
Gulf of Mannar Biosphere Reserve Project

Conservation and Sustainable Use of Coastal Biodiversity

MID TERM EVALUATION

April 2008

Peter Hunnam and Ravi Sankaran

Government of Tamil Nadu
Government of India

United Nations Development Programme
Global Environment Facility

CONTENTS

	page
List of Tables	ii
Acronyms and abbreviations used in the Report	iii
Acknowledgements	iv
I. SUMMARY	1
Background	1
Evaluation Findings	1
Summary Recommendations of the MTE	6
II. INTRODUCTION	7
Project Context	7
Mid-Term Evaluation	8
III. FINDINGS AND CONCLUSIONS	10
The Project Overall	10
Recommendations: the Project overall	15
Component 1. Project management, GoMBR Trust & Funding Mechanism	17
Concept and Design	17
Review and Evaluation of Activity and Achievements to Date	17
Financial analysis	20
Recommendations: Component 1. Project management, Trust and LTFM	20
Components 2. & 3. National Park Management Strengthening	23
Concept & Design	23
Review and Evaluation of Activity and Achievements to Date	24
Financial analysis	27
Recommendations: Components 2. and 3. National Park Strengthening	27
Component 4. Development of Biodiversity Overlay	30
Concept & design	30
Review and Evaluation of Activity and Achievements to Date	30
Financial analysis	33
Recommendations: Component 4. "Biodiversity Overlay", Biosphere Reserve	34
Component 5. Development of Sustainable Livelihoods	35
Concept and Design	35
Review and Evaluation of Activity and Achievements to Date	36
Financial analysis	41
Recommendations: Component 5. Development of Sustainable Livelihoods	42
Evaluation of Special Issues	44
IV. COLLATED RECOMMENDATIONS	48
The Project overall	48
Component 1. Project management, Biosphere Reserve Trust and LTFM	49
Components 2. and 3. National Park Operations and Infrastructure	51
Component 4. "Biodiversity Overlay", Biosphere Reserve	53
Component 5. Development of Sustainable Livelihoods	54
V. LESSONS	56
Lesson: Instituting marine resource management and conservation	56
Lesson: The project as a mechanism to bring about change	56
Lesson: Ownership and direction of the Biosphere Reserve initiative	57
Lesson: Management capacity development as the core project strategy	57

LIST OF TABLES

Table 1.	Barriers to addressing threats facing the Gulf of Mannar
Table 2.	Core structure of the Gulf of Mannar Biosphere Reserve Project
Table 3:	Gulf of Mannar Biosphere Reserve boundary issues
Table 4:	Summary plan of outputs and financing for project component 1. (for 2002-08)
Table 5:	Component 1. Summary of planned results and achievements
Table 6:	Component 1. budget and expenditure
Table 7:	Summary plan of outputs and financing for components 2. and 3. (2002-08)
Table 8:	Components 2. & 3. Summary of planned results and achievements
Table 9:	Components 2. and 3. budget and expenditure
Table 10:	Summary plan of outputs and financing for project component 4. (2002-08)
Table 11:	Component 4. Summary of planned results and achievements
Table 12:	Component 4. budget and expenditure
Table 13:	Summary plan of outputs and financing for project component 5. (2002-08)
Table 14:	Component 5. Summary of planned results and achievements
Table 15:	Component 5. budget and expenditure
Table 16:	GEF4 Biodiversity Focal Area ~ Strategic Objectives and Expected Outcomes

ACRONYMS AND ABBREVIATIONS USED IN THE REPORT

\$	United States dollar
APW	Anti-Poaching Watcher
ATREE	Ashoka Trust for Research in Ecology and the Environment
BR	Biosphere Reserve
CAG	Citizen consumer and civic Action Group
CAS	Centre for Advanced Studies
CBO	Community based organisation
CCF	Chief Conservator of Forests
CMA	Coastal Management Authority
CMFRI	Central Marine Fisheries Research Institute
CPAP	Country Programme Action Plan
CRZ	Coastal Regulation Zone
CSMCRI	Centre for Salt & Marine Chemicals Research Institute
CZM	Coastal Zone Management
DCF	Deputy Conservator of Forests
DEE	District Environment Engineer
DRD	Department of Rural Development
DRDA	District Rural Development Agency
EDO	Eco-Development Officer
EEZ	Exclusive Economic Zone
EPA	Environment (Protection) Act, 1986
ESA	Ecologically-Sensitive Area
FC&RI	Fisheries College and Research Institute
FD	Forest Department
FD-WW	Forest Department – Wildlife Wing
FPW	Field Project Workers
FSD	Fisheries Department
GEF	Global Environment Facility
GO	Government Order
GoI	Government of India
GoM	Gulf of Mannar
GoMBR	Gulf of Mannar Biosphere Reserve
GoMBRT	Gulf of Mannar Biosphere Reserve Trust
GoMNP	Gulf of Mannar National Park
GoTN	Government of Tamil Nadu
ha	hectare
ICMAM	Integrated Coastal and Marine Area Management program
ICRAN	International Coral Reef Action Network
ICZM	Integrated Coastal Zone Management
IERSE	Institute for Environmental Research Social Education
km	kilometre
LMMA	Locally-managed marine area
LTFM	Long-term funding mechanism
M&E	Monitoring and Evaluation
MAB	Man and Biosphere Program
MIS	Management information system
MoEF	Ministry of Environment and Forests
MPA	Marine Protected Area
MSSRF	MS Swaminathan Research Foundation
MTE	Mid-Term Evaluation
NBA	National Biodiversity Authority
NGO	Non-government organisation
nm	nautical mile
NP	National Park
PCB	Pollution Control Board
PCU	Project Coordinating Unit
PDF	Project Development Facility
PIR	Project Implementation Report
PSC	Project Steering Committee
RAG	Research Advisory Group
Rs.	Indian Rupees
RTA	Regional Technical Advisor
SDMRI	Suganthi Devadason Marine Research Insititute
SHG	Self-Help Groups
sq.km	square kilometre
SWD	Social Welfare Department
TN	Tamil Nadu
TOR	Terms of Reference
TPR	Tri-Partite Review
TWAD	Tamil Nadu Water Supplies and Drainage Board
UNDAF	UN Development Assistance Framework
UNDP	United Nations Development Programme
VMCEDC	Village Marine Conservation and Eco-Development Committees
WPA	Wildlife Protection Act
WWF	World Wide Fund for Nature/ World Wildlife Fund

ACKNOWLEDGEMENTS

The Mid-Term Evaluation of the Gulf of Mannar Biosphere Reserve Project has been an enjoyably-rich learning experience for the evaluators.

We are very grateful to the large number of individuals we met through the evaluation – from Delhi and Chennai, to Ramanathapuram and around the Gulf coast to many coastal villages and back to Tuticorin – who have generously and genuinely shared their knowledge, values and ideas about the Gulf of Mannar, the Biosphere Reserve and the project. We have come away convinced that despite its complexities and challenges, it is a special and worthwhile initiative.

