

Results Framework Document for Integrated Coastal and Marine Area Management (ICMAM) Project Directorate for ICMAM and COMAPS programmes

Section 1: Vision, Mission, Objectives and Functions

Vision

Facilitating integrated management of coastal zone to prevent loss of habitats, to assess coastal water quality in order to achieve prevalence of optimal environmental conditions to sustain ecosystem productivity for socio-economic benefit of coastal communities.

Mission

Application of Scientific tools and techniques like remote sensing, GIS and mathematical modeling along with field and laboratory investigations i) to understand the causes of loss of habitats, coastal erosion and develop remedial solutions; ii) to assess health of coastal waters through systematic long-term monitoring and iii) to develop models to predict optimal environmental conditions to sustain ecosystem productivity.

Objectives

The major objectives include: i) determine causes of coastal erosion and suggest remedial measures and to determine optimal environmental conditions to sustain ecosystem productivity using modelling techniques; ii) assessment of status of pollution along coastal waters of India and iii) to predict the primary productivity using predicted chlorophylls under changing environmental conditions.

Section 2: Inter-se priorities among key objectives, success indicators and targets

Results-Framework Document (RFD) for 2011 - 2012

Column 1	Column 2	Column 3	Column 4		Column 5	Column 6				
Objective	Weight	Actions	Success Indicator	Unit	Weight	Target / Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
						100%	90%	80%	70%	60%
Development of Shoreline management plan required to assess causes of erosion and suggest remedial solutions at Gopalpur.	0.3	Simulation of sediment transport and associated activities to determine zones of sediment variation	Causes of erosion determined and remedial solution provided	%	0.3	100%	90%	80%	70%	60%

Column 1	Column 2	Column 3	Column 4		Column 5	Column 6				
Objective	Weight	Actions	Success Indicator	Unit	Weight	Target / Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
						100%	90%	80%	70%	60%
Development of Ecosystem model to predict chlorophylls and facilitate sustained primary productivity in Chilika lagoon	0.3	Analysis of physical, chemical and biological data and development of hydrodynamic and water quality models	Water quality and chlorophylls predicted under changing environmental conditions	%	0.3	80	70	60	50	40

Column 1	Column 2	Column 3	Column 4		Column 5	Column 6				
Objective	Weight	Actions	Success Indicator	Unit	Weight	Target / Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
						100%	90%	80%	70%	60%
Monitoring of levels of marine pollution at 79 locations along Indian coast up to Dec,2010	0.4	Collection of water and sediment samples to analyse pollution parameters	Data on all pollution parameters obtained	Number	0.4	79	69	59	49	39
Monitoring of levels of marine pollution at 19 locations along Indian coast from Jan.2011	0.4	Collection of water and sediment samples to analyse pollution parameters for 3/4 seasons	Data on all pollution parameters obtained	Number	0.4	19	16	13	11	9

Table 2: Trend Value for Success Indicators

Objective	Actions	Success Indicator	Unit	Actual Value for FY 07/08	Actual Value for FY 08/09	Actual Value for FY 09/10	Projected Value for FY 10/11	Projected Value for FY 11/12
Development of models required to assess causes of erosion and suggest remedial solutions at Gopalpur.	Coastal Oceanographic Data collection for 3 seasons up to 09-10 and analysis to facilitate initiation of development of hydrodynamic model.	Completion and analysis of three seasonal data.	%	-	60	80	90	
	Measurement of shoreline changes using field and remote sensing data	Status of monthly erosion and accretion	%	-	50	80	90	
	Dev of hydrodynamic, wave and sediment transport models and validation	Sediment transport rate estimated	%	--	--	75	85	95
	Dev. of Shoreline management plan	Cause of erosion assessed, future trend predicted and solution suggested	%	--	50	75	85	95

Objective	Actions	Success Indicator	Unit	Actual Value for FY 07/08	Actual Value for FY 08/09	Actual Value for FY 09/10	Projected Value for FY 10/11	Projected Value for FY 11/12
Development of Ecosystem model to facilitate sustained primary productivity in Chilika lagoon	Development of work plan and completion of assessment of biodiversity based on 10 th plan data	Work plan developed and biodiversity assessed	%	100	--	--	--	--
	Collection of first season field data on tides and monthly observations on chemical and biological parameters from Dec 08	Completion of data collection	%		100			
	Conducting 2 and 3 field data on tides and water quality and biology data	Collection of tide data completed and set up hydrodynamic model. Collection of water quality and biology data completed	%	--	--	100	--	--
	completion of one year assessment of carbon, nutrients and plankton	Nutrients, carbon and plankton dynamics assessed	%	--	--	100	--	--

