IFAD
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Democratic Socialist Republic of Sri Lanka

Participatory Coastal Zone Restoration and Sustainable Management in the Eastern Province of post-tsunami Sri Lanka

Terminal Evaluation Review

Main report and appendices

GEF ID No. 2753
Asia and the Pacific Division
Programme Management Department

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Abbreviations and acronyms

ADB	Asian Development Bank
AWPB	Annual Work Plan and Budget
CBO	Community Based Organization
CCA	Coast Conservation Act
CCCRMA	Coast Conservation and Coastal Resources Management Act
CCCRMD	Coast Conservation and Coastal Resources Management Department
CEA	Central Environmental Authority
COT	Crown of Thorns
CZM	Coastal Zone Management
DELEC	District Environment and Law Enforcement Committee
DFAR	Department of Fisheries and Aquatic Resources
DMC	Disaster Management Center
DPEA	District Project Executing Agency
DRR	Disaster Risk Reduction
DS	Divisional Secretariat
DWLC	Department of Wildlife Conservation
EA	Executing Agency
ERAU	Ecosystem Restoration and Adaptation Unit
FA	Focal Area
FD	Forest Department
FMA	Fisheries Management Area
FSP	Full Size Project
GA	Government Agent
GEF	Global Environment Facility
GIS	Global Information Systems
GN	Grama Niladari (Division)
GoSL	Government of Sri Lanka
IA	Implementing Agency
IAS	Invasive Alien Species
IEM	Integrated Ecosystem Management
IFAD	International Fund for Agricultural Development
IUCN	International Union for the Nature
KM	Knowledge Management
LD	Land Degradation
M&E	Monitoring and Evaluation
MOENR	Ministry of Environment and Natural Resources (now MOMDE)
MOMDE	Ministry of Mahaweli Development and Environment
MTR	Mid Term Review
NA	Not Applicable
NCZCRMP	National Coastal Zone and Coastal Resources Management Plan
NPSC	National Project Steering Committee
PA	Protected Area
PCR	Project Completion Report
PCZRSMP	Participatory Coastal Zone Restoration and Sustainable Management in Eastern Province
PFS	Project Financial Statement
PIF	Project Identification Form
PIR	Project Implementation Report (Annual)
PMU	Project Management Unit
PPEA	Provincial Project Executing Agency
PPG	Project Preparation Grant (GEF)
PPMO	Provincial Project Management Office
PRA	Participatory Rural Appraisal
PTCRRMP	Post-Tsunami Coastal Rehabilitation and Community Resources Management Project
PY	Project Year
REA	Rapid Green Assessment
RIMS	Results and Impact Management System
SAPR	Semi Annual Progress Report
SLM	Sustainable Land Management
SMA	Special Management Area
SOE	Statement of Expenses
TER	Terminal Evaluation Review
UNDP	United Nations Development Program
UNEP	United Nations Environment Program

USD	United Sates Dollar
WA	Withdrawal Application
WB	The World Bank

Maps of the Area

Figure 1: Maps of the Project Area

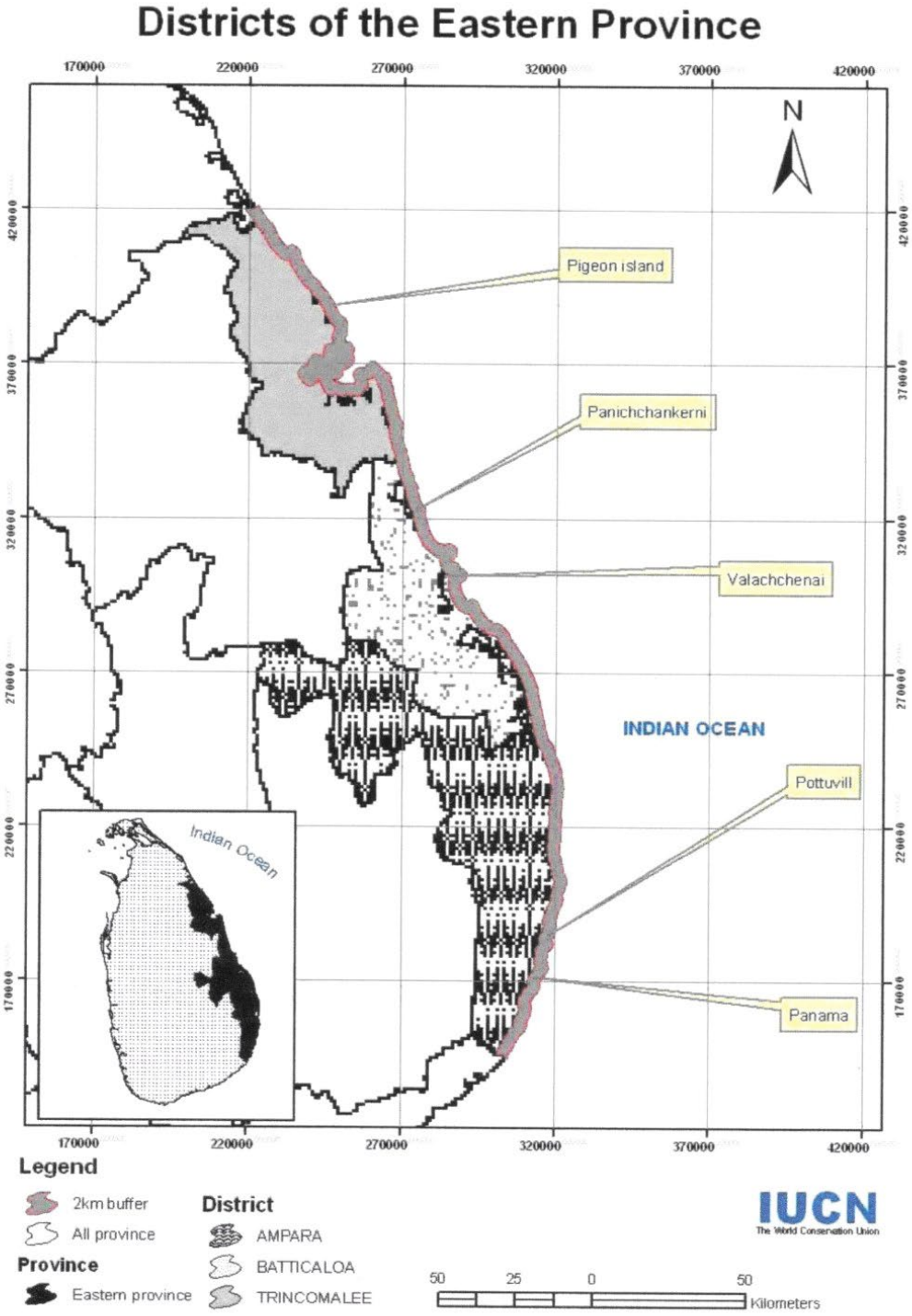


Figure 2: Base Map of the Project Area In Trincomalee District

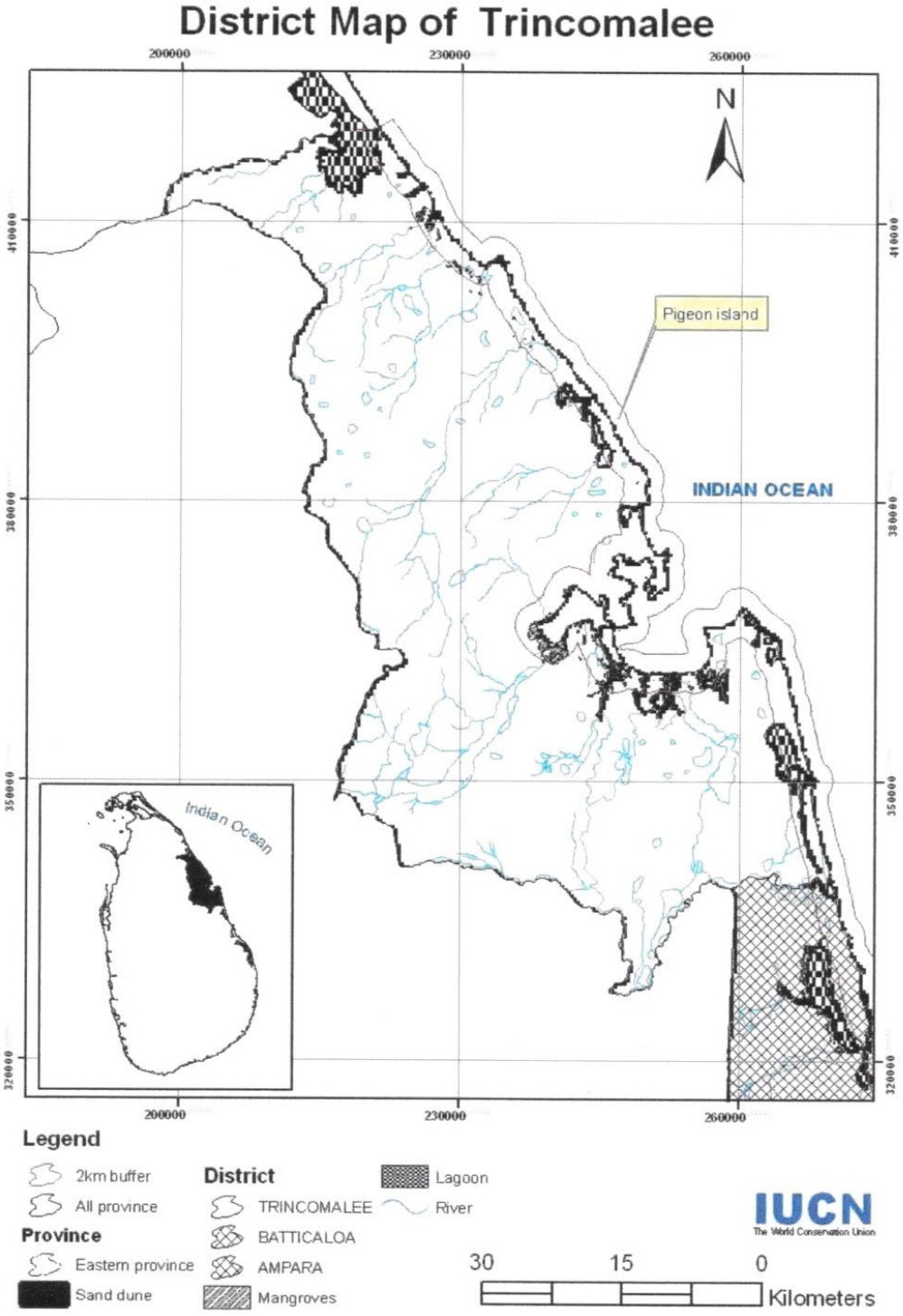


Figure 3: Base Map of the Project Area in Batticaloa District

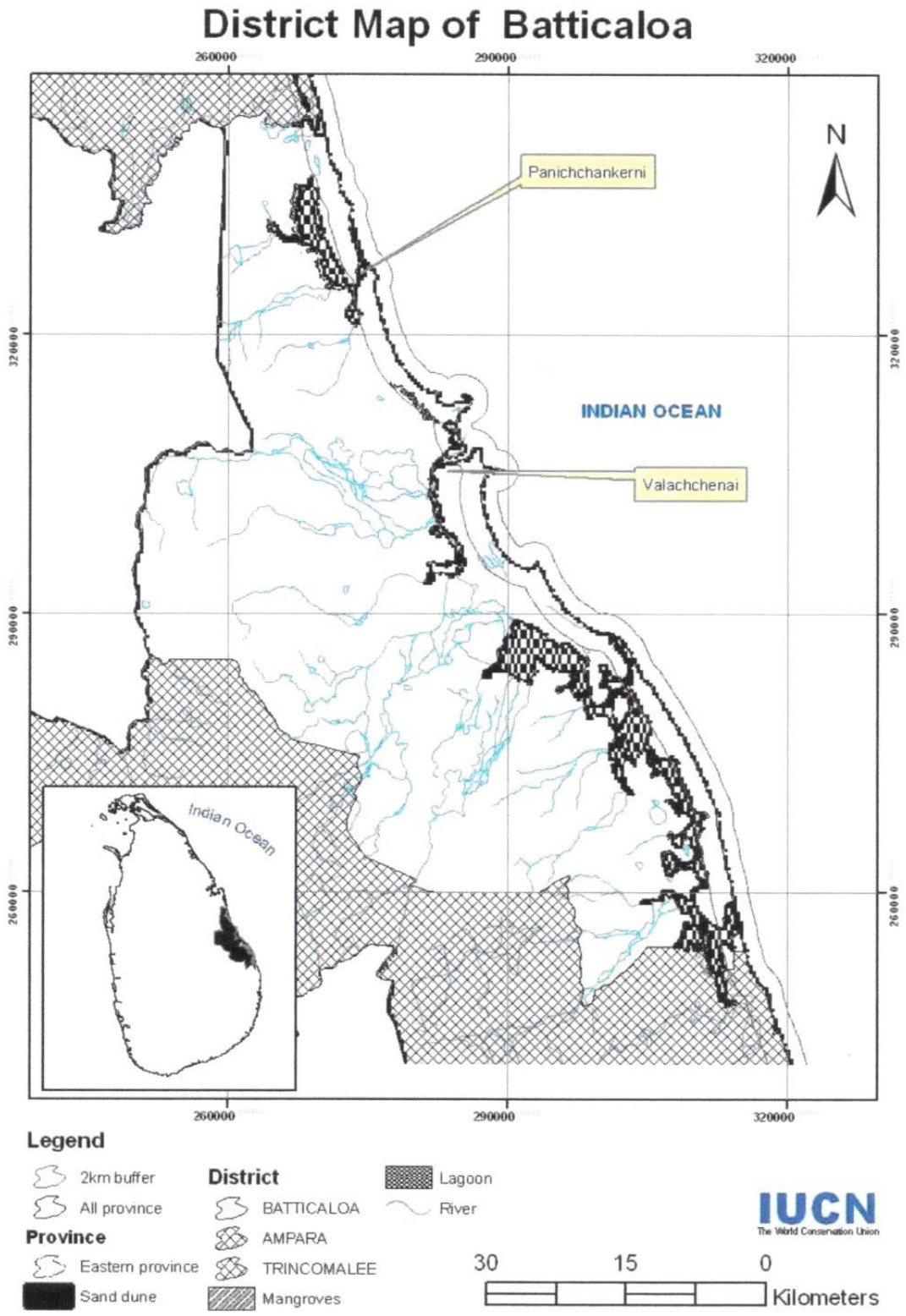
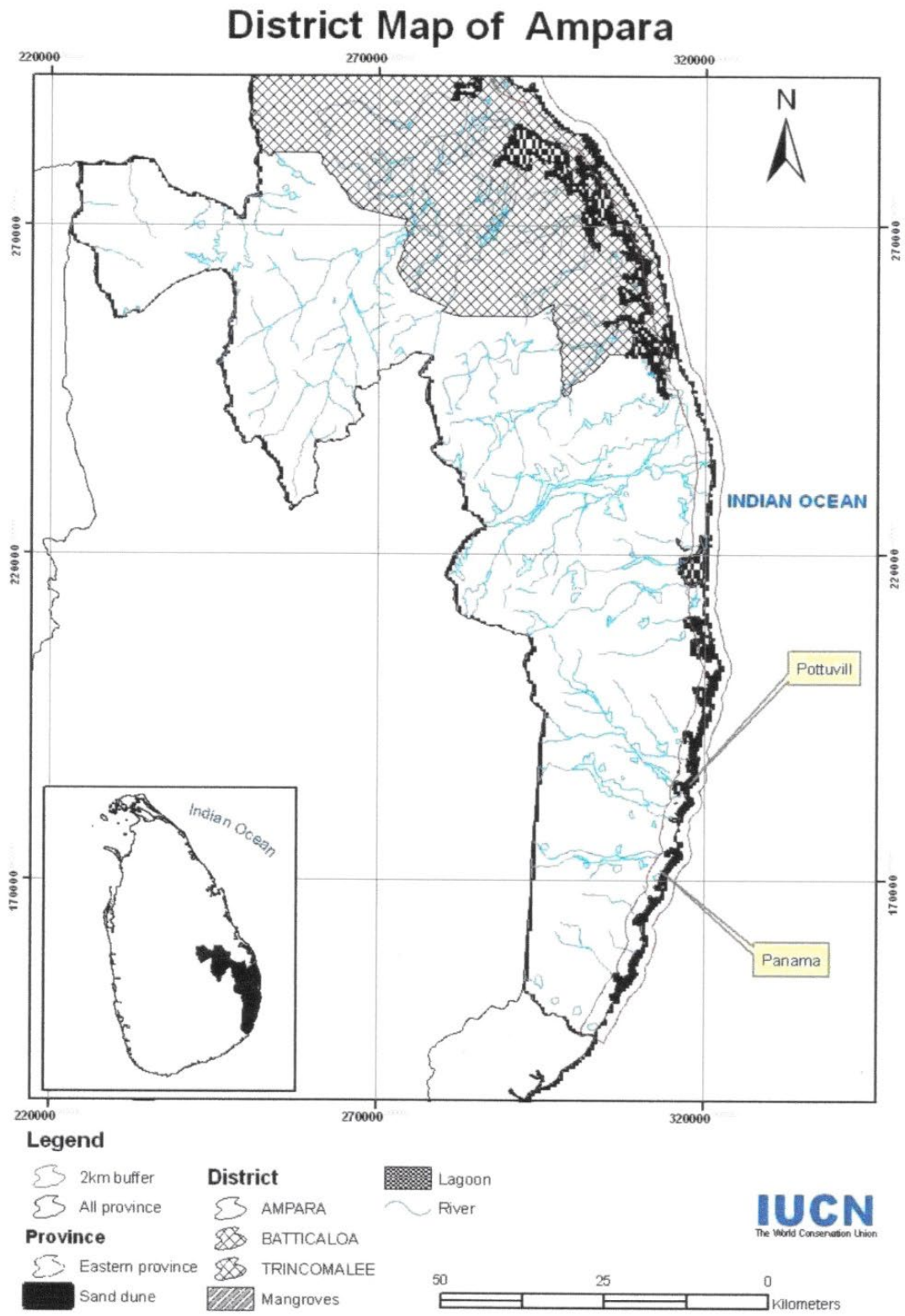


Figure 4: Base Map of the Project Area in Ampara District



Project Identification Table

Country:	Sri Lanka
Grant Title:	Participatory Coastal Zone Restoration and Sustainable Management in the Eastern Province of Post-Tsunami Sri Lanka Project (PCZRSMP)
Grant Type:	Full-sized Project
GEF ID Number:	GEF 2753
GEF Focal Area	LD,SPA
GEF-Strategic Objectives	Rehabilitate tsunami affected ecosystems in the country to provide full ecosystem services including adaptation against extreme climatic events.
GEF Implementing Agency:	IFAD
IFAD Grant Agreement:	GEF-FSP-5-LK
Umbrella Project:	Post Tsunami Coastal Restoration and Coastal Communities Resource Management Programme
Other Executing Partners:	IFAD and Ministry of Mahaweli Development and Environment, Sri Lanka

(i) Key Dates

GEF/PIF Approval	GEF/PPG Approval	GEF Approval	IFAD Approval	Signing	Effective-ness	Mid-Term Review	Final Evaluation	Completion		Grant Closing	
								Orig.	Actual	Orig.	Est.
		27 Dec 2007	23 Jan 2008	10 Sept 2009	10 Sept 2009	19-Aug 2013	29 Mar 2017	31 Dec 2015	31 May 2017	31 March 2016	30 Sep 2017

(ii) Financing, Proposed (USD '000)

GEF		Co-financiers				Project Total[1]
PPG	Project Grant	IFAD	Government	IUCN	Others	
350	6,919	7,083	430,	55	-	14,487

[1] Excluding Project Preparation Grant (PPG)

(iii) Actual Financing (USD '000)

GEF		Co-financiers				Project Total[1]
PPG	Project Grant	IFAD	Government	IUCN	Others	
	6,919		430		-	7,349

[1] Excluding Project Preparation Grant (PPG)

(iv) Proposed Financing vs Actual Expenditure by Component (USD '000)[1]

Component	GEF		Co-financing		Total	
	Proposed	Actual[2]	Proposed	Actual	Proposed	Actual
1. Best practices for restoration and management of costal ecosystems	1,903	1,841	107	58	2,010	1,899
2. Mainstreaming ecosystem restoration	1,009	629	101	17	1,110	646
3. Empowerment of coastal communities	2,345	1,865	95	18	2,440	1,883
4. Learning, Evaluation & Adaptive management	911	42	20	2	931	44
5. Project Management	751	1,197	107	118	858	1,315
Total	**6,919**	**5,574**	**430**	**213**	**7,349**	**5,783**

(v) Project Ratings:

Assessment Categories	GEF Ratings				
	2012 Supervision	2013 MTR Mission	2014 Supervision	2016 Supervision	2017 TER Mission
Overall Project Assessment	MS	MS	MS	MS	MS
Component 1	MU	S	MS	S	MS
Component 2	MU	S	MS	MS	MU
Component 3	MS	MS	MS	MS	MS
Component 4	NA	NA	MU	MS	MS
Component 5	NA	NA	S	MS	MS
Targeting	S	S	MS	S	NA
Grant Management	S	S	S	NA	MS
Monitoring & Evaluation	U	MU	MU	MS	MU
Overall Financial Management	NA	MU	S	MS	MS

[1] Actual expenditure as at 31st December 2016 including pending WA No.46 amounting to USD 162,953.63

Executive Summary

Introduction

1. The Participatory Coastal Zone Restoration and Sustainable Management in the Eastern Province of post-tsunami Sri Lanka project (PCZRSMP) was designed based on the proposed baseline scenario consisting of relevant components/activities identified from a program supported by IFAD. This was the Post Tsunami Coastal Rehabilitation and Resource Management Program (PTCRRMP). The goal of the GEF Project was to achieve the development goal of rehabilitating "tsunami-affected ecosystems in Sri Lanka to provide full ecosystem services including adaptation against extreme climate events. The Project's development objective was to mainstream restoration and conservation management of globally important ecosystems affected by the tsunami into the reconstruction process to support sustainable livelihoods and to reduce vulnerability to climate change along the East Coast of Sri Lanka. The Project's global environmental objective was demonstrating restoration and sustainable land management of those ecosystems significantly degraded by the tsunami, initially at the demonstrations sites and then through replication along the coast of the Eastern Province, and perhaps subsequently further afield. The project was also intended to illustrate the importance of implementing a bottom-up resource use planning approach, strengthening the capacity of local government to coordinate restorative measures, removing policy barriers by creating the appropriate regulatory and enabling policy environment, and mainstreaming sustainable land management processes into priority rural development strategies leading to secondary global benefits of poverty reduction and food security. It was expected to illustrate the importance of engaging and mobilizing local communities in the management of coastal resources, and in the control of land degradation over-exploitation of resources. Through these initiatives, rural populations most affected by the tsunami were to be mobilized as important partners to effect on-the-ground conservation and management. The project will illustrate how to develop such a practical and cost-effective approach.

2. To achieve these objectives, Project activities were organized in four components: (i) Component 1: "development and demonstration of best practices for effective restoration and sustainable management of key coastal ecosystems, with integration of adaptation to climate change vulnerabilities"; (ii) Component 2: "mainstreaming effective ecosystem restoration and sustainable management, including integrated options to address for climate change vulnerabilities, into the planning and implementation of post-tsunami reconstruction"; (iii) Component 3: "Empowerment of coastal communities for local natural resources management, enhancing sustainable livelihoods and adaptation to climate change vulnerabilities"; (iv) Component 4: "Learning, evaluation and adaptive management increased in both tsunami restoration and climate change adaptation"; and (v) Component 5: Project management.

3. The Project selected areas. The Project targeted around 1,300 rural household beneficiaries from project interventions, including women and poor households, particularly those rehabilitated after the tsunami in the Eastern Province.

4. The Project was to be implemented through national execution modality. At the national level the Ministry of Fisheries and Aquatic Resources through the Coast Conservation Department (CCD) which functioned under it and at the district level, the District Secretariats were District Project Execution Agencies (DPEAs) responsible for implementation of the coastal restoration approach with delegation of authorities from the Ministry of Fisheries and Aquatic Resources. These transitions included: (i) 2006: CCD transferred from Ministry of Fisheries to Ministry of Defense and Urban Development and renamed Department of Coast Conservation and Coastal Resources Management Development (CCCRMD as described under revised CCCRMD Act); and (ii) 2014 Transfer from Ministry of Defense and Urban Development to the Ministry of Environment and Mahaweli Development. Each transfer interjected periods of uncertainty and re-education of new decision makers. They caused significant delays in smooth project operation.

5. The program was implemented over 7 years from 2009 to 2016 (the closing date was to be 31 December 2016 with a proposed total budget of US$ 14,489,365 out of which US$ 6,919,915 from the GEF grant, US$ 7,083,650 as co-financing from IFAD loan, US$ 430,300 as co-financing from the Government of Sri Lanka, and US$ 55,500 as co-financing from IUCN. The GEF financing was

approved by GEF in 27 December 2007 and the financing agreement between IFAD and Sri Lanka was signed on 10th September 2009. As of 31 December 2016, the Project's total expenditure was estimated at US$ 5.8 million, of which GEF funded US$ 5.6 million and Project co-financing in cash or in kind US$ 0.2 million. The baseline IFAD loan as co-financing was not met due to the late start of the GEF project. By which time the IFAD loan had closed.

Scope, Objectives and Method

6. The TER Team used the Guidelines for GEF Agencies in Conducting Terminal Evaluations as a basis for the TER and consulted the IFAD Evaluation Manual, Methodology and Processes. The objectives of the TER Mission's were to (i) Examine the extent and magnitude of Project impacts to date and determine the likelihood of future impacts, especially relating to environmental sustainability due to policy making/implementation and behaviour change following the integrated ecosystem management (IEM) and inter-sectoral approaches; (ii) Provide an assessment of the Project performance, gender disaggregated achievements, and the implementation of planned Project activities and planned outputs against actual results; and (iii) Synthesize lessons learned that may help in the design and implementation of future IFAD, IFAD-GEF integrated ecosystem approaches to the conservation of biodiversity in development related initiatives.

7. Prior to the TER Mission, TER Team members consulted Project related documents, including the original Project Document, Inception Reports, Semi-annual Progress Reports (SAPRs), annual Project Implementation Reports (PIRs), semi-annual Project Management Meeting reports, annual Project Steering Committee Reports, Mid-Term Review, draft Project Completion Report, Annual Work Plan and Budgets (AWPBs) and Grant Agreements and Subsidiary Agreements and draft Project Completion Report (PCR) of the Executing Agency. External and other relevant documents on forests, wetlands and protected area management, national policies on eco-compensation, ecological civilization, western development, poverty alleviation, farmer association development and county/regional conditions were also referenced.

8. The TER Mission met with key personnel of the District and National Executing Agencies and Implementing Agencies in Ampara, Batticaloa and Trincomalee districts in the Eastern Province of Sri Lanka from 20 March to 29 March 2017. It was preceded by two members of the TER mission visiting the field for initial verification of the draft PCR. The TER mission spent time with government representatives, had Project or stakeholder meetings and in the field at Project sites met with farmers, community leaders, community associations, technical specialists, District and Divisional authorities, etc.

Project Performance Review

9. ***Conclusions:*** The TER mission recognises several positive outcomes of the project, including the amendment to the National Coastal Zone and Coastal Resources Management Plan with its policy implications that provides recognition to the need for addressing coastal habitat conservation giving consideration to relevant 'ecosystem dimensions' as well as climate risks. This policy orientation provided a positive message on 'mainstreaming and restoration of globally important ecosystems' which was relevant to the objectives of the GEF Project. In addition, the achievements in habitat co-management, a range of rehabilitation investments including afforestation, dune restoration, improved drainage infrastructure, and alternative livelihoods with regard to ecotourism provides useful lessons for future replication. Furthermore, efforts at coordination and planning at the district level, participatory governance, and management of coral ecosystems that incorporated carrying capacity considerations, have shown positive results that have potential for replication.
However, it is also recognised that while the project objectives were relevant to the needs and priorities of Sri Lanka, namely to mainstream the restoration and management of coastal ecosystems affected by the tsunami into the reconstruction process, the design and implementation of project outcomes, outputs and activities were not fully commensurate with the overall objectives of coastal ecosystem restoration. Project investments were to some extent designed and implemented as "stand-alone" activities that in some areas overlooked the complexity of coastal ecosystems and the geological and geomorphological reality of the landscape/seascape relationships and the spatial dimensions in which interactions take place. Nevertheless, the magnitude and scale of the tsunami damage and urgency to reconstruct damaged infrastructure presented major challenges in the design

stage, which was taken into consideration in this evaluation. Furthermore, considering that the project areas were located in the civil conflict zones, undertaking proper feasibility studies were a challenge and full implementation on the ground was not possible until after the cessation of hostilities post May-2009. Additionally, delays in project start-up and transfer of the key implementing entity, the CCCRMD through three different ministries during the project period had a role to play in affecting the full attainment of project results. *Overall Rating: Moderately Satisfactory*

10. ***Review of Project Outputs:*** The Project had mixed progress in completing the planned activities and delivering the expected results. The overall Project implementation was rated moderately satisfactory in terms of outputs completed and Project management, particularly recognizing the Project design complexity and unforeseen governance challenges. The Project was also rated as follows: (i) *relevant* to the government's and IFAD's environment and development strategies, (ii) *partly effective* in achieving outcomes and outputs, (iii) *partly efficient* in achieving outcome and outputs, and (iv) *partly likely* to be sustainable since the measurement of relevant criteria may be achieved only months after project completion. The project has been successful in some aspects and has affected change from the baseline that are meaningful, desirable, and substantial. Perhaps on the other hand it has missed making a more substantial contribution to improving the understanding and effectiveness of demonstrating a truly integrated approach to coastal resources management that considers the full range of biological, ecological, socio-economic, political and environmental factors that impinge on coastal ecosystems stemming from an inadequacy of time to achieve visual impact. A more thorough consideration of lessons learned from previous coastal ecosystem management experiences in Sri Lanka would have been desirable. *Rating: Moderately Satisfactory.*

11. ***Assessment of Project Relevance and Effectiveness:*** Project relevance and efficiency were rated as *moderately unsatisfactory* and the Project effectiveness as *moderately unsatisfactory*.

12. Relevance: The relevance of PCZRSMP was assessed in terms of:

- Consistency of outcomes with the local areas/operational program strategies, and
- Country priorities.

13. As explained in the later section of this report (Preamble to Section C: Performance Review, (a): A Review of Project Outputs) PCZRSMP implementation started without recognition of the disparity between the perception of damage to coastal ecosystems, and the reality in terms of loss and/or irreversible change (GEF Approved Project design versus MOENR/UNEP Assessment of 2005). The impulsive perception was one of extensive and irreversible damage driven by global generalizations from other affected Asian countries regardless of fundamental differences in the Sri Lanka-specific geomorphological peculiarities in structure and functioning of the counterpart ecosystems (sand dune, lagoon, mangrove, coral reef).

14. However, given the relevance and timeliness of the project, the design of the project was not adequate to meet its intended objectives for the following reasons:

- Non-recognition that the ecosystems (lagoons, sand dunes and mangroves) are not individual systems, but parts of larger ecosystems that have landscape and seascape linkages and geographical, ecological and socio-political dimensions that extend well beyond the limits (or the boundaries) of the system
- There was a mismatch between the identification of ecosystem restoration activities and the reality of the geomorphological form and pattern of the landscape/seascape and the underlying ecological drivers and variables
- Design was silent on importance of ensuring that restoration of lagoons and associated vegetation should exclusively focus on a "trend-based" or historical perspective to identify specific locations, magnitude and structural needs for investments in restoration activities
- The project emphasized scientifically-based, low-cost approach to restoring coastal ecosystems through community-based actions. However, coastal ecosystems, particularly lagoons that have been the foci of historical infrastructure developments had entrained irreversible urbanization processes that were not always amenable to low cost actions

- The project design was based on the premise that mangroves and lagoons provided protection and saved lives and property during the tsunami. This conclusion is not based on scientific reasoning and draws on the misunderstanding that inland mangroves found in Sri Lanka act similarly to seaward mangroves

15. Therefore, despite the good intentions of the project to facilitate the restoration of tsunami-damaged ecosystems and improve the livelihoods of coastal communities and some key elements of the project that were successful, the design of the project could have scoped its work in fewer but more larger units of operation to address the landscape level issues and to keep within the envelope of funding.

