

PIMS 4257 Mainstreaming Coastal and Marine Biodiversity into Production Sectors in the Godavari River Estuary, Andhra Pradesh, India

Midterm Review Report

José Antonio CABO BUJÁN

International Consultant

Srinivas VATTURI

National Consultant

Project title	IND-BD Mainstreaming Coastal and Marine Biodiversity Conservation into Production Sectors in the Godavari River Estuary in Andhra Pradesh				
Implementing agency	United Nations Development Programme				
GEF project ID	3936				
UNDP PIMS ID	4257				
Region and countries included in the project	Asia and the Pacific, India				
Strategic Program	BD-2 and BD-4				
Executing agency	Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India and Environment, Forest, Science and Technology Department, Government of Andhra Pradesh (AP)				
Implementing partners (in alphabetical order)	East Godavari District Government, AP Fisheries and Agriculture Department, Kakinada Municipal Corporation, M.S. Swaminathan Foundation, AP Pollution Control Board, Village Level Institutions				
Midterm review timeframe	February-May 2015				
Date of evaluation report	May 2015				

Contents

Index of Tables and figures	5
Executive summary	6
MTR rating table	6
Brief project description	7
Methodology of the midterm review	7
Summary of Conclusions of the Midterm Review	8
Project strategy	8
Project implementation	8
Project finances	9
Co-finance	9
Monitoring and evaluation	9
Progress towards results	10
Objective, to mainstream coastal and marine biodiversity conservation into production sectors in the East Godavari River Estuarine Ecosystem (EGREE)	10
Outcome 1, Sectoral Planning in EGREE Mainstreams Biodiversity Considerations	10
Outcome 2, Enhanced capacity of sector institutions for implementing biodiversit friendly sector plans including monitoring and enforcement of regulations	y- 12
Outcome 3 Community livelihoods and natural resource use are sustainable in the EG	REE
	12
Assessment of Progress towards Results Matrix	15
	26
Summary of Recommendations of the Midterm Review	27
Introduction.	33
Brief project description	33
Structure of the MTR report	34
Methodology of the midterm review	34
Project strategy	36
Conclusion	45
Recommendation	45
Project implementation	46
Management arrangements	46
	49
Quality of Project Execution by Implementing Agency (UNDP) and Executing Agency (MoEFCC)	49
Conclusion	51
Project finances	51
Conclusion	52
Recommendation	53
Co-finance	55

Conclusion
Recommendation
Monitoring and evaluation
Conclusion
Recommendation
Progress towards results
Outcome 1, Sectoral Planning in EGREE Mainstreams Biodiversity Considerations67
Indicator 2. Systemic level indicators of capacity development scorecard
Conclusion74
Recommendation74
Indicator 1. Cross –sectoral mechanism with representation from conservation, livelihood and production sectors
Conclusions77
Recommendations78
Indicator 3. Landscape level strategic plan that provides an enabling policy environment for mainstreaming biodiversity conservation into production sectors and
Indicator 5. Strategies developed for ensuring that existing sector policies mainstream biodiversity conservation
Conclusion
Recommendation
Indicator 6, by project end, any new manufacturing units entering the licensing process in the EGREE are subject to the CZR Guidelines
Conclusion83
Recommendation
Indicator 7, Incentives for production sector companies to promote biodiversity friendly practices by giving them opportunities for marketing/ advertising their efforts
Conclusion
Recommendation
Outcome 2, Enhanced capacity of sector institutions for implementing biodiversity- friendly sector plans including monitoring and enforcement of regulations
Indicator 2. Systemic level indicators of capacity development scorecard
Conclusions
Recommendation95
Indicators 1 to 7. Sector-specific biodiversity –compatible plans related issues
Conclusions108
Recommendations113
Outcome 3 Community livelihoods and natural resource use are sustainable in the EGREE
Indicator 1: Number of SHGs/ CBOs strengthened
Indicator 2 Number of skills- development activities carried out for SHGs/ CBOs/ and other local institutions for alternative and/ or sustainable ecosystem-based livelihoods that reduce pressures on biodiversity

	Indicator 3 Number of people shifting to alternative livelihood options that reduce pressur on biodiversity	re 124
	Indicator 4 Incidents of felling of mangrove trees, non- adherence to the seasonal ban or fishing, destructive fishing practices by local communities within the project area in contravention of community natural resource use plan	ו 125
	Conclusions	125
	Recommendations	126
O in	bjective, to mainstream coastal and marine biodiversity conservation into production sectors the East Godavari River Estuarine Ecosystem (EGREE)	ors 128
	Indicator 1. Landscape/ seascape area in the EGREE where production activities mainstream biodiversity conservation	128
	Indicator 2. Percentage of allocation of CSR expenditures of production sectors aligned with landscape-level Strategic Plan for the EGREE	129
	Indicator 3. Improvement in Total Capacity Development Scorecard	129
	Indicators 4 and 5, Population size of following critical species remains stable or increase <i>Scyphiphora hydrophyllacea</i> (IUCN threatened), Olive Ridley turtle (IUCN vulnerable status), Fishing cat (IUCN status is endangered), Population size of birds (including migratory) remains stable or increases	∋s: 130
	Indicator 6. % of open (degraded) mangrove areas in the project area reduced	130
	Conclusion	131
	Recommendation	131
Sus	tainability	133
F	inancial risks. Likelihood of financial resources not being available after project end $^{\prime}$	134
lr Co	nstitutional risks. Likelihood that stakeholders will not see it in their interest to take action in pordinated manner	n a 135
S in m	ocio-economic risks. Likelihood that EGREE foundation will not have mandate to supervis nplementation of a landscape plan or will be reduced to an NGO and implementing nechanism for CRS funds	зе 136
Li	ikelihood that environmental factors will surpass measures introduced by the project \dot{a}	141

Index of Tables and figures

41
43
58
59
61
72
77
86
91
99
108
110
115
119
144
34
37
38
44
45
48
49
51
52
53
54
55
69
70
71
88
89
90
90
104
105
106
107
107
123
124
129
13/

Executive summary

MTR rating table

Measure		MTR rating	Achievement Description				
Project strate	∋gy	Highly satisfactory	The project strategy is based on a comprehensive analysis of the situational context that includes stakeholder's perceptions and peer reviewed scientific literature, as well and lessons learned from past implementation of projects. The result chain is well-formulated and logically linked. The project design also identified critical risks for the implementation of the project, which would be avoided by specific results of the project strategy.				
Progress towards	Objective	Satisfactory	 The project has decisively enhanced protected area management, as well as worked together with fringing villages, supporting protected area conservation and livelihoods. The project has established partnerships with industrial actors and obtained commitments of funds by important private actors for conservation activities along the CWLS management plan 				
results	Outcome1	Satisfactory	The constitution of EGREE foundation constitutes an importa step towards the development of a formal institutional mechanism for the East Godavari River estuarine and coasta ecosystems. However, important challenges remain in terms defining landscape-wide targets that mainstream biodiversity conservation				
Progress	Outcome2	Satisfactory	The information collected and managed by the project, provide sufficient basis for the development of a comprehensive situational analysis, including quantification of threats and impacts and the institutional arrangements needed for the development of mitigation actions. These should be articulated in a landscape-wide production plan that incorporates biodiversity conservation targets				
results	Outcome3	Satisfactory	The project has built substantial institutional linkages towards – dairy development, handicrafts, fish pickling and processing and branding, catering and hospitality as alternative livelihood activities. Further it has demonstrated its strength by converging of gram panchayats, local administration, and line departments in channelling resources				
Project implementation and adaptive management		Satisfactory	Implementing and executing agency have provided technical and political support to implementation team. Disbursements and administrations have occurred without any major challenges. However, the project has been significantly delayed by unforeseen political events related to the separation of Telangana from Andhra Pradesh				
Sustainability		Likely	The sustainability of the project depends mostly on the commitment by key AP government agencies, particularly the Dept. of Forest and the local government of the East Godavari District with a landscape-wide plan, including a budget provision for EGREE foundation. The political commitment seems to be present at state level. However, the challenge remains of coordinating measures at district level				

Brief project description

The project *Mainstreaming Coastal and Marine Biodiversity into Production Sectors in the East Godavari River Estuary, Andhra Pradesh, India* (PIMS 4257) is a GEF-funded, UNDP-supported full size project with a total cost of 24,023,636 USD, including a GEF trust fund grant amounting to 6,023,636 USD and co-finance by the government of Andhra Pradesh and the government of India amounting to 18,000,000 USD.

Together with the GEF funded project *Mainstreaming Coastal and Marine Biodiversity Conservation into Production Sectors in the Sindhudurg Coast, Maharashtra*, (PIMS 4242), the project forms part of the India-GEF Coastal and Marine Programme (IGCMP) that has the objective of *demonstrating multi-sectoral approaches to mainstream biodiversity conservation objectives into economic activities in two marine ecoregions of India*.

The ultimate goal of the project is to foster an enabling governance environment that prevents further degradation of coastal and marine ecosystems, allowing the continuous flow of ecosystem goods and services, such as coastal protection and fisheries, as well as preserving an ecosystem of unique biological value.

This goal is to be achieved through facilitating mainstreaming of biodiversity into sector plans of both public and private organizations, as well as developing cross-sector institutional mechanisms to harmonize development and conservation of biodiversity.

Habitat destruction, pollution and overexploitation of coastal and marine resources are currently threatening the biologically and economically important East Godavari River Estuarine Ecosystem (EGREE) (Figure 2).

EGREE includes the important Coringa Wildlife Sanctuary (CWLS), the second largest extension of mangroves on the Indian coast of the Bay of Bengal, as well as a fast growing development hub, including numerous manufactures from different sectors, and offshore oil and gas exploration ventures, centred on the city of Kakinada, in immediate vicinity of the mangrove area (Figure 1, Figure 22, Figure 23).

EGREE ecosystem services directly provide livelihoods to ca. 100,000 people that inhabit the 44 Coringa Santuary's fringing villages through fisheries, aquaculture and agricultural activities. The total population of the project area includes the city of Kakinada and amount up to 1 million people.

Methodology of the midterm review

The midterm review (MTR) has been conducted by an independent team composed of a national consultant, with expertise in conservation and socio-economic research and an international consultant (team leader), with expertise in coastal biodiversity and experience in the conduct of evaluations of UNDP-GEF projects.

The assessment was based on information on the project context, objectives, outcomes and implementation collected from a number of documentary and primary sources, including project stakeholders, implementing partners and other relevant persons by means of group or individual interviews.

Stakeholders involved in the review process included project beneficiaries, the National Project Director, the project implementation unit, UNDP country office staff and Regional Technical Advisor, government representatives, civil society organizations, the private sector, and local government officials. Annex II lists all respondents included in the interviews.

Summary of Conclusions of the Midterm Review

This section contains a summary of the main conclusions of the Mid Term Review including a summary table of midterm review recommendations.

Project strategy

The project strategy (Figure 3) was based on a comprehensive analysis of the situational context (Figure 2) that includes stakeholder's perceptions and peer reviewed scientific literature, as well as lessons learned from other UNDP-implemented projects. The project objective, to mainstream coastal and marine biodiversity conservation into production sectors in the East Godavari River Estuarine Ecosystem is to be achieved through the formation of a governing structure with multi-sector participation (EGREE foundation) that should direct a cross-sector analysis of biodiversity impacts and mitigation measures (i.e. mainstreaming biodiversity) and its implementation through a landscape wide plan for the project area (Coringa Wildlife Santuary, Kakinada Bay and adjacent area) and sector plans.

The result chain, consisting of three outcomes to address barriers identified at systemic, institutional and community level, is well-formulated and logically linked (Figure 4), including risks and mitigation strategies.

However, the numerous interlinkages among outputs (Figure 5), made the project vulnerable to disruptions of the implementation sequence.

Thus, disruption caused by the extraordinary cyclonic activity of 2013-2014 and, more importantly, the political and administrative consequences of the separation of the new state of Telangana from Andhra Pradesh caused significant delays in project implementation.

The <u>unforeseen events</u> and political turmoil related to the separation of Telangana, compounded by the multi-level electoral process in 2014 are the main cause behind the current delay in project implementation.

However, since the political process of separation has been concluded, this would not affect future implementation other than minor challenges related to the still on-going administrative rearrangements.

Project implementation

The project's steering committees at national and state level include representation of all relevant stakeholders, particularly at the level of government organizations (Figure 6b) and have been providing adequate and timely response to implementation challenges.

At field level, the project is implemented by a competent team of three specialist led by a Project State Coordinator. Responsibilities and reporting lines within the project implementation unit are clear and understood and decision making in conducted in a timely manner.

The project is being implemented under the National Implementation modality (NIM) of the UNDP. Under NIM, the project is implemented by the Ministry of Environment, Forest and Climate Change, (the executing agency in GEF terms) of the Government of India, and executed at field level by a Responsible Agency, viz. the Government of Andhra Pradesh.

Thus, project funds are transferred by the UDNP (GEF's implementing agency) to the responsible agency (Government of Andhra Pradesh) as quarterly advances. There have not been any major backlogs in disbursements or other administrative processes (Figure 7).

Both executing (MoEFCC and Government of Andhra Pradesh) and implementing agencies (UNDP) have provided adequate support to project implementation both in administrative, as well as in technical terms.

Project finances

The project stays in course in terms of financial delivery that has almost reached 50%, as would be expected at midterm (Figure 8).

However, this conclusion is only valid if delays suffered by the project implementation are taken into account. Those delays are related to the time needed to setup the multilevel, cross-sector management structures of the project and the events caused by the separation of the State of Telangana. More importantly, finalizing the project at the original end-of-project (EOP) date of March 2016, would need 100% delivery rates on budgets 30-46% higher than the average for the first four years of implementation (Figure 9), which is not realistic, even in ideal circumstances.

Although a non-cost extension would necessarily involve higher management and personnel costs, these are calculated not to involve more than additional 10% of the project grant (initially foreseen management costs amounted to 22%) (Figure 10). More importantly, **not accepting extension on account of the increase in management costs would put consolidation of the advances made by the project at risk**.

Therefore the MTR strongly recommends extension of at least one year, i.e. delaying the project's EOP till mid 2017.

Co-finance

Out of the 18 million USD committed by the government of Andhra Pradesh, over four and half million USD (25% of the committed funds) have been disbursed and over 0.3 million USD have been additionally mobilized by different organizations (Tables 3 and 4).

Also, the project has demonstrated capacity to generate synergies and strategic alliances with a number of actors, both stakeholders and external to the project, which has succeeded in mobilizing a significant amount of additional funding, amounting up to nearly 0.3 million USD.

Monitoring and evaluation

The project counts with a comprehensive indicator framework, including 6 objective indicators, and 19 outcome indicators. The indicator framework also includes a capacity development scorecard specifically designed for the project composed of 16 indicators.

Hence, the project indicator framework is very large and has some issues of overlapping and relevance of indicators, which could be modified (Table 5). However, the benefits of such modification in terms of improved monitoring and adaptive management must be measured against the <u>costs of the time-consuming process of modifying a GEF-approved indicator framework</u> that would need scarce time and other resources from the project implementation unit and governing bodies, <u>particularly at this stage of project implementation</u>.

Monitoring is being conducted by each of the three specialist of the project implementation unit and consolidated and reported in a comprehensive and orderly manner by the project coordinator.

Additionally, the project documents a great variety of relevant data, including biophysical parameters of the area and socio-economic data relevant to communities and private sector.

Progress towards results

Objective, to mainstream coastal and marine biodiversity conservation into production sectors in the East Godavari River Estuarine Ecosystem (EGREE)

The project has made very important advances in terms of support for conservation and development of capacities. More importantly the project has set the stage for the establishment and consolidation of a true multi-sectoral mainstreaming of biodiversity conservation in a critical industrial and biodiversity area by creating EGREE foundation with its multi-stakeholder governing board.

The biological monitoring programs supported by the project demonstrate the current stability of populations of critical species, including marine turtles, smooth-coated otters and fishing cats. This constitutes a testimony to the strengthened protection of the Coringa Wildlife Sanctuary and adjacent areas as a result of the project implementation.

However, mainstreaming biodiversity in the production sector in EGREE would still need the adoption of a landscape management plan that accounts for all significant impacts on biodiversity from production sectors by a broadly represented general body (of EGREE foundation).

Considering the delays suffered by the project as a consequence of challenges related to the setup of the implementing and management structures, as well as the events leading to the separation of Telangana from the state of Andhra Pradesh, a termination at the originally set endof-project date would likely not provide sufficient time for consolidation of the results, and would hence risk failure of the investment, i.e. continuation business-as-usual approach, with maybe a residual and mostly irrelevant EGREE foundation in a support role for communities and Forest Department's activities in connection with the Coringa Wildlife Sanctuary.

Outcome 1, Sectoral Planning in EGREE Mainstreams Biodiversity Considerations

The constitution of EGREE foundation constitutes an important step towards the development of a formal institutional mechanism for mainstreaming biodiversity in the East Godavari River estuarine and coastal ecosystems. Also, the constitution and bylaws of EGREE foundation allow for the development and monitoring of implementation of a plan inclusive of biodiversity conservation objectives.

However, the composition of the governing board includes mostly State government representatives (50%) against scarce district (11%) and local government (4%) representatives (Table 7). The production sector is represented by a single member.

Moreover, and in spite of the participation by different departments at state level, at district level, line government departments and industry representatives are unaware of the broad objectives of EGREE foundation and the scope of its governing bodies. EGREE foundation is generally considered to be a NGO funded by foreign aid that supports the Department of Forest in the conservation and management of the Coringa Wildlife Sanctuary, including livelihood support for fringe communities

Expanding EGREE foundation's board membership by including more local government, elected officials and private sector representatives could increase support for EGREE foundation and its

objectives. However, such an expansion would necessarily involve significantly higher transaction and negotiation costs that could defeat the purpose of creating a wider consensus with effects on the ground.

Therefore, the Expansion should be immersed in the process of developing and consolidating the landscape-wide strategic plan, based on an assessment of the economic value of biodiversity, to enable a common understanding and a common vision of the stake that society and economy have in maintaining biodiversity services.

More importantly, the current board should engage more actively with their district delegations to reinforce the notion of EGREE foundation being part of the government and acting in the interest of all government departments, rather than being perceived as an NGO or an annexure to a particular government department

To support the board by combining cross representation and more flexibility and agility to respond to management issues, a technical body subordinated to the board could be created, composed of district and/or mid-level officials of the organizations participating in the board.

The current weak coordination and divergent understanding and perception of biodiversity among government agencies <u>at district level</u> could be addressed by **creating a district governing board, local chapter or committee of EGREE foundation chaired by the district collector** with assistance of the advisory body and EGREE foundation staff.

The process of crafting a formal landscape-wide, multi-sector plan for EGREE with strong involvement from stakeholders is vital to attain the objective of mainstreaming biodiversity across the production landscape in EGREE. Yet the process has barely started due to significant differences in perceptions of biodiversity and ecosystem services among different stakeholders, inconsistent enforcement or insufficient capacities for enforcement of the current regulatory framework, as well as apprehension by most stakeholders to engage in planning or coordination processes that are perceived to go against their interests by e.g. increase regulatory burden or expose them to unjustified criticism or public inquiry.

In sum, both institutional and private actors do not see it in their interest to cooperate and agree to common landscape objectives in the absence of a clear-cut regulatory framework with strong institutional mechanisms for enforcement, or at least without confidence in such a process able to come up with an efficient and fair system.

Therefore, the development and consolidation of the landscape wide strategic plan should again be prioritized as the rallying point to forge a common understanding and vision of the importance of biodiversity among all relevant stakeholders.

Such plan should have at least the following characteristics

- It should be based on a sound economic case, viz. the value of biodiversity and the services it provides to economic and social actors. Without a strong case for the value of biodiversity and an excellent strategy to communicate it to stakeholders, biodiversity mainstreaming would remain a marginal issue.
- 2. The plan must create consensus among stakeholders that currently have very diverse positions, interest and needs. Hence, the plan should respect stakeholder's needs and contain or be aligned with their interest to be able to craft a common position, without which no consensus can be attained. (Table 8) outlines an analysis of positions, needs and interest of EGREE stakeholders.

To catalyse the process of developing and consolidating the common position and plan, the project may consider enhancing its implementation team with an additional expert to act as facilitator to engage all sectors, particularly private sector, including industries, fisheries and aquaculture. Such expert should ideally come from a business background to be able to better understand visions and perceptions of business actors and thus support the development of the aforementioned common future vision.

However, the project must also consider that the recommended extension **of at least one year** till mid 2017 would already increase personnel costs (not including management costs) up by 10% of the total grant. More importantly, recruitment process for very specialized positions take notoriously long time and consume resources, as well as generate challenges and frustrations if expectations are eventually not met.

Outcome 2, Enhanced capacity of sector institutions for implementing biodiversityfriendly sector plans including monitoring and enforcement of regulations

The project has generated a vast amount of knowledge products that have been disseminated to different target audiences, including youth, communities, elected officials, public servants, civil society representatives and industrialist. , including dissemination through trainings and awareness actions.

Sector reports constituted an important part of the project strategy as they were supposed to constitute the basis for the development of sector plans to be adopted by sector institutions, both government and private. Thus, the process of production of the sector reports has taken a considerable amount of resources both financial and human, including recruitment, facilitation of fact finding missions, follow-up of production, revision of reports and consultation held.

However, the commissioned reports have had a limited contribution in terms of new knowledge and are especially weak on feasibility, both in terms of institutional arrangements and finances, of the best practices proposed. (Table 10).

This fact, compounded by the amount of time and resources needed to complete all sectors included in the project design, challenges the continuation of this approach. Thus, no further sector plans should be commissioned but rather use the existing information to support the development of the landscape plan foreseen under Outcome 1.

Added to the traits already suggested, a landscape plan that mainstreams biodiversity into sector procedures should include specific sector actions, prioritized according to the dimension of the impact and the benefits (in terms of reduced impact on biodiversity) and costs involved. Table 12 and 13 summarize current impact by sector, as assessed by the MTR and a possible ranking of impacts on biodiversity mentioned in the findings in function of their intensity, extent and irreversibility to help establish priorities in project focus.

Sector actions, as recommended by the MTR, are listed in Table 14 with indication of type of action, institutional arrangements, costing items and dimension, and timeframe of implementation. A Summary of recommendations is provided in the following section.

Outcome 3 Community livelihoods and natural resource use are sustainable in the EGREE

Project activities in addressing conservation issues concerning community's dependence on mangrove forest are ongoing, building rapport and trust with the local community. The project (EGREE foundation) is perceived as an NGO closely associated with the Forest Department and serving the purpose of biodiversity conservation and socio-economic betterment of the local communities.

The project has worked along with the community and local NGOs in preparing Micro Plans in each of the 41 out of 44Project Villages. The micro planning exercises assessed the: socioeconomic and ecological conditions and suggested improvements and action plans for implementations. The action points described in the micro plans are yet to translate into concrete action plans that are ratified by the administration and sanctioned for implementation towards contributing to changing the pattern of practices that can be highlighted to demonstrate a shift towards biodiversity friendly practices

Community institutions are at varied phases of their development, and are yet to mature and progress in a manner they become capable of promoting conservation and manage the resources upon which they depend. Thus, although members of EDCs have clarity that these associations are formed through the Forest Department, with the purpose of protection and conservation of the forest resources, motivation to self-regulate and move forwards the agenda on biodiversity conservation on their own continues to be of lesser priority.

Therefore, inter-weaving the structure of newer forms of community institutions into the traditional system of community governance that pre-exists can enhance the effectiveness of village institutions such as EDCs. The effectiveness of these institutions is such that, these have high influence on the individuals and practiced and passed down through informal peer association. Therefore it is essential to initiate dialogue in the villages to set-up a mechanism, by which the decision taken by the EDCs/ VSS are routed for implementation through the existing community self-regulation mechanisms, apart from being ratified by the gram panchayats.

The project has built substantial institutional linkages towards – dairy development, handicrafts, fish pickling and processing and branding, catering and hospitality as alternative livelihood activities. Further it has demonstrated its strength by converging of gram panchayats, local administration, and line departments in channelling resources through setting up of a Garment Training Centre; Setting up of Dairy Cooperative and Fisheries Cooperative. While there have been small scale pilot initiated with limited success (Fish Vending Stall), these are yet to be adopted by the community as viable options as livelihood alternatives. To enhance understanding of the context, market surveys and study of traditional fishing has also been carried out, however a systematic approach to create market support system is yet to be taken-up.

The current state of affairs, where successful alternatives livelihoods could have been at a level of scaling up are impending, on the account of delays the project suffered due to a set of conditions detailed elsewhere in this document. This process would require more time and it is recommended that the project should seek extension in this regard.

Traditional livelihood are in transition with dwindling fish catch and raising cost of living, reduced demand for fuelwood in the towns and availability of work as daily labour in the factories and port, aquaculture farms, fish processing centres, construction sites and there is increasing trend in outward migration. This phenomena, coupled with enforcement and awareness building process by the forest department and local NGOs has generally caused a decline in frequency and complete dependency on the mangroves forest as an economic activity. Nevertheless, there continues to be dependency on mangroves at household level (varying between 50 to 80% of households in a given villages) as fuel wood, and housing material for those household having thatched house from time to time, and a 10 % decline in this dependency is reported by the project.

As shown by an analysis of the community microplans, the ability of the communities to mainstream biodiversity agenda will remain limited as long as they remain vulnerable. A range of

key developmental issues were raised by the community which needs urgent attention, some of which are: poor embankment and protection from frequent cyclones and inundation; erosion of villages land and habitation areas, scarcity of land for housing and other common purposes such as hygienic fish drying yards, village jetties and fish landing sites; unsanitary conditions, poor access and transportation facility, decreasing fish catch, pollution from upstream, shortage of drinking water, primary school and health facilities, threat to life, loss of livelihood and property and eroding landscape and unclear land tenure system. Therefore, for a successful and sustainable shift in socio-cultural norms which is pro-conservation will be possible if developmental activities are taken-up towards ensuring their social and economic wellbeing at the earliest.

