

Project Brief

International Fund for Agricultural Development

Global Environment Facility

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

GEFSEC ID 2753

Brief description: The Eastern Province of Sri Lanka bore the brunt of the damage caused when the Indian Ocean Tsunami struck the island in the morning of 26th December 2004. As well as causing the deaths of 14,345 people (46% of the national death toll), displacing over 220,000 people, and destroying most of the fishing industry, it also caused 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 destroyed¹. The value of these ecosystems in providing protection was apparent to all in that lives were saved and property protected where these ecosystems had not been degraded by poor management. However, in the immediate aftermath of the tsunami, humanitarian considerations were given the highest priority to provide rescue, relief, and emergency support to the survivors. The reconstruction programme that followed provided a rare opportunity for a truly holistic approach to policy formulation and implementation, but due to lack of capacity, technical knowledge, and inadequate institutional coordination, the national reconstruction response was made in isolation of ecosystem restoration and broad conservation objectives, which were given low priority leading to responses that are 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 is 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 programme; and that those processes leading to land degradation prior to the tsunami must be changed if the rehabilitated ecosystems are to provide the functions and services envisaged on a sustainable long-term basis. While the initial emphasis of this seven-year project will 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) is at its heart. In seeking to achieve this, it will implement a two-prong strategy to a) demonstrate that replication is technically feasible at other sites, and b) 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. Improved management of these restored and other coastal resources will 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 will 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.

¹ 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.

TABLE OF CONTENTS

TABLE OF CONTENTS	II
ACRONYMS	III
PART 1: SITUATION ANALYSIS	4
Part 1A: Context	4
1A.1 Background	4
<i>Sri Lanka</i>	4
<i>Eastern Province</i>	4
<i>Tsunami</i>	5
1A.2 National Significance of Climate Change and land degradation	5
1A.3 Global Significance of Biodiversity	6
1A.4 Institutional Context	7
<i>Outline</i>	7
<i>National</i>	7
<i>Provincial</i>	10
<i>District, Division and Village</i>	10
<i>Non-governmental Organisations</i>	11
<i>Post-tsunami</i>	11
1A.5 Policy and Legislative Context	12
<i>Policy</i>	12
<i>Legislation</i>	16
1A.6 Socio-economic Context	18
<i>National</i>	18
<i>Eastern Province</i>	19
PART 1B: Baseline Course of Action	20
1B.1 Threats to the Biodiversity of the East Coast	20
<i>Tsunami-related threats</i>	20
<i>Post-tsunami response-related threats</i>	22
<i>Pre-tsunami threats</i>	23
1B.2 Barriers	26
1B.3 Stakeholder Involvement and Analysis	29
PART 2: STRATEGY	30
2.1 Project Rationale	30
2.2 Project Goal, Objectives, Outcomes and Outputs	30
2.3 Project Indicators, Risks, and Assumptions	36
2.4 Expected global, national and local benefits	37
2.5 Country Eligibility and Drivenness	38
<i>Eligibility for GEF</i>	38
<i>Conformity with Conventions</i>	38
<i>Conformity with GEF</i>	40
<i>Country Driven-ness</i>	41
2.6 Linkages with IFAD Country Programme	42
2.7 Linkages with Other Projects	42

	<i>GEF-financed</i>	42
	<i>Other</i>	44
2.8	Sustainability	44
2.9	Replicability	46
2.10	Lessons learned	47
PART 3:	PROJECT MANAGEMENT ARRANGEMENTS	48
3.1	Execution and Implementation Arrangements.....	48
	<i>National Steering Committee</i>	49
PART 4:	MONITORING AND EVALUATION PLAN AND BUDGET	50
4.1	Monitoring and Evaluation	50
4.2	Budget and Cost-effectiveness.....	50
PART 5:	LIST OF ANNEXES	51

ACRONYMS

ADB	Asian Development Bank
CBD	Convention on Biodiversity
CBO	Community-based Organisation
CCA	Coast Conservation Act
CCD	Coast Conservation Department
CCS	Climate Change Secretariat
CEA	Central Environment Authority
CEPOM	Committee on Environmental Policy and Management
CHA	Consortium of Humanitarian Agencies
CIRM	Centre for Information Resources Management
CNO	Centre for National Operations
CZMP	Coastal Zone Management Plan
CZMAP	Coastal Zone Management Action Plan
DFAR	Department of Fisheries and Aquatic Resources
DWC	Department of Wildlife Conservation
ERAU	Ecosystem Restoration and Adaptation Unit
FD	Forest Department
GHG	Greenhouse Gas
GOSL	Government of Sri Lanka
IFAD	International Fund for Agricultural Development
IPCC	Intergovernmental Panel on Climate Change
IUCN-SL	The World Conservation Union – Sri Lanka Country Programme
LTTE	Liberation Tigers of Tamil Eelam
MFAR	Ministry of Fisheries and Aquatic Resources
MPPA	Marine Pollution Prevention Authority
NECCDP	North-East Coastal Community Development Project
NECORD	North-East Community Restoration and Development Project
NEPC	North-Eastern Provincial Council
NGO	Non-governmental Organisation
OP	Operational Programme
PAMA	Public assistance monthly payments
PMU	Project Management Unit
PSC	Project Steering Committee
P-TOMS	Post-Tsunami Operational Management Structure
RADA	Reconstruction and Development Agency
REA	Rapid Environmental Assessment
RUK	Rekawa, Ussangoda and Kalametiya GEF Project
SAM	Special Area of Management
SEA	Strategic Environmental Assessment
TAFLOL	Task Force for Law and Order and Logistics
TAFOR	Task Force for Relief
TAFREN	Task Force to Rebuild the Nation
TAFRER	Task Force for Rescue and Relief
THRU	Tsunami Housing Reconstruction Unit
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change

PART 1: SITUATION ANALYSIS

Problem: *The restoration of globally-important ecosystems has been given low priority during the post-Tsunami recovery process leading to responses that are 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.*

Part 1A: Context

1A.1 BACKGROUND

Sri Lanka

1. Sri Lanka is a tropical island situated in the Indian Ocean to the south of India between latitudes 6–10° north and longitudes 80–82° east. The island has a land area of 65,610 km² and a coastline of approximately 1,600 km. Since the declaration of the 200 nautical mile Exclusive Economic Zone in 1978, Sri Lanka has sovereign rights over 517,000 sq km of the ocean, which is almost 7.8 times the size of the land area of the country. The country has an irregular, dissected topography comprising a broad coastal plain and a central mountainous area rising to elevations of 2,500 m. The climate is equatorial and tropical depending on elevation. Rainfall is uneven and divides the country broadly into two main climatic zones: a wet zone in the south-west and a dry zone that covers most of the remainder with an intermediate zone between. Annual precipitation in the wet zone averages 2,500 mm while in the dry zone it ranges from 1,000 mm to 1,500 mm. This variation in altitude and rainfall has resulted in a rich array of ecosystems in the country, making Sri Lanka, one of 18 global biodiversity hotspots recognised in the world. It has the highest biodiversity per unit area of land among all Asian countries in terms of flowering plants (over 3,368 species), and all vertebrate groups except birds. About half of all its species are endemic. The island also provides critical habitat for internationally mobile species, including five species of endangered marine turtle, about 100 species of waterfowl, and many other migratory birds.

2. The human population, estimated at 19.5 million persons (2004) with an annual growth rate of 1.2%, is predominantly Sinhalese (74%) by ethnicity and Buddhist by religion, with important minority Tamil (generally Hindu) (18.1%), Muslim (7.1%) and Christian communities. About 80% of the population is rural – mean population density was 304 persons per square km in 2002. Since about 1980, the Liberation Tigers of Tamil Eelam (LTTE) have been fighting for an autonomous Tamil homeland in the north and east of the country, and this conflict has had a devastating impact on all facets of life in Sri Lanka. The present peace process, although stalled since 2003, presents opportunities for restoration and development but insecurity and sporadic periods of violence continue to constrain these efforts.

Eastern Province

3. The Eastern Province of Sri Lanka, comprising the three coastal districts of Trincomalee, Batticaloa, and Ampara, covers a land area of 9,635 km², has a coastline of approximately 360 km in length², and supports a population of approximately 1.42 million people³, 78% of which are rural, and 30% live within the coastal belt. The entire eastern coast falls within the dry zone of Sri Lanka having a common climate. The mean annual temperature is 30° C, ranging from 18 ° C during the cooler nights of the rainy season to 38 ° C during the day in the dry months – too high for optimal plant growth. Rainfall is relatively light (1,000-1,500 mm per year) falling mostly (about 60%) in the north-east monsoon (October to February); these winds originate from the Indo-Asian landmass unlike the South-west monsoon which originates from the ocean and hence has relatively less precipitation. Evapo-transpiration during May-July exceeds rainfall making supplementary irrigation essential, and wind velocities are also high causing crop desiccation. Soils are sandy regosols, and recent beach and dune sands with reddish brown earths and their derivatives in the interior – mostly poor and the intrinsic productivity of the land is low. The majority of people make a living through fishing and agriculture. Main crops are rice, coconuts, cashew, maize, legumes and vegetables.

² There is considerable discrepancy in the figures returned by various studies of all physical parameters – for example the 1986 Coastal Erosion Mater Plan gives the total length as 420km.

³ 2001 census figures – those for Trincomalee and Batticoloa Districts extrapolated because of the conflict.

Tsunami

4. In Sri Lanka, the Indian Ocean Tsunami of the 26 December 2004 caused the death of an estimated 30,196 persons, injured another 15,683, left 3,792 people missing, and displaced some 850,200 people⁴. Of these, 96,000 people remain in 263 of the original 789 relief camps with others living with relatives and friends. The fishing communities reported 7,573 deaths, 5,686 persons missing and 90,657 displaced persons. Physical damage includes 100,000 houses (of which 75,000 were completely destroyed), 150,000 vehicles, and the loss or damage of 22,940 fishing vessels of all categories (81% of the national fleet). Coastal infrastructure, including roads, fishing ports, ice plants, tourist sites, and telecommunications, has been severely affected. Estimates of direct damage to assets place losses in Sri Lanka at around US\$ 1 billion (4.5% of GDP). The worst hit area was the Eastern Province.

5. Assessments of environmental damage along the East Coast have identified a number of impacts. There has been severe mechanical damage to the coral reefs with large amounts of coral washed up on the beaches; destruction of mangroves, Horsetail (*Casuarina equisetifolia*), and palm plantations (especially *Palmyra*) and its attendant biodiversity; significant loss of beach width with subsequent erosion and significant mortality of some animal taxa (e.g. hermit crabs); widespread salinisation of soils and water sources within the immediate coastal belt (up to about 1km inland); accumulation of debris in lagoons and on beaches; and the significant spread of invasive alien species (e.g. the prickly pear cacti *Opuntia* spp. and Mesquite (*Prosopis juliflora*)).

6. In addition to the deaths and infrastructure destruction above, other socio-economic impacts have included the salinisation of wells and other freshwater sources leading in turn to the impairment of irrigation of agricultural fields; the loss of livestock and agricultural land (including home gardens); the destruction of the tourist industry exacerbated by the dumping of rubble and garbage (during clean-up operations) on the beaches; and increased health hazards arising from sewage contamination of freshwater sources, increased areas of standing water available to breeding mosquitoes, and the displacement of landmines laid during the internal conflict. Subsequent actions have increased environmental stress – refugee camps have been located in environmentally sensitive areas (e.g. bordering lagoons and tanks); there has been intensive felling of trees locally to provide timber for temporary shelters; marginal land beyond the Tsunami surge has begun to be cultivated; and displaced livestock are now free-roaming and causing damage to unaffected agricultural and uncultivated lands.

7. Unsurprisingly given the magnitude of the catastrophe, there has been insufficient coordination between national and local government agencies, and international and other NGOs. Managerial and technical capacities remain stretched, skilled craftsmen are still in short supply, and the high demand for labour to aid in the relief and clear-up operations has led to inflated wages which is affecting inland farming through increased costs or manpower losses. Also unsurprisingly, human-based issues have taken priority throughout the relief and reconstruction responses – provision of food, water, and shelter, and the means to continue livelihoods (e.g. fishing boats, tools) during the initial relief effort; provision of houses, hospitals and clinics, schools, and repairs to roads, bridges and other infrastructure during the reconstruction phase. Unfortunately, not only has restoration of the natural environment not yet been addressed seriously, but much of the response to human needs has been inappropriate to, incompatible with, or unresponsive to, the sound utilisation of natural resources which most of the local communities of the East Coast are ultimately dependent upon to sustain their livelihoods.

1A.2 NATIONAL SIGNIFICANCE OF CLIMATE CHANGE AND LAND DEGRADATION

8. The temperature observations made by the Meteorology Department of Sri Lanka over the last 100 years have shown an increasing trend in the annual mean terrestrial surface temperature with an average of 0.16° C per decade during 1961-90 period. This is 25% greater than the increase in the global mean surface temperature of 0.12° C per decade observed during the same period. The Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) projects increases in the global mean surface temperature of 1.5-5.8° C by 2100 under different greenhouse gas emission scenarios and different computation models, and a corresponding rise in the sea level of 0.1-0.85 m. According to the regional assessments, the model grid enclosing Sri Lanka gives corresponding values for a temperature rise in the range 1.0–3.0° C. These values down-scaled for Sri Lanka using an interpolation technique also gives similar range.

9. Sri Lanka has been experiencing frequent extreme events such as heavy rains followed by floods and landslides, droughts and cyclonic storms over the past years. With the anticipated rise in the surface temperature, it is expected that these events will occur more frequently and with greater intensity, causing much damage to life and property. The rise in the mean temperature and sea level will have an adverse impact in almost all socio-economic sectors of Sri Lanka, including coastal zones, wetlands, fisheries, agriculture, forestry, water resources, health, and energy. Most crops have an optimum temperature for maximum yield which is around mid-twenties, hence any increase in the ambient temperature would mean a reduction in the yield of low elevation crops. The associated increase in evapo-transpiration and soil salinity would

⁴ Figures from Department of Census and Statistics, Ministry of Finance and Planning, Sri Lanka.

exacerbate the loss of yield. Changes in the pattern of rainfall and elevated temperatures would also affect directly inland water resources and hydropower supplies. All these would mean economic losses to the country and probably an increase in levels of poverty in the poor rural areas.

10. Land degradation has emerged as a serious problem in Sri Lanka. The population has been expanding rapidly and this has led to an increased demand for land for economic purposes and social services. The demands for various users such as agriculture, industry, transport, and settlements have created pressures on land, and these in turn have inevitably resulted in the misuse and degradation of land in many areas including the eastern coast of Sri Lanka. Evidence of this degradation can be seen in heavy soil loss, high sediment yields, decline in soil fertility, salinisation and the marginalisation of agricultural land. The government has been keen to address this problem and several measures have been adopted over the past few decades to control land degradation. However these have had only a limited impact as reflected in the spread of settlements into environmentally fragile areas. The United Nations Convention to Combat Desertification (UNCCD) is being implemented through national action programmes. As a part to the UNCCD, Sri Lanka has prepared a National Action Programme (NAP) to identify the factors contributing to land degradation and the practical measures necessary to combat land degradation. Due to continuing civil conflict in some parts of the Eastern Province, there has been no long-term investment on agricultural lands by the farmers leading to degradation of these lands. Land degradation in some areas has been increased due to erosion and salinisation of productive lands along the beach. The Framework of the South Asia Sub-Regional Action Programme to Combat Desertification and Promote Sustainable Land Management (SA-SRAP) was initiated in Sri Lanka and is currently progressing.

1A.3 GLOBAL SIGNIFICANCE OF BIODIVERSITY

11. The coastal marine and terrestrial ecosystems of the Eastern Province are rich and varied and support 28 Red Data Species – five plants: *Diospyros ebenum*, *D. nummularifolia* (Endangered); *Canthium dicoccum*, *Chloroxylon swietenia*, and *Glenniea unijuga* (Vulnerable); and 23 animals: Leatherback Turtle *Dermochelys coriacea*, Hawksbill Turtle *Eretmochelys imbricata* (Critically Endangered); Humphead Wrasse *Cheilinus undulates*, Green Turtle *Chelonia mydas*, Olive Ridley Turtle *Lepidochelys olivacea*, Loggerhead Turtle *Caretta caretta*, Spoon-billed Sandpiper *Eurynorhynchus pygmeus*, Asian Elephant *Elephas maximus* (Endangered); Whale Shark *Rhincodon typus*, Leopard Shark *Stegastoma fasciatu*, Banded Eagle Ray *Aetomylaeus nichofii*, Common Guitarfish *Rhinobatus typus*, White-spotted Guitarfish *Rhynchobatus djiddensis*, Smoothnose Wedgefish *Rhynchobatus laevis*, Hedgehog Seahorse *Hippocampus spinosissimus*, Giant Grouper *Epinephelus lanceolatus*, Marsh Crocodile *Crocodylus palustris*, Spot-billed Pelican *Pelecanus philippensis*, Lesser Adjutant *Leptoptilos javanicus*, Toque Macaque (*Macaca sinica*), Grizzled Giant Squirrel (*Ratufa macroura*), Fishing Cat (*Felis viverrina*), Rusty Spotted Cat (*Felis rubiginosa*); plus another seven Near-threatened species – Oriental Darter *Anhinga melanogaster*, Painted Stork *Mycteria leucocephala*, Black-necked Stork *Ephippiorhynchus asiaticus*, Black-headed Ibis *Threskiornis melanocephalus*, Grey-headed Fish Eagle *Ichthyophaga ichthyaetus*, Eurasian Otter *Lutra lutra*. In addition, many terrestrial species associate loosely with coastal ecosystems although their main habitats are elsewhere – at least one of these is globally threatened, the Sloth Bear *Melursus ursinus* (Vulnerable). Long term sustenance of this globally significant biodiversity along the East Coast is highly dependant on the level of land degradation taking place in the province. These land degradation trends need to be reversed early, otherwise there could be serious socio-economic consequences in addition to the global biodiversity concerns. Therefore, sustainable land and ecosystem management options will be promoted by the project in coastal areas of the Eastern Province.

12. Most of these coastal habitats have been either partially damaged or completely destroyed by the tsunami, with the exception of the coral reefs which show remarkably little mechanical damage. Some live coral has been destroyed and large quantities of coral rubble (formed after the coral mass mortality in 1998) shifted thereby covering and killing reef biota as well as some sea-grass beds. Only low levels of smothering by sediment has been observed. Results from post-tsunami surveys, particularly the south-west, show that losses have been greatest in those areas where human activities had already caused habitat degradation, but even in nearly pristine areas damage has been extensive. Considerable amounts of debris, both plant material and man-made objects, were carried with the receding water and deposited both on the reefs and/or on beaches in all areas. Where habitat has been destroyed reduced fish abundance is apparent. The seaward tranches of mangroves have been uprooted or flattened, but destruction has also accrued on the landward side by receding waters. There has been significant erosion of beaches resulting in loss of width and destruction of sea-shore vegetation that consists of runners and creepers such as *Ipomoea pescapre* and *Spinifex littoreus*. Many turtle nests have been destroyed. Where sand dunes had been artificially breached before the tsunami, seawater has funnelled into the brackish and freshwater lagoons behind causing major degradation and seriously eroding the dunes in the process. Some trees of the narrow riverine forests have been uprooted by the seawater that funnelled through the river mouths.

1A.4 INSTITUTIONAL CONTEXT

Outline

13. Sri Lanka is a democracy with an incomplete dual system of devolved administration. The country is divided into nine Provinces and 25 Districts, the Project area covering the Eastern Province and its three Districts of Trincomalee, Batticaloa, and Ampara. The National Government is responsible for developing and overseeing implementation of national level policy and legislation, which is implemented through an administrative system of District Secretariats, Divisional Secretariats, and Grama Niladharis⁵. In 1987, the 13th amendment to the Constitution was passed empowering the formation of Provincial Councils elected by the people to represent different Districts within the Province. These are responsible for local-level policy administration and service provision administered through a series of Local Authorities also with elected councils⁶. These two systems work in parallel but with many areas of overlap and not all line Ministries or line Agencies maintain offices at all levels. Although this indicates that there have been significant moves to decentralise the decision-making process, the administrative and financial control still resides in Colombo. In keeping with this, all tsunami related matters were also handled from the Centre see paragraph 26 *et seq.*

14. In the north and east, things are further complicated by the civil conflict, and the Northern and Eastern Provinces have been temporarily merged into one administrative unit – the North-Eastern Provincial Council (NEPC). Because certain political parties were forced to boycott the 1990 elections, the elected membership of this Council was dissolved since when it is under the direct rule of the Governor (a direct political appointee of the National Government) and the Chief Secretary with whom executive power now resides⁷. Furthermore, some areas are under the military control of the LTTE and in some of these, a separate Tamil Eelam Administrative Service operates. Although separate offices of the LTTE organization are found in many such areas, only one project site lies within an LTTE-controlled area and here, the LTTE works in close harmony with, and is supportive of, the Government's District and Divisional administration and development programmes.

National

15. There are two Ministries dealing with the environment and sustainable development within the Project area. The Ministry of Fisheries and Aquatic Resources (MFAR) is the Government's principal administrative and policy-making organisation for fisheries, with responsibilities for providing the basic infrastructure and services to support the fishing industry. Its main objectives are i) to increase the nutritional status and food security of the people through increased fish supply; ii) to raise the socio-economic status of the fisherfolk; iii) to increase foreign exchange earnings, through export of fish and fish products; and iv) to manage and conserve the coastal environment by regulating and controlling development activities within the coastal zone. MFAR has under its purview two Departments, five Statutory Bodies, and a Public Company to assist it in the execution of its functions and responsibilities, but the following are key stakeholders in the proposed Project.

- The Coast Conservation Department (CCD) will be the principal player. The *Coast Conservation Act* No.57 of 1981, as amended by Act No.64 of 1988, defines the role of the CCD as: i) to undertake surveys and research to describe the existing condition of the coastal zone and also plan for its development; ii) to prepare and periodically update the Coastal Zone Management Plan (CZMP); iii) to regulate and control the development activities within the coastal zone; and iv) to formulate and execute the work for coast protection and conservation. At present, the third CZMP is being revised to accommodate the changes made after the tsunami and this will elaborate the future policies and strategies for coastal resources management and development. The tsunami has made further bathymetric studies of the coastal zone necessary. Relaxation of the buffer zone has also become necessary due to the non-availability of state land for resettlement purposes. The Department already operates three Divisional Offices unconnected with the East Coast and dealing primarily with engineering issues, and it has plans to open similar offices in Trincomalee and Jaffna. The Department has proposed amendments to the Coast Conservation Act to enable the Minister to declare Special Areas for Management (important conservation areas), and also produced a *Revised Developers Guide and Permit Procedure for Coastal Development* after the tsunami.
 - The Coast Conservation Advisory Council is an advisory group, appointed under the Coast Conservation Act, chaired by the Secretary to the MFAR, and consisting of ten other members from relevant government agencies and three members appointed by the Minister of Fisheries. Its main function is to act as the ultimate

⁵ This division is the smallest unit of local government equating to a village headman unit and usually comprising 1-3 villages, a total of 60-100 households.

⁶ Municipal Councils for the cities and large towns; Urban Councils for the less urbanized centres; and Pradeshiya Sabhas for the rural areas.

⁷ The post of Chief Minister (head of the elected membership of the Council) in whom executive powers normally reside was suspended with dissolution of the Council.

body advising the Minister and the Director of CCD on matters pertaining to coast conservation and to review the CZMP (see paragraph 36) and EIA reports for developments within the coastal zone.

- The Department of Fisheries and Aquatic Resources (DFAR) is the largest of MFARs functional organisations, and is the Ministry's principal arm for providing extension and welfare services to the fishing community. It also has the responsibility to manage and regulate the island's coastal and offshore fisheries resources. The main functions of the Department are the administration and enforcement of the Fisheries Ordinance and its Regulations; disbursement of subsidies for purchase of boats and fishing gear; institutional credit for the purchase of capital items; welfare facilities for fishermen; management of the Fishermen's Pension Scheme; establishment and maintenance of the Fisheries Cooperative Societies; and the implementation of fisheries development projects. The Department has a field network of 15 District Fisheries Offices for the main coastal districts. In the Eastern Province, these extension offices, which are headed by Assistant Directors, are located in Trincomalee, Batticaloa and Kalmunai.
- The National Aquatic Resources Research and Development Agency (NARA), established under the *National Aquatic Resources Research and Development Agency Act* No. 54 of 1981, is the principal national institute charged with carrying out and coordinating research, development, and management activities on aquatic resources in Sri Lanka. It is managed by a Board of Governors consisting partly of members appointed by the Hon. Minister of Fisheries and Aquatic Resources and also of certain Ex-officio members. Its main objectives are to: i) ensure the application and use of scientific and technological expertise for the implementation of the national development programme on the subject of living and non-living aquatic resources; and ii) promote and conduct research activities directed towards the identification, assessment, management, conservation and development of aquatic resources and in particular in the following fields
 - Oceanography and Hydrography
 - Improvement and development of fishing craft, fishing gear and equipment, and fishing methods
 - The social and economic aspects of the fishing industry, including the welfare of fishermen and their dependents
 - The processing, preservation and marketing of fish and aquatic products
 - The development, management and conservation of aquatic resources in the inland waters, coastal wetlands and off-shore areas

Marine Biological Resources Division is carrying out the national coral reef monitoring programme which includes the Pigeon Island National Park.