16. ***Effectiveness:*** Over the 7-year (or a 5 year truncated period) duration of the Project implementation, the draft Project Completion Report of the Government of Sri Lanka states that the project major interventions were confined to six Divisional Secretariat divisions and 51 Grama Niladari (GN) divisions in the three districts in the Eastern Province. The estimated population in the target DSs and GNs was 86,712 (of which 51% were female), although some interventions were extended to other DS and GN divisions as well. There is only a partial estimate of the number of people who directly benefited from project investments; it is understood that 2,600 rural households were direct beneficiaries of livelihood enhancement and related development program benefits, including 300 rural households that participated in the three ecotourism pilot programs, while a larger number are likely to have indirectly benefitted from co-management processes related to boundary demarcation, sand dune rehabilitation, green belt development, mangrove restoration, removal of tsunami debris from selected lagoons and other activities.

17. Overall, design and implementation of the project activities entailed some limitations, and implementation delays resulting from unforseen and frequent institutional changes resulted in the project not being able to fully achieve its intended goal, objectives, outcomes and outputs. Within the funding resources available to the province and in the constraints of time (given the long delay in start-up of project activities following the tsunami) various interventions were undertaken within the framework of the existing project design, where targets set out by the project were considered achievable. Some efforts were made to ensure a vertical integration of interventions to address ecosystem degradation and the loss of biodiversity from Province, District, Divisional to community level. On the other hand, the IEM approach that required the horizontal integration across sectors involving stakeholders responsible for rural and urban development, land-use planning, agriculture, forestry and environment working in collaboration was not fully recognized.

18. The delay in start-up activities, made the objectives, outcomes and outputs less relevant, in particular because the original intent of the project was to mainstream restoration and management of coastal ecosystems into the tsunami reconstruction activities, and by the start-up of the project most of the post-tsunami reconstruction activities were either completed or nearing completion. The lack of re-appraisal of the project to meet the changing situation was another key factor that the TER considered in undertaking the evaluation. Additionally the transfer of the CCCRMD through three Ministries during the life of the project caused significant uncertainty and delays in project implementation as well.

19. The Project was successful in achieving part of the stated goals, objectives and planned results. At the outcome level some of the achievements included: (i) policy framework for coastal zone and coastal resources management revised in recognition to the need for addressing coastal habitat conservation giving consideration to relevant ‘ecosystemic dimensions’ as well as climate risks; (ii) establishment of Ecosystem Restoration and Adaptation Units (ERAUs) in the three districts to provide facilitation support for coastal restoration; (iii) strengthening of the district environment and law enforcement committees; (iv) community co-management of sand dunes, coral reef ecosystems and ecotourism, and (v) replication of best practices to six additional sites. *Rating: Moderately Unsatisfactory*

20. ***Efficiency:*** The Project was successful in implementing part of the planned activities and in producing some of the expected outputs. Further, there were substantial delays in the start-up of the project, with subsequent low rate of budget execution (below 50%) in the first five years of the seven-year project that reflected on the poor status of budget monitoring and implementation. Even though

the cumulative rate of grant disbursement has reached 80% at the project completion, a significant increase is only observed in the last two years of the project, with allocations for Vehicles and Equipment and Operation and Maintenance exceeding projected budget thresholds by 25% and 5% respectively, despite the recommendations made by the last mission (January, 2016) to monitor these categories closely and avoid classification errors. In addition to the poor procurement planning and contract management, delay in project implementation (late start) also has made a significant impact on cancellation of construction of Research and Information Centre at Arugam Bay and delay in completion of Pigeon Island Research and Information Centre. Financial risk involved in community projects such as Boat safari Centre Vakarai, Safety building at Tennamaravady, and Revolving funds established under Micro finance program is relatively high, as these activities commenced operation in the final year of the Project and no further intervention by the project can be expected to sustain these investments.

21. In addition to the GEF grant of USD 6,919,915, co-funding identified at the design stage were USD 55,500 worth of staff time and indirect cost from IUCN, USD 7,083,650 worth of resources and structures of IFAD funded PTCRRMP and USD 430,300 worth of in-kind contribution from Government of Sri Lanka (GoSL). However, co-funding identified at the design stage was not fully realized except the agreed contribution of GoSL, due to various reasons including change of Lead Project Agency to Ministry of Defence and Urban Development from Ministry of Fisheries and Aquatic Resources at the early stage of project implementation and late start of the project. When the project implementation accelerated from 2014, the PTCRRMP had been completed (it was completed in September, 2013) and the intended contribution at the design stage could not be matched fully. Consequently, a major objective of the project to mainstream coastal ecosystem restoration in tsunami infrastructure restoration did not materialize. Therefore, the entire project was funded by the GEF and GoSL, with limited contribution from the IFAD baseline project. As the project had uninterrupted flow of funds both from IFAD and Government, it did not experience any liquidity issue throughout the project life. *Rating: Moderately Unsatisfactory*

22. **Sustainability:** In general, policy results achieved to date were considered to be sustainable. The revision of the NCZCRMP of the Coast Conservation Act (CCA) of 1981, and within the framework of the amended and renamed Coast Conservation and Coastal Resources Management Act (CCCRMA) of 2011, the NCZCRMP is expected to serve as the key document to mainstream ecosystem restoration and govern coastal habitat management within the scope of the Special Management Areas (SMAs) and influence enabling policy. The NCZCRMP recognizes the need for climate compatible design criteria and guidelines for development for shoreline management. The NCZCRMP also recognizes the need for addressing coastal habitat conservation giving consideration to relevant 'ecosystem dimensions'. *Rating: Moderately Likely*

23. **Catalytic Role and Innovation:** The catalytic actions of the Project will depend on the extent to which Provincial and District entities are willing to build on some of key achievements of the project (sand dune rehabilitation, coral reef protection, ecotourism activities, etc.) with preparing strategically important planning tools, sharing knowledge and introducing innovative new techniques to sustain peoples' livelihoods and the environment in the long term. *Rating: Moderately Likely*

24. Additionally ***Innovative*** new scientific knowledge and appropriate approaches were used to develop baseline inventories of fauna and flora for some of the lagoons to create awareness of the coastal ecosystem resources and habitat restoration as well as to serve as the basis for boundary demarcation (although this have been better served if demarcation was done on an ecological basis rather than using physical attributes) and establishment of fishery management committees. In addition, a number of technologies were introduced for alternative livelihoods activities for community-based fishermen and coastal resources management, including sand dune rehabilitation, promotion of lagoon-based ecotourism ventures, development of management plan for Pigeon Island National Park with a strong participatory component, promoting alternatives to minimize the use of firewood, demonstration of "disaster" safe-house, green belt development, group-based micro-enterprise schemes; and livelihood activities. Strong institutional linkages foster the replication of these models and should have been further promoted for facilitating sustainability beyond the life of the project.

25. ***Replication and Scaling up***. Since a large part of the Project funding was provided by GEF, it is hoped that the planning tools, best practices, mapping, boundary demarcation and other innovative

pilots will continue to be used and built upon beyond the life of the Project. The best practices already exists to some extent, either as guidelines or best practice notes. There were key components relating to replication and scaling up that was intended to happen under the project, including the establishment of the ERAUs at the district level and at the national level within CCCRMD to provide facilitation and supervision services and assume responsibility for promoting, facilitating, and supervising ecosystem restoration, climate change adaptation and dissemination of lessons learnt to other relevant parties. This did not fully materialize, in particular the establishment of the ERAU at the national level, and ERAUs established at the three districts were initiated very late in the project to ascertain how effective these structures would be, and ensure its replication nationwide. The potential for replication and scaling up would be determined by the extent to which CCCRMD makes ERAUs functional and use these as a means to promote sharing of best practices and experiences within the country. It is important that these are further promoted and sustained beyond the project and extended to other coastal ecosystems as well. *Rating: Moderately Likely*

26. **M&E System:** The overall assessment of M&E was rated as *moderately unsat*isfactory because the M&E Design and M&E Implementation were also rated as *moderately unsatisfactory*. The TER team spent many hours reviewing and discussing the indicators and found that, in several instances indicators had been interpreted differently from what was intended. Some indicators seemed to capture outputs rather than outcomes or impacts and others were unrealistic or too challenging. Additionally, the lack of involvement of IUCN in project implementation as envisaged during the design of the project affected the M&E aspects of the project as IUCN was supposed to monitor specific activities of the project. This was largely due to the inability of the Project Management Unit being unable to engage IUCN in project implementation.

Processes Affecting Attainment of Results:

27. ***Preparation and Readiness*:** The objective of the project, namely the full restoration of coastal ecosystems that were damaged during the tsunami was a priority of the government and international donor community, as a means to ensure that communities affected by the tsunami regain their productive livelihood activities as soon as possible. The Project design adopted participatory approaches to address the loss of biodiversity and ecosystem degradation and the actions necessary to address the issues and the most appropriate Provincial and district institutions identified for implementation. The final selection of districts for project interventions was appropriate, although question regarding the validity of the design to meet the proposed objectives of the project has been discussed in other sections of this report. In addition, the long delay in start-up activities and the transfer of the key implementing entity, the CCCRMD through three different ministries during the project period, has affected the full attainment of project results. By the time the project was fully operational most of the tsunami reconstruction work was far advanced or nearing completion, questioning the relevance of its original development objective, namely to mainstream restoration and management of globally important ecosystems affected by the tsunami into the reconstruction process to support sustainable livelihoods and reduce vulnerability to climate change.

28. ***Country Ownership*:** National priorities that initially influenced the selection of the Eastern Province as the project area continued to be relevant throughout the project implementation period, particularly as it bore the brunt of the damage caused by the Tsunami of December 2004. It also caused extensive damage to coastal ecosystems in the Eastern province (refer Preamble to Section C for an evidence-based assessment of damage). The project was fully consistent with the national priority of countering land degradation and promoting sustainable land management, reducing coastal vulnerabilities and protecting biodiversity and coastal ecosystems. Protection of coastal ecosystems takes on an even more important dimension today (post tsunami) in view of the strong development pressures that the Eastern Province is now experiencing following return to normalcy after the end of the 30 year civil conflict. In light of this, national-level policies to address the interlinked issues of coastal resources management, its sustainable use, biodiversity protection and the livelihood needs of coastal resources dependents, will be intricately linked to the effective implementation of the revised Coast Conservation and Coastal Resources Management Act (CCCRMA) that would serve as the key document to mainstream ecosystem restoration and govern coastal habitat management within the scope of the Special Management Areas (SMAs) and influence enabling policy. The operational framework for the CCCRMA is the NCZCRMP (draft 2015), and its finalization and approval

anticipated in the near future includes attention to inertia of the present and future challenges. The draft NCZCRMP provides an optimal starting point to define the 'institutional framework' for integrated coastal resources restoration and management.

29. ***Stakeholder Involvement*****:** Project design recognized that the primary stakeholders in the Project were the local communities and local authorities in the east coast of Sri Lanka. Further the feature of the project design was the multi-stakeholder, inter-sectoral integration and participation approaches. One important strength anticipated during implementation was the mobilization of provincial, district and divisional agencies at different levels and responsible for different sectors. However, the key implementing agency for the project, the CCCRMD was moved through three different ministries during the project implementation period causing substantial delays and interruptions in project implementation that affected the full attainment of project results. The Project involved the relevant stakeholders through information sharing and consultation and by seeking their participation in implementation. The Project implemented appropriate outreach and public awareness campaigns about project activities in the three districts. The Project consulted with, and made use of, the skills, experience and knowledge of appropriate government agencies, community groups, fisher associations and technical specialists in the implementation although it is unclear to what extent these agencies were consulted in the design and evaluation of project activities. However, strong challenges are yet to be overcome in order to more effectively reach wider communities that are either directly dependent on the coastal resources or impact of it, if longer-term and sustained community participation is envisaged. The continuance and up scaling of project outputs would require a more concerted and structured consultation and participatory process that builds on multi-sectoral, multi-stakeholder and integrated approach that seeks to address the full range of conservation, sustainable use and threats associated with coastal resources.

30. ***Financial Planning*****:** In addition to the funding drawbacks identified in point 21; the District Co-ordinating Offices prepare their respective AWPBs (including procurement plans) based on their planned activities and forward them to the PMU for consolidation with the AWPB of the PMU. The consolidated AWPB and PP are submitted to IFAD for No objection, after obtaining concurrence of the Steering Committee. The project operated under revolving fund modality and obtained advances based on AWPB and unspent balance in the project bank account. Funds were released to district offices in the form of advances and imprest to meet their expenses. Withdrawal Applications were submitted to IFAD, based on expenditure returns and paid documents received from District offices and payment vouchers maintained at the PMU, by the Finance officer. Based on the above arrangements, the financial planning and monitoring mechanism was set up to facilitate smooth work and budgetary flows and generally worked without any serious issues.

31. ***IFAD Supervision and Backstopping*****:** While IFAD tried to address constraints resulting from the delay in project start-up and the rapid institutional changes that occurred during project implementation, the organisation could have played a greater role in taking corrective and timely action to: (i) re-appraise the project in light of the delayed start up (five years after the tsunami) and to ensure that project objectives, outcomes, outputs and indicators were refined to meet the changing dynamics; (ii) although effort was made at the mid-term to restructure the project, to take into consideration the delayed start of the project and the lack of planned co-financing (on account of the termination of the PTCRRMP); and (iii) even though IFAD held a workshop to revise the RFA at mid-term, the RFA was not formally restructured. IFAD support to Project revision process, Project start-up and review was unable to alter the momentum acquired by PMU implementation of diverse interventions. Supervision missions did attempt to recognize the need to adjust and rectify shortcomings of the project, particularly as it related to prospects of achieving planned objectives and outcomes, but these would not take full effect due to the rapid institutional changes taking place and the limited time to complete the project within an already delayed time-frame. Supervision missions could have benefitted by better focussing on achievement of the overall objective of ecosystem restoration rather than on achievement of targets alone. *Rating: Moderately Satisfactory*

32. ***Impacts of Delays*****:** The long project preparatory process and substantial start up delays resulted in IFAD's loan (co-financing project) completing before the GEF project was fully operational. Further, by the time of commencement of full implementation of the GEF project (nearly seven years after the occurrence of the tsunami), most of the tsunami reconstruction activities were either

completed or nearing completion. This resulted in an IFAD co-financing shortfall and not being realistically able to meet the intended goals and objectives of the GEF project.

33. ***Monitoring Long Term Changes:*** The TER mission understands that no detailed monitoring plan and arrangements were prepared to monitor changes. Project actions toward establishing a long-term monitoring system were absent. Accomplishments and benefits of the M&E program included inconsistency in collecting data and reporting across components, and the limited data was generated and used in any systematic way that would measure impacts of the project activities as well as long-term changes. Systems for monitoring and evaluating long-term changes beyond the life of the Project have not been put in place for several project initiatives (e.g., ecosystem restoration, biodiversity monitoring, poverty alleviation, climate and disaster risk resilience, etc.). However, it must be recognized that following catastrophic events such as tsunamis, ecosystem changes are slow and long-term. The ability to map such change trends over long-time scales using remote sensing was not within the time period of the project.

34. ***Fiduciary Aspects:*** The financial management, procurement and audit aspects of the Project were generally in accordance with IFAD guidelines and Government Financial Regulations and largely in compliance with grant covenants with exception of timely submission of Annual Work Plans and Budgets (AWPBs), Annual Procurement Plans, Audit Reports and, regularly updating AWPBs and Procurement plans and prior review requirement of some procurements. Absence of dedicated staff for finance and procurement units has made a significant impact on smooth functioning of these functions.

35. Low rate of budget execution (below 50%) in the first five years of the seven-year project reflects poor status of budget monitoring and implementation. Even though the cumulative rate of grant disbursement has reached 80% at the project completion, a significant increase is only observed in the last two years of the project. Except in early years of the project, Annual Project Financial Statements (PFS) have been submitted to the Auditor General and IFAD regularly. Withdrawal Applications (WAs) have been submitted regularly and the project has not experienced any liquidity issue throughout its life. Although the accounting staff was on part-time basis, segregation of duties among them and delegation of authority among senior staff of the project were in place, which facilitated a better system of internal control. However, the absence of an Internal Audit facility in the project is observed as a drawback of the system. Frequent revision of contract completion dates, revision of cost estimates and cancellations of contracts were inevitable due to poor status of procurement planning and contract management. Main issues highlighted by the audit were poor budget monitoring, weak system of contract management, ineffective progress monitoring and accounting and reporting deficiencies.

36. Overall, the fiduciary aspects of the Project were rated as *Moderately Satisfactory*.

37. **Lessons Learned:** Key lessons learned from the Project include:

- ***Ensuring that Integrated Ecosystem Management approaches are applied with full cognizance of the diverse, but inter-linked interactions that operate within coastal systems:*** The IEM approach is highly relevant to conservation of coastal ecosystems in Sri Lanka that required a significant change in the thinking and approach hitherto practiced in the country. Any future approach to coastal resources management requires a profound understanding of the coherence among the diverse interventions that operate within coastal systems, without looking at the individual parts of the coastal ecosystem parts as “stand-alone” entities, as was the case with PCZRSMP.
- ***Requiring an institutional capacity and integrated coordination mechanism to build and benefit from the multi-dimensional aspects related to coastal resources:*** For the IEM approach to be effective, collaborating institutions and sectors require adequate knowledge and skills of IEM processes for policymaking, planning, and joint management of the coastal resources and their sustainable use. Joint and effective management of ecosystems and coastal resources require improved capacities at management of the competing forces that operate in these ecosystems that combines top-down approaches at

management combined with bottom-up planning that seeks to meet the requirements of local fishermen and other dependents.

- ***Understanding that coastal ecosystems are unique based on their geological and geo-morphological setting:*** Unfortunately, there is a general tendency worldwide to generalize from global manifestation of the coastal ecosystems to the country-specific peculiarities of these ecosystems. This can create problems in terms of designing coastal resources interventions that can inadvertently result in unintended and negative consequences.
- ***Generating awareness amongst public is key to promoting coastal resources conservation:*** Strong awareness among stakeholders, especially the public, on the intricate and inter-linked nature of coastal ecosystems is important for gaining support for government plans and strategies for coastal resources protection and for overall coastal ecosystem management in general.
- ***Importance of an effective data management system and information-sharing system:*** Coastal resources management is multi-dimensional and multi-sector that requires each agency involved with IEM and coastal resource degradation control and management to have a clear basis for defining the type and level of information to be collected by each participating agency in collaborative management of coastal ecosystems.
- ***Importance for re-appraisal of projects to ensure the relevance of its objectives, outcomes and outputs:*** Long delays between project design and effectiveness (as was the case with this project) necessitates undertaking a re-appraisal of the original design of the project to validate if the original design is still relevant or if a re-design is required on account of the changing scenario.
- ***Ensure that GEF grants are linked to IFAD-funded operations for maximum synergy:*** To the extent feasible it would be useful in the future to ensure that GEF and other global projects are linked to IFAD-supported operations to ensure synergy and support mainstreaming of environmental outcomes into IFAD-funded operations.

38. **Recommendations:** Key recommendations from the TER Team include:

- **Project Design:** Future ecosystem restoration projects must be firmly anchored to the place-based reality of lagoons, mangroves, sand dunes and coral reef in Sri Lanka connected spatially to maps of appropriate scale. It is important that design of future country specific projects should avoid generalizations from other country settings that are alien to the geomorphology, structure and functioning of Sri Lanka's ecosystems since the spatial scales and climate/weather/hydrological dynamics are peculiar to a country's drivers and variables determining ecosystem change.
- **Greater community involvement in natural resources management and ecosystem management:** Coastal resource management issues and problems need to be addressed through effective public participation mechanisms and incentives policy that clearly address the causes of coastal resource degradation, poverty and define the roles and functions as well as the benefits that communities may derive through their perception of priority actions and embrace their active participation. Future community participation should be embedded in a more formal and recognized participatory planning process that clearly lays out guidelines for community mobilization and engagement, local level planning and implementation processes, and effective valuation and monitoring of project achievement, including a means for ensuring feedback and grievance redressal.
- **Project M&E:** Future conservation-related Projects, require considerable effort and debate into developing outcome and output indicators for the Project Results framework and consideration to reporting of achievements. A monitoring framework should be designed to assess capacity and technical support required to undertake the monitoring, define monitoring intervals for each of the indicators, assignment institutional responsibilities for monitoring impacts, define requirements for independent verification and evaluation, and processes for feedback and adjustment of monitoring systems.

- **Institutional arrangements and implementation:** Coastal resources management requires the engagement of functional multi-sectoral and multi-stakeholder institutional arrangements in order to ensure integration of biological, socio-economic and political decision making in the management of coastal resources. Such multi-sectoral and multi-stakeholder arrangements should be inherent at all levels including at national, provincial, district, sub-district and local levels so that the cross sector nature of coastal resources management is recognized.
- **Project Related Future Monitoring:** The management of coastal resources requires integration of sectoral interests, thus any investments in coastal resources management must be defined within such a framework to ensure sustainability and that future investments (either within existing government budgets or as part of a future donor program) are relevant and appropriate. A solid quantitative assessment about impact of the coastal restoration or improvement of ecosystem functions and productivity both within and beyond the Project duration in a long term monitoring of impacts is required.

A. Introduction[3]

The mission objectives were to (i) Examine the extent and magnitude of Project impacts to date and determine the likelihood of future impacts, especially relating to environmental sustainability due to policy making/implementation and behaviour change following the integrated coastal ecosystem management (ICM) and inter-sectoral approaches; (ii) Provide an assessment of the Project performance, gender disaggregated achievements, and the implementation of planned Project activities and planned outputs against actual results; and (iii) Synthesize lessons learned that may help in the design and implementation of future IFAD, IFAD-GEF integrated coastal ecosystem approaches to the conservation of coastal resources related initiatives. The mission met with key personnel of the District Executing Agencies and Implementing Agencies in Trincomalee, Batticaloa and Ampara Districts in the Eastern Province of Sri Lanka (Table 1).

Table 1: Summary of travel, meetings and field visits

District	Dates	Location	Meetings/Field Visits
Colombo	20.03.2017	Mission meeting Colombo	Meeting
	21.03.2017	PMU – Colombo	Meeting with PMU staff
Ampara District	22.03.2017	Eco Tourism Centre, Urani	Field visit
	22.03.2017	Eco Tourism Centre – Kottukal	Field visit
	23.03.2017	Manachchena Women Society (Revolving Fund) – Microfinance	Meeting
	23.03.2017	Forest Department Regional Office (Ampara) – Green belt development	Meeting
	23.03.2017	Panama sand dune restoration site	Field visit
	23.03.2017	Eco tourism centre – Panama	Field visit
Batticaloa District	23.03.2017	Kuchchnkerni livelihood programs (home-gardens, biogas, agro-well, etc.)	Meeting
	24.03.2017	Divisional Secretariat office, Vakarai	Meeting with Assistant Divisional Secretary
	24.03.2017	Mangrove Corner Boat safari Centre Vakarai	Meeting & field visit
	24.03.2017	Mangrove Learning Centre and Flood disaster management support program – Nasivantive	Meeting & field visit
Trincomalee District	24.03.2017	Handloom Centre Kutchaveli -	Field visit
	24.03.2017	Kutchchaveli Waste Management Centre	Field visit
	25.03.2017	Kinniya Waste Management centre	Field visit
	25.03.2017	Pigeon island Information centre building	Field visit
	25.03.2017	Pigeon island Tourist boat association	Meeting & field visit
Colombo	29.03.2017	Wrap-up – Terminal Evaluation Mission	Meeting

The goal of the GEF alternative was to achieve the development goal of rehabilitating “tsunami-affected ecosystems in Sri Lanka to provide full ecosystem services including adaptation against extreme climate events”. The Project development objective was to “mainstream restoration and conservation management of globally important ecosystems affected by the tsunami into the reconstruction process to support sustainable livelihoods and to reduce vulnerability to climate change along the East Coast of Sri Lanka”. The project design was founded on overcoming three key barriers to the restoration of coastal ecosystems – that technical knowledge for low-cost restoration methods is not present on the island; that environmental issues have been given low priority during the tsunami relief and reconstruction program; and that those processes leading to ecosystem and land degradation prior to the tsunami must be changed if the rehabilitated ecosystems are to provide the

[3] Mission composition: Malcolm Jansen, Team Leader, Dr. Jayampathy Samarakoon, Coastal Ecosystem Management Specialist, and Dayananda Ratnasekera, Financial Management Specialist.

functions and services envisaged on a sustainable long-term basis. The initial emphasis of this seven-year project was on developing a scientifically-based, low-cost, community-based approaches to rehabilitating three key coastal ecosystems – mangroves, coastal lagoons, and sand dunes – at specific sites, facilitating replication of these techniques all along the East Coast and in the areas where IFAD Post-tsunami livelihoods support project was implemented (and in due course other tsunami-affected coasts) is at its heart. In seeking to achieve this, the project implemented a two-pronged strategy to demonstrate that replication was technically feasible at other sites, and to mainstream ecosystem restoration into the reconstruction process by making it a requirement of Government policy and building the capacity of a specialist Government unit to facilitate and support the process.

The Project selected coastal areas in the Trincomalee, Batticaloa and Ampara districts to demonstrate low cost community-based interventions to ecosystem restoration. The Project directly benefited around 2,600 rural households, particularly women and displaced households in remote areas.

The Project's total funding was estimated at USD 14,489,365, of which GEF funded USD 6,919,915 and Project co-financing in cash or in kind, USD 7,569,450. The GEF financing of USD 6,919,915 as a grant from the GEF Trust Fund, approved by GEF in 27 December 2007 and the financing agreement between IFAD and Sri Lanka on 10 September 2009 for an implementation period of 7 years. The original Project completion date was 31 December 2016 and the closing date was 30 June 2017. This was revised to 31 May 2017 and 30 September 2017 respectively.

B. Scope, Objective and Methods

An Approach Paper was prepared prior to the mission to detail the evaluation design that included:

- Key evaluation partners;
- Methods and data collection/analysis;
- An evaluation framework (matrix linking objectives with criteria, issues and key questions);
- Core Learning Partnership (main users, issues and data sources)
- Self-assessments (Project Completion Reports); and
- A timetable agreed with IFAD

Prior to the mission assembling in Colombo on 20 March 2017, evaluation team members consulted Project related documents, including the original Project Document, Inception Reports, Semi-annual Progress Reports (SAPRs), annual Project Implementation Reports (PIRs), semi-annual Project Management Meeting reports, annual Project Steering Committee Reports, Special Project Management Meetings, Mid-Term Review, draft Project Completion Report, Annual Work Plan and Budgets (AWPBs) and Grant Agreements and Subsidiary Agreements. Additionally the team consulted the Guidelines for GEF Agencies in Conducting Terminal Evaluations and the IFAD Evaluation Manual, Methodology and Processes. External and other relevant document relating to forests, coastal wetlands and protected area management, national policies and plans on coastal zone management, including the draft National Coastal Zone Management Plan (2015) prepared by the CCCRMD, and county/regional conditions were also referenced.

From 20-29 March 2017, the evaluation team visited participating Districts to:

- Meet Project District Implementing Agencies to discuss Project results, implementation modalities and agency support to Project implementation at District, Divisional and Village levels in the context of their policies and plans relating to balancing alternative livelihoods and conservation of coastal resources;
- Meet Project Implementing Agencies in Trincomalee, Batticaloa and Ampara districts, including Project management, technical support teams, local communities, fishery management societies, farmers and procurement and financial management units to review and assess Project implementation, results achieved, relevance, effectiveness and efficiency of outcomes at Province level, and challenges experienced and solutions adopted;

- Visit selected representative field sites in Project Districts and Villages to assess the physical results achieved, outcomes at the local level, and barriers to implementation experienced; and
- Undertake focus group discussions and in the field with the target communities, farmers, fishermen, and other relevant Project stakeholders.

Initial findings in the form of an Aide Memoire were presented to the MOEMD and IFAD for the mission wrap-up meeting on 29 March 2017 as a summarized version of the proposed Terminal Evaluation Review report.

The Project performance and impact were assessed according to the Guidelines for GEF Agencies in Conducting Terminal Evaluations (2008) and melded with the standard evaluation methodology as detailed in the IFAD Evaluation Manual: Methodology and Processes with the Terminal Evaluation Report.

The criteria[4] used in the Terminal Evaluation Review in assessing level of achievement of Project outcomes and objectives were:

- **Relevance:** Were the Project outcomes consistent with the policies, strategies and priorities for coastal resource management in Eastern Province of Sri Lanka.
- **Effectiveness:** Are the actual Project outcomes commensurate with the original or modified Project objectives? If the original or modified expected results are merely outputs/inputs, the evaluators should assess if there were any real outcomes of the Project, and, if there were, determine whether these are commensurate with realistic expectations.
- **Efficiency:** Was the Project cost effective? Was the Project the least cost option? Was Project implementation delayed, and, if it was, did that affect cost effectiveness? Wherever possible draw comparisons of costs incurred and the time taken to achieve outcomes with those from similar Projects.

The GEF evaluation areas, criteria and performance ratings used in the evaluation are summarised in Table 2

Table 2: Summary of the GEF evaluation areas, criteria and performance ratings

Evaluation Areas	Criteria	Ratings
Assessment of Project Results	Project Outcomes and Objectives Criteria: • Relevance • Effectiveness • Efficiency	Highly Satisfactory (HS) Satisfactory (S) Moderately Satisfactory (MS) Moderately Unsatisfactory (MU) Unsatisfactory (U) Highly Unsatisfactory (HU)
Assessment of Risks to Sustainability of Project Outcomes	Likelihood of sustainability of outcomes Dimensions of risks to sustainability: • Financial risks • Socio-political risks • Institutional Framework and governance risks • Environmental risks	Likely (L) Moderately Likely (ML) Moderately Unlikely (MU) Unlikely (U)
Catalytic Role	Dimensions to be considered • Innovation • Replication and scaling up	Descriptive text
Assessment of M&E System	Dimensions of M&W to be evaluated • Design • Plan implementation • Budgeting and Financing	Highly Satisfactory (HS) Satisfactory (S) Moderately Satisfactory (MS) Moderately Unsatisfactory (MU) Unsatisfactory (U) Highly Unsatisfactory (HU)
Monitoring of long-	• Contribution to establishment of long-term	Descriptive text

[4] Consistent with the Guidelines for GEF Agencies in Conducting Terminal Evaluations

term changes	monitoring system • Accomplishments/shortcomings • Sustainability of system, institutionally embedded • Use of information generated by the system being used as originally intended	
Assessment of processes affecting attainment of Project results	Dimensions of Processes • Preparation and readiness • Country ownership/drivenness • Stakeholder involvement • Financing Planning • IFAD (GEF Agency) supervision and backstopping • Co-financing & Project outcomes and sustainability • Delays & Project outcomes and sustainability	Descriptive text

An Evaluation Framework of questions and sources of data and information were prepared in the Approach Paper in accordance with Section 3 of the Guidelines for GEF Agencies in Conducting Terminal Evaluations for each of the evaluation areas and criteria outlined in Table 2.

The following specific tasks were undertaken to collect data and evidence: (i) Assess the technical results and financial progress of the Project since the approval of the Grant Agreement, including alignment with GEF policies and strategies, attainment and measurement of global environmental benefits and mobilisation of co-financing; (ii) Assess the results achieved with relation to each Project component in the Eastern province and/or the aggregated district levels, against the Project Logical Framework, Annual Work Plans and Budget (AWPBs) and Procurement Plans. To assess stakeholder engagement (including farmers, fishermen and communities) in the Project in general and in specific interventions, and their level of satisfaction with implementation; (iii) Identify strengths and weaknesses, as well as challenges and opportunities encountered during implementation. This will include a review of Project delivery mechanisms, including the functioning of counterparts; (iv) Review the performance of financial management and flow of funds arrangements, and procurement and contract management; (v) Review compliance with Grant Agreement Covenants; (vi) Collate all knowledge products and assess their relevance, quality and outreach in advancing the Projects objectives; and (vii) Synthesize lessons learned and best practice, and provide guidance on key areas that need further attention.

Data was collected and analysed to evaluate performance and impact as quantitatively and qualitatively as possible. The Terminal Evaluation Review team collected and analysed physical and financial data from:

- Project related documents prepared since Project design until now;
- Documents and data prepared for the Terminal Evaluation Review;
- Information derived from discussions with authorities and Project staff and field visits; and
- Comparisons with other external sources (other IFAD or GEF Projects).

The Core Learning Partnership of key clients and stakeholders were targeted to benefit from the Terminal Evaluation Review process and the guidance provided from the conclusions, recommendations and lessons learned as detailed in this Terminal Evaluation Review report.

The Core Learning Process includes:

- Reviewing the draft Approach Paper;
- Reviewing the draft Aide Memoire;
- Reviewing the draft Terminal Evaluation Review report; and
- Participating in a proposed Learning Workshop to discuss the main findings, conclusions and recommendations of the Terminal Evaluation Review.

