GIS	Geographical Information System
GoI	Government of India
GoK	Government of Karnataka
HTL	High Tide Line
ICMAM	Integrated Coastal and Marine Area Management
ICZMA	Integrated Coastal Zone Management Authority
KPI	Key Performance Indicator
KSCPM	Karnataka Sustainable Coastal Protection and Management
KSCZMA	Karnataka State Coastal Zone Management Authority
KRSRAC	Karnataka State Remote Sensing Application Centre
LTL	Low Tide Line
MoEF	Ministry of Environment, Forests and Climate Change
MFF	Multi Financing Facility
NCPP	National Coastal Protection Project
NGO	Non-Governmental Organization
NHC	Northwest Hydraulic Consultants
O&M	Operation and Maintenance
P&IWT	Ports & Inland Water Transport
PMDC	Project Management and Design Consultants
PPMS	Project Performance and Management System
PPP	Public Private Partnership
PPTA	Project Preparation Technical Assistance
SCPMIP-K	Sustainable Coastal Protection and Management Investment Program – Karnataka
SEA	State Executing Agency
SEIAA	State Environmental Impact Assessment Agency
SMO	Shoreline Management Organisation
SMP	Shoreline Management Plan
SPCB	State Pollution Control Board
ToR	Terms of Reference
UMC	Ullal Municipal Council

1.1 Introduction

The National Coastal Protection Project (NCP) estimates that 50% of the total of 1,100 km of coastline in the three states of Maharashtra, Goa and Karnataka is facing erosion to some degree. Half of the 300 km coastline of Karnataka is subject to significant coastal erosion and only 58 km has some degree of protection.

The coastal zone is a key part of the economy, supporting agricultural and horticultural activities, fishing, aquaculture, sand and shell mining, harbour development, trade and transport. Rural communities and urban areas are affected by coastal erosion. Rising sea levels and increasing numbers and intensities of storms will result in serious erosion hazards. To address its coastal protection and management issues, the Government of Karnataka has agreed with the Asian Development Bank (ADB) to implement the Sustainable Coastal Protection and Management Investment Program (SCPMIP). The budget for the first tranche of SCPMIP-K amounts to US\$ 48.549 million covering the period Jan 2012 - June 2017.

Overall Project Description

The 1st Tranche sub-project in Ullal consist of 4 components viz., rehabilitation of Ullal breakwaters, construction of two off-shore reefs, construction of four in-shore berms and sand nourishment. A brief description of these projects are as follows.

Inshore Berms - 4 numbers of Inshore berms are 'T' gryone like structure, forming a length of 120m each placed into sea. The construction of the four in-shore berms commenced in December 2013 with a construction period of 20 months. The construction materials used are sand filled geotextile bags and containers.

Breakwaters – The existing Ullal breakwaters are in dilapidated condition and requires immediate rehabilitation. With proposed rehabilitation, the structure will become more robust and adapted to future sea level rise. The southern breakwater will become slightly shorter to allow an increase of sand moving towards the Ullal frontage. During this reporting period tender was floated, 9 numbers of bids were received and evaluation is in progress.

Off-Shore Reefs – Off Shore reefs are cup shaped structures to be constructed at 700m off shore at a depth of -7m w.r.t. to local Chart Datum(CD). Main function of these structures are to break the waves at off shore and reduce the wave intensity before it reaches the coastline. During this reporting period the tender has been floated.

Sand Nourishment is the process of transporting sand from deeper sections of the sea and feed it to the foreshore to create a new beach or widen the existing beach. Sand nourishment does not stop erosion; but is an essential component to balance the process of erosion and accretion, thus safeguarding the protection of livelihoods and properties. 2x 4,50,000 m³ of sand nourishment is proposed on the Ullal frontage after the construction of the above 3 components.