Assessment of Progress towards Results Matrix

Project Strategy level	Indicator		Baseline Level	Level in 3rd PIR	Midterm Target	End-of project Target	Midterm Level	Rating	Justification for Rating
Objective	Landscape/seasca	Direct	0	40,000	23,225	46,450	40,000	Satisfactory	Although the process of mainstreaming has barely started, the project has significantly enhanced protected area management and information, as well as worked together with fringing villages, establishing basis for effective conservation. This would need consolidation through a proper institutional mechanism and a landscape-wide plan to be observed by all parties
	pe area (Ha) in the EGREE where production activities mainstream biodiversity conservation	Indirect		20,000	16,775	33,550	20,000		
		Total	0	60,000	40,000	80,000	60,000		
	Percentage of allocat expenditures of produ aligned with landscap plan for the EGREE	tion of CSR uction sectors be-level strategic	0%	20%	25%	50%	20%	Satisfactory	The project has established partnerships with industrial actors. There have been commitment of funds by important private actors for conservation activities along the CWLS management plan or to support construction of a municipal sewage treatment plan However, the basis for this indicator, the landscape-wide plan has yet to be debated and approved by stakeholders and CSR funds only marginally aligned with conservation objectives
	Improvement in Total Development Scorec	l Capacity ard	0.23	NA	NA	0.94	0.33	Satisfactory	Scorecard scores intimately dependent on sectoral planning and landscape-wide plan

Project Strategy level	Indicator		Baseline Level	Level in 3rd PIR	Midterm Target	End-of project Target	Midterm Level	Rating	Justification for Rating
Objective	Population size of critical species stable or increasing	Scyphiphora hydrophyllacea	70	70	NA	70	70	Highly satisfactory	Monitoring programs established and maintain by the project or with
		Lepidochelys olivacea	300	774	NA	300	774		
		Prionailurus viverrinus	112	NA	NA	112	NA	-	
	Population size of birds (including migratory) remains stable or increases	Number individuals	12,052	35,858	NA	12,052	35,858	Highly	Protection enhanced by project
		Number species	256	264	NA	256	264		
	% of open (degraded) mangrove areas in the project area reduced to the minimum		0.4	0.2	NA	0.1	0.2	outoration	
Outcome 1	Establishment of cross-sectoral institutional mechanism with representation from conservation, livelihood and production sectors		0	1	NA	1	0.5	Satisfactory	EGREE foundation, the core of the institutional mechanism has been established, including its cross- departmental governing board. However, actual coordination at ground level still to be deployed

Project Strategy level	Indicator		Baseline Level	Level in 3rd PIR	Midterm Target	End-of project Target	Midterm Level	Rating	Justification for Rating
Outcome 1	Ca cor and pol leg stra proImprovement in Systemic Level Indicators of Capacity Development ScorecardCa imp pol leg stra pro Ca eng bui cor am ScorecardCa imp pol 	Capacity to conceptualize and formulate policies, legislation, strategies, programs	0%	NA	NA	100%	0%	Moderately satisfactory	There have been methodological difference in the way the baseline score was calculated, so the baseline value differ with the PIRs. Although the average score improvement has only been ca. 30% for the five systemic indicators, taking into account the challenges encountered by the project implementation, such improvement is still considerable
		Capacity to implement policies, legislation, strategies and programs	17%	NA	NA	100%	33%		
		Capacity to engage and build consensus among all stakeholders	0%	NA	NA	83%	17%		
		Capacity to mobilize information and knowledge	0%	NA	NA	100%	66%		
		Capacity to monitor, evaluate and report and learn at the sector and project levels	0%	NA	NA	100%	33%		

Project Strategy Ievel	Indicator	Baseline Level	Level in 3rd PIR	Midterm Target	End-of project Target	Midterm Level	Rating	Justification for Rating
Outcome 1	Landscape level Strategic Plan that provides an enabling policy environment for mainstreaming biodiversity conservation into production sectors	0	Draft develope d	NA	1	25%	Moderately satisfactory	A draft has been developed by a consultant with limited participation. The development of the landscape plan has been awaiting the completion of the sector plans. The MTR has found this procedure to have resulted in a less than optimally efficient process, and recommends to increase efforts to engage stakeholders
	Amount of resources available for funding the Foundation and the compliance of approved sectoral plans	NA	NA	NA	50%	NA	Moderately satisfactory	Although EGREE foundation still exclusively depends on project funds and the sector plans have not yet been implemented, the rating is based on the development of the financial strategy and the proven ability of the project to mobilize resources
	Strategies developed for ensuring that existing sector policies mainstream biodiversity conservation	0	Strategie s partially contained in sector plans develope d	NA	1	30%	Moderately satisfactory	The strategies contained in the sector plans lack feasibility studies and estimation of costs and implementation mechanisms in most cases. The MTR recommends to make this the project first priority, as part of the development of the landscape wide plan
	By project end, any new manufacturing units entering the licensing process in the EGREE are subject to the CRZ 2010 Guidelines	0	No CZMP for AP	NA	100%	0	NA	CZMP for Andhra Pradesh has not been developed. In the meantime, the project should continue efforts to consolidate protection for the CWLS and coastal ecosystems in EGREE, including declaration of an eco-sensitive zone

Project Strategy level	Indicator	Baseline Level	Level in 3rd PIR	Midterm Target	End-of project Target	Midterm Level	Rating	Justification for Rating
Outcome 1	Incentives for production sector companies to promote biodiversity friendly practices by giving them opportunities for marketing/ advertising their efforts	0	4	2-3 companie s	10 companie s	4	Satisfactory	EGREE foundation has established leadership with large important companies on biodiversity-related topics. This reputation will help in the development of the environmental seal planned by the project
Outcome 2	Sector-specific biodiversity- compatible plans	0	4	NA	6	4	Satisfactory	Plans have been completed for the sectors fisheries, aquaculture, tourism and oil and gas. However, the MTR has assessed the efforts put by the project to recruit the experts and conduct the studies as excessive in comparison with the utility of said reports for the objective of mainstreaming biodiversity. Hence, it has been recommended to focus on a more intensive interaction with stakeholders around the development of a landscape wide plan

Project Strategy level	Indicator		Baseline Level	Level in 3rd PIR	Midterm Target	End-of project Target	Midterm Level	Rating	Justification for Rating
Outcome 2	Capacity to conceptualiz and formulat policies, legislations, strategies ar programmeImprovement in Institutional Levellegislation, implement policies, legislation, strategies ar programmesImprovement in Institutional Levellegislation, strategies ar programmesIndicators of Capacityprogrammes capacity to engage and build consensus among all stakeholdersScorecardScorecardCapacity to engage and build 	Capacity to conceptualize and formulate policies, legislations, strategies and programme	0%	NA	NA	100	33%	Satisfactory	There has been a significant improvement of over 30% for the four institutional indicators
		Capacity to implement policies, legislation, strategies and programmes	11%	NA	NA	78	22%		
		Capacity to engage and build consensus among all stakeholders	0%	NA	NA	100	33%		
		Capacity to monitor, evaluate and report and learn at the sector and project levels	0%	NA	NA	100	67%		

Project Strategy Ievel	Indicator		Baseline Level	Level in 3rd PIR	Midterm Target	End-of project Target	Midterm Level	Rating	Justification for Rating
Outcome 2	Improvement in Institutional Level Indicators of	Capacity to implement policies, legislation, strategies and programmes	17%	NA	NA	100	33%	Satisfactory	
	Development Scorecard	Capacity to mobilize information and knowledge	0%	NA	NA	100	33%		
	Number of representatives from the key sectors (government and private) trained in mainstreaming approaches	Production sector	0	180		1,000	290	Satisfactory	Although the figure of people trained by the project on the livelihoods sector amounts only to 4% of the EOP target, the project's approach of training trainers within the communities, guarantees reaching a much wider public
		Conservation sector	0	190		300	320		
		Livelihood sector	0	285		10,000	400		
	Compendium of best practices on mainstreaming biodiversity for key production sector		0	NA	NA	6	NA	NA	Compendia should be done at project end to document lessons learned

Project Strategy level	Indicator	Baseline Level	Level in 3rd PIR	Midterm Target	End-of project Target	Midterm Level	Rating	Justification for Rating
Outcome 2	Use of correct fishing gear by commercial fishing operations	20%	30%	NA	80%	0.3	Satisfactory	The level of compliance and enforcement of current fisheries regulations is low. The project is supporting management of both creek and ocean fisheries. Both fisheries demand different approaches: 1. Creek fishery, a fisheries management plan, based on traditional management structures should be developed with the fisherfolks using the mangrove area 2. Ocean fishery, the current monitoring and awareness efforts supported by the project should reach to eventual MoU among the relevant government organizations for a more efficient enforcement of the current fisheries legislation. This can well occur after EOP, facilitated by EGREE foundation
	Decline in pesticide concentration in the effluents of aqua farms in the target landscape	NA	Not quantified significant decline	NA	80%	Not quantified significant decline	NA	Introduction of <i>Litopaenneus</i> <i>vannamei</i> , together with the state ban of Endosulphan and Nuvan have been the primary contributors to the decline. The MTR report recommends the conduct of regular water quality surveys, including analysis of POPs to be conducted without project support as part of an inter-institutional agreement

Project Strategy level	Indicator	Baseline Level	Level in 3rd PIR	Midterm Target	End-of project Target	Midterm Level	Rating	Justification for Rating
	Effluents from manufacturing units	NA	within emission standards	NA	80%	within emission standards	NA	The MTR report argues that it is in the interest of large scale industries to comply with emission standards monitored by the PCB.
Outcome 2	Management Effectiveness Evaluation (MEE) Scorecard	112	112	20%	30%	112	Highly satisfactory	The discrepancy in the figures is caused by the absence of a baseline prior to 2014, i.e. 112 points score while the targets refer to improvements over the baseline. The rating of highly satisfactory refers to the improvement in information and monitoring and the development of a comprehensive and participatory management plan, which constitutes a significant improvement over the baseline situation.

Project Strategy level	Indicator	Baseline Level	Level in 3rd PIR	Midterm Target	End-of project Target	Midterm Level	Rating	Justification for Rating
	Number of SHGs/ CBOs strengthened	700		NA	700	941		In terms of numbers, both the institutions and membership, there is increase. The EGREE
	EDCs	709	22		709	041		Foundation has made its presence
		20	23	NA NIA	20	23		and rapport built, which can now
	VSS	0	18	NA	0	18		become foundational for forging
	Fishermen Organizations	16	16	NA	16	16	Highly	agreements to self-regulate dependency and find alternative
	Women Organization	33	33	NA	33	33	salisfactory	options of biodiversity friendly livelihoods.
	NGO	5	5	NA	5	5		
	Nature clubs	0	72	NA	0	72		
Outcome 3	Youth clubs	17	52	NA	17	52		
	Dairy Cooperatives	5	6	NA	5	6		
	Number of skills- development activities carried out for SHGs/ CBOs/ and other institutions for alternative and/ or ecosystem-based livelihoods that reduce pressures on biodiversity	0	25 Skilling activities in 9 skill trades across 10 villages covering 200 families	NA	Targets to be finalised	25 Skilling activities in 9 skill trades across 10 villages covering 200 families	Moderately satisfactory	The project has built substantial institutional linkages, as well as channelizing of resources from various sources on alternative livelihoods. However, on the other hand, it has not been so successful in setting-up models through which community is able to realise and see socio-economic benefit in adopting biodiversity friendly practices.
	Number of people shifting to alternative livelihood options that reduce pressure on biodiversity		Micro level plans in 44 villages	NA	Targets to be finalised	23 vill. livelihood activities; 21 vill. devp't act.	Moderately satisfactory	Critical activities emerging from 44 MLPs are yet to translate into strategic plan and ratified by the administration and sanctioned for implementation towards contributing to highlighting of

				demonstrate shift towards biodiversity friendly practices.

Project Strategy level	Indicator	Baseline Level	Level in 3rd PIR	Midterm Target	End-of project Target	Midterm Level	Rating	Justification for Rating
Outcome 3	Incidents of felling of mangrove trees, non-adherence to the seasonal ban on fishing, destructive fishing practices by local communities within the project area in contravention of community natural resource use plan	0%	10%	NA	50%	10%	Satisfactory	Porcentages refer to a decline in felling incidents from the baseline, which is express as a percentage, i.e. no decline. The project has contributed to underline awareness on importance of mangroves among communities and participatorily develop micro plans (village level). However, a comprehensive management plan is yet to be developed. This plan could be part of or jointly develop with the suggested participatory management plan for the creek (mangrove) fishery

Sustainability

Sustainability of project benefits almost exclusively depends on the financial and political support and leverage of the EGREE foundation after project end.

Supporting sustainability of financial resources would depend initially on the development and consolidation of two outputs of the project: the financial strategy, currently being developed, and the sector plans/ landscape-wide strategic plan, without which, the enforcement/ monitoring mission of EGREE Foundation would not make sense.

The financial strategy should lead to the creation of an EGREE fund replenished from government, private and international donors. Supervision of the funds will be conducted by the general body and subject to an annual independent audit.

Institutional sustainability depends on the commitment of the governing board of EGREE at state level, and the creation of additional structures to guarantee its effectiveness in coordinating actions at district level, including an executive director and a technical and district committees.

Moreover, the creation of a consensus that incorporates the interests of government and nongovernment actors, including corporate actors is a necessary condition to develop both a landscape and sector plans that can be monitored by EGREE foundation.

Inter-institutional cooperation at district level can be fostered by the implementation of joint projects, based on formal institutional memoranda of understanding or similar formal agreements and included in an annual work plan to be funded from the EGREE fund.

However the primary function of EGREE must remain the monitoring of the implementation of the landscape and/or sector plans, including administrative directors to the responsible government agencies to act upon non-compliance by stakeholders.

Summary of Recommendations of the Midterm Review

Section	Conclusion	Recommendation	Responsible parties	Timeframe
Project implementatio n Progress towards project objective	The project is at <i>de facto</i> implementation midterm if delays caused by the challenges of setting-up the project and the turmoil caused by the separation of Telangana are accounted for Considering the delays suffered, the project is on track to achieve its objectives. However, a termination at the originally set end-of-project date would likely not provide sufficient time for consolidation of the results, and would risk failure of the project investment and continuation of	Extend the implementation time frame of the project: the <u>end-of-date project should be shifted for at least</u> <u>one year</u> , to a new date by mid-2017.	GEF MoEFCC NSC/ SSC	2 nd Q 2015
Project strategy	BAU. Delays in project implementation caused by cyclonic activity	Incorporate the regular onset of tropical storms into the annual workplans assuming that major disruptions in communications and travel may occur.	Project implementatio n unit	2 nd Q 2015
Project finances	Actual co-funding from government sources is lagging behind committed amounts. However, the project has succeeded in mobilizing a significant amount of additional funding.	Review the current accounting of co-finance and/ or adjust the committed figure. It is likely that the difference between expected and actual co-finance is due to different accounting at the design and implementation stages	Project implementatio n unit	3 rd Q 2015
Monitoring and evaluation	The indicator framework could be streamlined and make more efficient. However, the benefits of such modification in terms of improved monitoring and adaptive management must be measured against the <u>costs of the</u> <u>time-consuming process of modifying a GEF-approved</u> <u>indicator framework.</u>	Objective indicator 1: Geographical extent and durability of impacts on biodiversity per sector must be established Objective indicator 4 and 5: Express as "positive change in RLI" Outcome 1 indicator 3: included in CDS. Remove Outcome 1 indicator 5: Output indicators. Remove Outcome 1 indicator 6: Irrelevant. Remove Outcome 2 indicator 3: included in CDS. Remove Outcome 2 indicator 7: Change to "decline of pollution in estuarine waters"	Project implementatio n unit NSC/ SSC	2015

Section	Conclusion	Recommendation	Responsible parties	Timeframe
Progress towards outcome 1	Line government departments and industry representatives at district level are unaware of the broad	Include more local and elected officials, as well as private representatives. Expansion should be part in the process of developing and consolidating the landscape-wide strategic plan	EGREE governing board	2015
	objectives of EGREE foundation and the scope of its governing bodies.	Create technical body subordinated to the board with district and/or mid-level officials to combine representation and more flexibility and agility to respond to management issues.	Project implementatio n unit	3 rd Q 2015
	Government official at district level perceive EGREE foundation as an NGO or an annexure to the Department of Forest	State departments members of EGREE board should engage more actively with their district delegations to reinforce the notion of EGREE foundation being part of the government and acting in the interest of all government departments	EGREE governing board	2 nd Q 2015
	Weak coordination and divergent understanding and perception of biodiversity among government agencies at district level	Create a district governing board, local chapter or committee of EGREE foundation chaired by the district collector	Project implementatio n unit EGREE governing board	2015
	Local stakeholders do not see it in their interest to	Prioritize development and consolidation of the landscape wide strategic plan as the rallying point to forge a common understanding and vision of the importance of biodiversity , based on a sound economic case, and aligned with stakeholder's interest to be able to craft a common position	Project implementatio n unit	2 nd Q 2015
	cooperate and agree to common landscape objectives	Consider strengthening its implementation team with an additional expert to act as facilitator to engage all sectors, particularly private sector, including industries, fisheries and aquaculture, with due consideration to the increased personnel costs and duration of the recruitment process	EGREE governing board	3 rd Q 2015

Section	Conclusion	Recommendation	Responsible parties	Timeframe
Progress towards outcome 2	Sector reports had limited contribution in terms of new knowledge and are weak on feasibility of the best practices proposed. This fact, compounded by the amount of time and resources needed to complete all sectors included in the project design, challenges the continuation of this approach.	No further sector plans should be commissioned but rather use the existing information to support the development of the landscape plan foreseen under Outcome 1.	NSC/ SSC EGREE governing board Project implementatio n unit	2 nd Q 2015
	Reports have had a limited contribution in terms of new knowledge and are especially weak on feasibility, both in terms of institutional arrangements and finances, of the best practices proposed	Improve current reports: Aquaculture: Expand, systematize, and rank data on impacts Fisheries: Organize data in an impact matrix, including ranking of the impacts and focus on a discrete number of available options applicable to the local fishing fleet Tourism: Expand market study on tourism and frame proposed strategy with current government tourism policy	Project implementatio n unit	2 nd Q 2015
	Sector specific recommendations (based on impacts and rank)	 Fisheries: Establishment of a community-based participatory fisheries resource management system for CWLS Monitor capture of protected or threatened species, and bycatch as first step to manage the ocean fishery Conservation: Extension of protection to the proposed ecosensitive zone extending offshore the sandbar seawards of CWLS and extend protection to turtle nesting areas Designation of the Coringa Wildlife Santuary as a Ramsar site Aquaculture and agriculture: regular monitoring of estuarine waters, especially regarding pesticides and POPs 	Project implementatio n unit EGREE governing board	2016

Progress towards outcome 2Sector specific recommendations (based on impacts and irank)Industries: 1. Systematize and disseminate experience in habitat rehabilitation 2. Support the constitution of a Development Authority to avoid impacts from future onshore infrastructureIndustries: and interest and expectations of visitors in the area to establish potential revenue flow and draft a business plan that includes a stage-wise investment in close coordinationProject implementation n unit EGREE governing board2016-	Section	Conclusion	Recommendation	Responsible parties	Timeframe
with the Department of Tourism Government: introducing a compulsory short course on coastal and marine ecology, estuarine processes, hydrology and sediment dynamics, based on information and trainings already compiled and conducted by the project for all new government officials regardless of	Progress towards outcome 2	Sector specific recommendations (based on impacts and rank)	 Industries: Systematize and disseminate experience in habitat rehabilitation Support the constitution of a Development Authority to avoid impacts from future onshore infrastructure Oil and gas: Restriction of seismic surveys and vessel movements in certain periods, such as turtle nesting season, fish migrations and others Tourism: Market research study identifying current trends and interest and expectations of visitors in the area to establish potential revenue flow and draft a business plan that includes a stage-wise investment in close coordination with the Department of Tourism Government: introducing a compulsory short course on coastal and marine ecology, estuarine processes, hydrology and sediment dynamics, based on information and trainings already compiled and conducted by the project for all new government officials regardless of 	Project implementatio n unit EGREE governing board	2016-2017

Section	Conclusion	Recommendation	Responsible parties	Timeframe
	The community institutions are at varied phased of their development, and are yet to mature and progress in a manner they become capable of promoting conservation and self-regulate their dependency. The inbuilt mechanisms of community self-regulation, knowledge of the mangroves and demarcation of areas and seasons for fishing especially are of importance as these are platforms of behaviour change brought out and passed down through informal peer association.	EGREE is to initiate and facilitate a process of dialogue with community leaders and line departments in the context of strengthening the village level institutions, set-up mechanisms for self-regulation. Community VLI leaders are to leverage the traditional system of governance among fishing communities, initiate a process of consensus, and commit to a time bound Agreement, with action plan to shift to biodiversity friendly practices and alternative livelihoods.	Project implementatio n unit and EGREE governing board. VIL leaders and Traditional community leaders	2 nd Q 2015
Progress towards outcome 3	The scale of the activities in comparison to the magnitude of shift that is necessary to build the momentum to demonstrate viability of these alternative livelihood is very limited.	For increasing communities uptake and willingness to shift from traditional livelihoods, apart from training/ exposure a continuous hand holding mechanism through forming livelihood platforms such as Interdepartmental Jointly Owned Micro Projects (JOMP) is to be initiated. Eg Dairy Cooperative,	Project implementatio n unit and EGREE governing board.	2015-2016
	For a successful and sustainable shift in socio-cultural norms which is pro-conservation will be possible if developmental activities are taken-up towards ensuring their social and economic wellbeing.	Key action points emerging from micro plans should be categorised into (a) Common to all villages; (b) Village specific issues; (c) Threat to biodiversity from community practices. A time bound targeted action plan with clearly set-out accountability structure should be put in place.	Project implementatio n unit and EGREE governing board and VLI/ community leaders	2015-2016

Section	Conclusion	Recommendation	Responsible parties	Timeframe
	The financial strategy being developed should be concluded as soon as possible. The strategy should be approved by the EGREE governing board with a clear commitment for its implementation.	The financial strategy must include the creation of a fund for operations and projects of EGREE. Said fund must admit inputs from a variety of sources, including government, private and international donor funds. Core funding, amounting to at least 50% of the total for both management and project/ activity costs should be provided by the State Departments represented in the governing board. Supervision and control of the inputs and expenses of the fund should be perform by an annual independent audit subjected to the approval of the general body of the EGREE Foundation.	EGREE board NSC/ PSC	2015
Sustainability	Institutional sustainability depends on the commitment of the governing board of EGREE at state level, and the creation of additional structures to guarantee its effectiveness in coordinating actions at district level.	Creation of additional management structures, including, on the top management, the inclusion of the district collector as co-CEO of EGREE, together with a director of a relevant State Department and the appointment of an executive director to support the CEO. Additionally, a technical committee, composed of technical officials of the departments represented at the governing board, as well as equivalent officials from non-government representatives, including corporations and/or a district committee with the same composition of district-based officials. These committees should prepare annual workplans for the consideration of the CEO and approval by the governing board and/ or general body. The annual workplans should closely follow the implementation of the landscape/ sector plans.	EGREE board NSC/ PSC Stakeholders (members of EGREE foundation)	2016-2017

Introduction.

Brief project description, report structure and methodology of the MTR

Brief project description

The project *Mainstreaming Coastal and Marine Biodiversity into Production Sectors in the East Godavari River Estuary, Andhra Pradesh, India* (PIMS 4257) is a GEF-funded, UNDP-supported full size project with a total cost of 24,023,636 USD, including a GEF trust fund grant amounting to 6,023,636 USD and co-finance by the government of Andhra Pradesh amounting to 18,000,000 USD.

Together with the GEF funded project *Mainstreaming Coastal and Marine Biodiveristy Conservation into Production Sectors in the Sindhudurg Coast, Maharashtra*, (PIMS 4242) the project forms part of the India-GEF Coastal and Marine Programme (IGCMP) that has the objective of *demonstrating multi-sectoral approaches to mainstream biodiversity conservation objectives into economic activities in two marine ecoregions of India*.

The Coastal and Marine Programme was prompted by the current level of threats posed by economic development and population growth to coastal and marine biodiversity, which provide critical goods and services to society, including food security and coastal protection.

The Eastern Godavari River delta was selected for this project because it includes the important Coringa Wildlife Sanctuary (CWLS), the second largest extension of mangroves on the Indian coast of the Bay of Bengal, and because it is a fast growing development hub, centred on the city of Kakinada, in immediate vicinity of the mangrove area.

Figure 1. Situation of the project area (Land Use Map) in the coast of Andhra Pradesh and the East Godavari River delta (Google Earth Images).



Land Use Map provided by the Project Implementation Unit.

Kakinada and its adjacent waters not only sustains important commercial and artisanal fisheries, but a growing industrial area that counts with numerous manufactures from different sectors, including offshore oil and gas exploration ventures.

Hence, the project area was defined around CWLS and adjacent areas, amounting to 80,000 hectares within the East Godavari District. The project area, named East Godavari River Estuarine Ecosystem (EGREE), includes a population of ca. 1 million people. The project intends to specifically benefit 44 fringe villages of the CWLS with a population of ca. 100,000 people.

The ultimate goal of the project is to create an enabling policy and governance environment that prevents further degradation of the mangrove ecosystem, allowing the continuous flow of ecosystem services, such as coastal protection and provision of fishery resources, as well as preserving an ecosystem of unique biological value.

Structure of the MTR report

The MTR report covers the strategy, implementation, progress towards results and sustainability of the project and it is consequently divided in the following sections:

- 1. **Project strategy**, relevance of the strategy to national and local priorities and coherence of the logic framework analysis (LFA).
- 2. **Project implementation and adaptive management:** management arrangements and, quality of execution by implementing and executing agencies, implementation challenges and delays, disbursements, administrative processes and financial management, including co-finance, and monitoring and evaluation system.
- 3. **Progress towards achievement of results**, assessments of actual achievements towards project targets
- 4. **Sustainability:** financial, socio-economic, institutional and environmental risks to sustainability

Methodology of the midterm review

The midterm review (MTR) has been conducted by an independent team composed of a national consultant, with expertise in conservation and socio-economic research and an international consultant (team leader), with expertise in biodiversity and experience in the conduct of evaluations of UNDP-GEF projects.

The assessment took place between February and April 2015 and was based on information on the project context, objectives, outcomes and implementation collected from a number of documentary and primary sources.

Primary information was collected from project's stakeholders, implementing partners and other relevant persons by means of group or individual interviews with the MTR team. Stakeholder's provided first-hand information on the project's relevance, effectiveness and efficiency and thus confirmed documentary information contained in the project's reports, as

well as provided their personal views and perceptions on the project implementation and progress towards results.

Interviews targeted a diverse array of stakeholders, such as project beneficiaries, the National Project Director, the project implementation unit, UNDP country office staff and Regional Technical Advisor, government representatives, civil society organizations, the private sector, and local government officials. Annex II lists all respondents included in the interviews.

To assess progress on the ground and interview project's stakeholders, the MTR team visited to project sites in Kakinada Bay and specifically the Coringa Wildlife Sanctuary between February 16th and 24th, 2015. Out of the 44 villages included in the project seven were included in the field mission, selected mostly upon logistic concerns.

Documentary sources included the project document, project implementation reviews (PIRs), combined delivery reports, as well as other technical reports produced by the project.

The MTR team also used reports, assessment or papers produced by government agencies, academic institutions and bilateral and multilateral partners. The evaluation matrix attached to this report in annex I lists sources of documentary data.

Conforming to UNDP-GEF guidelines, a rating is provided for the following project dimensions: progress towards outcome targets, project implementation and adaptive management, and risks to sustainability. The criteria that will form the basis for the rating of aforementioned project dimensions are listed in the evaluation matrix.
Project strategy

The project strategy is based on the assumption that economic development and population growth, together with uncoordinated and partially weak implementation of the current regulatory framework is causing degradation of mangroves areas and consequently threatening important biodiversity values, which in turn support vital economic activities such as fisheries. 2 visualizes the causal relations and drivers behind environmental degradation.





Based on the problem tree, avoiding critical damage to vital environmental benefits would involve mainstreaming biodiversity in to sector planning, hence convincing economic actors of the benefits of biodiversity conservation and developing a framework for the coordinated implementation of environmental policy, as well as developing capacities, particularly of government organizations to strengthen enforcement of instruments for environmental governance. The project design identified barriers at systemic, institutional and community level that were preventing the aforementioned goals from occurring without project support.