C. Project Performance Review

a. Review of Project Outputs

Preamble

The design of PCZRSMP implied key conceptual underpinnings:

- Participatory, low-cost ecosystem restoration methodologies that would provide lessons for replicable and sustainable management stemming from the capacity of local resource users (e.g. artisanal fisher communities) to mobilize interventions within their own intentions and capacities during the post-tsunami livelihood reconstruction project (PTCRRMP).
- Mainstreaming the demonstrated capabilities of the resource user stakeholders in regard to ecosystem restoration that was intended to occur simultaneously with PTCRRMP, and then become extended to other coastal ecosystems in the island.

However, the PTCRRMP and PCZRSMP were not able to operate concurrently due to unforeseen circumstances. The latter started when the main loan project had almost terminated. This separation of implementation processes required that dependent coastal resource user communities had to be re-mobilized with appropriate incentives and that the relevance of mainstreaming coastal restoration into tsunami reconstruction had passed. Further, several outputs and outcomes of the PCZRSMP such as those related to eco-tourism based upon 'cultural ecosystem service such as biodiversity' are impressive, but have been initiated as "one-off" activities and not as part of a more integrated and holistic coastal resources planning exercise. It is thus unclear if these activities will be sustained and replicated without the active and continued engagement of the provincial and district authorities. In parallel the relationship of other project interventions within the East Coast's coastal ecosystems would also be less predictable since their ecological balance is defined by aquatic processes that are inherently loaded with numerous uncertainties connected with their complexity, that was not considered either at the time of project design or reconciled during implementation.

Another aspect that the TER review took into consideration was that the GEF project document stated the description of damage to coastal ecosystem along the East Coast thus: *"The overall impact of the tsunami on these globally important ecosystems has been hard to quantify, but it is estimated that 43% of the mangroves have been damaged or destroyed along the East Coast (1,376ha out of a pre-tsunami total of 3,200ha), 38% of sand dunes (38 km out of a pre-tsunami total of 110 km (134 ha out of 357)), and it affected all 27,295 ha of coastal lagoons and scoured the bed of 33% – an estimated 9,000 ha. Although no surveys have been conducted, …"*.

However, the above description of damage contrasted with the assessment of damage measured and recorded during the rapid assessment of damage to coastal ecosystems (excluding coral reef) conducted by the Ministry of Environment (MOE) supported by the United Nations Environmental Program (UNEP) (MOE/UNEP, 2005). The official assessment concluded that much of the damage to coastal ecosystems was of the type that would self-repair with time, some very rapidly, others at a slower pace. The disparity in the perception of damage to coastal ecosystems in the design of the GEF project, and scientific (measured) assessment of damage resulted in that project design inadequately matched coastal ecosystem reality as it exists in Sri Lanka, and prevailing history of past interventions that have been shown to be erroneous. It becomes reasonable to extract the better aspects from the outputs and outcomes while taking a critical stance on those aspects that may be contradictory to Sri Lanka's reality of ecosystem structure and functioning. A critical approach was needed moreover since both the IFAD supervision missions and the CCCRMD did not ask any critical questions during the time gap between the Tsunami event-based project proposal (2005/2006) and its actual implementation about six years later (2011/2012). Meanwhile, numerous Post-tsunami projects, particularly mangrove planting, were shown to be technically erroneous on careful appraisal (IUCN, 2011). It is therefore important that careful assessments be undertaken on the relevance and effectiveness of PCZRSMP investments, including mangrove planting to ensure that such models that are deemed technically unsound do not become models for replication and thus engender unintended consequences.

Notwithstanding the drawbacks discussed above, the project design set for the PMU/PCZRSMP a daunting task to be achieved in the relatively brief implementation period of about 5 years owing to unintended delayed start of implementation. Since project design was connected to generalization from global manifestation of the target coastal ecosystems (lagoons, mangroves, sand dunes and coral reef) to the country-specific peculiarities of these ecosystems in Sri Lanka's geological and geomorphological setting, this also created problems of varying degree for setting boundaries for the ecosystems to be restored. In the absence of a boundary, an ecosystem targeted for restoration becomes a diffused entity that cannot be managed in the long term, and thereby fails to provide place-specific lessons for adaptive learning. This is particularly evident in terms of the PCZRSMP activities related to lagoon and mangrove restoration, but relatively less so for sand dunes and coral reefs as discussed below:

Lagoons and mangroves: In Sri Lanka's East Coast mangroves are an integral part of lagoons. A lagoon is the parent ecosystem in which fringing mangroves occur along the inter-tidal shoreline, and island mangroves occur as vegetation cover on sediment shoals. Mangroves do not exist as 'ecosystems' (as stated in the GEF project document) that can be defined and marked with spatial boundaries that set the vegetation apart independently from the lagoon ecology in which they occur (nationally, total extent of lagoons: about 170,000 ha, mangroves: about 12,000ha occurring in several thousand dispersed patches: a ratio of 14:1). The project design appears to give an ideological stance where mangroves and lagoons are represented as independent (stand-alone) ecosystems based on global generalizations, but not on their place-specific geomorphological character in Sri Lanka. Indicators of achievement in regard to lagoons and mangroves restored were set independently of each other at 1,000 ha and 250 ha respectively.

Sand dunes: Project design expectation in regard to sand dunes matched physical reality in the designated segment of the East Coast (Panama). The boundary of targeted sand dunes could be established based on technical criteria and the dynamics within the boundary could be targeted for management, even though these should have preferably been considered within an integrated coastal system that encompassed the full landscape and seascape interactions. By project end 524 ha of sand dune were successfully restored/rehabilitated in a visible manner, according to project design/targets.

Coral reef: Boundary setting for a coral reef could have been challenging if the selected fringing coral reef was a part of any rocky island ecosystem. Nevertheless, the boundary problem was to some extent automatically resolved since the selected coral reef patches existed in an already designated protected area (National Park) that included the entire island (Pigeon Island) and its coral reefs. Here effective management of the Pigeon Island National Park automatically contributes to coral reef protection.

The PMU proceeded to implement activities in keeping with the project agreement between the Government of Sri Lanka and IFAD. Evidently, re-appraisal of goals and objectives was not performed, neither by IFAD nor PMU, to revalidate goals and objectives, even though this would have been necessitated on account of the 5-year delay in project start-up. As the PCZRSM goal was to rehabilitate tsunami-affected ecosystems to provide full ecosystem services, the TER mission considers it important to assess project performance in terms of the four key principles that govern coastal resources management, namely (i) Ecosystem structure and function principles; (ii) Integrated Coastal Management (ICM) principles in relation to the revised Hyogo framework for disaster risk reduction (DRR); (iii) Common pool/property management principles; and (iv) Minimization of potential 'unintended consequences of planned development". These are further discussed in detail in Appendix 8. The TER mission take the above mentioned aspects into consideration in evaluating the impact and outcomes of the GEF project to ascertain to what extent this objective has been attained, in part or in full given the unforeseen drawbacks, and the inherent constraints placed in terms of the inadequacy of project design and the limited effort to rectify the situation during project implementation.

Outcome 1: "*Best practices for effective restoration and sustainable management of key coastal ecosystems with integration of adaptation to climate change vulnerabilities developed and demonstrated*" *(Total: US$ 2,868,675, of which GEF funding: US$ 1,903,200; Government: US$107,300)*

The narrative that follows here provides the basis for assessment of Outcome 1 and its five Outputs, as well as to some extent the assessment of Outcomes 2, 3 and 4 as well.

Assessment of outputs and outcomes are reviewed separately for the four classes of ecosystems/ habitats: lagoons, mangroves, sand dune and coral reef giving consideration to the caveat in Section C: Project Performance Review; Preamble. There the explanation is provided for considering mangroves as parts of the corresponding 'lagoon hydrological system'. This implies that mangroves cannot be considered as 'ecosystems' in and of themselves. Nevertheless reference is made here to 'mangroves' as a class of ecosystems in the assessment of outputs since project implementation conceptualized and visualized 'mangroves' in that manner. Otherwise, the thinking behind the assessment would deviate from the thinking of the project implementers. All these ecosystems share the ecosystem structure and function principles previously mentioned that require consideration to achieve sustainable restoration and avoid or delay 'unintended consequences of planned development'. A thinking model for ecosystem restoration is required in order to understand coherence among the diverse interventions undertaken by the PMU. Such a model would draw on the fact that coastal resource systems represent sets of interactions and outcomes and unless the entire ecosystem is taken into consideration the required balance among interactions are difficult to achieve. As the equilibrium states keep changing physically and systemically whether humans intervene or not, it may be difficult to recognize interactions among the project interventions and the manner in which they contribute toward the 'big picture' of participatory ecosystem restoration utilizing low-cost approaches. Nevertheless, the PMU had its mental reference framework in keeping with which outputs and outcomes were conceived thematically as the constituents of 'best practice' in keeping with relevant plans. These included:

- Institutions including coordinating mechanisms, essentially top down, which facilitates land allocation in a coastal setting where conflicting land uses and economic drivers directed at capital formation and investment were powerful. These included the District Environmental Law Enforcement Committee (DELEC), Lagoon Fishery Management Committee, and others. The institutional mechanisms included participation of district offices of regulatory agencies including Divisional Secretariat with access provided to community level organizations including fishery management societies.
- Organization of primary resource users as community organizations (fishery societies) to generate a political voice in defence of the structure and functioning of the natural resources system on which livelihoods depend, a bottom-up social mechanism to link with and to guide the decision making of higher level organizations
- Establishment of 'ecosystem/habitat' identity by way of markers to enable participatory restoration activities to proceed within a formally and/or informally recognized boundary.
- Establishment of specialized technical support, including training, for interventions such as dune re-vegetation, biodiversity-based ecotourism, coral reef management, among others for generating alternative income to reduce pressure on the ecosystem under restoration.
- Establishment of economic incentives for sustained community participation, e.g. particularly involving womenfolk, to supplement household income to reduce pressure on restored ecosystems.
- Generating knowledge management products for awareness and education and policy setting for documenting and mainstreaming of best practices as a long-term project legacy.

<u>District Institutions/Coordinating Mechanisms:</u>

The project established three regional offices in Trincomalee, Batticaloa and Pottuvil, the three districts constituting the Eastern Province, headed by an experienced staff officer of the CCCRMD well versed in its regulatory powers and with administrative linkages to District and Divisional

Secretariats (DS). CCCRMD's regulatory powers are delegated for implementation to the respective DSs. The regional officers also established linkages with the District offices of line, regulatory agencies such as the Department of Fisheries & Aquatic Resources (DFAR), Forest Department (FD), Wildlife Conservation Department (DWLC), and the Central Environmental Authority (CEA) under whose jurisdiction planning and operationalization of project outputs and outcomes had to be maintained continuously following project termination in order to impart sustainability. Within the ambit of law enforcement, organized participating communities could effectively collaborate. This linkage supported by relevant rules and regulations, anticipated periodic institutionalized monitoring, mobilization of incentives at the community level, establishment of alternative income generating activities, and enforcement of penalizing mechanisms where necessary. However, in the absence of adequate effort and time to establish a strong and permanent institutional mechanism for sustaining and replicating outcomes and outputs, including supplementary procedures for enforcement of penalizing mechanisms, the sustainable management of coastal ecosystems in 'open-access, common pool resource systems' might be very unlikely.

Lagoons

Table 3 below summarizes some of the significant interventions for lagoons in which the project has invested. The observations suggest the relationship of the interventions to 'ecosystem restoration' based on the four-structural/functional criteria (ecosystem structure and functions, ICM principles, common property/property management, and minimization of unintended consequences) in order to infer an overall rating. The main drivers that define the structure and functioning of lagoons are the two external linkages: freshwater drainage from the associated watersheds, and tidal connectivity with the sea. Since these two drivers provide strategic depth to functioning of coastal ecosystems, these must be taken into consideration in the planning of interventions in lagoon systems. By strategic depth is meant the long-term structural and functional relationships that are connected to water flow, and alignment of the drainage pathways from river basins to the sea, and the corresponding tidal relationships and wind-based sand barrier formation along the coast in the form of sand dunes that demand integrated consideration in planning development outcomes. The balance between these hydrological/hydraulic forces provides among others fishery production (provisioning service), drainage and flood protection, prevention of salt intrusion into agricultural areas (regulating service), biodiversity-based ecotourism (cultural services), and nutrient flows that generate planktonic food webs that support small pelagic fisheries in the near-shore sea (supporting service). Ecosystem restoration that supports full ecosystem services should necessarily include the above among many others for the long-term sustainability.

Table 3: Project interventions in Lagoons

Lagoon (surface area; indicative annual fishery value; dependent household population)	Major threats to society from ecosystem failure in structure and functioning and supply of ecosystem services	Key Project Interventions	Observations - Relationship to 'systemic restoration'
Batticaloa lagoon (23,000 ha; 17,000 lagoon fisher households, Rs. 1.3 billion – USD 8 million/ year from artisanal fishing)	Land capture by urban population, drainage obstruction, solid waste dumping, municipal waste discharge, pollution, infrastructure expansion that obstructs drainage continuities, sediment infilling, fishery depletion by obstruction of tidal linkages, intermittent closure of two tidal inlets (lighthouse & Kallar), forced closure for road construction at Navalady	Boundary demarcation 320 km, 'thona' restoration for better drainage, mangrove protection at Saturukondan (52 ha) which is partially terrestrial vegetation, green belts for soil conservation, DELEC in operation	Investments not adequately integrated with hydrology to sustain environmental flows, hydraulics to maintain flow pathways and sediment flushing, engineered rehabilitation of tidal linkages, and law enforcement mechanisms to arrest land capture (edge effects) since high-cost interventions were precluded. The fundamental requirement for systemic restoration was achieved by the fact of physical placement of an identifiable boundary. However the periphery was marked while human-made cross barriers to continuous and interconnected hydraulic forces within that boundary were already separated by roads that compartmentalized the water body remained. The integrated behaviour of the water body is mathematically definable based on the 'tidal prism' of the lagoon where surface area is a primary driver of the kinetic energy associated with the flow of water. It needs to be noted that in the post-tsunami rehabilitation process, the tidal connection at Navalady was closed off by a road constructed across it thereby reducing surface area. From a historical perspective we may also recognize that under the Dutch management of the Batticaloa lagoon in the 17th Century, a navigation cum hydraulic canal connected Kalmunai in the south to Vanderloos Bay in the north. The necessary focus by the project on boundary demarcation stands now as a relatively isolated intervention from an integrated hydrological system. Thereby, flood problems arising from impeded drainage likely would continue in future as 'climate adaptation' becomes more pressing.
Vakarai-Uppar-Panichankerny (2,100 ha; socio-economics not known)	Relative isolation of Uppar segment of the total system from the Panichankerny segment. Latter is tidally connected to the sea, shifting of food web toward low value fish species recruited from freshwater systems; weakening of hydraulic connectivity between Uppar and panichankerny segments	Organization of communities as Panichankerny Lagoon Management Committee to contribute to Vakarai Special Management Area operationalization, 4,226 ha (more than 2X surface area of lagoon system) of Panichankerny lagoon and mangroves demarcated; establishment of Panichankery recreation site where post conflict/post-tsunami debris was dumped (removed 2,300 cubic meters), introduction of fuel homegarden crops, efficient stoves, bio-gas as incentives for mangrove protection and enhancing household income, baseline inventories	Interventions not hydrologically / hydraulically integrated to prevent accelerated infilling by sediment, flood threat in Uppar segment may increase owing to impeded drainage, mangrove 'planting' in flow pathways may result in obstruction of pathways as the vegetation spreads and stabilizes sediment deposition.
Thambalagam lagoon (2,100 ha; socio-economics unclear)	Saline intrusion into large-scale cultivations to the west, water pollutions by contiguity to urban Kinniya, solid waste dumping, municipal	Establishment of solid waste management / composting a part of daily solid waste dumped into lagoon if unmanaged, conversion of mature mangrove	Interventions not hydrologically/ hydraulically integrated to prevent accelerated infilling by sediment, potential salt intrusion backflow into cultivation area

Lagoon (surface area; indicative annual fishery value; dependent household population)	Major threats to society from ecosystem failure in structure and functioning and supply of ecosystem services	Key Project Interventions	Observations - Relationship to 'systemic restoration'
	waste discharge	(built up above inter-tidal level) into a productive cultivation area, home gardens	
Valaichenai lagoon (1,300 ha, socio-economics unclear) – Nasivantivu island part included – not entire lagoon	Frequent flooding and isolation of island population	Supply of boat access to mainland, establishment of Nasivantivu Mangrove Learning centre	Relationship to lagoon restoration unclear, only an island included for interventions. Nevertheless it is acknowledged that mangrove restoration would contribute to carbon sequestration and thereby contribute to climate adaptation measures. Additionally, the supply of boats is an adaptation measure that will enable island residents to access safe sites during seasonal floods that are likely to aggravate with sea level rise.
Irakkandy lagoon, also known as Sinnakarachchiya lagoon (800 ha; socio-economics unclear)	Discharges of polluted water could impact coral reefs in Pigeon Island. Flood threats not significant owing to open navigation passage (tidal inlet).	Mangrove protection and restoration, boundary demarcation to arrest land capture, solid waste management	Relationship to maintaining hydrological/hydraulic balance unclear.
Sampalthivu lagoon, also known as Periyakarachchiya lagoon (600 ha; socio-economics unclear)	As above	As above	As above
Pudavakattu lagoon (200 ha; socio-economics unclear)	As above	As above	As above
Kokkilai lagoon (3,000 ha; m – only southern segment in Trincomalee District; socio-economics unclear)	Flood threat: The lagoon straddles the boundary between two adjoining districts, Mullaitivu to the north and Trincomallee to the south. Nothing that is done in the Trincomalee segment without integration with the Mullaitivu segment can result in 'ecosystem restoration'	Disaster shelter set up in Thennamarawadi to assist a community whose livelihood interests are connected to Kokkilai lagoon. Role of the intervention in 'ecosystem restoration" unclear	As above
Komari lagoon	Overexploitation of fishery, Visible sediment build-up in broad swathes both at periphery and further in water body.	Relationship of eco-tourism development to 'ecosystem restoration' unclear since hydrology/ hydraulics not integrated	As above
Pottuvil lagoon	As above	As above	As above
Panama lagoon	Fishing community challenged in 'fishery management' interventions by national security pressures.	Sedimentation and loss of water area visible. Undesirable land uses appear to be expanding.	As above

The largest in the PCZRSMP implementation area, Batticaloa lagoon (about 23,000 ha) is of high cultural value. The water body is sandwiched between the extensive deltas (where rivers branch and flow into a larger water body) of six river systems that flow into it from the landward side, and stable, elongated low beach-dune system along the seaward side. The water body is tidally connected to the sea by two tidal inlets, and a third tidal inlet at Navalady has now been permanently closed by a road constructed post-tsunami decreasing the potential drainage in a regular flood event. It occurred during PCZRSMP implementation and has resulted in weakening provisioning and regulating services. This aspect was not integrated into the PCZRSMP framework creating a challenge to 'future climate change adaptation'. The manner in which the boundary demarcation would contribute toward sustainable fishery yield and food security is undefined. The relative power within institutional relationships here may have played a part. The road building and implementation body enjoys a level of relative independence in decision-making because of its superseding statutory power. During informal discussion, the Project personnel asserted that the road-building authority was inflexible in incorporating drainage passages in the design. This could be considered during future District Law Enforce Committee meetings based on policy revision based on lessons learned from the PCZRSMP by CCCRMD.

The establishment of PCZRSMP district offices was intended to ensure an accessible presence of technical leadership supported by social mobilization capability, among others, was an essential first step. These offices coordinated baseline studies, community mobilization, and diverse other interventions for planning and implementation of ecosystem restoration activities including linkages with district/divisional/local government administrations. Overall leadership to the district offices was provided by the PMU located at the CCCRMD, Colombo. However, it was not clear to what extent the 'participatory restoration' activities were undertaken as 'commons management' where the central role of limitation of use (access to resources) was understood.

In the case of some lagoons, boundaries were demarcated by use of permanent posts, such as for Irakkandy lagoon, Panichankerny segment of the Vakarai-Uppar-Panichankerny lagoon, Batticaloa lagoon, Komari lagoon and Pottuvil lagoon. Boundary demarcation is the necessary first step in the process of ecosystem restoration since the imperative is to protect before proceeding with other interventions. *Nevertheless, while the boundary markers constitute assets with a high investment value, the project should have initially entailed a zoning of the lagoon for various uses based on a mapping of the different constituent and interacting parts of the lagoon system and its social, economic and environmental threats. This would have entailed boundary demarcation based on ecological features rather than on physical aspects, as was the case here.*

In the cases of Panichankerny lagoon, Komari lagoon and Pottuvil lagoon the coordinates of the boundary markers were included in their declaration as Fishery Management Areas (FMAs) under the 2013 amendment to the Fisheries Act. The District Fishery Management Committee meets periodically for assessment of progress in regard to sustainable management of these entities as commons. The Fishery Management Committee for Panama lagoon, declared previously as a FMA, has been strengthened through its participation in the participatory Panama dune restoration process under the guidance of the Forest Department.

In the case of the Panichankerny lagoon system that consists of two segments connected by a narrow neck of water, one segment is directly connected to the sea by a periodically open tidal inlet. The other segment is set off in such a manner that tide-mediated salinity influence is minimized. This has consequences for the fishery food web structure. One segment provides a higher yield of valuable penaeid shrimps, while the other segment yields a higher proportion of low-value tilapia species (*Oreochromos sp.*) migrants from upstream freshwater tank systems. Ecosystem restoration would ideally re-establish a more even distribution of higher value species (*penaeid* shrimps). *This would be realized only by way of engineering interventions directed at more effective hydraulic connection between the two segments. This raises the question, can lagoon ecosystem restoration be effective until and unless the entirety of a system is regarded in an integrated manner as well as ensuring high engineering cost restoration measures.*

The total surface area of lagoons of which boundaries were demarcated significantly exceeds 1,000 ha. and the PMU may assert that targets were achieved, in particular because the existence of a recognizable boundary can be considered as a pre-requisite for achieving effective management of the commons (lagoon). Boundary demarcation was a necessary first step given the high population densities ranging across several thousand persons per square kilometre in the urbanized periphery

of, for instance, the Batticaloa lagoon. However, boundary demarcation by itself, even with boundary markers in place, is likely to be ineffective in preventing land capture and encroachment where economic and political power plan converge as regards to segments of Batticaloa lagoon. This brings out the need for strong, enforceable penalties in the event of infringements in the event that a marked boundary is to serve its function. However, it is to be noted that in the absence of enforcement of penalties and meaningful alternatives, particularly for solid waste management by local government bodies, dumping into the open access commons would be a growing source of pollution that undermines fishery habitat.

Mangrove

Several extents of mangroves in Trincomalee, Batticaloa and Ampara Districts have been designated for protection, restoration, supplementation with replanting, and management as study/research/training sites. It needs to be noted, however that mangroves in Sri Lanka as an interacting part of the lagoons in which they are situated, create turbulence, accelerate sediment deposition, and have taken out of the hydrological system the later vegetation successional stages situated above inter-tidal level. This process contributes to shrinking of aquatic space in a lagoon that serves as productive fishery habitat. It is fishery habitat that supports the provisioning ecosystem service (food security). The shrinkage of aquatic space also undermines the regulating service of drainage and flood protection by decreasing the surface water area that plays a significant role in lagoon flushing. Thus in Sri Lanka, mangroves situated in lagoons exist in a natural equilibrium state determined by tidal currents during the dry season and the strong land drainage flows generated by precipitation during the rainy season. The semi-diurnal, micro-tidal currents generate weak hydraulic forces that may flush sediments in the vicinity of tidal inlets but not in the interior reaches of lagoons.

In larger lagoons such as Batticaloa, Panichankerny-Uppar-Vakarai, the segments of the lagoons that are not reached by salt water carried by tidal currents become of a quality suitable for agricultural irrigation. In these sensitive systems, forcing sedimentation and impeding flow patterns by planting mangroves in the water body produce unintended consequences including partial loss of fishery habitat in the long term while only serving temporarily as nursery habitat. Therefore caution is required in regarding mangroves as ecosystems in and of themselves, and not as interacting parts of the hydraulic/hydrological system. Therefore, as intended in the original project design, ecosystem restoration to acquire full ecosystem services from 'mangrove ecosystems' and from 'lagoon ecosystems' as if they exist independently was unrealistic.

The 'low cost' quality of lagoon protection/restoration interventions that excluded more costly engineering interventions may require careful analysis taking into consideration the relative costs of investments made in boundary demarcation, in comparison with suites of modelling-hydraulic restoration interventions that may have been undertaken?

Sand dune

The interventions of the PMU resulted in several lasting outputs. The Project initiated a science-based sand dune restoration program in Panama and Pottuvil. Some sand dunes in Panama were severely damaged by the 2004 tsunami and some segments where sand replenishment by wind was too slow, required artificial sand delivery. This had been achieved by mobilizing support by mechanical means such as bulldozers. Planned development of vegetation cover for the sand dunes relied on afforestation. Some trees planted in 2014, carefully tended with watering by local community members, acquired heights exceeding 2 meters by 2017 providing stable tree cover.

Almost 100ha of affected dunes where natural cover was depleted were provided protection against wind erosion by planting selected species (exotic and indigenous). *Casuarina equisetifolia* is an introduced plant in Sri Lanka particularly for the purpose of dune stabilization against wind erosion. It was planted by the Forest Department, for instance, both in the Hambantota dunes in the south and the Ampan-Manalkadu dunes in the Jaffna Peninsula with impressive success in past decades. Technical guidelines were prepared and suitable species have been identified for sand dune re-vegetation in collaboration with the Forest Department. One of the major issues in restoration of exploited or tsunami affected sand dunes is the instability of the dune. Hence, fast growing exotic species such as *Casuarina sp*. and native species such as Mudilla (*Barringtonia asiatica*) and Watakeiya (Pandanus *sp*) were selected for planting programs/coastal green belts so that they can establish quickly and control the movement/erosion of sand. Accordingly, green belt establishment has been completed in Manachchanai (20ha), Murugantenna (10 ha), Manmalai (15 ha), and Panama

(35 ha and 20 ha in two locations) with local community participation. Replantation on tsunami affected Panama sand dune was completed in 2014.

The project demarcated several segments of sand dunes to prevent sand mining and encroachments into sand dunes. The more sensitive areas of sand dunes have been identified and demarcated. This was successfully completed in SMA (Special Management Area) of Pottuvil (359.20ha) and Lahugala (167.80). Altogether, 537ha of sand dune area have been demarcated through multiple stakeholder participation. Out of a total length of 29.50km of sand dunes in Ampara District, demarcation of 14.18km has been completed (approximately 48%). A heavily encroached and exploited sand dune in Manmalai has been protected by construction of a barrier wall in 2015. This approach along with increased awareness and law enforcement has substantially reduced the human pressure on sand dunes.

The Project implemented several measures to increase the accessibility of the best practices through development of knowledge products such as video documentary, awareness boards and printed materials.

Coral reef: Pigeon Island National Park

The significant project intervention in regard to coral reef ecosystem was the development and initiation of implementation of a Management Plan. It was developed to conserve and sustainably utilize the Pigeon Island Coral Reef Ecosystem with multiple stakeholder participation. The Department of Wildlife Conservation (DWLC) is in regulatory control of the Pigeon Island National Park and is the main responsible agency for implementing the management plan. The management plan emphasize a participatory approach where a co-management committee comprising of key state and private sector stakeholders have been formed to perform an active role in management. The plan awaits legal ratification by DWLC.

The implementation of the Management Plan could succeed in controlling certain negative impacts of tourism on reef ecosystem. Designated areas for snorkelling and boat landing have been identified and are due to be developed as operational areas. Wildlife officers have been placed to monitor visitor activities. The project has succeeded in involving CBOs in the management process and satisfactorily strengthened the capacity of DWLC to work with the community to manage Pigeon Island National Park and enforce rules and regulations. Out of the CBOs involved in co-management, Nilaveli Tourist Boat Services Cooperative Society is the most active one. The society consists of 33 boat owners at Nilaveli and Gopalapuram areas who operate boat services to Pigeon Island. The organization takes the lead in organizing beach clean-up and invasive *Acanthsterplanc*i (Crown of Thorns - COT) removal campaigns in the reefs. They have advocated controlled entry to the island to avoid overcrowding, monitoring and reporting prohibited activities and monitoring indicators of reef health. This group is also a beneficiary of the Project receiving a grant for a revolving fund to improve their capital assets (new boats with outboard engines) that would consolidate livelihoods. It is important that the Pigeon Island Management Plan is ratified by the DWLC and the interaction with Nilaveli Tourist Boat Services Cooperative Society is sustained on the long-term.

Management of the Pigeon Island National Park is being supported by a visitor centre now under construction at a spectacular location with easy access to the reef. It has been thoughtfully designed and located in a manner that will promote both local and foreign tourist visitation. Construction that was delayed by diverse unforeseen circumstances is now making firm progress. The National Park supported by the interpretation information and research for which provisions are available shall be a significant achievement.

Livelihood enhancement

In order to reach effective restoration and sustainable management of key coastal ecosystems building the resilience to climate change (as per Output 1), alternative livelihoods (through diversification) or income generating/saving practices are to be adopted and widely used by rural communities living in the project areas, for a transition towards building sustainability and resilience of these communities. Under this sub-component the following activities were undertaken, with varying degrees of success:

Home gardening – food production: The Intended Nationally Determined Contribution prepared in response to the Paris Climate Change Agreement notes “Sri Lanka as an agriculture based country faces greater consequences of extreme weather events due to temperature rise in the dry zone and

higher precipitation in the wet zone and changing of seasonal rainfall pattern on both zones, dry and wet zones. Livelihood systems those are already vulnerable to food security face immediate risk of increase crop failure, net pattern of pests and diseases, lack of appropriate seeds and planting materials and loss of livestock. Selected households in the Panichankerny-Vakarai have been provided with fruit and multiple use trees under the “green village” concept, a national program. The productivity of households is varied, with some showing exceptional progress, and others not. Households that have been provided with agro-wells seem to have improved performance. Particular interest may be given to recording the outputs and outcomes of home gardening projects that have incorporated agro-ecological principles particularly in cases where women have taken the lead because of significance for food security in the face of climate change.

Small business promotion: The benefits of small-business promotion where poor fisher households are targeted demonstrate income supplementation that can contribute to food security and health. Such interventions are essential for effective co-management within the framework of ICM. The small business activities include making and trading in garments, garden produce, beverage and other small consumer items. The personal narrative reflected a high level of enthusiasm for the household consumption benefits from the intervention. Book keeping and savings accounts reflected careful management of income.

Eco-tourism - Eco-tourism stimulated by the project in Ampara District appears to have acquired sustainable dimensions. The activity was visited during the off-season for tourism on the East Coast. The members of the interviewed fishermen societies that participate in the activity expressed a high level of enthusiasm. Eco-tourism where fishermen of Kottukal lagoon, Pottuvil previously provided boat trips to visitors, mainly foreign visitors, are now members of the organized ecotourism activity supported by the project. Three ecotourism centres have been established under the project in Kottukal lagoon in Pottuvil, Urani and Panama. CBOs/Fishermen’s’ Cooperative Societies have been entrusted with ecotourism operations based on these centres. There are 245 members in Kottukal Fishermen’s’ Cooperative Society and 100 of them are involved in ecotourism. The membership at Urani Fishermen’s’ Cooperative Society is 97 members while Panama has 110 members. Facilities such as passenger boats, floating jetties, interpretation materials, and training for tour operators on ecotourism operations have been provided by the Project. Kottukal and Urani ecotourism centres are functioning well at present and the community members are making substantial income from eco tours. Local communities are currently enjoying the economic benefits from lagoon tourism and have realized the importance of conserving mangroves to sustain their livelihoods. As such, these CBOs are actively involved in monitoring and protection of lagoons and mangroves while contributing to mangrove restoration. However, the long-term viability of these ecotourism endeavours would depend on district and divisional secretariat continued engagement to ensure that these ecotourism CBOs mature to a point that they have the capacity, skills and economic incentives to sustain themselves. It would also depend to what extent members of the CBOs/Cooperatives who are not participating and benefiting from the ecotourism activities are incorporated into a wider integrated lagoon management effort with multiple benefit flows.

Reduction of energy costs (fuelwood): The project has introduced two alternatives to minimize the use of firewood; (i) Special type of two chamber clay hearth which economizes on firewood consumption (2000 units have been distributed among lagoon bordering communities in 2015) (ii) Bio-gas plants not only as an energy source for cooking but also to manage kitchen waste and yield organic fertilizer for home gardening. Survey undertaken by the district office in mid-2016 with households in seven GN Divisions revealed that fuel wood consumption in the area has reduced by almost 50% where a household on average used 2.73 kg of fuel wood per day prior to project implementation. Significant proportion of firewood has previously come from mangroves surrounding the lagoon.