16. The mandate of the Ministry of Environment is to "provide leadership to manage the environment and natural resources in order to ensure national commitment for sustainable development for the benefit of the present and future generations". In carrying out this mission, the key tasks of the Ministry are to: i) ensure management of land, water and air resources to maintain and enhance their quality and productivity; ii) conserve flora and fauna; iii) ensure conservation and sustainable use of bio-diversity and natural resources; ensure the management of waste streams to improve the environmental quality and minimise public health risks; monitor meteorological parameters and take steps to minimise the risks of climate change; promote cleaner production; and ensure conservation of marine ecosystems, catchments of rivers and major reservoirs. The functions of the Ministry are organised under nine Divisions including a Natural Resources Management Division, a Biodiversity Division, Policy Planning Division, and an Environmental Economic and Global Affairs Division. The major step taken by the Ministry to tackle environmental issues is the formulation of the *National Environmental Policy* and a *National Environmental Action Plan*, identified as Caring for the Environment 2003-2007, Path to Sustainable Development (see Policy and Legislative Context below). To implement this programme, Committees on Environmental Policy and Management (CEPOMs) have been established, based on six sectoral groups including Fisheries and Coastal and Marine Area Management; and Forestry and Wildlife Conservation. In addition, the *National Policy on Wetlands* has been formulated and cleared by the Government, for implementation. The Ministry has also urged the preparation of the *Provincial Environmental Policy and Strategy* and the *Provincial Action Plan*, preparation work for which has already commenced and the plans are expected to be ready by February 2006. The MOE is also the National Focal Point for the United Nations Framework Convention on Climate Change (UNFCCC). It has established a National Steering Committee on Climate Change, comprising members from other stakeholder Ministries, Departments, Statutory Boards and Universities to advise and give directions to the Ministry and monitor its activities related to this conventions and their protocols. They meet once a month generally, chaired by the Secretary to the Ministry. The Ministry has under its purview nine agencies including the following key stakeholders:

- The Department of Wildlife Conservation (DWC) is entrusted with the overall conservation of the flora and fauna of the country and the maintenance of its diversity. Its functions are largely governed by the *Fauna and Flora Protection Ordinance* and the *Wildlife Conservation Policy of 2000*. The Department's aim is to conserve wildlife and its habitats in Sri Lanka, by making its management socio-politically acceptable, economically viable, and ecologically sustainable through a mixture of research, education and law enforcement. The Department maintains a network of

Protected Areas which cover 13% of the total land area of the country including 15 National Parks, four Nature Reserves, three Strict Natural Reserves and 55 Sanctuaries. It has a field network of seven Ranges under Assistant Directors including Ampara (Eastern) covers Batticaloa, south Eravur and the whole of Ampara south to Maha Oya, while the Range Office at Polonaruwa covers the area north of Eravur and the whole of Trincomalee. Pigeon Island is a National Park of 97.1 ha declared in May 1973 under the *Fauna and Flora Protection Ordinance*.

- The Central Environmental Authority (CEA) was established under the National Environmental Act No.47 of 1980 “to protect and enhance the quality of the environment for the people of Sri Lanka through pollution control, natural resource management and environmental education based on technical expertise and commitment”. It is organized on five technically specialised Divisions: i) Environment Pollution Control; ii) Environmental Management and Assessment; iii) Environmental Education and Awareness; iv) Operational Planning and Monitoring; and v) Human Resource Development, Administration and Finance. Since April 2004 it has “regionalised” its activities by setting up Regional and Sub-Regional Offices in important locations. The Regional Office in Trincomalee, covering the Districts of Trincomalee, Vavuniya and Mannar, and the Ampara Sub-Regional Office, covering both Batticaloa and Ampara Districts, deal with environmental management and assessment, and environmental pollution control. The CEA has played a major role as the facilitator of the National Wetland Steering Committee (NWSC) which was established in 1990 with Cabinet approval. It was reconstituted in 2003, chaired by the Secretary in charge of the Ministry of Environment, in order to integrate plans for wetlands into development. The CEA also established the National Wetland Management Secretariat in 2003. Presently, this is functioning with only one technical person, but the *National Wetlands Policy 2004* (see paragraph 38) has a provision for it to be upgraded into the National Wetland Management Unit to facilitate that policy’s implementation.
- The Marine Pollution Prevention Authority (MPPA) was established under the *Marine Pollution Prevention Act* No.59 of 1981 to protect the marine environment from ship-based and shore-based maritime related activity and to comply with national and international obligations. Its main functions are to i) formulate and execute schemes for marine pollution prevention; ii) to undertake related research; iii) take measures to manage and safeguard territorial waters; iv) provide shipboard waste reception facilities, v) provide facilities for bunkering activities; vi) formulate and implement a National Oil Spill Contingency Plan; vii) create awareness among the general public; and viii) administer and implement other activities as provided for in the Act.
- The mandate of the Forest Department (FD) is to “*conserve and develop forest resources in Sri Lanka to ensure the prosperity of the nation*”. Its main functions are to i) ensure sustainable production of products and services; ii) allocate and carry out appropriate zoning of forest lands for efficient forest management; and iii) contribute to the increase of tree cover. These functions are organized under seven Technical Divisions at Head Office including Environmental Management; Social Forestry and Extension, and Forest Protection and Law Enforcement. It has 18 field offices called Divisional Forest Offices, three of them being located in Trincomalee, Batticaloa and Ampara. The Divisions are further divided into Ranges and Beats. A major portion of its activities are implemented through the ADB-funded *Forest Resources Management Project*.
- The Climate Change Secretariat (CCS) was established under the Ministry’s Environmental Economics and Global Affairs Division to serve as the National Focal Point for UNFCCC activities; provide a one-stop facility to disseminate information relating to the implementation of the decisions taken at the Parties’ meetings; promote research studies on mitigation, impacts, and adaptation to be undertaken by researchers; initiate measures to be undertaken by different line ministries and authorities to comply with the provisions in the UNFCCC and its Kyoto Protocol; promote the private sector to invest in CDM projects, by conducting awareness programmes and assisting in the identification of projects; and serve as the Designated National Authority for the approval of Clean Development Mechanism projects. Among the obligations of the developing countries set forth in the UNFCCC is the periodic submission of a *National Communication* to the UNFCCC Secretariat including an Inventory of Greenhouse Gas (GHG) emissions and sinks, and taking climate change concerns into account in formulating socio-economic policies. Branch units of the CCS have been established as follows to collect data from the relevant sectors necessary for the preparation of the GHG Inventory; undertake assessment studies on impacts of, and adaptation to, climate change; promote and supervise research; and assist private sector parties in formulating and implementing projects for the CDM process:
 - the Natural Resources Management Centre established within the Department of Agriculture to address environmental issues in the agricultural sector, conduct agro-meteorological research and maintain an agro-meteorological observation network. It also maintains a database on agro-meteorology data.
 - the Institute of Plantation Management of the Ministry of Plantations to conduct diploma programmes, hold workshops, seminars and conferences, undertake research and advise the Minister. It operates closely with the three plantation research institutes.
 - the Land Use Policy Planning Division established within the Ministry of Lands to maintain a database of all information on land use in the country and plan for future allocations. It operates closely with the Survey Department, Forest Department, Timber Corporation and other related bodies.

- the Industrial Technology Institute to undertake industrial research and development activities, provide consultancies, training facilities and analytical services for the industry. The Division on Chemical and Environment Technology works closely with the industry in addressing issues pertaining to industrial pollution and cleaner technologies.
- the Energy Conservation Fund established under the Ministry of Power and Energy to prepare the *Annual National Energy Balance Statement* which contains most of the energy-related information required for preparing the GHG Inventory. It also has the mandate to conduct awareness programmes on energy conservation, promote the use of renewable energy sources and conduct training programmes.
- the Transport Studies and Planning Centre of the Ministry of Transport to gather data on traffic movement and undertake policy studies in the transport sector. The transport sector is a significant consumer of fossil fuel and hence has high potential to introduce mitigation measures to reduce GHG emissions.
- the Central Environmental Authority which collects information on waste generation and takes measures regarding the disposal of solid waste. Work in this sector requires gathering of information on solid waste collected from different local bodies and their disposal systems.
- the Forest Department to maintain and develop forests and regulate all forestry activities. The Department gathers information regarding deforestation, reforestation, and afforestation activities and conducts research on forestry and silviculture.
- The Meteorology Department is the National Focal point for the IPCC. Its main function is the gathering of island-wide meteorological data and forecasting the weather. The Department has also established a Centre for Climate Change Studies (CCCS) in 1999 with a mandate to facilitate and undertake research into, and monitoring of, climate change; gather and disseminate information and raise awareness of climate change-related issues; execute models of climate change; and establish links with relevant International Agencies.

Provincial

17. Given the incomplete process of devolution, powers for certain subjects have been fully devolved (Devolved List) and for others, power remain shared with the centre (Concurrent List) but only when the necessary Provincial Statutes to exercise such power has been passed. Environment is on the Concurrent List but such Provincial Statutes have not yet been passed (an issue complicated by, but not wholly arising from, the suspension of the NEPC's elected membership), thus the subject still continues to remain fully with the centre. The NEPC can exercise only a coordination role, all other aspects being handled by the Provincial Planning Secretariat. This provincial administrative body is currently assigned with those responsibilities performed in other provinces by the elected councils to sustain the provincial planning process of the Provincial Council. It is headed by the Deputy Chief Secretary (Planning) who functions directly under the Chief Secretary (a national appointee from the Sri Lanka Planning Service). The Secretariat is directly responsible for overall guidance, planning initiatives, coordination of planned development activities, and monitoring and evaluation, and amongst its declared functions are activities pertaining to environmental issues

18. In January 2004, the Centre for Information Resources Management (CIRM) commenced as a new unit of the Planning Secretariat. Its focus is on improving the capabilities of the institutions and organisations in the NEPC in their planning, coordinating and monitoring, restoration and development activities, aiming to achieve these by i) promoting the application of information technology to increase the efficiency of the Provincial as well as the District administrations; and ii) disseminating best practices developed and applied by projects active in the North-eastern Province. Its key development areas are to i) promote participatory development approaches into the existing system of the government institutions, NGOs, and development projects; ii) promote community mobilization and awareness among the people to use resources and enhance rural governance and social integration; and iii) assist in building the capacities and human resources at the village and divisional level by adopting best practices promoted by the provincial administration.

District, Division and Village

19. Now that the system of Provincial Councils supersedes the district as the unit of sub-national administration, it has brought about far-reaching changes in the administrative structure at the provincial, district and divisional levels. The District Secretariat is now responsible mainly for backstopping and coordinating implementation of service delivery, while the divisional level administration, which they supervise, is responsible for the actual implementation of programmes and delivery of services. The District Secretariats still perform important functions in the formulation of projects and monitoring, especially in relation to major government programmes, and there is a Planning Secretariat in each District Secretariat to service these activities. In Batticaloa District there is a separate Manpower Agency to provide free manpower for development needs. Amongst needs already identified are the preservation, restoration and planting of trees along beaches and roads.

20. The introduction of the provincial council system has also resulted in additional responsibilities for the Divisional Secretariats who now provide a one-stop centre at the divisional level to cater to all the needs of the people. The Divisional

Secretariats have separate small planning units functioning under Assistant Directors and coordinating committees to handle the implementation of subjects like agriculture, fisheries, and environment, and these assist in the provision of information to the District Secretariats for District level planning purposes. Also operative at this level are Local Authorities which are the equivalent to the Provincial Council, as the Divisional Secretariats are to the National Government, and their boundaries are identical. All these local bodies have councils elected for three years by a system of proportional representation. In the Eastern Province there are two Municipal Councils, three Urban Councils and 34 Pradeshiya Sabhas⁸. Although the National Environmental Act confers additional powers on local bodies, including certain functional areas such as environmental pollution and coastal erosion, because elections to the Local Authorities have been postponed for some time (as per the Provincial Council), the Divisional Secretariats have been appointed as Authorized Officers to carry out their statutory and other functions.

21. The Grama Niladharis are the smallest unit of local government equating to a village headman unit and usually comprising 1-3 villages, a total of 60-100 households. They are tasked with multifarious functions and duties including police duties, emergency relief, felling of trees, timber transport permits, notification of births and deaths, issue of national identity cards, election work, and public assistance monthly payments (PAMA). There are 230 Grama Niladharis in Trincomalee, 348 in Batticaloa and 508 in Ampara.

Non-governmental Organisations

22. A large number of NGOs are active in the Eastern Province. After the tsunami, the number increased by about threefold. NGOs play a very useful role in ensuring “people’s participation” by serving as catalysts and mobilizers of groups in the community. They also help to supplement government programmes and provide emergency assistance in times of major calamities, especially to the “uncleared areas”. Their limitations are the narrow interests some of them represent, and also their high overhead costs. Most of the local NGOs are based in the districts. The international NGOs have head offices in Colombo and sub-offices in the districts. There is also a Consortium of NGOs in all the Eastern Districts to monitor uniformity of services and to avoid duplication of activities.

23. According to the UN Humanitarian Information Centre for Sri Lanka there are 29 international NGOs in Trincomalee, 48 in Batticaloa, and 39 in Ampara including such organizations as CARE International, Mercy Corps, Save the Children, OXFAM GB, and World Vision. There are also 51 local NGOs operating in Trincomalee, 24 in Batticaloa, and 53 in Ampara, e.g. the Consortium of Humanitarian Agencies (CHA), Eastern Restoration Organization, Sri Lanka Red Cross, Tamils Restoration Organization, and the Trincomalee District Development Association. The large majority of NGOs are new ones, which have come here after the tsunami and they may also leave after their initial work is over. Some NGOs are location-specific, some subject-specific, and some cover several subjects and areas, as well, but none of the NGOs currently working in the Eastern Region have shown any special interest in biodiversity issues.

24. Community-based Organisations (CBOs) are generally voluntary organisations that operate at the grass root level (i.e. village level). Typical CBOs would be rural development societies, community development centres, and thrift and credit cooperatives which render valuable services to channel credit to the rural sector. The new CBOs which have become important in the recent period are the multipurpose cooperatives, the fisheries cooperatives, welfare societies, restoration centres, farmers organizations and the Samurdhi (Government’s Relief Programme for Poor) Task Forces. Due to the prevailing situation and lack of official support, most of these organisations are weak and unable to serve the community effectively.

Post-tsunami

25. In order to deal with the unprecedented scale of the tsunami disaster, situation, the President immediately created a Centre for National Operations (CNO) within the Presidential Secretariat comprised of three Task Forces:

- i) TAFRER – Task Force for Rescue and Relief ~ focused on humanitarian assistance;
- ii) TAFLOL – Task Force for Law and Order and Logistics ~ focused on maintenance of security and supplies; and
- iii) TAFREN – Task Force to Rebuild the Nation ~ focused on economic recovery (see below).

The CNO coordinated government and international NGO relief operations and collated and disseminated information. It was supported on a voluntary basis by professionals from government, development agencies, and NGOs, so that within two months the provision of immediate relief was streamlined and relevant government officials at the different levels began to

⁸ Municipal Councils for the cities and large towns; Urban Councils for the less urbanized centres; and Pradeshiya Sabhas for the rural areas.

play their expected roles⁹. In February 2005, the CNO was disbanded and TAFRER and TAFLOL merged into a new body called the Task Force for Relief (TAFOR) for the purpose of looking after the needs of all affected groups.

26. TAFREN, the main mechanism for recovery and reconstruction, was charged with

- (i) facilitating and assist the line Ministries, Government institutions and donor agencies in the reconstruction and restoration of required infrastructure and other facilities.
- (ii) assisting the People and Organizations to rapidly overcome the effects of the tsunami at the district level
- (iii) ensuring accelerated economic development

Initially TAFREN had a flat organisational structure but in September 2005 a revised structure was put in place focusing on four special areas – housing, livelihoods, health and education, and infrastructure. Environment was not included. In June 2005 the Tsunami Housing Reconstruction Unit (THRU) was established under the purview of the Urban Development Authority to deal with post-tsunami housing needs. THRU has facilitated the entire process of housing reconstruction including the overall coordination of identification of beneficiaries, identification of lands, provision of access roads, and environmental issues through relevant government agencies. For information on the Tsunami Environmental Response Platform, see paragraph 43.

27. For the North and East, a new mechanism identified as the Post-Tsunami Operational Management Structure (P-TOMS) was agreed between the Government's Ministry of Relief, Reconstruction and Reconciliation and the Planning and Development Secretariat of the LTTE to provide a structure of three committees at national, regional, and district levels to oversee distribution of assistance, and mandated a creation of a Regional Fund to finance recovery and reconstruction projects that would be accessed by these committees. It was also anticipated that such a device would create an environment conducive to the revival of the peace process. However, the constitutionality of the P-TOMS was challenged, and while the Supreme Court upheld its constitutionality, certain elements were put on hold pending clarification – specifically the regional fund and the location of the regional committee at Kilinochchi (LTTE "HQ"). Its suspension has again increased tensions within the region, but with peace talks set resume in mid-February in Geneva, there is the possibility of the P-TOMS being revived.

28. In November 2005, a new Government was elected which is in the process of combining the work of all tsunami-related organisations under a single authority to be called the Reconstruction and Development Authority (RADA). Although currently operating as an agency through existing organisational infrastructure, an Act of Parliament expected to be passed in April 2006, will convert it into an Authority with statutory powers.

1A.5 POLICY AND LEGISLATIVE CONTEXT

Policy

29. The country's Constitution lays a responsibility on the state and the people for the protection of the environment. Under the Directive Principles of State Policy, Article 27/14 states that "*the State shall protect, preserve and improve the environment for the benefit of the community*" while under the Fundamental Duties Article 28 [f]) state that "*it is the duty of every person in Sri Lanka to protect nature and conserve its riches*". This obligation extends to taking all necessary steps to control any adverse effects caused to the environment by both biotic and abiotic factors.

30. As stated in the Economic Policy Framework 2004 and further articulated in the 2005 budget, the New Development Strategy: Framework for Economic Growth and Poverty Reduction, currently at an advance stage of development, is premised on pro-poor, pro-growth income improvement and distribution policies with complementary participation of a socially responsible private sector and strong public sector. Part of this, the National Poverty Reduction and Growth Strategy, is the major policy approach to navigate pro-poor, pro-growth and redistribution strategies. Amongst its five main objectives are two that the proposed Project meshes closely with: "*To create pro-poor growth to catalyse the poor to engage in productive economic activities using the Division as the micro-level framework for poverty reduction*" and "*Help the poor to understand the causes of their poverty, identify their needs and potentials and match needs with resources*". Within the Government's regional development strategy, a substantial investment will be made on infrastructure development in the North and the East to promote long-lasting peace through economic progress and equal opportunities. Higher level of public investment is targeted for all sectors including the environment and natural resources development sector.

31. Sri Lanka has already taken the actions necessary to align the country's development plans more closely with the Millennium Development Goals (MDGs). The National Council for Economic Development has established a separate MDG cluster to ensure that the MDGs are mainstreamed within the national development framework. In 2004, GDP in real terms grew by 5.4% demonstrating resilience in a challenging environment, marked by geo-political imbalances, adverse oil price

⁹ Joint Report of GOSL and Development Partners – *Post Tsunami Recovery and Reconstruction*. December 2005

shocks, drought, and political uncertainty. Although this growth is lower than the growth of 6.0% recorded in 2003, it has exceeded the annual growth trend of around 5% maintained during the past few years.

32. In accordance with the UN Convention for Combating Desertification, the GOSL adopted a National Action Plan to combat desertification (UNCCD-NAP) in 2002. The objective of the NAP is to reduce land degradation and mitigate the effect of drought with the participation of affected communities, Public Sector Agencies, CBOs, NGOs, and the Private Sector. More specifically the NAP will: 1. Address all causes of land degradation and drought and identify measures to combat land degradation and mitigate the impact of drought. 2. Formulate a programme of action adopting a holistic approach for the implementation of projects and activities to deal with land degradation issues in the country. 3. Make necessary provision for dealing with land related socio-economic issues and poverty alleviation in the country to uplift the living conditions of the people and to ensure environmental stability. 4. To provide a basis for soliciting necessary funds for addressing land degradation issues in the country.

33. The National Environmental Policy, currently adopted and implemented through the Ministry of Environment (MOE), is spelt out in Caring for the Environment 2003-2007: Path to Sustainable Development. This is the successor to the National Environment Action Plan of 1998-2001 and elaborates the Government's commitment to the environment and the means to move from policy to action. It has as its key objective; *"To promote the sound management of Sri Lanka's environment in its entirety without compromise, balancing the needs for social and economic development and environmental integrity, to the maximum extent possible while restricting inimical activities."* Three of its five Principles state: *"2. When living natural resources are used, it will be ensured that such use is wise, sustainable, and consistent with the integrity of ecosystems and evolutionary processes"; "4. Traditional knowledge and practices will be respected in the development of environmental management systems"; and "5. Effective governance will be ensured through the decentralization of environmental management services to the maximum possible extent"*. Also of significant relevance to the proposed Project are the Statements that: *"3. In addition to protecting the environment from abuse, management systems will take into account the need to restore environments damaged in the past"; "5. The economic value of environmental services will be recognized so as to assure the sustainability of such services for the benefit of the people"; "7. The institutional framework for sound environmental management will be strengthened through capacity-building, legislative instruments and improved inter-institutional coordination and linkages"; "9. Responsible public-private and community partnerships and linkages will be promoted at all levels of environmental management and conservation"; and "11. Socially responsible behaviours will be encouraged and further developed through an effective framework of awareness building, incentives and enforcement"*. Under the section on Fisheries, Coastal and Marine Area Management, strategies are brought together to address key environmental issues affecting the coastal zone in an integrated manner. These strategies include: i) placing restrictions, regulations and prohibitions on activities in the coastal zone to minimize or eliminate coastal erosion; ii) restricting sand-mining within the coastal zone to designated sites and ensuring that it does not exceed environmentally safe limits; iii) minimising negative impacts of offshore mineral resource extraction; iv) identifying coastal erosion trends and implementing appropriate mitigation measures; v) promoting conservation of biodiversity and sustainability in the use of resources in coastal habitats, focusing especially on species and ecosystems under threat; vi) involving the local communities in the management of coastal and marine resources through a participatory process, for the conservation and sustainable use of these resources; and vii) increasing awareness at all levels of the importance of the coastal zone and its resources and the need for development activities in relation to fisheries and other coastal and marine resources to remain sustainable.

34. The Biodiversity Conservation in Sri Lanka: a Framework for Action (BCAP) was prepared by the MOE¹⁰ in 1999 with technical assistance from IUCN-SL as the Government's response to Article 6 of the Convention on Biological Diversity, the Ministry of Forestry and Environment. The BCAP, approved by the Cabinet of Ministers on 27 August 1998, clearly indicates that biodiversity conservation is of critical importance for the ecological and economic sustenance of the nation. The fourth of its five Broad Objectives is: *"To manage bioresources so as to conserve biodiversity while enabling the use of the resources within sustainable limits"*. Within the section on coastal and marine systems, it draws particular attention to the threats posed by the over-exploitation of ornamental fish and coral mining, and has amongst its Objectives: *"1. To promote the conservation of coastal and marine habitats of the country such as the coral reefs, sea grass beds, mangroves, lagoons, estuaries and salt marshes"* and *"5. To increase collaborative participation among stakeholders with regard to policies and programmes that affect coastal and marine biodiversity ..."*, and amongst its Recommended Actions: *"11. Prepare and implement management plans and strengthen capability amongst stakeholders for conservation and management of mangrove areas using a participatory approach"* and *"22. Establish a strong and effective coordinating mechanism to secure the collaboration of all the concerned institutions in the effective management of the coastal zone"*. The process of review and updating is currently underway, and changes will be incorporated as an addendum.