Barriers at systemic level included uncoordinated action by government organizations in pursue of their sector goals, being those increase production, e.g. fisheries or improve conservation, e.g. forests, compounded by limited knowledge on biodiversity and its benefits.

Institutional level barriers were defined in the project design as capacity deficits by stakeholders in terms of knowledge on biodiversity values and instruments for its conservation. Finally, communities whose livelihood directly depend on biodiversity services, mostly as provision of food, shelter and fuel, were constraint by the lack of alternatives that would allow them to adopt biodiversity-friendly practices. More importantly, the community level barriers included lack of adequate channels for active engagement in environmental governance.

Hence, the project's ultimate goal, namely, the sustainable management of the globally significant coastal and marine biodiversity of India, while also taking into account development imperatives and need for sustaining livelihoods by mainstreaming biodiversity conservation considerations into production activities and its objective: to mainstream coastal and marine biodiversity conservation into production sectors in the East Godavari River Estuarine Ecosystem was to be achieved through the realization of three outcomes or midterm changes that would address the three levels of barriers identified (Figure 2):

- 1. Sectoral planning in the East Godavari River Estuarine Ecosystem mainstreams Biodiversity Considerations
- 2. Enhanced capacity of sector institutions for implementing biodiversity-friendly sector plans including monitoring and enforcement of regulations
- 3. Community livelihoods and natural resource use are sustainable in the EGREE



Figure 3. Project strategy

Finding 1. The project design incorporated lessons learned from other projects, particularly from the GEF funded, UNDP supported project *Conservation and Sustainable Use of the Gulf of Mannar Biosphere Reserve's Coastal Biodiversity* (PIMS 568) implemented between 2002 and 2009. Although said project differed from the current one in focusing on the management of the Gulf of Mannar Biosphere Reserve, it also involved a multi-stakeholder context. Hence, the positive learning of establishing a body with adequate powers to govern and manage the Biosphere Reserve that would direct the actions of all line departments/ agencies in the Biosphere Reserve was adopted for this project.

Moreover, the implementation of the Gulf of Mannar project also showed the need for upstream engagement (local-state-national levels) and cross learning (inter-ministerial). This lesson learned has also been incorporated in this project, as reflected in the multi-level management structure (local-state-national).

Also, the project design extracted lessons from successful implementation of community-based natural resource management projects such as UNDP's Biodiversity Conservation through Community-Based Natural Resource Management.

Finding 2. The project design accounts for and is aligned with relevant environmental policies and regulatory instruments of the Government of India. Among them, at national level, are the National Wildlife Action Plan, the National Biodiversity Action Plan, the National Environmental Policy and regulatory instruments such as the Environmental Protection Act, the Water Prevention and Control of Pollution Act, and the Wildlife Protection Act.

Moreover, senior government officials are directly involved in the implementation of the project, including the Joint Director for Wildlife (National Project Director), Inspector General of Forests for Wildlife (focal point for IGCMP) and the Additional Director General of Forest for Wildlife (Chair of the National Project Steering Committee) from the Ministry of Environment Forest and Climate Change (MoEFCC), Government of India (GoI), as well as the Special Chief Secretary and Chief Wildlife Warden, of the Department of Environment, Forest, Science and Technology of the Government of Andhra Pradesh, who act as State Project Director and Chair of the EGREE Foundation Governing Board respectively.

The National and State Project Steering committee meet annually but with active engagement of these and other senior officials, taking management decisions on both projects under the Coastal and Marine Program.

While most of the policies, acts and senior officials cited fall under the responsibility of the Ministry of Environment, Forest and Climate Change at national level and the Department of Forest, Andhra Pradesh at state level, they are meant to have a cross-cutting enforcement.

Finding 3. The project design assumes that degradation of ecosystem services from EGREE is being caused by pollution, mostly from aquaculture, industries and municipal sewage, habitat

destruction, mostly from infrastructure and aqua farm development and overexploitation of coastal and marine resources.

The project design based this assumptions on extensive consultations with local, state and national stakeholders, as well as numerous technical reports and peer reviewed papers.

Finding 4. The project design identifies 11 risks and includes an outline of the mitigation strategies. The identified risks are mostly socio-economic risks (10 out of 11), i.e. the risk that stakeholders from industries and government would not see it in their interest to cooperate or share information or would not commit themselves with the project objectives and that knowledge and capacities developed would not be sufficient to generate enough certainty to support project outcomes.

The mitigation strategy for all risks is the very strategy of the project. The risk matrix included in the project document lists the specific components of the project strategy that would mitigate each risks and how.

The project strategy identifies only one environmental risk: damage to ecosystem services from climate change, e.g. by rising sea levels would jeopardize any multi-sector conservation action undertaken with project support. The mitigation strategy again equates to the project strategy in that research on impacts of climate change is provided for under output 1.3.

However, the project design did not identify any risk of delays disrupting the sequence of activities of the project strategy. Since the project strategy itself is highly dependent on the timely execution of its different activities, as several outputs constitute necessary conditions for the achievement for others, such delays could potentially jeopardize the logical links between the outputs and the outcomes. Figure 5 shows such necessary links among outputs.

In fact, several factors caused important delays in project implementation:

- 1. Initial set-up of the project's management structures and governing bodies, including Project Steering Committees and, more importantly the recruitment and establishment of the Project Implementation Unit delayed begin of actual project implementation for over nine months, between July 2011 and March 2012
- 2. Recruitment constraints for sector experts. The project strategy depends to a high degree on the conclusion of sector plans that would include cost-effective, feasible biodiversity-friendly measures. The plans were to be developed by experts with stakeholder consultation. Some of the sector plans, specifically, salt pans, fertilizers and ports and shipping have not been concluded at midterm due to expert recruitment failure
- 3. **Cyclonic activity.** During the project implementation timeframe, the project was affected specially by cyclonic activity in 2013 and 2014.

The state of Andhra Pradesh is known for being vulnerable to tropical storms and related disasters, with 44% of the area being battered by cyclones of moderate to severe intensity every 2-3 years. The flat planes and vast stretches of paddy fields, irrigation

and drainage canals in the regions of East and West Godavari districts, often bear the brunt of cyclones in the region accompanied by strong winds and pounding rains.

Year	Cyclone	Month	Category of Cyclone*
2014	HUDHUD	October	Very Severe Cyclonic Storm
2013	PHAILIN (affected partially)	December	Very Severe Cyclonic Storm
	LEHAR	November	Very Severe Cyclonic Storm
	HELEN	November	Severe Cyclonic Storm
2012	NEELAM (affected partially)	October	Cyclonic Storm
2011	-	-	-
2010	LILA (affected partially)	May	Severe Cyclonic Storm
* Cyclor	hes in India are generally classified into 4 of her severe cyclonic storm; (c) Very severe	categories based o	on the intensity, which are: (a) Cyclonic

Table 1. Cyclonic activity in the EGREE Project region over the last 5 years

The intensity of the cyclonic activity has been high in the EGREE Project region, with 6 cyclones recorded over the last 5 years (table 1). Of the total 6 cyclones, while 2 were 'Severe Cyclonic Storms', in fact 3 were of greater category of intensity, 'Very Severe Cyclonic Storm'.

However the effect of 'PHAILIN', was not direct in the project region, while it was intense in the northern coastal districts of Andhra Pradesh and state of Odisha.

Loss of lives, crops, property, damage and disruption of public infrastructure and services during recovery from cyclones take months to get restored. This becomes near impossible when, more than one cyclone hits the region in the same season, as in the year 2013. Every year since 2010, has been a cyclonic year, with the exception of 2011, while 3 cyclones are recorded in the year 2013, of which 2 were 'Very Severe Cyclonic Storms'.

In the aftermath of cyclones, the project area surrounding the Coringa Wildlife Sanctuary gets flooded, leading to poor access, disruption of transportations and public services, shortage of drinking water and heightened health risks, and loss of crops, livelihood opportunities besides other damages.

4. Political turmoil and institutional re-arrangement associated with the separation of Andhra Pradesh in two states. The demand for the formation of a separate state of Telengana (11 districts) by bifurcating the state of Andhra Pradesh was ongoing since long. This picked up momentum in early 2011, with agitation and strikes organised in the proposed Telengana districts demanding for the same.

For long, this was not considered as a viable option and political parties remained either neutral or opposed. With intensifying agitation in demand for a Telengana state, a set of events gave positive signs of state bifurcation that led to an unrest among the people from the 13 Coastal districts.

While, it was predictable that there would be an expression of unrest by way of strikes and agitations for some days, the process of Andhra Pradesh State bifurcation unpredictably turned out to get intensive and conflictual and turned into a movement. Strong resistance was building against the decision to bifurcate the state: the movement was vigorously supported and joined by the government employees, advocates, along with 14 universities and various occupational groups across the region.

The events turned out to be tumultuous where people from the 13 districts of the coastal districts opposed bifurcation with a series of strikes, processions, shutting down roads, transportation, electricity, water supply, businesses and basic amenities over several months from July 2013 to February 2014.

At the time of this MTR field mission most of the government officials the team interacted with, had taken charge just 2 months back, and were in the process of familiarising and acquainting. This is due to the major reorganising of government officials taking place as part of the Andhra Pradesh State Reorganisation Act.

5. 2014 Elections and election code.

The elections during the period 2013 - 2014, were of immense significance for the region, in bringing democratic process to function and stability at all levels in the governance process, however these were encapsulated in a shroud of uncertainty.

For instance, the Local Gram Panchayat and the Territorial election in the state have been impending since mid of 2011, with no definite timeline of its conduct, as the case was under the judicial review on account of the reservation policy. With the court, resolving the matter and in 2013 orders were issued for speedy completion of election process within a stipulated period. Similarly, the 2014 State and National election in the state have been carried out in the backdrop of an intense period of agitation concerning bifurcation of the State of Andhra Pradesh (detailed elsewhere). With the sudden resignation by the Chief Minister (Sri. Kiran Kumar Reddy) of united Andhra Pradesh, the Presidents Rule was set in an atmosphere of uncertainty: (a) if the State Election will be carried out as scheduled or; (b) will remain under the Presidents Rule for longer period. Under such a scenario, The Election Commission and government functionaries at all levels after election notification were focused in conduct of free, fair and peaceful elections. During such as period, restrictions are in effect (eg. sanctioning of projects cannot be made; public schemes and disbursal of committed activities are not allowed). During the project period, the Election Code has been in effect for: (a) 29 days for local Gram Panchayat during 2013 and; (b) 85 days during State and General elections including territorial elections (MPTC, ZPTC) in 2014.

Therefore, for a total period of 114 days during the project period there were restrictions on state and civil functions, applicable to all political parties, contesting candidates, Ministers, Employees of State Government and Local Bodies and other public servants connected with elections.

Table 2. The matrix of elections

S.no	Type of election	End of Tenure	Election Notification	Election Day	Results	Period of Election Code	No. of days			
	Local Level									
1	Gram Panchayat	23rd August 2011	3rd July 2013	27th July 2013	27th July 2013	3rd to 31st July 2013	29			
	Territorial Level									
2	Mandal Praja Parishad	21st July 2011	10th March	6th and 11th April	13th May	10th March to 13th May 2014	(63)			
3	Zilla Praja Parishad	22nd July 2011	2014	2014 2014 2	2014					
			State and N	lational Level						
4	State Assembly	2nd June 2014	5th March	7th May	16th	5th March to 28th May 2014	85			
5	General Elections	31st May 2014	2014	2014	2014					
Note: () Period is incl	usive and over	laps with State	and National E	Election perio	od.				

Finding 5. The project's result chain is composed of 15 outputs logically connected to the three outcomes (figure 4). Achievement of the three outcomes must necessarily lead to production activities and livelihoods mainstreaming biodiversity, i.e. accounting and mitigating impacts on biodiversity, which is the project's objective. Formulation of the results complies with SMART quality criteria.

The sequence of results involves many interdependences among outputs, as they constitute necessary conditions for the delivery of others (figure 5).

Figure 4 Project's results chain. Output formulation have been shortened from the original logical framework analysis respecting wording and sense.

Output 1.1 A cross-sectoral mechanism in place Output 1.2 Biodiversity friendly strategic plan is prepared Output 1.3 System for knowledge management and exchange Output 1.4 Strategies for incorporating biodiversity considerations into sector policies and guidelines	Outcome 1: Sectoral planning in EGREE mainstream biodiversity conservation		
Output 2.1 Development of biodiversity-friendly sector plans Output 2.2 Training programs and associated tools are developed and implemented for the production sectors			
Output 2.3 Implementation support to selected activities of the biodiversity-friendly sector plans Output 2.4 Compendium of best practices on mainstreaming biodiversity for	Outcome 2:	Project	
production sectors Output 2.5 Revised management plan for the CWLS	Enhanced capacity of sector		
Output 2.6 Training programs and tools implemented for the conservation sector	Institutions	e	
Output 2.7 Implementation support to the conservation sector			
Output 2.8 System for effective monitoring and enforcement of the strategic plan and sector plans			
Output 3.1 Capacity development of community institutions	Outcome 3: Community		
Output 3.2 Development and implementation of a sustainable community natural resource use plan	livelihoods and natural		
Output 3.3 Implementation of livelihood diversification strategy and related socio- economic interventions based on market and community needs	resource use are sustainable		

Figure 5. Output sequence and interdependences. Colours correspond to the three outcomes as shown in figure 4. Blue arrow on the left represents the implementation time, starting on top, year one, to bottom, year five.



Conclusion

The project strategy is based on a comprehensive analysis of the situational context that includes stakeholder's perceptions and peer reviewed scientific literature, as well and lessons learned from past implementation of projects.

The result chain is well-formulated and logically linked. The project design also identified critical risks for the implementation of the project, which would be avoided by specific results of the project strategy.

However, the numerous interlinkages among outputs, i.e. the fact that many outputs constitute necessary conditions for the achievement of the rest, makes the project vulnerable to foreseen and unforeseen disruptions of the implementation sequence.

Moreover, the project design did not incorporate the risk of project disruption by cyclonic activity, which regularly and severely affects the project area, or possible constraints in the recruitment of external consultants. These two factors did cause some delays in project delivery and still have the potential to affect the rest of the implementation timeframe.

More importantly, the project was severely affected by the political and administrative consequences of the separation of Andhra Pradesh in two states, Andhra Pradesh and Telangana. This <u>unforeseen event</u> (i.e. it could not possibly have been predicted at project design) is the main single cause behind the current delay in project implementation. However, since the political process of separation has been concluded, this would not affect future implementation other than minor challenges related to the still on-going administrative rearrangements.

Recommendation

The regular onset of tropical storms that hit the coast of EGREE must be incorporated into the workplans assuming that major disruptions in communications and travel may occur.

While it is true that the last two years have been exceptional in terms of number and intensity of cyclones, the fact remains that the area is cyclone-prone and this must be realistically incorporated when designing and implementing workplans.

Project implementation

Management arrangements.

Finding 1. The project governing structure have been streamlined from the more complex arrangements provided for in the project design (figure 6a and 6b).

Thus, the project shares national steering committee with its sister project on the Sindhudurg coast. The steering committee meets at least once annually and counts with representation from the government of Andhra Pradesh.

Additionally, a state steering committee supervises and directs project implementation on behalf of the government of Andhra Pradesh.

The state steering committee is chaired by the Special Chief Secretary for Wildlife and Forest of the Environment, Forest, Science and Technology Department of the Government of Andhra Pradesh and has 18 members, including senior officials from the Ports Authority, State Pollution Control Board, Department of Agriculture, and Department of Fisheries, as well as representative from civil society organizations and industry.

After the legal establishment of the EGREE foundation in 2013, and the constitution of its governing board, the board has effectively functioned as state steering committee, expanding membership to include the key figure of the District Collector.

A National Project Officer under contract with the UNDP provides liaison functions between the steering committees, implementation unit and the UNDP, being thus critical to the operation of the management arrangements.

Finding 2. Field implementation of project activities is conducted by a team of three Project Specialist and their assistants under the direction of the State Project Coordinator. The specialists are experts in their fields: conservation biology, livelihoods and communications, and the project coordinator is a leading figure in conservation counting with vast experience in management of protected areas.

The State Project Coordinator is responsible for implementation of activities and collection of monitoring information, as well as coordination of the development, publication and dissemination of the knowledge products and awareness material produced by the project.

Finding 3. The project implementation unit regularly produces and updates a comprehensive database on project activities and related information that includes data on biodiversity, socio-economic data, as well as administrative and financial project data.

This information system feeds the project's own monitoring system, as well as an on-line knowledge management system currently being developed as part of the project activities.

Figure 6a. Design management arrangements.



Figure 6b. Current management arrangements



Conclusion

The project's governing bodies, the steering committees at national and state level include representation of all relevant stakeholders, particularly at the level of government organizations (Figure 6b).

Moreover, with the assistance of the project coordinator and national program coordinator, the annual meetings of the steering committees are able to provide adequate and timely response to implementation challenges.

At field level the role and functions of the project implementation unit are understood and recognized by most relevant stakeholders.

Responsibilities and reporting lines within the project implementation unit are clear and understood and decision making in conducted in a timely manner.

Quality of Project Execution by Implementing Agency (UNDP) and Executing Agency (MoEFCC)

Finding 1. The project's implementing agency, the United Nations Development Programme (UNDP) commits significant resources in terms of staff time and travel by the Head of Unit, Programme Analyst and Research Associate (Environment), as well as a Programme Assistance for financial and administrative matters to the coastal and marine program, including this project. Also, the UNDP has recruited a full time National Project Officer, funded by project funds.

The UNDP actively participates in the project's steering committees at national and state level, including participation of senior UNDP officials. Moreover, the UNDP also provides assistance and technical guidance to the project through a regional technical advisor in charge of the biodiversity focal area GEF-funded projects.

Communication between the project's Implementation Unit, the project's governing bodies and the UNDP is fluid and conducted mostly through the National Project Officer.

Finally, Project reports are reviewed by the UNDP and include the agency's rating of implementation and risks affecting project implementation.

Finding 2. The project's executing agency, the Ministry of Environment, Forests and Climate Change (MoEFCC) has committed significant staff time by senior officials, including the national project director (Join Director for Wildlife), the chairman of the national steering committee (Additional Director General of Forest for Wildlife), Inspector General of Forests for Wildlife as well as other senior officials as regular members of the steering committee.

Additionally, the MoEFCC, provides administrative support, managing most of the project's payments. Figure 7 shows payments performed by implementing and executing agencies. Other than recruitment challenges, there have not been any major administrative backlog.

Finding 3. The project is being implemented under the National Implementation modality (NIM) of the UNDP. Under NIM, the project is owned by a National Agency, in this case the MoEFCC of the Government of India, and executed at field level by a Responsible Agency, viz. the Government of Andhra Pradesh.

Thus, project funds are transferred by the project's implementing agency (UNDP) to responsible agency (Government of Andhra Pradesh) as quarterly advances. There have not been any major backlogs in disbursements or other administrative processes. Project funds have been thus mostly disbursed by the Government of Andhra Pradesh with support from the UNDP for some procurement/ recruitment process if this was deemed to facilitate a successful conclusion of said processes. (Figure 7).

Figure 7. Financial management by implementing and executing/ responsible agencies. All funds represented are project funds (GEF grant). Government's own resources are referred in section co-finance.









Conclusion

Both executing (MoEFCC and Government of Andhra Pradesh) and implementing agencies (UNDP) have provided adequate support to project implementation both in administrative, as well as in technical terms.

Project finances

Finding 1. Financial management of the project has been conducted without major problems and funds have been disbursed in a timely manner for payment of satisfactory project deliverables.

Delivery rate reached 43% of total funds as of the end of 2014. Such a delivery rate of almost 50% of the total project grant is consistent with the midterm status of project implementation.

However, since the official end-of-project date is only in March 2016, i.e. in one year from the current midterm review, project implementation has suffered significant delays.

Said delays are mostly related to the political and administrative consequences of the separation of the region of Telangana from Andhra Pradesh, discussed in the previous section, as well as the time needed during the first year of implementation to set-up project's structures, including governing bodies, recruitment of the project implementation unit etc. In this regard, it must be noted that the project involved governing and management structures at three levels, national, state and local, as well as across several government agencies and ministries.

This in fact, delayed project implementation for one year, as field activities started only after the inception workshop held in Kakinada in March 2012. Figure 8 shows the slow start of delivery in 2011 (initial setup) and the slowdown of delivery in 2013 as a consequence of cyclonic activity and political turmoil.

Figure 8. Project annual expenditure and budget and delivery rate as ratio of annual expenditure to annual budget. The delays related to setting up management arrangements and associated recruitment caused an extremely low delivery rate (30%) that rapidly caught up, reaching 96% before slowing down in 2013 mainly due to issues related to the "state bifurcation". The end of said process has also seen a recovery in project delivery that reached 90% (related to annual budget) by the end of 2014.



Conclusion

Primarily initial set-up challenges together with unforeseeable political events have effectively set-back project implementation by one year. Accounting for that, the project stays in course in terms of financial delivery as the delivery rate has almost reached 50%, as would be expected at midterm.

As a corollary, to be able to achieve 100% delivery by the original end-of-project (EOP) date, the project would need to reach 100% delivery rates on budgets 30-46% higher than the average for the first four years of implementation. Even in ideal circumstances, achieving a cumulative delivery of 100% would not be likely if end-of-project date would remain set at March 2016. (Figure 9).

Figure 9. Expenditure and delivery projections. Two scenarios are presented. In the first one, end-of-project (EOP) date remains in early 2016, forcing the project to deliver more half its budget within one year. The second one allows the project to continue till 2017, hence allowing for more realistic delivery rates. Projected expenditure for 2016 and 2017 were calculated based on the 2015 annual work plan, the grant balance and assuming a similar budget in 2016 as in 2015.



Recommendation

As the project is at *de facto* implementation midterm, both in terms of financial and output¹ delivery, and accounting for the challenges of setting-up a project with **an innovative multi-stakeholder**, **multi-level (national/ state/ local)**, **multi-sector approach**, as well as the unforeseeable events consequent to the separation of Telangana from Andhra Pradesh, the midterm review recommends that the <u>end-of-date project should be shifted for at least one</u> <u>year</u>, to a new date by mid-2017.

¹ See section "Progress towards achievement of objectives"

The extension must take account of a linear increase in the cumulative ratio of management and personnel costs to activity costs. However, **not accepting extension on account of the increase in management costs would put consolidation of the advances made by the project at risk**.

Considering only personnel costs, viz. project manager and implementation unit team, i.e. cost necessary to maintain project operations, and assuming an average personnel cost ratio of about a third, the <u>increase</u> in personnel costs over the expected EOP date would only amount to 10% of the total project grant (Figure 10).

Figure 10. Projected personnel costs and ratio to total annual expenses. 30% is assumed as the normal ratio personnel/ total annual expenditures: the high personnel costs in 2011 and 2014 are likely related to the slow pace of delivery in those years.



cumulative personnel cost ratio EOP 2017

Co-finance

Finding 1. 18 million dollars of the United States of America had been committed by the government of Andhra Pradesh in 2009 as co-finance for the implementation of this project.

The project implementation unit has been documenting the in-kind costs incurred by the government of Andhra Pradesh, Government of India and Local Government as part of its co-financing commitments, as well as additionally mobilized funds from different private organizations both in-kind and grants. Table 3 details all sources of co-finance, as well as additionally mobilized funds.

The current level of co-finance has reached over four and half million USD (25% of the committed funds) have been disbursed and over 0.3 million USD have been additionally mobilized by different organizations.

Conclusion

While actual co-funding from government sources is lagging behind committed amounts, the project has demonstrated capacity to generate synergies and strategic alliances with a number of actors, both stakeholders and external to the project, which has succeeded in mobilizing a significant amount of additional funding.

Recommendation

The project must review the current accounting of co-finance and/ or adjust the committed figure. It is likely that the difference between expected and actual co-finance is due to different accounting at the design and implementation stages.

Table 3a. Co-finance and additionally mobilized funds. Exchange rate INR to USD used is 0.016.

Organization	Туре	Type of funds	committed/ additional	Description	INR	USD
Wildlife Division, MoEFCC	Gol	In-kind	committed	NPMU work station, Vehicle, Salary of NPD, IGF(WL) and NPSC Chair, ADGF(WL), Venue for meetings, electricity	15,000,000	239,781.00
Andhra Pradesh Forest Department	GoAP	in-kind	committed	venue for meetings, electricity, state project management unit	800,000.00	12,835.68
Andhra Pradesh Forest Department	GoAP	in-kind	committed	State steering committee	1,000,000.00	16,044.60
Andhra Pradesh Forest Department	GoAP	in-kind	committed	GIS services	300,000.00	4,813.38
Andhra Pradesh Forest Department	GoAP	in-kind	committed	Support to development of management plan for CWLS	700,000.00	11,231.22
Andhra Pradesh Forest Department	GoAP	in-kind	committed	Management of CWLS	109,000,000.00	1,748,861.40
Andhra Pradesh Forest Department	GoAP	in-kind	committed	Facilities in support of livelihood trainings	65,000.00	1,042.90
Andhra Pradesh Fisheries Department	GoAP	in-kind	additional	Development of a landing centre	450,000.00	7,220.07
Andhra Pradesh Fisheries Department	GoAP	grant	additional	Distribution of ice boxes for livelihood projects	70,000.00	1,123.12
Andhra Pradesh Fisheries Department	GoAP	in-kind	additional	Exposure visit for communities (part of VLI trainings)	50,000.00	802.23
Micro, Small and Medium Enterprises Development	Gol	in-kind	additional	Support for livelihood activities	56,000.00	898.50
National Institute of Fisheries Post Harvest Technology and Training	Gol	in-kind	additional	Support for livelihood activities	300,000.00	4,813.38
National Institute of Tourism Hospitality	Gol	grant	additional	Support for livelihood activities	626,000.00	10,043.92
District government, East Godavari	Local government	in-kind	additional	Use of facilities for activities related to biodiversity mainstreaming	200,000.00	3,208.92
District government, East Godavari	Local government	grant	additional	Road to CBET	4,500,000.00	72,200.70
				Subtotal committed	283,117,000.00	4,525,738.49

Organization	Туре	Type of funds	committed/ additional	Description	INR	USD
P.R college	Academia	in-kind	additional	Facilities for symposium on biodiversity	530,000.00	8,503.64
Sri Venkateswara University	Academia	in-kind	additional	Use of cold storage facilities	670,000.00	10,749.88
District government, Fast Godavari	Local	grant	additional	Village development activities as identified in microplans	150.000.000.00	2 406 690 00
	government	8				_,,
Bio Andhra International conference	NGO	in-kind	additional	Support to conservation sector	10,200,000.00	163,654.92
CBET Coringa	NGO	in-kind	additional	Support for livelihood activities	2,000,000.00	32,089.20
ICM	NGO	in-kind	additional	Support for livelihood activities	10,000.00	160.45
Indian Institute of Bio - Social Research And Development	NGO	in-kind	additional	Support for livelihood activities	56,000.00	898.50
Janavignana Vedika	NGO	in-kind	additional	Support to conservation sector	625,000.00	10,027.88
KVK Trainings	NGO	in-kind	additional	Support for livelihood activities	20,000.00	320.89
M. S. Swaminathan Research Foundation	NGO	grant	additional	Coir machines	10,000.00	160.45
M. S. Swaminathan Research Foundation	NGO	grant	additional	CBD COP 11 Side Event	200,000	3,197.08
Coromandel fertilizers	Private	grant	additional	Support for awareness programs	180,000.00	2,888.03
Gujarat State Petroleum Corporation	Private	grant	additional	Support for awareness programs	200,000.00	3,208.92
Reliance Industries, Cairn Energy India,	Private	in-kind	additional	support to establishment of cross-sectoral mechanism	200.000.00	3,208,92
Coromandel Fertilizers	invate		uuuuu		200,000.00	3,200.32
SMART	Private	in-kind	additional	Support for livelihood activities	5,000,000.00	80,223.00
Community based organizations	VLI	in-kind	additional	Time invested in project related meetings	1,800,000.00	28,880.28
Community labor	VLI	in-kind	additional	Support for livelihood activities	111,000.00	1,780.95
Village institutions	VLI	in-kind	additional	Preparation of microplans	300,000.00	4,813.38
Village institutions	VLI	in-kind	additional	Facilities for preparation of microplans	500,000.00	8,022.30
				Subtotal additional	22,612,000.00	361,461.86
				TOTAL	305,729,000.00	4,887,200.36

Table 3b. Co-finance table

Cofinance	finance IA own financing		Government		Other sources		Total financing		Total disbursement	
(Type/Source)	(million USD)		(million USD)		(million USD)		(million USD)		(million USD)	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Grant			0.00	0.16	0.00	0.01	0.00	0.16	3.19	2.78
Credit										
Equity										
In-Kind			18.00	2.03	0.00	0.35	18.00	2.28	18.0	2.28
Non-grant										
Other types										

Monitoring and evaluation

Finding 1. The project design included an extensive indicator framework with 6 objective indicators, and 19 outcome indicators. The indicator framework also includes a capacity development scorecard specifically designed for the project composed of 16 indicators.