Objective	Actions	Success Indicator	Unit	Actual Value for FY 07/08	Actual Value for FY 08/09	Actual Value for FY 09/10	Projected Value for FY 10/11	Projected Value for FY 11/12
	Development of first stage hydrodynamics model and steps for validation	First stage model formulated and validated	%	--	--	--	40	100
	Determination of 30 coefficients required for modelling	Coefficients determined	Number	-	-	-	12	18
	Estimation of carbon flux	Extent of annual carbon out flux from lake to atmosphere and to sea estimated	%	--	--	--	50	100
	Development of coupled model to predict water quality and chlorophylls	Chlorophylls predicted to moderate level	%	--	--	--	40	80
Monitoring of levels of marine pollution at 79 locations along Indian coast up to Dec,2010	Collection of water and sediment samples to analyse pollution parameters	Data on all pollution parameters obtained for all locations	Number	58	70	66	52	-
Monitoring of levels of marine pollution at 19 locations along Indian coast from Jan.2011	Collection of water and sediment samples to analyse pollution parameters for 3/4 seasons	Data on all pollution parameters obtained	Number	-	-	-	16	19

**Section 4:
Description and Definition of Success Indicators
and Proposed Measurement Methodology**

Objective	Action	Success Indicator	Definitions/Methodology
Development of models required to assess causes of erosion and suggest remedial solutions at Gopalpur.	Collection of relevant field data and construction of models	Preparation of shoreline management plan	Estimation of sediment budget with field data and numerical model
Development of Ecosystem model to facilitate sustained primary productivity in Chilika lagoon	Collection of field data, Development and validation of models	Prediction of Chlorophylls under changing environmental conditions	Development of models using field data and validation
Monitoring of levels of marine pollution at 19 locations along Indian coast from Jan.2011	Collection of water and sediment samples to analyse pollution parameters for 3/4 seasons	Status of marine pollution at 19 locations determined	Collection of data on 25 pollution related parameters

Section 5: Specific Performance Requirements from other Departments

Section 5; Specific Performance Requirements from other Departments

S.No	Objective	Department	Relevant Success Indicator	What do you need?	Why do you need it	How much you need?	What happens if you do not get it?
1	To develop shoreline Management Plan for Gopalpur Coast	State Government Department Ports & Transport, Environment & Forest and Gopalpur Port Limited	Implementation of the SLM Plan for Gopalpur coast and relevant measures as suggested by MOES	Inclusion of the suggestion while developing the open coast all weather port at Gopalpur	Erosion predicted based on scientific methods/ models	In Full	Adverse impact on beaches adjacent to Gopalpur port if the plan is not implemented.
2	Development of Ecosystem model to facilitate sustained primary productivity in Chilika lagoon	Dept of Forests & Env. ,Govt of Orissa esp. Chilika Development Authority	Prediction of Chlorophylls under changing environmental conditions	Consideration of recommendations made to maintain optimal environmental conditions	To maintain lake's productivity to optimum level so as to sustain livelihood of dependent human	To the best possible	Adverse impacts on lake's productivity

S.No	Objective	Department	Relevant Success Indicator	What do you need?	Why do you need it	How much you need?	What happens if you do not get it?
3	Monitoring of levels of marine pollution at 19 locations along Indian coast from Jan.2011	Coastal State Pollution Control Boards	Status of marine pollution at 19 locations determined	Remedial measures at locations where pollution levels in seawater increasing	To ensure availability of tolerable quality of seawater to marine organisms	Full	Seawater quality will continue to deteriorate and reduction/loss of marine biodiversity

SECTION 6 – OUTCOME/IMPACT OF ACTIVITIES OF ORGANISATION/MINISTRY

1	2	3	4	5	6	7
S. No.	Outcome	Jointly responsible for influencing this outcome/impact with the following organisation(s)/ departments/Ministry(ies)	Success Indicator(s)	2009-2010	2010-2011	2011-2012
1.	Coastal Erosion Management and Protection of Beaches	State Government Departments, Orissa supported by Central Water Commission	Shoreline Management Plan for Gopalpur Coast by March 2012	75%	85%	95%
2.	Prediction of Chlorophylls under changing environmental conditions	Chilika Development Authority and Andhra University	Completion of modelling of water quality and prediction of chlorophylls	-	40%	80%
3	Status of marine pollution at 19 locations along the coast of India	Min. of Earth Sciences and Implementing institutions National Inst of Oceanography and its regional centers at Mumbai and Vizag, Centre for Earth Sciences Studies, Trivandrum; CAS in Marine Biology, Annamalai University, National Inst. of Ocean Technology, Chennai and Inst.of Minerals and Materials Technology Bhubaneswar	Completion of collection of data	-	16	19