35. The Coast Conservation Act No. 57 of 1981 requires the preparation and periodic revision of a Coastal Zone Management Plan (CZMP). In 2004, the Coast Conservation Department (CCD) produced a second revision of the CZMP in which long-term strategies policy issues, and actions were highlighted, as well as providing a framework for the CCD

¹⁰ then known as the Ministry of Forestry and Environment.

programme of work over the next five years. The CZMP recognises that “*Enabling a high quality of life and achieving sustainable development is considered important by the government of Sri Lanka. This requires sustaining coastal ecosystem services and functions, maintaining the region’s cultural and scenic values, ensuring sustained benefits from coastal resources, and eliminating resource use conflicts. These in turn necessitate well-planned and integrated management supported by inter-agency co-ordination.*” Objectives under Section 3 Conserving Coastal Habitats include: “1: Coral reefs are conserved to enhance biodiversity, permit sustainable use of, bio-resources, sustain economic activity and provide a barrier against erosion”; “2. Lagoons and estuaries are conserved to sustain and enhance ecological functions and promote socio-economic activities connected with them”; “4. Mangrove ecosystems are conserved to maintain biodiversity, sustain ecosystem services and socio-economic activities connected with them”; and “6. Barrier beaches, spits and sand dunes are conserved to sustain ecological functions and socio-economic and aesthetic values”. A key feature of the CZMP is the Special Area Management¹¹ (SAM) concept, detailed in Section 6, which is now considered a key component of Sri Lanka’s coastal zone management policy. Central to the SAM process is the identification of active community/stakeholder participation in planning and implementation coastal zone management activities.

36. Section 2.4 of the CZMP addresses the issue of climate change, mainly from the perspective of increased research, data gathering and coordination. However, sea defence and coast protection plans which should form key elements of an overall Coastal Zone Management Plan should be based on Policy and Management Options which have taken into consideration the impacts of sea level rise. The IPCC has recognized the adaptive response strategy classified under three categories namely, Retreat, Accommodation and Protection. The selection of the appropriate adaptive strategy for a given area will have to be made after considering the economic, social, environmental, legal and institutional implications of each of the responses. In order to implement the policy options, various management options are considered, provided they are appropriate for the coastal classification. These can be summarized as Do nothing, Reinstate, Modify and Create. By defining Policy Options and Management Options for the entire coast, the basis of a strategic approach for achieving long term stability is established.

37. The National Wetlands Policy was adopted by the Cabinet in May 2004. This policy recognises and acknowledges that wetlands are environmentally sensitive and ecologically important areas which are a national heritage and need to be conserved, sustainably managed, and restored for the benefit of present and future generations. One of the principles governing wetland management is stated as: “*Wetland management, including both planning and implementation, will involve participation by all stakeholders and especially local communities*”; and one of the policy directions for wetland management is: “*Sustainable use and equitable benefit sharing, habitat conservation and integrated management at all stages, will involve participatory and collaborative processes*”. To this end, another policy direction states that: “*Local level Wetland Management Committees will be established with the assistance of government agencies responsible for wetlands, under the provisions of the National Environment Act and divisional, district, and provincial level committees will be established as appropriate to facilitate these committees.*”

38. As required under the UNFCCC, Sri Lanka has submitted its First National Communication to the UNFCCC Secretariat in October 2000. Chapter 6 outlines the policies and measures committed to by the Government towards implementation of the provisions in the UNFCCC in Sri Lanka. Being a developing country not listed in the Annex I to the Convention document, Sri Lanka has no commitment to reduce its current or future emission levels. However, in keeping with the spirit of the Convention, Sri Lanka has decided to focus on two aspects – reduction of emissions and mechanisms to mitigate impacts, particularly those falling under the category of “no regret” options. These measures will also be consistent with the general policy of following a path of sustainable development. Among the general recommendations made were:

- *Formulate land use policies: Land use policies should be prepared particularly for coastal areas. In preparing these policies, stakeholder participation is vital;*
- *Enforce policies: Implementation of policies containing provisions pertaining to climate change impacts should be given high priority;*
- *Provide emergency disaster relief: Emergency aid should be readily available in times of disaster.; and*

¹¹ “*Special Area Management (SAM) is a locally based, geographically specific planning process that in theory is a highly participatory practice and allows for the comprehensive management of natural resources with the active involvement of the local community as the main stakeholder group. It involves co-management of resources through which decision-making, responsibility and authority in respect of natural resource use and management are shared between the government and the local resource users or community. The government institutions and other planning agencies assume the role of facilitator by providing technical and financial assistance to the local community management effort. The local community groups are considered the custodians of the resources being managed under the SAM process through which sustainable livelihood practices allow for sustainable natural resource use and management within the designated site. One of the major objectives of SAM is to resolve competing demands of natural resource use - within a specific geographical boundary - by planning optimal sustainable use of resources. In a broad sense the SAM approach seeks to ensure both economic well-being of the local communities as well as the ecological well-being of the natural ecosystems by the practise of sound natural resource management. The SAM concept is now considered a key component of Sri Lanka’s coastal zone management policy.*” CZMP 2004.

- *Protect arable soil: The country's food production depends largely on the land productivity. At present the country is faced with a severe problem of soil erosion and associated land degradation. This threatens the ability to produce adequate food and therefore needs immediate attention".*

In addition, the report made several specific recommendations in the areas of agriculture, energy, transport, industry, coastal and marine zone, forestry, water resources, health and settlements. Those for the coastal and marine zone are contained in the CZMP, (see paragraph 37).

39. The Ministry of Environment also has formulated a Policy on the Clean Development Mechanism (CDM) enabling rapid processing of proposals for projects to be undertaken under CDM. Some of the key policy elements pertaining to projects are that a proposed project will: contribute to national sustainable development; lead to improvement of the environment and welfare of the society; contribute to poverty alleviation; meet local needs and priorities and satisfy a detailed assessment of their economic, social and environmental benefits; lead to transfer of new, proven, affordable environmental-friendly technologies; and recognize the rights of the people in relation to all emissions.

Post-tsunami

40. The principles guiding the tsunami recovery and reconstruction were drawn up by the Government, with the support of the World Bank, the Asian Development Bank and the Japan Bank for International Cooperation:

- (i) The allocation should be guided strictly by identified needs and local priorities.
- (ii) The strategy should be based on the principle of subsidiarity, i.e. design and implementation at the lowest competent tier of government.
- (iii) The recovery strategy should focus on the medium- and long-term needs of the victims themselves. Therefore, consultation with local affected communities and stakeholders is essential and local communities should be empowered to make their own decisions during recovery and participate fully in reconstruction activities.
- (iv) There needs to be better communication and transparency in decision-making and implementation.
- (v) Reconstruction processes should reduce future vulnerabilities to natural hazards, including floods, cyclones and landslides.
- (vi) A coordinated approach is critical to ensure that the above principles are followed and to prevent duplication or overlap in activities. Coordination should not just be between Government and donors, but involve all stakeholders, including civil society, the business community and international NGOs, who have resources that will not pass through Government. Capacity would need to be created at the local level for such coordination.

41. Almost immediately after the tsunami, in the first week of January 2005, the Government made a policy decision to declare a no-build zone along the coast – 200m inland from mean high water level along the north and east coasts, 100m for the rest. This decision proved to be highly controversial and unpopular with many groups, including those people who resided within these areas before the tsunami. Finally in November 2005, after much pressure, the Government requested the Coast Conservation Advisory Council to review the initial policy decision and make their recommendations on the no-build-zone. At their meeting on the 19th December 2005, this Council decided to revoke the no-build zone and, for reconstruction projects funded by donors or self-funded by owners, to follow the set-back guidelines provided in the Coastal Zone Management Plan of 1997. However, the 100/200m no-build zone remains applicable to all construction projects implemented through Government funding mechanisms.

42. The MOE, with financial assistance and support from UNEP, carried out two Rapid Environmental Assessments (REA) of the tsunami-affected areas, in close cooperation with the CEA in January-February 2005 – one "green" and one "brown". From these it was identified that environmentally sustainable, post-tsunami, reconstruction planning would best be achieved through a cross-sectoral multi stakeholder structure. In June 2005, the MOE, TAFREN and CEA prepared a paper entitled Strategy for Environmental Recovery and Restoration in Post-tsunami Reconstruction which recommended the establishment of a multi-stakeholder platform called the *Tsunami Environmental Response Platform* (TERP), representing ten different government agencies. TERP's mandate is to address the environment aspects of the reconstruction process, and guide implementation of the REA's recommendations. It has a technical arm, located within the CEA, called the Environmental Help-desk, which is charged with the provision of technical backstopping for the TERP and the conduct of Strategic Environmental Assessment (SEA) for the proposed and continuing reconstruction programmes.

43. Finally, in November 2005, MFAR produced the Strategy and Programme for Reconstruction and Development of the Marine Fisheries Sector. Sustainability and conservation of the environment feature throughout the Strategy, but there is no explicit mention of the concept of ecosystem restoration or restoration despite an acknowledgement that the ecosystems upon which fisheries depend, e.g. mangroves and coastal lagoons, have suffered much damage and degradation. This is perhaps a reflection of the lack of awareness and technical know-how of this subject – see under Barriers, paragraph 68 and

Table 1. However, one of the seven Key Guiding Principles, provides support to the proposed Project; it states: “Promote the enhancement and conservation of coastal and aquatic resources through integrated and participatory management by supporting district-based planning and implementation procedures with the communities concerned playing the leading role; implementing comprehensive spatial analysis and integrated planning for coastal zones to reduce vulnerability to natural hazards; and, nesting fisheries and aquaculture reconstruction efforts within a multi-sectoral approach”. None of the short-term priorities deals with environmental aspects, but one of the medium-long-term priorities addresses Sustainable coastal area management and states: “Many natural coastal habitats such as mature sand dunes, mangrove belts, coral and sandstones reefs, undisturbed by human activity, had been able to function as effective barriers to reduce the tsunami effect. Participation of coastal communities will be enlisted to protect these coastal habitats from destructive human activity. [Note the emphasis on protection rather than on restoration.] Awareness creation programmes need to be implemented, targeting different stakeholder groups such as fisher communities, other coastal communities, school children, local authorities, etc.. CCD has identified a number of critical sites to be managed under Special Area Management (SAM) plans, with the active participation of coastal communities and other stakeholders. Assistance is needed to initiate the SAM process in 65 identified sites.”

44. The CCD has launched an initiative to develop a set of Guidelines for Coastal Reservation Green Belts for the benefit of those intending to undertake landscape regeneration projects in the coastal set-back zone. The proposed concept of a “Green Belt” is an adaptive measure to minimise potential damage to life and property from similar natural disasters such as tsunami. It aims to achieve “the best possible balance between human use and nature conservation needs”, while “ensuring the scenic value of the coast; enhancing coastal tourism and recreation; protection of the shoreline from erosion; regeneration of vegetation to disburse wave energy in case of cyclones, etc.; and uplifting socio-economic conditions of the people”. These guidelines were initially formulated by a technical committee appointed by the Secretary of MFAR comprising of representatives from the CCD, CEA, Urban Development Authority, Department of Botanic Gardens, Forest Department, and the Coconut Cultivation Board. IUCN-SL is coordinating the process and the Guidelines will be available towards the end of March 2006.

Legislation

45. The Coast Conservation Act No. 57 of 1981 is the primary piece of legislation within whose provisions the Project will operate, and which the Project will help to amend. Amongst other things it regulates and controls development activities within the coastal zone and makes provision for the formulation and execution of schemes of work for coast conservation within the coastal zone. Section 42 of the Act provides a **definition of the Coastal Zone** as:

“that area lying within a limit of 300 meters landwards of the Mean High Water Line and a limit of 2 kilometres seaward of the Mean Low Water Line and in the case of rivers, streams, lagoons or any other body of water connected to the sea either permanently or periodically, the landward boundary shall extend to a limit of two kilometres measured perpendicular to the straight baseline drawn between the natural entrance points and shall include the waters of such streams, rivers and lagoons or any other body of water so connected to the sea”.

Section 14 requires any development activity, other than a prescribed development activity (see National Environment Act below), within the coastal zone to have a permit issued by the Director of the CCD. Importantly, this provision supersedes all other permissions given to development activities under any other laws. The criteria governing issuance of permits and prescribed projects are dealt with through regulations. Although fishing is excluded as a development activity and thus does not require a permit, it does require a permit under the Fisheries and Aquatic Resource Act. Under the Coast Conservation Regulations, No. 1 of 1982 published in gazette extraordinary No. 260/22 of 22/09/1983, planting of trees or other vegetation does not require a permit unless it is done on a beach (defined under Section 42 of the Act). The Regulations also state that a development activity should not be located or cited in certain areas including within an area reserved, or in use, as a wildlife habitat. These regulations also state that a proposed development activity should be sited so as to allow an adequate buffer zone to accommodate the dynamics of coastal process. Section 16 empowers the Director to call for an Environmental Impact Assessment (EIA) on Initial Environmental Examination (IEE) for any development activity that is proposed to be carried out within the coastal zone. However, unlike the National Environmental Act which has a list of prescribed activities for EIA, the CCA leaves it to the discretion of the Director of the CCD. Section 31 A of the Act prohibits the removal of corals. The provisions of the Act and Regulations have ensured public access to the beach and allow fisheries activities to be carried out without interference. They also allow for the restoration of coastal zone vegetation, including mangroves and strand plants, without a permit. Taken together, these provisions not only allow public participation in the conservation of the coastal zone, but also encourage such activities.

46. The Fauna and Flora Protection Ordinance No. 2 of 1937 and Amendments is the main body of legislation affording protection to the plants and animals of Sri Lanka, and controlling their commercial exploitation. It provides both an ecosystem approach to the conservation of native biodiversity through the protection of habitats as protected areas, and a species approach by the protection of individual species. According to provisions of Section 30, all marine mammals, marine

turtles and sea snakes are protected; and all the species of corals are protected under Section 31B. The provisions of Section 2 empower the Minister of Environment to declare protected areas, either as National Reserves (state land) or as Sanctuaries (both state and private land). In the context of the proposed Project, Pigeon Island was declared as a Sanctuary by gazette extraordinary N^o. 136 of 01/11/1974, but was upgraded to a National Reserve in 2002 by the declaration in gazette extraordinary N^o. 1291/16 of 04/06/2003 that made it into a National Park known as the Paravi Dupatha National Park. The reason for this protection was to conserve the population of the indigenous race of the Rock Dove (*Columba livia*) known as the Blue Rock Pigeon that inhabits the island. This sub-species had almost become extinct and the population on Pigeon Island was the only one known to remain. In addition, it was intended to provide protection for the coral reefs and associated marine life that fringe the island. The restrictions placed upon activities in a National Park mean that there is little scope for public participation in conservation activities inside a National Park. However, Section 55 gives discretionary power to the Director of DWC to authorize an activity that is otherwise prohibited, if the Director deems it necessary to allow it for conservation. The National Heritage Wilderness Areas Act N^o. 3 of 1988 provides for an additional level of recognition for the importance of a protected area and requires a coordinated management plan. No areas along the East Coast are so declared.

47. The Fisheries and Aquatic Resources Act N^o. 2 of 1996 and Amendments provide for the management, regulation, conservation and development of fisheries and aquatic resources in Sri Lanka, whereby “fish”, defined under Section 66, includes all forms of aquatic animals from zooplankton to aquatic mammals, and “aquatic resources” is defined similarly to include all living aquatic organisms covering all types of aquatic flora from phytoplankton and seaweeds to freshwater macrophytes. The Act makes it mandatory that anyone who engages in any prescribed fishing operation should do so only upon the authority of a license and in accordance with the terms and conditions set out in that license. This is intended to control and regularise certain types of fishing activities and to stop overexploitation of fisheries resources and destructive practices. A list of prescribed fishing operations are provided in the gazette extraordinary N^o. 948/25 of 07/11/1996 including prohibition on coral reefs and rocks of the use of push-nets, moxi-nets, gill nets and trammel nets. Section 27 prohibits the use of any poisonous substance or explosives to kill, stun or catch fish, while Amendments have further strengthened the provisions of this section and has increased the punishments for these offences. Section 31 provides for the establishment of Fisheries Management Areas through an order published in the gazette, and under Section 32 the Minister of Fisheries designates one or more Fisheries Committees comprised of resident or migrant registered fishermen engaged in fishing in the Fisheries Management Area as the Fisheries Management Authority in respect of the area to regulate the conduct of fishing operations; the use of different types of fishing gear; and the establishment of close seasons for fishing in general and for specific species. The provisions of the Fisheries and Aquatic Resources Act are in addition to, and not in derogation of, the provisions of other legislation so they act in a complementary manner.

48. The objectives of the Forest Ordinance N^o. 16 of 1907 and Amendments are the conservation, protection, and management of forest and forest resources, and for the felling and transport of timber and forest produce. This Ordinance provide for the declaration of three types of protected areas – Conservation Forests; Reserved Forests (Forest Reserves); and Village Forests. In addition, Sections 19, 20, and 21 give protection to all forest areas of State Land not declared as protected areas by this enactment or by the Fauna and Flora Protection Ordinance, and the National Heritage Wilderness Areas Act. These forests are known as Other State Forests(OSF) for the purposes of clarity although there is no legal declaration of such a category of forests. Some of these OSFs are referred to as Proposed Reserves, which indicates only the intention of getting them declared as protected areas under the Forest Ordinance. Most of areas of mangroves and dune vegetation (including those in the Batticloa and Ampara study sites) are not declared under any legislation and hence fall into the OSF category. As such, the felling of any tree, the collection of any forest produce, and the removal of any forest produce from these areas is governed by the Regulations, known as Forest Rules N^o.01 of 1979 published in gazette extraordinary N^o.68/14 of 26/12/1979. Therefore, the removal of any mangrove vegetation or any strand vegetation or any part of such vegetation has to be carried out only under a permit issued for the purpose from the Forest Department but administered through the Divisional Secretariat. The Forest Rules allow permits to be granted to have temporary crops planted in such areas under certain conditions as would not harm the ecosystem in order to enhance the economic conditions of some communities and to wean them away from destructive practices. Similarly, permits can be issued to regulate and facilitate the collection of some forest produce to enhance the economic condition of communities and allow the sustainable use of resources.

49. The National Environmental Act N^o. 56 of 1988 amends that of the same name N^o. 47 of 1980. It is primarily concerned with air and water pollution, noise, litter, and establishing the procedures for undertaking EIA. A further amendment (N^o. 53 of 2000) provides for a list of “prescribed activities” to be issued by the MOE with regard to pollution, and the need to licence these.

50. It is important to recognise that despite the seemingly comprehensive institutional and legal frameworks covering the coast, mangroves generally do not fall under the jurisdiction of any Government agency. Unlike coastal lagoons which fall under the purview of DFAR; coral reefs which come under DWC if in Protected Areas or DFAR if not; and sand dunes which by their limited distribution fall within the Coastal Zone and so come under the jurisdiction of CCD; mangroves are not

protected through the Forest Department, and although technically they are afforded some degree of protection through the Forest Rules, they tend to be administered by the Divisional Secretariats whose interest, and technical capacity, in conservation is lacking.

Post-tsunami

51. There have been a series of new enactments passed in 2005 dealing with the aftermath of the tsunami. None of these have provisions dealing with environmental issues. They are intended to solve other problems, mainly social aspects, and hence none have affected the scope or applicability of existing environmental legislation.

1A.6 SOCIO-ECONOMIC CONTEXT

National

52. The Sri Lankan economy is remarkable in that ever since Independence in 1948 there has been only one year when it experienced negative growth¹². During the first three decades after Independence, Sri Lanka's economic policies were based on centralised planning models. In 1977, the country adopted the liberal market-oriented agenda that has, in spite of some government changes, driven economic policies for almost 30 years. The long-term average GDP growth rate 1973-2004 is 4.6% per year. Decadal annual rates hardly differ from this: 4.9% in 1973-83; 4.3% in 1984-93 and 4.6% for 1994-04. The growth rate has fallen from 6.0% in 2003 to 5.4% in 2004 (which is still higher than the 4.1% recorded by India in 2004), although the tsunami is set to cut this by an estimated 1% in 2005. Per capita GDP stands at US \$ 979 in 2003/04. Sectoral GDP growth rates show similar recent declines, but figures generally remain healthy – industrial growth was 6.0% in 2003, and 5.4% in 2004; service sector growth was 7.9% in 2003 and 7.6% in 2004; agricultural growth was 5.4% in 2003 but only 2.5% in 2004. Fishing accounts for 2.3% of GDP.

53. The three pillars of the Sri Lankan economy are the garment industry, tea and labour migration. The agriculture sector generates more than 40% of household income, provides employment to about 36% of the workforce, and has a significant influence on the manufacturing and export sectors of the economy. The state's massive involvement in production can be gauged from the fact that in 1975 the public sector in Sri Lanka accounted for 63% of the ownership of tea acreage and for 54% of the total value of production in manufacturing. Since 1977 successive governments have supported liberal economic policies, which have seen Sri Lanka's transition from a plantation economy to one where production and exports are largely industrial based. Liberalization has had mixed impacts – it has led to improved macroeconomic performance but the state continues to play a major role in the economy and the private sector remains relatively underdeveloped. In rural areas, liberalization has wiped out protected industries, e.g. handloom production which provided employment for rural women, but the increased dynamism in the local economy has resulted in the emergence of local construction industries and the emergence of the service sector. It has increased the access of the rural population to safe drinking water and sanitation.

54. Sri Lanka's social indicators such as life expectancy (73 years), adult literacy (92%) and primary school enrolment (98%) are well above those in comparable developing countries (e.g. the infant mortality rate at 11.1 per 1,000 live births in 2004 was lower than India and Bangladesh) and are often on par with many developed countries. The country is well-positioned to meet many of the Millennium Development Goals. Although indicators are relatively favourable in terms of the status of women – female literacy rates of 88%; life expectancy of 76 years; and presence in the labour force rising from 26% in 1971 to 37% in 2000 – gender issues persist due to socio-cultural factors. In 2002, Sri Lanka ranked 96th among 177 countries in terms of the Human Development Index (HDI). At 0.741, Sri Lanka is very close to the middle-income group's average HDI of 0.756. However, these indicators do not show the growing social imbalance in terms of income distribution and poverty – particularly among geographic regions. When such considerations are made, it is easy to see that the poor have not benefited sufficiently from the higher economic growth. There is high prevalence of poverty with about 45% of the population on incomes below US\$ 2 per person per day and 22.7% on or below the traditional indicator of poverty of US\$ 1 per person per day. Despite sustained annual growth of 3% per year in per capita GDP over the last two decades, decline in poverty has been very modest with a fall of only 3% between 1990 and 2002 – a rate of decline which throws into sharp focus the unequal poverty trends across sectors and regions. Sri Lanka's poverty also has a rural bias – 90% of the poor live in rural areas. While the incidence of poverty in urban areas was halved over the 1990-2002 period, rural poverty declined by less than 5% and poverty in the Eastern Province actually increased by 50%. That inequality is increasing can be measured by the national Gini Coefficient¹³ which rose from 0.38 in 1970 to 0.48 in 2003. Primary factors responsible for poverty and vulnerability include loss of life (initially by the civil conflict but now compounded by the tsunami) leading to a

¹² In 2001, the economy was affected by an LTTE attack on the international airport that led to a dramatic decline in tourism revenue, ripple effects from the September 11th attack, and an unprecedented drought.

¹³ The Gini coefficient is a measure of inequality developed by the Italian statistician Corrado Gini and published in his 1912 paper "Variabilità e mutabilità". It is usually used to measure income inequality, but can be used to measure any form of uneven distribution. The Gini coefficient is a number between 0 and 1, where 0 corresponds with perfect equality (where everyone has the same income) and 1 corresponds with perfect inequality (where one person has all the income, and everyone else has zero income)

high percentage of households headed by widows, disintegration of social networks, multiple displacements, insecurity, insufficiency of food, low-income levels, lack of assets, lack of income opportunities, and debt. A majority of people earn their living from farming and fishing, and it is these who have been most vulnerable to the effects of the civil conflict. Restrictions on mobility and access have had negative effects – fishing has been restricted to only certain daylight hours and to a limited distance from the coast, and agriculture is not possible in large areas where mines have been laid. All of this has led to significant environmental deterioration.

55. Coastal resources are of major economic significance in developing countries, and Sri Lanka is no exception. Although the coast area occupies at most 24% of the country's land area, it accommodates about 33% of the human population, 65% of the urbanized settlements; 90% of the industrial units; and 40% of GDP is derived from activities concentrated here. With the present increase in population density and the accelerated pace of development, the risk of overexploitation of coastal resources beyond sustainable limits has become more and more realistic. Coastal habitats and their valuable physical and biological resources have increasingly come under pressure as human activities have become more intense.