Finding 2. Indicators from the indicator framework and capacity development scorecard are in general compliant with SMART quality criteria with minor problems, including relevance, specificity and overlapping, specified in table 4.

Finding 3. Monitoring, i.e., collection of information relevant to the indicators of the indicator framework is being conducted by each of the three specialist of the project implementation unit and consolidated and reported in a comprehensive and orderly manner by the project coordinator.

Additionally, the project documents a great variety of relevant data, including biophysical parameters of the area and socio-economic data relevant to communities and private sector.

Conclusion

The project counts with a robust monitoring system, primarily based on the indicator framework included in the project's logical framework analysis, but that also documents and reports other relevant data as part of the project's knowledge management strategy.

However, the project indicator framework is very large and has some issues of overlapping and relevance of indicators.

Recommendation

The indicator framework could be streamlined and make more efficient by modifying it along the lines suggested in table 4.

However, the benefits of such modification in terms of improved monitoring and adaptive management must be measured against the <u>costs of the time-consuming process of modifying</u> <u>a GEF-approved indicator framework</u> that would need scarce time and other resources from the project implementation unit and governing bodies, <u>particularly at this stage of project implementation</u>.

Table 4. Issues and suggested modification to the project's indicator framework. Green indicates full compliance with criterion, yellow, partial compliance and red non-compliance. Recommendations only provided where issues are identified for the indicator.

Result/ indicator	Specific	Measurable	Achievable	Relevant	Time-bound	Recommendation			
Objective: To mainstream coastal and marine biodiversity conservation into production sectors in the East Godavari River Estuarine Ecosystem (EGREE)									
1. Landscape/seascape area in	Provided	It would depend	It depends on the	Impacts on	Temporal limits	Geographical extent and durability of			
the EGREE where production	biodiversity	on measurement	number of	biodiversity in	not well defined,	impacts on biodiversity per sector			
activities mainstream biodiversity	mainstreaming	of area affected	sectors and how	direct and	i.e. effects of	must be established.			
conservation	comes as result	by each	is the area	indirect influence	planning in terms				
	of project actions	production sector	affected: e.g.	area central to	of impacts on	Opportunity is presented by			
			project may	project activity	biodiversity may	development of landscape strategic			
			achieve reduction		be years into the	plan			
			in runoff from		future				
			aqua farms but						
			area still severely						
			affected by						
			sewage						
2. Percentage of allocation of CSR	Yes, alignment of	Alignment of CSR	Yes, as crafting	Yes, private	Time allocated				
expenditures of production	CSR with project-	priorities with	alliances with	sector support	within project				
sectors aligned with landscape-	supported	landscape-level	private sector is	for biodiversity	timeframe				
level Strategic Plan for the EGREE	strategic plan	strategic plan	central to project	conservation key					
		through CSR	strategy	to project					
		plans or survey of		strategy					
		CSR officials in							
		private							
		companies							

Result/ indicator	Specific	Measurable	Achievable	Relevant	Time-bound	Recommendation
Objective: To mainstream coas	tal and marine bio	diversity conservat	ion into productio	n sectors in the Ea	st Godavari River E	stuarine Ecosystem (EGREE)
3. Improvement in Total Capacity Development Scorecard	Yes, CDS specifically designed for	Yes, by definition of scorecard	Yes, as improvement in ratings directly	Yes, indicators of CDS link to key project actions	Time allocated within project timeframe	
	project		related to project actions	p. 0]000 000000		
4. Population size of following	Yes, as project	Yes, through	Yes, likely success	Yes, threatened	Temporal limits	1. Both indicators can be very specific
critical species remains stable or	actions would	biological	of project	species central to	not well defined,	and are highly relevant to the project
increases: Scyphiphora	necessarily	surveys, for	support to	project strategy.	i.e. effects of	strategy and the measurement of its
hydrophyllacea (IUCN	increase level of	which funds are	conservation	However,	planning in terms	success.
threatened), Olive Ridley turtle	protection of said	provided in the		inclusion of	of impacts on	2. However, the timeframes of
(IUCN vulnerable status), Fishing	species	project design		Scyphiphora	biodiversity may	population response to management
cat (IUCN status is endangered)				hydrophylacea	be years into the	efforts must be taken into
				(least concern)	future	consideration.
				questionable		3. Inclusion of <i>Scyphiphora</i>
5. Population size of birds	Yes, as project	Yes, through	Yes, likely success	Yes, migratory	Effects of	hydrophylacea must be reviewed.
(including migratory) remains	actions would	biological	of project	and resident	planning in terms	4. Both indicators could be joined
stable or increases:	necessarily	surveys, for	support to	birds good	of impacts on	together and express as "positive
	increase level of	which funds are	conservation	indicator of	biodiversity may	change of the Red List Index". The
	protection of said	provided in the		degradation of	be years into the	Red List Index is an indicator used by
	species	project design		area	future	the CBD and varies with changes in
						threatened status of all species
						assessed in one area.
6. % of open (degraded)	Yes, mangrove	Yes, through	Yes, likely success	no degradation of	Time allocated	
mangrove areas in the project	areas under	surveys, for	of project	mangrove forest	within project	
area reduced	direct project	which funds are	support to	key to project	timeframe	
	control	provided	conservation	success		

Result/ indicator	Specific	Measurable	Achievable	Relevant	Time-bound	Recommendation
Outcome 1: Sectoral planning in	n the EGREE mains	treams biodiversit	y conservation con	siderations		
Indicator 1, Establishment of	Yes, direct	Yes, as	Yes, lesson	Yes, key element	Time allocated	
cross-sectoral institutional	consequence of	mechanism must	learned from	of project	within project	
mechanism with representation	project strategy	be documented	other projects	strategy	timeframe	
from conservation, livelihood and						
production sectors						
Indicator 2, Improvement in	CDS specifically	Yes, by definition	Improvement in	Yes, indicators of	Time allocated	
systemic level indicators of	designed for	of scorecard	ratings directly	CDS link to key	within project	
capacity development score card	project		related to project	project actions	timeframe	
(CDS)			actions			
Indicator 3, Landscape level	Yes, direct	Yes, as plan must	Yes, achievement	Yes, key element	Time allocated	This indicator is already represented
Strategic Plan that provides an	consequence of	be documented,	is a must for	of project	within project	by "There is a strong and clear legal
enabling policy environment for	project strategy	and its quality	project success	strategy	timeframe	mandate for mainstreaming
mainstreaming biodiversity	but partially	could be assessed				biodiversity into production sector
conservation into production	overlapping with					activities in the EGREE" in the CDS.
sectors	CDS					Thus, removing it from this
						framework could be considered
4. Amount of resources available	Yes, direct	Yes, financial	Yes, achievement	Yes, key element	Time allocated	
for funding the Foundation and	consequence of	resources will be	is a must for	of project	within project	
the compliance of approved	project strategy	recorded	project success	strategy	timeframe	
sectoral plans						
5. Strategies developed for	Yes, project	Yes, activity	Yes, project	It merely reflects	Time allocated	This output, "strategies developed" is
ensuring that existing sector	activity	intends to	output	achievement of	within project	a mere step towards the strategic
policies mainstream biodiversity		produce		an output/	timeframe	plan and sector plans. Thus, it could
conservation		documents		activity		be removed from indicator
						framework

Result/ indicator	Specific	Measurable	Achievable	Relevant	Time-bound	Recommendation
Outcome 1: Sectoral planning in	the EGREE mains	treams biodiversity	y conservation con	siderations		
6. Application of new EIA guidelines (that include CC change considerations) to new manufacturing units entering licensing process in the EGREE	Not direct consequence of project actions, as compliance with new EIA guidelines must	Yes, as compliance must be documented	Not within project control	It is related to biodiversity mainstreaming but it is not within project control	Timeframe of implementation and enforcement independent from project	Remove from indicator framework as indicator. However, new EIA guidelines could and should be incorporated in any sector or strategic plan
	be compulsory					
7. Incentives for production sector companies to promote biodiversity friendly practices by giving them opportunities for marketing/ advertising their effort	Only if incentives related to project actions	Yes, incentives and PR opportunities must be documented	Incentives can be supported by project actions and alliances	Yes, as it supports adoption of biodiversity- friendly measures	Time allocated within project timeframe	
Outcome 2: Enhanced capacity	of sector institutio	ns for implementi	ng a biodiversity-fr	iendly sector plan	including monitori	ng and enforcement of regulations
1. Sector-specific biodiversity compatible plans	Yes, direct consequence of project strategy	Yes, as plans must be documented	Yes, achievement is a must for project success	Yes, key element of project strategy	Time allocated within project timeframe	
 Improvement in institutional and individual level indicators of capacity card 	Yes, CDS specifically designed for project	Yes, by definition of scorecard	Yes, as improvement in ratings directly related to project actions	Yes, indicators of CDS link to key project actions	Time allocated within project timeframe	
3. Number of representativesfrom the key sectors(government and private) trainedin mainstreaming approaches	Yes, project activity	Yes, activity intends to produce documents	Yes, project output	It merely reflects achievement of an output/ activity	Time allocated within project timeframe	Effect from this activity to be measured by the capacity development scorecard. Thus, it could be removed from framework

Result/ indicator	Specific	Measurable	Achievable	Relevant	Time-bound	Recommendation				
Outcome 2: Enhanced capacity of sector institutions for implementing a biodiversity-friendly sector plan including monitoring and enforcement of regulations										
4. Compendium of best practices	Yes, project	Yes, activity	Yes, project	Not relevant as	Time allocated	1. Not an outcome indicator but mere				
on mainstreaming biodiversity for	activity	intends to	output	an outcome	within project	project activity.				
key production sector		produce		indicator as it	timeframe	2. Effect from this activity to be				
		documents		merely reflects		included in development of sector				
				achievement of		plans or strategic plan. Also measured				
				an output/		by the CDS. Thus, indicator could be				
				activity		removed from framework				
5. Use of correct fishing gear by	Only if	Depends on	Achievement, i.e.	Yes, use of legal	As the fishery is	Long-term success indicator, i.e. not				
commercial fishing operations	compliance with	monitoring by	compliance and	mesh size and	currently open	outcome but rather objective				
	regulations result	other	enforcement	compliance with	access	indicator. It exceeds project's				
	from project	institutions, e.g.	largely beyond	other fishing	compliance and	implementation timeframe				
	activities, e.g.	fisheries	project control	regulation would	enforcement					
	sector plan or	department		have positive	would likely need	See recommendations on fisheries				
	guidelines			impact on	timeframe	under outcome 2.				
				biodiversity	beyond EOP					
6. Decline in pesticide	Only if decline	Yes,	It would depend	Yes, pollution	Time allocated					
concentration in the effluents of	results from	measurement	on economic	abatement has	within project					
aqua farms in the target	project activities,	through water	feasibility for	positive impact	timeframe					
landscape	e.g. sector plan	analysis	aqua farmers	on biodiversity						
	or guidelines									

Result/ indicator	Specific	Measurable	Achievable	Relevant	Time-bound	Recommendation
Outcome 2: Enhanced capacity	of sector institutio	ns for implementi	ng a biodiversity-fr	iendly sector plan	including monitori	ng and enforcement of regulations
7. Effluents from manufacturing	Only if decline	Monitoring by	Achievement, i.e.	Industrial	Time allocated	As effluent from manufacturing units
units	result from	Pollution Control	compliance and	pollution	within project	are regulated by pollution standards
	project activities,	Board	enforcement	abatement	timeframe	and monitored by the Pollution
	e.g. sector plan		largely beyond	regulated		Control Board, this indicator could be
	or guidelines		project control	independently of		changed to "decline of pollution
				project		(needs definition, BOD, POPs, other
						toxics) in estuarine waters" as this
						realm is only currently covered by the
						project, not the PCB
8. Management Effectiveness	Yes, direct	Yes, as plans	Yes, achievement	Yes, key element	Time allocated	
Evaluation (MEE) Scorecard	consequence of	must be	is a must for	of project	within project	
	project strategy	documented	project success	strategy	timeframe	
Outcome 3: Community liveling	ods and natural re	source use are sus	tainable in the EGI	REE		
1. Number of SHGs/ CBOs	Project activity.	Yes, activity will	Yes, project	Strengthening of	Time allocated	
strengthened	Strengthening	be documented	output	VLIs is a	within project	
	defined as			necessary step	timeframe	
	trainings for			for community-		
	capacity gaps			based resource		
				management		Both indicators are essentially the
2. Number of skills development	Project activity.	Yes, activity will	Yes, project	Strengthening of	Time allocated	same and could be merged
activities carried out for SHGs/	Strengthening	be documented	output	VLIs is a	within project	same and could be merged
CBOs/ and other local institutions	defined as			necessary step	timeframe	
for alternative and/ or	trainings for			for community-		
sustainable ecosystem-based	perceived			based resource		
livelihoods that reduce pressures	capacity gaps.			management		
on biodiversity						

Result/ indicator	Specific	Measurable	Achievable	Relevant	Time-bound	Recommendation					
Outcome 3: Community livelihoods and natural resource use are sustainable in the EGREE											
Indicator 3, Number of people	Yes, if shift occurs	Documentation	Yes, achievement	Abandonment of	Consolidation of						
shifting to alternative livelihood	as a result of	through surveys	is a must for	livelihoods	alternative						
options that reduce pressure on	project's		project success	directly	livelihoods						
biodiversity	strengthening of			depending on	possible within						
	VLIs			exploitation of	project						
				resources can	timeframe						
				have a positive							
				effect on							
				biodiversity							
Indicator 4, Incidents of felling of	Yes, if decline in	Documentation	Yes, achievement	Yes, stop of	Time allocated						
mangrove trees, non-adherence	incidents within	through surveys	is a must for	degradation of	within project						
to the seasonal ban on fishing,	CWLS likely to		project success	mangrove forest	timeframe						
destructive fishing practices by	occur as a result			key to project							
local communities within the	of project's			success							
project area in contravention of	strengthening of										
community natural resource use	VLIs										
plan											

Progress towards results

This section is divided in an analysis of the attainments per outcome and assessment of progress towards the project objective. Both assessments are based primarily on the project's indicator framework.

The discussion starts with the outcomes to allow a better comprehension of what the project has achieved on the ground before moving to the final objective. Although the discussion follows the order of the indicators for each outcome/ objective, the report alters this order if it helps a coherent narrative.

Thus, discussion of results of the scores of the capacity development scorecard, which indicates progress towards the targets under outcome 1 and 2 is moved forward, since it provides an overview of the outcomes.

Also, some indicators have been grouped together, in the case of outcome 2 and one indicator of outcome 1, related to sustainability, has been moved to that final section of the report.

Outcome 1, Sectoral Planning in EGREE Mainstreams Biodiversity Considerations

The outcome's strategy involves the creation of enabling conditions for the mainstreaming of biodiversity into sector plans (Figure 11).

Thus, the main products under this outcome would be:

- 1. A platform/ institution/ foundation with sufficient stakeholder representation and a functioning team/ secretariat to facilitate its processes.
- 2. Generation and management of knowledge on EGREE for planning purposes and
- 3. Approved strategy documents for biodiversity mainstreaming for each relevant sector based on the current policy and regulatory framework, including proposals to modify said framework if needed in view of the effect of mainstreaming biodiversity.

Within the platform, stakeholders should agree to broad objectives to reduce impacts on biodiversity in EGREE. These objectives should be constituted in a landscape-wide management plan developed by the stakeholders with the facilitation of the platform/ institution's team.

Based on the landscape management plan, strategies to integrate biodiversity into sector planning should be developed that would then be applied in the development of the sector plans foreseen under outcome 2.

The platform/ institution would need to come up with a formal institutional mechanism for implementation of the landscape plan. Implementation of said plan should be monitored by the foundation, for which purpose enough resources should be committed by the participating stakeholders.

By the end of the project, stakeholders from different sectors, including state departments such as forest, fisheries and tourism and the Pollution Control Board, as well as representatives from the main production sectors (companies) and communities should then be meeting regularly to review the status of the implementation of the plan that they have themselves developed.

Achievement of this outcome is signalled by the outcome indicators listed in figure 12.

The progress attained towards the indicators is detailed in the following section, with the exception of indicator four "Amount of resources available for funding the foundation and the compliance of approved sectoral plans" that will be discussed in section Sustainability.

Figure 11. Strategy of outcome 1







A discussion of findings corresponding to the indicators listed in figure 12 follows. The discussion starts with the outcome's second indicator, capacity development scorecard, as it provides an overview of the achievements under this outcome.

Indicator 2. Systemic level indicators of capacity development scorecard

A capacity development scorecard was conceptualized for this project based on the UNDP capacity development scorecard. The scorecard consists of indicators in five support areas with a score scale from 0 to 3 points at three levels: systemic, institutional and individual. Scores reflect the status of progress in the achievement of the objectives of the project

At systemic level, the capacity scorecard measures the capacities to formulate and implement a cross-sectoral institutional mechanism with biodiversity conservation objectives in EGREE. Figure 13 lists the indicators used for each area at systemic level. Table 5 shows the score scale and the current status achieved by the project.

The indicators of the capacity development scorecard actually summarize findings on progress towards the targets of the other outcome indicators. Thus, it can be used as a scale to measure progress towards the achievement of the outcome.





Strategic area of suppport	Indicator	Worst score (0)	Marginal score (1)	Satisfactory (2)	Best (3)	Description and justification
Capacity to conceptualize and formulate policies, legislations, strategies and programs	There is a strong and clear legal mandate for mainstreaming biodiversity into production sector activities in the EGREE	There is no legal framework for biodiversity mainstreaming into production sector activities	There is a partial legal framework for biodiversity mainstreaming into production sector activities, but it has many inadequacies	There is a reasonable legal framework for biodiversity mainstreaming but it has a few weaknesses and gaps	There is a strong and clear legal mandate for biodiversity mainstreaming into production sector activities	The project has commissioned an expert draft landscape wide management plan for EGREE, but stakeholders need yet to be actively engaged and approve such plan.
Capacity to implement policies, legislation, strategies and programs	There are adequate skills for mainstreaming biodiversity into production sector activities in the EGREE	There is a general lack of skills	Some skills exist but in largely insufficient quantities to guarantee effective biodiversity mainstreaming	Necessary skills for effective biodiversity mainstreaming into production sector activities do exist but are stretched and not easily available	Adequate quantities of the full range of skills necessary for effective biodiversity mainstreaming into production sector activities are easily available	Some government and industry officials acknowledge benefits of conserving biodiversity but meaning and role of biodiversity a provider of ecosystem services is not generally understood
	There is an oversight mechanism with clear responsibility to monitor and enforce biodiversity mainstreaming into production sector activities in the EGREE	There is no oversight at all	There is some general oversight on environmental compliance but it lacks capacity to specifically monitor and enforce compliance with biodiversity considerations	There is a reasonable oversight mechanism in place providing for regular review of biodiversity considerations but it lacks transparency (e.g. is not independent, or is internalized)	There is a fully transparent oversight mechanism in place providing for regular review of biodiversity considerations	There is compliance with biodiversity conservation regulations within the CWLS, but this does not extend to marine species outside protected area. Fisheries, agriculture, pollution control and other agencies don't monitor impacts on biodiversity

Table 5. Systemic level indicators of the capacity development scorecard.
Strategic area of suppport	Indicator	Worst score (0)	Marginal score (1)	Satisfactory (2)	Best (3)	Description and justification
Capacity to engage and build consensus among all stakeholders	Biodiversity compatible Strategic Plan for the EGREE (incl. sectoral plans) have the political commitment they require	There is no political will at all, or worse, the prevailing political will runs counter to the interests of biodiversity mainstreaming into sectoral plans	Some political will exists, but is not strong enough to make a difference	Reasonable political will exists, but is not always strong enough to fully support biodiversity mainstreaming into sectoral plans	There are very high levels of political will to support biodiversity mainstreaming into sectoral plans in the EGREE	There is understanding at the department of forest on the importance of biodiversity conservation, but not in other government or private institutions. Even the department of Forest approach has a narrow conservation scope, seeing development as opposed to conservation
	Biodiversity compatible Strategic Plan for the EGREE (incl. sectoral plans) have the public support they require	The public has little interest in a Strategic Plan for the EGREE (incl. sectoral plans) and there is no significant lobby for it	There is limited support for Biodiversity compatible Strategic Plan (incl. Sectoral plans)	There is general public support for Biodiversity compatible Strategic Plan (incl. Sectoral plans) and there are various lobby groups such as environmental NGO's strongly pushing for them	There is tremendous public support in the country for Biodiversity compatible Strategic Plan (incl. Sectoral plans)	No plan has been disseminated yet. There is very limited public support for biodiversity conservation as focus is on economic development, employment, and livelihoods

Strategic area of	Indicator	Worst score (0)	Marginal score (1)	Satisfactory (2)	Best (3)	Description and
suppport						justification
Capacity to mobilize information and knowledge	Production sector institutions have the biodiversity information they need to develop and monitor biodiversity compatible sectoral plans for the EGREE	Information is virtually lacking	Some information exists, but it is of poor quality, it is of limited usefulness, and it is not available at the ight time	Much information is easily available and mostly of good quality, but there remain some gaps in quality, coverage and availability	Produdction sector institutions have the biodiversity information they need to develop and monitor sectoral plans	Good amount of information generated by the conservation support activities of the project, but gap in dissemination and very specially on economic value of ecosystem services persist
Capacity to monitor, evaluate, report and learn	Society monitors the state of biodiversity mainstreaming into sectoral plans in the EGREE	There is no dialogue at all	There is some dialogue going on, but not in the wider public and restricted to specialized circles	There is a reasonably open public dialogue going on but issues that particularly magnify the conflict between economic activities and biodiversity considerations are not discussed	There is an open and transparent public dialogue about the state of biodiversity mainstreaming into sectoral plans in the EGREE	Government line departments at district level do not see it in their interest to collaborate/ coordinate for biodiversity mainstreaming purposes. Also, industries see not value added in engaging in any sort of coordination platform
# scores		2	4	1	0	
Total score		0	4	2	0	6
Maximum score						21
% Achievement (a	against max. score)					29%

Conclusion

The project has engaged all relevant stakeholders from government, private and community levels and progress has been made toward improvement in capacity development scores, particularly in respect to the amount of information available to stakeholders for planning purposes.

Methodological differences preventing a clear comparison with baseline data do not allow for a quantification of the advances in terms of capacity development score from project begin. However, it can be safely assumed that all indicators 2 *There are adequate skills for mainstreaming biodiversity*, 4 *Biodiversity compatible Strategic Plan for the EGREE have the political commitment they require*, 6 *Production sector institutions have the biodiversity information they need to develop and monitor biodiversity compatible sectoral plans* and 7 *Society monitors the state of biodiversity mainstreaming into sectoral plans in the EGREE* would have obtained a score of zero, if the assumptions underlying the project design hold true.

Hence, the initial Systemic score would have been 1, or 5% of the maximum possible score. Thus, the project has moved the score up by 14 points since project inception

More importantly, advances in the indicators of the capacity development scorecard are intimately intertwined with advances in the outputs of this outcome, **particularly the cross-sectoral mechanism and the landscape-wide strategic plan**. Hence, specific aspects included in the capacity development scorecard, viz. landscape-wide plan and legal framework are discussed with the following indicators

Recommendation

Review the capacity development scorecard annually and at the time of the terminal evaluation using methodology and criteria consistent with the MTR.

Indicator 1. Cross –sectoral mechanism with representation from conservation, livelihood and production sectors

Finding 1. The project developed a constitution and bylaws for the foundation envisioned by the outcome strategy that were ready in 2012. Said Memorandum of Association and bylaws were approved by the Department of Forest and the Department of Registration of Societies by 2013 and was finally constituted in December 2013.

The foundation's bylaws state the objectives of the foundation as

- 1. Development of capacities and engagement and coordination of stakeholders to mainstream biodiversity in EGREE
- 2. Protect and conserve critical habitats, including through ecotourism and promotion of livelihood for coastal/ fishing communities
- 3. Development, revision and monitoring of implementation of programs aimed to conserve coastal and marine ecosystem in EGREE

A governing board has been constituted including 26 members, mainly officials of the government of Andhra Pradesh, but also including Government of India officials, as well as district officials and private representatives. Members hold office in several locations including Hyderabad (state capital), Rajahmundry, Kakinada and Vishakhapatnam. Table 6 summarizes the composition of the board.

As per the bylaws, the governing board should be meeting at least biannually and its functions include providing policy guidance and direct and coordinate line departments to achieve the objectives of the foundation, as well as to raise and administer the foundation's financial resources.

EGREE foundation is also in the process of creating a general body, open to any individual or institution under condition of payment of a membership fee and approval by the board. The general body is represented in the governing board and would meet at least once annually.

Additionally, an already constituted advisory body will give advice to the governing board on policies and practices related to the objectives of the foundation. The advisory body is chaired by the Chief Wildlife Warden, Department of Forest and will include aquaculture associations, as well as commercial and artisanal fisherfolk associations.

Finding 2. Three years (2011-2014) have been necessary to legally establish EGREE foundation and hence, the board could only meet for the first time in October 2014. Only 12 out of its regular members assisted, the vast majority government officials (national, state and district).