Our thanks especially to the many women and men, in numerous villages, government offices, NGOs and CBOs, colleges and research institutes, and on the road and in boats at sea, who were so hospitable and kind during our whistle-stop marathon around the Gulf. It has helped us to realise how many lives are touched by this project, and how important it is to continue, to resolve the issues that have been encountered to date, and complete the task of establishing the Biosphere Reserve so that it is effective as a new type of marine conservation area for Tamil Nadu and for India as a whole.

It was particularly valuable for the evaluation to have opportunities to discuss the project's history and achievements with a number of key individuals in the Government of Tamil Nadu, and in the India Country Office of UNDP. We are very grateful for being able to meet and discuss our provisional findings and recommendations with the Chief Secretary and the Secretaries and staff of the Departments of Forestry, Fisheries, and Rural Development, and with the UNDP Resident Coordinator, Country Director and Deputy CD, the Environment Program staff and other UNDP colleagues in Delhi and Chennai. The briefings and thoughtful discussions with the Regional Technical Advisor from the UNDP-GEF office were also especially useful.

Throughout the evaluation, we have been impressed by the dedication, enthusiasm and skills of the current project manager and Trust Director, his able deputy the Eco-Development officer, and their hard-working team of office, field and support staff. They guided us through our rapid field visit to the project area, and responded thoughtfully to all our inquisitiveness, probing questions and wide-ranging discussions. It was a pleasure learning so much about the project and the Gulf of Mannar from you and with you.

Peter Hunnam and Ravi Shankaran
April 2008

I. SUMMARY

BACKGROUND

The Gulf of Mannar is the broad area of coastal sea lying between the southern tip of India, the south-eastern coast of Tamil Nadu state, and the north-west coast of Sri Lanka. It supports a diverse and productive community of marine life that was famous historically for its pearl oyster banks and large population of the globally-endangered sea mammal, the dugong, reliant on the extensive shallow seagrass meadows. The Gulf has rich inshore fishing grounds that are exploited by large numbers of artisanal and commercial fisherfolk using a variety of gears, including beach seine and throw nets; line, net and trap fishing from small sail and oar-paddled craft; and larger mechanised boats including a large fleet of trawlers. Around the Tamil Nadu coast of the Gulf of Mannar there are several hundred villages and several large towns, including Tuticorin, a rapidly growing commercial and industrial centre and port.

For the past thirty years the Indian and Tamil Nadu governments, research institutions and non-governmental organisations have made efforts to develop a conservation system for the Indian half of the Gulf of Mannar that would safeguard the area's marine biodiversity while accommodating reasonable levels of resource use and exploitation. Significant measures that have been introduced include the State-wide ban on trawling within 3 nautical miles (nm) of the shore; the 1986 designation of the chain of 21 inshore coral sand islands along the northern Gulf coast and their surrounding shallow coral reefs, seagrass beds and mangrove habitat as the Gulf of Mannar National Park; and the listing of significant marine taxa on the country-wide, prohibited-use Schedule 1 of the Wildlife Protection Act. Overlying these measures, the whole of India's Gulf of Mannar was designated as a Biosphere Reserve in 1989, the first such marine conservation area in India and the South Asian region.

Ten years after the notifications of the Gulf of Mannar National Park and Biosphere Reserve, a full-sized project was formulated as a partnership between the governments of India and Tamil Nadu and the United Nations Development Program (UNDP) and the Global Environment Facility (GEF), with the general aim of building on the earlier efforts and formally establishing an effective management regime for the Biosphere Reserve. The project, titled "Conservation and Sustainable Use of the Gulf of Mannar Biosphere Reserve's Coastal Biodiversity", was signed in 2002 as a 7 year initiative, with GEF funding of \$7.65 million and co-funding of \$19.09 million from Government of Tamil Nadu (GoTN), Government of India (GoI), United Nations Development Program (UNDP) and others.

Project implementation has proceeded since 2002, slowly for the first three years, then more rapidly in 2006 and 2007. A full evaluation of the project – context, history, design, inception, implementation progress and results achieved to date – was carried out in April 2008 and is reported on here.

EVALUATION FINDINGS

Project complexity:

At the centre of the Gulf of Mannar Project was the objective of establishing a new type of marine resource management or conservation system, called a marine Biosphere Reserve. This was a complex undertaking, as it entails tackling the multiplicity of natural resource and environmental issues that prevail and are growing in the Gulf of Mannar region. These range from biodiversity protection and control of over-fishing and destructive fishing, to development of sustainable resource uses and alternative livelihood options including mariculture and eco-tourism; rural development and poverty alleviation; management of coastal waterways and land-use; prevention of marine environmental pollution from solid and liquid wastes. The essential purpose of the management system being developed, under the label of India's first marine Biosphere Reserve, was to address the prevailing multiple problems of these multiple uses within the boundaries of the Reserve and its surrounds.

The evaluation found that this concept and its implications for the project's management were not widely recognised among the various stakeholders in the initiative. There has been little progress made towards formally instituting the management arrangements for a Biosphere Reserve, nor towards addressing the significant challenges facing the marine and coastal conservation initiative. The impression gained by the MTE is that once it was written, the project plan was not used to any great extent to guide implementation, and was perhaps not fully understood, or accepted and owned by those made responsible for its implementation. Part of the reason for this may have been the complexity of the concept and plan, and the multi-faceted nature of the proposed project activities.

For the Biosphere Reserve to be established successfully and developed as a multiple-use conservation area and not a nature protection scheme, it will be important to raise the profile and “sell” the concept widely; to have a strong manager and support staff with the authority to lead and drive the initiative; and to attract political champions who can promote, persuade and facilitate the removal of the barriers that will be encountered. The evaluation concludes that the effort is worthwhile but will need to be tackled more rigorously and systematically if it is to be successful: the Gulf of Mannar is a special place that warrants special attention, and the Biosphere Reserve has the potential to be a successful model relevant to other conservation initiatives in India and the wider region.

Project design and implementation strategy:

The project was designed with five main components, concerned broadly with 1: formally establishing the governance and management arrangements for the Biosphere Reserve, including a statutory authority and an independent funding mechanism as a Trust; 2. and 3: strengthening the existing National Park as the core Reserve zone; 4: planning and developing capacity for a broad range of management actions to ensure conservation and sustainable use of the marine and coastal resources of the whole Biosphere Reserve; and 5: demonstrating and supporting development of sustainable alternative livelihoods for communities in the Reserve/ project area.

The logic of this structure was that components 2. to 5. form the cornerstones of the initiative (biodiversity protection + sustainable marine resource use + livelihoods development) that would be developed together within a unified management framework provided by the Biosphere Reserve. Under component 1. the necessary management structures, capacity, institutional arrangements and funding mechanism would be put in place to direct, coordinate and finance the “cornerstone” programs. In this way, the overall purpose of the project, to establish an effective Biosphere Reserve management regime, would have been achieved, leading to the goal of long-term conservation of globally-important biodiversity.