Eastern Province

56. Eastern Sri Lanka covers a land area of 9,790 km², has a coastline of approximately 360 km in length, and supported a population of approximately 1.54 million people in 2004 (about 8% of the national total). Due to massive movements of internally displaced persons (IDPs) population figures cannot be precise, but estimates for the three districts are: Trincomalee: 383,000 persons, Batticaloa 544,000, and Ampara: 613,000, with growth rates of 1.6%, 1.5% and 1.3% respectively. IDPs account for approximately 12% of the population in Trincomalee, 20% in Batticaloa, and 8% in Ampara. The population is multi-ethnic with a Tamil (40%) and Muslim (34%) majority compared to the nationally dominant Sinhalese who account for just 25% in the Province. The Eastern Province is amongst the poorest in Sri Lanka. Mean household income is US\$ 912 per year (2002) but this disguises the fact that 50% of households receive less than US\$ 656 per year and that the average annual household income of rural families is US\$ 610. Unemployment is high and more than 50% of the households in the Province receive poverty relief payments (*Samurdhi*). Livelihoods in all three districts are predominantly rural (80%), with around 75% of residents being engaged in agriculture and 10-15% percent in fisheries. Fishing in the Eastern Province accounts for 18.9% of the national catch (2004) with Trincomalee responsible for 6.9%, Batticaloa 5.5%, and Ampara 6.5%. Rice is the main crop, and in 2004 the Eastern Province produced 22.8% of the national crop. The Province has few industries of national importance other than tourism, but this has been badly affected by the civil conflict. Other indices of social development bear out the poverty of the Province – the literacy rate in 2004 was only 85.6% as against the national average of 90.5%; the birth rate was high – 19.19 births per 1,000 population (Trincomalee 25.4, Batticaloa 24.0, Ampara 15.35) against a national average of 5.9; infant mortality high – 11.1 per 1,000 population (Trincomalee 3.7, Batticaloa 14.3, Ampara 15.9) against a national average of 9.37; and maternal mortality high – 5.3 per 1,000 births (Trincomalee 1.4, Batticaloa 6.4, Ampara 4.6) but was 9.5 in 2003 when the rate in Ampara reached 31.03.

57. The coastal Divisions are the most populated in the Eastern Province supporting about 28% of the total population and with an ethnic composition markedly different from that of the rest of the Province as a whole with 64% Tamil, 33% Muslim, and only 3% Sinhalese. Although no figures are currently available for mean household income for the coastal Divisions, the degree of poverty here can be seen to be greater than elsewhere in the Province by the fact that 70% of households receive poverty relief payments. There has been considerable movement of people to the urban and safer Divisions over the past three decades mainly because of relatively good social facilities and safety considerations compared to other war-affected Divisions, while population density in rural areas has declined or remained static. However, according to available data more than 70% of the coastal population remains rural and the population here has almost doubled during the past two decades, mainly because of the high birth rates. Demographically, the population is heavily biased towards the young with 60% aged 18 years or below. Of the economically active population (36% of the total aged between 18 years and 60 years), the largest number falls in the age group of 18 to 45 years, which comprises the most energetic and active population. It is apparent, therefore, that a fairly high percentage of the people can contribute actively to the restoration and development of the area.

Tsunami

58. As well as being amongst the poorest of the Provinces, the Eastern Province was the worst hit by the tsunami, with 25-50% of the national damage caused by the tsunami estimated to have been sustained here. A total of 14,345 people were killed (46% of the national total – 1,078 in Trincomalee, 2,840 in Batticaloa, and 10,670 in Ampara), 2,500 injured (15.9% of the total), left 2,000 missing (52.7% of the total), and displaced 220,135 people (25.9% of the total). A total of 1,920 fishermen were killed – 25.4% of the national total. Physical damage includes 25,114 houses (25.1% of the total) of which 19,477 were completely destroyed (26% of the total), including 8,009 fisher houses (48.7% of total fisher houses) and the loss or damage of 11,048 fishing vessels (48.2% of the total). A total of 42,897 fisher people were displaced, 41.6% of the total of fisher people displaced nationally, and 19.5% of the total number of people displaced within the Eastern Province.

PART 1B: Baseline Course of Action

1B.1 THREATS TO THE BIODIVERSITY OF THE EAST COAST

59. An overview of the threat analysis is given in Figure 1.

Tsunami-related threats

60. The Project is unusual as a GEF intervention in that it addresses a threat which, barring further tectonic upheavals below the Indian Ocean, was a single discreet event, in fact an event which by all accounts lasted no more than 30 minutes. During this short time, the coastline between Jaffna in the north and Colombo in the west, and all the eastern, southern and western coastlines in between, suffered damage on a scale unprecedented in the human history of the island. The East Coast took the brunt of this since the wave struck directly onto this coast because of its orientation to the epicentre of the earthquake off the coast of Sumatra, while the other coasts were struck by a refracted wave that eventually ran out of energy near Colombo on the west coast.

61. The direct energy force of the tsunami led to partial and in some places complete destruction of natural ecosystems, washing away casuarinas and palms, over-topping and breaching sand dunes, uprooting or flattening the seaward tranches of mangrove forests, and causing moderate to high mechanical damage to coral reefs with some live coral destroyed and large quantities of coral rubble (formed after the coral mass mortality in 1998) shifted thereby covering and killing reef biota. When the original energy was spent, further damage was done as the large volume of sea water deposited on the land retreated back to the sea, carrying huge quantities of natural and human-related debris, soil, and pollutants. The energy within the backwash caused yet more damage – destroying the landward stands of mangroves, washing out the landward slopes of dunes, scouring coastal lagoons, increasing the size of breaches to the sea, and widening existing narrow natural channels/openings, uprooting trees of the narrow riverine forests in the process. Massive amounts of debris were deposited into these lagoons, and most still remains, obstructing the migratory pathways of fish and other marine organisms into and out of the lagoons. What were previously only seasonal connections with the sea have become permanent through tsunami-breached sand barriers, and this has led to changes in the biophysical conditions of lagoon waters, particularly salinity and hydraulic dynamics, with knock-on changes to the biodiversity. Beaches, already significantly reduced in width by the initial force of the wave were further eroded by the receding waters resulting in loss of width and destruction of sea-shore vegetation that consists of runners and creepers such as *Ipomoea pescapre* and *Spinifex littoreus*. Many turtle nesting sites have been destroyed. Only low levels of smothering by sediment has been observed on sea-grass beds and coral reefs, and although not a major impact of the tsunami this remains a potential concern. Considerable amounts of debris, both plant material and man-made objects, were carried with the receding water and deposited both on the reefs and/or on beaches in all areas. Once the waters receded from the land, apart from the physical damage, they left behind a legacy of soil and groundwater salinisation and dying vegetation (e.g. Palmyra palms) poisoned by salt.

FIGURE 1: OVERVIEW OF THREAT ANALYSIS



62. The overall impact of the tsunami on these globally important ecosystems has been hard to quantify, but it is estimated that 43% of the area of mangroves along the East Coast have been damaged or destroyed (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, such degradation and fragmentation has inevitably been accompanied by massive loss of animal life, particularly the less mobile species (e.g. the rich diversity of hermit crabs has been affected) and has led to population declines and loss of breeding habitat, including many of the 23 globally threatened species that occur in these habitats. Where coral habitat has been damaged, reduced fish abundance is apparent.

63. As if the havoc reeked by the tsunami was not enough, its aftermath saw the appearance of an insidious threat, the sudden appearance on the bare salinised soils of invasive alien species, mostly the prickly pear cacti *Opuntia* spp. and

Mesquite (*Prosopis juliflora*). Propagules of these species had been spread by the waves into areas from where they had never been recorded and now found perfect conditions for their rapid growth, out-competing native species because of their higher tolerance to saline soils.

Post-tsunami response-related threats

64. The tsunami provided a rare opportunity for the planners to ensure that national reconstruction policy formulation and implementation related to infrastructure, livelihoods, and natural resources. However, due to lack of capacity, technical knowledge, and inadequate institutional coordination, the national reconstruction response was made in isolation of ecosystem restoration and sustainable land management objectives. Existing environmental conservation legislation and regulations have been by-passed during the initial humanitarian relief effort exacerbating physical damage caused by the coastal ecosystems by the tsunami. Unsustainable practices are being pursued by reconstruction projects, while ecosystem restoration is being given low priority. Even the International NGOs have inadvertently followed the same path. Therefore, it is widely believed that the post-tsunami reconstruction process is causing much more damage to the coastal ecosystems and options for sustainable land management than did the tsunami.

65. In the immediate aftermath of the tsunami, humanitarian considerations were given the highest priority and the response by the government, local communities, local NGOs, private sector and the international community provided necessary support to rescue, relief, and emergency support to the survivors. Subsequently, transitional shelter, permanent shelter, key infrastructure and livelihoods aspects were addressed. Many coastal bridges were damaged in the province, and as a result new roads were constructed hastily around lagoons, often through environmentally sensitive areas (e.g. forests at Pottuvil). Such roads provide new and easy access to timber, sand and other resources, with “entrepreneurs” exploiting the lack of control following the tsunami. Perhaps unsurprisingly in the face of such a catastrophe, there was a lack of coordination between different players and environmental considerations were down-played and environmental regulations ignored in the interest of speed and low cost. With relief and rescue operations still in full swing, the Government announced the strict adherence to the rule of a 200m “no-build zone” for all construction along the Eastern Coast to discourage concentrating population within the coastal zone and minimise any loss of life in a future natural disaster. Unfortunately, this had the effect of people and aid agencies having to find new locations for housing and the Government had to open up and clear new areas of land just inland, thereby affecting inland habitats (e.g. dry forests, freshwater wetlands). Many of these relief camps and replacement villages were inappropriately sited close to ecologically sensitive areas, and habitats, such as wetlands already suffering from saline water, became polluted with sewage and household waste.

66. The low priority accorded to the environment continued to reveal itself in other ways as the reconstruction process got underway. Given the scale of the destruction, the local authorities simply could not cope with handling the massive loads of debris generated both by tsunami and by the reconstruction process itself. The need for quick and cheap solutions led to indiscriminate dumping of debris on beaches and in coastal lagoons and other wetlands was commonplace during this phase. Furthermore, the enormous demand for building materials to fuel reconstruction of damaged infrastructure led to unregulated supply and, at first, many of these were obtained locally within the coastal areas so that natural resources such as timber from mangroves and dry forests, sand from dunes and beaches, and lime from coral reefs, were extracted from sensitive natural habitats thereby exacerbating the damage that these had already endured. Although this was eventually halted, and materials were brought in from outside, the lack of capacity within the environmental agencies has continued to be a problem. In mid-2005, mechanisms were evolved to address environmental considerations of the reconstruction process, including setting up the TERP and its Environmental Help-desk under the MOE, but even this remains staffed by only one technical person and an administrator, and environmental considerations remain to be integrated effectively into the reconstruction process.

67. The lack of coordination between agencies, and the rush to be seen to be providing aid, also manifested itself in there being inadequate assessment of the long-term sustainability of the livelihoods provided for the affected communities. Instead of capitalising on the opportunity to correct certain problems faced prior to the tsunami, such as high fishing pressure in coastal waters¹⁴, the over-provision of small fibreglass boats (often on a two or three for one basis) and gear for exploitation of shallow water resources including coastal lagoons has led to even more pressure on the coastal and lagoon resources at a time when these ecosystems have been significantly stressed by the physical effects of the tsunami. Much of the funding from private sector and international donors for restoration activities in coastal areas has been channelled to local NGOs and CBO and these are some of the few bodies that have attempted to undertake environmental restoration. Sadly, despite good intentions, most of these habitat restoration efforts have been inappropriate and/or have failed since they lacked technical guidance as to what species/combination of species should be planted in specific locations. Furthermore,

¹⁴ Prior to the tsunami, the GOSL was looking to find the means to reduce inshore fishing by moving capacity to the under-developed deep sea marine fishery. Part of this involved the IFAD loan that has now been modified into the Post Tsunami Coastal Restoration and Coastal Communities Resource Management Programme.

insufficient awareness and knowledge on invasive alien species among communities and local level agencies exacerbates the threat posed by these species – in some field-level consultations, some CBOs were suggesting planting these IAS on affected beaches because they seemed to be grow well there.

68. Farmers and farm labourers residing just inland from the coast were not affected directly by the tsunami. However, having suffered from floods just a few months prior to the tsunami, they found their land badly affected by salinisation of the soils and water. As they were not affected directly by the tsunami, they were not included in any of the relief programmes, even though their livelihoods were just as seriously impacted. With no means of growing crops and not in receipt of aid, these farmers moved temporarily to the coast to in order to seek a living from natural resource extraction activities. This contributed further to the degradation of coastal ecosystems, not only through yet further human pressure on damaged ecosystems, but also through the use of destructive gear such as push nets and bottom-set nets due to lack of capital and their short-term engagement in these livelihoods.

Pre-tsunami threats

Ecosystem and Land Degradation

69. The tsunami taught some very expensive but positive lessons over the importance of maintaining healthy coastal ecosystems – there was clear evidence that healthy ecosystems such as mangroves and sand dunes acted as effective barriers to the tsunami, absorbing and deflecting energy and reducing the damage to adjoining communities, saving lives and property. Unfortunately these were the exceptions that proved the rule. Most of the ecosystems along the East Coast had been degraded to varying degrees by decades of increasing human pressure and misuse. This degradation has been exacerbated on the East Coast by poor law enforcement, security needs, and a poverty-stricken population suffering the ravages of war.

70. The key threats to the continued existence of the main coastal habitats along the East Coast include:

- Mangroves: It is estimated that at least 15-20% has been lost within the last decade. Extensive damage to the naturally fragmented mangroves has been caused by the transformation of large areas to other uses, e.g. reclamation for development purposes including housing construction, shrimp farms, and lowland agriculture. Clearance by both military forces in the civil conflict for security purposes has also accounted for large-scale destruction. Water pollution from various industries and domestic sources has also caused the degradation of mangroves.
- Lagoons: Principal environmental problems that threaten lagoons include:
 - Organic and inorganic pollutants entering lagoons from agricultural runoff, untreated industrial effluents, waste oils from boats, and discharge of wastewater and sewage from urban and industrial sources;
 - Dumping of solid waste into or near lagoons;
 - Increased siltation due to unplanned development activities inland, e.g. irrigation schemes, soil disturbance from agriculture without soil conservation measures;
 - Blockage of water flows into and out of lagoons due to unplanned construction of roads and causeways, resulting in higher pollutant levels, lower salinities, and poor larval exchange;
 - Indiscriminate harvesting of commercially important species, e.g. brood stock of tiger prawns for culture purposes;
 - Presence of algal blooms and exotic species of aquatic weeds that can lower oxygen levels in lagoon waters, resulting in bad odours and higher fish mortality; and
 - Loss of functional area due to unauthorized encroachments and land reduction, destruction of habitats through cutting of mangroves, and filling of lagoon margins.
- Sand dunes: when undisturbed, are stabilized by low-growing vegetation. Coastal dunes prevent erosion and provide shelter from the wind, thus protecting interior lands during cyclones and monsoons. At a number of sites, particularly those close to the urbanized areas, dunes are threatened by encroachment from indiscriminate development (e.g. housing, hotels, and road construction), solid waste dumping, sand mining, transformation to agricultural lands for cultivation of coconut, tobacco, chillies, onion and other crops, treading and clearing of vegetation. Such activities can destabilize the dunes and cause considerable damage through erosion, e.g. during a past storm event at Pottuvil, a school and other buildings were covered by sand from a destabilized dune. The National Sand Study (1992) calculated that the damage through land loss and/or protection amounted to SLR9 per m³ of sand mined or SLR 25-30 million (US\$ 250,000-300,000) per year.
- Coral reefs: along the East Coast of Sri Lanka are high in biodiversity and spectacularly beautiful. However, accounts from reef fishers, coral reefs along this coast are heavily affected by human activities and are becoming

degraded. Although the effects of pollution and climate change cannot be ruled out, the major causes for concern include:

- Unregulated harvesting has reduced many vulnerable and rare species of ornamental fish and the population of lobsters inhabiting the reefs. There is virtually no monitoring of the collection of aquarium fish in the Eastern Province. No reliable data is available on the numbers of fish being collected, the collection localities, methods used, or possible impacts to habitat. The selective removal of ornamental fish may lead to significant loss of biodiversity, outbreak of disease, and further degradation of coral reef habitat.
- Destructive fishing techniques are commonplace. Reports of dynamite fishing to catch food fish from coral reef areas are widespread from Trincomalee in the north, down to the southern part of Ampara district, despite imposition of a ban, though fishers interviewed in the Eastern Coastal Community Development Project indicated awareness that the practice is highly destructive, and all professed to be very much against it. Detonation of depth charges by the Navy within the Trincomalee area (as a deterrent against submarine sabotage) is believed to have equally destructive impacts on coral habitats and fish. The use of certain banned types of fishing gear, e.g. "Moxy nets" (a type of encircling net) which cause direct damage to the corals, is still prevalent.
- Mining of coral for use as a building material has been a common practice in Sri Lanka for centuries. Inland deposits of fossil coral were used in the past, but in the last few decades, despite it being illegal, large quantities of coral have been taken from live, shallow-water reefs. A study showed that along the whole of the coast of Galle District in the south-west of the island, 18,000 tons of coral was mined in 1984, reduced by 48% in 1994 but still occurring. Removal of corals for construction and to make lime for cement has caused considerable damage, not only to the reefs themselves but by the increased erosion of the coast that follows. Although the Coastal Zone Management Plan states that offshore coral mining has declined by more than 50%, nearshore coral mining and active coral kilns have still been observed during recent field surveys in Vandeloos Bay (Trincomalee), Mankeni, Passikudah, and Kalkudah (Batticaloa).
- The unregulated growth of the coastal tourist industry has also caused many problems. Direct habitat loss or damage was evident on Pigeon Island and Passikudah reefs due to tourists stepping on the reef, ramming glass bottom boats against it, dragging boat anchors, and the collection of reef materials as souvenirs. In addition, impacts such as pollution due to incorrect siting of tourist facilities and poorly-designed infrastructure are quite evident in this area. Since the Cease Fire Agreement between the Government and the LTTE in 2002, visitors to the reefs have increased manifold, causing increased pressure on the resource.
- Beaches: along the East Coast of Sri Lanka are superb and justifiably famous, being a major attraction to tourists before the onset of the civil conflict. Although there are a few rocky shores, most of this coastline consists of wide, sandy beaches. The beaches of the East Coast are occasionally threatened by cyclones. The cyclones of 1964, 1978 and 2000 eroded large swaths of beach and destroyed coastal vegetation (including coconut groves). Usually such episodes of severe erosion are followed by subsequent accretion and natural replenishment of beaches. More chronic occurrences of erosion have been observed at several sites.
- Seagrass beds: are associated mainly with estuaries and lagoons, and contribute to the productivity of these areas serving as nursery grounds and feeding areas for commercially-important species of fish. Minor threats to seagrasses occur from dragging of boat hulls, and removal may occur at limited sites in connection with nearshore construction activities.
- Salt marshes and mudflats: are a component of lagoons, estuaries and bays, and most of the shallow lagoons in the Eastern Province have large expanses associated with them. The Eastern Province contains an estimated total of 3,725 ha of saltmarsh, about 16% of the country's total. These habitats are important feeding grounds for a variety of bird species, especially migratory shorebirds. Poor water quality and grazing pressure appear to be the principal threats to the health of salt marshes and mudflats in the Eastern Province.
- Freshwater marshes: have developed in depressions, ponds and parts of lagoons that have low salinities throughout most of the year. The Eastern Province contains some 3,000 ha of freshwater marsh, approximately 31% of that present in Sri Lanka. These marshes are affected by the use of agrochemicals and ensuing eutrophication can promote rapid growth of floating and emergent vegetation, smothering submerged vegetation.

Climate Change

71. The East Coast will be subject to the impacts of climate change which is expected to lead to higher temperatures, a rise in sea level, more frequent and prolonged droughts, high intensity rainfall, and increased thunder activity. While the global mean sea level rise is expected to be within 85 cm by 2100, the sea level rise around India is expected to be in the range 15-38 cm by the middle of this century and 46-59 cm by the end of the century, according to the India's National Communication on Climate Change. An increase in the sea level by about a half a meter could result in many adverse impacts including inundation of low lying areas displacing settlements, migration of fishery habitats, loss of sandy beaches

affecting tourism, intrusion of salinity to ground water aquifers, and to low lying rice fields affecting their yields. Several adaptation measures will need to be planned in order to cushion the economical hardships that would be encountered by the people living in the coastal zone.

72. The main threats posed to the East Coast by sea level rise are increased:

- inundation of areas located just above the water level prior to sea level rise, including low lying coastal settlements, many of which are highly populated. Nearshore land based infrastructure, e.g. highways and rail tracks, will also be affected and sea level rise should be taken into consideration in the planning of their maintenance strategies and in planning new infrastructure development projects, especially for urban areas located along the coast. Coastal wetlands are generally found at elevations just above mean sea level and below the highest tide. These wetlands account for a significant proportion of land less than 1m above sea level. With the rise in sea level marshes have generally kept pace by migrating inland and this has helped the prevention of wetland loss. However, if marshes are unable to keep pace with sea level rises, it would lead to a net loss of wetlands. Such losses would be greater where protection of developed areas prevents the inland migration and formation of new wetlands – coastal squeeze.
- coastal erosion resulting in the loss of land and further increasing the vulnerability of coastal communities. The country has been experiencing an erosion rate of 0.30–0.35 m per year along 45%-55% of its coastline, and any acceleration of this rate will increase the rate of loss of land, thereby affecting communities and economic activities. The lowering or loss of sandbars due to sea level rise will increase the tidal prism of coastal water bodies with larger volumes of water entering during the tidal cycle. This would result in the risk of greater inundation of coastal areas, intrusion of salt water and associated environmental impacts on coastal eco-systems.
- flooding and storm damage in coastal areas arising from higher water levels a) providing storm surges with a higher base to build upon, and b) decreasing natural and artificial drainage; which could also lead to pollution of water bodies. It is also recognized that change in climate due to global warming could contribute to the reduction of the return periods of storms and floods, thus increasing the frequency of extreme events. The East Coast is open to the Bay of Bengal and is exposed to cyclones and storms that originate there. While Sri Lanka is not directly in the path of most of these, almost all of them pass close enough to make their presence felt. Some of them deviate from the usual path and pass across the East Coast of Sri Lanka and on into the Northern and North-Central parts of the island. There have been four severe cyclones during the last 100 years as well as a large number of severe and moderate storms. Cyclone incidence corresponds strongly with the North-East monsoon, and 80% of all cyclones and storms occur in November and December. Among the criteria that need to be satisfied for the formation of a tropical cyclone is that the sea surface temperature should exceed 26.5° C. With increasing temperatures, it is predicted that these cyclones would occur more frequently. Furthermore, a recent study of tropical storms the world over indicates a 30-year trend toward more frequent and intense hurricanes, which is consistent with recent climate model simulations that show that a doubling of CO₂ may increase the frequency of the most intense cyclones. Thus, an increase in the frequency and the intensity of cyclones and storms crossing the East Coast could be expected in the coming decades, which would result in much damage to life and property. This will cause disasters in which there will be large losses of lives, property and infrastructure. It must be noted that in contrast to coastal erosion, flooding is a sudden occurrence leaving very little preparation time, and the relevance of disaster preparedness needs to be given due consideration.
- penetration of salt water inland through alterations in the balance between the freshwater and saltwater hydraulic regimes. This will be most widely felt during dry weather conditions, causing a number of problems such as the penetration of saltwater into cultivated areas, an increase of saline water in aquifers, migration of freshwater fish, and impacts on other habitats causing breaks in the food chain of some species. Deepening of estuaries will also increase intrusion and care will need to be exercised in the planning of development work which includes dredging of estuaries.

73. Sectors most at risk from climate change along the East Coast are:

- Fishery industry: The level of impact of climate change will vary widely and will also depend on the attributes of different species. A temperature rise of about 2°C may have substantial impacts on the distribution, growth and reproduction of fish stocks. Commercially important fish stocks may change their spawning areas and distribution patterns. A given population within a species is adapted to a hydrodynamic environment of specific temporal and spatial characteristics. Therefore, changes in the ocean circulation may lead to the reduction in, or loss of, a certain population or the establishment of new ones, particularly at the periphery of the areas of species' distribution. Fishery activities which would be affected include, beach seine fishery, sea ranching in coastal areas, stilt fishery, boat landing sites and fisher folk settlements along the beach. Due attention should also be focused on shrimp fishing under coastal aquaculture.