Overall, the project has made significant progress in terms of the livelihood enhancement component. It is understood that 2,600 rural households were direct beneficiaries of these livelihood enhancement practices and related development program benefits, including 300 rural households that participated in the three ecotourism pilot programs. However the impact is diffused because these activities were conceived in an ad-hoc fashion, limited in scope, benefiting only a few and initiated late in the project period due to unforeseen delays. Therefore, it is very unlikely that such activities would be sustained and replicated on a larger scale. The TER recommends that any future endeavour in livelihood improvement must be made within a more integrated program of coastal

ecosystem restoration in consort with a range of other conservation, sustainable resource use and livelihood improvement program.

Maintaining environmental quality

Waste management and environmental health: Solid waste disposal and management in all three districts are a visible outcome of coastal urbanization and economic growth where local government bodies have not provided adequate procedures for collection and disposal. The need for adequate measures is urgent since, in the absence of modern, scientific methods in operation, dumping into water bodies (commons) used by the economically weakest segments of society as in the case of Sinnakarachchiya, Kiinya (Thambalagam lagoon), and Batticaloa lagoon is conspicuous. The PCZRSMP interventions in Sinnakarachchiya and Kinnya included some level of waste collection, segregation and composting, but given the magnitude of the solid waste management problem, these were small in scale and thus only partial solutions. Community benefits from participation at the household level in producing compost and its use in home-garden food supplementation are evident, but very limited. However, the TER mission suggests that waste management efforts of the project would have been more relevant and useful if it was exclusively targeted at the community/village level, advocating waste reduction, segregation and composting as a pilot effort, with potential to be further replicated in other communities, rather than try to deal with waste management at the district or divisional collection centre, that is more complex and costly and largely outside the scope of the GEF project.

Climate Change Adaptation - Disaster Risk Reduction

The anticipated societal impact of sea level rise and concentrated rainfall during the coming decade is expected to create displacement of coastal communities residing at exposed elevations. The 2004 Tsunami, and historical flood events in the Batticaloa District and at locations at the periphery of lagoons have demonstrated inescapability of inundation. Increasingly seasonal floods are taking the form of ‘flash floods’ owing to the concentration of rainfall. The project established a ‘disaster shelter’ in Thennamarawadi that is intended to serve residents of the village of the same name which is seasonally exposed to flooding. The structure is intended to serves as a temporary emergency shelter. This has high potential to serve as a case study for other exposed settlements along the East Coast. Although its design suggests major corrections to serve as multi-purpose shelters, it is an interesting beginning. This may have high potential for replication in the event that design corrections are made. Automatic, self-financed maintenance would come from continuous and regular use for multiple functions. Replicability would be feasible based upon mapped coastal vulnerability indices (CVI) that suggest the more exposed locations.

Project outputs and outcomes that incentivise participation and impart long-term benefits

A range of interventions have been developed by the project in the three districts. Coastal ecosystem restoration, in partial and total form, by itself is recognized as being insufficient to sustain coastal livelihoods in setting where pressure on natural resources driven by urbanization is high as in the East Coast. In the event that ICM serves as the methodology, ecosystem restoration must incorporate alternative income sources (livelihoods) for communities that are primarily dependent on fishery resources. PCZRSMP incorporated a range of activities directed at generating alternative income sources. Some are reviewed below.

Some selected interventions reviewed below suggest long-term viability depending upon both subsistence and commercial factors. Eco-tourism depends particularly upon continuation of a high level of foreign visitors mainly to the hotels in Arugam Bay. The visiting foreigners willingly pay the higher rates charged for boat tours. The level of visitation by local Sri Lankan visitors is uncertain. In the event that East Coast tourism in Sri Lanka progresses at the current rate, eco-tourism could turn out to be lucrative and sustainable within the range of multiple uses and ecosystem services provided by the lagoons. In such a scenario, the ‘commons management’ aspects would be critical. Additionally, management of the lagoon systems for sustainable fishery resources requires careful planning in the face of predicted sea level rise and drainage. The extent to which risk may increase for fisher settlements may require consideration. It may be noted, however, that the anticipated rise in sea level likely would provide physical support to lagoon hydrology and hydraulics.

Livelihood enhancement activities including income supplementation and generation activities supported by the project could likely have provided lasting benefits in the face of rising food costs

locally and nationally, if these were conceived as part of a more holistic effort that addressed the full range of food security concerns of the coastal communities.

Outcome 1: "*Best practices for effective restoration and sustainable management of key coastal ecosystems with integration of adaptation to climate change vulnerabilities developed and demonstrated*"

Overall Rating (outcome 1): Moderately satisfactory

Project Output 1.1: Best practices developed and demonstrated for community-led restoration of globally important ecosystems:

The project has effectively completed baseline studies for flora and fauna to enable planning of restoration activities for Tambalagamuwa lagoon (Pudavaikkattu, Irakkandi and Sampalthivu lagoons in the Trincomalee district, three coastal lagoons of Komari, Panama and Pottuvil in the Ampara district and Batticaloa District (Paniichankerny-Vakarai lagoon system). Based on the ecological baseline studies, the project has demarcated boundaries of Panichankerny-Vakarai lagoon system and Batticaloa lagoon in the Batticaloa district, Komari lagoon and Pottuvil lagoons in the Ampara district, intended, but not completed was the demarcation of the Panama lagoon because of national security concerns. Boundary demarcation was completed in the Pudavaikkattu, Irakkandi and Sampalthivu lagoons in the Trincomalee district. The intent of the above exercise was to provide legal designation of the lagoons as fisheries management areas under the Fisheries Act on 2013 and to facilitate the co-management, protection and governance of these areas by fisher communities in collaboration with the respective district administration (District Secretariat and relevant district agencies). Such an arrangement was instituted to ensure a mechanism to resolve resource use conflicts to safeguard ecosystem services pertaining to the water body. Management plans have been developed for three lagoons (Komari, Panama and Pottuvil in the Ampara district). However, the mission understands that formalization of lagoon boundary demarcation, and the establishment of district level co-governance lagoon management committees and fisher management committees have been completed for Pottuvil, Komari, Vakarai and Panama lagoons and are under various stages of progress in the other lagoons. Unless, the formalization of the above process is completed in the remaining lagoons in a timely fashion, there is a risk that management of an open access resource system (commons) cannot be sustained, in particular because pressure on fishing and other lagoon resources would intensify.

The TER mission noted that alternative income to reduce pressure on fishery resources have been initiated, including eco-tourism, mangrove rehabilitation and livelihood activities. In parallel, sand dune restoration has been undertaken through the Forest Department (in collaboration with the respective divisional secretariats in 537 ha in the Ampara district) as a means to provide protection to adjacent human settlements as well as prevent encroachment and sand mining. These represent good foundational activities, but it would be necessary to ensure that future investments need to be consistent with the lagoon management plans and also take into cognizance the dynamic nature of changes in lagoon systems as plans are further periodically refined and updated.

Despite the achievements on-the-ground, in terms of establishment of district level co-governance lagoon management committees and lagoon fisher management committees for the Pottuvil, Komari, Vakarai and Panama lagoons, and unless the process is completed in the remaining lagoons in a timely fashion, there is a risk that management of an open access resource system (commons) cannot be sustained, in particular because pressure on fishing and other lagoon resources would intensify. The TER mission also noted that although alternative income generation programs to reduce pressure on fishery resources have been initiated, including eco-tourism, mangrove rehabilitation and livelihood activities, it is necessary to ensure that future investments need to be consistent with the lagoon management plans and also take into cognizance the dynamic nature of changes in lagoon systems as plans are further periodically refined and updated.

Rating: Moderately satisfactory

Project Output 1.2: Publication of best practices and policy guidelines on practical restoration and conservation management of globally important ecosystems

The project has printed and distributed a range of documents, leaflets, and videos pertaining to implemented interventions in all three languages. These provide much learning material (Appendix 5 – KM products). The publication of interventions in regard to lagoons, mangroves, sand dune and coral reef subsumed under the term 'ecosystem restoration', overtly and/or indirectly, are asserted to be best practices. Some interventions such as sand dune stabilization with afforestation clearly is at stage of development where prediction may be made with high confidence that anticipated long term targets would be realized, with perhaps an acceptable level of plant mortality. Since technical support from the Forest Department is a pivotal component, supplementation and infilling to compensate for plant mortality may be anticipated. However, in the case of aquatic ecosystems, lagoon, mangrove and coral reef, only modulated predictions may be made about long-term viability of outputs and outcomes that were completed during the past three years.

The eco-tourism activities organized and supported by the PCZRSMP for the Urani and Kottukal lagoon segments of Pottuvil lagoon unquestionably are impressive. Nevertheless, we need to note that tourism is extremely capricious and sensitive to a wide range of security variables. The activity in its present form has been barely tested. Here again patience is required and careful tracking done to ensure that the 'eco-tourism' enhances the total wealth generated by the lagoon system inclusive of the fishery and fishery dependent livelihoods and as a component of effective ecosystem-based ICM. In this context hydrology/hydraulics and relationship with sedimentation and infilling resulting in loss of fishery area requires attention.

Here some clarity is required. It is the case that the lasting legacy of information and knowledge about human interventions in complex coastal ecosystems is the documentation, the final step in the 5-step process explained below. Since the early 1990s when application of ICM principles to coastal ecosystems took a relatively rigorous form in Sri Lanka, a series of documented lagoon case studies under the rubric of 'special area management' exist (SAM, now renamed special area management – SMA in the CCCRMD revised act). Therefore many lessons already exist on 'dos' and 'dont's'. The extent to which they have provided foundation for planning in the CZRSM process cannot be analysed in this review.

However, it is clear that documents of the PCZRSMP such as the *"Environmental Profiles for Pottuvil, Panama and Komari Lagoons in Ampara District"* and the *"Development of an Ecotourism Plan for Pottuvil to Panama Region in the Ampara District with special emphasis on Urani, Kottukal and the Panama Lagoon"* have given consideration to some historical changes in the systems. Perhaps it may be noted that information on sedimentation rates in the lagoons, edge effects including vegetation spread that impacts flow relations to the surface area of water influencing key hydrological variables may have required more time for measurement and analysis than the project allowed.

The project activities were carried out at an accelerated pace simply because the time frame was about five years. Generally it is the case that a 5-step approach is adopted including, planning, implementation, monitoring of performance, adaptive management, and documentation (requiring about 10 years). The first four steps are time consuming because of the slowness of participatory methodologies and map preparation based on verification of conservation needs and development opportunities. The short time frame of the PCZRSMP appears to have compelled the project to compress planning and implementation in the interest of achieving defined outputs. The majority of interventions were completed or are nearing completion during the final two years of project life. Therefore some caution is required in regarding all outputs as 'best practices' in the absence of adequate time to monitor their post project impacts. At least 5 years must pass before a firm opinion can be given about completed activities, therefore given the fog of an unknowable future coupled with the complexity of ecosystems, it is necessary to accept the 'optimality' of the implemented activities with a modicum of faith.

In the event that outputs asserted to be best practices are unquestioningly accepted as such, the risk exists that they may be recorded, published and be repeated although the outcomes may be less than desirable over the long-term. This may lead to the 'normalization of deviance' where activities contradictory to ecosystem structure and functioning are repeated simply based on ideological assumptions. This brings to mind Einstein's definition of insanity: 'Doing something over and over and expecting a different result'. This is unwarranted since coastal lives may be placed at risk if deviant practices are repeated simply because they exist in written records as 'best practice'. Hence a precautionary approach is called for.

Best practices needs to be based on evidence-based (scientific) criteria. The relevant question here is, whether interventions that were implemented by the PCZRSMP automatically become 'best practices' simply because they were done, or should they be so deemed based on comparison with comparable activities previously done as well as principles stated in the preamble. Space does not allow such comparative assessments to be included in the review.

It is justifiable to conclude that the numerous knowledge management products (Appendix 5) generated by the PCZRSMP qualify as ingredients of 'best practices', they provide a notable addition to the knowledge base, but it is too early to definitively state that they constitute 'best practices in ecosystem restoration' simply because long-term monitoring is still to be achieved.

In conclusion, it should be noted that the delay in implementation of co-management arrangements, and consequently the lack of sufficient time to generate effective lessons from lagoon and dune restoration, mangrove and coral reef management has been a constraint to the publication of best practices and policy guidelines on practical restoration and conservation management of globally important ecosystems as envisaged under this output.

Rating: Moderately satisfactory

Project Output 1.3: establishment of central information base in CCCRMD as repository for all work on ecosystem restoration and coastal adaptation to climate change:

The digital map information in Batticaloa District is presently being incorporated into the GIS database of the Batticaloa District Secretariat. This would enable integration of spatial information generated by the PCZRSMP project for Batticaloa lagoon, the most urbanized and exposed lagoon system to catastrophic floods, to become integrated with relevant studies supported by spatial information. Similar interventions in the Tricomalee and Ampara Districts have acquired potential for integration with respective spatial planning for the districts to decrease exposure to hazards partially attributable to climate change.

The Project initiated vulnerability mapping of the east coast to prioritize areas for adaptation, and in this exercise disaster vulnerability maps were established in all 24 GN divisions in Trincomalee and nine GN divisions in Ampara in collaboration with the Disaster Management Centre (DMC). This was done through several community group meetings and the draft maps were prepared and digitization was completed in early 2016. Vulnerability of the community in other Project areas to climate change was analysed with local communities using participatory vulnerability assessment tools and techniques. An intensive awareness program was carried out prior to this assessment to make them aware on climate change and their present and potential impacts on them and other systems. The extent to which the information generated has been translated into location-specific exposure likely would be carried out by the DMC, the national agency that mediates relevant responses.

The District ERAUs was a pilot effort to establish a decentralized knowledge and information management system that could be replicated throughout the country. The district ERAUs were to feed information to the national level and ensure that the ERAU at CCCRMD was able to have access to this on-the-ground information for informing policy formulation for all national, provincial, district and local level activities that could impact coastal ecosystems. District level ERAUs have been recently initiated, and the TER mission takes note that some of the initial lessons learned have reportedly been incorporated into the revised national coastal zone and coastal resources management plan (NCZCRMP). The national coastal management plan is under review and expected to be approved in 2017. This plan includes declaration of Special Management Areas (SMAs) that incorporates appropriate fringing lands of a water body for regulation of development activities within an integrated land and water management framework. The TER mission recognizes the importance to ensure that lessons from the project will be firmly embedded within the revised NCZCRMP. To achieve this goal, it is however, unclear what arrangements exists for ensuring the flow of lessons and best practices between district ERAUs and a central repository that would support policy guidance in relation to integrated coastal resources management.

Rating: Moderately Unsatisfactory

Outcome 2: Effective ecosystem restoration and sustainable management with integrated options to address climate change vulnerabilities are mainstreamed into post-tsunami reconstruction planning and implementation by relevant authorities and donors *(Total: US$ 2,420,425, of which GEF funding: US$ 1,008,900; Government: US$101,250)*

This component was intended to occur concurrently with the parent project the PTCRRMP such that livelihood reconstruction would mutually incentivize ecosystem restoration since ecosystem services are an indispensable component of coastal livelihoods. Since the implementation of the PCZRSMP became separated from the PTCRRMP by about five years and the unforeseen delay in start-up of the project after nearly seven years of the occurrence of the tsunami, the scope of Outcome 2 required some level of re-appraisal so as to be relevant. In the absence of change in the original project design, District Offices had to re-mobilize community participation to produce the outputs and outcomes now under review. This was a less than ideal situation.

Overall Rating (Outcome 2): Moderately Unsatisfactory

Project Output 2.1: Revision of policy framework to support the restoration and sustainable use of coastal natural resources and adaptation to climate change.

The project facilitated the revision of the NCZCRMP of the Coast Conservation Act (CCA) of 1981, and within the framework of the amended and renamed Coast Conservation and Coastal Resources Management Act (CCCRMA) of 2011, the NCZCRMP is expected to serve as the key document to mainstream ecosystem restoration and govern coastal habitat management within the scope of the Special Management Areas (SMAs) and influence enabling policy. The NCZCRMP recognizes the need for climate compatible design criteria and guidelines for development for shoreline management. The mission recognizes that the Urani and Kottukal lagoons in Ampara district have been declared as Fisheries Management Areas (FMAs) under the revised Fisheries Act of 2013 and the remaining project lagoons are in the process of declaration under the Fisheries Act. Decisions relating to FMAs are coordinated by District Secretariats in collaboration with Central Agencies. The FMAs are narrowly focussed on fishery production and related livelihood activities. What is unclear is how the revised NCZCRMP and establishment of SMAs that would provide additional regulatory powers that include ecosystem restoration and climate change adaptation are integrated into the FMAs. This is required to ensure ecosystem-based management incorporating land and seascape implications that recognizes the behaviour of the total aquatic system.

The NCZCRMP recognizes the need for addressing coastal habitat conservation giving consideration to relevant 'ecosystemic dimensions'. The outputs and outcomes of the PCZRSMP are likely to stimulate the CCCRMD to fully make the transition to ecosystem-based ICM. The NCZCRMP states in the chapter sub-titled "Addressing Habitat Conservation" – Policies, Plans, Laws and Institutional Arrangements as follows:

> *"Current rate of depletion and degradation of coastal habitats in the country highlights the requirement of conservation and adaptive management. The management of coastal habitats in a comprehensive and holistic manner was initiated by the CCCRMD through formulation and implementation of CZM Plans of 1990, 1997 and 2004. The policy arena with respect to habitat management initiative was further strengthen through "Coastal 2000: Recommendations for a Resource Management Strategy for Sri Lanka's Coastal Region" produced in 1992. These initiatives led to formulation and adoption of several management strategies covering regulation, education and awareness creation, planning and policy development, monitoring, research and coordination. Conservation of coastal and marine habitats and their biodiversity are also addressed in the National Biodiversity Conservation Action Plan implemented by the Ministry of Environment and Natural Resources. The legal provisions in the Coast Conservation Act No 57 of 1981and its subsequent amendments No: 64 of 1988 and No.49 of 2011 also promote the conservation of coastal habitats through regulatory measures. The expansion of the legally defined coastal zone through 2011 CC Act amendments covering the riparian land of*

the coastal water bodies has placed more emphasis on conserving the coastal habitats through regulatory process."

"The National Strategy and Action Plan published by the IUCN, Sri Lanka Office for the National Steering Committee of the "Mangrove for the Future" Programme, Sri Lanka, propose an eco-system approach based on integrated Coastal Management in Sri Lanka (IUCN, 2009). This is based on an evaluation of the 30-year record of coastal management in Sri Lanka, and postulate that "a more systemic approach is perceived to be imperative". Whilst some of the recommendations that can be accommodated within the current legal mandate of the CCCRMD have been included in this plan, a shift to eco-system based integrated coastal management would require a major reorientation of the CC Act which would in turn depend on the official acceptance of the proposed strategy and Action Plan at the highest levels of policy making".

"If so accepted, due regard shall be paid to this aspect in the revision of this plan within the next five years as mandated by the CC Act".

Rating: Moderately satisfactory

Project Output 2.2: Introduction of requirements to incorporate restoration of coastal ecosystems and adaptation measures for climate change vulnerabilities into central planning system for all tsunami-reconstruction projects.

Under this sub-component, GEF funding was to be used to support the drafting of a Cabinet memorandum with the intent of ensuring that interventions for physical ecosystem restoration is incorporated into any tsunami reconstruction activity in the coastal zone. Since the GEF project was significantly delayed and the project became effective later, most of the tsunami-reconstruction and rehabilitation relating to fisheries livelihoods were nearly completed. As a consequence, the activities of this Output could not be fully incorporated into the fishery livelihood activities of reconstruction projects, including IFAD's parent project, the PTCRRMP). Nevertheless the opportunity now exists for incorporation of physical guidelines for coastal ecosystem restoration based on actual place-based experience of the PCRZSMP to become incorporated into the physical planning national policy. Nevertheless, the TER Mission noted that the MTR mission acknowledged that this particular output was not relevant because of the delayed start of the GEF activity.

Rating: Not Rated

Project Output 2.3: Support to the incorporation of coastal ecosystems restoration into the Eastern Province Planning System.

In order to facilitate the inclusion of ecosystem restoration, the project intended to strengthen the existing district planning process within the purview of District Environmental Law Enforcement Committees (DELEC) chaired by the District Secretary (Government Agent GA) with membership of all district level institutions (coast conservation, forestry, environment, land use planning, disaster management, archeology, survey, etc.). The project has financed workshops for law enforcement officers and supported the coordination functions of the DELECs, as well as initiated activities to establish and strengthen partnerships between local communities and law enforcement officers. The need for strengthened law enforcement flows from the fundamental fact that ecosystem restoration requires safeguarding the open-access of commons such as lagoons, mangroves, dunes and associated sub-systems from destructive activities. The laws that apply to the commons are fragmented, overlapping and distributed among law-enforcement agencies in a manner that undermines self-confidence of representatives of enforcement agencies. The erosion of enthusiasm is decreased to an extent through consensus building at the DELEC. Strong ERAUs can make positive contributions in this regard by bringing in first-hand experience into the meetings. The ERAUs, with adequate inter-agency support, would be able to make a positive contribution in the future.

Rating: Moderately unsatisfactory

Project Output 2.4: Creation of an Ecosystem Restoration and Adaptation Unit (ERAU) within CCD to provide facilitation and supervision services and assume responsibility for promoting, facilitating, and supervising ecosystem restoration, climate change adaptation and dissemination of lessons learnt to other relevant parties. However, it is unclear what arrangements exists for ensuring the flow of lessons and best practices between district ERAUs and a central repository that would support policy development and guidance in relation to integrated coastal resources management. Adaptation and dissemination of lessons learnt by the PCZRSM project to other relevant parties is the key anticipated impact at the national level. The ERAU being situated in the CCCRMD that has diverse mechanisms under its jurisdiction includes management of coastal erosion by way of engineering interventions. The ERAU may couple them with 'low-cost interventions where coastal communities may participate'. District level ERAUs were initiated in 2014 while their evolution as guiding institutional mechanisms has been slow. The TER Mission noted that the District staff recognized the important role of ERAUs and made commitments to strengthening them by integrating spatial information already in hand at the project level into the District level geographic information systems. Additionally, it is necessary to strengthen arrangements that exists, for ensuring the flow of lessons and best practices between district ERAUs and a central repository that would support policy guidance in relation to principles of integrated coastal resources management (ICM) and participatory management of the coastal commons.

Rating: Moderately unsatisfactory

Project Output 2.5: Replication of ecosystem restoration and sustainable use through community-based co-management of coastal ecosystems and adaptation to climatic change by the Eastern Provincial Council.

The project entails the replication of restoration activities (for mangroves, sand dunes and lagoons) piloted under the project in other sites in the Eastern Province facilitated by the ERAU in close collaboration with the Climate Change Unit of the Ministry of Environment. The results of project's piloted activities for mangrove, sand dune and lagoon rehabilitation in the project sites were clear and warranted replication based on technical advice from the Project. The PMU reports that best practices developed at the demonstration sites were replicated in six other sites in the East Coast, namely at Batticaloa lagoon, Upparu lagoon, Sambalthive lagoon, Irakkandy lagoon, Panama lagoon and Komari lagoon. Implementing strategies of Project's major interventions (Pigeon Island conservation and development, Vakarai lagoon conservation and development and sand dune in Pottuvil/Panama) have been documented (to be printed for dissemination) and are available for sharing. However, the long-term potential for replication will depend on the extent to which provincial and district planning systems integrate coastal resources management into their individual planning and budgeting systems, and the extent to which CCCRMD shares learning and best practices with other provinces and districts in the country, as well as nationally. It is important that a manual be developed outlining coastal resources planning approaches building on learning from this project and recommendation of the TER mission. With appropriate intervention by ERAUs, it is foreseeable that supportive investment from the Ministry of Environment could be mobilized in keeping with its declared commitment toward promotion of 'tree planting' including mangroves in respect of coastal vegetation. The key guideline in the case of 'mangroves' is the promotion of 'restoration' based on ecological histories. What must be avoided is haphazard planting of mangroves that would obstruct lagoon hydraulics.

Rating: Moderately satisfactory

Outcome 3: "Empowerment of coastal communities for local natural resources management, enhancing sustainable livelihoods and adaptation to climate change vulnerabilities."

The intent of this Outcome was to empower coastal communities to manage local natural resources through establishment of co-management arrangements to resource coastal resources, improve local livelihoods and minimize climate change impacts. While efforts have been made to engage local communities, including fisher management committees to effectively restore mangroves, sand dunes and coral reefs, most of these activities have been implemented as "stand-alone" activities that on the long-term would have limited and sustainable impacts on coastal systems, including potential for replication. Future coastal resources restoration and management would better benefit from a more

integrated planning approach that looked at the entirety of coastal resources dependencies and interactions as a starting point for planning and developing a range of community management activities that collectively seeks to address coastal resources restoration, its sustainable use, improved livelihoods and climate adaptation, rather than look at each activity as an individual "stand-alone" investment.

Overall Rating (Outcome 3): Moderately satisfactory

Project Output 3.1: Facilitation of enabling environment for community co-management of natural resources and adaptation to climate change vulnerability.

This was to be initiated through community awareness programs, consultations with stakeholders including divisional level government agencies, and preparation of user-friendly documents on new amendments to the Coast Conservation Act, etc. The project has effectively facilitated the amendment of the Coast Conservation Act. The amended CCCRMA of 2011 was intended to introduce SMAs and strengthen participatory natural resources management and adaptation to climate change vulnerability approaches among local communities and other stakeholders along the entire coast based on place specific criteria. In addition, the project has conducted environmental awareness activities, disaster management training, conducted training for CCCRMD staff, developed environmental profiles for the project lagoons, dunes and coral reefs (Pigeon island), supported some livelihood improvement activities, facilitated creation of village revolving funds, etc. However, there are still gaps in terms of achieving a more integrated community natural resource planning based on ecosystem structure and functioning, in particular because community activities have been developed and implemented without reference to a cohesive spatial plan. Meaningful community participation in enduring partnerships should flow from the legal provisions that will enable community rights in the 'management of the commons' (see preamble)

Rating: Moderately satisfactory

Output 3.2: Promotion of mangroves and coastal lagoon co-management at Vakarai to improve local livelihoods, foster sustainable land management and to minimize climate change impacts.

The main activities that were to support the lagoon co-management are in sequence, community consultation; boundary identification through a participatory process with local communities and other key stakeholders; survey and demarcation of the boundaries; evidenced based management planning identifying different type of interventions balancing political, socio-economic and technical needs; and declaring and gazetting the conserved areas with legal enforcement without undermining fishery productivity. While, the restoration of mangroves through replanting has been carried out in few pre-identified locations of the lagoon in Vakarai Central and Panichchankerni GN Divisions where *Avecennia marina* and *Rhizophora mucronata* have been used in restoration process, these activities have not been sequentially followed by the steps identified above, leading to identification and implementation of mangrove restoration and related activities with limited consideration of defining multiple use zoning to safeguard sensitive aquatic habitats based on the hydrology and hydraulics of the lagoon, thus leading to the uncertainty of the benefits of this effort.

Rating: Moderately satisfactory

Output 3.3: Promotion of co-management of sand resources at Panama/Pottuvil to improve local livelihoods, foster sustainable land management and minimize climate impacts.

The original project design was to support planting of sand dune species, promotion of soil conservation and sustainable land management, conservation farming, rainwater harvesting for farming and ground water recharging and growing of salt-tolerant agricultural crops. The project has demarcated 524 ha of sand dunes, created 7.5 km of bio-fencing in Ampara and Batticaloa districts and established 160 ha coastal forests in the Ampara district with the intent of protection of coastal sand dunes, preventing encroachments and protection of adjacent human settlements. This is an encouraging exercise that provides an effective mechanism to reduce impacts of climate events on

the livelihoods and property of adjacent communities. However, unforeseen delay in start-up of activities and the complexity of project design, have led to the activities in relation to conservation farming and sustainable agriculture not been fully realized.

Rating: Moderately satisfactory

Output 3.4: Promotion of coral resources co-management at Pigeon Island.

The project intervention in the Pigeon Island site was intended to facilitate minimizing human induced stress on the reef system through participatory management to enhance the reefs' ability to withstand climate change related stresses. The project has facilitated the preparation of a management plan for Pigeon Island based an extensive consultative process with boat operators, the Department of Wildlife Conservation, the Kuchchaveli Divisional Secretariat, Marine Environmental Protection Agency, Navy and Police. The management plans includes specific recommendations for boat operation, visitor management, zoning and conservation of the Pigeon Island ecosystem, including removal of the "Crown of Thorn" starfish which is a predator on coral reefs, monitoring of the health of the coral reef, discouragement of collection of ornamental fish, etc.

The mission noted the keen and enthusiastic participation of the Nilaveli Tourist and Boat Services Cooperative Society and their understanding of the intricate link between conservation and their livelihoods. Discussions with the CCCRMD revealed that the live coral coverage has stabilized and the population of butterfly fishers have been enhanced and stabilized. It is important that the management plan be shared with the stakeholders and implementation of Pigeon Island Management Plan and law enforcement be strengthened. A visitor/information center is under construction, and among other benefits provides an excellent opportunity to enhance the role and responsibility of the Nilaveli Tourist and Boat Services Cooperative Society to strengthen and enhance their role in interpretation and awareness generation. The site initially selected for the information center which was in close proximity to the visitor boat launch site was shifted about 3 km away from the boat launch site because of problems associated with land acquisition. The challenge is to now be able to closely integrate visitation to the Information Center with the visit to Pigeon Island. This should be developed through a close coordination with the Nilaveli Tourist and Boat Services Cooperative Society to ensure that the economic interests of the boat operators and ecological interests in terms of the carrying capacity limitations of the coral reef system is not compromised.

Rating: Satisfactory

Outcome 4: "Learning, evaluation and adaptive management increased in both tsunami restoration and climate change adaptation". The project envisaged the establishment of project learning, evaluation and adaptive management based on needs. The project has produced a number of knowledge products such as publications, case studies, awareness raising pamphlets and posters, videos and social media (Facebook page) among others. These knowledge management (KM) activities and products provide a good foundation to build upon. It is evident however that a more strategic KM framework is necessary for fully benefiting from the lessons being learned from the rich set of activities being undertaken for achieving the objectives of local level behavioural change, replication and scale up of best practice and policy enhancement in support of community-based natural resource management.

Similarly, the project has also undertaken various trainings and awareness raising workshops with key project stakeholders, as well as, outreach activities to youth through art and painting competitions. Specific awareness programs conducted were the following including some of the following key activities: (i) local communities (89 groups) around Irakkandy lagoon were made aware on coastal ecological resources and mangroves restoration; (ii) mangrove replanting awareness programme for school children in Kuchchaveli; (iii) environmental awareness program were conducted for hoteliers in Nilaveli; (iv) public awareness programs were conducted on World Environment Day with an exhibition and art competition in Nilaveli and beach clean-up programs; (v) awareness on environment policy and regulation issues for the environment Police unit in Trincomalee District, (vi) awareness and training programs on Disaster Risk Management in Trincomalee District; (vii) preparation of baseline inventories of flora and fauna of Panichchankerni lagoon and SMA

ecosystems for educational and comparison purposes; (xiii) a Forest Park and Awareness Hall were built in Vakarai and used to conduct awareness workshops, CBO meetings and other environmental programs; (ix) awareness program for disaster risk reduction committee in Nasivanthivu; (x) awareness programs for organic farmers in Vakarai SMA; and (xi) awareness boards displayed close to valuable ecosystems,

An Outcome Survey conducted in 2016 revealed that the community perceptions on various project activities was very positive and over 88% of the respondents were aware of the activities in conservation and restoration of mangroves and key ecosystems in the project area. The PCR mentions the conduct of focus group discussions with CBOs in the 10 Gram Niladari Divisions of the Vakarai SMA that revealed a high level of satisfaction on project interventions and increased community awareness on ecological resources due to project interventions.

In terms of Knowledge Management, the IFAD supervision mission of January 2016, recommended the developing of a strategic KM framework to undertake the following: (a) stakeholder mapping for defining the relevant changes being sought after; (b) identifying the most appropriate KM products for informing and facilitating the change processes; (c) defining knowledge dissemination pathways; and (d) monitoring and documenting biophysical and socio-economic changes (structured data collection and storage for monitoring change over the long term). This would also have required the establishment of a national database on ecosystem restoration, climate change vulnerabilities and adaptation at CCCRMD. While a series of KM products have been developed, the KM products are not adequately linked to the strategic objectives of ecosystem restoration and climate reduction to provide a vision for long-term spanning the next 30 years.