Project Objectives

The overall objective of SCPMIP-K is to address the immediate coastal protection needs through the implementation of economically viable protection works using environmentally and socially appropriate solutions. In order to achieve this over-arching objective for SCPMIP-K there are a number of key objectives that must be fulfilled, these being;

1. **To address the causes and likely causes of coastal erosion and coastal instability**, directed mainly at other coastal infrastructure that is presently causing, or potentially causing damage to the natural coastal processes.
2. **To support investments for natural protection measures such as the development** and planting of dunes, planting of mangrove or other trees for protection or shelter.
3. **To consider wider coastal management issues** surrounding water quality, navigational entrances, dredging and training of river and drain mouths.
4. **To consider increase of economic and amenity value** of the coast and shoreline.
5. **To develop the institutional capacities to meet the long term needs of sustainable coastal protection and management.** This includes the development of the capacities at central, state and district level in shoreline planning, detailed planning, modelling, design; and coordination and management of coastal infrastructure.

In parallel to the investment program, the project will develop institutional capacities to meet long term needs of sustainable coastal protection and management. The project will support initiatives to increase the participation of the private sector and communities in the planning, design, financing, implementation and maintenance of coastal protection and management projects. The project supports the development of a number of economic initiatives in the coastal zone; where appropriate private sector participation would be incorporated into the project strategies. All investment projects should be implemented based on participative planning, professional design using innovative approaches.

Environmental Category

The approved environment category of the Project is A; and ADB's Environment Policy (EP) (2002) is applicable for this Project.

Environmental Performance Indicators

The environmental performance indicators have been framed with the objective of carrying out project progress review. The performance Indicators has been evaluated as per following three heads:

- (i) Environmental condition indicators to determine efficiency of environmental management measures in control of air, noise, soil and water pollution.
- (ii) Environmental management indicators to determine compliance with the suggested mitigation measures.
- (iii) Indicators regarding Communication of requirements with respect to ADB's environmental & social safeguards, national & state level Environmental rules & regulations.

1.2 Compliance Status with National/State/Local Statutory Environmental Requirements

The Tranche -1 project has been accorded with CRZ clearance, apart from this statutory requirement, the contractors are responsible for obtaining consent to establish and operate batching plants and use of DG sets from the Karnataka State Pollution Control Board(KSPSB). Contractors to obtain and submit Pollution Under Control Certificate (PUC) of all the construction vehicles. The only construction that is in progress during this reporting period is the construction inshore berms, which is not a labour intensive project and the contractor has not set up any labour camps. The labours have been given rental accommodation by the contractor.

Subproject wise Compliance Status

Sl No	Sub Project Component	Statutory Environmental Requirement	Compliance Status
1	Construction of four Inshore Berms	PUC Certificates for contractors vehicles	Yet to issue

1.3 Compliance Status with the Environmental Covenants as Stipulated in the Loan Agreement

Environmental Covenants	Status
Each State shall cause its SEA to: (a)Ensure that the Subprojects under the Project are undertaken and that all Project facilities are designed, implemented, operated and maintained in accordance with all applicable laws, and regulations of the Borrower, the State, and ADB's Environment Policy (2002), and the EARF;	Statutory CRZ clearances have been obtained for all the sub-projects except for consents to operate construction plants. The requisite applications will be filed with respective regulatory agencies. The contract documents include agreed EMPs.
(b)Prepare and implement the necessary IEE/EIA as applicable, and EMP (with budget) in accordance with the EARF. For Subprojects, the environmental categorization and assessment procedures defined in the EARF shall be followed. For any environment category A or B sensitive Subproject, a SEIA/SIEE as applicable shall be prepared and made available to the public 120 days before the Subproject is submitted to ADB for approval. Each State through its SEA shall monitor, audit, and report to ADB twice a year on the implementation of the EMPs for each Subproject.	The EIA report (including EMP) for all sub-projects has been approved by ADB in 2010; and the mandatory disclosure of 120 days was followed prior to approval of sub-projects. This is the first semi-annual report on the implementation of the EMPs for each Subproject.