The project managers have not followed this strategy of developing the three cornerstone programs and overall management mechanism in parallel, but have implemented a community-based “eco-development” support project, confined largely to activities under component 5. It is clear to the MTE that while excellent work has been done in this area, it will not be sufficient to achieve the higher purpose and objectives of the project. The essential institutional and policy reforms and capacity development flagged as component 1. have not been progressed adequately. The evaluation concludes that, in order to regain a balance between protection, use and development, and achieve the overall purpose, the second half of the project – post-MTE – must be revised, to address directly the outstanding issues under components 1. and 4. in particular.

Project management, risk management and adaptation:

The evaluation reviews the arrangements put in place for project supervision, implementation, financial administration, monitoring, reporting and evaluation, as well as mechanisms for risk management and adaptation. The general finding is that most aspects of project management could be improved by a more rigorous and careful approach. It is apparent that there has been insufficient attention to supervision, ownership and support for the project; to enabling the project to be developed and managed efficiently and effectively by the mandated office; and to building the capacity of that office by means of thorough processes of project inception, staff recruitment and in-service professional capacity development.

There is little sign of adaptive management of the project overall, and there does not seem to be a system in place for strategic monitoring and reporting, rigorous risk analysis, progress review, feedback and adjustment. The project manager and his officers have performed effectively and efficiently at the lower level actions, for example by refining their system for supporting village eco-development work, but they have not been enabled or supported to make broader adjustments. Project supervision has not been adequate, with a confused system of six committees discussing a mix of project management issues and Biosphere Reserve establishment issues. The formal Tri-Partite Review¹ (TPR) has not been convened and the constitution and mandate of the Project Steering Committee has not been made clear.

¹ The Tri-Partite Review is the mechanism used by UNDP for overall project supervision. The main partners (UNDP, Gol, GoTN) formally responsible for governing the project’s implementation convene an efficient decision-making body equivalent to a board of directors. The TPR should be kept small with 3-5 members meeting face-to-face perhaps once a year. The TPR receives, reviews and approves the main project documents, work plans, budget plans and progress reports, and provides directions to the project management unit. A separate Project Steering Committee can be a larger representative group, with an advisory role.

The significant decision made at the first (2003) meeting of the Board of Trustees, acting as the *de facto* project supervisory body, to change the project implementation strategy², has still not been formally approved by the TPR, nor reflected in any change to the project's logical framework, budget or timetable. The project manager convened a workshop in January 2006 to revise the logical framework, but no changes were endorsed or made formally.

The evaluation is critical of the project document and logical framework for not conveying clearly and consistently the intended strategy by which each part of the project should be organised and implemented. Component 1. mixes the project's management and administration with establishment of the Biosphere Reserve management authority and a long-term financing mechanism. Components 2., 4. and 5. share a number of overlapping activities that should have been planned and implemented together. The original logical framework was not well-developed, which reduced its value as a planning and monitoring tool for the project's supervisors and executants; as noted above, this evaluation in 2008 is based on the logical framework that was written a decade earlier and which has not been revised in the meantime. There is an outstanding need to put in place an adequate system for integrated monitoring, recording and reporting, information management, financial management, and planning, to serve both the project and the Biosphere Reserve.

Institutional arrangements:

Reformed and strengthened institutional arrangements are among the most important changes or innovations that are required in establishing the new management regime for the Gulf of Mannar Biosphere Reserve. There is a need for the agencies conventionally involved in the region to alter their management systems, procedures and regulations in order for them to be integrated into a single, joint program encompassing marine resource conservation and sustainable use. An essential aspect of the intended Biosphere Reserve is that it involves a series of programs that are normally managed by separate line departments, as follows:

- (a) regulation and development of a diversity of coastal fisheries (FSD);
- (b) conservation and physical development planning of the coastal zone (CMA);
- (c) protection of the sites designated National Park (FD);
- (d) protection of WPA Schedule 1 species (FD-WW);
- (e) delivery of rural development and social welfare services (DRD, SWD, FSD);
- (f) regulation of effluents, spills, emissions and pollution control (PCB, Customs, police); and
- (g) management of municipal and domestic wastes (municipalities, Panchayats, CBOs).

Inevitably it is a challenge to organise and manage such a complex undertaking. The evaluation observed and was advised that there has been little progress in this direction. There is an outstanding need for these programs to be integrated into a single framework defined by the Biosphere Reserve, and directed by a single Authority with a clear mandate and capacity.

For this project the plan was to create a statutory authority to direct and coordinate the broad range of project activities and expenditure, involving multiple line departments and other research, non-government and community organisations. The evaluation found that the Biosphere Reserve Trust has been formed as a simple registered society, given only partial responsibility for project implementation, and run as an office of the Forest Department, under the direction of a series of governing committees. In the last three years, the Trust/ project office has done an excellent job but is operating under difficult circumstances: it has not been given a clear mandate or authority, nor the capacity, to direct and manage in an integrated manner the disparate array of line departments' separately-financed programs involved in developing and operating the GoM Biosphere Reserve. The evaluation concludes that one of the most important steps to be taken is to resolve these institutional and financing arrangements.

Project impacts on state and national policy:

The intention was for the project to introduce and test novel policies for managing conservation and use of marine and coastal resources, and to serve as a pilot for Tamil Nadu state, India and the wider region in a number of policy directions, including: integrated coastal zone management, sustainable fisheries management, marine conservation, marine biosphere reserve management, co-management and community participation in natural resource management and rural development. To date, the project has not developed much traction in influencing policy in any of these areas. There appears to be a

² As discussed further in the report, the MTE considers that this fundamental change in strategy was not appropriate. Much more attention should have been given at the outset to the project's inception and systemic capacity development.

tendency to regard the project as an *ad hoc* initiative operating outside the main framework of government policy, and not as a mechanism and opportunity for bringing about change. For the project to achieve its objectives, formal policy changes will be needed, in legislation, regulations, governing mechanisms, management plans.

Project achievements by Component:

The main part of the evaluation report is a review of what was planned, budgeted and achieved under each of the five planned project components in turn. In making this review, it must be noted that there was little implementation activity for the first three years, and real progress only started to be made in 2006 onwards.

The evaluation found that most has been achieved to date under component 5, including (a) forming and enabling a **village organising committee** (VMCEDC) for conservation and development in each of 252 village communities in the GoM coastal zone; (b) facilitating preparation of an integrated **conservation and development plan** (the “micro-plan”) by each participating village; (c) establishing , providing the first tranche of capital and operating successfully a micro-credit account and **revolving loan scheme** in every participating village; and (d) facilitating the start-up of **small enterprises** as alternative livelihood options by 1,125 Self-Help Groups.

The evaluation concludes that the project’s achievements under this component are remarkable and commendable, and have created a solid foundation for establishing the Biosphere Reserve as an effective marine resource management regime. The evaluation suggests that in the next phase of the project, the work in this area needs to be consolidated and assigned to permanent institutions – a GoM BR Community Foundation and Fund are both recommended – with the capacity to sustain both the community-based conservation program and the village ‘eco-development’/ livelihoods program beyond the project .