Overall Rating (Outcome 4): Moderately Satisfactory

Outcome 5: Project Management, M&E and Information Dissemination

Overall, the Project was implemented largely in line with the arrangements envisioned at the design except for locating the PMU in Colombo and setting up of dedicated ERAU at CCCRMD. PMU was to be established in Trincomalee, from where local level implementation would be managed. Although these offices were to be collocated in the same premises of IFAD funded PTCRRMP it did not become reality as it was inactive in early years of the project, consequently slightly increasing project management costs. PMU headed by Project Manager and three Field Project Officers was responsible for administration, technical coordination, politico institutional liaison, and monitoring and supervision of the project. PMU was the structure with administrative and financial autonomy to manage the project.

As revealed at the last Supervision mission, (2016 January) although the recruitment and deployment of additional staff at the district level has improved, at the central level PMU the absence of full-time dedicated project staff has limited the capacity for enhanced monitoring and evaluation and consolidation of operational information. In addition, they have observed that the interaction and communication between ‘operations’ and fiduciary aspects has been inadequate, which had consequence for effective planning, efficiency in the roll-out of activities, and their monitoring.

Overall Rating (Outcome 5): Moderately Satisfactory

b. Assessment of Project Outcomes and Objectives

Project Relevance:

The relevance of PCZRSMP was assessed in terms of:

- Consistency of outcomes with the local areas/operational program strategies, and
- Country priorities.

The project outputs and outcomes are reviewed in a historical, geomorphological and social-political context giving consideration to overall change trends. This is done to prevent the possible 'normalization' of outputs and outcomes although they may have deviated from geomorphological setting peculiar to Sri Lanka that would determine 'sustainability' and 'replication'. Otherwise the possibility exists that non-integrated outputs and outcomes may be repeated triggering unintended consequences.

The value of these ecosystems in providing protection to communities and property against the wrath of the tsunami was considered as the key factor that led to the design of the PCZRSMP. The project was considered critical to ensure that the reconstruction program in the aftermath of the tsunami was not made in isolation of ecosystem restoration, adaptation to climate change vulnerabilities and broad conservation objectives, which were given low priority in the reconstruction effort resulting in responses that could be inappropriate to, incompatible with, or unsupportive of, the sound utilisation of natural resources which most of the local communities of the East Coast are ultimately dependent upon to sustain their livelihoods.

The project design was founded on overcoming three key barriers to the restoration of coastal ecosystems – that is, technical knowledge for low-cost restoration methods that was not present on the island; the environmental issues that had been given low priority during the tsunami relief and reconstruction program; and the processes leading to land degradation prior to the tsunami needed to be changed if the rehabilitated ecosystems are to provide the functions and services envisaged on a sustainable long-term basis. The initial emphasis of this seven-year project was to be on developing a scientifically-based, low-cost, community-based approach to rehabilitating three key coastal ecosystems – mangroves, coastal lagoons, and sand dunes – at specific sites, facilitating replication of these techniques all along the East Coast (and in due course other tsunami-affected coasts). In seeking to achieve this, the project was intended to have a two-prong strategy, to a) demonstrate that replication was technically feasible at other sites, and b) mainstreaming ecosystem restoration into the reconstruction process by making it a requirement of Government policy and building the capacity of a specialist Government unit to facilitate and support the process. Improved management of these restored and other coastal resources was to be promoted to raise incomes, develop sustainable livelihoods, and improve sustainable land management, by facilitating the empowerment of the local communities to enter co-management agreements of the coastal areas with Government, and by providing best practice guidance and other tools and opportunities for them to improve their incomes. Support was to be targeted at the rural poor and particularly women to improve their level of participation in social and economic activities improve incomes and reduce poverty.

The project generated some important achievements, such as the revision of the NCZCRMP as a GEF Project activity which recognized the need for mainstreaming ecosystem restoration and to provide improved governance for coastal habitat management within the scope of Special Management Area (SMAs). This is a major step forward, as without the framework policies included in the NCZCRMP, inter-agency cooperation becomes difficult since the statutory roles of the Forest Department and Wildlife Conservation Department in partnership with the CCCRMD are indispensable. The project design also recognized the need for climate compatible design criteria and guidelines for development for shoreline management, which is a strong element for future coastal zone management in the country. In addition, the establishment of district and national ERAUs are potential elements of project design that can benefit the country. Despite the good intentions of the project to facilitate the restoration of tsunami-damaged ecosystems and improve the livelihoods of coastal communities, the design of the project was not fully appropriate to meet its full expectations.

As explained in the earlier section of this report (Preamble to Section C: Performance Review, (a): A Review of Project Outputs) PCZRSMP implementation started without recognition of the disparity between the perception of damage to coastal ecosystems, and the reality in terms of loss and/or irreversible change (GEF Approved Project design versus MOENR/UNEP Assessment of 2005). The perception was one of extensive damage driven by global generalizations from other affected Asian countries regardless of fundamental differences in the Sri Lanka-specific geomorphological peculiarities in structure and functioning of the counterpart ecosystems (sand dune, lagoon, mangrove, coral reef). Some perceptions asserted extensive damage to coastal ecosystems – with respect to area of occurrence 100% of coastal lagoons, 43% of mangroves, and 38% of sand dunes were either partially damaged or completely destroyed[5]. The impulsive perceptions based partially on global ideology required balance with the findings of the 'Rapid Green Assessment (RGA) of the Impact of the Indian Ocean Tsunami on Coastal Ecosystem in Sri Lanka - RGA for convenience (MOENR/UNEP, 2005).

Given the relevance and timeliness of the project, the design of the project was not adequate to meet its intended objectives for the following reasons:

- While, the intent of the project was to develop a holistic approach to ecosystem restoration, project design did not fully recognize that these ecosystems (lagoons, sand dunes and mangroves) are not individual systems, but parts of larger ecosystems that have landscape and seascape linkages and geographical, ecological and socio-political dimensions that extend well beyond the limits (or the boundaries) of the system. To capture a holistic approach to restoration and management of such systems, project design should have entailed planning and management that encompassed the totality of ecological, geographical and socio-political linkages rather than as isolated "stand-alone" systems. As a consequence, planning of project individual investments in mangrove, lagoon, sand dune and coral reefs were considered as "stand-alone" and not adequately integrated at the systems level;
- There was a mismatch between the identification of ecosystem restoration activities and the reality of the geomorphological form and pattern of the landscape/seascape and the underlying ecological drivers and variables, resulting in that project investments may not have been well targeted to the specific needs of the ecosystems for ensuring long-term sustainability of these ecosystems and even entraining unintended ecological consequences (e.g. enhanced flooding on account of increased sedimentation due to excessive planting of mangroves beyond their historical limits thus reducing the volume of the lagoon);
- Design was silent on the importance of ensuring that restoration of lagoons and associated vegetation should exclusively focus on a "trend-based" or historical perspective to identify specific locations, magnitude and structural needs for investments in restoration activities to ensure that damaged ecosystems could be brought to an acceptable balance and thus avoid an ad-hoc approach to planting of mangroves and other species. This is manifest in the rush to planting of mangroves, even in unsuitable and unstable locations (where mangroves were historically absent) in the lagoon that have resulted in the total washing away of the planted seedlings during flooding, and in some cases have had unintended ecological consequences by restricting the water capacity of the lagoon (due to increased sedimentation from mangrove planting) and increasing flooding.
- The project emphasized scientifically-based, low-cost approach to restoring coastal ecosystems through community-based actions. However, the TER mission notes that coastal ecosystems, particularly lagoons that have been the foci of historical infrastructure developments had entrained irreversible urbanization processes that were not always amenable to low cost actions (e.g. expansion of high density urbanization centres resulting in the dumping of waste into aquatic bodies that are important for fisheries). As a consequence, the pilots for waste management were not adequately planned, resulting in investments that were clearly beyond the scope and funding of the project, given their costs, environmental and ecological and social consequences.

[5] Area affected takes GIS mapping data on respective ecosystems as source. Ranking of damage in each site differ from slight through moderate to severe as stated in section 6.1 p. 56 of Rapid Assessment of Damage to Natural Ecosystems in the Coastal and Associated Terrestrial Environments – Green Report. The section in itself clarifies the generalized statement on extent / severity of damage to ecosystems since the inference is counter-intuitive.

- The project design is based on the premise that mangroves and lagoons provided protection and saved lives and property during the tsunami. This conclusion is not based on scientific reasoning and draws on the misunderstanding that inland mangroves found in Sri Lanka act similarly to seaward mangroves (particularly those found in Indonesia) that saved lives and property wherever the natural systems remained intact.

Rating: Moderately Unsatisfactory

Project Effectiveness:

Over the 7-year (or a 5 year truncated period) duration of the Project implementation, the draft Project Completion Report of the Government of Sri Lanka states that the project major interventions were confined to six Divisional Secretariat divisions and 51 Grama Niladari (GN) divisions in the three districts in the Eastern Province. The estimated population in the target DSs and GNs was 86,712 (of which 51% were female), although some interventions were extended to other DS and GN divisions as well. The following case study summaries bring out the manner and scale on which livelihood benefits were generated as reported in the PCZRSMP Newsletter Edition 2, 21 January 2017.

- Increasing green coverage in the Vakarai Special Management Area, Batticaloa District included training and management of plants of economic value. 935 families participated and at the end of five years (since 2011) the survival rate of plants reached 61.5%. The organically managed plants had reached a total 10,558 at the time of the assessment survey in 2016.The response of participants is highly positive since the produce is readily marketable and includes high value fruits (coconut, guava, pomegranate, orange, papaya, mango and cashew).
- Women got involved in enterprise in the Trincomalee District Special Management Area, where 284 households participated in training and production activities including handloom products, palmyrah products, packaged meals, goat rearing, and agriculture. The majority of micro-enterprises have acquired stable returns, while the activity also generated social capital as well as trained persons for other small-scale industrial activities.
- The North East Socio Economic Developers (NESED) was assigned responsibility for testing and establishing micro-economic enterprises in the Sangamankanda GN Division in Ampara District. The Sangamankande Entrepreneurs Welfare Development Society has 33 members. The member savings from generated income have grown to a level that enables issuance of loans reaching Rs.25,000/=. In parallel, income generating activities have expanded from agriculture to livestock.

The number of people who directly benefited from project investments has not been precisely inventorized, although it is understood that about 2,600 rural households were direct beneficiaries of livelihood enhancement and related development program benefits, including around 300 households that participated in the three ecotourism pilot programs. Additionally a larger number of people are likely to have indirectly benefitted from co-management processes related to boundary demarcation, sand dune rehabilitation, green belt development, mangrove restoration, and removal of tsunami debris from selected lagoons and other activities.

However, the TER mission is of the view that the design and implementation of the project activities entailed some limitations, such as implementation delays and frequent institutional changes resulting in the project not being able to fully achieve the intended project goal, objectives, outcomes and outputs. Though the project at design stage recognized the need for full restoration of coastal ecosystems damaged by the tsunami, the inter-relationships between the various interacting parts of coastal ecosystems were not taken into consideration during both the design and implementation phases of the project, therefore project investments were largely considered as “stand-alone” investments, leading to questions whether full ecosystem restoration could be achieved or not. Within the funding resources available to the province and in the constraints of time (given the delay in start-up of project activities following the tsunami) various interventions were undertaken within the framework of the existing project design, where targets set out by the project were considered achievable. Some efforts were made to ensure a vertical integration of interventions to address ecosystem degradation and the loss of biodiversity from Province, District, Divisional to community

level. On the other hand, the IEM approach that required the horizontal integration across sectors involving stakeholders responsible for rural and urban development, land-use planning, agriculture, forestry and environment working in collaboration was not fully recognized.

Further the delay in start-up activities, in particular nearly seven years after the tsunami, made some objectives, outcomes and outputs outdated, in particular because the original intent of the project was to mainstream restoration and management of coastal ecosystems into the tsunami reconstruction activities, and by the start-up of the project most of the post-tsunami reconstruction activities were either completed or nearing completion. The lack of re-appraisal of the project to meet the changing situation was another key factor that the TER considered in undertaking the evaluation. Additionally, IFAD supervision mission did not consider the need for any adjustment of the scope and content of the project given the significant delays in project start-up and the closing of the IFAD's PTCRRMP (the significant source of co-financing for PCZRSMP) before actual implementation started. Additionally the transfer of the CCCRMD through three ministries during the life of the project caused significant uncertainty and delays in project implementation as well.

Stakeholder Involvement: Project design recognized that the primary stakeholders in the Project were the local communities and local authorities in the east coast of Sri Lanka. Further the feature of the project design was the multi-stakeholder, inter-sectoral integration and participation approaches. One important strength anticipated during implementation was the mobilization of provincial, district and divisional agencies at different levels and responsible for different sectors. The Project involved the relevant stakeholders through information sharing and consultation and by seeking their participation in implementation. The Project implemented appropriate outreach and public awareness campaigns about project activities in the three districts. The Project consulted with, and made use of, the skills, experience and knowledge of appropriate government agencies, community groups, fisher associations and technical specialists in the implementation although it is unclear to what extent these agencies were consulted in the design and evaluation of project activities. However, the key implementing agency for the project, the CCCRMD was moved through three different ministries during the project implementation period causing substantial delays and interruptions in project implementation that affected the full attainment of project results and questioned the extent to which CCCRMD could commit to ensure wider and broader consultation with other stakeholders at the provincial, district and local levels.

The TER Team found the following points regarding actual experience with the institutional arrangements for stakeholders involvement during implementation: (i) Community level Coordination Committees were established under the Chairmanship of the Divisional Secretaries of the relevant divisions that met regularly to address issues relevant to Special Management Areas; (ii) establishment of Lagoon Fisheries Management Committees in Panama, Pottuvil, Urani and Komari Lagoons and awareness on sustainable fisheries management instituted; (iii) Improved inter-agency in particular with the Department of Fisheries and Aquatic Resources, Department of Wildlife Conservation, Forest Department and DS and GN officers for implementation of key components of the project; (iv) Strengthening of District level environment coordination and Law enforcement committees involved multiple stakeholders; and (v) active involvement of communities for mangrove and sand dune restoration, ecotourism, livelihood investments and small business enterprise development.

However, there are strong challenges yet to be overcome in order to more effectively reach wider communities that are either directly dependent on the coastal resources or impact of it, if longer-term and sustained community participation is envisaged. The continuance and up scaling of project outputs would require a more concerted and structured consultation and participatory process that builds on multi-sectoral, multi-stakeholder and integrated approach that seeks to address the full range of conservation, sustainable use and threats associated with coastal resources.

Rating: Moderately Satisfactory

Project Efficiency:

There were substantial delays in the start-up of the project, with subsequent low rate of budget execution (below 50%) in the first five years of the seven-year project that reflected on the poor status of budget monitoring and implementation. Even though the cumulative rate of grant disbursement has reached 80% at the project completion, a significant increase is only observed in the last two years of the project, with allocations for Vehicles and Equipment and Operation and Maintenance exceeding projected budget thresholds by 25% and 5% respectively, despite the recommendations made by the last mission (January, 2016) to monitor these categories closely and avoid classification errors. In addition to the poor procurement planning and contract management, delay in project implementation (late start) also has made a significant impact on cancellation of construction of Research and Information Centre at Arugam Bay and delay in completion of Pigeon Island Research and Information Centre. Financial risk involved in community projects such as Boat safari Centre Vakarai, Safety building at Tennamavady, and Revolving funds established under Micro finance program is relatively high, as these activities commenced operation in the final year of the Project and no further intervention by the project can be expected to sustain these investments.

In addition to the GEF grant of USD 6,919,915, co-funding identified at the design stage included USD 55,500 worth of staff time and indirect cost from IUCN, USD 7,083,650 worth of resources and structures of IFAD funded Post Tsunami Coastal Restoration Resource Management Program (PTCRRMP) and USD 430,300 worth of in-kind contribution from Government of Sri Lanka (GoSL). However, co-funding identified at the design stage were not fully realized except the agreed contribution of GoSL, due to various reasons including change of Lead Project Agency to Ministry of Defence and Urban Development from Ministry of Fisheries and Aquatic Resources at the early stage of project implementation and late start of the project. When the project implementation accelerated from 2014, the PTCRRMP had been completed (it was completed in September, 2013) and intended contribution at the design stage was not materialized. Consequently, a major objective of the project to mainstream coastal ecosystem restoration in tsunami infrastructure restoration did not materialize. Therefore, the entire project was funded by the GEF and GoSL. As the project had uninterrupted flow of funds both from IFAD and Government, it has not experienced any liquidity issue throughout the project life.

The cost effectiveness of the project is also questionable given that investment were largely made on a “stand-alone’ basis for the key activities relating to the restoration of mangroves, lagoons, sand dunes and coral reefs. An integrated approach to management of these inter-related resources and social, economic, environmental and development conditions that influence and shape the ecology and functioning of the coastal ecosystems would undoubtedly have been more cost-effective and sustainable.

Rating: Moderately Unsatisfactory

c. Assessment of Sustainability

Overall Rating: Moderately Likely

Policy: In general, policy results achieved to date are considered to be lasting and sustainable. The revision of the NCZCRMP of the Coast Conservation Act (CCA) of 1981, and within the framework of the amended and renamed Coast Conservation and Coastal Resources Management Act (CCCRMA) of 2011, the NCZCRMP is expected to serve as the key document to mainstream ecosystem restoration and govern coastal habitat management within the scope of the Special Management Areas (SMAs) and influence enabling policy. The NCZCRMP recognizes the need for climate compatible design criteria and guidelines for development for shoreline management. The NCZCRMP also recognizes the need for addressing coastal habitat conservation giving consideration to relevant ‘ecosystemic dimensions’. The policy work in relation to the revised CCCRMA may be the Project’s most sustainable policy work of all. However, what is unclear is how the policy dimensions of the revised CCCRMA gets incorporated into national, provincial, district and local levels, especially sectorial planning. If continued work can be done in the coming years to ensure that the “IEM” approach gets incorporated into provincial level planning, that would be a very positive achievement

in terms of sustainability. The CCCRMD needs to make sure that the "IEM" approach is included in the discussion agenda for to make recommendations on the next provincial planning period.

Rating: Moderately Likely

Financial Risks:

As the project investments were mainly on infrastructure relating to coastal conservation, development of environment profiles of lagoons in the Eastern province and various studies useful for future planning, financial risk involved after completion of the Project is minimal. Most of these activities were undertaken by the project to supplement on going government programmes. Financial risk of Community based activates such as Revolving fund of the Tourist Boat Operators' Cooperative society at Pigeon Island and some of the Ecotourism projects, although they were supported in the final year of the project, is relatively low as they are subject to audit and supervision by the Provincial Cooperative Department under the Co-operative Act. However, financial risk involved in community projects such as Boat safari Centre Vakarai, Safety building at Tennamaravady, and Revolving funds established under Micro finance programme is relatively high, unless these Rural Development Societies and Women societies are guided and regularly supervised by relevant government authorities in the area, as these activities commenced operation in the final year of the Project and no further intervention by the project can be expected.

Rating: Moderately Likely

Socio-political Risks:

Socio-political risks usually arise when there is a significant change in government policies and priorities at National or Provincial levels that may change the conservation of biodiversity in coastal ecosystems as a result. Based on the current situation where interests, commitments and support from the Government (Province, District and Community) are uncertain given the strong development pressures post-war and the emphasis on infrastructure and housing improvements (including the proposed "Megapolis" program). It is likely that there could be significant change in the policy and socio-political commitment to conservation of biodiversity in coastal ecosystems, unless development planners are willing to take full cognizance of the ecological and socio-ecological dimension of the coastal ecosystems. These are risks that might affect the socio-political dimension of sustainability.

Rating: Moderately Likely

Institutional Framework and Governance Risks:

In the event that the PCZRSMP interventions are to acquire their intended long-term (sustainable) impacts that would impart resilience to the target coastal ecosystems and their ecosystem services, the institutional building block must be adequately strong. The institutions (formal and informal) here imply the regulations (statutory provisions and traditional practices) and the organizations in charge of their enforcement (formal and community-based). In the absence of enforced rules a coastal commons inevitably slides into the 'tragedy of the commons' (see Preamble for principles of commons management). During the relatively short period (about 4 years) the district staff made substantial progress in regard to building awareness and bringing together collaborative partnerships.

The formal administrative arrangement under which the PCZRSMP began activities changed over the life of the project and stabilized under overall coordination and supervision of the Ministry of Mahaweli Development and Environment (MOMDE). A National Project Steering Committee (NPSC) established under the chairmanship of Secretary, MOMDE (the project executing agency since January 2015) provided institutional, political and operational policy advice and guidance to the project. In addition, the NPSC undertook the review and approval of the Annual Work Plan and Budget (AWPB) of the Project as one of its key responsibilities. Coordination among the wide range of administrative bodies in regard to the ecosystems where the PCZRSMP intervened contributed to governance (decision making).

District level project coordinating committees were also established to strengthen inter-agency coordination and cooperation at the district level. Community level Coordination Committees were established which have been functioning in districts with the Chairmanship of the Divisional Secretaries (DS) of the relevant divisions. Such coordination committees used to meet in regular intervals to address the issues prevailing in the relevant Special Management Areas (SMA) deriving suitable solutions.

The project adopted a participatory approach in implementation of the project activities including administrative stakeholders, and primary stakeholders (those who were dependent on the ecosystem services for wellbeing). This approach was intended to achieve the following: (i) ensure ownership of the project's interventions among local agencies; (ii) ensure sustainability of the implemented interventions after the project period; and (iii) reduce field level implementation cost. Main local level agencies involved are divisional secretariats, local authorities, NGOs and Community Organizations. However, it remains unclear how the agencies would finance 'operation and maintenance' of the project's legacy following its departure in 2017. It is here that the 'governance context' in Sri Lanka emerges as a concern in spite of the valuable interventions of the project.

The operational regulatory framework within which the CCCRMD absorbs lessons in coastal ecosystem restoration from the PCZRSM is suggested in the NCZCRMP (draft 2015). Its finalization and gazetting anticipated in the near future includes attention to inertia of the present and challenges from the future. The draft NCZCRMP is an optimal starting point to think about the 'institutional framework'. The coupling of the legal powers available to the CCCRMD under the revision of the CC Act for regulating and controlling land uses in declared 'special management areas - SMAs', with the powers of the Department of Fisheries and Aquatic Resources (DFAR) in regard to fisheries and fishery-dependent livelihoods within 'Fishery Management Areas' appears to provide an adequate rule-based framework for managing aquatic coastal commons, particularly lagoons, mangroves and coral reef. Sand dunes are more physically predictable compared to the other three ecosystems / habitats. It is hoped that lessons from the PCZRSMP will further strengthen planning and implementation approaches. The Aide Memoire of the TE Mission noted:

"The NCZCRMP is expected to serve as the key document to mainstream ecosystem restoration and govern coastal habitat management within the scope of the Special Management Areas (SMAs) and influence enabling policy. The NCZCRMP recognizes the need for climate compatible design criteria and guidelines for development for shoreline management. The mission recognizes that the Urani and Kottukal lagoons in Ampara district have been declared as Fisheries Management Areas (FMAs) under the revised Fisheries Act of 2013 and the remaining project lagoons are in various stages of progress to be declared as FMAs. Decisions pertaining to the FMAs are coordinated by the District Secretariat in collaboration with Central Agencies. The FMAs are narrowly focussed on fishery production and related livelihood activities. What is unclear is how the revised NCZCRMP and establishment of SMAs that would provide additional regulatory powers that include ecosystem restoration and climate change adaptation are integrated into the FMAs. This is required to ensure ecosystem-based management incorporating land and seascape implications that recognizes the behaviour of the total aquatic system".

Chapter 3 of the draft NCZCRMP notes accordingly: "*Attempts at adopting an integrated approach to management of coastal habitats in the past indicated a need for closer co-ordination among institutions that have jurisdiction over various coastal resources. Future strategies for conservation and rational management of coastal habitats should take due cognizance of the constraints encountered in the past. The management measures adopted by the CCCRMD in respect of coastal habitats have relied considerably on regulatory initiatives. Strengthening institutional integration and community participation should receive high priority, since they have been identified as the weak links in implementing coastal resources management plans. Community participation is vital to resolve user conflicts encountered in different ecosystems, and Special Management Area initiatives should be adopted as a tool where possible to promote community participation in dealing with specific coastal habitats and the various issues connected with them"*.

The NCZCRMP in spelling out the institutional framework also noted as follows. "*Future approaches for coastal habitat management should also be geographically specific and based on well-explained links between human activities and changes within the natural systems. The overall management*

objectives in respect of coastal habitats in the future should be to ensure the sustainable management of coastal habitats and for the preservation and enrichment of their natural features. Achieving this requires addressing the issues pertaining to each habitat separately in view of their specific characteristics and requirements. Care has to be taken to ensure that all policies and actions for conservation of coastal habitats comply with the National Physical Development Plan, the National Environmental Action Plan and the National Biodiversity Conservation Action Plan and the other national planning initiatives. It is important to implement coastal habitat management on a prioritized basis as some habitats are faced with severe threats that require immediate attention. While no attempt has, however, been made to prioritize coastal habitats for management action in this document, *this could be an important aspect to be addressed in implementing the NCZCRMP. In the preparation of plans, especially for the Special Management Areas, care should be taken that the linkage between the individual habitat and the eco-system units in which they are nested is not lost sight of*".

In terms of the Governance risk, it must be recognized that future challenges and measures identified for addressing them in legitimate ways (benefits of decisions distributed equally in society), is faced with governance risk (decision-making risk). This is simply because of the forms of decision-making that operate in democratic societies where politics dominate reason and science. Evidence does not exist that legal empowerment has occurred to enable local resource users to take action against activities that are not in their economic interest based on ecosystem resilience. In Batticaloa lagoon where about 17,000 artisanal fishers eke out a subsistence living, garbage dumping for land capture from the lagoon waters is proceeding apace (e.g. Katankudy). Until and unless the lagoon fishermen establish legal precedent (through public interest litigation for which provisions are available), the benefits of boundary demarcation by the PCZRSMP may dissipate with time. The governance risk is also connected with the inherent gap between 'intention' and 'capacities' of, among others, such as:

- Institutions empowered with regulatory authority lacking financial resources,
- Primary stakeholders who may benefit and/or be harmed by plan implementation failing to think about the larger picture in relation to coastal resources management,
- Lack of understanding of the relentless changes in complex coastal ecosystems (e.g. in response to sea level rise) and in Sri Lanka keeps shrinking the coastal living space triggering climate refugees,
- Lack of means to implement safeguards against physical challenges such as displacement by inundation in a setting where population pressure on living space has increased threefold since independence in 1948.

The question is, whether governance risk may face the outputs and outcomes of the PCZRSMP, particularly in defence of lagoon capture / encroachment in the absence of activism supported legal rights tested by case law and accompanying legal precedent.

Rating: Moderately Likely

Environmental Risks:

Long-term global and local climate changes and unpredictable fluctuations in extreme weather events could alter the positive achievements of the Project, including sand dune restoration, ecotourism activities, alternative livelihoods development and restoration of lagoon from tsunami debris ecosystems and enhancing conservation of biodiversity in coastal ecosystems. The interventions implemented by the project were in keeping with 'possible' short-term interventions connected with coastal ecosystem restoration including lagoons, mangroves, sand dune and coral reef, hence there remain substantial risks that affect this dimension of sustainability, particularly those that are external (e.g., long term climatic changes and unpredictable, extreme weather events). These might include the following:

Sea level rise

In the context of Hansen et al. (2016) assessment and the anticipated sea level rise in keeping with the IPCC (2015) modest prediction, environmental risk in the three Trincomalee, Batticaloa and Ampara Districts may be assumed to be associated with an 80 cm increase by the end of the century or ahead of it. This would mean a total of about 1.5 metres with addition of the high tide rise in Sri Lanka (also see preamble). Batticaloa lagoon will be the most exposed aquatic system along the East Coast connected to a high level of risk (habitation and private property).

Sea-surface temperature increase

Sea surface temperature in the Bay of Bengal reportedly has increased to an extent where coral bleaching is already occurring in Andaman Island and in the Maldives. Nevertheless, evidence of coral reef bleaching appears not to be overly evident in Sri Lanka. In view of the nearness of the Pigeon Island to the beach and the outflow of potentially polluting discharges from the Irakkandy lagoon (Sinnakarachchiya lagoon), the longer-term consequences, will be unpredictable.

Rainfall (concentrated precipitation, avalanche rainfall)

Sri Lanka is already experiencing bouts of concentrated rainfall, flash floods, landslides, alternating with extended drought. Among flood prone areas, Batticaloa ranks highest. Its geomorphological form makes it physically exposed to flooding since the about 60 km long sliver of water that we recognize as Batticaloa lagoon, although highly compartmentalized, is the sole drainage pathway associated with six watersheds connected to the sea by only two tidal inlets. It is too early to predict the manner in which the drainage pathway partially obstructed by planted mangroves (and other urban developments) may provide its regulating service. In the event that mathematical modelling of drainage, sedimentation and the contribution of surface area to the tidal prism (and retention time) interact, removal of mangroves planted in flow pathways and better urban planning may be warranted as a part of adaptation.

Coastal erosion and sand dune stability

The sand dunes in Panama are situated behind a beach anchored between headlands. This beach receives sand naturally from long-shore drift coupled with waves. The sand dune is nourished by windblown sand from the beach. Sea level rise of the range envisaged will likely cause erosion and deplete the sand store from which the dune is nourished. In such a context the dune afforestation that has been done is likely to protect it against surface erosion. Long-term stability in the PCZRSMP output may logically be inferred.

Impact of development processes

The expansion of private property into Batticaloa lagoon is evident at numerous locations along the periphery. Recently constructed tourist hotels have opportunistically expanded their property into the lagoon. Boundary demarcation may discourage the pace of opportunistic land capture. It would be feasible only if law enforcement becomes rigorous under a combination of regulatory powers. Solid waste dumping is a growing threat and increasingly undermines quality of fishery habitat despite a demarcated boundary.
Sri Lanka's Ministry of Megapolis Planning and Western Development has embarked on a major infrastructure planning and development for Kalmunai and Samathurai (Ampara District) and Batticaloa (Batticaloa District). The flood proneness of the planning area is recognized to some extent. The regulating service (drainage and flood protection) of Batticaloa lagoon should be viewed as an integral component of the planning process.

Rating: Moderately Unlikely

d. Assessment of Catalytic role

Catalytic actions by the Project: The catalytic actions of the Project will depend on the extent to which Provincial and District entities are willing to build on some of key achievements of the project (sand dune rehabilitation, coral reef protection, ecotourism activities, etc.) with preparing strategically

important planning tools, sharing knowledge and introducing innovative new techniques to sustain peoples' livelihoods and the environment. The Project was instrumental in revision of the CCCRMA, strengthening DELECs and formation of fishery management committees and introducing elements of participatory and community-based approach, but the lack of concerted efforts in extending these participatory efforts to planning systems and demonstrating these through integrated lagoon management plans, eco-tourist development plans and their implementation and the availability of integrated and best practices guides for support to livelihoods and biodiversity conservation in coastal resource management ecosystems would be a constraint to catalysing these actions on the medium to long term make.

Innovation: Innovative new scientific knowledge and appropriate approaches were used to develop baseline inventories of fauna and flora for some of the lagoons to create awareness of the coastal ecosystem resources and habitat restoration as well as to serve as the basis for boundary demarcation (although this would have been better served if demarcation was done on an ecological basis rather than using physical attributes) and establishment of fishery management committees. In addition, a number of technologies were introduced for alternative livelihoods activities for community-based fishermen and coastal resources management. These included: (i) sand dune rehabilitation through the participation of adjacent communities and as a means to restore tsunami damaged sand dunes and a means for preventing encroachment; (ii) promotion of lagoon-based ecotourism ventures involving fisher households; (iii) development of management plan for Pigeon Island National Park with a strong participatory component for integration of visitation with coral reef conservation; (iv) promoting alternatives to minimize the use of firewood including the two chamber clay hearth which economize the firewood consumption and biogas plants; (v) demonstration of "disaster" safe-house to protect the community during severe weather related events; (vi) green belt development; (vii) group-based micro-enterprise schemes; and (viii) livelihood activities. However, what is lacking is the establishment of institutional links that would enable the replication of these models, given the cessation of the PMU at the end of the project. It is thus important that the CCCRMD makes a concerted effort to document and disseminate these practices and ensure that provincial and district level entities integrate these initial efforts into their respective planning systems.