- Tourist industry: Loss of prime land on the shore front has already had impacts for tourism, particularly in the case of beach resorts. A rapid rise in the sea level would therefore inevitably increase the cost of coast protection and beach recharge at locations where major investments have been made for tourism. In places, the policy of “retreat” from the shoreline will have to be given serious considerations as opposed to spending excessive amounts on protection. Rising ocean temperatures will systematically bleach fragile coral reef systems. Ocean temperatures calculated by model projections indicate that thermal tolerances of reef building corals are likely to be exceeded within the next few decades, thereby removing one of the key attractions of the coastal eco-tourism industry. Damage to coral reefs will depend very much on whether coral reef systems can adapt with the rate of change of ocean temperature.
- Coast protection and port structures: such as revetments, sea walls and breakwaters, will have to cope with increased hydraulic forces. These structures will become vulnerable to the impacts of increased erosion as well as the possible increase in the frequency of extreme events such as storms and flooding. To maintain their functions efficiently, such structures will have to be reinforced and will require an increase in maintenance costs. Reinforcement of the structure may also necessitate an increase in crest levels to withstand the impacts of a higher sea level.

1B.2 BARRIERS

74. The barriers to the effective management of coastal ecosystems are given in Table 1 as part of the threats analysis.

TABLE 1: THREATS ANALYSIS FOR THE PROPOSED PROJECT

Threats/ impacts	Root causes	Barriers	Baseline	Solutions
Direct tsunami-related effects				
Decline in species' populations, habitat degradation and fragmentation of coastal ecosystems along the East Coast of Sri Lanka	Physical destruction due to energy force of the tsunami	No previous experience of recovering from a natural disaster on the scale of the tsunami Insufficient technical know-how to rehabilitate ecosystems	Recovery of these globally significant ecosystems would take many years through the natural processes, however the increasing human population pressure may further delay the natural restoration process	Pilot test methods and demonstrate the practices most appropriate for low-cost community-based ecosystem restoration Develop best practice guidelines on practical habitat restoration and conservation management of globally important ecosystems Disseminate knowledge through demonstrating best practices and promoting replication of low cost ecosystem restoration methods along the East Coast of Sri Lanka
Destabilisation of key ecosystem functions in coastal lagoons and estuaries	Large amount of debris are trapped in coastal lagoons	Inadequate technical knowledge and institutional mechanisms to remediate the situation	Amount and type of debris obstructing migratory pathways of fishery organisms into lagoons and estuaries is too great for natural flushing systems to clear	Pilot test community-based mechanisms to clear debris and identify external sources of assistance where necessary
	Coastal lagoons previously open to the sea only seasonally, now have permanent direct link because tsunami breached sand barriers to the sea	Inadequate technical knowledge and institutional mechanisms to remediate the situation	Bio-physical conditions of the lagoon waters changed from the pre-tsunami conditions	Assess bio-physical conditions and design best practice to remediate conditions favourable to organisms living in these globally significant ecosystems
Increase in area affected by invasive alien species (IAS)	Tsunami spread propagules of these species which found prime conditions for growth in areas cleared of vegetation by the tsunami	Insufficient awareness of the threat posed by IAS Insufficient institutional capacity to address the problem of control of IAS	IAS found in many sites along the East Coast of Sri Lanka where prior to the tsunami they were not recorded	Address control and eradication of IAS during pilot-testing and demonstration of ecosystem restoration, and in community co-management of coastal resources
Increased human pressure on natural resources of globally important coastal ecosystems	Pollution of agricultural lands and groundwater from the sea waters as a result of the tsunami	Recovery of agricultural soils dependent upon intensity of monsoons over next few years Current projects to assist with remediation of salinised soils have not yet produced tangible results	Income from farming has decreased and farmers add pressure on coastal ecosystems by trying to supplement their loss of income from these ecosystems	Support the local communities and displaced farmers to develop co-management of natural resources to improve livelihoods and reduce pressure on coastal ecosystems

Threats/ impacts	Root causes	Barriers	Baseline	Solutions
Post-tsunami response-related effects				
Decline in species' populations, habitat degradation and fragmentation of coastal ecosystems along the East Coast of Sri Lanka exacerbated by primary humanitarian responses to tsunami	Isolation of conservation and ecosystem restoration from national responses to post-tsunami relief and reconstruction programmes	To date, humanitarian considerations have been given priority over all other considerations including longer-term environmental recovery	Current post-tsunami reconstruction is centred on short-term humanitarian relief, e.g. housing while longer-term sustainability of livelihoods has not been effectively addressed	Raise priority afforded to restoration of globally important ecosystems that provide the basis for long-term sustenance of coastal communities in the Government's policy framework
	Existing environmental conservation legislation and regulations have been by-passed during the initial humanitarian relief effort	Longer-term repercussions of ignoring the environmental legislation are still being felt because of inappropriate location of new settlements	Increased pressure on remnants of globally-important ecosystems from proximity of newly re-located communities	Introduce community co-management arrangements for management of natural resources to such communities Replicate ecosystem restoration techniques along the coast prioritising Special Area Management sites and sites with newly re-located communities
	Over-provision of inshore fishing boats and gear by aid agencies	Boats and gear have already been made available to a wider population than prior to the tsunami and cannot be taken back	Increased fishing pressure on already-stressed coastal lagoons and shallow coastal waters	Introduce community fisheries plans to regulate catches and conserve "fish" stocks in coastal lagoons and shallow waters Divert fishing pressure to offshore resources through provision of appropriate infrastructure (see below)
	Unsustainable practices are being pursued by reconstruction projects while ecosystem restoration is being given low priority	Reconstruction paradigm in response to humanitarian needs is "quick and cheap" without recourse to wider environmental considerations Insufficient consideration given to long-term need for sustainable resource management Senior levels of Government contend that there is policy related to integrating wider environmental considerations into reconstruction projects while lower tiers and government agencies contend that they have no framework to guide practical implementation on the ground	Inappropriate location of new settlements in juxtaposition to globally-important ecosystems Inappropriate disposal of tsunami-related debris Absence of effective policy initiative to promote restoration of ecosystems	Introduce policy requirement for ecosystem restoration to be integrated into all reconstruction projects under the aegis of the Reconstruction and Development Authority (RADA)
		No coordination mechanisms between post-tsunami reconstruction players targeting wider environmental remediation	Limited exchange of information between parties but mostly concerned with key environmental problems from a humanitarian viewpoint	Environmental coordination meetings facilitated between relevant parties to effect ecosystem restoration as an integral part of post-tsunami reconstruction. Raise awareness of the long-term importance of ecosystem functions and services among post-tsunami reconstruction agencies and NGOs
		Technological support for habitat restoration in post-tsunami construction is absent	<i>Ad hoc</i> restoration activities are in progress through small local NGOs, e.g. planting single species to restore/green the affected coastal ecosystems (monoculture of mangroves, casuarinas), but insufficient technical know-how means that some may cause further adverse effects on coastal biodiversity	Create a specialist Ecosystem Restoration and Adaptation Unit within the CCD to provide technical know-how and facilitation and supervisory services to tsunami reconstruction projects

Threats/ impacts	Root causes	Barriers	Baseline	Solutions
Pre-tsunami natural resource management issues				
Coastal ecosystem degradation and species loss due to human mismanagement	Locally open access to coastal natural resources – “the Tragedy of the Commons”	Over dependence on command and control mechanisms for natural resources management with inadequate emphasis on participatory management approaches	Nominal Regulations pertaining to resource use in force but there is insufficient capacity within the agencies to enforce them; and local communities have too great an economic dependence on use of natural resources Resource users’ attitudes lack an understanding of the need for sustainable resource use practices	Enable the environment for community co-management of natural resources to be established, and empower the local communities to participate in such arrangements
		Politicisation of community based organisations has resulted in reticence of local communities to form functioning Fisheries Cooperative Societies	Poor community empowerment and non-functioning community based organisations Potential incentive mechanisms for natural resources management have not been explored adequately	Empowerment of local communities so as to own a share of the local resource base will reduce the opportunities for politicisation Identify potential market-based incentive mechanisms for ecosystem management and produce clear and practical “How to adopt these” guides for local stakeholders
		High capital investment costs deter development of an offshore fishing industry, coupled with lack of harbours and associated infrastructure	Fishing pressure on costal waters remains high	Provide infrastructure for the development of an offshore fishery (through co-financing IFAD project entitled <i>Post-tsunami Coastal Restoration and Resource Management Programme</i>)
	Most mangroves fall outside the jurisdiction of any government agency	Mangroves are under-valued in terms of timber, the link between them and fisheries resources is poorly understood; and they are viewed as a security risk by sides in the civil conflict	Mangroves have been cleared at an alarming rate – estimated to be 15-20% of the area along the East Coast in the past decade.	Raise awareness amongst government and other stakeholders of the value of mangroves as timber and fisheries resources and promote their restoration, restoration and co-management
	Coral reefs outside of Protected Areas fall under the jurisdiction of several government agencies without any one having a clear mandate to lead	Coral reefs are protected under numerous different legislative instruments that in places overlap one another leading to ambiguity, and do not identify which of several agencies should take responsibility for their implementation	Coral reefs remain largely unprotected and unmanaged despite the good intentions of the legislation because of its lack of enforcement arising from poor coordination between agencies	Facilitate identification of one agency to take the lead for the conservation and management of coral reefs outside of Protected Areas
	Inadequate awareness/ understanding of the importance of ecosystem functions and values amongst planners and resource users	Mutual lack of understanding between biodiversity specialists and economic development planners leads to mistrust and insufficient integration of disciplines	Biodiversity concerns are poorly addressed in the national and provincial economic development planning systems	Use increased awareness of the importance of coastal ecosystem functions and values engendered by the tsunami and this project to mainstream these into the national and provincial planning processes
		<i>Catch-22</i> - awareness raising programmes have not been addressed at any level because there is no understanding of the need for their requirement Inadequate information sources available in local languages	General lack of awareness of the functions and services provided by key coastal ecosystems. However, the tsunami has raised awareness at all levels of the importance of these ecosystems in affording storm protection	Capitalise on the unique opportunity afforded by the tsunami to foster a long-term conservation ethic to the benefit of the subsistence communities and to the globally important biodiversity of the coast.

Pre-tsunami climate change issues				
Increased erosion and the potential for increased flooding and storm damage caused by global warming and sea level rise	Believed to be increased level of green house gases in the atmosphere	Absence of technical know how to develop natural barriers over large areas to provide protection against storms and reduce erosion	Natural ecosystems providing erosion control and storm protection functions have been significantly degraded by human activity prior to the tsunami and then have sustained serious damage from tsunami itself	Pilot test methods and demonstrate the practices most appropriate for low-cost community-based ecosystem restoration Develop best practice guidelines on practical habitat restoration and conservation management of globally important ecosystems Disseminate knowledge through demonstrating best practices and promoting replication of low cost ecosystem restoration methods along the East Coast of Sri Lanka

1B.3 STAKEHOLDER INVOLVEMENT AND ANALYSIS

75. Given the extraordinary circumstances surrounding the post-tsunami relief and reconstruction programmes and the massive involvement of the international and foreign-national NGO community, as well as numerous Sri Lankan NGOs, the Project design team has gone to considerable lengths to contact all these organisations as well as all other stakeholders involved at the three demonstration sites which overlap geographically with the IFAD loan. The design team undertook extensive consultations with these parties during the preparatory phase through a series of presentations, interviews, and workshops. These wide-ranging consultations were undertaken to ensure that stakeholders at all levels:

- were aware of the Project, its objectives and participated in project design;
- assisted in the identification of coastal vulnerability and ecosystem restoration, as well as land degradation issues, and threats to biodiversity; and
- helped in identifying how to recover the physical and financial assets of local communities affected by the tsunami and suggesting ways of diversifying them into new and profitable income-generating activities.

The Project will ensure that during implementation the work undertaken by NGOs and donors on other tsunami-related projects will not be duplicated but rather that their work will be complemented and/or enhanced by this project's activities wherever possible.

76. The demonstration sites were selected so that within the three Districts of Trincomalee, Batticaloa, and Ampara, a range across the following factors were represented to maximise the demonstration models' applicability when attempting to replicate them:

- extent of damage to ecosystems;
- level of biodiversity, ecological representativeness, and presence of threatened and endemic species;
- vulnerability of the coast to sea-level rise and major storm events associated with climate change;
- human population density and level of population affected;
- level of dependence of the community on the ecosystems' services and products;
- vulnerability of the communities to ecological threats and livelihoods;
- poverty and land degradation prevalent in the Grama Niladhari divisions; and
- willingness of communities to participate.

The sites were also selected to be practical from a size point of view – large enough to make a significant contribution to the area of the different habitats to be restored, but not so large as to place an unrealistic burden on communities and institutions experimenting and learning the practicalities of restoration. These criteria will be further developed during the project to prioritise and select sites for future replication.

77. The major stakeholders in the project are the fishers and farmers of the rural communities along the East Coast, most of whom are poor and remain marginalized. This is particularly the case for the high number of households headed by widows arising from the internal conflict. The fishers and displaced farmers will receive support and training on procedures and techniques of community level resource-use; decision-making; creating, negotiating, and implementing community development plans; resolving resource-use conflicts; and providing leadership in ecosystem restoration and conservation. This will empower them to take more responsibility in their development. Ultimately and working through the community-based organisations (CBOs), they will become full partners in the management of coastal resources. Some of the CBOs will

receive support to establish small businesses and for improving the local marketing structures, particularly those favouring women, thereby contributing to the sustainability of the project.

78. Other stakeholders include government agencies, such as the local authorities and Coast Conservation Department, who will receive support and capacity building on principles and practices of natural resource planning and sustainable land management; technical issues related to ecosystem restoration, vulnerability assessments and adaptation measures; and resolution of resource-use conflicts. Also, it is envisaged that NGOs and Civil Society Organizations will play a crucial role in community mobilization and awareness-raising. Finally, the Project design team has consulted extensively with the two big projects already operating in the Province – *North-East Coastal Community Development Project* and *North-East Community Restoration and Development Project* – to ensure maximum synergy, efficiency, and effectiveness – see paragraphs 92 and 121. A complete list of stakeholders and an accompanying participation plan is provided in Annex 5.

PART 2: STRATEGY

2.1 PROJECT RATIONALE

79. Sri Lanka has demonstrated an increasing commitment to natural resources and environmental conservation over recent years and its policy framework is beginning to establish the link between it and the sustainable land management practices necessary to ensure the long-term maintenance of those communities whose livelihoods are dependent upon natural resources. This is evident in the recent initiatives of the Government on preparation and implementation of the National Action Programme (NAP) to identify the factors contributing to land degradation and practical measures necessary to combat land degradation. The tsunami of 26th December 2004 created a humanitarian disaster of such magnitude that long-term planning effectively evaporated overnight as the Government and the international aid agencies struggled to provide basic humanitarian assistance in the face of overwhelming difficulties. Once relief operations were achieved, and the survivors provided with basic needs such as water, food, clothing and shelter, the Government's attention turned to reconstruction, again with basic humanitarian needs to the forefront – housing, communications infrastructure, health care, education and livelihoods support – e.g., provision of tools, boats, and fishing gear.

80. Not surprisingly, the natural environment and sustainable land management has until now taken a back-seat; with resources (despite the world's colossal generosity) and human capacity stretched often to breaking point just to deal with the humanitarian response. But most of the population of the coastal areas, particularly those in the Eastern Province, are dependent upon the natural resources supplied by the coastal ecosystems which themselves took an unprecedented battering by the wave. However, the tsunami was a human disaster, not an ecological one, and while there was extensive damage to the ecosystems of the East Coast, they have not been destroyed, merely heavily damaged. Their restoration is possible and necessary if the medium- and long-term needs of the local communities is going to be met. While ecosystems will recover naturally, given enough time and easing of human pressure, time is not a luxury the poor rural coastal communities have when no alternative livelihoods exist, and easing of human pressure is therefore not a reality.

81. While the tsunami was an unprecedented human disaster in the country, it produced a singular benefit – that of vastly raised awareness of the value of coastal ecosystems' function in "storm" protection. Those ecosystems that had not been degraded before the tsunami provided extremely effective protection to the human population and their assets by dissipating the energy of the wave. It is the aim of this GEF intervention to capitalise on this unique opportunity to not only help rehabilitate the damaged coastal ecosystems and the human communities which depend upon them, but also to address the underlying root causes of the degradation of these ecosystems prior to the natural disaster and to foster a long-term conservation ethic to the benefit of the subsistence communities and to the globally important biodiversity of the coast. By acting at three levels – community, local, and national – it is intended that the actions, refined at grass-roots level, will be carried forward and replicated in a coordinated approach within the coastal Districts of the Eastern Province and mainstreamed within the national policy framework to promote sustainability elsewhere around the country's coasts.

2.2 PROJECT GOAL, OBJECTIVES, OUTCOMES AND OUTPUTS

82. The long-term **goal** of the project is that *Tsunami-affected ecosystems in Sri Lanka are rehabilitated and managed sustainably to provide full ecosystem services including adaptation against extreme climatic events*. The project **development objective** is *Restoration and sustainable management of globally important ecosystems affected by the tsunami is demonstrated for, and mainstreamed effectively into, the reconstruction process to support sustainable livelihoods and reduce vulnerability to climate change along the East Coast of Sri Lanka*. The project design is 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 programme; 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 functions and services envisaged on a sustainable long-term basis. While

the initial emphasis of this seven-year project will 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 the areas where IFAD Post-tsunami livelihoods support project to be implemented (and in due course other tsunami-affected coasts) is at its heart. In seeking to achieve this, it will implement a two-pronged strategy to demonstrate that replication is 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.

83. Activities will be implemented by local communities, particularly fisher folk and other resource users, in partnership with, and with the full support of, national and local government agencies, thus:

- Local community level – with the aim of enabling users of coastal natural resources to rehabilitate the ecosystems on which their livelihoods depend and empowering them to manage their resources sustainably in partnership with government agencies, introducing new management approaches that ensure the simultaneous attainment of conservation objectives and improved economic livelihoods, and measuring the impacts of their activities on the resource base and the associated biodiversity so as to modify their management accordingly.
- Government level – with the aim of building the technical capacity of the Coast Conservation Department to promote, facilitate, and support community based ecosystem restoration; mainstreaming the requirement for such restoration into national policy for all reconstruction projects; and incorporating it into the Coastal Zone Management Plans for the various coasts.

84. Interventions have been designed to contribute to three complimentary outcomes:

Outcome 1: Best practices for effective restoration and sustainable management of key coastal ecosystems developed and demonstrated.

Outcome 2: Effective ecosystem restoration and sustainable management are mainstreamed into post-tsunami reconstruction planning and implementation by relevant authorities and donors.

Outcome 3: Coastal communities empowered to manage local natural resources to enhance sustainable livelihoods.

Outcome 4: Project Management, Monitoring and Evaluation.

Outcome 1: *Best practices for effective restoration and sustainable management of key coastal ecosystems developed and demonstrated. (Total US\$ 2,854,800 of which GEF funding: US\$ 1,903,200 Government: US\$107,300; Other co-funding: US\$ 844,300)*

85. Best practices developed and demonstrated for community-led restoration and sustainable management of key coastal ecosystems: The initial emphasis of the project will be on developing a scientifically-based, low-cost approach to restoring coastal ecosystems through community-based actions. The first steps will involve the establishment of baseline inventories of flora and fauna in the key ecosystems at the various sites to compare the current situation to the pre-tsunami status and understand what is still present, what condition it is in, and what has been lost altogether and needs replacement. Where possible, NARA will be sub-contracted to extend their current monitoring programmes to include this activity. Where technical capacity is lacking, academics will be identified to assist. Socio-economic baseline data for the communities involved will also be collected against which future progress can be measured. Through a participatory process, communities will be encouraged to experiment with restoration techniques based on local knowledge and practices, augmented by successful methods identified by IUCN-SL from around the world during the PDF-B and adapted to local conditions. In practice, this will include control or eradication of invasive alien species from the pilot test sites and subsequent scaled-up areas, but this is dealt with in greater detail under Outcome 3. The habitats concerned will be the coastal lagoon and associated mangroves at Vakara, in the northern part of Batticaloa District, and the sand dunes at Panama/Pottuvil on the edge of Yala National Park at the southern end of Ampara District. Communities will select from amongst the successful options of these pilot tests, those that they wish to take forward to scale up implementation at each of the three sites. From these, best practices will be demonstrated for replication elsewhere along the coast. Similarly, methods for the systematic control and eradication of alien invasive species will be determined and carried out. Knowledge on sustainable ecosystem and land management practices of the participating communities will be raised and incorporated to the demonstration activities.

86. Best practices and policy guidelines published on practical restoration and conservation management of globally important ecosystems: Once the pilot tests have been completed and the results evaluated, best practice technical guidelines will be drawn up in three languages (English, Sinhalese, and Tamil) for each of the three habitats concerned detailing the restoration techniques that work best under varying conditions, and providing step-by-step instructions to enable

easy replication. These guidelines will be aimed primarily at the local communities to facilitate a self-help approach to ecosystem restoration, but also at the national and international NGOs who, if other project aims are successful, will be required to incorporate ecosystem restoration into their reconstruction projects. At the same time, guidelines will be prepared on a variety of other conservation management topics including community natural resources management systems, buffer zone greening, solid waste management, sustainable tourism, land use planning, and harvesting of ornamental fish to augment and complement the restoration of habitats. These guidelines will be aimed at both the local community level and the policy makers and implementers within the Government agencies. Finally, a set of policy guidelines will be produced for government and international NGOs providing advice on the effective involvement of communities, how to best organise the process (likely to differ between different habitats), and how to best motivate the long-term aftercare necessary, to ensure that lessons learned from the demonstration sites are captured and are incorporated into replication projects and other post-tsunami reconstruction projects.

87. Central information base established at CCD as repository for all work on ecosystem restoration and coastal adaptation to climate change. All the information arising from the baseline inventories of flora and fauna, the baseline socio-economic data for communities involved with restoration at the demonstration sites, and the vulnerability mapping of the East Coast to prioritise areas for adaptation, along with all the scientific data from the pilot study trials, the scaling-up processes, and the monitoring and evaluation measurements will be collated and documented in appropriate formats and used to establish a central database within CCD. In collaboration with the MOE and the UNFCC focal point, all information relating to coastal adaptive measures and vulnerability to climate change will also be collated and documented and added to this central repository. The newly formed Ecosystem Restoration and Adaptation Unit within the CCD (see paragraph 93) will assume responsibility for the maintenance of this information base, and for making it available to the Disaster Management Centre, other Ministries and agencies, and civil society, and for linking it with other relevant databases, e.g. those held by NARA.

Outcome 2: *Effective ecosystem restoration and sustainable management are mainstreamed into post-tsunami reconstruction planning and implementation by relevant authorities and donors.* (Total US\$ 2,434,800 of which GEF funding: US\$ 1,008,900; Government: US\$101,750; Other co-funding: US\$ 1,324,150)

88. Policy framework reviewed and restructured to support the restoration and sustainable use of coastal natural resources: A review of relevant policy, legislation, and investment guidelines will be undertaken to identify gaps, requirements, and perverse incentives to ecosystem restoration and sustainable use. The Project will support the GOSL to develop appropriate policy guidelines for sustainable use of coastal resources and ecological restoration and mainstreaming these into the existing policy framework. It will also work with the GOSL to remove barriers in the form of single-sector interest policies that, prior to the tsunami, led to significant loss of habitat and which inadvertently contributed to the destructive force of the tsunami. Removal of such barriers will form a significant part of the risk mitigation strategies which the GOSL has already started to formulate, e.g. designation of the no-build zone along the coast. The initial environmental examination process requires additional policy guidelines and capacity if environmental considerations are to be integrated effectively into development. The Project will also help to develop an enabling policy environment for natural resource planning, sustainable land management, and adaptation to climate change within which local interventions are recognized and rewarded, as well as coordination among responsible jurisdictions to ensure removal of contradictory policies. Pro-poor policies targeting tsunami victims are warranted to ensure their welfare and future stability. Whilst these policies should ensure the protection of the environment, they should promote communities' use of the benefits derived from natural resources in a sustainable manner.

89. Central national planning system introduces requirement to incorporate sustainable use of coastal resources and restoration of coastal ecosystems into all tsunami-reconstruction projects: This is the key mainstreaming element of the Project. GEF funding will be used to support the Ministry of Fisheries and Aquatic Resources and the Ministry of Environment to draft a joint cabinet paper through the auspices of the Director of CCD and the Director of the Biodiversity Secretariat respectively, and its subsequent passage to the Secretary to each Ministry and to the two Ministers who will be requested to make a joint proposal to the Cabinet for it to become a Cabinet Decision. This paper – and binding policy decision to be distributed to all relevant bodies for suitable action and implementation – will require that all tsunami-related reconstruction projects, whether proposed and funded through a Government agency or by an international/national NGO or by a bilateral/multilateral donor agency, will need to incorporate a component of physical ecosystem restoration (or a monetary equivalent to provide support for the same) and sustainable coastal resources use approaches in the geographical area in which the project is proposed to provide a long-term basis for sustainable livelihoods and coastal protection (storm surge, cyclone, erosion prevention) to the communities whose shorter-term interests the project addresses. As part of the mainstreaming process, the Project will provide assistance to RADA to strengthen the awareness and coordination on environmental issues between RADA, the CCD/MOE/CEA, other Ministries, and other agencies through regular coordination meetings to support ecosystem restoration within the broader post-tsunami reconstruction process. Furthermore, the Project will mainstream sustainable land management strategies into national and local coastal development priorities, as well as building the capacity at national and community level to ensure participatory involvement in continuing integrated land use

planning and management. The Project will hold half-yearly briefings on key environmental issues and techniques for policy-makers, planners and managers of the different sectors and agencies involved in post-tsunami reconstruction, at national and local levels.