Under components 1. and 4. the objective was to formally establish and bring into effective operation the GoM Biosphere Reserve. Key planned or expected results included the legal designation of the Reserve, geographic boundaries (and perhaps activity zoning), a statutory management authority, integrated programming and financing of operations, all formally described in a management planning framework. Some useful preliminary actions have been organised, including a review of relevant legislation and policy. However, much of this fundamental institutional work for establishment of the Biosphere Reserve remains to be done, and will need to be achieved early in the next phase of the project, in order to allow sufficient time for development of the system and effective operational programs before the project ends. To drive these formal steps with a degree of urgency, it would be useful for GoTN and GoI to form a small task force under the direction of the project manager/ Trust Director.

The major tasks under component 1. were to establish the governing body for the Biosphere Reserve and a long-term funding mechanism (LTFM). The evaluation considers that the Trust as a registered society is not adequate as the authority to drive the Biosphere Reserve initiative and should be reformed into an effective entity. Recommendations are made for creation of an Authority comprising a small governing Board, an Executive with adequate capacity to manage the operational program, and an Executive Coordination Group, of agencies contributing to the joint program.

The evaluation considers that good progress has been made towards establishing the LTFM, with most of the GEF funds for capitalization having been disbursed to the village fund accounts, but this work also needs to be consolidated and completed early in the next phase of the project. A formal structure such as the suggested GoMBR Community Foundation and Fund needs to be created as the umbrella body and endowment fund for all the village funds, and as the entity representing the community partnership with the GoMBR Authority. Reciprocal membership on the Boards of the Authority and Foundation are suggested. Importantly, as a mark of confidence and commitment to the newly established Biosphere Reserve institutional arrangements, the planned capitalization of the Fund by the leveraged co-financing of \$4 million from GoTN should be completed as soon as practicable in the next phase of the project.

Project components 2. and 3. are concerned with strengthening the management, operations and infrastructure of the existing National Park areas within the proposed Biosphere Reserve. There has been some activity under this component, notably training of existing staff and purchase of new equipment, vehicles and renovation of office space. In the past two years, more substantive actions have been initiated, on research and management planning, and on allowing a degree of local community involvement by funding the NP management authority (FD-WW) to employ the village Anti-Poaching Watchers part-time for joint ‘patrols’.

The evaluation considers that the envisaged strengthening of the National Park under this project will only go ahead efficiently and effectively within the context of establishing and developing the broader, innovative management regime of the GoM Biosphere Reserve, and placing all line departments' activities in the BR region under a single authority. The present arrangement with no single authority (the Trust as an informal society with no controlling authority) and a separate FD-WW office, operation and budget is not efficient or effective for the National Park or the Biosphere Reserve.

Under components 4. and 5. a number of strategic action programs were proposed, but the project document did not describe clearly how these might best be made operational. The evaluation considers that these actions are integral to the effective introduction of the innovative regime of the GoM Biosphere Reserve. They cover the following broad and overlapping areas: reform of fisheries management towards ecological sustainability and active development of sustainable marine harvesting and mariculture ventures; integrated marine and coastal resource management, marine biodiversity conservation, and marine and coastal environmental protection.

Some important foundation activities have been started in these areas. A series of a dozen research studies have been commissioned, guided by a Research Advisory Group formed under the BR Trust. A standard PA management plan has been drafted, commissioned by the Trust/ project office from the Wildlife Institute of India. There has been a major investment in awareness-raising activity promoting marine biodiversity protection, throughout the local coastal villages. 252 coastal villages have each prepared a "Micro-plan" of conservation and sustainable development actions. Groups of Anti-Poaching Watchers have been formed in the coastal village communities, linked to the VMCEDCs, and strengthening basic surveillance over coastal activities. Some basic biology and conservation training has been given to FSD and FD-WW staff. An important successful outcome has been the virtual cessation of coral reef mining in the BR area, attributable in part at least to the actions of the APWs and the project's awareness-raising program.

Much more systematic work is needed in these areas to achieve the ambitious vision of integrated marine resource management throughout the GoM Biosphere Reserve area. The evaluation highlights the lack of engagement of crucial line departments and programs in the initiative and suggests that this should be a urgent priority following the MTE: the Biosphere Reserve management program must integrate the responsibilities of Fisheries, Coastal Management, Pollution Control Board, Forestry and Wildlife as they apply to the overall area. To be an effective and successful demonstration, the Biosphere Reserve management regime must incorporate each of these responsibilities into a single Authority, and must strengthen their implementation in the Gulf of Mannar region.

SUMMARY RECOMMENDATIONS OF THE MTE

Based on its review and analysis of the project overall and of activities and achievements under each component, the evaluation report makes a number of recommendations for strengthening the relevance, efficiency and effectiveness of each component, with a view to ensuring that the project is continued and completed successfully. A summary list of all the MTE recommendations is provided below:

Summary list of MTE recommendations

The Project overall

- 1) Re-frame and re-confirm the Project essentials: supervision, implementation capacity, strategies, budget and timetable extension.
- 2) Integrate the planned co-financing and GEF funds in order to confirm and manage one program budget.
- 3) Develop and implement a systemic capacity development program for the Biosphere Reserve management.

Component 1. Project management, Trust and LTFM

- 4) Strengthen Project supervision, management and administration.
- 5) Revise the Project budget and strengthen financial management.
- 6) Formally establish the GoM Biosphere Reserve and Authority – Board, Executive, Director, Executive Coordination Group.
- 7) Strengthen the Executive staff of the Biosphere Reserve Authority.
- 8) Establish a GoM Biosphere Reserve Advisory Committee.
- 9) Establish a GoMBR Community Foundation and Long-Term Funding Mechanism.

Components 2. and 3. National Park Operations and Infrastructure

- 10) Fully integrate the National Park into the management and development of the Biosphere Reserve.
- 11) Capital equipment purchases.
- 12) Develop the GoMBR (and NP) management planning and policy framework.
- 13) Make provision for community-owned eco-tourism in the NP and GoMBR.
- 14) Strengthen GoMBR and NP staffing and capacity development.
- 15) Development of the GoMBR Management Information System.

Component 4. Development of “Biodiversity Overlay”, Biosphere Reserve

- 16) Formal establishment of the GoM Biosphere Reserve, governance arrangements and management policy.
- 17) Formal establishment of an integrated program of management for the Biosphere Reserve.
- 18) Establish an effective management planning function for the GoMBR.
- 19) For the GoM region, synchronize and merge the new TN CZM planning initiative with the BR management plan.