General body and advisory committee have yet to be established and start functions.

Also, district stakeholders, including line department officials and industry representatives are not aware of the existence of the foundation's governing structures or its general aims and objectives.

Table 6. EGREE foundation governing board

Level	Institutions represented	# institutions	Official levels	# officials	%
National government	Aquaculture Authority	3	Representative	3	11%
	Coast Guard		Station commander		
	Marine Products Export Development Authority		Deputy director		
State government	Department of Environment, Forest, Science and	10	Principal secretary	14	50%
	Technology		Chief conservator		
	Department of Tourism		Principal secretary		
	Biodiversity Board		Secretary		
	Pollution Control Board		Secretary		
	Coastal Management Authority		Secretary		
	State Environment Impact Assessment Authority		Secretary		
	Department of Agriculture and Co-operatives		Principal secretary		
	Department of Irrigation		Principal secretary		
	Department of Industries and Commerce		Commissioner		
	Department of Fisheries		Commissioner		
District government	Collector	2	Collector	3	11%
	Department of Forests		Divisional Forest Officer		
Local government	Zilla Parishad, Kakinada	1	CEO	1	4%
Public companies	ECREE Foundation	2	CEO	3	11%
			President, general body		
	SEZ Kakinada		Representative		
Private companies	Confederation of Indian Industry	1	Representative	1	4%
Civil society	Society for National Integration for Rural Development	2	Representative	2	7%
	M.S. Swaminadhan Research Foundation	2			
Multilateral organizations	UNDP	1	Representative	1	4%
Totals		22		28	100%

Finding 3. The project implementation unit has been identified from project inception with the foundation envisioned in the project strategy. In fact, the governing board, in its first and so far last meeting in 2014 acted mostly as a project steering committee, including approval of the project's annual work plans. Thus, public and private stakeholders identify the project implementation unit team as "EGREE foundation".

EGREE foundation is mostly perceived as an NGO focused on conservation of the CWLS and livelihood projects with fringe villages of said protected area and closely allied/ related to the department of forest. There is no notion **among stakeholders at district level** of the role of EGREE foundation as facilitator and monitoring institution of a landscape-broad management plan in with all involved government departments and industries would partake.

Finding 4. Coordination among line government departments at district level is virtually nonexistent. Line government department at district level are focused in the implementation of their respective plans and objectives and thus officials see no value added in coordinating with other departments or agencies to achieve objectives that are not of their immediate concern. Moreover, coordination could only be prompted from positions of authority, i.e., their direct superiors at state level or the collector at district level.

EGREE foundation does not currently possess the political leverage needed to mobilize resources from government institutions to effect said coordination for conservation objectives.

Conclusions

The constitution of EGREE foundation constitutes an important step towards the development of a formal institutional mechanism for mainstreaming biodiversity in the East Godavari River estuarine and coastal ecosystems.

Also, the constitution and bylaws of EGREE foundation allow for the development and monitoring of implementation of a plan inclusive of biodiversity conservation objectives.

However, the composition of the governing board includes mostly State government representatives (50%) against scarce district (11%) and local (4%) governments, as well as production sector represented by a single member.

Line government departments and industry representatives at district level are unaware of the broad objectives of EGREE foundation and the scope of its governing bodies. EGREE foundation is generally considered to be a NGO funded by foreign aid that supports the Department of Forest in the conservation and management of the Coringa Wildlife Santuary, including livelihood support for fringe communities.

Recommendations

Expanding EGREE foundation's board membership by including more local government, elected officials and private sector representatives can increase support for EGREE foundation and its objectives.

However, the support biodiversity mainstreaming could gain through said expansion of membership at board level is balance by several plausible risk scenarios:

- 1. Expansion would not be possible due to the lack of interest of non-government organizations, including industry representative, as they don't see their stake in biodiversity conservation and would perceive participation as a waste of time or worse, a gate for more constraints and regulations to be imposed on them
- 2. An expanded foundation board could become ineffective due to difficulties in finding consensus, attaining quorum and thus causing loss of interest by the participating organizations and eventually leading to irrelevance of the foundation
- 3. Presence of private organizations could divert focus from biodiversity conservation to their own agenda, eventually leading to dilution of efforts to enforce and monitor sector and strategic plans.

To mitigate those risks, following strategies could be adopted:

- Expansion could be effected around the process of developing and consolidating the landscape-wide strategic process. The plan should be developed based on an assessment of the economic value of biodiversity, to enable a common understanding and a common vision of the stake that society and economy have in maintaining biodiversity services.
- 2. Create a technical body subordinated to the board that would meet more regularly and be exposed to trainings and technical information provided by the foundation staff and advisory body. This body would include mid-level officials of the organizations participating in the board, thus combining representation and flexibility
- 3. The current board should engage more actively with their district delegations to reinforce the notion of EGREE foundation being part of the government and acting in the interest of all government departments, rather than being perceived as an NGO or an annexure to a particular government department.

The current weak coordination and divergent understanding and perception of biodiversity among government agencies at district level should be addressed by creating a district governing board, local chapter or committee of EGREE foundation chaired by the district collector with assistance of the advisory body and EGREE foundation staff. The figure of the district collector, together with the aforementioned more vigorous involvement of EGREE's board, are critical as they are the only factors that can motivate district level departments to coordinate and acquire a common vision and consensus.

Costs involved in the creation of the suggested additional body, viz. expanded board, technical committee and district board should be taking into account. Such costs would include increased transaction costs, such as travel and subsidies, staff time of the involved organizations, increased secretariat responsibilities of the staff of EGREE's foundation and the production of additional awareness and information materials.

Indicator 3. Landscape level strategic plan that provides an enabling policy environment for mainstreaming biodiversity conservation into production sectors and Indicator 5. Strategies developed for ensuring that existing sector policies mainstream biodiversity conservation².

Finding 1. The project has invested in the development of a landscape-wide plan with the objective of conserving biodiversity and ecosystem services, including general guidelines for all sectors with an influence or impact on EGREE, viz. fisheries, aquaculture, industries, ports, salt pans and tourism.

A draft plan was developed in 2012 based on a participatory qualitative estimation of impacts on biodiversity with stakeholders representing the sectors mentioned above. However, the draft plan does not contain quantifiable objectives nor describes the impacts or the mitigation strategies for each sector in detail.

This endeavour is supported by a study on the current policy regulatory framework to identify entry points for biodiversity mainstreaming, as well as harmonization needs

Finding 2. The project approach to the development of an umbrella plan, i.e. the landscape-wide plan has been of cautious and mindful of negative reaction, particularly by industrial representatives, but also other institutional actors, such as government line departments. Hence, the project has been relying on expert reports, i.e. consultancies funded by the project, to strengthen arguments in favour of mainstreaming biodiversity, both for the development of the plan and legal study and the related particular sector plans developed under outcome 2.

However, the timeframe needed for the preparation of such assessments and reports means that the project is lagging behind in its objective of facilitating the developing and implementation of a formal institutional mechanism.

² Indicator four "Amount of resources available for funding the foundation and the compliance of approved sectoral plans" will be discussed in section Sustainability.

Moreover, the engagement of stakeholders in the development process of the draft landscapewide management plan has been limited to consultations aiming to collect and rank data on impacts of different sectors on coastal ecosystems.

Nonetheless, the project implementation unit has been able to establish good working relationships with most stakeholders, including government departments, industries and fisher's associations. This relationships has so far focused on particular activities, e.g. with the Fisheries or Agricultural departments on supporting specific livelihood actions or with industrial players in restoring wetlands rather than on the greater process of crafting the cross-sectoral mechanism.

Finding 3. There is limited understanding of biodiversity or ecosystem services among stakeholders:

- Biodiversity is considered to be the responsibility of the Department of Forest by other government actors and hence totally beyond their scope responsibilities
- For industrial representatives, biodiversity is worth preserving but takes a very secondary role in their activities, including activities under their corporate social responsibility programs

Moreover, while industrial and institutional actors completely understand the necessity of complying with pollution and zoning regulations to prevent impacts on human health, as well as maintaining export or safety standards, understanding of the economic importance of biodiversity is weak, as exemplified by failing to make the distinction between natural environments and mere gardens by some stakeholders, what sometimes translates in **understanding socio-economic development as radically opposed to biodiversity conservation objectives**.

Finding 4. Actors from sectors that directly depend on provision ecosystem services, such as fisheries, aquaculture and farming (agriculture/livestock) do understand the role played by the ecosystem in maintaining their livelihood but won't reduce their impact on biodiversity due to open access or common property resource problems: lax monitoring and enforcement of current regulations.

In the case of fisheries, fishing bans and gear restriction are easily violated, which means a *de facto* open fishery³ with limited enforcement mostly directed at foreign incursions in Indian waters. Lax enforcement is caused by:

- 1. Insufficient capacities in terms of human resources and equipment by the Fisheries Department
- 2. Strength of fisher's associations in their opposition to enforcement of rules perceived as going against their livelihood

³ Sensu stricto would be a "common property" fishery, as foreign fishing vessels are excluded 80

In agriculture, excess application of herbicides and chemical fertilizers in rice agriculture upstream of EGREE is common, but escapes monitoring as current pollution control focus on point sources (effluents) upstream from the project area. Although the project has undertaken analysis to detect pollution from aquaculture sources, estuarine areas are not regularly covered by any institutional monitoring.

Moreover, regulations concerning water pollution suffer from unclear enforcement mechanisms when it comes to disperse sources.

Finding 5. The project has strongly invested in research and generation of knowledge on EGREE, particularly on the CWLS. Research includes monitoring of the health of mangrove ecosystem both in terms of land cover and diversity, including vegetation and important species such as fishing cats, smooth-coated otters, resident and migratory birds and olive-ridley turtles. This research has been published in several forms including several books, papers, posters, advertisement boards, brochures and a webpage.

The project has also conducted an exhaustive review of currently available scientific literature in the area having succeeded not only in creating an important database and identification of research gaps, but setting up a Research Advisory Committee composed of experts from academic institutions and NGOs.

As part of its knowledge management actions, the project has made all its publications and documents public through a comprehensive database accessible at the EGREE foundation webpage: <u>www.egreefoundation.org</u>.

Also, the project is currently developing a comprehensive geographical information interface to be publicly access through the same webpage.

However, there is still an important gap in terms of information on economic assessment of ecosystem services. Such an assessment has already been commissioned and results are expected briefly. Economic benefits provided by biodiversity are needed to make the case for biodiversity mainstreaming with stakeholders.

Conclusion

The process of crafting a formal institutional mechanism or multi-sector plan for EGREE with strong involvement from stakeholders, particularly government departments and private production sector has barely started.

Factors hampering progress include:

• Stark differences in perceptions of biodiversity and ecosystem services among different stakeholders

- Inconsistent enforcement or insufficient capacities for enforcement of the current regulatory framework
- Apprehension by most stakeholders to engage in planning or coordination processes that are perceived to go against their interest by e.g. increase regulatory burden or expose them to unjustified criticism or public inquiry.

It must be noted that the first two factors listed are two of the root causes for degradation of coastal ecosystems in EGREE identified during the project design process.

In sum, both institutional and private actors do not see it in their interest to cooperate and agree to common landscape objectives in the absence of a clear-cut regulatory framework with strong institutional mechanisms for enforcement, or at least without confidence in such a process able to come up with a system that could be perceived as efficient, and fair to all concerned.

Recommendation

The development and consolidation of the landscape wide strategic plan should again be prioritized as the rallying point to forge a common understanding and vision of the importance of biodiversity among all relevant stakeholders.

Such plan should have at least the following characteristics

- 3. It should be based on a sound economic case, viz. the value of biodiversity and the services it provides to economic and social actors. Without a strong case for the value of biodiversity and an excellent strategy to communicate it to stakeholders, biodiversity mainstreaming would remain a marginal issue, what, of course, would defeat the purpose.
- 4. The plan must create consensus among stakeholders that currently have very diverse positions, interest and needs. Hence, the plan should respect stakeholder's needs and contain or be aligned with their interest to be able to craft a common position, without which no consensus can be attained. Table 7 outlines an analysis of positions, needs and interest of EGREE stakeholders.

To catalyse the process of developing, consolidating the common position and plan, **the project may consider enhancing its implementation team with an additional expert to act as facilitator to engage all sectors, particularly private sector, including industries, fisheries and aquaculture**. Such expert should ideally come from a business background to be able to better understand visions and perceptions of business actors and thus support the development of the aforementioned common future vision.

However, the project must also consider that an extension **of at least one year and a half** till mid-2017 would already increase personnel costs (not including management costs) up by 10% of the total grant.

More importantly, recruitment process for very specialized positions take notoriously long time and consume resources, as well as generate challenges and frustrations if expectations are eventually not met.

Indicator 6, by project end, any new manufacturing units entering the licensing process in the EGREE are subject to the CZR Guidelines

Finding 1. The CZR guidelines involve zoning in regulation zones with different degrees of restrictions, including sensitive critically vulnerable coastal areas.

For this zoning scheme to be effective once the State of Andhra Pradesh develops and approves its Coastal Zone Management Plan (CZMP). So far, the CZMP for Andhra Pradesh has not been developed.

Conclusion

The indicator is somehow contradictory in that once the CZR guidelines are effective, new units entering production must comply by then, with or without project action.

In the meantime, the current regulatory framework, including environmental impact assessments, Wildlife Protection Act, pollution standards and other instrument confer sufficient legal protection.

However, in order to consolidate protection for the CWLS and coastal ecosystems in EGREE, an extension of protection could be granted thru the declaration of an eco-sensitive zone, or buffer zone where activities would be restricted.

Such eco-sensitive zone or buffer zone has already been proposed by the Department of Forest to extend protection to a marine area of a width of 6 km adjacent to the coast of the CWLS.

Recommendation

Support the approval of the eco-sensitive buffer zone and coordinate with the Coastal Zone Management Authority of Andhra Pradesh for its inclusion in the coastal zone regulation by the time the CZMP is developed.

Indicator 7, Incentives for production sector companies to promote biodiversity friendly practices by giving them opportunities for marketing/ advertising their efforts

Finding 1 The project has prepared incentives for companies based at EGREE to promote conservation of biodiversity. These incentives include:

- 1. Priority access to CWLS for company related events, including turtle watching, mangrove trails etc
- 2. On demand free training and advice on biodiversity, e.g. training on biodiversityfriendly practices or advice to optimize practices to comply with government environmental requirements e.g. green belts
- 3. Authorization for pipelines (subjected to impact assessment)
- 4. Visibility and leadership in biodiversity-friendly practices by participating in project events, including international conferences

Companies using the aforementioned incentives include leading firms in their sectors such as Reliance Industries, Cairns Energy, Gujarat Petroleum State Company and Coromandel Fertilizers

Finding 2 EGREE foundation will be creating a certification or environmental seal to be granted to companies that comply with the best practices included in the sector plans developed by the project. The initiation of this output depends on the successful conclusion of the sector plans.

Conclusion

The project has successfully engaged leading companies from the industrial and oil exploration sectors, which recognize the leadership of EGREE foundation in biodiversity-friendly practices, without having been co-opted by said companies.

In this sense, the project has achieved to introduce biodiversity-friendly practices at leading large-scale companies, as well as established the reputation and expertise of EGREE foundation on biodiversity related topics.

However, the process of development of the sector plans, on which depend the development of the environmental certificate or seal to be created by the project, is delayed for several sectors, particularly industries, ports and shipping (see Outcome 2). Also, the plans already developed and delivered to the project by the external consultants hired for this task present several shortcomings. For a critique of the sector plans and other issues related to sectors refer to the section Outcome 2.

Recommendation

The project and EGREE foundation should use the good reputation and name it has achieved among leading industrialist to move on to develop an environmental certification. This process could be initiated in parallel to the MTR-recommended participatory development of the landscape wide plan, which could and should integrate minimum standards and best practices (refer to Outcome 2). Table 7. Positions, interests, needs. A strategic plan should be based on consensus and thus be able to include the stakeholder's interests. For the purpose of this analysis position means what the actor wants, interest means the reasons behind their wants and needs stands for the basic requirements that the actor needs for its existence. This analysis does not pretend to be definitive and could and should be expanded with more information and participation. It will be noted that biodiversity would only appear in the position of the Department of Forest (clustered together in this table with other government departments) as it is part of their legal duties.

Sector	Position	Interests	Needs	
Manufactures and hatcheries	To support communities in the vicinity of their plants thru social works and livelihood training	To generate goodwill and public support for their operations, including dissipating negative perceptions of exploiting people's resources		
	To comply with current environmental regulatory instruments, including pollution	To avoid legal challenges and closure orders	To generate enough profits to maintain operations and thus livelihood of stakeholders	
	standards and environmental impact assessments	To maintain certifications (e.g. ISO 14000) and thus keep access to international markets		
	To avoid excessive regulation and burdensome mechanisms	To avoid loss in competitiveness thru additional regulatory costs and/ or bureaucratic, judicial procedures and corruption		
Aquaculture	To increase production by accessing the best available technology, including fertilizers and pesticides at affordable prices	To avoid losses thru restricted access to	To generate enough profits to maintain livelihood of their kin	
and agriculture	Fair access to land and water to be able to maintain production for food security	necessary inputs for production		

Sector	Position	Interests	Needs	
Fisheries	To increase production by accessing the best available technology, including boats, engines, fishing gear, radios, fish finders etc.	<i>To be able to increase fishing effort to balance decreasing catches</i>	To generate enough profits to maintain	
FISHEITES	Fair access to fishing grounds, including just and universal enforcement of fishing regulations	InterestsITo be able to increase fishing effort to balance decreasing catchesITo prevent catch and income losses thru free riding and selective enforcementITo prevent diversion of scarce resources to non-priority issues that would not result in acquiring merits and promotions within their servicesITo have clear, feasible legal frameworks that would not expose them to legal challenge or irrelevance or stretch resources too thinITo escape the circle of poverty including gaining access to improved livelihood optionsI	livelihood of their kin	
Government	To implement government policy, including	To prevent diversion of scarce resources to non-priority issues that would not result in acquiring merits and promotions within their services	To maintain employment and acquire merits	
departments	their jurisdiction and legal powers	ng the best bats, finders etc.To be able to increase fishing effort to balance decreasing catchesTo generate enough profit livelihood of their kin'luding just ingTo prevent catch and income losses thru free riding and selective enforcementTo generate enough profit livelihood of their kin. including ments within sTo prevent diversion of scarce resources to 	and promotions for livelihood of their kin	
Communities	To have access to better living conditions, including access to water, health and education services	To escape the circle of poverty including gaining access to improved livelihood options	To survive and keep their social fabric and belief system	

Outcome 2, Enhanced capacity of sector institutions for implementing biodiversity-friendly sector plans including monitoring and enforcement of regulations

Outcome 2 intended to develop and consolidate capacities at institutional and individual level to contribute to the strengthening of biodiversity conservation, both within and outside the protected area Coringa Wildlife Sanctuary. The former target would be achieved through support for the review and new formulation of the CWLS management plan, as well as training for Forest Department officials and the latter would be through support to the industrial/ production sector in mainstreaming biodiversity into their procedures, as well as into the sector policies. This would be achieved through provision of external expertise and training for government and industry officials. Figure 14 describes the components (output) of outcome 2.

The achievement of outcome 2 would be indicated by a set of seven indicators listed in figure 15.



Figure 14 Strategy of outcome 2

A discussion of findings corresponding to the indicators listed in figure 14 follows. Out of the seven indicators listed, numbers 3 and 4 are just indicators of outputs or activities that support the development and implementation of biodiversity mainstreamed sector plans and indicators

6 and 7 would be responses/ effects of the implementation of said plans. Hence, they will be discussed together with indicator 1.

Figure 15. Outcome 2 indicators



Indicator 2. Systemic level indicators of capacity development scorecard

As in the case of outcome 1, the indicators of the capacity development scorecard summarize the progress towards the project's targets and hence give a good overview of the status of project implementation against its objectives. Figure 16 and 17 list the indicators of the institutional and individual levels respectively and table 8 indicates score and justification for the score.

Figure 16 Institutional level indicators of the capacity development scorecard

	Conocity to	
	conceptualize and formulate policies, – legislations, strategies and programs	There is a multisectoral institutional — mechanism responsible for mainstreaming biodiversity
		Production sector institutions have regularly updated, biodiversity compatible sectoral plans for the EGREE that have been prepared with effective participation of land users
	Capacity to implement	Biodiversitycompatible sectoral plans in the
	strategies and programs	 EGREE are implemented in a timely manner effectively achieving their objectives
Institutional		
Level		Production sector institutions in the EGREE are able to mobilize sufficient funding, and human and material resources to effectively implement the biodiversity mainstreaming mandate
	Capacity to engage and build consensus among all stakeholders	Production sector institutions can establish the partnerships needed to achieve biodiversity mainstreaming objectives in the EGREE
	Capacity to monitor, evaluate, report and learn	Production sector institutions have effective internal mechanisms for monitoring, evaluation, reporting and learning on biodiversity mainstreaming in the EGREE

Figure 17 Individual level indicators of the capacity development scorecard



Strategic area of support	Capacity level	Indicator	Worst score (0)	Marginal score (1)	Satisfactory (2)	Best (3)	Description and justification
Capacity to conceptualize and formulate policies, legislations, strategies and programs	Institutional	There is a multisectoral institutional mechanism responsible for mainstreaming biodiversity	There is no multisectoral institutional mechanism responsible for mainstreaming biodiversity concerns into production sector activities in EGREE	There is a multisectoral institutional mechanism responsible for mainstreaming biodiversity concerns into production sector activities in EGREE but there is no clear strategy to this end	There is a multisectoral institutional mechanism responsible for mainstreaming biodiversity concerns into production sector activities in EGREE and there is an initial strategy to this end	There is a multisectoral institutional mechanism responsible for mainstreaming biodiversity concerns into production sector activities in EGREE and there is a regularly updated strategy developed through wide stakeholder participation	EGREE foundation, with its cross-sector governing board can be considered the first step in the establishment of such a mechanism
Capacity to implement policies, legislation, strategies and programs		Production sector institutions have regularly updated, biodiversity compatible sectoral plans for the EGREE that have been prepared with effective participation of land users	Production sector institutions do not have biodiversity compatible sectoral plans	Production sector institutions have biodiversity compatible sectoral plans, but these are not developed through consultations with land users	Production sector institutions have biodiversity compatible sectoral plans, developed through consultations with land users, but there is no process for regular review and updating of the plans	Production sector institutions have biodiversity compatible territorial plans, developed through consultations with land users, and there is a process for regular review and updating of the plans	Sector plans have been developed thru project's consultants with limited participation of stakeholders. These plans would need to be approved and mechanism for their implementation developed

Strategic area of support	Capacity level	Indicator	Worst score (0)	Marginal score (1)	Satisfactory (2)	Best (3)	Description and justification
Capacity to		Biodiversity compatible sectoral plans in the EGREE are implemented in a timely manner effectively achieving their objectives	There is very little implementation of biodiversity- compatible sectoral plans	Biodiversity compatible sectoral plans are poorly implemented and their objectives are rarely met	Biodiversity compatible sectoral plans are usually implemented in a timely manner, though delays typically occur and some objectives are not met	Biodiversity compatible sectoral plans are implemented in a timely manner effectively achieving their objectives	Plans are being developed and have yet to be adopted
policies, legislation, strategies and programs	Institutional	Production sector institutions in the EGREE are able to mobilize sufficient funding, and human and material resources to effectively implement the biodiversity mainstreaming mandate	Production sector institutions typically are severely underfunded and have no capacity to mobilize sufficient resources	Production sector institutions have some funding and are able to mobilize some human and material resources but not enough to effectively implement their biodiversity mainstreaming mandate	Production sector institutions have reasonable capacity to mobilize funding or other resources but not always in sufficient quantities for effective implementation of their biodiversity mainstreaming mandate	Production sector institutions are able to adequately mobilize sufficient quantity of funding, human and material resources to effectively implement their biodiversity mainstreaming mandate	Government departments count with enough budget and resources to perform their duties, but have no biodiversity mainstreaming mandate.

Strategic area of support	Capacity level	Indicator	Worst score (0)	Marginal score (1)	Satisfactory (2)	Best (3)	Description and justification
Capacity to implement policies, legislation, strategies and programs	Individual	Human resources in production sector institutions in the EGREE are well qualified and motivated to mainstream biodiversity concerns into sectoral plans	Human resources (HR) are poorly qualified and unmotivated	HR qualification is spotty, with some well qualified, but many only poorly and in general unmotivated	HR in general reasonably qualified, but many lack in motivation, or those that are motivated are not sufficiently qualified	HR are well qualified and motivated, and a compendium of best practices for mainstreaming and other training materials are available as a ready resource for new staff that join government departments	There is limited understanding among government and industry officials on biodiversity and its role in economic development
		There are appropriate systems of training, mentoring, and learning in place to maintain a continuous flow of new staff with the capacity to mainstream biodiversity	No mechanism exists	Some mechanisms exist but unable to develop enough and unable to provide the full range of skills needed	Mechanisms generally exist to develop skilled professionals, but either not enough of them or unable to cover the full range of skills required	There are mechanisms for developing adequate numbers of the full range of highly skilled professionals able to mainstream biodiversity in territorial plans	The project has provided trainings to officials from institutions involved in the region, but a formal mechanism to develop capacities on biodiversity mainstreaming has yet to be established

Strategic area of support	Capacity level	Indicator	Worst score (0)	Marginal score (1)	Satisfactory (2)	Best (3)	Description and justification
Capacity to engage and build consensus among all stakeholders	Institutional	Production sector institutions can establish the partnerships needed to achieve biodiversity mainstreaming objectives in the EGREE	Production sector institutions operate in isolation	Some partnerships are in place but there are significant gaps, and existing partnerships achieve little	Many partnerships in place with a wide range of agencies, NGOs etc., but there are some gaps, partnerships are not always effective and do not always enable efficient achievement of biodiversity mainstreaming objectives	Production sector institutions establish effective partnerships with other agencies and institutions, including provincial and local governments, NGO's and the private sector to enable achievement of biodiversity mainstreaming objectives in an efficient and effective manner	There is cooperation on particular issues catalysed by the project, but in general terms, institutions do not coordinate at district level
Capacity to mobilize information and knowledge	Individual	Individuals working on sectoral planning work effectively together as a team	Individuals work in isolation and don't interact	Individuals/sectors interact in limited way and sometimes in teams but this is rarely effective and functional	Individuals interact regularly and form teams, but this is not always fully effective or functional	Individuals interact effectively and form cross-disciplinary functional teams	

Strategic area of support	Capacity level	Indicator	Worst score (0)	Marginal score (1)	Satisfactory (2)	Best (3)	Description and justification
Capacity to monitor, evaluate, report and learn	Institutional	Production sector institutions have effective internal mechanisms for monitoring, evaluation, reporting and learning on biodiversity mainstreaming in the EGREE	There are no mechanisms for monitoring, evaluation, reporting or learning	There are some mechanisms for monitoring, evaluation, reporting and learning but they are limited and weak	Reasonable mechanisms for monitoring, evaluation, reporting and learning are in place but are not as strong or comprehensive as they could be	Institutions have effective internal mechanisms for monitoring, evaluation, reporting and learning	CWLS counts with appropriate monitoring mechanisms, but they don't apply to the totality of EGREE
# Scores			1	6	2	0	
Total score			0	6	4	0	10
Maximum score							
% Achievement (a	igainst max. scor	e)					37%

Conclusions

As in the case of the systemic level indicators of the capacity development scorecard, methodological differences preventing a clear comparison with baseline data do not allow for a quantification of the advances in terms of capacity development score from project begin.