90. Restoration and sustainable use of coastal ecosystems incorporated into Eastern Province planning system: Currently, the North East Coastal Community Development Project (NECCDP), a US\$ 52 million funded in main through the ADB, is preparing a Coastal Zone Management Action Plan (CZMAP) for the Eastern Province, due for completion in mid-2007. Although Cabinet Decisions will take precedence, this plan is set to become the most important management document for the coastal area of the Province and will set policy for the foreseeable future. It is important, therefore, that the concepts of ecosystem restoration and coastal vulnerability and adaptation are included in this document from the outset. Because the timing of the two projects allows so little overlap, the Project has taken the initiative of working with NECCDP during the PDF-B phase to provide support to the CCD to commence the mainstreaming of these two concepts into the CZMAP. Towards the end of GEF/IFAD intervention, the CZMAP will be nearing a time for review and update, and at that point the proposed project will support the CCD and NEPC to update the plan by incorporating into it the lessons learned from the components on ecosystem restoration, community co-management, and coastal vulnerability and adaptation. In addition, the project will support the District Secretariats to strengthen the District-level environmental coordinating mechanisms necessary for the implementation of policy on the ground, and seen as a priority, particularly in Batticaloa.

91. Specialist Ecosystem Restoration and Adaptation Unit created within Coast Conservation Department to provide facilitation and supervision services to tsunami-reconstruction projects: The final piece of the mainstreaming jigsaw will be to develop a small specialist government unit within the Coast Conservation Department to assume responsibility for promoting, facilitating, and supervising ecosystem restoration and sustainable use. If such restoration is to be incorporated as national government policy, then guidelines alone will be insufficient to ensure that project agencies (national and overseas) can implement it effectively on the ground without help, and for those overseas NGOs/donors opting to provide a monetary alternative, then a local counterpart will be necessary to implement the funded restoration component. The GEF intervention will establish a scope of operations for this Ecosystem Restoration and Adaptation Unit (ERAU) and undertake a capacity assessment of its needs. It will recruit seven staff (two for each District and a unit head to provide central coordination) and build their technical capacity by involving them from the outset in working with project team on the pilot tests at the demonstration sites and subsequent activities. As replication of restoration at new sites begins, it will be supported to take the leading role in guiding selection of sites and implementing activities. It will also build the institutional capacity and coordination needs with other government agencies to become an efficient and cost-effective body. Through a period of hands-on learning, the unit's staff will also be trained to become trainers so as they can train the staff of other implementing agencies (government, national/international NGOs and foreign donors) and participating CBOs in ecosystem restoration and monitoring. In partnership with the Climate Change Unit, the ERAU will also develop responsibility for the practical implementation of adaptive measures to reduce the vulnerability of the coast to climate change, primarily sea-level rise and increasing frequency of extreme weather events.

92. Demonstration of replication of ecosystem restoration and sustainable use through community-based co-management of coastal ecosystems promoted by North Eastern Provincial Council: Since the success of the Project will be its ability to effect restoration and sustainable use on a coast-wide basis, on-the-ground replication of ecosystem restoration will be the critical indicator for the Project. This Output will be concerned with demonstrating conclusively that the methods developed at the original demonstration sites under Outcome 1 can be repeated at new sites. In addition, the community co-management arrangements necessary for the sustainable management of these and other ecosystems, promoted under Outcome 3, will form an integral part of the replication. Some initial biodiversity and socio-economic survey work has been undertaken during the PDF-B, and this will be built upon to identify and prioritise potential sites for replication of ecosystem restoration. The ERAU will help to determine a series of criteria balancing the practicality of ecosystem restoration, the benefits in terms of adaptation to climate change, and the gains in terms of sustainable land management and community livelihood development, for the selection of future replication sites. From this work, a list of six sites will be determined to include at least one in each District, at least one for each of the three habitats already demonstrated (coastal lagoons, mangroves, and sand dunes), and the establishment of methodologies for the restoration of at least one new ecosystem, e.g. sea-grasses, saltmarsh. The Project will then provide support to the CCD's ERAU to take the lead in working with the NEPC and District and Divisional Secretariats to undertake consultations with the local communities and other stakeholders to identify and agree and implement participatory mechanisms for ecosystem restoration and monitoring using best practice guidelines, knowledge transfer from visits to demonstration sites, and training provided by the ERAU. The process for selection of these replication sites will be initiated at the beginning of Year 4 with implementation set to commence at the start of Year 5 – the earliest possible to allow for lessons to be learned from the scaling-up of the pilot tests at the original demonstration sites, but not too late to allow significant progress to have been made enabling evaluation to be undertaken by the end of the Project.

Outcome 3: Coastal communities empowered to manage local natural resources to enhance sustainable livelihoods. (Total US\$ 6,081,100 of which GEF funding: US\$ 1,300,000; Government: US\$ 94,750; Other co-funding: US\$ 4,686,350)

93. Sympathetic enabling environment for community co-management of natural resources established: Successful conservation of those coastal ecosystems rehabilitated after tsunami-induced degradation will not be achieved in the absence of a comprehensive and integrated approach and the mobilization and empowerment of rural populations as real partners in natural resources conservation. As a first step towards this, the GEF intervention will seek to enhance the legal and regulatory processes in support of coastal ecosystem protection. Key to this is an Amendment to the Coast Conservation Act which was initiated to i) give legal status to the Special Areas of Management identified under the Coastal Zone Management Plan; and ii) to extend the legal mandate of the CCD beyond the coastal zone as defined currently by the Act (see paragraph 46) to enable it to manage the SAMs. As a result, this would provide CCD with the legal framework to establish co-management agreements with stakeholders within the SAMs. This Amendment was initiated about two years ago but the legal process has become stalled. In the light of the importance played by mangroves and coastal lagoons in dissipating and absorbing the tsunami's energy, the Project will assist in reviewing the provisions of the Amendment to include not just SAMs within the definition of the Coastal Zone but also all aquatic areas of the coastal lagoons connected to the sea either permanently or periodically howsoever far from the sea they may extend (i.e. remove the 2km limit). Such a move would bring all coastal mangroves, currently outside the purview of any Government agency (see paragraph 49), under the jurisdiction of the CCD. The Project will then support the CCD in expediting passage of the Amendment through Parliament. If there is an undue delay in the passage of the proposed Amendment to the Coast Conservation Act, other options available for co-management under the Fisheries and Aquatic Resources Act and the Forest Ordinance will be explored for implementation of the co-management of identified coastal ecosystems. Overlapping jurisdictions and related confusions over management of mangroves and coral reefs will be dealt with in project areas by appropriate case-specific mechanisms developed with the consent of the all key stakeholders. The Project will also give assistance to the Environmental Help-desk of the TERP (see paragraph 67) to meet its function in conducting strategic environmental assessment (SEA) of the existing and proposed reconstruction programmes by providing baseline information on ecosystem functions and economic values on the East Coast and technical assistance, particularly on ecosystem-related issues and sustainable livelihoods, for the SEA. At the local level, the Project will capitalise on people's tsunami experiences to heighten the awareness of the values of healthy ecosystems, particularly coastal protection but also livelihood sustainability, through an awareness/education campaign on the importance of the restoration and sustainable use of coastal natural resources, and coastal vulnerability to climate change to prompt sound conservation management practices beyond the demonstration sites. This will be followed up by building the capacity of the CCD to introduce participatory natural resource management approaches among local communities and other stakeholders along the entire East Coast. These actions will be facilitated by developing an information base on ecosystem functions and economic values which can then be disseminated to interested parties, and by identifying potential market-based incentive mechanisms for ecosystem management and by conveying these through clear and practical "How to adopt these" guides produced for local stakeholders. Community participation for co-management activities in selected sites are encouraged through a variety of incentive mechanisms as agreed during the PDF B phase through a consultative process involving people, local, provincial and national stakeholders. These incentives would attract local communities as they provide short term benefits for them to participate in ecosystem restoration and management for deriving longer term benefits. Funds have been identified for micro finance – through revolving funds and livelihoods diversification activities including alternative livelihoods for existing environmentally harmful practices. Site specific details of activities and beneficiaries will be identified during the project implementing phase. Currently open access is the widely practiced systems in the project areas but the project is aiming at establishing defined property rights for better management of these coastal resources. The property rights to be established will be between well defined private property rights and the communal property rights. This property rights will be administered through co-management agreements for the local communities which will improve the sense of ownership and long term sustainability of resource use. This will act as an incentive for them to engage in the project activities while maintaining their livelihoods in a sustainable manner. Introduction and distribution of energy efficient and smoke free cooking stoves, training on improved technological know how, training and support for waste management – compost making and home gardening, provision of community and fisheries infrastructure by the project especially from the IFAD loan component would also act as key incentives.

94. Co-management of mangroves and coastal lagoon promoted at Vakarai: Once ecosystem restoration is underway, and the passage of the Amendment to the Coast Conservation Act is assured, attention will be turned to ensuring the successful long-term conservation of these newly-restored habitats and their sustainable use through training local communities in natural resource planning and conflict resolution techniques, and in sustainable land management practices. The Project will raise awareness of the importance of these habitats as storm and tidal surge barriers, and demonstrate the benefits of sustainable land management and natural resources planning in reducing poverty levels and promoting biodiversity through a participatory process at community level in such a way that this can be replicated at other sites during reconstruction operations. At Vakarai, the area of coastal lagoon and mangroves for co-management will be proposed in consultation with the local communities, including displaced farmers and other key stakeholders, and its boundaries identified and agreed through a participatory process. With assistance from the Project, the CCD will draw on its experience, garnered

from community co-management agreements made along the South Coast before the tsunami, to take a participatory approach in developing a community co-management plan for the conservation management and sustainable use of the natural resources associated with this coastal lagoon and mangroves area. The plan will be implemented in conjunction with, but not be limited to, the area being used for the demonstration of ecosystem restoration, and will include plans to control or eradicate any invasive alien species present, or raise awareness of the potential for their arrival in the area. It will also link with the CCD's *Coastal Green Belt* initiative (see paragraph 45) to include replanting of Palmyra palms, and Pandanus as appropriate to promote soil conservation and sustainable land management. Other cash-crop plants will be considered wherever appropriate to boost local incomes. Emphasis will be laid on the use of indigenous species for facilitating regeneration activities, and the project will demonstrate best practice for green restoration of the coast belt for replication along the remainder of the East Coast. Drawing on work done during the socio-economic studies undertaken during the PDF-B and under Output 1.1, the Project will work with communities to explore opportunities to develop alternative income-generating activities in line with current Government initiatives, e.g. payments for environmental services, to help reduce pressure on inland habitats and reduce land degradation, and wherever possible link these into sustainable land management practices, e.g. promoting a revival of traditional industries based on Pandanus and Palmyra palms. Criteria will be developed for targeting communities, but support will be targeted at the rural poor to improve incomes and reduce poverty through the provision of help to establish small businesses and to improve the local marketing structures, particularly those favouring women, to improve the level of participation of women in social and economic activities. Where appropriate, these will be supported through the micro-finance schemes promoted under the *IFAD Post Tsunami Coastal Restoration and Coastal Communities Resource Management Programme*. Emphasis will be placed upon developing cheap and effective means of monitoring the effectiveness of management activities. Institutional mechanisms for the plan's implementation will be agreed in a similar participatory manner, but are likely to follow the successful South Coast model of Coastal Community Collaborative Committees at the grass-roots level, with CCD providing technical knowledge and the District Secretariat providing a coordinating function where assistance from other agencies is required. The Project will also help to facilitate the effective implementation of the plan and its associated monitoring and evaluation programme.

95. Co-management of sand resources promoted at Panama/Pottuvil: The Project will undertake similar activities as those described above for Vakarai at Panama/Pottuvil, but the link with the CCD's *Coastal Green Belt* initiative will concentrate on replanting Casurina and greater emphasis will be placed on the promotion of soil conservation and sustainable land management.

96. Co-management of coral resources promoted at Pigeon Island: Coral reefs around Sri Lanka largely escaped damage during the tsunami (although some coral was broken off and a lot of coral debris was shifted by the wave) and hence have been excluded from the major restoration components of this Project. However, the currently healthy reefs around Pigeon Island provide a significant coastal protection function, breaking wave energy and reducing shore erosion, but as with other coastal ecosystems, human pressure and unsustainable practices are leading to degradation that needs to be addressed. In addition, the selected site at Pigeon Island provides the only demonstration of co-management around a designated Protected Area. To preserve a healthy reef system, capable of maintaining its reef-building capacity and therefore its coastal protection functions, the Project will promote inter-agency coordination and community co-management of the reef. As at other sites, the boundaries of the area proposed for co-management will need to be identified in consultation with the local communities and other key stakeholders, and if possible a way found to mark them with buoys. A community co-management plan for the conservation management and sustainable use of the reef will need to be drawn up and implemented effectively, but unlike the previous sites, the DWC and DFAR will need to be incorporated closely into the process. Using the socio-economic studies undertaken during the PDF-B and under Output 1.1, the Project will work with communities to explore opportunities to develop alternative income-generating activities and the potential for eco-tourism-related activities, e.g. snorkelling/diving services. In view of women's limited involvement in marine fisheries, the programme will meet women's demand for the promotion of economic activities in other sectors through development of micro-enterprise and financial services. Where appropriate, such activities will be supported through the micro-finance schemes promoted under the *IFAD Post Tsunami Coastal Restoration and Coastal Communities Resource Management Programme*. Given the likely emphasis on eco-tourism activities, the co-management plan should include the establishment of a system of mooring buoys to be used by diving and snorkelling boats in order to minimise damage from anchors, and community-based beach and reef clean-ups using fishermen, boat operators and dive operators. The Project will also strengthen the capacity of DFAR to work with the community to implement fisheries regulations effectively, and strengthen the capacity of DWC to manage Pigeon Island National Park by establishing a park office at Nilaveli on Pigeon Island and providing a patrol boat to manage visitor numbers and enforce Park rules. In addition, DWC will be supported in developing a management plan for Pigeon Island and its vicinity that meshes with the community co-management plan with the aim of establishing a Sanctuary to demarcate a strict conservation area for the core reef – nominally a 1km zone around Pigeon Island – and limited resource extraction beyond this so as to maintain the long-term integrity of the reefs. Coordination between the National Park management plan and the community co-management plan will be essential to ensure no conflicts arise. In attempting to achieve these objectives, the Project will pioneer close collaboration between the CCD, DWC and DFAR. It is recognised that monitoring and evaluating the effects of community co-management in a marine environment will be largely beyond the capacity of the community itself, so the Project will support the extension of the existing biophysical monitoring of the reef

conducted by NARA to monitor reef health, and assess effectiveness of the project and make changes as appropriate. Finally, the Project will facilitate making a decision amongst the enforcement agencies to identify and agree one agency to take the overall lead for the conservation and management of coral reefs outside of Protected Areas – currently a grey area with DFAR responsible for management of fisheries, CCD responsible for non-fisheries resource extraction, and NARA responsible for research and monitoring.

Outcome 4: Learning, evaluation and adaptive management increased. (Total US\$ 1,801,450 of which GEF funding: US\$ 1,390,600; Government: US\$ 126,500; Other co-funding: US\$ 284,350)

97. This outcome will deal with establishing the project management structures appropriate to its needs. These are detailed under Part 3 Implementation Arrangements (see paragraphs 135 *et seq.*). It will also include establishing project monitoring, evaluation and reporting procedures covering both project management and technical monitoring related to the restoration methodologies and social indicators. These are outlined in Part 4 Monitoring and Evaluation (see paragraph 138 *et seq.*), and detailed in Annex 8.

2.3 PROJECT INDICATORS, RISKS, AND ASSUMPTIONS

98. The Project indicators and assumptions are included in the logical framework matrix provided in Part 6. The main risks to the Project and the mitigation measures proposed are given in Table 2

TABLE 2: RISKS TO THE GEF PROJECT

Risk	Rating	Mitigation proposed
Despite peace talks that have been going on since February 2002, they have been interrupted by periods of stalemate and intermittent upsurges in violence. There remains a small risk of a return to serious military confrontation.	L	Since 2002, intermittent violence has tended to be isolated and short-lived. It is clear that both sides want peace, the problem is how to achieve it. As a result, the periodic violence appears to be born more from frustration than from a desire to force a conclusion. The risk is believed to be very low, but an alternative site has been identified should working at Vakarai (within LTTE military control) become untenable.
Mutual distrust between the two sides means that the military priority remains for keeping areas of mangroves cleared to increase security.	L	This does not immediately impact the Project since no sites selected fall into this category. There may be some problems later, particularly in Trincomalee, in restoring these sites, but there remain enough sites along the coast damaged by the tsunami for these to be given priority. Once the restoration programme finally gets to the security-sensitive sites, the peace talks may have made enough progress for it to be no longer an issue.
Coastal policy has changed several times during the PDF-B and the original no-build zone has been largely abandoned and the regulations are back to those outlined in the 1997 CZMP. There remains a possibility that further changes will be made.	L	The changes do not affect the Project's aims to rehabilitate coastal ecosystems. However, the possibilities for habitat creation within what was called the "Green Zone" have disappeared and the moves to abandon the concept by the Government reflect a waning of the awareness of the people and the authorities for the importance of natural ecosystems as protection against earthquake- or storm-induced tidal surges.
Tsunami reactive and responsive development priorities may lead to unsustainable coastal planning and restoration.	L	In the immediate aftermath of the tsunami, humanitarian responses were given full priority, even at the expense of further environmental damage. As the recovery and reconstruction programmes have unfolded, the pressures and needs for humanitarian needs have similarly declined and other issues, e.g. environment, have been given a higher priority. The aims and benefits generated by the project should reinforce this trend, at least at the sites where the Project is working.
Sri Lanka's incompletely devolved government means that there is significant difficulty in coordinating the different forms of government – national vs. provincial, and inter-agency cooperation. This inability to provide a coordinated response was evident during the tsunami and remains. It poses, if not a risk, at least a significant hurdle to be overcome.	M	The Project has looked to the two large projects already being implemented in the North-eastern Province (NECCDP and NECORD – see paragraphs 121-122) to see what lessons can be learned. Improved coordination at the national level has been facilitated by using the same National Steering Committee as formed for the IFAD Loan, while NECCDP have offered full use of the Inter-agency Committee they have already established as well as their Provincial and District coordination mechanisms to facilitate the implementation of Project activities
The methodologies for ecosystem restoration prove not to be obtainable or fail to be achieved successfully in	L	Studies undertaken from around the world during the PDF-B have indicated that coastal systems such as mangroves and sand dunes

Risk	Rating	Mitigation proposed
the local context because the damage caused by the tsunami was just too great.		can be restored successfully using low-cost techniques. The Project has specifically provided a three-year phase at the beginning to provide enough time to allow various methods to be pilot tested and to be adapted to local conditions. Only the clearance of debris from the lagoons remains untried. The level of tsunami damage, the basis for most ecosystems remain as a basis for rehabilitation. Nonetheless, studies from other localities indicate that ecosystems can be re-established in areas from which they have been completely eradicated.
Co-management arrangements may be affected if the supportive amendments to the Coast Conservation Act are not made during the life of the Project	L	In the absence of the amendments, the Project will attempt use the existing provisions of the Forest Department and Department of Fisheries and Aquatic Resources as an alternative mechanism for implementation of the co-management in selected sites
Operational expenses for the proposed Ecosystem Restoration and Adaptation Unit of the CCD will not be met if mainstreaming of the ecosystem restoration into tsunami reconstruction projects is not adopted by the Government	L	The proposed ERAU would be made smaller (three members instead of proposed seven members) and be sustained by funding from the Government and Province. CCD staff will be seconded for the work to be implemented by the Unit.
Co-management arrangements would be affected if the supportive amendments to the Coast Conservation Act is not made during the life of the project	L	In the absence of the amendments, the Project will attempt use the existing provisions of the Forest Department and Department of Fisheries and Aquatic Resources as an alternative mechanism for implementation of the co-management in selected sites
Operational expenses for the proposed Ecosystem Restoration and Adaptation Unit of the CCD will not be met if the mainstreaming of the ecosystem restoration into tsunami reconstruction projects is not adopted by the government	L	The proposed Unit will then be made smaller (3-members instead of proposed 7 members) to sustain from the government funding and provincial CCD staff recently recruited will be seconded for the work to be implemented by the Unit.
The design and implementation of community co-management plans pose a number of problems, not least in maintaining the motivation of the communities. This may be particularly the case when restoring ecosystems, which by their very nature require a lot of time before the benefits become apparent.	M	The Project will take cognizance of the successes and the means used to achieve them obtained by the UNDP-GEF <i>Integrated Collaborative Management in the Rekawa, Ussangoda and Kalametiya (RUK) Coastal Ecosystems Project</i> (see paragraph 119) in developing a model for coastal community co-management that involves some habitat restoration. In addition, actions for restoration will be linked to incentives to demonstrate the validity of operations both for the individual and to the community.
Local communities display a lack of interest in modifying their behaviours and practices.	L	The importance of these ecosystems to the safety and well-being of a now traumatised populace has never been more evident. The Project will harness this hugely enhanced awareness to foster a long-term conservation ethic in the communities through community-based natural resource planning.
Markets for local products which produce sufficient returns to local communities cannot be identified.	L	Full assessment studies will highlight the exact potential of various markets prior to determining project interventions to assist local communities in accessing these markets
Overall Rating	L	

2.4 EXPECTED GLOBAL, NATIONAL AND LOCAL BENEFITS

99. The key global environmental benefits will arise from 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. These ecosystems, when in good condition, have been shown to have provided extremely effective protection against an extreme marine surge and saved lives and prevented damage to property as a result¹⁵, as such their restoration will provide the same protective function in the face of rising sea levels and the increased frequency of extreme weather events (e.g. cyclones) resulting from global climate change. In addition, restoring large areas of mangrove, and to a lesser extent the scrub vegetation associated with sand dunes, will increase levels of carbon sequestration to some extent thereby contributing towards actions to counter global warming. The Project will also 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

15. IUCN compared the death toll from two villages in Sri Lanka that were hit by the tsunami – in the one with dense mangrove and scrub forest only two people in the settlement died, while in the village without similar vegetation up to 6,000 people died – see <http://news.bbc.co.uk/2/hi/science/nature/4547032.stm>

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. Furthermore, it will 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 will 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, and how to replicate this in other countries bordering the Indian Ocean and badly affected by the tsunami.

100. The Project will also bring global biodiversity benefits. Restoration and sustainable management of these globally important coastal habitats, previously capable of supporting a wide range of coastal wetland species including at least 23 globally threatened ones, will enable them to return to the same condition long-term that will support these species again. The East Coast of Sri Lanka is well known internationally, generates large amounts of foreign exchange whenever the security situation allows through tourism, and rehabilitating the coastal habitats and improving the conservation management of the its flora and fauna will maintain and enhance this global value. A concerted and systematic control and eradication programme of alien invasive species spread by the tsunami will result in this threat to coastal habitats being largely eliminated, in line with the aims of GEF's Operational Programmes. Rehabilitating the damaged ecosystems, conserving their globally important biodiversity and taking action to control IAS will all contribute towards the fulfilment of Sri Lanka's obligations under the CBD and UNCCD.

101. At the national level, the project will illustrate the importance of linking poverty reduction with conservation of coastal ecosystems, and the role to be played through value-added production and the promotion of rural non-farm or fishing activities as a means to increase local investment opportunities, particularly for households headed by widows. The focus on community-based, participatory planning and management coupled with supportive institutional structures will be a model for ecosystem recovery and poverty reduction that could be replicated elsewhere in the country, and not just in tsunami-affected areas. These systems are also fundamental to reviving a decimated coastal fishing industry and promotion of natural resources planning and sustainable land management techniques, supported by economic initiatives undertaken by IFAD's *Post Tsunami Coastal Restoration and Coastal Communities Resource Management Programme* aimed at diversifying people's income-generating activities, will revive coastal agriculture and reduce pressure from inland ecosystems (particularly bushlands and forests) and protected areas. Systematic control of alien invasive plants spread by the tsunami is more likely to lead to their eradication than the current *ad hoc* approach.