Component 5. Development of Sustainable Livelihoods

- 20) Component 5. strategy re-planning and re-budgeting.
 - 21) Strengthen GoMBR campaigns and programs for community-based marine resource management and sustainable fisheries.
 - 22) Strengthen the development of community institutions, village committees, conservation and development planning, eco-development and livelihoods support.
-

II. INTRODUCTION

1. The Gulf of Mannar is the large embayment lying inside the southernmost tip of India, around the southern coast of Tamil Nadu and the north-western coast of Sri Lanka, open to the Laccadive Sea and Indian Ocean to the south-west, and separated from Palk Bay to the north-east by the line of shallow sand bars and islands known as Rama's or Adam's Bridge³. The Gulf is roughly 180 km from east to west and 120 km from north to south, encompassing an area of approximately 20,000 sq.km, divided between India and Sri Lanka, with approximately 15,000 sq.km. within the Exclusive Economic Zone of India (ICMAM, 2001). The edge of the continental shelf sweeps close to the coast around the north of the Gulf, resulting in a narrow coastal shelf and a steeply sloping seabed offshore, down to 1000 metres over much of the Gulf, with oceanic waters flowing relatively close to the shore.
2. The Gulf of Mannar is reputedly one of the richest and most productive parts of India's coastal seas, and is considered to be of national and global significance for its marine biodiversity. Along the northern coastline of the Gulf, a chain of four groups of low coral sand islands lies parallel to the shoreline, between Tuticorin and the Mandapam peninsula. The shallow seabed around the islands is rich in marine life, dominated by the main habitats of seagrass meadows, coral reefs, stands of mangroves, and benthic sediments, with their diverse associated communities of algae, marine invertebrates and fish, and important populations of globally endangered species of sea turtles and dugong. The islands and beaches are important roosting and nesting sites for numerous species of sea and shore-birds and for turtles. The deeper seabed and open waters of the Gulf support rich populations of benthic invertebrates and fishes, demersal and pelagic fishes, dolphins and whales.
3. On the facing coast of Sri Lanka, one of the country's oldest and most important national parks, Wilpattu, was established over 55,000 hectares of coastal land in 1938, with an extension proposed in the 1980s into adjacent marine areas to protect the dugong habitat and population. Other nature reserves have been designated around the north-western tip of Sri Lanka in the vicinity of Kalpitiya. On the Indian side, there have been more extensive efforts made to conserve the Gulf's marine resources. In the 1980s a National Park was designated over the 21 coral sand islands and their adjacent sea areas, and the Gulf of Mannar Biosphere Reserve was designated over the wider surrounding area, forming a 1 million hectare multiple-use conservation zone around the core National Park areas.

PROJECT CONTEXT

4. The underlying challenge facing conservation efforts in the Gulf of Mannar is that the area's natural environment and marine biological diversity are of special value, locally, nationally and globally, but are under threat from and being depleted by a variety of human activities, including fishing and harvesting by large numbers of local people who are directly dependent on the area's marine resources for subsistence and for livelihoods and employment. There is a need to integrate and accommodate the multiple demands to utilise these coastal and marine resources, to the extent that is reasonable, while safeguarding the long-term health of the ecosystem and each of its key components.

At the time of the project design (late 1990s) an estimated 224,000 people were living along the 160 km. coastline adjacent to the Biosphere Reserve. A basic socio-economic survey of 1,000 households indicated that the livelihoods of people in villages up to 10 km. away from the coastline were at least partially dependent on local marine resources. Over one third of coastal villagers reported making their living from fishing, seaweed collecting or other marine resource-based activity. Ninety percent of these were artisanal fishermen and women (using wind or small engine powered craft), while 10% were employed on mechanized trawlers (UNDP Project Document, 2002).

5. The need for a strengthened conservation regime for the Gulf of Mannar had long been recognised and called for prior to the current project. Historically the area was famous for its large population of dugong, directly reliant on the extensive seagrass meadows in the shallower marine areas between India and Sri Lanka. The coral reefs, pearl oyster beds, seagrasses, mangroves, reef fishes,

³ The mainland coasts of India, at the Mandapam peninsula, and Sri Lanka are joined by a broad shallow submarine ridge, Ramu's or Adam's Bridge, around 5 metres deep, along which lie Rameswaram Island, the Talaimannar Islands and numerous rocky islets and sand bars.

holothurians⁴, prawns, rock lobster and other shellfish in the northern coastal part of the Gulf, and populations of whales, dolphins, whale sharks and pelagic fish in deeper, open waters were well known and formed the basis for productive fisheries.

6. In the 1980s, the Gulf of Mannar Biosphere Reserve was planned, under the Man & Biosphere program supported by UNESCO, on the basis of a proposal prepared by the Director of the Centre for Advanced Study in Marine Biology at Annamalai University. In 1986, under the Wildlife Protection Act (1972), the line of small islands near to the northern Gulf coastline, together with the sea area immediately around each island, were designated the Gulf of Mannar National Park. The National Park was placed under the management of the Tamil Nadu Forest Department and the Department's Wildlife Warden. (G.O. Ms. No. 962, Forests and Fisheries Department, September 1986).
7. In 1989, a separate government order was made on the establishment of a Gulf of Mannar Biosphere Reserve across the major portion of the Indian part of the Gulf, covering an area of approximately 10,500 sq.kms, encompassing the NP islands and waters, and the wider surrounding sea area, and extending inland to include a terrestrial portion. The 1989 order outlined some basic provisions that would need to be made by the Government of Tamil Nadu for managing the Biosphere Reserve (BR), together with financial assistance from the Government of India for "survey, conservation, protection, ecorestoration, education and awareness". Special emphasis was placed on preparation of a management plan, coordination of the activities of various GoTN departments in the area, and research. The order also included a description of a Zonation plan to apply to the BR area, with 4 Regions, each with a Core Zone and Buffer Zone, and stating that "details of the (parts of the buffer areas) to be earmarked for manipulation activities such as aquaculture etc will be worked out by the project authorities" (Government of India Notification No. 1/6/80-Mannar, dated 4 April 1989).
8. In 1998, a plan was prepared for a project entitled Conservation and Sustainable Use of the Gulf of Mannar Biosphere Reserve's Coastal Biodiversity, with the aim of demonstrating "how to integrate biodiversity conservation into coastal zone management plans", but more pointedly to complete the effective establishment of the Gulf of Mannar Biosphere Reserve as the first of its kind in India and the broader region of South Asia. The full project document was signed with the United Nations Development Programme (UNDP) in 2002, providing for a 7-year initiative, with Global Environment Facility (GEF) funding of \$7.65 million and co-funding of \$19.09 million from Government of Tamil Nadu (GoTN), Government of India (GoI), UNDP, an NGO MSSRF, and others.