However, an attempt can be made at reconstructing the original score by assuming all the assumptions of the project design hold true (See section Project Design). Thus, particularly individual level indicators would have obtained zero scores. The reconstructed total score would be of 2, or 7% of the maximum score. This means an improvement of over 30% in the score.

Two important advances can be directly attributed to project action: the presence of a multisectoral institutional mechanism responsible for mainstreaming biodiversity concerns into production sector activities in EGREE and the initial strategy to this end, as discussed in the previous section, as well as an important effort to develop individual capacities among government department officials.

Again, advances in the indicators of the capacity development scorecard are intimately intertwined with the achievement of the targets of this outcome, particularly the development of biodiversity-mainstreamed sector plans and the project support to production and conservation sectors.

Recommendation

Review the capacity development scorecard annually and at the time of the terminal evaluation using methodology and criteria consistent with the MTR.

Indicators 1 to 7. Sector-specific biodiversity –compatible plans related issues

Contrary to Outcome 1, the following discussion includes all of the indicators, as they are all inextricably related to the development and implementation of the biodiversity-friendly sector plans, i.e. the biodiversity-mainstreaming process. Thus, indicator 4, *Compendium of best practices on mainstreaming biodiversity for key production sector*, refers to documentation of the mainstreaming process, indicators 5, 6, and 7, namely, *Use of correct fishing gear by commercial fishing operations, Decline in pesticide concentration in the effluents of aqua farms in the target landscape, Effluents from manufacturing units, refer to expected effects of the project on three specific sectors, viz. fisheries, aquaculture and industries, and the 8th indicator, <i>Management Effectiveness Evaluation (MEE) Scorecard* refers to impacts on the conservation.

The 3rd indicator, Number of representatives from the key sectors (government and private) trained in mainstreaming approaches, is also included in the discussion although, as argued in section Monitoring and Evaluation, this is a mere activity or output indicator and not a real outcome (effect) indicator.

Finding 1. The project set out to facilitate the development of sector plans that mainstream biodiversity, i.e. include an estimation of the impact of sector activities on biodiversity and measures to mitigate or minimize negative impacts. Eight plans were to be developed, one for each of the seven production sectors identified at project design: Fisheries, Aquaculture, Ports and Shipping, Oil and Gas, Fertilizers, Salt Pans and Tourism, as well as the review of the management plan for the Coringa Wildlife Sanctuary.

In order to guarantee the technical quality of the plans, the project has relied on experts to develop sector plans in consultation with stakeholders. However, recruitment process for some of the sectors has proven difficult, as experts are not readily available for all fields required, causing significant delays. Hence, out of the 7+1 reports planned, so far only four sector plans: fisheries, aquaculture, oil & gas, and tourism, as well as the CWLS management plan have been completed.

Finding 2. Sector plans. A total of four sector plans have been produced through external consultants: fisheries, aquaculture, oil and gas and tourism.

The four concluded sector plans could constitute a basis for future discussion with stakeholders, private and institutional, involved in EGREE, as the reports include discussions of the context and current status of the sector in the area, impacts of the sector on biodiversity, best practices and mitigation measures for biodiversity impacts.

However, the reports vary significantly in terms of scope and depth of analysis. Details on these issues are presented in table 9, Sector Plans Issues.

In November 2014 the project facilitated workshops to present the expert's reports to stakeholders, discuss them and suggests modifications. These recommendations are contained in a report issued by the project that mostly coincides with specific MTR sector recommendations included in table 9 and 13.

The remaining sectors, including salt pans, ports and shipping and fertilizers have not yet started their reports due to failure in the recruitment process, as either not enough qualified consultants were found or those exceeded budgetary expectations.

Thus, the project stands at a cross-roads in terms of the best path to follow to complete sector assessments that could constitute a basis for discussions and development of sector plans with stakeholders.

Finding 3. Although they were not included in the project design, there are some sectors of great potential or actual influence on EGREE: agriculture, irrigation and municipal sewage. Elements of the impacts and solution to issues related to this sectors are included in table 11, 12 and 13, Sector Impacts, Ranking and Recommendations.

Agricultural runoff could be an important contributor to total oxygen demand and presence of organochloride persistent pollutants (persistent organic pollutants, POPs) in water streams and organisms because of unregulated use of fertilizers and pesticides. Disperse or non-point pollution sources is not being accounted for, as the Department of Agriculture lacks the capacity

to monitor use or said substances and runoff concentrations. The Pollution Control Board (PCB) does monitor water quality parameters and does have clear standards for industries that dispose of wastewater through point effluents, including pesticide industry. However, toxic substances from disperse sources are not being accounted as the PCB does not monitor presence of POPs in streams. Moreover, the relative contributions to total oxygen demand from agricultural runoff and municipal sewage is not known.

Municipal waste is a very relevant issue, as Kakinada city is expected to dynamically grow in the short term future, yet it does not count with a wastewater treatment system, all sewage being currently discharged into streams leading to Kakinada Bay. Water quality in terms of oxygen demand (amount of organic matter), bacteriological parameters and nutrient load is regularly being conducted by the Pollution Control Board. This institution has already indicated the immediate need of the construction of a sewage treatment facility, for which so far funding has not being materialized.

Table 9. Sector	plan issues and recommende	ations for the sector <i>j</i>	plans
-----------------	----------------------------	--------------------------------	-------

Sector	Issues	MTR Recommendations
	Unsystematic presentation of fishery data: species, landing sites and trends per type of fishery (boat type, gear, creek/ ocean fishery)	Systematize data presentation to explicitly show fishery resources per geographically defined area (e.g. creek, estuary/ pelagic, demersal, benthic), and current catches and trends per operation (artisanal/ motorized/ mechanized) or gear/ area
	Unsystematic and fragmentary presentation of threats and impacts: unclear presentation of links between threats and impacts, and no raking or quantification of impacts	Organize data in an <u>impact matrix or a DPSIR model</u> , explicitly indicating description of impact, intensity, duration, geographical extent, likelihood and uncertainties. At least a ranking or semi-quantitative estimation of the impact should be included
	Unsystematic presentation of data on linkages between fisheries and mangrove area	Systematize presentation explicitly describing <u>known facts/inferences of local life</u> <u>cycles</u> and links to fishery, i.e. of commercial importance, or part of the food chain of a commercially significant species
Fisheries	Unsystematic presentation of the institutional and legal context (discussion starts in page 314) and dispersed presentation of data on enforcement	Rework section on legal and regulatory framework to clearly describe application of policies and instruments, degree of enforcement, as well as agencies and budgets involved
	Lengthy discussion of general aspects related to fisheries, e.g. status of global fisheries, general impacts of different drivers including discussion of impacts not applicable to the area, dilute focus of report	Focus on concrete local aspects: move general discussions to annexes or prepare executive summary that explicitly and clearly exposes fishing resources, fishery types, catches and trends, quantified or ranked impacts from different activities on the fishery, recommendations including cost estimates and implementation mechanism
	Overlapping with aquaculture and oil and gas studies in describing aquaculture and oil and gas impacts	Eliminate overlap
	Excessive number of objectives (11) without precise result chain (activity -> output -> outcome -> objective)	Result framework should be participatory developed and report should simply consolidate context, threats, impacts and mitigation measures (best practices), including costs and implementation mechanisms

Sector	Issues	MTR Recommendations	
Fisheries	Lengthy general discussion of proposed measures, but too succinct description of local feasibility, implementation mechanisms and no mention of costs involved	Focus the report on a discrete number of available options applicable to the local fishing fleet such as fishing bans, TEDs and bycatch devices, gear regulations, avoidance of post-harvest losses thru facilities at landing sites, including indication of institutional mechanisms and indicative costs (or at least costing items) of proposed measures	
	Great scope of measures discussed, including agriculture, aquaculture, livelihoods, climate change, oil and gas, solid waste management, industrial pollution, markets, corporate social responsibility programs, protected areas etc.		
Tourism	Scarce new information: demographics and biodiversity data already comprehensively presented and discussed in other reports. Also, data on tourism and on touristic assets in the area is important, is only briefly described	Information on tourism in the area should be expanded to include more data on origin, average time and money expended and estimations on potentiality of ecotourism in terms of number of visitors and expenditure. To do this, tourism operators and institutions should be involved, as well as at least some qualitative market study involving potential visitors from the origins identified in the report	
	The report does not mention any of the initiatives currently developed by the Department of Tourism and does not frame its proposed ecotourism activities within the current tourism development policy	Tourism development in EGREE must at least take current tourism developments both private and public into consideration. The report should offer possible synergies and cooperation with public and private actors	
	Measures proposed involve significant investments in infrastructure and equipment, but exclude calculation of other costs, e.g. training, solid waste and wastewater management. Moreover, there is no calculation of future revenue flows from the proposed activities	The analysis should be widen to include all costs associated with the development of tourism activities and some indicative scenario of revenue generation including risks	
	Inclusion of activities incompatible with "ecotourism" such as jet skiing or not feasible for the area, like scuba diving	Purge activities not applicable or without positive cost-benefit analysis in terms of financial return and potential impact in biodiversity and communities	

Sector	Issues	MTR Recommendations
Oil and gas	No issues except overlapping with fisheries report. The report that includes description of oil and gas activities, characterizes and ranks impacts, discusses best practices and legal context and proposes mechanism for implementation	
	General discussion of effects of aquaculture on mangrove areas but little quantification and no ranking of <u>specific local</u> <u>impacts</u> /: -Pollution: effluent concentrations of pesticides, BOD and antibiotics: toxicity levels, bioaccumulation extent of eutrophication -Habitat destruction: estimation of hectares per year in the last decade converted to aqua farms (data included in report refers to 2004 and was facilitated by the project itself)	Include more specific data on local threats and impacts(habitat conversion, eutrophication events, bioaccumulation, toxicity etc.) or explicitly state where new research would be needed to quantify said threats/ impacts Collect additional data on impacts (e.g. effluent concentrations, mangrove habitat conversion etc.) and organize in an impact matrix or a DPSIR model, explicitly stating cause (classified as past, actual, expected or likely), mechanism of impact, expected impact and geographical area (e.g. fishery within CWLS, Kakinada bay, offshore, upstream etc.) and associated uncertainties. At least a ranking or semi-quantitative estimation of the impact should be included
Aquaculture	Unsystematic presentation of data including repetitions (e.g. list of aquaculture species), unclear data presentation (e.g. eel fishery model, correlation of gobiid and mugilids catches and habitat destruction) and incomplete sections (e.g., Aquaculture disease interactions with the ecosystem)	Condense and systematize presentation of information, improve data presentation and complete sections
	The report lists regulatory instruments, but very briefly discusses enforcement (2.5 out 100 pages) and gives no indication as to compliance	Systematic presentation of legal instruments, including overlaps/ contradiction and estimation of the degree of enforcement/ compliance
	Mitigation measures, i.e., mangrove friendly aquaculture, water quality testing and mangrove afforestation very briefly discussed	Section should be systematically presented, i.e. with clear links to impacts and expanded, including local applications and feasibility

Sector	Issues	MTR Recommendations
Aquaculture	Mangrove-friendly aquaculture: -insufficient description of market (e.g. price trends, local vs. Export, value chain) -dyke construction impact on mangroves and/ or hydrology not discussed -insufficient description of environmental impacts of feeds (wild capture) and pond treatment -no discussion of sources of brood stock or impact of wild collection -no discussion of the "mangrove-friendliness" of proposed shrimp aquaculture	Pros and cons of "traditional" aquaculture vs. "mangrove friendly" should be systematically presented; Pond preparation and operation impacts should be clearly stated Improve description of "no-impact" ponds, i.e. without any modification of the habitat by setting up crab pens for both mudcrab and swimming crab
	Citing of species not present in South Asia, <i>Limulus polyphemus</i> (American horseshoe crab) Overlapping with fisheries report	Clean and correct. Possible clerical mistake with the mangrove horseshoe crab, Carcinoscorpius rotundicauda

Finding 4. Two distinct fisheries are relevant for the EGREE, ocean fisheries and creek fisheries. The former includes a pelagic artisanal fishery targeting scombrids⁴ and billfishes and mechanized trawlers, which target mostly shrimp, but also demersal⁵ finfish, and seiners, which target small pelagics⁶. The creek fishery is multispecies and mainly for subsistence purposes. Although connected through the lifecycle of target species and their foodweb links, both fisheries have different actors and settings and hence would require different management approaches and instruments.

Moreover, weakness in enforcement of seasonal bans and gears mean a *de facto* open access⁷ for the ocean fisheries, while most of the creek fishery takes place within the protected area of the CWLS.

The current policy of the Department of Fisheries does not include any conservation objective and is exclusively oriented towards increasing productivity through support to further capitalization and technological improvement of the fishing fleet.

To compound matters, marine protected species are left without any effective protection as wildlife conservation is the responsibility of the Department of Forest, which currently lacks capacity to enforce regulation at sea.

Moreover, enforcement of the current regulatory framework would likely not be effective as protected species as whale sharks and marine turtles are mostly accidentally captured and an effective protection would involve at least seasonal gear bans, e.g. gill nets during whaleshark migration, if applicable, or avoid bycatch, e.g. by including turtle escape devices in trawling nets that in most cases would involve costs for both fishers and enforcers without any tangible benefits.

The project has been active with both fisheries, mostly by supporting livelihood options of fringing fishing communities of the CWLS (see outcome 3) and supporting awareness on protected species for the ocean fishery. Also, the project has started a monitoring program for protected species as part of the investment to develop a fisheries sector plan that accounts for biodiversity impacts.

Finding 5. Contrary to the assumptions of the project design that resulted in selecting the indicator "reduction of emissions from industrial effluents", most major enterprises, particularly from the sectors oil and gas and fertilizer production, count with environmental systems and certifications, such as ISO 14000 and include strict safety measures to prevent accidental spills, effluent treatment etc. Moreover, large enterprises are very motivated to strictly comply with the current regulatory framework to avoid closure orders and legal challenges, as well as to comply with export or international safety standards.

⁴ Scombridae, mackerel family, includes tunas, bonitos, mackerels and Spanish mackerels

⁵ Living near the ocean floor

⁶ Clupeids, sardines and herrings and Carangids, scads, as well as small scombrids

⁷ More accurately, common property resource, as foreign fishers are excluded 102

Finding 6. The project has created an opportunity for rehabilitation of important bird habitats in cooperation with industries at the Kakinada Industrial Area. This area, old coastal lagoon transformed into freshwater wetlands that house an important resident and migratory bird populations has been envisioned and actually developed for industrial settlement.

However, the project has been able to convince one large enterprise to use the requirement of a green belt mandated by the current legislation to restore wetland habitats that has allowed the conservation of an important bird habitat.

Figure 18. Species at landing sites in Kakinada

Protected species such as whalesharks and turtles are accidentally captured by gillnets. The project has set up a number of boards, and conducted numerous awareness raising acts, for which it has created a variety of materials, including puppets.

Bycatch by trawlers includes a number of crustaceans, gastropods, as well as juvenile of many species. Some of it is sold and process as fishmeal.



Figure 19. "Coromandel wetlands". Green belt specifications mandated drying the area and afforestation with exotic species. After the project intervene, Coromandel agreed to conserve and restore the wetlands. This is the current aspect of the area.



Finding 7. The project design did not include issues of alteration of coastal sedimentary dynamics by coastal or stream infrastructure set up by different sectoral activities. However, sediment dynamics and consequent accretion/ erosion patterns may have a critical impact not only on coastal ecosystems but also on protection of those very infrastructure and investment. (Figure 20)

Currently, North bound transport of sediments seems to have been affected by port infrastructure causing a depletion of sandy beaches to the North of Hope Island.

Moreover, planned developments including port expansion and installation of gas distribution facilities and construction of the Pollavaram dam could exacerbate current erosion patterns on the coastal strip North of Kakinada by further disturbing North-bound sediment transport and restricting the river's sediment load respectively.

Also, such developments, particularly port and gas facilities directly threaten Hope Island (turtle nesting ground) by hampering beach dynamics and indirectly the rest of the Coringa Wild Life Sanctuary through modification of the saline/ fresh water flows in and out Kakinada Bay. (Figure 21)

The issue of erosion at the coastal strip North of Kakinada Bay is of paramount importance, considering the settlement of significant public and private industrial investment at the Kakinada Industrial Area, which is located on a low lying wetlands separated from the open sea by a narrow lagoon and a thin sandbar, and the future Petroleum, Chemicals, and Petrochemicals Investment Region. (Figure 22)

Figure 20. Erosion at coastal road North of Kakinada.

The road is being rebuilt after being destroyed by the 2014 cyclone activity. Depletion of sand due to disruption of sediment transport either downstream or by coastal infrastructure is bound to defeat this purpose and threaten industrial and housing developing.



Finding 8. The project has strongly supported the revision of the Coringa Wildlife Santuary management plan. The new management plan includes a comprehensive inventory of fauna and flora, made possible with project funding, abundant information on other parameters, including water quality, mangrove forest structure, and land use changes over time, etc., as well as abundant demographic and social information on the fringe villages that mostly depend on the CWSL for their livelihood. The management plan bases the rationale for protection on the economic value in terms of ecosystem services and coastal protection, hence framing conservation as a necessary contribution to socio-economic development.

The plan also includes a proposed zonation with different degrees of protection, including extending a seaward buffer zone to the 18 meter depth line (ca. 6 km from the coast) and management and conservation programs for threatened species, including the fishing cat, smooth-coated otter and olive-ridley turtles.

The new CWLS management plan also analyses impacts from production sectors on CWLS and proposes actions to mitigate said impacts. Table 10 summarizes environmental impacts for which the CWLS plan has proposed mitigation actions.

Figure 21. Current and planned structures at the Kakinada Sea Port. Note proximity of navigation channel and sand trap to Hope Island. A liquefied natural gas terminal is planned to be built between Hope Is. and the coast, North of the sea port. Plan taken from the Kakinada Seaport Ltd. website <u>http://kakinadaseaports.in</u> consulted the 18th March 2015.



Figure 22. Kakinada Industrial Area

Google Earth picture. Coast runs South (left) to North (right). The tip of Hope Is. can be seen in the foreground and the Kakinada seaport in the background. The Kakinada industrial area can be seen just behind a small coastal lagoon separated from the open sea by a sand bar.



More importantly, the management plan of the Coringa Wildlife Santuary was presented to a forum of stakeholders, including representatives of the Ministry of Environment, Department of Forest, Fisheries, and other national and state government organizations, as well as representatives from large industries, including hatcheries, oil and gas, and civil society, academia and community representatives. The forum came up with some proposals to improve protection very much in line with the ones included in this MTR report.

Finally, the new management plan demonstrates that the CWLS fulfills all the nine criteria needed for the area to be declared a Ramsar site. CWLS would thus become Andhra Pradesh's second Ramsar site after Lake Kolleru.

Declaration as a Ramsar site would bring international acknowledgement, publicity and prestige, consolidating conservation of the area, as well as allowing access to wider international expert's advice and funding e.g. thru the Convention's Small Grant Fund.

Sector	Impact	Mitigation measure
Saltpans, aquaculture	Past habitat destruction: conversion of mangrove area into ponds or salt pans	Rehabilitation of abandoned ponds and saltpans through multispecies plantation following natural zonation
Fisheries	Accidental capture of marine turtles in gillnets	Support enforcement of turtle excluding devices
Municipal and industries	BOD pollution from untreated sewage	Promote installation of treatment facilities
Communities	Habitat destruction and/ or overexploitation of resources for livelihood	Promote development of alternative livelihoods

Table 10. Impacts and mitigation actions in the CWLS management plan

Finding 9 The METT score-card and GEF tracking tool has been completed by the project team with data consistent with the observations and verifications conducted by the MTR team. The total score for the relevant section, section II was 112 points.

Finding 10. The project has provided trainings on identification of threatened species, marine animal monitoring and implementation of Wildlife Act, wildlife control and biodiversity conservation for a number of officials of government organizations, such as Forest Department, Indian Coast Guard, Fisheries Department, Customs and Maritime Police, as well as community representatives.

However, the retention of capacity generated by said trainings have been hampered by frequent staff turnover of officials from involved government organizations.

Additionally, the project has also supported and organized numerous events to raise awareness on conservation issues, including high profile events, such as the CBD COP 11 in Hyderabad,
together with many presentations and exhibits destined to public servants, community members, students and pupils, as well as elected officials and civil society representatives.

Conclusions

The project has been supporting comprehensive knowledge generation and management on a diverse around of conservation issues, including impacts on biodiversity by different production activities and plausible solutions to mitigate said impacts. The project has either directly produced said knowledge or commission the preparation of expert report on sector impacts.

Moreover, the project has published a vast amount of knowledge products that have been disseminated to different target audiences, including youth, communities, elected officials, public servants, civil society representatives and industrialist., including dissemination through trainings and awareness actions.

Commissioned sector reports constituted an important part of the project strategy as they were supposed to constitute the basis for the development of sector plans to be adopted by sector institutions, both government and private.

Thus, the process of production of the sector reports has taken a considerable amount of resources both financial and human, including recruitment, facilitation of fact finding missions, follow-up of production, revision of reports and consultation held.

However, the commissioned reports have had a limited contribution in terms of new knowledge and are especially weak on the feasibility, both in terms of institutional arrangements and finances, of the best practices proposed.

This fact, together with the necessary amount of time and resources needed to complete all sectors included in the project design, including those for which recruitment of experts has proven to be very difficult, challenges the continuation of this approach.

Finally, the project has been able to collect sufficient information both on known facts and what should be researched yet in terms of impacts and mitigation measures.

In sum, the information collected and managed by the project, provides sufficient basis for the development of a comprehensive situational analysis, including quantification of threats and impacts and the <u>institutional arrangements needed for the development of mitigation actions</u>.

Table 11. Sector impacts. Area affected refers to the project's direct influence area, the CWLS and forest reserves, indirect influence area (areas adjacent to direct influence) or outside project influence. Sectors are presented in alphabetical order.

Sector	Impacts on ecosystems	Area affected
Agriculture: farming	Excessive use of herbicides and chemical fertilizers leading to toxic pollution and nutrient enrichment downstream and onto mangrove area	Direct influence: CWLS
Agriculture: Irrigation	Construction of Pollavaram dam will affect Godavari River peak discharge during summer, thus affecting seasonal freshwater flow and sediments to the coast. The impacts on fauna, particularly lifecycles of important fishery species lifecycle and accretion/ erosion dynamics should be determined	Direct influence: CWLS
	Blockage of upstream migration of the commercially important clupeid <i>Tenualosa ilisha</i> at Doleswaram barrage in Rajahmundry	Possible effect on CWLS fringe villages
Anungulturg, botchorios	Minor fishery impact: most hatchery operators obtain certified broodstock from MPEDA but some do collect <i>Penaeus monodon</i> broodstock from the wild	Direct influence: CWLS
Aquaculture. hatchenes	Pollution: Hatcheries count with filtering system for water intake and effluent treatment facilities. However, chlorine residues are present downstream from hatchery effluents, as well as antibiotics	Direct influence: CWLS
Aquaculture: crab farms	Fishery impact: excessive collection of mudcrab seed and "trash fish" for feeds from mangrove creeks with fine mesh nets Unquantified destruction of mangroves	Direct influence: CWLS
Aquaculture : shrimp farms	Pollution: BOD, pesticides and antibiotics released in effluents. While mangrove forest have the capacity of absorbing BOD and export criteria are an important incentive to discontinue use of antibiotics, <u>pesticides</u> , particularly organochlorine persistent pollutants can pose important problems, including bioaccumulation. <u>Currently, no agency monitors presence of pesticides in estuarine area</u>	Direct influence: CWLS

Sector	Impacts on ecosytems	Area affected
	The AP FD has proposed an eco-sensitive zone offshore of the CWLS with from the coast to a distance of 6 km	Direct influence: CWLS
Conservation	Underestimation of the role and contribution of CWLS to the offshore fishery by local actors	
	Fuelwood consumption: 9,884 families using ca. 13,000 tons annum mangrove wood resulting in <i>continued degradation of mangrove forest</i>	
Fisheries: Mangrove (creek) fishery	Lack of management of the fishery (open access) potentially leading to stock depletion. Perception of decreasing catches already exist among traditional fishers	Direct influence: CWLS
	Overfishing of elasmobranchs (shark and rays) including target capture of pregnant females (hook lines) and stingrays, <i>Mobula</i> ssp. and <i>Manta birostris</i> , as well as accidental capture of whale sharks and turtles (gill nets)	No influence: Offshore area
Fisheries: Ocean fishery	Overfishing by trawlers, including juveniles of valuable finfish and crustaceans	
	Incomplete enforcement of fishing bans, trawling in artisanal zone, mesh size regulations, ghost fishing. Legal exceptions to fishing bans also turns the measure ineffective, as artisanal fishers (exempted) also use small mesh sizes, contributing to overfishing	area
Industries: Kakinada	Habitat conversion: destruction of wetlands, in part mandated by Pollution Control Board as part of	Indirect influence: Coastal
industrial area	greenbelt measures	strip North of Kakinada
Industries : Upstream area	Point source pollution: e.g. BOD from paper mills, possible toxic substances in effluents from other industries may have impacts on estuarine and coastal ecosystems. However large industries, do normally have environmental management systems that include effluent treatment, adhere to environmental standards such as ISO 14000, and are being monitored by the Pollution Control Board. Hence minimal impacts on EGREE is to be expected	Direct influence: CWLS

Sector	Ecosystem impacts	Area affected
Municipal	Municipal sewage and solid waste: no water treatment and no solid waste management means direct discharge of sewage and solid waste into the bay and creeks leading to CWLS	Direct influence: CWLS
Oil and gas	 Oil and gas exploration infrastructure offshore, but with onshore facilities such as pipelines, storage, processing facilities and camps. Potential impacts include: Regular and accidental spills of oil and wastewater Faunal disturbance from seismic surveys and drilling Habitat destruction, particularly mangrove clearance thru drilling, site development and pipelines However: Operators have oil spill contingency plans and liability insurances Oil and gas operations must obtain environmental clearance from the MoEFCC and APDP which has e.g. prevented drilling near CWLS and passing pipelines clearing mangroves CWLS is protected under the Wildlife Protection Act Different operator have introduced measures such as stoppage of seismic surveys in sensitive times, wastewater and drilling mud treatment facilities Proposed offhsore LNG terminal by AP GDC will not directly affect the CWLS but impacts of dredging and most importantly hydrology of the bay including transport of sediments not accounted for yet 	Direct influence: CWLS and forest reserves
Salt pans	Potential impact on mangroves and other coastal ecosystem if expanded. This does not seem to be the case, as sector seems to be contracting. Potential for habitat rehabilitation	Indirect influence: areas adjacent to CWLS

Sector	Ecosystem impacts	Area affected
Shipping	Introduction of IAS thru fouling or ballast water	Direct influence: CWLS
Tourism	 Not yet a relevant sector in EGREE but a potential source of livelihood and valued added for the CWLS and adjacent areas Tourism development affected by lack of coordination of development with local priorities and expectations Potential revenue generation for fringe communities of the CWLS 	Direct influence: CWLS

Recommendations

The project should not try to commission any further sector plans but rather use the existing information to support the development of the landscape plan foreseen under outcome 1, with clear implementation mechanisms and monitoring system through formal agreements among existing government organizations.