2.5 COUNTRY ELIGIBILITY AND DRIVENNESS

Eligibility for GEF

102. Sri Lanka ratified the United Nations Convention to Combat Desertification (UNCCD) in 9 March 1999, the Convention on Biological Diversity (CBD) in 23 March 1994, the United Nations Framework Convention on Climate Change (UNFCCC) in 23 November 1993, and acceded to the Kyoto Protocol in September 2002 as a non-Annex I party. As such, Sri Lanka is not bound by any legal requirements in the implementation of the UNFCCC, and is not required to control its emissions, but only to take climate change concerns into account in formulating socio-economic policies.

Conformity with Conventions

Conformity with UNCCD

103. The proposed Project will fulfil a number of provisions of the UNCCD including:

- Article 8: Relationship with other conventions, "*The Parties shall encourage the coordination of activities carried out under this Convention and, if they are Parties to them, under other relevant international agreements, particularly the United Nations Framework Convention on Climate Change and the Convention on Biological Diversity, in order to derive maximum benefit from activities under each agreement while avoiding duplication of effort ...*"
- Article 13: Support for the elaboration and implementation of action programmes, "*1. Measures to support action programmes pursuant to article 9 include, inter alia: ...*
(b) elaboration and use of cooperation mechanisms which better enable support at the local level, including action through non-governmental organizations, in order to promote the replicability of successful pilot programme activities where relevant;
(c) increased flexibility in project design, funding and implementation in keeping with the experimental, iterative approach indicated for participatory action at the local community level".
- Article 19: Capacity building, education and public awareness, "*1. The Parties recognize the significance of capacity building -- that is to say, institution building, training and development of relevant local and national capacities -- in*

efforts to combat desertification and mitigate the effects of drought. They shall promote, as appropriate, capacity-building:

(a) through the full participation at all levels of local people, particularly at the local level, especially women and youth, with the cooperation of non-governmental and local organizations; ...

(c) by establishing and/or strengthening support and extension services to disseminate relevant technology methods and techniques more effectively, and by training field agents and members of rural organisations in participatory approaches for the conservation and sustainable use of natural resources;

(d) by fostering the use and dissemination of the knowledge, know-how and practices of local people in technical cooperation programmes, wherever possible;

(e) by adapting, where necessary, relevant environmentally sound technology and traditional methods of agriculture and pastoralism to modern socio-economic conditions; ...

(h) through innovative ways of promoting alternative livelihoods, including training in new skills”.

Conformity with UNFCCC

104. The United Nations Framework Convention on Climate Change refers to adaptation in several of its articles:

- Article 2: Objective, “The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner”.
- Article 4: Commitments, sub-articles:
 - Article 4.1(b): All Parties shall “Formulate, implement, publish and regularly update national and, where appropriate, regional programmes containing measures to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and measures to facilitate adequate adaptation to climate change”.
 - Article 4.1(e): All Parties shall “Cooperate in preparing for adaptation to the impacts of climate change; develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture, and for the protection and restoration of areas, particularly in Africa, affected by drought and desertification, as well as floods”.
 - Article 4.1(f): All Parties shall “Take climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions, and employ appropriate methods, for example impact assessments, formulated and determined nationally, with a view to minimizing adverse effects on the economy, on public health and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate change”.
 - Article 4.4: “The developed country Parties and other developed Parties included in Annex II shall also assist the developing country Parties that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation to those adverse effects”.
 - Article 4.8: “In the implementation of the commitments in this Article, the Parties shall give full consideration to what actions are necessary under the Convention, including actions related to funding, insurance and the transfer of technology, to meet the 15 specific needs and concerns of developing country Parties arising from the adverse effects of climate change and/or the impact of the implementation of response measures, especially on:
 - (b) Countries with low-lying coastal areas;”.
- Article 8: Education, Training and Public Awareness, “In carrying out their commitments under Article 4, paragraph 1(i), the Parties shall:
 - (a) Promote and facilitate at the national and, as appropriate, subregional and regional levels, and in accordance with national laws and regulations, and within their respective capacities:
 - (i) The development and implementation of educational and public awareness programmes on climate change and its effects;
 - (b) Cooperate in and promote, at the international level, and, where appropriate, using existing bodies:
 - (i) The development and exchange of educational and public awareness material on climate change and its effects; and

- (ii) *The development and implementation of education and training programmes, including the strengthening of national institutions ...*.

Conformity with CBD

105. The proposed Project will fulfil a number of provisions of the CBD including:

- Article 6: General Measures for Conservation and Sustainable Use, by integrating the restoration of ecosystems of global importance into Sri Lanka's wider post-tsunami recovery and reconstruction programme;
- Article 7: Identification and Monitoring, through survey work of the post-tsunami status of key coastal habitats and by *"paying particular attention to those requiring urgent conservation measures and those which offer the greatest potential for sustainable use"* as well as through impact monitoring, adaptive management, and documenting best practices and lessons learned;
- Article 8: In-situ Conservation, particularly sub-articles (f) *"Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species, inter alia, through the development and implementation of plans or other management strategies"*; (h) *"Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species"*; and (i) *"Endeavour to provide the conditions needed for compatibility between present uses and the conservation of biological diversity and the sustainable use of its components"*; while sub-articles (c) *"Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use"*; (e) *"Promote environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas;"* and (d) *"Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings"* are also satisfied;
- Article 10: Sustainable Use of Components of Biological Diversity particularly sub-article (d) by supporting *"local populations to develop and implement remedial action in degraded areas where biological diversity has been reduced"* through ensuring that ecosystem restoration is community-led; as well as (a) integrating *"consideration of the conservation and sustainable use of [coastal] biological resources into national decision-making"* through the mainstreaming of the need for replication of the restoration process; and (c) protecting and encouraging *"customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements"* by promoting the community co-management of coastal natural resources;
- Article 11: Incentive Measures through the promotion of market-based incentives targeted at the local communities for ecosystems management;
- Article 12: Research and Training through a range of capacity-building aspects;
- Article 13: Public Education and Awareness by promoting the *"understanding of the importance of, and the measures required for, the conservation of biological diversity, as well as its propagation through media, and the inclusion of these topics in educational programmes; and*
- Article 17: Exchange of Information by disseminating best practice guidelines on ecosystem restoration, other conservation management issues, and lessons learned and particularly in making this available to other developing countries struck by the tsunami.

Conformity with GEF

106. The project's objectives are fully consistent with the provisions of the UN Convention to Combat Desertification and with the GEF Operational Strategy, and specifically with its Operational Program for Sustainable Land Management (OP 15), which recognizes that, since land degradation has both poverty and global environmental dimensions, sustainable solutions require packages of finance to support interventions that address both dimensions. Although the overall operational goal on land degradation is focussed primarily on desertification and deforestation, GEF defines land degradation as *"... any form of deterioration of the natural potential of land that affects ecosystem integrity either in terms of reducing its sustainable ecological productivity or in terms of its native biological richness and maintenance of resilience."* The tsunami has caused massive land degradation in Sri Lanka, directly and indirectly reducing the land's sustainable ecological productivity and its native biological richness. The activities proposed under this project conform closely with GEF's Operational Strategy, the objectives and eligible activities under OP15, and the strategic priorities of Targeted Capacity Building (SLM 1), Implementation of Innovative and Indigenous Sustainable Land Management Practices (SLM 2). The proposed project is also compatible with GEF's willingness to finance the incremental cost of developing sustainable land management practices, which would provide communities with new and alternative livelihoods and support the preservation of ecosystem stability, functions and services.

107. The project stresses an integrated approach to land restoration, strengthening cross-sectoral mechanisms, and involving local community participation in restoration, and sustainable land management and protection, thereby facilitating the improvement of people's livelihoods and economic well-being. It will fund the incremental costs of complementing other actions by the GOSL and international agencies to restore, and thereafter conserve, the structure and functional integrity of coastal ecosystems, benefiting not only the local people, but the rich biodiversity associated with Sri Lanka's eastern coast. Emphasis will be laid on the use of indigenous species for facilitating regeneration activities, and the project will demonstrate best practice for green restoration of the coast belt for replication along the remainder of the East Coast and the South Coast. It will mainstream SLM strategies into national and local coastal development priorities, as well as building the capacity at national and community level to ensure participatory involvement in continuing integrated land use planning and management.

108. At UNFCCC COP7, GEF was asked to establish pilot or demonstration projects to show how adaptation planning and assessment can be practically translated into projects that will provide real benefits, and may be integrated into national policy and sustainable development planning. At the GEF Council Meeting of November 2003 and the COP9 in Milan in December 2003, a business plan was adopted that for the first time recognized the funding needs for adaptation activities under a pilot window designed to identify policy options and measures that could demonstrate how adaptation to climate change can be implemented. A GEF Council Document (GEF/C.23/Inf.8/Rev 1) dated 11 May 2004 has been issued that contains Operational Guidelines for the pilot window. These Guidelines, *inter alia*, indicate that projects must include: (i) activities within a natural resources management context that generate global environmental benefits, and (ii) adaptation measures that provide other major development benefits (e.g. water, energy, health, agriculture, biodiversity). The current project conforms to all these requirements.

109. The proposed Project also conforms with the strategic priorities of Mainstreaming Biodiversity in Production Landscapes and Sectors (BD2), and Generation and Dissemination of Best Practices for Addressing Current and Emerging Biodiversity Issues (BD4).

Country Driven-ness

110. Sri Lanka places great importance on meeting its obligations as a signatory to a number of environmental conventions. The proposed Project will provide a concrete contribution to the implementation of the National Action Plan to combat desertification (UNCCD-NAP) which was adopted in 2002 and support the UNFCCC-National Communications of Sri Lanka adopted in 2000, with its Mitigation option and Adaptation responses. In addition the Project will support current Government priorities and actions towards conserving its flora and fauna under the Convention on Biodiversity. The proposed Project is fully consistent with the national vision and coherent with national priorities, policies and strategies to counter land degradation and promote sustainable land management, reduce coastal vulnerability to climate change, and protect biodiversity and coastal ecosystems – see paragraphs 30-45 for the full policy framework. In particular, the GEF Project responds to the major activities of the second revision of the CZMP (2004) at a critical time by: (i) promoting sustainable development through environmentally-sensitive restoration; (ii) demonstrating participatory models for green restoration; (iii) building capacity to strengthen and improve mechanisms for inter-agency coordination; (iv) promoting and strengthening mechanisms for community-based natural resources management; and (v) building the people's confidence in restoration measures. It also fulfils the requirements of several statements in the Government's National Environmental Policy *Caring for the Environment 2003-2007: Path to Sustainable Development*, including restoration of damaged communities; the recognition of the economic value of environmental services to assure their sustainability to benefit people; strengthening the institutional capacity to ensure sound management and coordination, and the encouragement of socially responsible behaviours through awareness-raising, incentives, and enforcement. The Biodiversity Action Plan draws particular attention to promoting the conservation of mangroves, lagoons and coral reefs and the CZMP includes an objective to conserving these and sand dunes, and the Project is consistent with these and also complements several large projects already being implemented in the North-east Province (see paragraph 120 *et seq.*) as well as IFAD's *Post Tsunami Coastal Restoration and Coastal Communities Resource Management Programme* due for implantation shortly.

111. The Project is strongly supported by the Government and the relevant agencies, particularly the CCD. In addition, the Province and Districts have also demonstrated a great deal of support for this initiative during its design phase, recognising the importance of the multiple functions played by coastal ecosystems as storm barriers, providers of natural resources to sustain the livelihoods of rural communities, and in maintaining biodiversity. Consultations with LTTE officers at Vakarai also indicates significant support for this Project. The policies and projects cited above, and the massive mobilization of foreign and domestic relief aid being channelled through government agencies, demonstrate the active engagement of the GOSL in its desire to reconstruct the infrastructure and livelihoods of coastal communities while restoring coastal ecosystems to provide for a sustainable future.

112. Letter of endorsement dated 20/02/2006 has been received and is attached as Annex 1.

2.6 LINKAGES WITH IFAD COUNTRY PROGRAMME

113. IFAD's strategy and interventions emphasize the interaction between agro-ecological and socio-economic factors. It targets the poorest populations, promotes a participatory approach, emphasizes creating and strengthening of grass-roots institutions, and puts a focus on natural resource management. The key elements of IFAD's strategy in Sri Lanka, as outlined in the *Country Strategic Opportunities Paper (COSOP)* approved by IFAD management in 1999, consist in contributing to the Government's efforts to: (i) focus on community-driven rural development; (ii) promote food security at national and household levels through diversification of production; (iii) further consolidation and strengthening of devolved, decentralized planning and implementation through support for local institutions and grass-roots organizations, and (iv) improve access of poor rural households to productive resources, including land, water, technological know-how and financial services.

114. IFAD's Strategic Niche and Proposed Thrusts in Sri Lanka have been focusing on three sectors. The *first* is the *dry zone*, where IFAD has been involved in the past through three out of the ten previous operations. And it is in these areas also where the majority of the structurally poor rural area dwellers, including the near landless farmers in the marginal uplands and marginalised female-headed households, are reportedly found. The *second* is the *estate sector and surrounding villages* where pockets of extreme and chronic poverty are encountered amongst the estate workforce and remote smallholder tea producers who are poorly linked to markets. And the *third* is the *coastal zone and surrounding hinterland*, where poor fisher-folk and other coastal poor eke out a living, notably in the conflict areas of the north and north-east. While these communities are often considered only conflict-poor (as opposed to structurally poor), it is obvious they will need support in the careful and balanced management of the natural (fish in particular) resources around them once the conflict that may have inadvertently protected these resources is successfully concluded. Out of the three sectors considered as niche areas for IFAD interventions the first priority had been accorded to a sustainable livelihoods support programme focusing on women in the "dry zone", followed immediately by one in the smallholder estate sector, while the third priority it is accorded to a resource (fisheries in particular) management operation in the coastal zone. After the Tsunami, the proposal to support in operations in the coastal zone was given greater priority and urgency over the intervention in the estate sector.

115. The present project proposal will, therefore, draw from IFADs country's experience and also from other donors' programmes, particularly the integrated and participatory rural development ones targeted at disadvantaged areas, conservation of the natural resource base, and expansion of basic rural infrastructure. The IFAD-GEF project is in harmony with the development goals and objectives of most of the other donors. The intervention will also provide an enabling environment for the efficient utilisation of the investments made by such donors. GEF interventions will cut across the major sectors and will serve as a conduit to provide the sustainable ecological base on which the desired goals and targets of these projects could be achieved.

116. The GEF Project will link closely with the *Post Tsunami Coastal Restoration and Coastal Communities Resource Management Programme*, signed and approved in late 2005, and will be funded under an IFAD negotiated loan as well as from other sources, through shared baseline studies, integrated implementation arrangements, and convergent approaches to community participation. These links will be developed further during implementation of the project, but specifically, the GEF assistance will focus on the incremental costs of country-driven initiatives for green restoration and subsequent conservation measures to rehabilitate the devastated areas of the coastal ecosystems, mitigate against further land degradation to reduce potential damage arising from future natural and man-induced events (e.g. tsunamis and cyclones), and eradicate invasive alien species which have been spread by the tsunami.

2.7 LINKAGES WITH OTHER PROJECTS

GEF-financed

117. Projects in Sri Lanka relevant to the current proposed intervention involving the GEF include:

- Conservation of Biodiversity through Integrated Collaborative Management in the Rekawa, Ussangoda and Kalametiya (RUK) Coastal Ecosystems (UNDP-GEF US\$ 750,000) 2002-2005: builds upon initiatives such as the Special Area Management Plan for Rekawa and the Wetland Site Report for Kalametiya, to prepare an overall plan for the Rekawa, Ussangoda and Kalametiya area in collaboration with local communities, CBOs, and NGOs. Emphasis is being given to the establishment of a collaborative management framework for the conservation programmes for marine turtles and mangroves. *Coast Conservation Department with operational and technical assistance from IUCN-SL.*
- Bay of Bengal Large Marine Ecosystem (GEF-World Bank US\$ 29.2 million) 2006-2012: has recently been approved by GEF Council. The project will develop an agreed strategic action programme for the sustainable management of the Bay of Bengal Large Marine Ecosystem (LME), executed through FAO working with the eight governments (Bangladesh, India, Indonesia, Malaysia, Maldives, Myanmar, Sri Lanka, and Thailand) to address trans-boundary marine resources issues along the coast of this LME. Other issues may include land-based sources of marine

pollution, artisanal fisheries versus commercial fisheries, habitat conservation and restoration, and potentially ICM strategies for adapting to extreme climatic events that devastate coastal communities

- Strengthening Partnerships for Effective Control of Invasive Alien Species in Sri Lanka (SPECIEs) (UNDP-GEF US\$ c.1.4 million): This medium-sized project, being developed jointly under the Coastal, Marine and Freshwater Ecosystems and Forest Ecosystems Programmes, is at the final stages of its PDF-A review. It seeks to reduce the rate of entry of new IAS into Sri Lanka, and eradicate or bring existing IAS under effective control within Sri Lanka's most important protected areas and other sites of biodiversity/ecological value, both coastal and inland. This project will be highly complementary to the current proposal, through its strengthening of the policy, legal and regulatory frameworks to deal with IAS; its moves to enhance the key institutions in developing measures to detect and respond to IAS; and its awareness-raising and education component to build understanding of the gravity of the issues posed by IAS.
- National Capacity Needs Self-Assessment (NCSA) for Global Environmental Management (UNDP-GEF US \$ 200,000) 2004-2005: aims to identify, through a country-driven consultative process, priorities and needs for capacity building to protect the global environment, taking into account the three global conventions on biodiversity, climate change and desertification/land degradation, and also to explore synergies among and across these areas.
- Protected Areas and Wildlife Conservation Project (GEF-WB/ADB US\$ 10.5 million) 2001-2006: aims to conserve wildlife through addressing institutional and legal deficiencies in protected area management, and pilot testing participatory conservation activities in selected protected areas. It expects to contribute to the protection of the country's fauna and flora, stimulate nature-based tourism, promote the development of a sustainable protected area management and wildlife conservation system for Sri Lanka and assist in the establishment of a sustainable financing mechanism for wildlife conservation.
- Conservation and Sustainable-use of Sri Lanka's Medicinal Plants (GEF-World Bank US\$ 5 million) 1999-2005: focuses on three areas through community participation – (i) increasing populations of medicinal plants in a variety of sites outside their strict natural habitats (*ex-situ* conservation); (ii) in-situ conservation; and (iii) strengthening the knowledge base while promoting education and awareness on medicinal plants. *Ministry of Health and Indigenous Medicine with operational and technical assistance from IUCN-SL.*
- In-situ Conservation of Crop Wild Relatives through Enhanced Information Management and Field Application (UNEP-GEF US\$ 12.7 million) 2004-2009: is a global project that seeks the safe and effective conservation of crop wild relatives and their increased availability for crop improvement in Armenia, Bolivia, Madagascar, Sri Lanka and Uzbekistan, some of which species occur along the East Coast of Sri Lanka.
- Conservation of Threatened Species in the Rainforests of Southwest Sri Lanka (UNDP-GEF US\$ 750,000) 2001-2005: focuses on formulating site-specific guidelines on the sustainable utilisation of non-timber forest products and developing eco-tourism for Sinharaja and Kanneliya rainforests, two of the most biologically diverse systems in the country. *Forest Department with technical assistance from IUCN-SL.*
- Sri Lanka GEF Small Grants Programme (GEF US\$ 1 million) 2005-2008: focuses on community-led projects funding mainly small infrastructure and livelihood activities. Money has been committed to ten projects so far including two in Ampara District – one at Panama carrying out some sand dune restoration, cleaning up three lagoons, and supporting the DWLC to start some work on turtle conservation in Kumana National Park, and the other doing some model home gardens using the analog forestry concept in Kalmunai.
- GEF Climate Change Enabling Activity (Phase II): The UNDP has provided GEF funding to the Ministry of Environment/Climate Change Secretariat to carry out 58 short-term research studies in Universities and Research Institutes to fill information gaps for preparing the *Second National Communication on Climate Change*. The Ministry of Environment/Climate Change Secretariat plans to publish the findings of these studies in a single volume under the title *Climate Change in Sri Lanka – Vulnerability, Mitigation and Adaptation*.
- Restore Tsunami Impacted Mangroves in Sri Lanka: In response to request to UNEP by Ministry of Environment received \$ 350,000 from Spanish Funds. Project will be implemented immediately and continue up to December 2006 by the Ministry of Environment with the participation of Forest Department and IUCN. Main thrust of the project is to plant mangroves in tsunami affected areas including the eastern province. IFAD/GEF project is expecting to learn from the experiences.
- Another project based on the UNEP REA is almost approved by the UNDP to be implemented in Vakarai main emphasis is restoration affected mangroves (\$ 50,000). Ministry of Environment and the Forest Department will be implemented this project.

Liaison and coordination and close technical linkages will be established with these GEF projects, in particular with the RUK project where the acclaimed SAM co-management plan will be used as a model for those on the East Coast, and with the

Bay of Bengal Large Marine Ecosystem project to complement activities, assimilate lessons learned, and share data and experiences.

Other

118. Two other major projects are currently being implemented in the North-eastern Province which have close affinity with the proposed Project – the North-East Coastal Community Development Project and the North-East Community Restoration and Development Project. In addition, sustainable environmental protection of coastal areas and ecosystems to raise standards of living and reduce vulnerability against natural disasters are being identified in the recently developed Strategy and Programme for Reconstruction and Development of the Marine Fisheries Sector prepared by the Ministry of Fisheries and Aquatic Resources with the assistance of FAO. Therefore the project is addressing part of medium term focus (2005-2009) of the recent reconstruction and development strategy for the marine fisheries sector.

119. The North-East Coastal Community Development Project is a six-year intervention that commenced in January 2004. Originally operating in just the Eastern Province and with a budget of US\$ 28.4 million funded primarily by the Asian Development Bank (ADB), it was expanded after the tsunami to operate in the Northern Province as well with a budget raised to US\$ 56 million. The main objective of this project is to reduce poverty and meet the basic needs of coastal communities in the project area, through sustainable livelihood improvements and sound management of natural resources. While there is considerable technical overlap between NECCDEP and the current proposal, including NECCDEP carrying out some small-scale mangrove restoration, consultation during the design phase of this Project has ensured that there will be no overlap in the geographic areas covered within the Eastern Province. As such, the two projects complement each other extremely well and the aforementioned consultations have provided the basis for a close working relationship. The proposed GEF Project will make full use of the Inter-agency Committee already established by NECCDP as well as the Provincial and District coordination mechanisms set up by NECCDEP to facilitate the implementation of Project activities. The Executive Agency for NECCDEP is the Ministry of Relief, Restoration and Resettlement and the lead implementing agency is the North-East Provincial Council.

120. The North-East Community Restoration and Development Project (NECORD) is a six year project that commenced in August 2001. It is being implemented in all eight districts of the North-eastern Province with a budget of US\$ 40 million, again funded primarily by the ADB. The main objective of the NECORD Project is to improve the well-being of the people affected by the civil conflict through the provision of housing and basic services to displaced people, improving health and education facilities, re-establishing agriculture and fishing activities as a means of providing incomes to people who are dependent presently on welfare payments, and mobilizing communities to become involved in implementing project-financed activities. The Project's main beneficiaries are a significant proportion of the estimated 800,000 displaced persons and others who have remained in place but have lost access to basic social and economic infrastructure. The project is being executed by the Ministry of Provincial Councils and Local Government and the NEPC is the lead implementing agency.

2.8 SUSTAINABILITY

121. A number of factors combine to ensure that the prospects for achieving a high level of sustainability are good, not least the need to reconstruct the natural barriers to tidal surges. Sri Lanka has glimpsed through the tsunami, something of that a future of rising sea levels may herald, and hence is immensely aware of the importance of making this intervention successful. The technical sustainability of the project will be ensured by basing the ecological restoration methods on the best practice gleaned from other studies and examples from around the world and tailoring these to practical technologies for implementation on a community basis in Sri Lanka. Provision has also been made during Project design to assure the institutional, financial, economic, and social sustainability of the conservation outcomes.

122. Institutional: The project will focus on GOSL initiatives invoked after the tsunami disaster; and on the East Coast where a lower level of relief aid and funding has been directed compared to the south and west, and as a result, where the Government is keen to direct efforts. As a response to the internationally-mediated peace process of the civil conflict, and the signing of the Peace Agreement in 2002, many international donors embarked on a rapid reconstruction programme of the Northern and Eastern Provinces. The physical achievements of these projects have been significantly set back as a result of the tsunami which has also disrupted, and in some places devastated, the whole ecological resource base of these current projects. There is a high realisation that unless ecological restoration and conservation is addressed in a separate long-term programme, many restoration efforts will be in vain, and the goals and objectives of other social and environmental development efforts current under other development projects may not be able to be accomplished, or may not be sustainable in the long-term, thereby severely hampering the development goals of the north and east. As such, the proposed GEF project will establish linkages, collective actions and partnerships with, and build on the dynamics of, other projects to enhance the sustainability of all.