Replication and Scaling up

The comments here are to be taken into consideration together with observations made under Project Output 1.2 on the 'inference' of best practice. The large part of the Project funding was provided by GEF, with some level of Government co-financing and the mechanism for financial and technical delivery to beneficiaries was primarily through the Province, District and Divisional levels. The TER mission hopes that the planning tools, best practices, mapping, boundary demarcation and other innovative pilots will continue to be used and built upon beyond the life of the Project. The best practices already exists to some extent, either as guidelines or best practice notes. To some extent, the local community institutional arrangements, such as co-management committees, fishery and lagoon management structures are already in place. Some of the best practices developed at the demonstration sites have been replicated in different scale at six other sites in the East Coast namely Batticaloa lagoon, Upparu lagoon, Sambalthive lagoon, Irakkandy lagoon, Panama lagoon and Komari lagoon. Implementing strategies of Project's major interventions (Pigeon Island conservation and development, Vakarai lagoon conservation and development and sand dune in Pottuvil/Panama) have been documented (to be printed for dissemination) and are available for sharing. There were key components relating to replication and scaling up that was intended to happen under the project, including the establishment of the ERAUs and the district level and at the national level within CCCRMD to provide facilitation and supervision services and assume responsibility for promoting, facilitating, and supervising ecosystem restoration, climate change adaptation and dissemination of lessons learnt to other relevant parties. This did not fully materialize, in particular the establishment of the ERAU at the national level, and ERAUs established at the three districts were initiated very late in the project to ascertain how effective these structures would be, and ensure its replication nationwide. The potential for replication and scaling up would be determined by the extent to which CCCRMD makes ERAUs functional and use these as a means to promote sharing of best practices and

experiences within the country. It is important that these are further promoted and sustained beyond the project and extended to other coastal ecosystems as well.

e. Assessment of M&E system

39. The overall assessment of M&E was rated as Moderately Unsatisfactory because the Design was rated as Moderately Unsatisfactory. The TER team noted some indicators were too ambitious (discussed later in this paragraph); some seemed to measure outputs (e.g. capacity building undertaken, restoration underway) rather than impacts or outcomes. In addition, there were too many indicators (over 50) and some indicators were difficult to measure (e.g. no net loss of globally threatened species, post-tsunami conditions of endemism maintained or enhanced) during the life span of the project, others were unrealistic. IFAD made an attempt to revise the logical framework at mid-term, but there was no formal revision of the logical framework. Consequently, there was some ambiguity on the part of the PMU as to what to follow. The involvement of IUCN in project implementation as envisaged during the design of the project did not occur and this affected the M&E aspects of the project.

Overall Rating: Moderately Unsatisfactory

M&E Design:

Project monitoring and evaluation was to be designed and conducted in accordance with established IFAD and GEF procedures. The logical framework matrix in Part 6 of the Project Document provides indicators for project implementation, along with their corresponding *means of verification*. These were expected to form the base upon which the Project's Monitoring and Evaluation system will be built.

The TER team spent time reviewing and discussing the indicators and found that, in assessment of several of the indicators, the meaning of the indicators had been interpreted differently than ours, some are ambiguous (e.g. no further contradictory developments by end of Year 3). Also, some indicators seemed to measure outputs (e.g. capacity building undertaken, restoration underway) rather than impacts or outcomes. In addition, there were too many indicators (over 50) and some indicators were difficult to measure (e.g. no net loss of globally threatened species, post-tsunami conditions of endemism maintained or enhanced) during the life span of the project, others were unrealistic (e.g. IAS eradication from co-management areas). Developing an indicator system is an extremely challenging job and the TER mission suggests that in future, the design team work closely together, step-by-step, including vigorous debate in the process, to come up with a set of indicators, each of which presents reasonable challenge and is expressed without ambiguity that would measure impacts. While, there was an attempt made by IFAD at mid-term to revise the logical framework, including conduct of a workshop, this did not lead to a formal revision of the logical framework. Consequently, there was some ambiguity on the part of the PMU as to what to follow.

At Project design, it was envisioned that the monitoring system would serve as a basis for tracking progress towards achievement of Project objectives, outcomes and outputs as well as for assessing the impacts in relation to restoration of ecosystems. The M&E reporting for the Project was to be designed as a process including: Monitoring of Project Annual Work Plan and Budget by the PMU for implementation. Semi-annual Project Implementation Committee Meetings were held to review implementation and to resolve any issues. Semi-annual Progress Reports were prepared by PPMOs to detail and analyze Project achievements, outcomes and outputs, major constraints, lessons learned and recommended actions. Project Implementation Reports were submitted to IFAD on an annual basis. Annual Project Progress Review Meetings were held at Province level to review technical and financial delivery compared to the AWPB. Field Visits were conducted by the PMU on a regular basis to respond to issues that arose and to guide corrective actions. A Project Completion Report was prepared for the Terminal Evaluation Review, but is still incomplete. An independent Mid-Term Review was undertaken (June 2014) that highlighted issues requiring decisions, detailed lessons learned and recommended actions. In addition the Project adopted the RIMS system and

supported development of a baseline survey system, which was used to evaluate conservation and development results. They are a strong aspect of the Project, though we would recommend that the PMU have a more systematic way to select and manage key baseline survey data.

Rating: Moderately Unsatisfactory

M&E Plan Implementation:

As mentioned at the last Supervision mission (Jan. 2016) the data, information, findings and results obtained in the field are not systematically analysed and consolidated, which limits the project's ability to report on outcomes and feed key strategic and management decisions. Except for a very short period the PMU was without a full-time M&E officer, even though all three district offices had their M&E Assistants. As there was no professional input at the level of PMU, the Project did not have a fully functional M&E system. To fulfill this vacuum PMU had to hire consultant for a period of one year at the latter part of the project and M&E plan and Manual prepared and M&E officers trained. Services of the consultant was also obtained to convert collected information in to KM products (according to the draft PCR). It is noted that M&E aspect of the project has been rated between *Unsatisfactory (3) to Moderately unsatisfactory (3*) throughout the project life i.e. 2012: (2); 2013: (3); 2014: (3); 2016: (3).

The Project completed most of the standard M&E work, such as the Quarterly Reports, Annual Project Reviews, and Project Implementation Reports (the PIRs). Implementation varied between the three Districts. For the Terminal Evaluation Review, it is unclear if the three Districts prepared at least a basic M&E of results and impacts. It was in some instances difficult to access the data and information to support the expected impacts since baseline, particularly related to reduction of poverty levels, improvement in ecosystem restoration and services, reduction in climate risks, improvement in sustainable fish catch, IAS eradication improvement in economic value of ecosystems, etc. was lacking. The M&E system is better at monitoring implementation of Project activities rather than the restoration/conservation of coastal ecosystems, improved ecosystem services or impacts on livelihoods.

Because of the special issues associated with this Project and with the "IEM" approach to biodiversity conservation, the TER Team strongly recommend that follow-up monitoring some years after Project close (e.g. 5 years) is adopted: (i) whether the Project will truly have broader impact beyond its own Project intervention sites and on replication sites; (ii) whether livelihood results and associated conservation results at "IEM" approach sites will be sustainable. As part of this work, it will be important to see in those cases in which there have been livelihood issues or needs for follow-up investment, how needs had been addressed.

Rating: Moderately Unsatisfactory

Monitoring of long-term changes:

The TER mission understands that no detailed monitoring plan and arrangements were prepared to monitor changes. Project actions toward establishing a long-term monitoring system were absent. Accomplishments and benefits of the M&E program included inconsistency in collecting data and reporting across components, and the limited data was generated and used in any systematic way that would measure impacts of the project activities as well as long-term changes. Systems for monitoring and evaluating long-term changes beyond the life of the Project have not been put in place for several project initiatives (e.g., ecosystem restoration, biodiversity monitoring, poverty alleviation, climate and disaster risk resilience, etc.). However, it must be recognized that following catastrophic events such as tsunamis, ecosystem changes are slow and long-term. The ability to map such change trends over long-time scales using remote sensing was not within the time period of the project.

Budgeting and Financing for M&E:

As per the design, USD 931,600, (GEF USD 911,100 and GoSL USD 20,500), has allocated for M&E under component 4, "Learning, evaluation & adaptive management". Out of this allocation, the project has been able to utilize only USD 41,803, which represents only 5% of the total allocation. The budget for M&E included under Component 4 of the AWPB, was always below the limits of the design. The AWPB was presented to the National Project Steering Committee (NPSC) and discussed in detail and submitted for IFAD No objection, once it was endorsed by the NPSC. As expected at the design stage, the "project management had tendency to lie low on M&E plan when the project was under implementation".

Rating: Moderately Unsatisfactory

f. Assessment of Processes Affecting Attainment of Project Results

IFAD Supervision and Backstopping:

While, IFAD tried to address constraints resulting from the delay in project start-up and the rapid institutional changes that occurred during project implementation, the TER Team felt that IFAD could have played a greater and proactive role in taking corrective and timely action to: (i) re-appraise the project in light of the delayed start up (five years after the tsunami) and to ensure that project objectives, outcomes, outputs and indicators were refined to meet the changing dynamics; (ii) although effort was made at the mid-term to restructure the project, the delayed start of the project and the lack of planned co-financing (on account of the termination of the PTCRRMP) could have been taken into consideration; and (iii) even though IFAD held a workshop to revise the RFA at mid-term, the RFA was not formally restructured. IFAD support to Project design revision process, Project start-up and review was inadequate to alter the momentum acquired by PMU implementation of diverse interventions. In Project implementation, IFAD was responsible for the overall supervision of the Project, in accordance with their policies and procedures, as well as for the provision of related services for the management of the GEF Project cycle. Supervision missions did attempt to recognize the need to adjust and rectify shortcomings of the project, particularly as it related to prospects of achieving planned objectives and outcomes, but these would not take full effect in the face of rapid institutional changes and the limited time to complete the project within an already delayed time-frame. Supervision missions could have benefitted by better focussing on achievement of the overall objective of ecosystem restoration rather than on achievement of targets alone. A technical paper was developed during the Supervision mission of September 2014 by the Coastal Resources Consultant that clearly questioned the project approach and called for the correction of the course of the project from a target driven "stand-alone" activity based approach to one that sought a much more holistic coastal resources management approach that took into consideration the complex systems and interactions inherent with coastal systems. The technical paper outlined a nine-point framework for restoration coastal ecosystems. Despite, the highlight of the inconsistencies of the GEF project design with ecological realities, these technical suggestions were not taken into active consideration. Nevertheless the project had diverse successes as described in earlier sections of this report in regard to physical aspects of coastal ecosystems as well as revisions to coastal policy.

Rating: Moderately Satisfactory

Impacts of Delays:

The long project preparatory process and substantial start up delays resulted in IFAD's loan (co-financing project) completing before the GEF project was fully operational. This resulted in an IFAD co-financing shortfall, as well as not fully meeting the intended goals and objectives of the project.

D. Fiduciary aspects

Fiduciary Aspects: The financial management, procurement and audit aspects of the Project were generally in accordance with IFAD guidelines and Government Financial Regulations and largely in compliance with grant covenants with exception of timely submission of Annual Work Plans and Budgets (AWPBs), Annual Procurement Plans, Audit Reports and, regularly updating AWPBs and Procurement plans and prior review requirement of some procurements. Absence of dedicated staff for finance and procurement units has made a significant impact on smooth functioning of these functions.

Low rate of budget execution (below 50%) in the first five years of the seven-year project reflects poor status of budget monitoring and implementation. Even though the cumulative rate of grant disbursement has reached 80% at the project completion, a significant increase is only observed in the last two years of the project. Grant disbursement as a percentage of total grant during last five years are detailed as follows:

Table 4: Trend of Grant Disbursement from 2012 to 2016

Year	2012	2013	2014	2015	2016
Percentage	5.53	14.97	27.95	65	80

Except in early years of the project, Annual Project Financial Statements (PFS) have been submitted to the Auditor General and IFAD regularly. Withdrawal Applications (WAs) have been submitted regularly and the project has not experienced any liquidity issue throughout its life. Although the accounting staff was on part-time basis, segregation of duties among them and delegation of authority among senior staff of the project were in place, which facilitated a better system of internal control. However, the absence of an Internal Audit facility in the project is observed as a drawback of the system. Frequent revision of contract completion dates, revision of cost estimates and cancellations of contracts were inevitable due to poor status of procurement planning and contract management. Main issues highlighted by the audit were poor budget monitoring, weak system of contract management, ineffective progress monitoring and accounting and reporting deficiencies.

Overall Rating for Fiduciary Aspects: Moderately Satisfactory

Financial Planning: In addition to the GEF grant, co-funding identified at the design stage were USD 55,500 worth of staff time and indirect cost from IUCN, USD 7,083,650 worth of resources and structures of IFAD funded Post Tsunami Coastal Restoration and Resource Management Programme (PTCRRMP) and USD 430,300 worth of in-kind contribution from Government of Sri Lanka (GoSL). However, co-funding identified at the design stage were not fully materialised except the agreed contribution of GoSL, due to various reasons including change of Lead Project Agency to Ministry of Defence and Urban Development from Ministry of Fisheries and Aquatic Resources at the early stage of project implementation and late start of the project. By the time the project implementation accelerated in 2013, the PTCRRMP was nearing completion. PTCRRMP was completed in September 2013. Therefore, the project was implemented as a standalone project funded by GEF and GoSL. However, according to Mid-term Review mission, PTCRRMP's contribution was USD 31,981.

The District Co-ordinating Offices prepare their respective AWPBs (including procurement plans) based on their planned activities and forward them to the PMU for consolidation with the AWPB of the PMU. The consolidated AWPB and PP are submitted to IFAD for No objection, after obtaining concurrence of the Steering Committee. The project operated under revolving fund modality and obtained advances based on AWPB and unspent balance in the project bank account. Funds were released to district offices in the form of advances and imprest to meet their expenses. Withdrawal Applications were submitted to IFAD, based on expenditure returns and paid documents received from District offices and payment vouchers maintained at the PMU, by the Finance officer. Based on the above arrangements, the financial planning and monitoring mechanism was set up to facilitate smooth work and budgetary flows and generally worked without any serious issues.

Financial management: The PMU, which was responsible for overall financial management of the project, performed its function through three district offices located in Trincomalee, Batticaloa and Ampara. A centralized system of accounting was in operation and the district offices received funds in the form of advances and petty-cash imprests to meet their expenses. The PMU was responsible for maintenance of all accounting records, preparation and submission of Withdrawal Applications (WAs), annual Project financial statements, periodical financial progress reports, reconciliation of Grant account, Bank accounts and budget monitoring. There was no dedicated finance division for the project finances, and it was handled by the Finance officer and two accounts assistants of the CCCRMD, on a part-time basis.

The project has followed Government Financial Regulations and IFAD guidelines in financial management as there was no Project Implementation Manual for the project. An accounting software (Tally) was installed in one year before the completion of the project and the project was not able to get the full benefit of it, as it was not tailor-made to project requirements. Hence, the project accounts continued to be kept manually. Although the two project bank accounts were reconciled monthly, the Grant Account was reconciled only at the time of preparation of Withdrawal Applications. When calculating project account balance and value of outstanding withdrawal application for Designated Account reconciliation, PMU has used average exchange rate, instead of using FIFO method as required by IFAD guidelines. As the project had uninterrupted flow of funds both from IFAD and Government, it has not experienced any liquidity issue throughout the project life.

In order to overcome weakness observed by the supervision missions, main recommendations made were introduction of formal delegation of authority among project staff, closely monitoring procurements, strengthening contract management to ensure timely completion of works and services, introduction of identification codes for project assets to facilitate use them exclusively for project purposes, and inclusion of subject specialists for procurement committees and Technical committees. The project has made satisfactory progress in relation to some of these recommendations and others are at different stages of implementation.

As there was no effective system of budget monitoring, except in the year 2016, budget execution rate was below 50% of the budget. Despite the progression, the level of execution of the project's AWPB was never satisfactory since project start, as illustrated in the table below (amounts in USD):

Table 5: Budget performance

	Component 1	Component 2	Component 3	Component 4	Project Management	TOTAL
2011 Budget	309 306	112 379	808 165	79 017	263 389	**1 572 256**
2011 Actual	7 112	38 630	41 791	966	211 238	**299 737**
% execution	2%	34%	5%	1%	80%	**19%**
2012 Budget	688 109	485 215	745 832	31 456	102 233	**2 052 845**
2012 Actual	57 644	79 506	125 747	3 146	106 323	**372 366**
% execution	8%	16%	17%	10%	104%	**18%**
2013 Budget	1 065 010	355 641	979 962	110 899	73 805	**2 585 315**
2013 Actual	266 233	137 744	210 172	16 214	63 786	**694 149**
% execution	25%	39%	21%	15%	86%	**27%**
2014 Budget	980 460	402 259	1 502 175	137 394	175 864	**3 198 153**
2014 Actual	417 220	261 125	516 602	16 411	119 838	**1 331 196**
% execution	43%	65%	34%	12%	68%	**42%**
2015 Budget	1 118 114	293 892	1 136 569	20 893	111 428	**2 680 897**
2015 Actual	511 735	158 019	395 780	0	191 100	**1 256 633**
% execution	46%	54%	35%	0%	172%	**47%**
2016 Budget	82,760	1,681,790	391,035	690	155,175	**2,311,450**
2016 Actual	80,090	1,041,225	370,955	180	44,680	**1,537,130**
% execution	97%	62%	95%	26%	29%	**66.5%**

There were no budget review meetings at regular time intervals to analyse budget variances and effect remedial measures in a timely manner. Financial progress reports were incorporated into the overall progress reports of the project.

Rating: Moderately Unsatisfactory

Disbursements:

The project operates under the revolving fund modality and has received an average of USD 900,000 per year and the project has not experienced any liquidity issue during its lifetime, as required funds were flowing in timely and adequate amounts. The overall rate of disbursement rate has reached 78% of the total project finance at the end of the year 2016 as shown in the following Table.

Table 6: Evolution of Project Financing (USD 000) up to 31st December, 2016

Financier	Approval USD (000)	MTR Revision USD (000)	Disbursements USD (000)	Disbursed %
GEF Grant	6,919	6,919	5,574	80
Government	430	430	213	49
IFAD	7,083	0	0	0
IUCN	55	0	0	0
Total	14,487	7,349	5,787	78

Note: Disbursements include pending Withdrawal Application amounting to USD 162,953.63

The allocation and expenditure of GEF funds according to Project Component, as at the 31 December 2016 is detailed in the following Table.

Table 7: Summary of GEF Financial Reporting by Component (USD 000) to 31 December 2016

Component		Approved GEF Budget	Actual Expenditure	Balance
I.	Best practices for restoration and management of coastal eco-systems	1,903	1,841	62
II.	Mainstreaming eco-system restoration	1,009	629	380
III.	Empowerment of coastal communities	2,345	1,865	480
IV.	Learning, evaluation and adaptive management	911	42	869
V.	Project Management	751	1,197	(446)
TOTAL		6,919	**5,574**	**1,345**

Table 8: Disbursement of GEF funds against allocations by project category (USD) as at 31st December 2016

Category		Allocation	Disbursed	WA pending	Total including pending WA	%	Balance
I.	Technical Assistance	668,500	491,018	7,521	498,539	74	169,961
II.	Eco-system restoration	4,095,715	2,783,025	127,257	2,910,282	71	1,185,433
III.	Adaptation	1,611,410	1,525,201	22,527	1,547,728	96	63,682
IV.	Vehicles & Equipment	230,720	287,928	70	287,998	125	(57,278)
V.	Operating & Maintenance	313,570	324,074	5,578	329,652	105	(16,082)
TOTAL		**6,919,915**	**5,411,246**	**162,953**	**5,574,199**	**80**	**1,345,716**

As IFAD has agreed to entertain withdrawals in respect of incomplete Pigeon Island Information Centre and procurement of equipment for the Centre up to 31st May, 2017, and winding up expenditure, it is expected that the grant disbursement would reach 87% at the closing of the project. However, the mission observed that the rate of disbursement has increased significantly only in the

last two years of the project. Accordingly, actual annual disbursement of the project significantly deviated from the annual disbursement expected at the design stage. It is observed that allocations for Vehicles and Equipment and Operation and Maintenance has exceeded by 25% and 5% respectively, despite the recommendations made by the last mission (January, 2016) to monitor these categories closely and avoid classification errors. The actual expenditure incurred for the project management is one and a half time of the allocation. Under these circumstances, procuring of equipment outside the annual procurement plan needs a strong justification. It was observed that in some WAs, SOE limits have been overlooked treating individual payment value as the SOE threshold, instead of its contract value. Evidence of completion of works or services and voucher references were not available in most of the WAs reviewed by the mission.

Rating: Moderately Satisfactory

Co-financing

Following customary practice of GoSL fund release system, an adequate co-funding as required by AWPBs have been provided to meet expenses related to taxes, office rent and other related expenses. GoSL has made budgetary provision of LKR 88.5 Million (USD 630,000 approx.) up to the year 2016, which is over and above the agreed amount of USD 430,300. However, as shown below, the project was able to utilise only 49% of the agreed allocation. Due to late start of the project, co-financing envisaged from IFAD funded PTCRRMP was not realized. When the project implementation accelerated from 2014, the PTCRRMP had been completed. It was completed in September 2013. However, according to Mid-term Review mission, PTCRRMP's contribution was USD 31,981. The mission further observed that agreed contribution from IUCN also has not been materialized as there was no firm agreement at the design stage for ensuring IUCN's involvement in project implementation as envisaged. This affected the M&E aspects of the project as IUCN was supposed to monitor specific activities of the project.The allocation and expenditure of Co-financing by Project Component, at 31st December, 2016 is detailed in the following Table

Table 9: Summary of Co-financing (USD 000) to 31st December, 2016

Component	Co-funding target	Actual Co-funding secured	Variation	%
I. Best practices for restoration and management of coastal eco-systems	107	58	49	54
II. Mainstreaming eco-system restoration	101	17	84	17
III. Empowerment of coastal communities	95	18	77	19
IV. Learning, evaluation and adaptive management	20	2	18	10
V. Project Management	107	118	(11)	110
TOTAL	**430**	**213**	**217**	**49**

Provided by the PMU

Asset Management:

Annual asset verifications have been conducted and no deficiencies were observed. The mission reviewed inventories maintained by PMU as well as district offices and found no major irregularities. Action is being taken to prepare a comprehensive list of project assets with their location and condition to hand over them to appropriate parties at the project closing.

Procurement:

Procurements were carried-out in accordance with the local Procurement Guidelines to the extent that they were consistent with the provision of IFAD Procurement Guidelines. In cases where local guidelines are not in line with IFAD guidelines, IFAD guidelines were applied. As observed by the last mission (12 - 22, January, 2016), Procurement plans were not revised and updated during implementation, resulting variances between approved procurement plans and procurement undertaken. It was also observed that prior review procedure was not strictly applied when civil works / procurements are carried out through Government organizations. The project could not reap full benefit of using contract management tools such as progress monitoring and taking follow-up action

in a timely manner. Termination of contract for the construction of Research and Information Centre at Arugam Bay and delay in completion of Pigeon Island Research and information Centre reflect poor contract management and procurement planning.

Rating: Unsatisfactory

Audit:

External audit was performed by the Auditor General according to Sri Lanka Accounting standards. Delays in submission of audit reports were observed throughout the project life and expression of separate audit opinion on operation of Grant Account and SOEs were made only in the report of the year 2015. Requirement of issuance of Management letter was met only for the accounts of year 2012. Main issues highlighted by the Audit during the entire life of the project were poor budget monitoring, weak contract management, ineffective progress monitoring, accounting and reporting deficiencies.

Rating: Moderately unsatisfactory

E. Conclusions and Rating

Given that the issues relating to substantial project delays, inappropriate design features that were non-commensurate with geological and geo-morphological setting of the country, the lack of co-financing support and other planning and implementation constraints, this affected the progress towards completing the planned goals, objectives, outcomes and outputs and the expected results. The Project implementation has been undertaken without a clear understanding of the complexity of coastal ecosystems and the intricate relationship between the individual components of coastal ecosystems. Project design, implementation and monitoring lacked consideration of the “big picture” of the dynamics and functioning of coastal ecosystems. Consequently, there had been limited efforts to effectively encourage vertical and horizontal integration within and beyond the immediate coastal resources environment. While, the participatory approaches engaged fisher associations and community groups to be involved in ecotourism, livelihood and other interventions, these were not considered within a broader coastal ecosystem context that addresses the combination of landscape and seascape related interactions that would be necessitated to ensure a sustainable long-term impact on these ecosystems. Consequently, it would be interesting to monitor the project supported co-management approaches to ascertain if they will continue and be sustained beyond the project period. While, individual project interventions at co-management are relevant to the government’s and IFAD’s environment and development strategies, the long-term sustainability and replication of these initiatives are uncertain. The participatory and multi-sectoral approach in coastal resources planning, and the key role of provincial and district governments and line agencies, and fisher association and community groups for maintaining ecosystem restoration in coastal ecosystems also remains uncertain largely due to the lack of a comprehensive integrated planning and implementation approach to coastal resources management that recognizes the linkages between the biological, social and economic factors that impinge on these sensitive ecosystems.

Rating of Overall Project Performance: Moderately Satisfactory

F. Lessons Learned

Ensuring that Integrated Ecosystem Management approaches are applied with full cognizance of the diverse, but inter-linked interactions that operate within coastal systems: The IEM approach is highly relevant to conservation of coastal ecosystems in Sri Lanka that required a significant change in the thinking and approach hitherto practiced in the country. Any future approach to coastal resources management requires a profound understanding of the coherence among the diverse interventions that operate within coastal systems, without looking at the individual parts of the coastal ecosystem parts as “stand-alone” entities, as was the case with PCZRSMP. An integrated model should draw on the fact that coastal resource systems represent sets of interactions and outcomes and unless the entire ecosystem is taken into consideration the required balance among interactions are difficult to achieve. As the equilibrium states keep changing physically and systemically whether humans intervene or not, it may be difficult to recognize interactions among the project interventions and the manner in which they contribute toward the ‘big picture’ of participatory

ecosystem restoration utilizing low-cost approaches. The IEM approach should try to effectively to harmonize socio-economic and environmental benefits to fisher folk and communities at the grassroots levels.

Requiring an institutional capacity and integrated coordination mechanism to build and benefit from the multi-dimensional aspects related to coastal resources: For the IEM approach to be effective, collaborating institutions and sectors require adequate knowledge and skills of IEM processes for policymaking, planning, and joint management of the coastal resources and their sustainable use. Joint and effective management of ecosystems and coastal resources require improved capacities at management of the competing forces that operate in these ecosystems that combines top-down approaches at management combined with bottom-up planning that seeks to meet the requirements of local fishermen and other dependents. The absence of a full complement of local expertise in the implementing entities and partner institutions may have been partly responsible for non-recognition of the interactions that operate within the coastal ecosystems. Interagency cooperation and collaboration and harmonization of coastal resources degradation policies, programs, and budgets is needed for long-term commitment to coastal resources management and protection to be effective.

Understanding that coastal ecosystems are unique based on their geological and geo-morphological setting: Unfortunately, there is a general tendency worldwide to generalize from global manifestation of the coastal ecosystems to the country-specific peculiarities of these ecosystems. This can create problems in terms of designing coastal resources interventions that can inadvertently result in unintended and negative consequences. This is particularly evident in terms of the PCZRSMP activities related to lagoon and mangrove restoration that sought to replant mangroves in locations that were outside of their historical range, which could have unintended consequences of increased sedimentation (a feature of mangroves) and decreased water retention capacity of the lagoon, with increased the potential for flooding during the rainy season. This also created problems of varying degree for setting boundaries for the ecosystems to be restored. In the absence of a boundary, an ecosystem targeted for restoration becomes a diffused entity that cannot be managed in the long term, and thereby fails to provide place-specific lessons for adaptive learning.

Generating awareness amongst public is key to promoting coastal resources conservation: Strong awareness among stakeholders, especially the public, on the intricate and inter-linked nature of coastal ecosystems is important for gaining support for government plans and strategies for coastal resources protection and for overall coastal ecosystem management in general. Awareness building needs to be complemented by an effective information-sharing system. Also it is important to note that awareness programs in itself, is not an effective tools for generating public support, but it needs to be linked to the social and economic well-being of the communities that live near, and are dependent or influenced by the dynamics of the coastal ecosystems.

Importance of an effective data management system and information-sharing system: Coastal resources management is multi-dimensional and multi-sector that requires each agency involved with IEM and coastal resource degradation control and management to have a clear basis for defining the type and level of information to be collected by each participating agency in collaborative management of coastal ecosystems. For information sharing to be effective and useful, there is a requirement for a central repository that understands specific information needs of each sector and agency, effectively manages this data and provides access to all agencies in a timely and practical manner.

Importance for re-appraisal of projects to ensure the relevance of its objectives, outcomes and outputs: Long delays between project design and effectiveness (as was the case with this project) necessitates undertaking a re-appraisal of the original design of the project to validate if the original design is still relevant or if a re-design is required on account of the changing scenario.

Ensuring that GEF grants are linked to IFAD-funded operations for maximum synergy: To the extent feasible it would be useful in the future to ensure that GEF and other global projects are linked to IFAD-supported operations to ensure synergy and support mainstreaming of environmental outcomes into IFAD-funded operations.

G. Recommendations

Project Design: Future ecosystem restoration projects must be firmly anchored to the place-based reality of lagoons, mangroves, sand dunes and coral reef in Sri Lanka connected spatially to maps of appropriate scale. It is scientifically untenable to design country specific projects based on generalizations from other country settings alien to the geomorphology, structure and functioning of Sri Lanka's ecosystems since the spatial scales and climate/weather/hydrological dynamics are peculiar to a country's drivers and variables determining ecosystem change. Coastal ecosystem restoration always involves reversing hydrological, sedimentation and biological community development processes that have occurred over millennia, centuries, decades and much shorter time scales. Systemic restoration therefore requires engineering interventions based on testable models. By specifying' low-cost participatory approaches for ecosystem restoration, the design unrealistically curtailed project planning. It would have been prudent on the other hand to allow the project to 'discover' the non-low cost interventions (hard engineering interventions) that would complement its low-cost interventions.

Greater community involvement in coastal resources and ecosystem management: Coastal resource management issues and problems need to be addressed through effective public participation mechanisms and incentives policy that clearly address the causes of coastal resource degradation, poverty and define the roles and functions as well as the benefits that communities may derive through their perception of priority actions and embrace their active participation. Community-based associations (e.g. fisher associations, farmer associations, etc.) are conducive to mobilizing the enthusiasm of rural communities and private sector to address environment-related problems. This facilitates finding practical and realistic solutions to address the environment and poverty challenges at its roots. However, future community participation should be embedded in a more formal and recognized participatory planning process that clearly lays out guidelines for community mobilization and engagement, local level planning and implementation processes, and effective valuation and monitoring of project achievement, including a means for ensuring feedback and grievance redressal. Such a participatory planning process should be supported by formal institutional arrangements (with specialized participatory expertise, social mobilization skills as well as livelihood technical support) to facilitate and guide community participation. Incentive mechanisms must recognize that the benefits derived to these communities must match or exceed the disincentives that currently guide unsustainable resource use. Communities should also have an adequate voice in decision-making on the management of coastal resources to ensure that their interests and not over-ridden by political decisions that favour others.

Project M&E: For future conservation-related Projects, considerable effort and debate should be put into developing outcome and output indicators for the Project Results framework and consideration to reporting of achievements. Effort should be made to insure that indicators are not ambiguous and neither too difficult nor in follow up evaluation (in 5-7 years timeframe after Project close), including follow up on project impact monitoring and study to see if it has led to harmonization of environment and socio-economic benefit that in turn has led to positive results in a long term. Indicators should focus on impacts rather than on performance. A monitoring framework should de designed to assess capacity and technical support required to undertake the monitoring, define monitoring intervals for each of the indicators, assignment institutional responsibilities for monitoring impacts, define requirements for independent verification and evaluation, and processes for feedback and adjustment of monitoring systems.

Institutional arrangements and implementation: Coastal resources management requires the engagement of multi-sectoral and multi-stakeholder institutional arrangements in order to ensure integration of biological, socio-economic and political decision making in the management of coastal resources. Such multi-sectoral and multi-stakeholder arrangements should be inherent at all levels including at national, provincial, district, sub-district and local levels so that the cross sector nature of coastal resources management is recognized. Institutional arrangements should not be project-specific, but be permanent so that learning and experiences get integrated into the functioning of

government at all levels. In addition, knowledge products and implementation case studies and lessons learned need to be shared extensively within and beyond individual projects.

Project Related Future Monitoring: Because the management of coastal resources requires integration of sectoral interests, it is important that any investments in coastal resources management must be defined within such a framework to ensure sustainability and that future investments (either within existing government budgets or as part of a future donor program) are relevant and appropriate. Consequently it is important that project designers ensure that the selection of indicators are not ambiguous to provide a solid quantitative assessment about impact of the coastal restoration or improvement of ecosystem functions and productivity both within and beyond the Project duration in a long term monitoring of impacts, as well as recognize that any such monitoring has to be defined within the limits of existing budgetary constraints that occur at the national, provincial or district levels.