MID-TERM EVALUATION

9. It is a requirement for all GEF medium- and full-sized projects to organise adequate monitoring and evaluation as an integral part of the project management system, including independent evaluations at the mid-term and the conclusion of the project. For the GoMBR Project, three external evaluations were scheduled in the project document, in year 2, year 4 and at the end of the project. The mid-term evaluation should have taken place in 2005-06, but given the delays that had occurred, was postponed to 2007-08. In April 2008, the mid-term evaluation of the GoMBR project was carried out by independent consultants Peter Hunnam and Ravi Sankaran. Their findings and recommendations are reported here.
10. The mid-term evaluation (MTE) was organised by the project Implementing Agency (IA) UNDP India and UNDP-GEF regional office, Bangkok, and the project office (the GoM Biosphere Reserve Trust), working in support of the independent consultants through compilation of project and background documentation, arrangement of meetings with representatives of all the main stakeholders in the project, and organisation of a short field mission to parts of the project site. The Terms of Reference (ToR) for the MTE form **Annex I.a** to this report.

Purpose of evaluation and issues considered

11. For the GEF, the purpose of evaluation is to conduct "a systematic and impartial assessment (of the project)..., aimed at determining the relevance, impact, effectiveness, efficiency, and sustainability of the interventions and contributions of the involved partners." (GEF Monitoring & Evaluation Policy, 2006). As stated in the ToR, the mid-term evaluation of the Gulf of Mannar Biosphere Reserve Project was intended to accomplish the following:
 - to identify potential project design and implementation **problems**;

⁴ Holothurians are also known as sea cucumbers, beche de mer or trepang.

- to assess progress towards the **achievement** of planned objectives and outputs, including the generation of global environmental benefits;
 - to identify and document **lessons** learned (including lessons that might improve design and implementation of other UNDP projects including GEF co-financed projects);
 - to make **recommendations** regarding specific actions that might be taken to improve project implementation and the sustainability of impacts, including recommendations about replication and exit strategies (UNDP GoMBR Project MTE ToR, March 2008).
12. For the Gulf of Mannar Biosphere Reserve Project, the MTE reviewed the background and the record of the project's formulation, establishment and implementation to date, with consideration of the planned strategies, structure, and implementation arrangements; analysis of issues arising during each stage of the process; and examination of the project's achievements in terms of work program activities, results, and broader outcomes. Important criteria for the evaluation to appraise included the continued relevance of and justification for the project; the efficiency of implementation; and the effectiveness of the initiative in achieving the planned results and progressing towards the broader and longer-term objectives. The ToR for the GoM BR Project MTE specified a number of issues to be given special attention, including (a) establishment of a sustainable system; (b) project management practices; (c) project relevance to GEF strategic priorities; and (d) UNDP's priority cross-cutting issues of poverty reduction, governance, gender equity. Each of these issues has been assessed through the evaluation, and evaluation comments drawn together (page 49.) at the end of the main section of the MTE report.

Methodology of the evaluation

13. The MTE was primarily an investigation by the two consultants of all aspects of the project and the context within which it had been planned and is being implemented. The review and evaluation were conducted over a period of 4-5 weeks, involving document examination, stakeholder interviews, and field observations; and including the provision of feedback to stakeholders and compilation of a written report. The MTE itinerary achieved and stakeholders consulted are recorded in **Annexes I.b** and **I.c** and documents consulted are listed in **Annex XI**.
14. The MTE was conducted in part as a participatory exercise: throughout the planning and execution of the exercise, attempts were made to involve the various stakeholders and enable them to actively participate in the evaluation and use it as an opportunity for learning and developing their capacities for continuing the implementation of the project. In the time available and given the size and complexity of the Project, this approach was feasible to only a limited extent. In view of this, it will be important, subsequent to the MTE, for the responsible individuals in the IA, EA, partner agencies and project implementation team to be able to dedicate sufficient time and effort to organise and drive implementation of the MTE recommendations. In this case in particular, a range of capacity development activities for the project management and Biosphere Reserve Trust staff are recommended, and organising these activities will form an important part of MTE follow-up.

Structure of the evaluation report

15. The MTE report is arranged in five sections plus a number of Annexes separate from the main text:

I. SUMMARY	Outline of the project background, evaluation findings, conclusions and list of recommendations.
II. INTRODUCTION	Description of the context within which the project was conceived and created, and the nature and methodology of the project Mid-Term Evaluation (MTE).
III. FINDINGS and CONCLUSIONS	Review and evaluation of the Project overall – design, timing, problems to be addressed, objectives and implementation strategy. Review and evaluation of each of the five major project Components as they were designed and implemented. Evaluation of the project's treatment of the Special Issues highlighted in the MTE ToR.
IV. RECOMMENDATIONS	Collation of all of the MTE Recommendations, in the same order as the main components of the project.
V. LESSONS	Identification of some key Lessons that are derived from different aspects of the GoMBR Project.

III. FINDINGS AND CONCLUSIONS

THE PROJECT OVERALL

16. In the 1990s, the idea of securing a substantial grant from the GEF was formed, with the aim of building on the notification of the GoM National Park in 1986 and the order establishing the GoM Biosphere Reserve in 1989, to create an effective conservation regime for the whole area. The project was designed in the period 1997-99 using the Project Development Facility (PDF) of the GEF⁵.
17. *Pilot Project*: Following the PDF, UNDP supported a pilot project in the Gulf of Mannar area from 2001 to 2003, contributing \$1 million of UNDP funds (intended as project co-financing). The Pilot worked with two NGOs, MSSRF and Dhan Foundation, to devise, test and develop a number of marine resource-based livelihood options suitable for replication in the subsequent main project. It is apparent that there were some good results obtained through the pilot project activities. Unfortunately, the results and any remaining assets have not been integrated with or 'handed over' to the full project. A final evaluation of this pilot project (Vidhya Das and Ishwar Narayanan, 2004) was made available to the evaluators at the conclusion of the MTE.
18. The full UNDP-GEF project document "Conservation and sustainable-use of the Gulf of Mannar Biosphere Reserve's coastal biodiversity"⁶ was signed in 2002. The GoMBR Project plan was endorsed by the Governments of India and Tamil Nadu and approved for funding under the GEF biodiversity focal area, with co-financing by the two governments and UNDP. The plan was for a 7-year project with total funds of \$26.74 million, with UNDP as GEF Implementing Agency, and execution by the Government of India's Ministry of Environment and Forest and the Government of Tamil Nadu. GEF funding was \$7.65 million and co-funding totaled \$19.09 million from Government of Tamil Nadu (GoTN), Government of India (GoI), MSSRF, UNDP, and others.
19. *Project concept and purpose*: The concept was to devise and establish an integrated program of management aimed at addressing the full range of marine and coastal resource issues affecting the long-term ecological health of the Gulf of Mannar. More specifically, the intended purpose of the project was to establish effective management of a new type of multiple use marine conservation area, the GoM Biosphere Reserve, which had been designated 10 years previously but not adequately established or made operational. This would be an innovative pilot program for Tamil Nadu and other Indian coastal states. The multiple issues include water and air pollution and solid waste from land-based industries, municipalities and villages; over-fishing and destructive fishing practices; hunting and harvesting of threatened species populations; benthic habitat destruction; coastal land degradation; marine and terrestrial invasive species. The main drivers of these issues are considered to include poverty, lack of awareness, lack of sustainable alternatives, population growth, industrial and urban development; and the absence of integrated "multi-sectoral" planning and regulatory systems.