1.4 Compliance Status with Environmental Management and Monitoring Plans as Stipulated in the Environmental Documentation as agreed with ADB

This section presents the compliance status of Environmental Management and Monitoring Plans of tranche-1 subproject under implementation. During this reporting period (January 2012- June 2014) only inshore berms construction work was awarded and the contractor was mobilizing men and machineries. Major activity during this reporting period was in procurement of geotextile bags and containers and the inshore berms was constructed for a length of about 13m. The Inshore berm contractor has not submitted any Environmental Implementation Plan. He is following the EMP, which is part of the EIA and Contract document. The other three component of the sub project were not signed during this reporting period.

Project Activity	Potential Environmental Impact	Proposed Mitigation Measures	Monitoring Method	Compliance Status	Institutional Responsibilities
Pre Construction Stage					
Site preparation: Material and equipment Staging areas and beach access locations	Possible removal of terrestrial habitat	<ul style="list-style-type: none"> Sites rehabilitated before contractor leaves site upon completion of construction activities. Planting and stabilization of site, including replacement of any native plant species. 	Visual Observation	There are no terrestrial habitat present near inshore berms site. Although the PMU will make sure the site will be rehabilitated, if required before the contractor leaves.	PMU Contractor
Construction Stage					
Physical					
Berm Construction	Air quality Reduction in Air quality from exhaust fumes and dust at on-land construction sites	<ul style="list-style-type: none"> Adherence to national emission and ambient quality standards Engines and generators turned off when not in use Equipment conforms to international standards. Dust suppression by regular sprinkling (i.e. morning and evening) or other means. Possibly, halt work during excessive onshore winds. Verbal social complaints dealt with immediately and efficiently. 	Visual Observation, AAQM once every season.	Baseline Air quality data will be established before the start of construction.	PMU Contractor
Offshore reef construction.				Water sprinkling is being done. Contractor has been instructed to submit Pollution Under Control certificates.	
Breakwater construction					

	Noise Increased noise levels	<ul style="list-style-type: none"> • Adherence to national noise standards. • Engines and generators turned off when not in use • Equipment conforms to international standards • Vehicles and engines fitted with silencers • Daily checks and remedy of potential sources of excessive noise especially out of daylight hours. • Complaints regarding noise dealt with professionally and with respect. • Rock transport plan from quarries to rock transshipment Storage site prepared and adhered to. 	Noise monitoring, visual observation	Baseline noise data will be established before the start of construction	PMU Contractor
	Water quality High turbidity during reef filling Possible leaks or spills—sediment, fuels, oil, other fluids	<ul style="list-style-type: none"> • Supervision of all operation procedures to minimize spillage of sand • Contingency plans for accidental oil, fuel, and sediment spills should be initiated immediately 	Water quality monitoring, visual observation	Baseline water quality data will be established before the start of construction.	PMU Contractor
		Biological			
	Marine biota and habitat Reefs and berms will cover soft-sediment benthic habitat and biota High turbidity and sediment settlement temporarily impair photosynthesis and biological production in adjacent offshore areas Possible leaks or spills---	<ul style="list-style-type: none"> • Develop mitigation components based a review and characterization of fish and invertebrates that occur in the near shore area and estuary including seasonal or migratory species and sensitive times and locations. • Reefs structure is expected to be colonized by biota offsetting smothering soft-sediment biota. • Minimize sediment release during construction to reduce affected area outside immediate reef-site 	visual observation for oil spills	Reef Contract yet to award.	PMU Contractor PMU Contractor

	sediment fuels, oil, other fluids	area Implement contingency plans if spills of sediment, fuels Oil, or other fluids occur			
		Social, Economic and Cultural			
	Safety and human health Reduced safety of beach users	<ul style="list-style-type: none"> Public consultation to identify locations, times, and types of potential safety risks, and develop site-specific advisories and safety measures. All equipment, waste, and construction material debris must be inspected and removed daily from site. 	visual observation	Construction site will be completely barricaded with safety signs installed at critical locations. Materials and wastes will be located at secure / designated locations	PMU Contractor
	Tourism: Beach amenity and recreational use disturbed	<ul style="list-style-type: none"> Public consultation to identify locations, times, and types of potential safety risks, and develop site-specific advisories and safety measures. All equipment, waste, and construction material debris must be inspected and removed daily from site. 			
	Fishing activity Disturb traditional fishing activity	<ul style="list-style-type: none"> Public consultation to identify locations, times, and types of potential conflict and develop site-specific measures to minimize disruption of boat launching and fishing activity 			
	Navigation Local navigation	<ul style="list-style-type: none"> Vessel movement and equipment operation to be carried out in consultation with stakeholders to avoid interference with navigation. 			