GIS database management: The GIS database management systems that has been initiated in each District will needs to be further strengthened and also ensure that linkages are established with a central database in CCCRMD so that best practices and experiences can be shared more widely with other districts in the country as well as nationwide. In addition, User Manuals for practical users of the GIS/database should be provided to make on-going post-Project use of the GIS/database.

Sharing of knowledge products:

Based on the experience and good practices developed through the project, as well as failures, it is important that these lessons are documented and discussed in informing future coastal resources restoration and management activities.

Appendix 1: Summary of Project status and ratings

Table A1.1: Attainment of Objectives and Planned Results

Impacts	Objectively Verifiable Indicators		Achievements	Comments
	Indicators (Original/Revised)	Means of Verification	Attainment of Objectives and Planned Outcomes	
OBJECTIVES				
Development Objective (Grant Purpose): To mainstream restoration and management conservation of globally important ecosystems affected by the tsunami into the reconstruction process to support sustainable livelihoods and reduce vulnerability to climate change along the East Coast of Sri Lanka .	**1. Institutional**			
	By end Year 1 cabinet Decision passed requiring ecosystem restoration to be integrated into all reconstruction and coastal zone management projects under aegis of Reconstruction and Development Authority	Cabinet decision Post-tsunami reconstruction proposals Field verification CZMP	Coastal Conservation and Coastal Resources Management Act revised to include a development component. A draft National Coastal Zone and Coastal Resources Management Plan (NCZCRMP) developed includes sections related to ecosystem restoration and climate adaptation aspects	NCZCRMP in draft, but not approved as yet, so formal application of management plan not initiated as yet
	No further developments of tsunami-reconstruction projects and public and private sector developments running contrary to Special Area Management plans by Year 3	Public and Private Sector development project proposals and monitoring reports	No information	Unlikely to have been achieved given that the GEF project started full implementation 7-8 years after the tsunami event, by which time most post-tsunami re-construction was either completed or nearing completion
	At least 9 new co-management agreements signed under the project in East Coast	Co-management agreements	9 co-management arrangements in place	Viability and sustainability remains to be seen
	GEF SPA (a) By end of Year 2, adaptation to climate change in coastal areas integrated into the next revision of Coastal Zone Management Plan (b) By end of project, adaptation climate change activities separately shown in all development programs/projects in the coastal zone	Updated CZMP with adaptation mechanism Reports of development programs/projects and national planning documents	Updated NCZCRMP completed in 2015 and includes climate change adaptation and coastal resources restoration aspects Not reported	NCZCRMP not approved as yet No information
	2. Land Management and Biodiversity			

	1,000 ha of coastal lagoons and 75 ha of sand dunes rehabilitated by end of Year 7	Field verification reports Field survey reports in post-tsunami areas Periodic monitoring reports	• 524 ha area of sand dunes were protected using various tools like restoration, rehabilitation and enhancement of vegetation cover on dunes. • About 2,000ha of coastal lagoons in Vakarai, Komari and Kottukal were restored by removal of deposited debris, establishment of reservation, reducing pollution loads etc. This has helped restore critical fisheries habitat, improved water flow and raised awareness of maintaining the lagoon systems for flood management	Good learning and potential for replication
	250 ha of mangroves rehabilitated by end of Year 7	Field verification reports Field survey reports in post-tsunami areas Periodic monitoring reports	• An area of nearly 2,300 ha of mangroves protected using restoration and other conservation techniques.	While planting and protection have been undertaken as planned, full restoration of coastal ecosystems as envisaged is questionable
	By end of project no net loss of globally threatened species attributed to impact of tsunami on coastal ecosystems and its recovery process or other anthropogenic impacts	Field survey and monitoring reports	No reporting	This indicator is unrealistic and difficult to monitor
	Pre-tsunami conditions of endemism in the eastern coast maintained or enhanced by end of the project	Field survey and monitoring reports IUCN Red List	No reporting	This indicator is unrealistic and difficult to monitor
	GEF SPA (i) At least 3 estuaries, 3 lagoons and 6 mangrove forests will be protected and prepared to face impacts **(ii)** At least 500 ha of agricultural lands and 1,500 households will be made safe to climate change impacts	Field survey reports	(i) Seven coastal ecosystems demarcated (ii) Home garden expansion and diversification of livelihoods undertaken for 1,000 households	Although boundaries have been physically demarcated there are no legal measures in place for ensuring protection Diversification undertaken as measures of adaptation, but not comprehensive

OUTCOME LEVEL				
OUTCOME 1: Best practices for effective restoration and sustainable management of key coastal ecosystems with integration of adaptation to climate change vulnerabilities developed and demonstrated				
OUTPUTS 1.1: Best practices developed and demonstrated for community led restoration of globally important ecosystems 1.2: Best practices and policy guidelines published on practical restoration and conservation management of globally important ecosystems 1.3: Central information base established at CCD as repository for all work on ecosystem restoration and coastal adaptation to climate change				
Community led, cost effective and practical pilot testing of key ecosystem restoration methodologies integrating adaptation to climate change	By middle of Year 3, pilot tests for restoration of mangroves, sand dunes and coastal lagoons complete	Technical reports and field trip reports Participatory monitoring reports Progress reports	Community involved ecosystem restoration and rehabilitation were undertaken for Sand dunes from Panama-Puttuwil in Ampara district, Punichankerny lagoon in Baticoloa district and Pigeon island coral reefs in Trincomalee. In addition, different participatory techniques were tested at number of other coastal ecosystems namely Komari Lagoon, Urani Lagoon, Kottukal lagoon, Nasivanthive mangroves, Upparu lagoon and Irakkandy lagoon to rehabilitate damaged portions of these ecosystems.	
Availability of best practice guidelines for restoration of tsunami affected coastal ecosystems	By end of Year 3, best practice guidelines for ecosystem restoration in coastal areas developed for mangroves, sand dunes and coral reefs	Best practice guidelines for three ecosystem types	Guidelines for participatory restoration geographically defined significant coastal ecosystems based on the implementation experience of the project were produced. In addition guidelines for restoration of mangroves, sand dunes, lagoons were developed and printed in local languages to enhance community awareness.	Important that ERAU at Central level be established and functional to act as repository of best practices and dissemination and strategy for replication and scaling up
Areas of globally important ecosystems along the east coast rehabilitated through community based actions	By end of Year 7, the following tsunami-affected globally important ecosystems are under full restoration using best practice guidelines, including: • At least 75 ha of sand dunes in the East Coast including Panama/Pottuvil • At least 250 ha of mangroves in the East Coast including Vakarai; and • At least 1,000 ha of coastal lagoons in the East Coast	Fixed transects Best practice guidelines for three ecosystem types Physical verification Biological indicators for ecological health are recruited into the restored ecosystems % income increase from sustainable use of resources from restored ecosystems	524 ha area of sand dunes were protected using various tools like restoration, rehabilitation and enhancement of vegetation cover on dunes. An area of nearly 2,300 ha of mangroves protected using restoration and other conservation techniques. About 2,000ha of coastal lagoons in Vakarai, Komari and Kottukal were restored by removal of deposited debris, establishment of reservation, reducing pollution loads and	While planting and protection have been undertaken as planned, full restoration of coastal ecosystems as envisaged is questionable

	including Vakarai.		replanting damaged portion of mangroves	
Community led, cost effective and practical pilot testing of improvement and protection methodologies of key coastal ecosystems as an adaptation mechanism to climate change	By middle of Year 3, pilot tests of improvement and protection methodologies of key coastal ecosystems such as mangroves, estuaries and coastal lagoons completed	Technical reports of each pilot testing activity Participatory monitoring reports Progress reports	Protected sand dunes with 140 ha of new coastal forest enhance protection of local communities from climate change triggered coastal hazards. Generation of economic benefits to local protection groups through ecotourism activities enhance economic resilience of local people in climate change conditions maintaining healthy reservations for coastal lagoon s enhance production of lagoon and flood retention capacities	Require assessment of impact of measures and strategy for replication and scaling
Availability of best practice guidelines for promoting better adaptation mechanisms, protect coastal ecosystems from climate change impacts	By end of Year 3, best practice guidelines for adaptation to climate change in coastal areas introduced for the protection of mangroves, sand dunes, agricultural lands and human settlements	A set of best practice guidelines for different ecosystems and vulnerable areas	Number of adaptation mechanism have been promoted by the project for better adaptation to climate change conditions like building 52 agro-wells in Vakarai, introduction of drought resistance species tofarmers in Vakarai and diversification of community livelihood activities	Require assessment of impact of measures and strategy for replication and scaling

OUTCOME 2: Effective ecosystem restoration and sustainable management with integrated options for climate change vulnerabilities are mainstreamed into post-tsunami reconstruction planning and implementation by relevant authorities and donors				
OUTPUTS: 2.1: Policy framework reviewed and restructured to support the restoration, sustainable use of coastal natural resources and adaptation to climate change 2.2: Requirements to incorporate restoration of coastal ecosystems and adaptation measures for climate change vulnerabilities introduced in to the central national planning system for all tsunami reconstruction projects 2.3: Restoration of coastal ecosystems incorporated into the eastern province planning system 2.4: Specialized ecosystem restoration and adaptation unit (ERAU) created within the Coastal Conservation Department to provide facilities and supervision services to tsunami reconstruction projects 2.5: Demonstration of replication of ecosystem restoration, sustainable use through community based co-management of coastal ecosystems and adaptation to climate change promoted by the Eastern Provincial Council				
National Government requirement to incorporate ecosystem restoration in to all post-tsunami reconstruction and coastal zone management projects			As part of formal national safeguard system, all major reconstruction projects are to be required to go for EIA process and needed to have a permit form the Coast Conservation and Coastal Resource Management Department under the Provisions of Coast Conservation Act.	While this process considers impacts of reconstruction works on ecosystems and mitigation actions, there was no concerted effort to ensure that the cumulative impacts of post-tsunami reconstruction on coastal ecosystems was considered, neither was there a concerted effort to monitor mitigation and management of any impacts on these systems.
Provincial Coastal Zone Management Action Plan (CZMAP) for the Eastern Province includes restoration of tsunami-affected ecosystems as a priority	By end of Year 1, CZMAP is completed for the Eastern Province and includes ecosystem restoration and adaptation to climate change as an integral part of the plan	Plan approval	National Coastal Zone and Coastal Resource Management Plan was prepared by the project for implementation with in next five year period. The implementation responsibility of the plan lies with the Coast Conservation Department. There is a separate chapter for coastal ecosystem conservation and management	Plan completed in 2015, but not approved as yet

Environment coordination amongst Government Agencies; amongst international and local humanitarian agencies and donors; and between Government and Non-government tsunami-related agencies	By middle of Year 2, monthly environmental coordination meetings held between relevant Government agencies and international and local humanitarian agencies and donors to facilitate effective ecosystem restoration as an integral part of post-tsunami reconstruction		During recover phase of Tsunami disaster 2004, such mechanism existed. Once National Disaster Management centre was established with adequate legal provisions for disaster management, establishment such a coordination during post disaster situation is a their responsibility	
Proportion of tsunami related and coastal zone management projects including ecosystem restoration	By end of Year 3, 50% of projects included an ecosystem restoration component		Although, this was initially a key outcome of the project, the delay in start up of activities post-tsunami and the ending of the IFAD PTCRRMP prior to the commencement of the GEF project, it is unlikely that the project contributed directly to this outcome	it is unlikely that the project contributed directly to this outcome
By-laws supporting requirement for ecosystem restoration on coastal projects	By-laws passed by end of Year 3		No information	Unclear if this outcome was met, as this is not reflected in the GEF project monitoring profile
District Environmental Law enforcement committee (DELEC)	DEC re-activated and capacity built in Batticaloa district by end of Year 1 DELEC strengthened in Trincomalee and Ampara districts by Year 2 Effective enforcement of environmental regulations by Year 2		District Environment and Law Enforcement Committee (DELEC) have been reactivated by the project, these committees in three districts are functioning well and the project provide facilitation role.	After the project, Central Environmental Authority with support of Coast Conservation Department will undertake the responsibility and ensure its effective functioning
Specialist Ecosystem Restoration and Adaptation Unit within CCD	Specialist Ecosystem Restoration and Adaptation Unit fully trained and operational by end of Year 1 Capacity building of local implementing agencies and participating CBOs in ecosystem restoration, adaptation and monitoring undertaken from Year 3 onwards		ERAU established in 3 districts	The late implementation of this activity at district level makes uncertain its sustainability. Additionally unclear what, if any arrangements have been made at the national level at CCCRMD to facilitate information exchange that coulguide policy and practices

Best practices at the demonstration sites replicated at other sites along the East Coast	Restoration of three ecosystems underway at six or more sites by end of Year 5, with sites to include at least one of each ecosystem and at least one site in each of the three districts		Achieved in terms of number of replication models	Unclear what arrangements in place to further ensure replication more widely nationwide
Proposition of coastal zone management projects integrated with components relating to adaptation to climate change	By end of Year 4, 100% of projects includes at least one component on climate change adaptation		Not monitored	Seems very unlikely that there have been any transfer of few examples developed in the GEF project for climate adaptation to other programs and projects in the three districts

OUTCOME 3: Coastal communities empowered to manage local natural resources to enhance sustainable livelihoods and adaptation to climate change vulnerabilities				
OUTPUTS: 3.1: Enabling environment for community co-management of natural resources and adaptation to climate change vulnerability established 3.2: Co-management of mangroves and coastal lagoon promoted at Vakarai to improve local livelihoods, foster sustainable land management and to minimize climate change impacts 3.3: Co-management of sand resources promoted at Panama/Pottuvil to improve local livelihoods, foster sustainable land management and to minimize climate change impacts 3.4: Co-management of coral resources promoted at Pigeon Island				
Framework for enabling legal designation of community co-management areas	Amendment to Coast Conservation Act enabling co-management agreements to be made with CCD passed by end of Year 2	Amended CC Act	CCA Amended as Coast Conservation and Coastal Resources Management Act that recognizes co-management options	
Percentage of community members participating in the designing and implementation of co-management of selected ecosystems for sustainable land use	30% of the communities mobilized are participating in co-management by the end of Year 2 60% of the communities mobilized are participating in co-management by the end of Year 4	Co-management memorandum of agreements Participatory evaluations	PCR mentions that co-management process was adopted for conservation and management ecosystems at selected pilot testing sites and that more than 60% of relevant communities are actively involved their organizations. Various participatory activities like re-planting mangroves, beach cleaning were undertaken largely with community participation	
An information base on functions of and services provided by, different coastal ecosystems of the east coast and their economic values	Comprehensive information base available to stakeholders on functions and economic values of key coastal ecosystems of the Eastern Coast of Sri Lanka by end of Year 1 30% of targeted communities area aware of the economic value of the coastal ecosystems and contribute towards its conservation and sustainable use by end of Year 2 60% of targeted communities area aware of the economic value of the coastal ecosystems and contribute towards its	Information guides in Sinhala and Tamil languages Community surveys	PCR states that nine environmental profiles were developed covering all significant coastal ecosystems in the eastern province and available at information centres at district level	This is just one item of information and not a more comprehensive coverage. No information on recorded of extent to which targeted communities aware of economic value of coastal systems

	conservation and sustainable use by end of Year 4			
Provide market based incentives for ecosystems and sustainable land management targeting the local communities	30% of targeted communities income is increased and dependence on unsustainable natural resources use is decreased by the end of Year 2 60% of targeted communities income is increased and dependence on unsustainable natural resources use is decreased by the end of Year 2	Income surveys	PCR mentions that 2,600 families were assisted under livelihood and related development programs to undertake environmentally sustainable livelihoods. In addition, selected community groups were introduced to ecotourism activities for additional income generation. Home gardening was also introduced to top up family income.	The target are output based (number of families receiving livelihood assistance programs) and not a measure of income increase and dependencies on unsustainable natural resources as required by this impact indicator
Percentage cover of live hard coral at pigeon island reef	Maintain or increase present level by end of project High percentage of healthy live coral cover indicating the reefs ability to recover from a bleaching event due to climate change and preventing erosion	Field surveys	PCR notes that live coral cover at the present is about 70 (communication from Dr. Terny Pradeep Kumara). It also has a healthy diversity of coral species dominated by *Ancrophora* species	While this is a good sign, there is no long-term monitoring program to monitor coral conditions developed as yet, although this was expected to be undertaken through the Pigeon Island Information Centre as well as the Pigeon Island Boat Association.
Number of butterfly fish (best fish group for indicating reef health and ornamental fishing pressure)	Current numbers increased or maintained by end of project	Field surveys	PCR notes that as per field findings of Dr. Terny Pradeep Kumara, adult individuals per transect have increased up to 14.	No baseline figure provided and uncertain if part of a long-term monitoring program
Management plan for pigeon island and its vicinity	Management plan is completed by end of Year 2	Approved management plan	Park Management Plan developed through stakeholder consultations	It is being implemented, but formal approval has to be provided by DWLC
Creation of a sanctuary for pigeon island reef to ensure its conservation and sustainable use	Sanctuary/conservation area created to include X ha of marine coral reef by end of Year 2 Marine area under community co-management is X ha by end of Year 3	Gazette notification Community co-management agreements	Declared as Marine National Park under Provisions of Fauna and Flora Ordinance	Co-management agreements not formalized as yet, although the Pigeon Island Boat Association is expected to undertake co-management when the Park Management Plan is formally approved by DWLC.
Fishing pressure	Sustainable collection of ornamental fishing according to the co-management plan by Year 3 Cessation of blast fishing in the sanctuary	Physical verification of number of dives for ornamental fish collection reports Reported number of explosions	PCR states that illegal ornament fish collection within the park area has completely stopped and destructive blast fishing within the area has also been stopped	Physical verification reports unavailable

	by Year 2			
Number of boats and visitors to Pigeon island National park and sanctuary holding access permits	Regulatory mechanism in place and at least 50% of visitors hold access permits by end of Year 3 and 80% by Year 6	Reports of physical verification by DWLC/CCCRMD staff	PCR reports that boats and visitors are required to obtain pass (ticket) from Wildlife Department to enter the park.	
Area of co-managed mangrove, coastal lagoons and sand dunes along the east coast of Sri Lanka	A. Co-management Three community co-management areas underway by end of Year 3 Six additional community co-management areas (at least one in each ecosystem) initiated by end of Year 5 B. Coastal lagoon restoration 500 ha of coastal lagoon restored by end of Year 4 1,000 ha of coastal lagoon restored by end of Year 7 C. Coastal sand dune restoration 20 ha sand dune restored by end of Year 4 50 ha sand dune restored by end of Year 7 D. Mangrove restoration 150 ha mangroves restored by end of Year 4 250 ha mangroves restored by end of Year 7		A. Co-management: Co-management process has been established at three areas in Pigeon island, Vakarai lagoon and Panama-Pottuwil sand dunes. The experience has also been replicated in three other sites Irakkandy lagoon, Nasivanthive Mangroves and Kottukal lagoon B. Coastal lagoon restoration 2,000 ha of lagoons restored through removal of tsunami debris C. Coastal sand dune restoration 524 ha of sand dunes replanted in Ampara district D. Mangrove restoration 2,300 ha of mangroves restored in eastern province	
Lagoon fish catch per unit effort (daily catch/ traditional non-mechanized craft)	Sustainable fish catch shows graded increase and average catch increases by at least 1kg/boat/day within 3 years of implementation of co-management	Fish catch data Community interviews	The PCR reports that based on recent survey undertaken by Project M& E Officers, fish catch per day is around 10 kg in the	There is no baseline data (fish catch or fisher income perception) available to accurately assess changes

			lagoon and that 99% of lagoon fishers has stated that income from lagoon fishing has been increased.	
Natural colonization of *Spinifex littoreus* on the rehabilitated sand dunes	At least 10% of the rehabilitated sand dunes are covered with *Spinifex littoreus* by the end of Year 4	Field survey reports	No data	No baseline or field survey assessments/ reports
Presence of invasive alien species within co-management areas	IAS eradicated from the co-management areas of original demonstration sites by end of Year 5 and from replicated co-management sites by end of Year 7	Field survey reports	PCR reports that two IAS in Kottukal lagoon controlled	No survey data to substantiate claim
House hold incomes in Co-management areas a) Average incomes b) Percentage of income derived from co-management area	25% increase in average household income within 3 years of commencement of implementation of co-management 20% increase in income derived from co-management sites within 3 years of commencement of implementation of co-management	Community income survey reports	PCR reports that in accordance with outcome evaluation survey undertaken in December 2016, 89% the respondents whose income group was Rs. 3,000-10,000 at project start up has moved to a higher income bracket.	Unclear if the change in income reported is due to project or other economic factors.
Number of awareness programs on climate change related coastal vulnerabilities and suitable adaptation measures to the communities along the coastal belt	An awareness program for each Grama Niladhari (GN) division in the coastal belt of the project area	Participation records Training records	PCR reports more than 100 awareness programs conducted in the three districts targeting different groups from local communities to school children.	A client survey undertaken indicates that community awareness has improved.
Extent of the mangroves and the vegetation belt grown to protect lagoons, estuaries, cultivation lands and human settlements along the east coast of Sri Lanka	Adaptation to climate change vulnerability is increased as a result of ecosystem restoration by the co-management of coastal ecosystems by Year 6	Progress/plantation records Field surveys	PCR reports that 140 ha of new coastal forest and green belts established in Ampara district and an 20 km covered in Baticaloa and Trincomalee districts	“stand-alone” activity focus rather than full restoration
Number of dikes and sea walls established to protect lagoons, estuaries, cultivation lands and human settlements	Pressure on coastal ecosystem will be less as lands are available for cultivation Reservations of the ecosystems will not be encroached as human settlements are safe	Engineering reports Encroachment records	No information	Not undertaken
Number of government officers of the Department of irrigation, agriculture, fisheries, lands and coastal conservation trained on climate change impacts, importance of introducing adaptation measures and related policies	Capacity of government agencies in climate change adaptation increase	Training records Capacity assessment reports	PCR reports that 120 officers from government departments, mainly from CCD have trained on climate change impacts and possible adaptation measures.	No assessment of attitudinal changes following training No capacity assessment scorecard so difficult to evaluate impact of training

Availability of preparedness plans to cope with emergencies and disasters generated by climate change	Preparedness plans for vulnerable areas to climate changes	Preparedness plans	PCR reports that the project supported National disaster management center to prepare village disaster response plans in selected 9 villages in three districts. In addition the project provided funds for implementation of activities in the response plans	The impact of the plans is not known as the project was supporting only its development
Availability of social infrastructure like safe places to be used in the events of floods and cyclones to minimize losses	Three safe places to the most vulnerable areas for climate change	Construction reports	Safe house constructed in Theenamarawadi village	Uncertain what arrangements taken for community maintenance of safe houses
OUTCOME 4: Learning, evaluation and adaptive management increased in both tsunami restoration and climate change adaptation activities				
Output 4.: Monitoring, learning and adaptive management	Monitoring, learning and adaptive management increased	Monitoring and learning framework operational and effective .	Some best practices have been documented	These best practices will serve as tools for replication

Table A1.2: Achievement of Outputs and Activities

Outputs/Sub-component	Verifiable Indicators	Planned Targets	Achieved Outputs & Activities	%
Outcome 1: Best practices for effective restoration and sustainable management of key coastal ecosystems with integration of adaptation to climate change vulnerabilities developed and demonstrated				
Output 1.1. Best practices developed and demonstrated for community led restoration of globally important ecosystems	Technical reports and field trip reports Participatory monitoring reports Progress reports	By end of Year 7, the following tsunami-affected globally important ecosystems are under full restoration using best practice guidelines, including: • At least 75 ha of sand dunes in the East Coast including Panama/Pottuvil • At least 250 ha of mangroves in the East Coast including Vakarai; and • At least 1,000 ha of coastal lagoons in the East Coast including Vakarai.	• 524 ha area of sand dunes were protected using varies tools like restoration, rehabilitation and enhancement of vegetation cover on dunes. • An area of nearly 2,300 ha of mangroves protected using restoration and other conservation techniques. • About 2,000ha of coastal lagoons in Vakarai, Komari and Kottukal were restored by removal of deposited debris, establishment of reservation, reducing pollution loads and replanting damaged portion of mangroves .	
Output 1.2 Best practices and policy guidelines published on practical restoration and conservation management of globally important ecosystems	Best practice guidelines for three ecosystem types	Best practice guidelines for three ecosystem types and vulnerable areas	Guidelines for participatory restoration geographically defined significant coastal ecosystems based on the implementation experience of the project were produced. In addition guidelines for restoration of mangroves, sand dunes, lagoons were developed and printed in local languages to enhance community awareness.	
Output 1.3: Central information base established at CCD as repository for all work on ecosystem restoration and coastal adaptation to climate change	Information base functional, Update and access records Number of requests for information	Functional information base at CCD supporting policy development, best practice replication etc.	-	Not reported

Outcome 2: Effective ecosystem restoration and sustainable management with integrated options for climate change vulnerabilities are mainstreamed into post-tsunami reconstruction planning and implementation by relevant authorities and donors				
Output 2.1: Policy framework reviewed and restructured to support the restoration, sustainable use of coastal natural resources and adaptation to climate change		Coastal Zone Management Action Plan for the Eastern Province	National Coastal Zone and Coastal Resource Management Plan was prepared by the project for implementation with in next five-year period. The implementation responsibility of the plan lies with the Coast Conservation Department. There is a separate chapter for coastal ecosystem conservation and management	Completed in 2015, but not approved as yet. No separate plan for Eastern Zone, although the national plan would provide the basic framework for eastern province
Output 2.2: Requirements to incorporate restoration of coastal ecosystems and adaptation measures for climate change vulnerabilities introduced in to the central national planning system for all tsunami reconstruction projects	By end of Year 3, 50% of projects included an ecosystem restoration component	Planning documents and records	Although, this was initially a key outcome of the project, the delay in start up of activities post-tsunami and the ending of the IFAD PTCRRMP prior to the commencement of the GEF project,	it is unlikely that the project contributed directly to this outcome
Output 2.3: Restoration of coastal ecosystems incorporated into the eastern province planning system	CZMAP for the Eastern Province incorporate ecosystem restoration and incorporating adaptation to climate change in coastal areas	CZMAP for Eastern province, planning documents and budget records from eastern province	District Environment and Law Enforcement Committee (DELEC) have been reactivated by the project, these committees in three districts are functioning well and the project provide facilitation role. However, unclear what role these DELEC's will play in integration of coastal ecosystem restoration in the eastern province planning system.	No capacity assessment scorecards, nor CZMAP for eastern province available
Output 2.4 Specialized ecosystem restoration and adaptation unit (ERAU) created within the Coastal Conservation Department to provide facilities and supervision services to tsunami reconstruction projects	Specialist Ecosystem Restoration and Adaptation Unit fully trained and operational by end of Year 1 at districts and central level	Management records, accounts, plans, reports, training records Capacity assessments and evaluation scores, training records, reports	Ecosystem Restoration and Adaptation Unit established very late in the three districts, but uncertain if any arrangements in place at the central level to document and disseminate coastal resources restoration and management best practices nationwide and influence policy.	No capacity assessment scorecards
Output 2.5 Demonstration of replication of ecosystem restoration, sustainable use through community based co-management of coastal ecosystems and adaptation to climate change promoted by the Eastern Provincial Council	Restoration of three ecosystems underway at six or more sites by end of Year 5, with sites to include at least one of each ecosystem and at least one site in each of the three districts	Replication plans and progress reports	Best practices replicated in six additional sites in the Eastern Province	However, unclear what arrangements in place for dissemination and replication more broadly nationally

Outcome3: Coastal communities empowered to manage local natural resources to enhance sustainable livelihoods and adaptation to climate change vulnerabilities				
Output 3.1: Enabling environment for community co-management of natural resources and adaptation to climate change vulnerability established	Amendment to Coast Conservation Act Community co-management plans	Amended Coast Conservation Act Community co-management plans Approved NCZCRMP	The amended Coast Conservation Act provides legal provisions for co-management to protect coastal ecosystems.	However, NCZCRMP that provides the framework for co-management and climate adaptation not approved as yet.
Output 3.2: Co-management of mangroves and coastal lagoon promoted at Vakarai to improve local livelihoods, foster sustainable land management and to minimize climate change impacts	•	Co-management agreements and plans Status reports of mangroves	Co-management of Paninchchankerni lagoon and surrounding mangroves instituted. In addition 52 ha of Sathurukondan wetland including mangroves demarcated and conserved through co-management	
Output 3.3: Co-management of sand resources promoted at Panama/Pottuvil to improve local livelihoods, foster sustainable land management and to minimize climate change impacts		Sand dune demarcation maps Agreements with stakeholders Status reports regarding sand mining and encroachment	524 ha of sand dunes were demarcated following multiple stakeholder participation to prevent sand mining and encroachment.	
Output 3.4: Co-management of coral resources promoted at Pigeon Island	Detailed management plan for the pigeon island and its vicinity approved	Management plan Implementation and budget plan Progress reports	Park Management Plan has been prepared.	Management Plan not formally approved as yet.
Outcome 4: Learning, evaluation and adaptive management increased in both tsunami restoration and climate change adaptation activities				
Output 4.: Monitoring, learning and adaptive management	Monitoring, learning and adaptive management increased	Monitoring and learning framework operational and effective	Some best practices have been documented	These best practices will serve as tools for replication

Appendix 2: Actual financial performance by financier; by component and disbursement by category

Table A2.1: Summary of financial performance by Financiers as at 31st December, 2016

	Approval USD (000)	Revised USD (000)	Disbursements USD (000)	Disbursed %
GEF Grant	6,919	6,919	5,574	80%
Government	430	430	213	49%
IFAD	7,083	0	0	
IUCN	55	0	0	
Total	**14,487**	**7,349**	**5,787**	**78%**

Note: Disbursements include pending Withdrawal Application amounting to USD 162,953.63

Table A2.2: Financial Performance by Financier by Component USD (000) as at 31st December, 2016

Component	GEF Funding		Government		Total		
	Approval	Actual	Approval	Actual	Approval	Actual	%
1 Best practices for restoration and management of costal ecosystems	1,903	1,841	107	58	2,010	1,899	94%
2 Mainstreaming ecosystem restoration	1,009	629	101	17	1,110	646	58%
3 Empowerment of Coastal communities	2,345	1,865	95	18	2,440	1,883	77%
4 Learning, evaluation & adaptive management	911	42	20	2	931	44	5%
5 Project Management	751	1,197	107	118	858	1,315	153%
TOTAL	**6,919**	**5,574**	**430**	**213**	**7,349**	**5,787**	**78%**

Note: 1) The approval figures are from Annual Supervision and Implementation Support Mission Report, January, 2016, which reflects the most recent approved adjustment to the original plan; 3) Actual figures (excluding Advance outstanding in Grant Account of USD 426,000) were provided by the PMU.