Project start and duration

20. The GoMBR Project was formulated in 1997-1999 and was intended to run from July 2000 until June 2007. The formal start was delayed until March 2002 when the Project document was signed between Government of India Ministry of Finance, Government of Tamil Nadu Department of Environment & Forests, and UNDP India country office. The planned duration was to early 2009.
21. Because of concerns over the delays in implementation, UNDP conducted thorough project evaluations in 2004 and 2005, and recommended improvements to the project's management. In January 2006, a project re-planning workshop was organised by the project office and UNDP India with the intention of revising the project's logical framework and the project execution timetable. Unfortunately the outputs from this workshop were not used to make the necessary amendments.
22. In 2007 there was further discussion about changing the effective project start date, from March 2002 to January 2003 and the proposed end date to January 2010. The rationale given was that "*actual project implementation only started from January 2003, 9 months after the project document was signed. ... in the initial years large efforts had to be made to create an enabling environmental among various stakeholders to conservation issues of the region. In addition to delay in the process of the Governmental*

⁵ **Annex VIII** is a note on the PDF 'B' used to develop the design of the GoM Biosphere reserve project.

⁶ For convenience, throughout the MTE Report, the project is referred to as the Gulf of Mannar Biosphere Reserve Project or GoMBR Project rather than by its full original title.

formalities to fall in place, local community also took time to understand the process of community initiated conservation efforts... The process of participation by the community and initial hesitation has hampered... progress." (PIR 2007). This discussion does not seem to have been followed up with formal amendment of the timetable or budget plan for the remainder of the project. No other information was available to the MTE on any adjustments to the project direction, logical framework, timetable or budget.

23. It is apparent from annual reports and expenditure that there was little project activity in the first 3 years of project life, 2002 to 2004, although full project office and management costs continued to be incurred through each of these years. Just over 5% of project GEF funds were spent in this period, compared to the planned expenditure of 50%. In the second period of 3 years, 2005 to 2007, activity picked up, with total expenditure reaching just over 51% of the original GEF budget, including most of the GEF funds earmarked for capitalisation of the Trust Fund, by the end of 2007. Refer to **Annex II** Project Financing & Expenditure.
24. Having completed a detailed review of all project component activities to date and of issues arising during implementation, the MTE concludes the following:
- The original time-frame of 7 years was too short (10 years would have been more appropriate), and depended upon careful organisation of the project's inception, establishment and early mobilisation, treated as a thorough capacity development exercise, which apparently did not happen to an adequate extent.
 - It is now 10 years since the project plan was formulated, and there has apparently not been formal incorporation of any changes to the project design, structure or strategy in that period. It will be essential for the principal project partners to invest in a careful "re-framing" of the project, to agree on a new logical framework, component strategies, institutional arrangements for management and delivery, budget plan and work program; and followed up with a systematic effort to develop the capacity of the officers designated to lead and implement the project and the Biosphere Reserve.
 - Following the MTE and the proposed re-framing and capacity development work, it will take a reasonable length of time for the project to achieve its purpose. The MTE recommends that the project period should be extended for 4 years beyond the current deadline, to reach completion and handover by end of 2012.

Problems that the project seeks to address

25. The problems that the project seeks to address were identified during the PDF phase in a broad analysis of threats to the area's natural resources, and the root causes of those threats. These are described in Annex D of the GEF Project Brief (2002), and summarised in table 1. below. Reviewing these threats and underlying causes in the MTE, it is clear from the range of problems described in this analysis that the project plan was ambitious and that to be successful, the project would need to be implemented systematically and rigorously. Of the 22 underlying issues listed, which are systemic in nature, the MTE concludes that the project has made good progress in 3 main areas - alternative livelihood options; credit systems; and awareness of importance and need for conservation. Progress has been made towards tackling other issues, but the challenges for the project remain: to establish an innovative management system – the GoM Biosphere Reserve – that addresses the underlying issues in a coherent integrated manner.

Table 1. Barriers to addressing threats facing the Gulf of Mannar

Threat 1: Habitat destruction (coral reefs, seagrass beds, mangroves)

- lack of integrated management
- inadequate enforcement
- gaps in legal and policy framework
- insufficient NP infrastructure
- inadequate proactive management
- lack of capacity to develop low impact/ sustainable alternatives
- insufficient awareness of cumulative impacts
- lack of basic integrated regional planning
- lack of alternative livelihood options

Threat 2: Over-harvesting of marine resources

-
- lack of community management and property regime
 - conflict between artisanal and mechanised fishers
 - insufficient enforcement
 - inappropriate fishing technology/ methods
 - lack of applied marine research
 - inadequate and unfair credit systems

Threat 3: Localized pollution.

- lack of management information system
 - inadequate enforcement
 - inadequate monitoring
 - lack of collaborative relationship with industry
 - lack of participatory approach to management
 - lack of integrated development planning
 - lack of awareness of importance and need for conservation
-

Project Objectives

26. The core purpose of the Gulf of Mannar Biosphere Reserve Project (the Project) was to bring into operation a management system for the long-term conservation of the coastal and marine resources of the Gulf region, by a combination of measures for environmental and biodiversity protection and for promoting and regulating ecologically-sustainable exploitation and economic development.
27. The Project document uses a logical framework to present the main structure of the project, comprising 5 main components, described in the document as “Outputs”, and around 75 lower-level outputs or planned results, described as “Activities”. The core structure of the project logical framework is outlined in table 2. below.

Table 2. Core structure of the Gulf of Mannar Biosphere Reserve Project

Development objective	<i>Globally significant coastal biodiversity in the multiple-use area of the Gulf of Mannar Biosphere Reserve will be conserved and sustainably utilized by stakeholders</i>
Project purpose	<i>Establishment and participatory management of the Gulf of Mannar Biosphere Reserve through the application of strengthened conservation programs in the Park core area and enabled sustainable livelihood development in the Reserve as a whole</i>
Component 1.	<i>Establishment and operation of a Project Coordination Unit Establishment of the GoMBR Trust Establishment of a Long-Term Funding Mechanism</i>
Components 2. and 3.	<i>Strengthened National Park operations and infrastructure</i>
Component 4.	<i>Development of biodiversity overlay for Reserve</i>
Component 5.	<i>Developing and demonstrating sustainable livelihood options</i>

28. The MTE concludes that the the logical framework could have been developed more clearly and logically in the original project document. Activities which should be linked were split or repeated between different components. Similarly, a number of the statements of outputs, activities and indicators are not written in a way that makes them clear, precise or readily assessed. It is not easy to understand the overall shape of the project or the strategy envisaged by the designers for each of its main components, and this has turned out to be problem for the project executants in working out how to organise effective implementation of the broad range of activities. It is apparent also that the project and logical framework were designed with insufficient participation of the principal partners responsible for subsequent organisation and implementation of the project.
29. The logical framework should have been modified during the course of project implementation, at inception and at subsequent annual reviews, to have been of more use to the project executants as a planning and monitoring tool. Such a revision was started belatedly through a planning workshop held in January 2006, but this was not followed through to make formal changes to the project’s

logical framework and re-confirmation of strategy. The MTE recommends that this is done properly as an early task following the MTE (Recommendation 1.).