Implementation mechanisms must involve current institutions, including government organizations and regulatory framework without depending on legislative reforms that would take a long time to be effective and would likely be hampered by the same issues affecting implementation and enforcement of the current environmental policy and regulatory framework.

Thus the plan must be based on a series of concrete actions to be taken by government, private and community stakeholders based on formal memoranda of understanding. The role of the future EGREE foundation, i.e. after project end, would be critical in catalyzing and monitoring implementation of said plan. The role of EGREE after project end is discussed further in section Sustainability.

Sector actions should be prioritized according to the dimension of the impact. Table 11 gives a possible ranking of impacts on biodiversity mentioned in the findings in function of their intensity, extent and irreversibility to help establish priorities in project focus.

Sector actions, as recommended by the MTR are listed in Table 12 with indication of type of action, institutional arrangements, costing items and dimension, and timeframe of implementation.

Costing items are classified as low, if are within the project's budget, medium, If they would be feasible with current government budgets or high if they would need additional funds.

Likewise, timeframe is ranked short-term, if action should happen within project implementation or medium term if the action would need more than one or two years' timeframe.

Table 12 Ranked Impacts. Intensity captures the damage in terms of economic value of ecosystem services or capital or human assets and it is ranked low/ medium/ high; Duration captures the temporal extension of the impact as short-term, long-term and irreversible; Extent refers to geographical extent of impact and is classified as localized if affects a determined area within EGREE, EGREE-wide or extensive, if effects surpass EGREE boundaries. Likelihood is classified as unlikely, moderately unlikely, moderately likely. Impact scores are calculated by the simple sum of points in each of the four categories, e.g. low=1 point, medium=2 points, high=3 points, and sector scores are the mean of the impact score of each sector. It must be noted that the ranking scale here suggested is very sensitive to changes in the assessment of the levels for each category, i.e. different assessments would yield different rankings and there are many uncertainties associated with the assessment.

Sector	Description of impact (effect on ecosystem functions)	Intensity	Duration	Extent	Likelihood	Impact score	Sector score
Agriculture	Agricultural runoff containing organochlorine pesticides that are persistent organic pollutants with high toxicity can bioaccumulate and cause mortality on some fauna groups downstream. However, disperse sources along the watershed makes attributing detected presence of POPs in organism downstream		long term	extensive	Moderately likely	9	7.0
Agriculture	Agricultural runoff contains excess nitrates and phosphates that can stimulate plant and bacterial growth and ultimately leading to hypoxia. However, the relative BOD load provided by agricultural runoff may be significantly less than that supplied by municipal sewage, hence its effect being diluted.	low	short term	localized	Moderately unlikely	5	
Irrigation	Diversion of river peak flow by Pollavaram Dam in construction for agricultural purposes may affect life cycles of important organism in the estuary, particularly crustaceans and finfish. However, exact impact mechanisms and intensity must be researched	low	long term	EGREE	Moderately unlikely	7	7.5
ingation	Diversion of river peak flow by Pollavaram Dam in construction for agricultural purposes may affect total sediment load transported to the coast, hence affecting erosion rates. However, dimension of impact must be researched yet.	low	irreversible	extensive	unlikely	8	

Sector	Description of impact (effect on ecosystem functions)	Intensity	Duration	Extent	Likelihood	Impact	Sector
	Farm and hatchery runoff containing organochlorine pesticides that are persistent organic pollutants with high toxicity can bioaccumulate and cause mortality on some fauna groups downstream, as well as BOD that can cause anoxic events	medium	long term	localized	Moderately likely	8	
Aquaculture	Collection of seed and broodstock for mudcrabs (Scyclla spp), as well as "trash fish" for feeds may lead to recruitment failure of important finfish and crustacean species	high long tern		EGREE	Moderately unlikely	9	
	Conversion of mangroves for pond use and consequent destruction of habitat. However, this scenario is very unlikely at the CWLS and forest reserves due to enforcement by Department of Forest		localized	unlikely	7	8.3	
	Introduction of IAS through accidental escape from ponds. However, although the local aquaculture industry has long been working with potential IAS L. vannamei, this has not yet happened. Other IAS have been introduced in the past, e.g. <i>Oreochromis spp.</i>	medium	long term	extensive	Moderately unlikely	9	
Fisheries	Overfishing leading to significant population decline and even local extinction of elasmobranchs (shark and rays) including target capture of pregnant females (hook lines) and stingrays, Mobula ssp. and Manta birostris, as well as accidental capture of whale sharks and turtles(gill nets). However, with the exception of marine turtles, this affects offshore area not included as primary targets in project design.	medium	irreversible	extensive	likely	12	11.0
	Non-consistent enforcement of fishing bans, trawling in artisanal zone, mesh size regulations and incidence of lost and discarded gear (ghost fishing) lead to fishery stocks declines for some finfish and crustacean species. Although, this affects offshore area not included as primary targets in project design, it may have repercussions on the livelihood of EGREE villagers	medium	long term	extensive	Moderately likely	10	

Sector	Description of impact (effect on ecosystem functions)	Intensity	Duration	Extent	Likelihood	Impact score	Sector score
Industries	Destruction of wetlands in designated Kakinada industrial area by industries and related settlements and road infrastructure. At least on industry (Coromandal Fertilizers) has undertaken habitat rehabilitation with project support		irreversible	localized	unlikely	8	
	Point source pollution, e.g. BOD from paper mills, possible toxic substances in effluents from other industries can cause anoxia and mortality in estuarine areas. However, relative contribution of industries to BOD against other sources, particularly municipal sewage must be determined. Also, industries are in general compliant with Pollution Board standards, count with environmental management systems and certifications and even have zero emission systems	medium	long term	EGREE	Moderately unlikely	8	8.0
Municipal	Disperse discharge of untreated sewage increases BOD load, causing anoxic events and mortality, as well as opportunity costs for tourism development. However, discharges and assimilation capacity of mangrove forest must be determined	medium	long term	EGREE	Moderately likely	9	9
Shipping	Introduction of IAS thru fouling or ballast water	medium	long term	extensive	Moderately unlikely	9	9

Sector	Description of impact (effect on ecosystem functions)	Intensity	Duration	Extent	Likelihood	Impact score	Sector score
Oil and gas	Seismic surveys and exploratory drilling cause disturbance and increase mortality, particularly to cetaceans and marine turtles. However, degree of causation between mortality and seismic surveys is debated and inconclusive yet. Also, exploratory drilling would not directly affect EGREE		long term	localized	unlikely	6	
	Habitat destruction, particularly mangrove clearance thru drilling, onshore site development and pipelines. Onshore drilling is not likely to happen, as production is focused offshore. However, effects of pipelines and onshore facilities may be possible, although, CWLS protection has been so far enforced	medium	long term	localized	Moderately unlikely	7	7.8
	Regular and accidental spills of oil causes widespread mortality of mangroves, crustaceans and birds. However, safety concerns high among oil exploration companies that count with their contingency plans, insurance and resources for the event of a spill	high	long term	EGREE	Moderately unlikely	9	
	Construction of LNG terminal at main outlet of Kakinada Bay has important effects on hydrology and causes significant alteration of lifecycles of important finfish and crustaceans, and the whole ecosystem foodwebs. However, the exact effects of such construction must be yet determined.	high	long term	EGREE	Moderately unlikely	9	
Ports	Port structures and planned expansion potential to alter sediment dynamics and may have already affected sediment transport and consequently caused the observed sand depletion and erosion North of Kakinada Bay. The area eroded includes the sand barrier that shelters the freshwater wetlands that houses the Kakinada Industrial Area. However, sediment dynamics, as well as current rates of erosion must yet be determined		irreversible	extensive	Moderately likely	12	9.5
	Dredging of navigational channel causes disturbance and increased mortality to several faunal groups, including finfish and crustaceans. However, extent of local impact must be researched	low	short term	localized	likely	7	

Table 13. Recommendations for sector actions. Long term means that recommendations should be executed beyond the project's implementation timeframe, unless additional resources become available.

Recommendations	Туре	Implementation mechanism	Costing items	Costing ranking	Time frame
Support the conduct of a study on effects of peak flow discharges on the Gautami estuary, CWLS and adjacent areas that includes estimation of fresh water flow reduction, suspended sediment reduction as a result of the Pollavaram Dam and expected impacts on commercially important/ significant fishery species (both commercial and subsistence)	Research	Memorandum of understanding among the department of agriculture, forests and fisheries by supplying the experts and data needed	 Departments' staff time Department resources in terms of facilities, venues, vehicles and DSA Study publication costs 	Low	Long term
Undertake regular monitoring of estuarine waters, especially regarding pesticides and POPs, i.e. bioaccumulation effects should also be included in the monitoring plan. Care should be taken to discriminate pesticide origin, i.e. agricultural runoff and aquafarm effluent. This should constitute a first step towards developing some regulatory instrument at state level to control pesticide emission into coastal waters	Enforcement	Formal MoU facilitated by the EGREE governing board between the Coastal Aquaculture Authority, the Department of Agriculture and the Pollution Control Board.	 Departments' staff time Laboratory costs Department resources in terms of facilities, venues, vehicles and DSA Study publication costs 	High	Short term
Extension of protection to the proposed ecosensitive zone extending offshore the sandbar seawards of CWLS and extend protection to turtle nesting areas (Sacramento Is.). Inclusion of the existing forest reserves should also be considered to guarantee no negative impacts of aquaculture or industrial expansion and/or oil exploration. In arguing in favor of extension, the economic benefits in terms of coastal protection and fisheries should be highlighted, as well as the opportunity costs represented by relinquishing this area by oil companies, port and fishers	Enforcement	The forest department should seek the support from the agencies represented in the EGREE governing board	 Preparation of information/ awareness package Venue, DSA, logistics 	Low	Short term

Recommendations	Туре	Implementation mechanism	Costing items	Costing ranking	Time frame
Study on the specific links between mangroves (CWLS), creek fishery and pelagic and demersal fishery, including, study on local life cycle of fishery species (both creek and offshore) and indirect links between mangrove resources and pelagic fisheries	Research	Memorandum of understanding between EGREE foundation, the department of fisheries and local academic institutions	 Department and EGREE foundation's staff time Study logistics: boats and other vehicles for field missions, sampling etc. Researcher's DSA Research facilities, to be provided by academic institutions Publication costs 	High	Long term
Establishment of a fishing forum for creek (mangrove) fisheries with the objective of crafting a community- based participatory fisheries resource management system within the mangrove area (creek fishery) using traditional believes and traditional management systems as starting point.	Enforcement	Formal memorandum of understanding between the department of fisheries and the department of forests with inclusion of NGOs as outsourced community facilitation	 Departments and EGREE foundation's staff time Venues, participant's DSA and travel costs NGO costs (through contract or grant) 	Medium	Short term
Monitor capture of elasmobranchs, particularly protected or threatened species, i.e. <i>Rhincodon typus</i> , marine turtles, juveniles of all species, (bycatch) as first step to manage the ocean fishery. Such monitoring should include information on area and gear used	Research	Formal memorandum of understanding facilitated by the EGREE governing board between the Department of Fisheries and of Forests	 Departments' staff time Department resources in terms of facilities, venues, vehicles and DSA Study publication costs 	Low	Short term
Systematize and disseminate experience in habitat rehabilitation in cooperation with industries and replicate best practices. Target of documentation and associated awareness materials and events other involved agencies, particularly the Pollution Control Board	Enforcement	Project activity	1. Publication costs	Low	Short term

Recommendations	Туре	Implementation mechanism	Costing items	Costing ranking	Time frame
Strictly enforce seasonal bans and nearshore trawling. Non strict enforcement will discourage fishers from respect the bans and the fishery will remain an open resource	Enforcement	Formal MoU facilitated by EGREE foundation between the Fisheries Department and Coast Guard and Marine Police	 Additional fuel and maintenance costs related to extended patrols for coast guard vessels Acquisition of a patrol boat for Fisheries Department, fuel, equipment (if deemed necessary) Extra Department of Fisheries and coast guard staff time for more intensive enforcement In the event of acquisition of patrol boat for Fisheries Department, additional staff and training 	High	Long term
Support the constitution of a Development Authority of Kakinada to develop a Land Use and Development Control Plan to avoid impacts from future onshore infrastructure	Enforcement	Statement of support from the EGREE governing board and, if deemed appropriate, formal memorandum of agreement among governing board members to develop and implement and action plan for this end	To be determined	High	Long term
Restriction of seismic surveys and vessel movements in certain periods, such as turtle nesting season, fish migrations and others	Enforcement	Formal agreement among Port Authority, Coastal Zone Management Authority, Coast Guard, Maritime Police and Oil industry representatives	Opportunity costs due to stop of surveys and restrictions to vessel movement. Compensation may be sought by affected companies	High	Short term

Recommendations	Туре	Implementation mechanism	Costing items	Costing ranking	Time frame
Implementation of International Maritime Organization guidelines for ballast water	Enforcement	Formal agreement among Kakinada Seaport Ltd, Affected shipping companies and EGREE foundation	Enforcement costs for Kakinada Seaport and increased costs for shipping companies to implement better management of ballast water	High	Long term
Market research study identifying current trends and interest and expectations of visitors in the area to establish potential revenue flow and draft a business plan that includes a stage-wise investment in close coordination with the Department of Tourism, i.e. the business plan for the development of tourism in EGREE should start by low-costs, no regrets options, like simple trainings and simple structures, leaving large investments for a later stage, if tourism is consolidated in the area.	Research	Formal agreement with Department of Tourism, including study approach, i.e. outsourced or using department personnel and hired research assistants	 Departments and EGREE foundation's staff time Research assistant's salaries and DSA (it may be substituted by online surveys) Publication costs 	Low	Short term
Designation of the Coringa Wildlife Santuary as a Ramsar site	Enforcement	Submission of designation by the national administrative authority (MoEFCC), including Ramsar information sheet to the secretariat of the Convention	Administrative costs associated with designation	Low	Short term
Study possibility of introducing a compulsory course on coastal and marine ecology, estuarine processes, hydrology and sediment dynamics, based on information and trainings already compiled and conducted by the project for all new government officials regardless of department.	Enforcement	Memorandum of agreement among all government departments facilitated by EGREE's governing board	 Staff time of trainees to attend trainings Subsidy and compensation for additional burden on duties Development of training materials, including manuals Staff time of trainers 	Low	Short term

Outcome 3 Community livelihoods and natural resource use are sustainable in the EGREE

The purpose of forming EGREE Foundation is geared towards creating a new governance model for conservation and management of estuarine ecology. The key objective is to break sectoral silos and bring convergence in adoption of best practices in and around the coastal and marine biodiversity rich landscape of Coringa Wildlife Sanctuary Area.

This is envisioned as an investment towards conservation and protection of biodiversity through promoting eco-friendly model of growth and wellbeing of people in the region. Therefore, active involvement of local communities from 44 villages in the region, which is home to a total population of 1,14,585 persons spread across 6 Mandals as custodians of this bio-cultural heritage is critical. However, by virtue of their location, these villages are vulnerable, where people continue to suffered either loss of property or family members, compounder with dwindling livelihood opportunities, frequent inundation, land erosion caused due to changes in direction and flow of the creeks and back water channels.

In this context the Outcome 3 "Community livelihoods and natural resource use are sustainable in the EGREE", is designed:

- 1. To capacitate the community institutions in become capable of appreciating the local biodiversity and, take active part in protection and conservation of biodiversity
- 2. To understand their pattern of utilization and dependency on these resources, access vulnerabilities, emerging internal and external threats to biodiversity from local livelihood and regional economic activities and plan for taking part in developing protection, conservation and management of local biodiversity
- 3. To promote and adopt biodiversity friendly diversified livelihood and socio-economic activities while meeting the growing community needs.



Community livelihoods and natural resource use are sustainable in the EGREE Number of SHGs/ CBOs strengthened

Number of skills development activities carried out for SHGs/ CBOs/ and other local institutions for alternative and/ or sustainable ecosystem-based livelihoods that reduce pressures on biodiversity

Number of people shifting to alternative livelihood options that reduce pressure on biodiversity

Incidents of felling of mangrove trees, non-adherence to the seasonal ban on fishing, destructive fishing practices by local communities within the project area in contravention of community natural resource use plan

The following are the key finding with respect to the indicators elicited in the project document.

Indicator 1: Number of SHGs/ CBOs strengthened

Finding 1. Through the strategic engagement with local communities by raising awareness and capacity building exercises, people have been mobilise to organise common interest groups and the membership into these association and institutions is being increased. A number of community institutions are in existence with primary agenda towards biodiversity conservation and management, some of which have existed since long (eg. 20 Eco Development Committees) and some have been formed during the course of the project (eg. 15 Forest Protection Committees (Van samrakana samities). The rest of them (eg. 16 Fishermen's Association; 33 Women's Organization; 5 NGOs; 52 Youth Clubs; 72 nature Clubs and 5 Dairy Cooperatives) have a combination of purposes which support the conservation agenda. It was clear from the interaction with community groups that there is a compulsion to remain dependent on the local mangroves, largely due to lack of alternative livelihood avenues, and scarcity of resources base such as land, fodder and fuel options for cooking. The EGREE activities in addressing conservation issues concerning community's dependence on mangrove forest is therefore ongoing, by way of building rapport and trust with the local community, and establishing its presence in the region as a NGO closely associated with the Forest Department and serving the purpose of biodiversity conservation and socio-economic betterment of the local communities. The community institutions are therefore at varied phased of their development, and are yet to mature and progress in a manner they become capable of promoting conservation and selfregulate their dependency.

Finding 2. It was observed that the members of EDCs have clarity that these associations are formed through the Forest Department, with the purpose of protection and conservation of the forest resources. The supportive funds are provided through these forums for village developmental activities, planting of forest and to benefit from such livelihood activity. This is an encouragement towards protection and management of the forest and take part in the conservation agenda. However, motivation to self-regulate and move forwards the agenda on biodiversity conservation on their own continues to be of lesser priority; in the absence of an institutions such as the forest department and EGREE. This would require willingness on the part of the community to self-regulate and refrain from depending on mangroves by taking the responsibility to explore alternatives.

Indicator 2 Number of skills- development activities carried out for SHGs/ CBOs/ and other local institutions for alternative and/ or sustainable ecosystem-based livelihoods that reduce pressures on biodiversity

Finding 1. The communities largely dependent on the surrounding resources for livelihoods, most of the families are engaged in traditional fishing and vending, farming and agricultural labor and animal husbandry. While collection of honey, shells and fuelwood and milking of feral cattle from the mangrove forests have also been the means of earning. In encouraging the community to adopt alternative livelihood activities, investment through training, exposure visits and skill development training and capacity building has been taken up. The project has built substantial institutional linkages towards - dairy development, handicrafts, fish pickling and processing and branding, catering and hospitality as alternative livelihood activities. Further it has demonstrated its strength by converging of gram panchayats, local administration, and line departments in channeling resources through setting up of a Garment Training Center; Setting up of Dairy Cooperative and Fisheries Cooperative. However, the process of estimating the number of people requiring skill training is in progress. While there have been small scale pilot initiated with limited success (Fish Vending Stall), these are yet to be adopted by the community as viable options as livelihood alternatives. Necessary focus and innovation in delivering results in such examples is crucial, as this pilot has the potential to address and promote biodiversity friendly practices, and shift a behaviour pattern of the consumers and the fisherwomen in realising the socio-economic benefit of promoting biodiversity friendly fishing and sustainable harvesting. This has in fact contributed to enhancing understanding of the context, market surveys and study of traditional fishing has also been carried out, however a systematic approach to create market support system is yet to be taken-up

Indicator 3 Number of people shifting to alternative livelihood options that reduce pressure on biodiversity

Finding 1. It was found that EGREE has initiated and established dialogue among the community on mainstreaming biodiversity conservation and worked along with the community and local NGOs in preparing Micro Plans in each of the 44 Project Villages. The micro planning exercises

through the use of a series of participatory methods assessed the: demography, social economic conditions, need assessment, livelihood patterns and state of biodiversity, level of dependency by the community, associated threats to biodiversity, barriers for conservation and suggested improvements and action plans for implementations. Based on this critical intervention are being taken-up along with a range of entry level activities which will promote eco-friendly practices, while increasing their social economic standards. Through a detailed analysis of the micro plans and livelihood mapping and skill assessment, the exact target numbers are being estimated. However, the action points described in the micro plans are yet to translate into concrete action plans that are ratified by the administration and sanctioned for implementation towards contributing to changing the pattern of practices that can be highlighted to demonstrate a shift towards biodiversity friendly practices.

Indicator 4 Incidents of felling of mangrove trees, non- adherence to the seasonal ban on fishing, destructive fishing practices by local communities within the project area in contravention of community natural resource use plan

Finding 1. It was observed that the traditional livelihood are in transition with dwindling fish catch and raising cost of living, reduced demand for fuelwood in the towns and availability of work as daily labour in the factories and port, aquaculture farms, fish processing centres, construction sites and there is increasing trend in outward migration. This phenomena, coupled with enforcement and awareness building process by the forest department and local NGOs has generally caused a decline in frequency and complete dependency on the mangroves forest as an economic activity. Nevertheless, there continues to be dependency on mangroves at household level (varying between 50 to 80% of households in a given villages) as fuel wood, and housing material for those household having thatched house from time to time, and a 10 % decline in this dependency is reported by the project. However, a clear strategy to this effect is not in place at the moment.

Conclusions

The project has made substantial advances in raising awareness/ capacity building activities, and succeeded in increasing membership of individuals into a variety of village level institution. In encouraging the community to adopt alternative livelihood activities, investment through training, exposure visits and skill development training and capacity building has been taken up extensively.

The project has built substantial institutional linkages, and demonstrated its strength by channelizing of schemes and financial provisions of gram panchayats, local administration, and line departments towards setting-up infrastructure for training in garment making, as a key livelihood alternative livelihood and gained experience. However, on the other hand, it has not been so successful in setting-up the model for fish vending, which is directly relates to influencing biodiversity friendly practices, both at the consumer level and the community of fisherwomen. The pilot has to the potential, to demonstrate the community fisherwomen to see socio-economic benefit in selling products that are harvested in a biodiversity friendly manner;

and the for the consumers to demonstrate their commitment to conservation by explicitly showing preference to buying products from such outlets. Further, in a context, where the vulnerability of the community and the compulsion to remain dependent is high, the urgency and need for expediting committed action derived out of the Village level Micro plans is of critical importance. The action points described in the micro plans are yet to translate into concrete action plans, ratified and sanctioned for implementation by the administration.

The current model of engagement with the community, based on an incentivising approach towards conservation, while will be useful to achieve initial steps and gain entry; it will prove to be limited in accomplishing the goal of mainstreaming. From the vast body of work and diversity of conservation models in India, it has been learnt that – the rationale for adoption of biodiversity friendly practices, should emerge from the communities/ village groups recognition of the socio-economic benefits they derive from conservation, this cultural and attitudinal shift forges into willingness to self-regulate and take up the responsibility and explore alternative livelihoods. However, at this point, motivation to self-regulate and move forwards the agenda on biodiversity conservation on their own, continues to be of lesser priority; in the absence of an institutions such as the forest department and EGREE.

Recommendations

A body of vast experience exists in India, on community based forest management practices, which are most effective because of their self- regulatory mechanisms of resource use and principle of sharing and inclusion. Envisioning local communities as custodians in this process, rather than as barriers will enable a mechanism of mainstream the conservation agenda robustly forward, by bringing to light the wealth of ecological knowledge they have and devising means of using their knowledge in conservation work so that they become a part of the solution. Therefore it needs to be noted that, inter-weaving the structure of newer forms of community institutions into the traditional system of community governance that pre-exists can enhance the effectiveness of these institutions. The presence of traditional governance system in the project villages should be leveraged. These bodies have inbuilt mechanisms to self-regulate resource utilisation and fishing activities. They have a system of demarcating areas across villages, agreements on where they can fish, and where they should not and a process of negotiations between villages to resolve any conflicting situations. The effectiveness of these institutions is such that, these have high influence on the individuals and practiced and passed down through informal peer association. Therefore it is essential to initiate dialogue in the villages to set-up a mechanism, by which the decision taken by the EDCs/ VSS are routed for implementation through the existing community self-regulation mechanisms, apart from being ratified by the gram panchayats. In this regard, the EGREE PIU is to initiate and facilitate a process of dialogue with community leaders and line departments in the context of 126

strengthening the village level institutions, set-up mechanisms for self-regulation. Community VLI leaders are to leverage the traditional system of governance among fishing communities, initiate a process of consensus, and commit to a time bound Agreement, with action plan to shift to biodiversity friendly practices and alternative livelihoods.

The scale of the activities in comparison to the magnitude of shift that is necessary to build the momentum to demonstrate viability of these alternative livelihood is very limited. The current state of affairs, where successful alternatives livelihoods could have been at a level of scaling up are impending, on the account of delays the project suffered due to a set of conditions detailed elsewhere in this document. This process would require more time and it is recommended that the project should seek extension in this regard. For increasing communities uptake and willingness to shift from traditional livelihoods, apart from training/ exposure a continuous hand holding mechanism through forming livelihood platforms such as Interdepartmental Jointly Owned Micro Projects (JOMP) is to be initiated, eg. Dairy Cooperative. (detailed under the sustainability section).

A preliminary analysis of the micro plans, show that the ability of the communities to mainstream biodiversity agenda will remain limited as long as they remain vulnerable. A range of key developmental issues were raised by the community which needs urgent attention, some of which are: poor embankment and protection from frequent cyclones and inundation; erosion of villages land and habitation areas, scarcity of land for housing and other common purposes such as hygienic fish drying yards, village jetties and fish landing sites; unsanitary conditions, poor access and transportation facility, decreasing fish catch, pollution from upstream, shortage of drinking water, primary school and health facilities, threat to life, loss of livelihood and property and eroding landscape and unclear land tenure system. Therefore, for a successful and sustainable shift in socio-cultural norms which is pro-conservation will be possible if developmental activities are taken-up towards ensuring their social and economic wellbeing at the earliest.

In doing so, the key action points emerging from micro plans, at the earliest should be categorised into (a) Common to all villages; (b) Village specific issues; (c) Threat to biodiversity from community practices. Based on 'common points' a regional development plan should be ratified by the governing board, and put into immediate action by the line departments, with regular monitoring by the EGREE Governing board.

For 'village specific issues', task teams should be formed with a clear accountability of the competent authority, timeframe for results and action, and monitored by EGREE Project implementation unit and Village level Institutions (EDC/VSS), and report back to Governing board periodically.