Table A2.3: GEF Grant Disbursements as at 31st December, 2016 (USD)

Category	Description	Original Allocation	Revised Allocation	Actual Disbursement	W/A Pending	Balance	Disbursed %
I	Technical Assistance	668,500	668,500	491,018	7,521	169,961	74
II	Eco-system Restoration	4,095,715	4,095,715	2,783,025	127,257	1,185,433	71
III	Adaptation	1,611,410	1,611,410	1,525,201	22,527	63,682	96
IV	Vehicle & Equipment	230,720	230,720	287,928	70	(57,278)	125
V	Operating & Maintenance	313,570	313,570	324,074	5,578	(16,082)	105
Total		**6,919,915**	**6,919,915**	**5,411,246**	**162,953**	**1,345,716**	**80**

Note: Original Allocation from the Project Document, as there was no revision, The Actual Disbursements as at 31st December 2016

Appendix 3: Mission Schedule, list of meetings, interviewees, persons met and evaluation timeline

Table A3.1: Mission schedule, list of meetings and time line

District	Dates	Location	Meetings/Field Visits
Ampara District	11.03.2017	Komari lagoon Boundary demarkation	Field visit
	12.03.2017	Kattankudy solid waste dump site	Field visit
		Eco Tourism Centre, Urani	Meeting with society members
		Eco Tourism Centre, Kottukal	Meeting with society members
		Eco Tourism Centre Panama	Meeting with society members
		Sand dune restoration site,Panama	Meeting with society members
		Panama lagoon fisheries society	Meeting with society members
		Komari women group – Livelihood project	Meeting with society members
	13.03.2017	Arugam bay	Media work shop – as observers
Batticaloa District	10.03.2017	Bio gas project and provision of Toilet facility	Field visit
	10.03.2017	Kutchchkerni Livelihood project	
	11.03.2017	District office Batticoloa	Meeting with staff and office work
	11.03.2017	Mangrove Corner Boat safari centre	Field visit
	11.03.2017	Satuukondan mangrove Management-	Field visit
	09.03.2017	District office, Trincomalle	Meeting with staff
Trincomalee District	09.03.2017	Tennamaravadi Safty building	Field visit
	09.03.2017	Kutchchaveli Boundary Demarcation site	Field visit
	10..03.2017	Pigeon Island Tourist Boat Association	Meeting with Boat Association
	10.03.2017	Pigeon Island Information Centre building	Field visit
	10.03.2017	Kinniya waste Management Centre	Field visit
	10.03.2017	Kinniya Women Society	Meeting with the society members

District	Dates	Location	Meetings/Field Visits
	20.03.2017	Mission meeting Colombo	Meeting
	21.03.2017	PMU - Colombo	Meeting with PMU staff
Ampara District	22.03.2017	Eco Tourism Centre, Urani	Field visit
	22.03.2017	Eco Tourism Centre - Kottukal	Field visit
	23.03.2017	Manachchena women society (Revolving fund) – Micro finance	Meeting
	23.03.2017	Forest Dept. Regional office Ampara- Green belt project.	Meeting
	23.03.2017	Turtle hatchery Kumana, kirigulpe	Field visit
	23.03.2017	Panama sand dune restoration site	Field visit
	23.03.2017	Eco tourism centre - Panama	Field visit
Batticaloa District	23.03.2017	Kuchchnkerni livelihood programs Home Garden programme Bio gas plant	Meeting
	24.03.2017	D.S office Vakarai	Meeting with Asst..Divisional Secretary
	24.03.2017	Mangrove corner Boat safari Centre Vakarai	Meeting & field visit
	24.03.2017	Mangrove Learning Centre- Nasivantive	Meeting & field visit
Trincomalee District	24.03.2017	Handloom Centre Kutchchveli -	Field visit
	24.03.2017	Kutchchaveli Waste Management Centre	Field visit
	25.03.2017	Kinniya Waste Management centre	Field visit
	25.03.2017	Pigeon island Information centre building	Field visit
	25.03.2017	Pigeon island Tourist boat association	Meeting & field visit

Table A3.2: List of interviewees and persons met

1.	Mr. B.H.J Prematillake	Project Manager
2.	Mr.L. Kumarasiri	Finance Officer
3.	Mr. Chandana Seneviratne	Field Coordinator, Trincomallee
4.	Secretary	Pradeseeyasabava, Kinniya
5.	Ms.. P Gowri	ERAU Officer, Trincomallee
6.	Mr. Mahesh Sameera	Field Coordinator, Ampara
7.	A. Kogulatheepan	Field Coordinator, Batticoloa
8.	Assistant Divisional Secretary	Wakerai
9.	Mr. MG. Priyantha	Secretary, Pigeon Island Tourist Boat Association
10.	Building Contractor	Pigeon Island Research and Information Centre
11.	Mr. Munasinghs	DFO, Forest Department, Ampara
12.	Mr. Roshan	Assistant Forest Ranger, Ampara
13.	Staff	Mangrove Conservation and Education Centre, Nasivanthivu
14.	Members	Uriyankattu Rural Development Society
15.	Divisional Secretary	Panichankerni
16.	Divisional Secretary	Vakeri
17.	Members	Panichenkerni Lagoon Management Committee
18.	Members	Vakarai SAM
19.	Wildlife Staff	Pigeon Island National Park
20.	Staff	Urani Ecotourism Centre
21.	Members	Sangamankandi Community Based Organization
22.	Members	Kottukhal Lagoon Ecotourism Committee
23.	Staff	Kinniya Composting and Waste Management Centre

Appendix 4: List of Project reports reviewed or consulted

1. Project Design Report – PTCRRMP – Sri Lanka - GEF
2. Semi-Annual Progress Reports (SAPR)
3. Project Implementation Reports (PIR)
4. Draft Project Completion Report
5. Annual Work Plan and Budgets (AWPB)
6. Procurement Plans, Actions and Contract Register
7. Annual audited accounts and Audit Reports
8. IFAD Grant Disbursements
9. Statements of Expenditure and Withdrawal Applications
10. Reports of Project Steering Committee Meetings (PSC)
11. Report of the Mid Term Review, June 2013 (MTR) and Aide Memoire
12. Grant Agreements and Subsidiary Agreements
13. IFAD Evaluation Manual, Methodology and Processes
14. Guidelines for GEF Agencies in Conducting Terminal Evaluations
15. Supervision Mission Reports 2013, 2014,2016
16. TER GEF-MSP-19-VN

Appendix 5: List of Knowledge Products

Reports

1. Report on Ecological Profile of Pigeon Island National Park and Surrounding Coastal Ecosystems
2. Report on Ecological Profile of Uppar Lagoon and Salli Island in the Eastern Province
3. Report on Ecological Profile of Pothuvil to Panama Sand Dunes and Surrounding coastal Ecosystems
4. Report on Development of an Ecotourism Plan for Pottuvil to Panama Region the Ampara District with special emphasis on Urani, Kottukal and Panama lagoons
5. Report on Environmental Profiles for Irrakkandy, Puduvaikattu and Sampalthivu Lagoons in Trincomalee District
6. Report on Environmental Profiles for Pottuvil, Panama and Komari Lagoons in Ampara District
7. Project Outcome Assessment Report
8. Report on Environmental profile for Pottuvil, Panama and Komari lagoon in Ampara district
9. Report on impact of invasive aquatic weeds in Pottuvil (Kottukal) lagoon
10. Report on Ecological profile for Pottuvil to Panama sand dunes and surrounding ecosystems
11. Report on development of an ecotourism plan for Pottuvil to Panama region in the Ampara district with special emphasis on Uranikottukal and Panama lagoon
12. Report on Study on changing water quality parameters in the Pottuvil
13. Newsletter articles for project interventions
14. Report on appraisal on Participatory Planning, Conservation and Sustainable Management of sand dune in Ampara district SAM area

Leaflets

1. Conserve Pigeon Island (bio-diversity of Pigeon Island, importance of protecting the national park, project activities to conserve Pigeon Island)
2. “This is our Pigeon Island” (coral and its importance)
3. Waste Management (effects of waste, 3R System, proper waste management practices)
4. Lets protect our mangrove habit (Mangrove diversity and threats)
5. Project activities to protect coastal zone
6. Coastal Zone
7. “Let’s together to protect our mangroves”
8. Leaflets on Sand Dune Conservation and Management in Pottuvil, Panama (PAP) and Special Management Area in Ampara District
9. Leaflet on “Conserve coastal resource management of the Kallady beach cleaning program”
10. Leaflet on “Lets together to conserve the coastal resources Vakarai and lagoon”
11. Leaflet on “To save Vakarai lagoon and mangroves and its importance”
12. Leaflet on “Lets protect our mangrove habitat - Conserve the Nasivanthivu mangroves”

Posters

1. Poster on Mangroves
2. Poster on coral reefs
3. Poster on Pigeon Island
4. Poster on “Save our coastal sand dune ecosystems”
5. Poster on “Let’s protect sand dune vegetation”

Video clips

1. World environment day
2. Pigeon Island ecosystem
3. Project activities in Trincomalee
4. CC Program
5. Environment Day exhibition
6. Eco tourism in Ampara SAM area

7. Coastal sand dunes and project interventions in Ampara SAM area
8. Project activities in Batticaloa SAM area

Awareness Boards

1. Sampaltheevu demarcation and conservation
2. Conserve upparu lagoon
3. Irakkandy mangrove conservation
4. Polythene free green zone in Trincomalee beach
5. Hazard Vulnerable Map for each GN divisions in Kuchchaveli area
6. Awareness boards for Pigeon Island visitors
7. Awareness board about Pigeon Island
8. Coastal sand dune eco systems and protection
9. Green belt program
10. Sand dune rehabilitation in Panama
11. Development of beach access road
12. Coastal zone/beach cleaning and protection
13. Coastal lagoon and mangrove conservation and protection
14. Coastal maps/land use map on Ampara SAM area
15. Solid waste management and coastal resource conservation preparation installation of boards
16. Mangroves and its importance
17. Batticaloa lagoon demarcated and conservation
18. Economic value plan for under the green village activities

Knowledge sharing activities

1. DMC awareness programs for school students in SAM area
2. DMC awareness programs for school teachers
3. DMC awareness programs for preschool teachers
4. School awareness programs on coastal resources of sand dunes, coastal lagoon and mangroves
5. Sustainable management workshop for fishermen in the Panama, Urani, Pottuvil and Komari
6. National symposium on eco-tourism in Pottuvil-Arugumbay
7. Workshop and training programs on sustainable management of eco-tourism and practices
8. Awareness workshop for CBO's, government staff and students
9. Awareness workshop for disaster risk reduction management
10. School level awareness program
11. Eco communication skills development and English classes
12. Awareness workshop on ERAU – Establishment ERAU office and equipments

Exposure visit

1. DCC members to other SAM sites
2. Grama niladari exposure visit to SAM site
3. Exposure visit for Pottuvil and Lahugala DCC members to other SAM sites
4. Exposure visit for fisherman to other SAM sites
5. Exposure visits for livelihood beneficiaries in Kabathigollawa and Damana area.

Maps/Survey Plans

1. Atlas for Pottuvil-Arugambay-Panama SAM site
2. Survey plan and map of Komari lagoon
3. Survey plan and map of Pottuvil lagoon

Voice Cuts

1. Canal cleaning

Album/Stickers

1. Album on Environment day exhibition
2. World Environment Day

Appendix 6: Terms of Reference for Terminal Evaluation Review

Background

1. The project, "Participatory Coastal Zone Restoration and Sustainable Management in the Eastern Province of Post-Tsunami") aims to rehabilitate tsunami affected ecosystems in Sri Lanka to provide full ecosystem services including adaptation against extreme climate events. The Project's development objective is to mainstream restoration and management conservation of globally important ecosystems affected by the tsunami into the reconstruction process to support sustainable livelihoods and to reduce vulnerability to climate change along the East Coast of Sri Lanka.

2. The Project comprises of the following 4 components:

- Development and demonstration of best practices for effective restoration and sustainable management of key coastal ecosystems, with integration of adaptation to climate change vulnerabilities
- Mainstreaming effective ecosystem restoration and sustainable, including integrated options to address for climate change vulnerabilities, into the planning and implementation of post-tsunami
- Empowerment of coastal communities for local natural resources management, enhancing sustainable livelihoods and adaptation to climate change vulnerabilities
- Learning, evaluation and adaptive management increased in both tsunami restoration and climate change adaptation activities
- Project Management

3. The Project aims to achieve the following outputs:

- Best practices developed and demonstrated for community-led restoration of globally important ecosystems
- Best practices and policy guidelines published on practical restoration and conservation management of globally important ecosystems
- Central information base established at CCD as repository for all work on ecosystem restoration and coastal adaptation to climate change
- Policy framework reviewed and restructured to support the restoration and sustainable use of coastal natural resources
- Central national planning system introduces requirement to incorporate restoration of coastal ecosystems into all tsunami-reconstruction projects
- Restoration of coastal ecosystems incorporated into the Eastern Province planning system
- Specialist Ecosystem Restoration and Adaptation Unit created within Coast Conservation Department to provide facilitation and supervision services to tsunami-reconstruction projects
- Demonstration of replication of ecosystem restoration and community-based co-management of coastal ecosystems promoted by North Eastern Provincial Council
- Sympathetic enabling environment for community co-management of natural resources established
- Co-management of mangroves and coastal lagoon promoted at Vakarai to improve local livelihoods and foster sustainable land management
- Co-management of sand resources promoted at Panama/Pottuvil to improve local livelihoods and foster sustainable land management
- Co-management of coral resources promoted at Pigeon Island
- Project management structure established and operational
- Project monitoring, evaluation, reporting and dissemination systems and structures established and operational
- Establishment of appropriate monitoring schemes at selected sites to assess progress and impact of restoration interventions and policy and planning changes

4. The GEF financing of this project amounts to US$ 6,919,915. The project was approved by GEF in December 2007 and the project became effective on 10 September 2009. The Government of Sri Lanka (GOSL) contributes USD 430,300 to finance taxes, and IUCN contributes USD 55,000. The total contribution from the IFAD baseline project PCTRMMP is up to USD 31,981.

5. The project areas are in the three coastal districts of Trincomalee, Batticaloa and Ampara. The project areas represent three key costal ecosystems (sand dunes at Panama/Pottuvil, mangroves at Vakarai, and coastal lagoons at Vakarai) and six additional coastal lagoons.

Objective and Scope of the Evaluation

7. The objectives of the Terminal Evaluation (TE) are:

- To examine the extent and magnitude of project outcomes to date and determine the likelihood of future impacts especially relating to environmental sustainability due to policy making/implementation and co-management of ecosystems;
- To provide an assessment of the project performance, gender disaggregated achievements, and the implementation of planned project activities and planned outputs against actual results; and
- To synthesize lessons learned that may help in the design and implementation of future IFAD, IFAD-GEF or ecosystem management related initiatives

8. The specific tasks of the TE are:

- To assess strategic alignment and relevance of project to local/country contexts/developments and other performance domains following the relevant guidelines and templates;
- To assess the technical/physical results and financial achievements of the project since the approval of the Grant Agreement, including alignment with GEF policies and strategies, attainment and measurement of global environmental benefits and mobilisation of co-financing;
- To assess the results achieved with relation to each project component in the respective areas and at the eco-systems level, against the project logical framework, Annual Workplans and Budget (AWPBs) and Procurement Plans.
- To assess stakeholder engagement (including community) in the project in general and in specific interventions, and their level of benefit from and satisfaction with implementation;
- To identify strengths and weaknesses, as well as challenges and opportunities encountered during implementation. This will include a review of project delivery mechanism of the project, including the functioning of counterparts;
- To assess any risks affecting sustainability of project outcomes;
- To assess performance and robustness of project M&E system for recording results, informing implementation and facilitating learning;
- To review the performance of financial management and flow of funds arrangements, and procurement and contract management;
- To review compliance with Grant Agreement Covenants;
- To collate all knowledge products and assess their relevance, quality and outreach in advancing the projects objectives; and
- To synthesize lessons learned and best practice, and provide guidance on key areas that need further attention.

Methods and process

9. The evaluation will follow IFAD and GEF evaluation guidelines and policies. The methodology of the TER will adopt the following as per IFAD Evaluation Manual:

- **Step 1: Preparation**
    - Review and validate the Project Completion Report (PCR). The final PCR will be shared with the evaluation team by early February 2017 and further comments/discussions will be accommodated before the TER mission begins.
    - Prepare an approach paper that identifies key evaluation partners, specific evaluation methods and techniques for data collection. The approach paper with 3-5 pages long will provide the following aspects:

        - Evaluation Framework: The framework can be shown in a matrix that presents the linkages among the project evaluation objectives, the evaluation criteria and the overarching and subsidiary issues (to achieve the evaluation objectives). Sources of data collection are specified in the bullet points in this TOR and can be modified during the evaluation design.
        - Timetable: Dates of travel and deadlines are already provided in this TOR. Any suggested changes after the PCR review will be discussed with the IFAD Sri Lanka team and Project Management Unit (PMU) when the approach paper is finalized.
- **Step 2: Desk Review**
    - A desk review of project and other relevant documents including, but not limited to:
        - The project documents, key outputs, monitoring reports (such as progress and financial reports to IFAD, Mid-Term Review [MTR], GEF annual Project Implementation Review (PIR) reports, IFAD supervision reports, and M&E data) and relevant correspondence
        - External sources and other relevant documents with up-to-date information on IEM
        - Consolidated Project Completion Report submitted by the Project to IFAD
        - Minutes, decisions and notes from the Project Management meetings;
        - Other project-related material produced by the project staff or partners;
        - Relevant materials published about the project; and
        - Additional information and opinions from representatives of donor or government agencies and other organizations as required
- **Step 3: Field Mission and Data Collection**
    - Meeting with PMU to discuss project results, implementation modalities and agency support to project implementation
    - Review and assess project implementation, results achieved, outcomes at province level, and challenges experienced and solutions adopted
    - Visits to selected field sites to assess the results achieved, outcomes at the local level, and barriers to implementation experienced
    - Organize focused group discussions in-country and in the field with the target communities and project stakeholders
- **Step 4: Preparation of draft final report and review**
    - Present initial findings to IFAD, PMU and other stakeholders.
    - Refine and conclude the Terminal Evaluation based on the feedback received at the validation workshop.

Responsibilities

10. The TER mission team will comprise of the following two members:
    - Team Leader with Natural Resource Management (NRM) Expertise (International)
    - Coastal Resource Management Specialist (Local)
    - Procurement and Financial Management Specialist

11. The specific tasks for each mission member are the following:

1) Malcolm Jansen: Team Leader, NRM Expert

- Review the Project Completion Report (PCR) and validate through online and in-person consultation with IFAD and PMU
- Review the overall progress and results of the project. Assess to what extent the development goal, objective, outcomes and outputs have been achieved drawing on the inputs from the ecosystem management specialist

- Assess the project according to the GEF TER guidelines in all aspects mentioned in the TER template
- Prepare the TE mission Aide-Memoire, powerpoint presentation, and TE report, appendices and annexes in line with the IFAD templates
- Present the findings of the TE mission at a wrap up meeting to PMU and IFAD
- Undertake any other necessary tasks required to ensure that the Terms of Reference of the Terminal Evaluation are fully met

* Total 25 Days of contract (2 days for evaluation design; 10 days in the field including 4 days in three districts; 13 days for TER) – Starting Date: 1 March 2017; End date: 2 May 2017.

2) Jayampathy Samarakoon: Ecosystem Management Specialist

- Review the PCR and support PMU to revise and update the PCR to the level satisfactory to the TER mission
- Review overall progress and results of technical support activities relating to successful ecosystem restoration and its sustainability
- Review project outcomes and assess sustainability, innovativeness and scaling up potential. Also, identify gaps, challenges and weaknesses in project approach with a view to scaling-up
- Assess the project according to the GEF TER guidelines, particularly focusing on Component 1 and 2. Those areas could be further discussed and agreed with the Mission Team Leader.
- Collect the knowledge products generated by the project and provide a comprehensive list of knowledge products developed
- Evaluate the effectiveness of M&E system in recording project performance indicators, collecting and analyzing project progress data
- Provide all necessary inputs to the team leader for ensuring that the TE Aide Memoire, powerpoint presentation and TE report are comprehensive
- Undertake any other relevant tasks assigned by the Team Leader

* Total 30 Days of contract (14 days for PCR review including 2 days for evaluation design and field visits; 10 days in the field including 4 days in three districts; 6 days for TER) – Starting date: 10 January 2017; End date: 2 May 2017.

3) Dayananda Ratnasekera: Procurement and Financial Management Specialist

- Review the status of the compliance with the Grant Covenants
- Review all major procurement decisions taken since the project start-up, procurement processes and quality of procurement and contracts of goods, civil works and services
- Check the contracts register for matching the running bills against actual claims made
- Follow up on asset management and project inventories
- Review the financial and implementation progress made by the project since the start-up of the project
- Review the financial management, grant disbursement procedures and disbursement of GEF grants. Assess whether funds were channelled and used in line with project objectives
- Assess the performance of project financial management, including accounting systems, project accounts and records, SOEs, WAs, financial statements and audit compliance
- Review audit reports and recommendations
- Provide all necessary inputs to the team leader for ensuring that the TE Aide Memoire, powerpoint presentation and TE report are comprehensive
- Undertake any other relevant tasks assigned by the Team Leader

* Total 17 Days of contract (5 days for PCR review including 2 days for evaluation design; 6 days in the field including 4 days in three districts; 2 days for TER) – Starting date: 10 January 2017; End date: 2 May 2017.

Evaluation Report Format and Review Procedures

12. Report Format

a) The Terminal Evaluation Report (TER) should not exceed 50 pages excluding Annexes (see outline in Annex I).
b) Evidence, findings, conclusions and recommendations should be presented in a complete and balanced manner.
c) The TER shall be written in English, and use numbered paragraphs.
d) The evaluation will rate the overall implementation success of the project and provide individual ratings as described in this TOR.

13. TER will also include any formal response/ comments from the project management team and/ or the country focal point regarding the evaluation findings or conclusions as an annex to the report.

Review of the Draft Evaluation Report

14. The TE team leader will present the preliminary evaluation findings at the validation workshop to the PMU to obtain their views, clarifications and [dis]agreements. A revised TER will be submitted to IFAD's Lead Technical Specialist for Environment and Climate Change, Asia and Pacific Division (APR) and Director of IFAD Evaluation Office for review. The Lead Technical Specialist will distribute the final TER to CPM, PMU and any relevant national/provincial agencies for final review and comments. The feedback should focus on any errors of fact. The PMU will collate all review comments and provides them to IFAD, who will then communicate them to the evaluator(s) for their consideration in preparing the final report.

Submission of Final Terminal Evaluation Reports

15. The final report shall be submitted in electronic form in MS Word format and should be sent directly to the Environment and Climate Division (ECD) and APR. Director of ECD will submit the final report to the Independent Office of Evaluation of IFAD (IOE).

16. The Lead Technical Specialist will share the final report with PMU and CPM. Also, the report will be shared with the GEF Secretariat and GEF Office of Evaluation for their review, appraisal and inclusion on the GEF website.

17. The final Terminal Evaluation report will be a public domain document and published on the ECD website https://xdesk.ifad.org/sites/gef/ and may be printed in hard copy.

Evaluation Mission Team Qualifications

18. The evaluators should have the following common qualifications:

- No previous association with the policy-making process and the design, delivery, supervision and management of the project.
- Knowledge of IFAD country programmes and GEF operational programmes, strategies and relevant policies.
- Requisite technical knowledge, academic qualifications and experience In line with the responsibilities of respective team members as outlined in Section No. 4 above
- Fluency in oral and written English is a must.

Timeframe of the Field Mission

20. TE team will visit Colombo and three project districts from 20 – 29 March 2017 to undertake an evaluation mission.

Activities	Dates	Remarks
PCR reviewed by IFAD and TER mission	Jan – Feb	
Evaluation Design	6-7 March	Approach paper to be developed for the TER mission and Desk review note
Mission assemble in Colombo	20 March	Kick-off meeting and discussion on the overall project / Discussion
Field Visit – three districts	22 – 25 March	Initial debrief with PMU on 25 March
AM write up	26-27 March	
Presentation of draft evaluation/AM to IFAD and PMU	29 March	Stakeholder Discussion
Draft final report disseminated for comments	30 March	To PMU through IFAD
Finalising report based on comments	12-15 April	Team
Submission of the final report to IFAD	20 April	Team

ANNEXES

Annex 1. Terminal Evaluation Report Outline

Annex 2. List of Documents to be provided by IFAD and PMU

Annex 1

Terminal Evaluation Review Report Outline

I. **Project Identification Table**: Identify: (1) Project ID, (2) Title, (3) Location, (4) Start and End Date, (5) Mid-Term Evaluation (if applicable), (6) Executing and Implementing Agencies, and Partners, and (7) Budget;

II. **Executive Summary** (no more than 3 pages): providing a brief overview of the main conclusions and recommendations of the evaluation;

III. **Introduction and Background:** giving a brief overview of the evaluated Project, for example, the objective and status of activities; The GEF Monitoring and Evaluation Policy, 2006, requires that a TE report will provide summary information on when the evaluation took place; places visited; who was involved; the key questions; and, the methodology;

IV. **Scope, Objective and Methods:** presenting the evaluation's purpose, the evaluation criteria used and questions to be addressed, the key questions and the methodology;

V. **Project Performance and Impact[6]:** providing *factual evidence* relevant to the questions asked by the evaluator and interpretations of such evidence. This is the main substantive section of the report. The evaluator should provide a commentary and analysis on the following areas:

Evaluation Areas	Criteria	Rating
Assessment of Project Results	Project Outcomes and Objectives Criteria: Relevance Effectiveness Efficiency	Highly Satisfactory (HS) Satisfactory (S) Moderately Satisfactory (MS) Moderately Unsatisfactory (MU) Unsatisfactory (U) Highly Unsatisfactory (HU)
Assessment of Risks to Sustainability of Project Outcomes	Likelihood of sustainability of outcomes 4 dimensions of risks to sustainability: Financial risks Sociopolitical risks Institutional Framework and governance risks Environmental risks	Likely (L) Moderately Likely (ML) Moderately Unlikely (MU) Unlikely (U)
Catalytic Role		No rating required
Assessment of M&E System	M&E design M&E plan implementation	Highly Satisfactory (HS) Satisfactory (S)

[6] The Evaluation Team should refer to *Guidelines for GEF Agencies in Conducting Terminal Evaluations (2008)* for more details.

	Budgeting and Financing for M&E activities	Moderately Satisfactory (MS) Moderately Unsatisfactory (MU) Unsatisfactory (U) Highly Unsatisfactory (HU)
Monitoring of long-term changes	Contribution to establishment of long-term monitoring system Accomplishment/shortcoming Sustainability of system Use of the system as intended	(descriptive)
Assessment of processes affecting attainment of Project results	Preparation and readiness Country ownership/drivenness Stakeholder involvement Financing Planning GEF Agency supervision and backstopping Co-financing Delays	(descriptive)

VI. **Conclusions and Rating:** of Project implementation success giving the evaluator's concluding assessments and ratings of the Project against given evaluation criteria and standards of performance. The ratings should be provided with a brief narrative comment;

VII. **Lessons (to be) Learned:** presenting general conclusions from the standpoint of the design and implementation of the Project, based on good practices and successes or problems and mistakes.

VIII. **Recommendations:** suggesting *actionable* proposals for improvement addressing IFAD and other development partners. *Prior to each recommendation*, the issue(s) or problem(s) to be addressed by the recommendation should be clearly stated.

IX. **Annexes** should include:

1. The Evaluation Terms of Reference **(TOR)**;
2. A **list of interviewees**, and evaluation timeline;
3. A **list of documents** reviewed/ consulted;
4. Summary of **co-finance information** and a **statement of Project expenditure by activity**;
5. Comprehensive list of knowledge products and URLs for accessing them
6. The expertise of the evaluator (brief CV).

Appendix 7: Key Principles that govern coastal resources management

Ecosystem structure and function principles
Regardless of the contradictory narratives implicit in the project design, there exist aspects of coastal ecosystems that are a part of the universal body of scientific knowledge from which generalizations to Sri Lanka's coastal ecosystems is warranted. These may be regarded as the principles of ecosystem structure and functioning that are basic to any review of performance. Although the dimensions of a TER do not allow detailed explanation of principles they are stated in summary form since they were previously tested in integrated planning and development of a major urban lagoon system, Negombo Lagoon, and acquired cabinet approval for implementation (GCEC, 1991; Samarakoon & Van Zon, 1991). The principles that govern ecosystem structure and functions of coastal systems are:

- *Complexity:* Coastal ecosystems are complex systems whose change trends is determined by environmental drivers and variables that are unpredictable, and therefore a high level of uncertainty is associated with outputs and outcomes of interventions unless they are systemically integrated. For systemic integration, consideration should be given to linkages with landscape and seascape continuities. For the purpose of systemic integration the following ecosystem attributes are key.
- *Linkages:* All coastal lagoons and ecosystems/habitats are externally connected inextricably with a landscape (e.g. the river basin), and a seascape (near-shore coastal sea). At the same time, the interacting parts that constitute the ecosystem are internally connected among themselves. These include the tidal inlet, river hydrology, vegetation formations such as mangroves and sea grasses, sediment shoals, biological communities, etc. that should be central considerations for coastal ecosystem restoration and management.
- *Structural heterogeneity:* A coastal ecosystem is formed of interacting parts that differ among themselves, but are organized hierarchically. In the case of a lagoon the crowning attribute is hydrology and hydraulics. All other attributes are shaped and re-shaped by the energy (kinetic) associated with water flow. In the extreme condition where adequate water flow does not occur a lagoon dies as it has happened already in Sri Lanka (Swan, 1984). Where a water body existed previously, sediment deposition may completely choke and diminish fishery habitat, while vegetation invades and stabilizes deposition areas. The structural heterogeneity is maintained by negative feedbacks that warrant consideration.
- *Dynamic stability*: A coastal ecosystem exists in an equilibrium situation based on a number of functional characteristics such as seasonal drainage changes, daily fluctuations in tidal flows, sedimentation patterns keep fluctuating but overall a balance is maintained among the changes. Therefore a coastal ecosystem is never a permanent state. Many case histories exist where human interventions in coastal ecosystems in Sri Lanka have caused loss of dynamic stability.
- *Resilience*: In the event that the above three drivers/variables are allowed to behave naturally and/or in a managed way, a coastal ecosystem acquires the ability to bounce back after shocks including seasonal rains, wave action that alters tidal inlets, human impacts etc. It must be noted that soft /low-cost approaches (as indicated in the GEF project design) alone may or may not be effective in ecosystem restoration where geomorphological changes (including human activities that alter the surface form) have advanced beyond the capability to change under the influence of seasonal dynamics. In such situations low-cost approaches must combine with expensive engineering interventions. The costs of engineering intervention need justification through feasibility analysis and the many sustainable uses that they engender.

Integrated Coastal Management (ICM) principles in relation to the revised Hyogo Framework for Action (HFA) for DRR.

Coastal ecosystem restoration, regardless of magnitude, falls within the ambit of spatial planning in general and particularly within the framework of integrated coastal management (ICM). Therefore convergence exists between the ICM principles and the DRR principles embodied in the HFA. The outputs and outcomes of PCZRSMP may therefore have acquired greater relevance to the management of globally important coastal ecosystems if these had been assessed in terms of their significance with ICM and HFA principles. The key principles relate to: (i) ecosystem based approach to coastal zone management dependent on the complementary and interdependent nature of marine and terrestrial systems; (ii) requiring hydrological, geomorphological, climatic, ecological, socio-economic and cultural systems be taken into account in an integrated manner and in a long-term

perspective; (iii) ecosystem approach to coastal planning and management should not only ensure that ecosystems be managed within the limits of their functioning, but also that full account is taken of the varying temporal scales and lag-effects that characterize ecosystem processes; (iv) appropriate governance allowing adequate and timely participation in a transparent and well informed decision-making process by local populations and stakeholders; (v) cross-sectoral management approaches in the coastal zone, requiring institutions dealing with social, economic and environmental issues be organised to ways that allow integrated approaches to the developed; (vi) formulation of land use strategies, plans and programs covering urban development and socio-economic activities, as well as other relevant sectoral policies are needed for successful ICZM; (vii) management decentralized to the lowest appropriate level to ensure that management or policy goals are understood and owned by those who affect their implementation and success; (viii) ensuring the allocation of uses throughout the entire coastal zone be balanced and ensuring that coastal developments are balanced with related processes in the coastal hinterland; (ix) preliminary assessments shall be made of the risks associated with the various human activities and infrastructure so as to prevent and reduce their negative impact on coastal zones; and (x) damage to the coastal environment shall be prevented and, where it occurs, appropriate restoration shall be effected. Considering ICM and HFA principles together it is useful to examine the manner in which the PCZRSM outputs were adequately interwoven with hydrometeorological events on the east coast, particularly floods that accompany the combined effects of concentrated rainfall and sea level rise, if at all.

Common pool/property resources management principles

All coastal ecosystems targeted for interventions by the PCZRSMP directed at restoration of ecosystem services are either ‘common property resource systems’ or ‘common pool resource systems’. Some common pool resource systems may be under traditional methods of limitation of access. This division of territories is visible in the manner in which the fisherfolk of Urani lagoon segment and Kottukal lagoon segment of the unitary Pottuvil lagoon generally share resources by way of imaginary territorial use rights. In all cases of management of the commons, five principles contribute toward long-term use, which were likely not taken into active consideration in the management of these common resources. These are: (i) rules for the use of resources connected to unfailingly enforceable penalties; (ii) enforcement of rules and penalties by appointed or elected persons whose tenure does not allow entrenching of interests for personal gain; (iii) mechanisms exist for rotation of benefits among all participants involved in the sharing of the commons; (iv) mechanisms exist for limiting the number of persons with access to resources of the commons (e.g. within the carrying capacity); and (v) non-members of the organization using the commons are not allowed access to its resources, thereby preventing free-riding.

Minimization of potential unintended consequences of planned development

The Millennium Ecosystem Assessment (2006) inferred from its global survey and analysis that most damage done to ecosystems arise as unintended consequences of development activities that are planned and implemented primarily for immediate results (development benefits to be realized within about five years). The ill effects on ecosystem processes that may occur at a slow pace frequently begin to appear along decadal time axes. Frequently they also are obscured by short-term seasonal fluctuations unless deliberate measurements are made to pierce the veil by way of continuous measurements that enable detection of underlying change trends (Diamond, 2004). This is the problem of creeping normalcy in environmental management. To counter the emergence of unintended consequences of ecosystem interventions safeguards are needed in the planning process. Perhaps in the case of PCZRSMP, since the interventions were already in the project design, the scope may not have existed for planning with a view to minimize ‘unintended consequences”