123. Since the institutional sustainability of the project will be dependant on its ability to continue to transfer the lessons learned on key ecosystem restoration and conservation management through institutional arrangements, even after the project is completed and external support has ceased, the Project is strengthening the Coast Conservation Department (CCD) by providing it with a new specialist Ecosystem Restoration and Adaptation Unit. The technical and institutional capacity of this unit will be built, particularly through hands-on experience of ecosystem restoration and conservation management from the commencement of the Project. The Unit will be formally established with the approval of the Public Services Commission ensuring its salaries will be incorporated into the overall CCD budgetary allocation. One of the central project aims, that of mainstreaming habitat restoration requirements into the national and provincial level reconstruction programmes, will also strengthen the relevant agencies to continue effective replication of ecosystem restoration and conservation management along the East Coast and other tsunami affected areas. This will be reflected in the national and provincial development planning. The institutional sustainability will be further ensured by the direct involvement of the local communities (the main beneficiaries) in all stages of the project and empowering them through the capacity building components of it. The project implementation is centred on the principles of community co-management with the use of provincial and district level coordination mechanisms that are already in place. Increasing the awareness and capacity of the members of the Coastal Community Collaborative Committees and the District Level Coordination Committees through the Project will assist those committees to function more effectively and efficiently in the future, thereby strengthening the institutional sustainability of the Project's gains at grass roots level.

124. Financial: The financial requirements of activities continuing after the project has terminated fall into two categories, the capital costs of replicating restoration methods at sites along the East Coast and elsewhere, and the recurring costs of maintaining the specialist Ecosystem Restoration and Adaptation Unit within the CCD and that activities necessary to support the co-management arrangements at the various sites. The capital costs of replicating restoration will be a) low because of the low-cost community-led activities that the Project will champion, and b) met through the policy to be introduced under Outcome 2.2 requiring all post-tsunami reconstruction projects to include ecosystem restoration – Government allocating a percentage of such projects' budget to restoration and requiring international NGOs/donors to do the same or undertake the activities themselves supervised by the ERAU. The recurring costs of staffing the ERAU will be met from budgetary allocations to the CCD, the cost of which can be offset against the savings made by employing low-cost methods and from the economic gains that will ensue from rehabilitating a sustainable natural resource base. The information base and the awareness building campaign on ecosystem functions and economic values of the key ecosystems will improve the understanding of the development planners at national and provincial level thereby helping to secure increased allocation of funds to coastal ecosystem restoration. Efforts will also be made in the project to diversify the funding base such as attracting private sector through their Corporate Social Responsibility budgets to support community co-managed natural resources.

125. Economic: Long-term economic sustainability is at the heart of the Project. It is recognised that the coastal ecosystems provide most of the economic resources that the local communities along the East Coast depend upon, and that restoration of these habitats will be key to their continued well-being. The introduction of co-management agreements should encourage the careful husbandry of resources to provide long-term economic benefits from the ecosystem restoration activities, ranging from raised incomes through viable fishing technologies promoted through natural resource planning, and the control and eradication of alien invasive species, to storm-surge protection. These will be augmented by the take-up of the potential market-based incentive mechanisms for ecosystem management, tested and promoted through easy-to-use guidelines, that are expected to attract more community members to engage in ecosystem restoration since it should be economically beneficial for them to do so. Development and support of micro-enterprises centred on the local population, particularly for women, and access to financial services are key components of IFAD's *Post Tsunami Coastal Restoration and Coastal Communities Resource Management Programme* and this GEF intervention will work closely with this programme to develop natural resource-based schemes to improve social well-being and help poverty alleviation. Economic assessments of ecosystems' functions will be made available to the national and local partners of the project. The Project's M&E programme will keep records on income levels of the participating communities in co-managed areas, and of other economic benefits, and use these during the replication programme to help convince others as to the benefits of participation. The economic benefits experienced by the local communities will provide tangible evidence as to the success of the approaches introduced, and will provide a basis for their sustained use. Finally, the community-led restoration and management activities promoted by the project will seek to provide a low cost solution in comparison to the other technology driven methods. It is assumed that the large amounts of funds otherwise required to restore ecosystems and to eradicate the targeted IAS species in selected areas will be saved through the approaches used by the project. Part of these could be used to justify the continued low-level of financing that restoration and management activities will require post-Project, and part will be able to be released for other reconstruction activities.

126. Social: The Project has been designed using an extensive consultative approach incorporating the interests of the local people as well as the various levels of government. The Project will be heavily dependant on community involvement to implement activities at the field level, but sustainability is assured by the strong interest on the part of the local communities. The catastrophic event of the tsunami has devastated their lives and left many deeply traumatised. The importance of the

coastal ecosystems to their safety and well-being is now keenly evident, and the project will harness this hugely enhanced awareness to foster a long-term conservation ethic. Experience elsewhere has shown that empowerment of local communities, coupled with maintenance of some economic benefits, are the best assurances for long-term sustainability of a project. The design and implementation of pilot test field activities at the demonstration sites and replication sites will be developed and decided in close consultation with a wide range of local stakeholders. This participatory approach will be built upon in the implementation stage to promote a sense of ownership amongst the local partners. All awareness-building materials, best practice guidance, and periodic progress reports will be made available to local partners in local languages. Effective communication mechanisms will also be developed to ensure regular information dissemination and feed back channels between stakeholder representatives and their broader stakeholder communities and project-related structures. The whole emphasis of engaging the local communities in co-management agreements with the local level administration is to demonstrate to them the benefits that collective action brings to natural resource management over selfish extraction and use of resources which undermines long-term sustainability. Such efforts should improve the social harmony among different resource users and increase the social sustainability of the project interventions.

2.9 REPLICABILITY

127. Replicability is at the heart of this project's design. The Project Objective is to rehabilitate the globally important coastal ecosystems not just of a few demonstration sites, but all along the coast of the Eastern Province of Sri Lanka to support rebuilding people's sustainable livelihoods and provide adaptive measures to counter threats associated with climate change. This is a 234 km stretch of coastline and, as such, the demonstration sites are seen as simply a first step to gain and apply scientific knowledge and develop the community-based mechanisms necessary to enable restoration to be undertaken cheaply, effectively, and in a sustainable manner with the support of the local people. The real key to the Project's long-term success is in helping the GOSL to mainstream ecosystem restoration into the policy governing post-tsunami reconstruction, making it a required component of every reconstruction project no matter what the funding source or implementing agency, thereby raising its priority and establishing it as a foundation for the long-term success of rebuilding people's sustainable livelihoods and prioritising a response to global warming not just along the East Coast, but in all other tsunami-affected areas in the country, and perhaps beyond.

128. The various components of the intervention have been designed to build upon and complement one another to achieve this replication. Best practices from around the world for rehabilitating/restoring various coastal ecosystems have been brought together and reviewed as part of the PDF-B and these will be tried and tested and adapted to incorporate local knowledge and apply to local situations to determine the most effective techniques to be applied in Sri Lanka. Best practice guidelines will be drawn up not only to document the most appropriate scientific methods to use, but also the most effective community-based approaches to implement them. Lessons from these initial pilot trials will then be scaled up at each site and evaluated. Within the project period, replication of these methods and approaches will be demonstrated as being viable, through commencement at at least six further sites, these to include at least one site in each of the three Districts and at least one of each ecosystem type (coastal lagoon, mangrove, and sand dune). This initial replication will seek to iron out any remaining issues that may be site-specific and demonstrate the full replicability of the approach so that it can be supported all along the East Coast. In addition to replicating restoration of the same ecosystems geographically, the Project will commence replicating the restoration of other coastal ecosystems damaged during the tsunami, e.g. sea-grasses or saltmarsh, using the same strategy of review of global methods, pilot-testing, and then (post-project) scaling the trials up to rehabilitate large areas.

129. At the national and provincial level, the enabling environment will be established, firstly to create a policy and planning framework in which the importance given by the national and provincial authorities to ecosystem restoration for long-term livelihood sustainability can be set; secondly to increase the coordination amongst those agencies working on the reconstruction programme to implement ecosystem restoration, and thirdly, to establish, equip, and train a specialist unit within the CCD to provide technical support and facilitation skills to all government agencies and other bodies (e.g. international NGOs and donors) to ensure that ecosystem restoration is replicated at all tsunami reconstruction sites using the best practices established elsewhere during the project.

130. Finally, a series of best practice guidance will be produced and disseminated on various aspects of conservation management of coastal ecosystems including how to take advantage of various market incentives; the recognition and control of invasive alien species; and the most effective means of reducing coastal vulnerability to climate change-related threats of sea level rise and increased storms and cyclones. Such guidance will be prepared in easy-to-use form aimed specifically at local villagers to promote greater understanding of the concepts and to encourage the widespread uptake of methods.

131. Assuming a strip of land 2 km wide along the coast incorporates all the key coastal ecosystems targeted for restoration, then the 468 km² of this East Coast strip constitute the primary focus for replication of project activities. However, the activities undertaken to mainstream restoration into the reconstruction programme will be applicable to all coasts affected

by the tsunami, and it is believed that as the success of the project becomes apparent, the GOSL will extend such activities to these other sections of coast. The main vehicles for disseminating best practices and lessons will be through knowledge management – production of user-friendly guidance and by institutional knowledge accumulated and dispensed by the specialist Ecosystem Restoration and Adaptation Unit established under the Project within the CCD.

2.10 LESSONS LEARNED

132. Project design has involved a careful evaluation of lessons learned from other similar projects, especially on coastal resources management, community co-management, strengthening national awareness, policy, and capacity building. Key lessons were drawn mainly from the North East Coastal Community Development Project (NECCDP) and Special Area Management Projects implemented by CCD at various sites in southern Sri Lanka. The IFAD/GEF project will use participatory and adaptive management process and continue to integrate lessons gained through project implementations well as from other relevant projects and programmes. The key lessons used in the design process of the present intervention are summarised in Table 3 below.

TABLE 3: LESSONS LEARNED INCORPORATED INTO THE DESIGN OF THE PRESENT PROJECT***

Lesson learned	Notes	Design feature	Relevant Output
Coastal resources management will not be possible without a strong backing from the local communities and other local stakeholders	Special Area Management (SAM) initiatives implemented under the CCD have revealed the importance of community participation during all stages of planning and implementation of SAM projects This lesson was clearly evident from the recently completed UNDP/GEF medium-size project implemented in Rekawa, Ussangoda and Kalametiya by CCD and IUCN on the conservation of biodiversity through collaborative management of coastal ecosystems	The Project will develop fundamental capacities in enhancing community participation through: <ul style="list-style-type: none"> developing a pro-poor enabling policy environment for natural resource planning and sustainable land management within which local interventions are recognised and rewarded designing and implementing an awareness/education campaign on restoration and sustainable use of coastal natural resources, targeted at local communities introducing co-management in selected pilot testing sites 	Output 3.1 Output 2.1 Output 3.2 Output 3.3 Output 3.4
Replication does not occur spontaneously	Past co-management experiences suggest that there have to be clear incentives for communities to engage voluntarily in conservation management actions	In addition to running demonstration sites with community-led ecosystem restoration, potential market-based incentives will be identified and disseminated among local stakeholders as an incentive for replication	Output 2.5
Mainstreaming cannot succeed without a strong enabling environment. The key determinants include effective policies and enforcement of rules, institutional capacities for planning and implementation, and strong political will and good governance	Although there is strong political will for environmental reconstruction, the emphasis placed on humanitarian issues has meant that no effective mechanism has been established to address environmental aspects in the post-tsunami reconstruction process	The project will develop fundamental capacities at the systemic and institutional levels to catalyse the main streaming through: <ul style="list-style-type: none"> reviewing and restructuring the policy framework to support the restoration and sustainable use of coastal natural resources facilitating a process to establish national policy that requires environmental concerns to be incorporated into all post-tsunami construction projects 	Output 2.1 Output 2.2 Output 2.4
The capacity of the Coastal Resources Management (CRM) Unit of the CCD is insufficient for effective implementation of parallel CRM projects	CCD does not have dedicated staff for ecosystem- and biodiversity conservation-related matters. The entire CRM Unit of the CCD is involved in its day-to-day regulatory work.	Creating a Specialist Ecosystem Restoration and Adaptation Unit within CCD will provide technical know-how and supervisory services to specifically address ecosystem restoration in post-tsunami reconstruction projects	Output 2.4
Lack of legal recognition for the community co-managed areas has been identified as a	The necessary amendments to the Coast Conservation Act to provide a legal framework for	The Project will review and expedite the amendments to the CCA to provide the necessary legal framework for CCD to	Output 3.1

Lesson learned	Notes	Design feature	Relevant Output
deterrent for effective management of those sites	community participation were proposed a few years ago but the Amendment has stalled in the legal process	establish co-management agreement with communities	
Lack of conflict resolution systems between and within institutions and communities may lead to failure of projects	Open access for use of coastal resources, and conflicts over resource access rights currently prevail. This tends to lead to over-exploitation of resources and disharmony in communities. Overlaps on management and enforcement rights among institutions may lead to a situation where a site will become a no-man's land in terms of management and enforcement	The Project will develop best-practice and policy guidelines on practical habitat restoration and conservation management to mitigate conflict issues as well as management and enforcement issues	Output 1.1 Output 1.2 Output 4.1
Effective coordination of project activities at all levels (National, Provincial and District) is vital for building on others' experiences and to avoid duplications.	The NECCDP has developed effective coordination mechanisms at Province and District level	These same coordination mechanisms will be used at the Provincial and District levels to increase the complementarities of the two projects Continue with the National Steering Committee appointed for the PDF-B with new additions as need arises	Overall outputs under Outcome 2 and 3
Community-led ecosystem restoration in coastal areas is a novel concept and incentives for effective restoration need to be identified	Community-led restoration of ecosystems is currently implemented in the East Coast under the Green Coast Project by IUCN. Lessons learned will be available by the end of 2006	The remaining PDF-B period will be used to study the implementation mechanisms of community-led restoration of ecosystems in the Green Coast Project and adapted as appropriate into the IFAD/GEF project	Output 1.1 Output 2.5 Output 3.2 Output 3.3

PART 3: PROJECT MANAGEMENT ARRANGEMENTS

3.1 EXECUTION AND IMPLEMENTATION ARRANGEMENTS

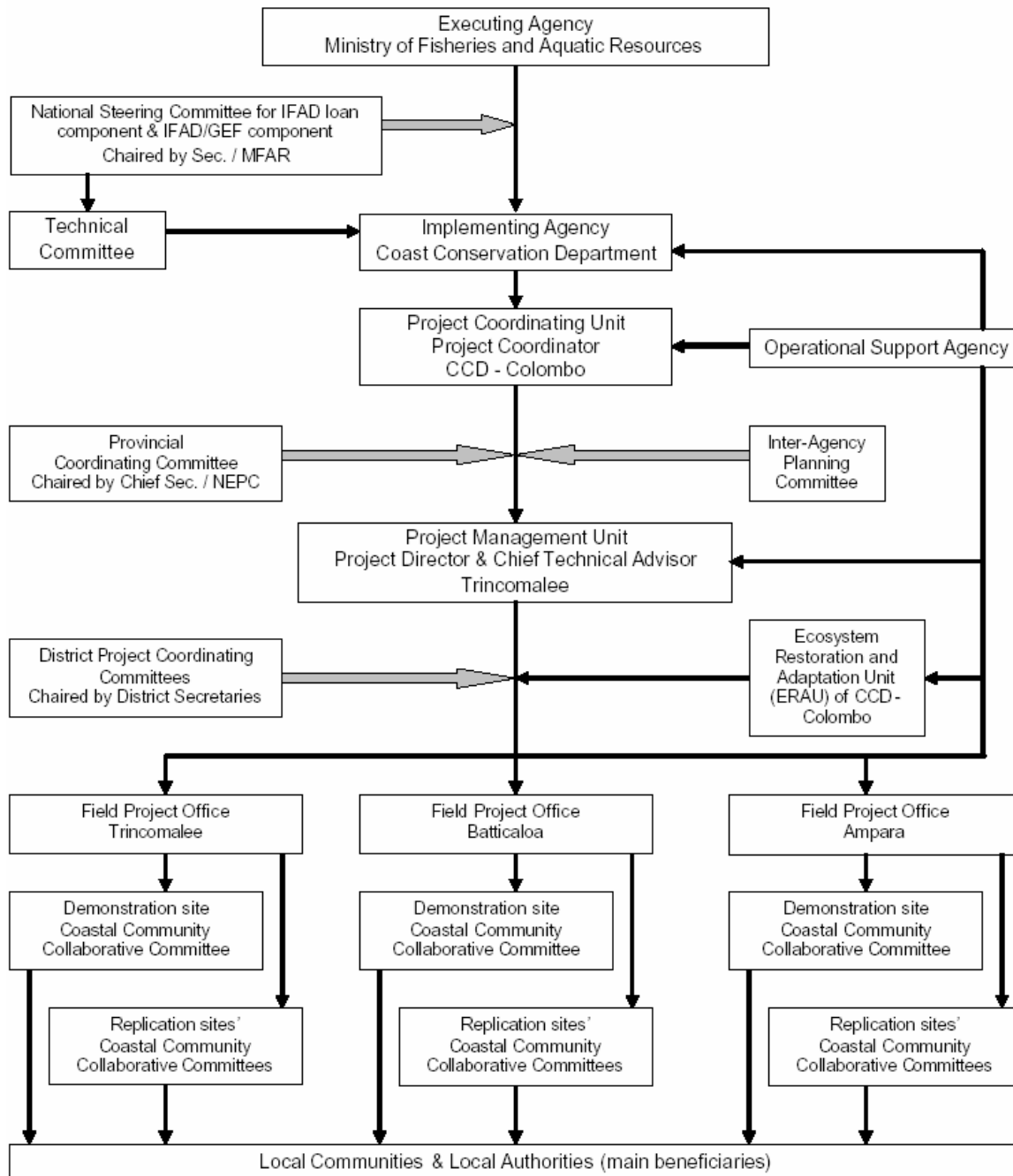
133. The project is designed to be implemented over a period of seven years and will be executed by the Ministry of Fisheries and Aquatic Resources with the support of the International Fund for Agriculture (IFAD) – the GEF implementing agency. Policy guidance will be obtained through the National Steering Committee set up under the chairmanship of the Secretary of the Ministry of Fisheries and Aquatic Resources. This project being a part of the IFAD *Post Tsunami Coastal Restoration and Coastal Communities Resource Management Programme*, will be jointly implemented and will share the same Project Steering Committee. Implementation arrangements of the project will be vested with the Coast Conservation Department. A Project Co-ordination Unit will be established in Colombo under a Project Co-ordinator within the Coast Conservation Department to take charge of co-ordination aspects of the Project at the national level. The main Project Management Unit will be set up in Trincomalee in the office of the Chief Secretary of the North-eastern Provincial Council, from where local level implementation will be managed. The Project Director will head this Unit, supported by an international Chief Technical Adviser, working in close collaboration with the Co-ordination Unit set up at the CCD. The World Conservation Union (IUCN), Sri Lanka Office will provide operational support inclusive of technical assistance to the project. Three Field Offices will be established, one at each of the demonstration sites, to initially manage the field activities there. As the Project expands to include more replication sites, these arrangements may suffice, or new offices may have to be established.

134. The project management will also build on the strong links developed with, and support promised by, the *North-East Coastal Community Development Project* (NECCDP) (see paragraph 121) during the PDF-B. The two projects are highly complementary working in part working in similar fields and in similar areas, although the ADB-funded project has a greater focus on infrastructure. Overlap and duplication has been minimised by ensuring that site-based restoration and community development work will take place in different geographic areas. Furthermore, the proposed project can make several technical contributions to NECCDP, e.g. incorporating ecosystem restoration into the CZMAP for the North-east and

providing best practice guidance for the mangrove restoration proposed by NECCDP. The proposed GEF Project will make full use of the Inter-agency Committee already established by NECCDP as well as the Provincial and District coordination mechanisms set up by NECCDEP to facilitate the implementation of Project activities. The implementation and management structure of the project is illustrated fully in the organisational diagram (Figure 3), and the roles and responsibilities of implementation partners are detailed in Annex 5.

FIGURE 3 : PROJECT IMPLEMENTATION ARRANGEMENTS

IFAD / GEF – Project Implementation Arrangements



National Steering Committee

135. The National Steering Committee initiated during the PDF B phase will continue to function as the NSC for the project implementation phase. However, the Director of the Coast Conservation Department who chaired the NSC during the PDF-B phase, will be superseded by the Secretary of the MFAR during the implementation phase in order that close co-ordination will be ensured with implementation the IFAD loan being undertaken by the same Ministry. The primary task of the NSC will be to provide institutional, political, and operational policy advice and guidance. The NSC will comprise the following

persons, augmented as necessary by co-opted members: Secretary – Ministry of Fisheries and Aquatic Resources (Chair); Director – Coast Conservation Department; Coordinator IFAD Post-tsunami project – MFAR; Secretary – Ministry of Environment; Chief Secretary – North Eastern Province; Project Director – NECCDP; Director General – Department of Fisheries; Director General – Department of Wildlife Conservation; Director General – Central Environmental Authority; Conservator General of Forests – Department of Forests; Director General – External Resources Department; Director General – NARA; Director General – National Planning Department; District Secretary – Trincomalee; District Secretary – Batticaloa; District Secretary – Ampara; and Representative – Operational Support Agency.

PART 4: MONITORING AND EVALUATION PLAN AND BUDGET

4.1 MONITORING AND EVALUATION

136. Project monitoring and evaluation will be conducted in accordance with established IFAD and GEF procedures, and will be provided by the Project Management Unit (PMU) with support from IFAD/GEF. The logical framework matrix in Part 6 of the Project Document provides *impact* indicators for Project implementation, along with their corresponding *means of verification*. These will form the base upon which the Project's Monitoring and Evaluation system will be built.

137. The proposed project monitoring and evaluation (M&E) system will allow the measurement of project impact and progress and subsequent availability of this information for managers, beneficiaries, partner institutions (government and non-government institutions and universities) and civil society in general. More specifically, it will: (i) track changes towards the project development and global objectives, outputs and inputs, and make changes in the project if necessary during implementation, hence providing a basis for decision-making; (ii) promote accountability for resource use against objectives; (iii) provide and receive feedback from stakeholders, and to generate inputs for dissemination of project results and lessons learned.

138. Following the IFAD and GEF procedures, quarterly progress and financial reports will be prepared by the PMU and presented to the Project Steering Committee (PSC) at its quarterly meetings. A joint Annual Project Review (APR) will be undertaken by the PMU and IFAD-CO, and will be followed by the annual Tripartite Review (TPR). In addition, independent mid-term and end-of-Project evaluations will be made to identify and reinforce strengths and correct weaknesses. The main mechanism for Project steering is the PSC. Responsibilities for monitoring the specific indicators in the logical framework will be divided between the PMU and the PSC. The full M&E plan is presented in Annex 8.

139. A budget of US\$ 400,000 has been included for monitoring and evaluation.

4.2 BUDGET AND COST-EFFECTIVENESS

140. Total project financing amounts to US\$ 14,839,365, excluding preparatory grant co-financing. The total GEF cost, US\$ 7,269,915, is composed to the project cost US\$ 6,919,555 and the preparatory grant cost US\$ 350,000. The total co-financing of the full project grant amounts to US\$ 7,569,450: broken down as in Table 4.

TABLE 4: DETAILED DESCRIPTION OF ESTIMATED CO-FINANCING SOURCES (7 YEARS)

Name of co-financier (source)	Classification	Type	Amount (US\$)	Status
Government of Sri Lanka	Government	In kind	430,300	Confirmed
International Fund for Agricultural Development (IFAD)	Multilateral donor	Loan	7,083,650	Confirmed
The World Conservation Union (IUCN)	International NGO	Grant	55,500	Confirmed
Sub-total co financing			7,569,450	

141. The proposed Project has been designed to be cost effective wherever possible. It will share Steering Committees with the IFAD *Post Tsunami Coastal Restoration and Coastal Communities Resource Management Programme*, and rather than establishing its own coordinating mechanisms, it will make full use of those at Provincial and District level, plus the Inter-agency Committee, already established by NECCDP. The whole approach to the restoration of ecosystems has been to be low cost, replicable by poor communities without recourse to expensive technological or mechanical means. Apart from the initial cost of setting up the Ecosystem Restoration and Adaptation Unit within CCD, no new structures or institutions are proposed.