For the category of 'threat to biodiversity from community practices', a commitment to refrain from practices that are unsustainable, shall then rest as the accountability of the EDC/VSS leaders, along with traditional village leaders from fishing community. EGREE project implementation unit should facilitate this process, for the community to respond and selfregulate within a time frame, set targets and formalise Agreement, which can be reviewed by the Governing board from time to time. Objective, to mainstream coastal and marine biodiversity conservation into production sectors in the East Godavari River Estuarine Ecosystem (EGREE)

Having assessed the progress done by the project towards achievement of its targets by outcomes, this section gives an overall view of implementation status guided by a discussion of advances in the six objective indicators of the logical framework of the project.



Figure 25 Objective level indicators

Indicator 1. Landscape/ seascape area in the EGREE where production activities mainstream biodiversity conservation

Finding 1. The project distinguishes a direct and an indirect influence area, the former, extending over 46,450 hectares included the Coringa Wildlife Sanctuary and the area immediately surrounding it along with the fringe villages. The latter, would be a terrestrial buffer of 5 km landwards of the direct influence area, expanding over 33,550 additional hectares.

Finding 2. The project has decisively supported conservation efforts, including support to the review and new development of a management plan for the CWLS, and associated monitoring of populations of key species and rehabilitation works (outcome 2).

However, sensu *stricto*, as <u>mainstreaming of biodiversity into production sectors</u> at sector plans or within the framework of a landscape-wide management plan has not yet taken place (outcome 1), the indicator remains unquantified.

Fulfilling this indicator would imply determination of the geographical area impacted by each production activity that has been mainstreamed and how , e.g. if sustainable creek fisheries (correct gear and season) or aquaculture (minimum BOD load, no POPs in effluents) would mean that these activities have mainstreamed biodiversity in the direct influence area or if vessel movement and seismic survey restrictions were introduced to mitigate impacts on important stages of lifecycles of species such as marine turtles, or, <u>as it has been the case</u>, firms would rehabilitate wetlands due to <u>capacity development</u>, <u>awareness or outreach by the project</u>, this sectors would have mainstreamed biodiversity and thus their impact would have been mitigated over an area (to be determined) of direct/ indirect influence.

Indicator 2. Percentage of allocation of CSR expenditures of production sectors aligned with landscape-level Strategic Plan for the EGREE

Finding 1. Corporate Social Responsibility Funds have already been mobilized by the project in line with the project objective. For instance, private companies have been supporting awareness campaigns and at least one large company has rehabilitated important bird wetlands at their expenses in response to project awareness and capacity development activities (table 1).

However, this contributions constitute a response to specific petitions or project actions and are not yet a systematic allocation of funds to biodiversity conservation objectives. More importantly, fund managers would not consider biodiversity as relevant as e.g. medical missions or training programs or even confuse gardening or landscaping with "biodiversity" or "conservation" activities.

Indicator 3. Improvement in Total Capacity Development Scorecard

Finding 1. The project has made important contributions to individual capacity development of officials in government and private organizations involved in the project, as well as producing a vast amount of knowledge products, actions and events.

More importantly, the project has been the force behind the establishment of EGREE foundation, which would serve as the inter-sectoral mechanism for biodiversity mainstreaming foreseen in the project strategy.

Capacity development scores remain however low at around a third of the maximum scores. The main reason for this status is the fact that most systemic and institutional capacity indicators are inextricably linked with the development of the landscape-wide strategic plan and the sector plans. Once these benchmarks had been achieved, scores would increase dramatically. Indicators 4 and 5, Population size of following critical species remains stable or increases: *Scyphiphora hydrophyllacea* (IUCN threatened), Olive Ridley turtle (IUCN vulnerable status), Fishing cat (IUCN status is endangered), Population size of birds (including migratory) remains stable or increases

Finding 1. *Scyphiphora hydrophyllacea,* a true mangrove species, is relevant for India and EGREE in particular as it is only present here and in the Andaman Is., hence its choice as indicator species for the health of the mangrove habitat.

However, globally, it has a Red List classification of least concern, and it can be argued that the health of a mangrove forest would be better characterized by parameters such as extension, diversity indices, average DBH or total biomass.

Finding 2. The project design further included *Lepydochelys olivacea* (olive-ridley turtle), *Prionailurus viverrinus* (fishing cat) and bird populations as critical species whose population declined would indicate degradation of the whole ecosystem.

The monitoring programs supported by the project demonstrate the current stability of the populations concerned. <u>This constitutes a testimony to the strengthened protection of the Coringa Wildlife Sanctuary and adjacent areas as a result of the project implementation</u>.

However, to establish population health, this extensive and comprehensive monitoring program must be continued into the next decades, as only a few year's data would not reveal any significant midterm trend, only the absence of an immediate threat.

Additionally, as the project has been producing data on threatened species within and outside the CWLS across and broad taxonomic range, a Red List Index could be calculated to monitor changes in threatened status of species across a wider range.

Indicator 6. % of open (degraded) mangrove areas in the project area reduced

Finding 1. Destruction of mangrove area had been ongoing in the recent past but, according to land use data and monitoring data provided by the project and the department of forests, degradation has being largely stopped, even before project implementation, other than minor issues related to community use of mangroves for forage, construction or fuel.

In fact, degraded areas that were intended for pond development have been rehabilitated by the project within the Coringa Wildlife Sanctuary. This rehabilitation is being done according to scientific criteria by replicating the normal multispecies zonation observed in the adjacent healthy forest. This approach radically diverges from a more generic, mono-specific plantation approach unfortunately practiced in many areas of South East Asia.

Finding 2. However, some reports still identify dependence of communities on mangrove resources, specifically tress for fuel, forage and construction as a direct menace to the sustainability of the protected area. The interdependence, degree of use and degradation caused must be established. It must be noted that the project has been intensively working with communities, supporting and strengthening their institutions and capacities precisely as part of the strategy to avoid further degradation of mangrove resources, both forest and fishery resources.

Conclusion

The project has made very important advances in terms of support for conservation and development of capacities. More importantly the project has set the stage for the establishment and consolidation of a true multi-sectoral mainstreaming of biodiversity conservation in a critical industrial and biodiversity area by creating EGREE foundation with its multi-stakeholder governing board.

However, mainstreaming biodiversity in the production sector in EGREE would still need the adoption by a broadly represented general body of a landscape management plan that accounts for all significant impacts on biodiversity from production sectors identified in the sectoral analysis. The rationale for the adoption of the plan must be based on the economic value of biodiversity services for the economic growth and development of the region, as well as the well-being of the population of EGREE.

Considering the delays suffered by the project as a consequence of challenges related to the setup of the implementing and management structures, as well as the events leading to the separation of Telangana from the state of Andhra Pradesh, the project is on track to achieve its objectives.

Thus, a termination at the originally set end-of-project date would likely not provide sufficient time for consolidation of the results, and would hence risk failure of the investment, i.e. continuation of business-as-usual approach, with maybe a residual and mostly irrelevant EGREE foundation in a support role for communities and Forest Department's activities in connection with the Coringa Wildlife Sanctuary.

Recommendation

As established in previous sections, the benefits of an extension of the project implementation timeframe for at least a year, and ideally till mid-2017 (one and half years), clearly surpass the costs of said extension.

Give priority to the setup of a technical and district committees of EGREE with expanded representation and the establishment of a general body to have a venue to educate and create awareness on biodiversity and particularly its value in terms of revenue flows for economic development and well-being.

Focus on the participatory development of the landscape management plan. Such plan must incorporate all quantified (or ranked) impacts on biodiversity identified either in the commissioned sector reports or other analysis conducted by EGREE foundation or the project's implementing unit (see outcome 2 recommendations for specific on this issue).

The plan must also include indicators and a given timeframe, as well as a rough estimation of costs involved and potential fund sources. The project implementation unit, acting as secretariat of EGREE foundation should facilitate the planning process, collecting inputs from stakeholders.

Since an independent implementation of said plan, even with broad objectives, including monitoring of compliance and enforcement actions, including coordination across the institutional landscape would be costly both in terms of financial and human resources, the best chance for the plan to be actually implemented is to be incorporated into existing legal instruments.

In addition to other legal instruments to be identified, EGREE foundation must at least secure the integration of all objectives of the landscape management plan within the Coastal Zone Management Plan, seeking declaration of EGREE as a Critical Vulnerable Coastal Area.

Moreover, EGREE foundation should create alliances and support from the Government of Andhra Pradesh to constitute a Development Authority for Kakinada area and the development of a Land Use and Development Control Plan that includes the objectives contained in the biodiversity-mainstreamed landscape management plan.

Sustainability

The section sustainability analyzes the likelihood of sustainability of outcomes after project termination by assessing the risks that are likely to affect their continuation.

These risks are divided in financial, socio-economic, institutional framework and governance and environmental risks. Figure 26 defines the risk types and shows the indicators used by the midterm review to assess them.

Although the assessment is based on the risks, the midterm will rate the likelihood of the four dimensions of sustainability (financial, socio-economic, institutional and environmental), i.e. a "likely" rating means that that particular dimension is likely to be sustained, not that the risk is high, i.e. that the threat is likely to be realized.

However, at midterm, sustainability risks would not be thoroughly examined, as the final status of project implementation determines the likelihood of said risks to a great extent. Hence, this section will merely serve as an orientation of the most relevant risks that would need to be examined again at the time of the final/ terminal evaluation. Table 14 provides a summary of the sustainability assessment.

Figure 26 Sustainability indicators



Financial risks. Likelihood of financial resources not being available after project end

This section includes the assessment of advances attained towards the outcome 1 indicator of *"Amount of resources available for funding the foundation and the compliance of approved sectoral plans"*.

Supporting sustainability of financial resources would depend initially on the development and consolidation of two outputs of the project: the financial strategy, currently being developed, and the sector plans/ landscape-wide strategic plan, without which, the enforcement/ monitoring mission of EGREE Foundation would not make sense.

The financial strategy should identify the source of funds and the mechanism for administration and disbursement of the funds. Moreover, the financial strategy must be based on the current assumption that EGREE foundation will have indeed powers to monitor the implementation of the plans (see socio-economic risks).

Funds identified in the financial strategy should have several sources, as if, e.g., should EGREE funds come exclusively from government sources, budget constraints due to e.g. changing government priorities or unforeseen crisis that force budgetary rearrangement could jeopardize the Foundation's operations and even survival.

Also, and although the principle of "polluter pays" and the chronic scarcity of public funds should make the perspective attractive of being exclusively funded by private sources, mainly large companies, this would incur in the risk of turning a public foundation into a mere social instrument for companies and the alignment of EGREE Foundation with private interest that may diverge from public/ government goals.

The project currently supports a great variety of activities, ranging from multi-sectoral planning efforts, population monitoring and development of livelihood capacities at community level. Assuming that the future EGREE foundation would intend to continue support for all the range of activities currently supported by the project and the likelihood that funding in the future would not be as accessible as it is nowadays, the financial mechanism in the future must establish clear priorities in the form of an annual and multiannual workplan that would list available and likely funding. Failing to do this would result in the Foundation staff dedicating more time to chase after funding that actually implementing its functions or becoming a sort of small-grant program.

Thus, balanced funding sources and clear implementation mechanism, as well as priorities should be the fundamental blocks of a sound financial strategy. This could be achieved through the establishment of a Fund or Trust that would allow replenishment from different sources, including international development funds, and would be administered in a transparent manner according to clear rules.

The likelihood of future flow of sufficient funds for the Foundation is supported by the facts that the project has demonstrated ability to mobilize funds from different sources, including government and private organizations in support of project activities aligned with the priorities or objectives of said organizations.

Also, the project has been able to mobilize in-kind support from several government departments, mostly the executing agency, the Department of Forest of Andhra Pradesh.

Moreover, as the coastal strip of Andhra Pradesh is to be the target of additional investments associated with the Petroleum, Chemical and Petrochemicals Investment Corridor plan, and as an Integrated Coastal Zone Management Plan must yet be developed, there are opportunities to establish EGREE foundation as a relevant instrument for vigilance and monitoring of intersectoral commitments for conservation of ecosystem services and executive agency for project supporting that very goal.

Institutional risks. Likelihood that stakeholders will not see it in their interest to take action in a coordinated manner

This risk is directly related to the coordination challenges described under Outcome 1. Stakeholders at district level, including corporate actors and government departments at district level do not necessarily see any benefit in acting together or in a coordinated manner to implement a plan that does not respond to their interests.

Coordination is not only costly in terms of time and resources invested, but it is also risky since a particular actor can lose liberty and room to manoeuvre to pursue its own interest or may decrease its performance (government) and/ or competitiveness (business) if they are tied to endeavours that do not necessarily include all stakeholders, i.e. the risk of free riders gaining advantage.

As long as the project counts with external funding and it is perceived as being backed by international donors, local actors may be induced to cooperate with it for specific results directly related to their own agenda or workplan.

However, sustainable cooperation and coordination among different actors with divergent views and scarce available resources is unlikely unless the following conditions are present:

- 1. Inclusive plan that binds together all relevant stakeholders with clear commitments and aligned with their interest that also include sanctions or negative incentives for violators or free riders
- 2. Strong and resolute involvement by high level government officials both at state and at district level, particularly leading figures of the state departments and the district collector. As such, this should be a primary target for project advocacy.

Socio-economic risks. Likelihood that EGREE foundation will not have mandate to supervise implementation of a landscape plan or will be reduced to an NGO and implementing mechanism for CRS funds

This should be the key focus of discussions for an exit strategy that should start immediately. The project logic demands that EGREE foundation becomes more than just an implementer of external funds and grants, but a mechanism of enforcement of legally binding policy instruments, i.e. sector / landscape plans.

As currently the Foundation bylaws do recognize the functions of Protect and conserve critical habitats, and development, revision and monitoring of implementation of programs aimed to conserve coastal and marine ecosystem in EGREE it is likely that this should be maintained in the future.

However, and considering the risks mentioned under "institutional risks" a strong, decisive commitment by the leadership at department level is a necessary condition for the realization of a scenario that sees EGREE foundation as the leading actor in the monitoring and enforcement of biodiversity conservation for sustainability of social ecosystem benefits.

The challenges in preservation, conservation and management (PCM) of natural ecosystem in the Godavari Region are detailed at length in the Project Document, giving the premise for an urgent need for an innovation in environmental governance.

The objective of such an innovation is to countermanded drastic social and ecological implications which come along with the surge of production activities in the region (such as oil and gas exploration, extractive industries, ports and industrial fisheries, aquaculture), deemed necessary for economic development.

However, the current governance paradigm is riddled with a range of informal mechanisms that are in transition and a set of formal regulations that are inadequate in many ways to be suitable for the multitude of traditional sectors and once that are newly emerging. The overall structural frame is certainly insufficient, requiring innovation and there is complete discordance with individual sectors pushing their own developmental mandates and priorities, requiring crosssectoral coordination and mechanisms for harmonising on delivering results for effective PCM of natural ecosystem.

Hence, the response "Mainstreaming", with an aim to create a framework for effective governance, to respond to compounding challenges in coastal regions. While this can be addressed in different ways the chosen method/ pathway is to form an alternative structure in the form of a quasi-government body such as the EGREE Foundation (EF).

The EF is forged from the rationale that "a common platform for coordination is required to take care of the cross-sectoral interests", with the assumption that EF over time will have sufficient advantage to ensure participation of key production sectors. Therefore, the primary operation of EF by design is to coordinate and devise institutional governance mechanisms for creating, adopting, implementing and monitoring of a set of biodiversity-friendly sectoral plans by the respective stakeholders.

The EF is still in the making, and there exists an opportunity to increase its scope and function to be an effective model for further replication in other regions. However, it was evident from the findings during the field mission that:

- (a) A number of departments, with independent line functionaries exists, which are bound by efficient hierarchal departmental verticals, administered through a command-and-control system, however with minimal inter-departmental interaction
- (b) Awareness about EF's existence, governing structure or its mandate as facilitator/ monitoring platform of a landscape-level management plan is not yet perceived. Where in government departments, local communities and industries can participate, flag their concerns, negotiate for mutually beneficial solutions and see that their grievances are addressed in a fair manner
- (c) EGREE foundation does not currently possess the leverage needed to mobilize resources from government institutions to effect said coordination for conservation objectives.

Hence, the question of relevance at this point for the MTR team is – how can this model be made effective in addressing the current gaps in environmental governance, and what can be set in motion to make it innovative and capable of securing finances.

The structure of EGREE Foundation, derives its jurisdiction and power indirectly from the profile of the members of the governing board and therefore investing in, the emergence of governing board meetings as space for visionary cross-sectoral conversations for strategic solutions and newer mechanisms for result in PCM is critical. The governing board, through its inclusive representation of stakeholders, brings structural and functional convergence at the highest level, which needs be modelled further down the administrative levels, and suitable mechanisms for horizontal inter-departmental convergence for action in PCM, needs to be encouraged. The following are some of the recommended actions:

- 1. The Office of the CEO, EGREE Foundation, headed by a director of a relevant state department, with preference, but not necessarily the Department of Forest, along with the District Collector would be critical in leveraging the foundations visibility, legitimacy, duties, functions, liabilities and financial autonomy, in accordance with the strategic vision laid down by the governing board, in rolling out mechanisms for horizontal administrative convergence and cross sectorial coordination. However, as both the designated authorities have a vast array of roles and responsibilities spread over a vast geographical territory, it would be *advisable to appoint one attaché*, executive director or secretary to look after in specific the mainstreaming processes and move the PCM agenda under the overall guidance of the above-mentioned authorities and multi-sectorial governing board, through the executive committee and general body.
- 2. In encouraging structural and functional horizontal convergence among departments and developing administrative mechanism to deliver on PCM of biodiversity, increase the stake of the departments that might conventionally be disengaged in the PCM agenda is necessary. For which, mechanism for building experience and practices of working jointly

among departments by sharing resources, expertise, finances through a well-defined structure of responsibilities needs to be developed and practices. The practice of working together should be articulated in a clearly defined annual workplan, which would also constitute the basis for the annual budget of EGREE foundation. Hence, said plan should be developed by the third quarter of the previous year and include clear definitions of roles and responsibilities. Moreover, the annual workplan should be aligned with the sector plans or sector practices included in the landscape wide plan or sector plans.

- 3. To bind the gap between the high-level governing board or EGREE head by its CEOs (State director and District collector) and the district and field levels two additional management structures could be created: a State Technical Committee, composed of technical, mi-level officials of the departments included in the governing board and a District Technical Committee, composed of the district heads of the relevant departments, as well as the corresponding level representatives of non-government members, which should meet at least bi-monthly presided/ coordinated by the appointed attaché/ executive director of EGREE in representation of the CEO
- 4. Following is an overview of procedural suggestions and projects of most potential to initiate practices of horizontal convergence based on field observations in the EGREE region:
 - a. The EGREE Governing board or the State Technical Committee can propose and facilitate Jointly Owned Micro-Projects (JOMP) included in the annual workplan based on identified and emerging needs
 - Focus of the JOMPs should be the monitoring and reporting of the landscape plan and/ or sector plan. Examples of potential projects and the departments involved are:
 - i. Partnership among Fisheries Department, Forest Department and Revenue Department to facilitate eco-friendly aquaculture. For example, if a designated buffer zone is demarcated along the CWLS boundary, degraded mangrove areas under the Revenue Department can be utilised to repopulate with mangrove forest. While the technical expertise of the Forest Department along with VSS and EDC committee members will be handy, the Revenue Department gets benefited in reclaiming these lands. More importantly, the Fisheries Department can build its capacities and by sharing its expertise and promote sustainable fisheries by promoting polyculture based aquaculture involving seaweeds, bivalves and fish (in cages) in the mangrove waterways; and crabs, shrimp and fish in aquasilviculture or integrated mangrove ponds and pens. Thereby, in the EGREE region laying down a foundation for promoting biodiversity-friendly aquaculture as the future. Over time, Aquaculture Associations can also be bought into the partnership
 - ii. Partnership among Forest Department and Fisheries Department in protection and conservation of turtle egg-laying sight at Sacramento

Islands, currently the Forest Department has the overall responsibility, while this can be a shared responsibility in partnership with Fisheries Department. Over a period of time, university and civil society groups and private sectors stakeholders can be brought into the partnership

- Partnership among Forest Department, Fisheries Department and Department of Tourism and Ports and Shipping to preserve and conserve Hope Island, and develop it into an in-situ environmental education and recreation site to engage citizens and volunteers in conservation work
- iv. Partnership between Department of Agriculture and Animal Husbandry and Forest Department by setting up Dairy Cooperative
- v. Partnership between Forest Department, Fisheries Department and Tourism Department in setting-up and promoting "Producer Company of Fisher Women", for fish vending, hygienic processing, pickling and smoked fish products
- vi. Partnership between, Forest Department, Fisheries Department, Trawlers Association and Coast Guards in "Effective Implementation of Fishing Ban Season"
- c. The office of CEO, EGREE and District Collector, issue administrative directives to the concerned department to facilitate the process:
 - Each concerned department is to contribute resources equally, and formulate clear objective of the JOMP along with expected results towards PCM of biodiversity, and an inter-departmental Memorandum of Understanding are formulated with a clear set of roles and responsibilities to encourage this process
 - Each department designates personnel to form the JOMP team representing mid-level officials (eg. equivalent to rank and function of a Section Officer in the Forest Department, in Fisheries and Tourism Department)
 - iii. Once the practice are fine-tuned and experience is gained through interdepartmental work, other stakeholders can be included in the process and the scope and function of JOMP can be expanded over years, with increasing contributory roles of other stakeholders in the process
 - iv. The departments equally contribute a committed financial budget to this effect, which are routed through 'EGREE FUND' (see financial sustainability), are to be utilised specifically for the designated JOMP, under the

stewardship of CEO, EGREE and District Collector in consultation with the EGREE governing board and comittees.

- d. Such inter-departmental JOMP teams would have the support and encouragement of the senior-level officials. The senior officials interact with other stakeholders (such as civil society, fishermen associations, trawlers associations, aquaculture association, schools and universities and private sector and other civil society groups. They are mandated to participate in disseminating the process and find opportunities to promote such practices to bring changes in functioning and promote a work culture geared to deliver results effectively on PCM of biodiversity. The newly appointed administrative officials who come to work in the region, are mandated to go through a 1-2 days sensitization and briefing by the EGREE SPU training programme. The senior officials while transferring/ promoting and encouraged to make sure that, they summarise actions taken up on EGREE activities and update the ensuing official through 'Leaving Note'
- 5. Assuming that the landscape/ sector plans are developed at the earliest, and are ratified through a participatory and consultative process by the concerned stakeholders, the Project Steering Committee and the EGREE foundation board should:
 - a. Focus on developing mechanisms for facilitating operationalisation of crosssectorial biodiversity friendly action plans (once all the sectorial management plans are ready and ratified)
 - b. Act a resource group for inter-departmental convergence and facilitate/ mentor and provide handhold to champion the mainstreaming process
 - c. Develop a transparent mechanism for monitoring environmental status, reporting and flagging issues and concerns
 - d. Function as a mediator in gathering consensus among larger stakeholders and coordinate and organise the activities of Governing Board, Executive Committee, Technical Committee and General Body
 - e. Coordinate and manage all the thematic technical groups and oversee their functions
 - f. Act as a resource group for all stakeholders offering need based training and capacity development across sectors

Likelihood that environmental factors will surpass measures introduced by the project

Based on project's data on population of key species and the absence of large scale degradation of mangroves it is not likely that populations had been degraded to the extent that recovery would not be possible.

However, the lack of data on key marine species, particularly elasmobranchs but also cetaceans and marine turtles makes research on their status a necessary measure. More importantly, this presents an opportunity for inter-department cooperation and inclusion of private actors that could be circumscribed in sector plans (fisheries) and the strategic landscape-wide plan.

An additional quasi-environmental factor is anthropogenic global warming and its possible impacts in terms of sea level rise and/ or increase frequency and intensity of tropical storms. With the caveat of the lack of specific data or analysis of the local impacts of said global warming, the conclusion may be reached that impacts from changes in the aforementioned parameters, provided a linear progression, would be mitigated if the project succeeds in bringing together the different stakeholders for the implementation of sector/ strategic plans.

Said plans would strengthen ecosystem resilience to climate change. However, in the case of sea level rise, provision should be made for a possible landward migration of current coastal and marine ecosystems, within a timeframe of two to four decades, i.e. coastal investment in infrastructure and housing should be carefully examined in this light.

Conclusion

Sustainability of project benefits almost exclusively depends on the financial and political support and leverage of the EGREE foundation after project end.

On the financial front, the financial strategy being developed should be concluded as soon as possible. The strategy should be approved by the EGREE governing board with a clear commitment for its implementation.

Institutional sustainability depends on the commitment of the governing board of EGREE at state level, and the creation of additional structures to guarantee its effectiveness in coordinating actions at district level.

Moreover, the creation of a consensus that incorporates the interests of government and nongovernment actors, including corporate actors is a necessary condition to develop both a landscape and sector plans that can be monitored by EGREE foundation.

Inter-institutional cooperation at district level can be fostered by the implementation of joint projects, based on formal institutional memoranda of understanding or similar formal agreements and included in an annual work plan to be funded from the EGREE fund.

Recommendations

EGREE foundation's financial strategy should be approved. Key points of the financial strategy must include the creation of a fund for basic functions (e.g. staff, communications and supplies costs) and projects of EGREE. Said fund must admit inputs from a variety of sources, including government, private and international donor funds.

However, core funding, amounting to at least 50% of the total for both management and project/ activity costs should be provided by the State Departments represented in the governing board, as per formal agreement.

Supervision and control of the inputs and expenses of the fund should be perform by an annual independent audit subjected to the approval of the general body of the EGREE Foundation.

Coordination at district level may need the creation of additional management structures. Such management structures should include, on the top management, the inclusion of the district collector as co-CEO of EGREE, together with a director of a relevant State Department and the appointment of an executive director to support the CEO.

Additionally, a technical committee, composed of technical officials of the departments represented at the governing board, as well as equivalent officials from non-government representatives, including corporations and/or a district committee with the same composition of district-based officials. The latter is deemed necessary condition for the effective coordination and enforcement of EGREE foundation's workplans.

The aforementioned committees, under the direction of the executive director should prepare annual workplans for the consideration of the CEO and approval by the governing board and/ or general body. The annual workplans should closely follow the implementation of the landscape/ sector plans.

The annual workplan, including inter-departmental joint operations should be the basis for the annual budget. However, the formal agreement among government agencies for the funding of EGREE should cover a minimum timeframe of five years.

Table 14. Summary of risks to sustainability. The rating refers to the sustainability and not the risk i.e. a "likely" rating means that that particular dimension is likely to be sustained, not that the risk is high, i.e. that the threat is likely to be realized. U=unlikely, MU=moderately unlikely, ML=moderately likely, L=likely.

Risk type	Risk	Likelihood			
		U	MU	ML	L
Financial	Amount of resources available for funding the foundation not sufficient for effective operation			X	
	Funds available not enough to monitor compliance of approved sectoral plans/ landscape-wide strategic plan				
Institutional	Stakeholders will not see it in their interest to take action in a coordinated manner			Х	
Socio- economic risks	EGREE foundation will not have mandate to supervise implementation of a landscape plan			x	
	EGREE foundation will function as an NGO and implementing mechanism for CRS funds				
Environmental	Rate of loss of biodiversity due to overexploitation/pollution/ habitat destruction irreversible				Х