1.5 Approach and Methodology Engaged for Environmental Monitoring of the Project

The Tranche 1 sub project Monitoring has been divided into three heads viz., Measurement of Coastal data, Baseline Surveys and Environmental Monitoring and apart from this, visual site inspection also plays an important role in identifying impacts. Bathymetric survey for monitoring seabed level changes. Topo survey for monitoring beach profiles and crest levels of structures. Tides should be measured at project area to monitor the variation in tidal levels and its impacts on to the structures in Ullal sub project.

The parameters under these heads are as follows:

A. Measurement of Coastal Data

- i. Waves (height, direction & time period)
- ii. Current measurements
- iii. Water levels

B. Baseline surveys

- iv. Bathymetry survey (Seabed level changes)
- v. Topo survey (Beach profiles, Crest levels)

C. Environmental Monitoring

- vi. Ambient Air Quality Monitoring
- vii. Marine Water Quality Monitoring
- viii. Noise Monitoring

The Environmental Monitoring parameters have been selected based on the EMP prepared during the Project Preparatory Technical Assistance (PPTA) stage and further parameters such as Measurement of Coastal Data and Baseline surveys have been added to ensure that the sub project performance.

1.6 Monitoring of Environmental Receptors/ Attributes

Based on the above Tranche 1 sub project monitoring heads, below table describes monitoring programme for various parameters, duration and frequency of monitoring.

S.No	Description	Coverage area	Units	Frequency in Months
1	Measurement of Coastal Data			
	Wave	1	LS	Continues
	Tide monitoring	1	LS	Continues
	Current	1	LS	6
2	Baseline Surveys			
	Bathymetry survey	5.9 45	Sq km	6
	Topo survey	18 32 00	Sqm	6
3	Environmental Monitoring			Once in a season expect monsoon
	Ambient Air Quality Monitoring			
	Marine Water Quality Monitoring			
	Noise Monitoring			

1.7 Details of Grievance Redress Committee and Complaints Received from Public and Action Taken Thereof to Resolve

Grievance redressal is being handled by PMU. However a formal Grievance Redressal Committee (GRC) is yet to be established for the implementation of tranche 1 sub project of SCPMIP to ensure that grievances are addressed in a timely manner, facilitating timely project implementation. Grievances of Affected Persons (APs) will first be brought to the attention of the Joint Director who is working full time at PMU. Grievances not redressed by the implementing agency will be brought to the Grievance Redressal Committee (GRC) of District Commissioner level.

The GRC will be chaired by the District Collector. GRC will determine the merit of each grievance, and resolve grievances within a month of receiving the complaint by the project affected people or the project implementing agency. If grievances are not addressed by the GRC of DC, further grievances will be referred by APs to the appropriate courts of law. Records will be kept of all grievances received including: contact details of complainant, date of the complaint received, nature of grievance, agreed corrective actions and the date of these were effected, and final outcome.

1.8 Follow-up Actions and Conclusion

The contractor is yet to provide PUC certificates for all the construction vehicles he is using for the construction of inshore berms. Strict instructions were given to the Contractors to comply with the mitigation measures suggested in the EMP and proper use of PPE's.

As the construction work progress, the following issue will be monitored closely in approaching month.

- Submission of PUC certificates
- Use of personnel protective equipment of all workers.
- Safety at construction sites.
- Prevention of oil spillage at camp site and in sea
- Sanitation & housekeeping of camp.
- First Aid facility.

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Appendix A. Location Map of Monitoring Station

Figure A.1: Location Map of Monitoring Station for Trance-1 Sub Project at Ullal



Appendix B. Site Photographs

Figure B.1: Ullal Beach- Before the Implementation of Tranche 1



Figure B.2: Erosion Prone Ullal Beach