Project Strategy ~ Implementation approach

30. The project was designed with five main components (“Outputs”), concerned broadly with formally establishing the governance and management arrangements for the Biosphere Reserve, including a statutory authority and an independent funding mechanism as a Trust; strengthening the existing National Park as the core Reserve zone; planning and developing capacity for a broad range of management actions to ensure conservation and sustainable use of the marine and coastal resources of the whole Biosphere Reserve; and demonstrating and supporting development of sustainable alternative livelihoods for communities in the Reserve/ project area.
31. The aim was for National Park strengthening, Biosphere Reserve establishment and alternative livelihood development (Component “outputs” 2., 3., 4. and 5.) to form three parallel strategies that would complement each other. Emphasis was placed on the need to maintain a balance between strengthening the marine resources conservation regime and supporting livelihoods and development activities for the coastal communities.
32. However, at its first meeting in 2003, the Board of Trustees resolved that the project would be implemented as an “eco-development” initiative, based on the approach adopted under another project⁷ with which committee members were familiar. The decision should have been reviewed by the project’s formal supervisory body, the TPR, but this was not done. It meant a significant change in the overall strategy for project implementation, and led to other elements of the project not being acted on as originally planned, with generally less activity and progress under components 2., 3. and 4., compared to 5.
33. The MTE concludes that the careful balance that was sought between conservation and development has not been achieved; on the one hand there has been strict biodiversity protection in the National Park and with harvesting bans on a number of species under the Wildlife Protection Act; while on the other hand livelihoods development has been encouraged to take fishing households away from using marine resources. There has been inadequate attention given to achieving balanced, sustainable use of marine resources and to establishing a working Biosphere Reserve. If the project is to be successful, the next phase must strengthen the emphasis on sustainable use of marine resources, by introducing fisheries management measures that ensure that all fishing and harvesting activities are ecologically sustainable and compatible with the long term conservation regime of the entire Biosphere reserve. In addition, the project has not yet built adequate protection for the marine environment overall into the management system. This was caused in part by faulty design, in which the need to control pollution and waste management was under-estimated, and by lack of adaptive management towards addressing an escalating problem.
34. Overall therefore, the MTE recommends a deliberate major shift in emphasis for the second half of the project, to re-balance the three parallel strategies required for the Gulf of Mannar Biosphere Reserve to be an effective long term marine conservation system: these are **ecologically sustainable marine harvests, fisheries and marine livelihoods development** (BR, FSD and local communities); **biodiversity protection** under the Wildlife Protection Act (BR, FD-WW and local communities); and **protection of the marine and coastal environment** through pollution and waste management (BR, PCB, municipalities, local communities), and coastal land management (BR, CMA, FD).

Institutional arrangements

35. As indicated by the bracketed references above to the agencies involved, in order to bring about the required integration of these three parallel strategies, the Biosphere Reserve management regime has to have the full engagement of the Forest Department (FD), Fisheries Department (FSD), Pollution Control Board (PCB), Coastal Management Authority (CMA), GoM coastal municipalities (especially Tuticorin, Kilakarai and Mandapam), the several hundred local village communities, and private sector.
36. The Gulf of Mannar Biosphere Reserve Project was designed as a complex initiative to bring about changes in the management of the resources of the special marine area and achieve an effective balance between conservation and use activities. Ten years after the project was designed and six

⁷ The Kalakad Mundanthurai Tiger Reserve project was a World Bank-funded eco-development initiative running from 1995 to 2001

years after funds were released and implementation started, only modest progress has been made in the key areas of changing marine resource management practices and institutions. The implementation strategy that was planned was deliberately changed, to concentrate on awareness raising and livelihoods development for the coastal village communities. Another key feature of the project was that the GEF funds would be used to facilitate changes in line Departments' programs that would bring substantial co-financing to the overall Biosphere Reserve initiative. This also has not happened to any marked extent.

37. The MTE concludes that the relevant government offices have not been sufficiently enabled to organise and engage in the project's execution. The lesson is that for such a complex project, there should have been much greater attention paid to project handover, inception briefings, and specific capacity development of the individuals and bodies made responsible for project execution. Significant compounding factors appear to have been the complicated institutional arrangements proposed for project execution – for example, see the Project Document Annex 10 Summary of institutional arrangements – and the unclear specifications for project supervision and management, and of the constitution and role of the "Trust" and the project office (PCU). Overall there has not been efficient supervision (see comments elsewhere about the need to convene the TPR) nor adequate authority or capacity given to any office to exert adequate leadership or direction over the disparate parts of the initiative. To date, it is apparent that the project has been a FD effort focused on supporting alternative livelihoods and strengthening a regime of strict biodiversity protection, with insufficient attention either to establishing a sustainable fisheries/ marine resource use regime, or to broader protection of the marine environment.

Project area

38. While the project area is not clearly delineated in the project document, the intention appears to have been to cover the whole expanse of India's half of the Gulf of Mannar, incorporating the coastal land⁸ and shoreline and extending to the limit of India's territorial seas. Within this area, there is a core reserve zone comprising the line of nearshore islands and the shallow sea areas immediately around them, which are designated the GoM National Park.
39. The entire area is referred to as the GoM Biosphere Reserve, although there are a number of ambiguities and confusing descriptions of the intended boundaries of the Biosphere Reserve, in the original government order, in the maps used by Forest Department, in the Project Document and in the 2007 draft GoM BR and NP Management Plan. The MTE recommends that the boundaries should be determined in full as a matter of urgency, and that their description should be incorporated into the formal legal procedure for designation of the Biosphere Reserve. In order for the project to take these steps to properly establish the Biosphere Reserve and management system, the questions itemised in table 3. below need to be resolved.

Table 3: Gulf of Mannar Biosphere Reserve boundary issues

Boundary issues to be resolved	
a) The geographic extent of the BR along the coastline	• does it extend from Pamban or Mandapam in the north; and to Tuticorin or Cape Comorin in the south?
b) The seaward extent of the BR	• does it extend to the outer boundary of India's EEZ; or to 3nm or 12km offshore; or to the 20 (or 100 or 1000) metres submarine depth contour?
c) The landward extent of the BR	• does it extend from the sea up to low tide level or high tide level? what about up creeks and waterways? • does it also extend inland, by 500 m, 2 km, or 10 km?
d) Land-based activities within the BR	• does the GoM BR management regime cover everything within its area, including all land-based activities – infrastructure, public utilities, municipalities, industries, buildings, chemicals... ?
e) GoM National Park within the GoM BR	• does the BR extend over the NP or only around the outside of it? in other words, do the BR management regulations overlap those of the NP?

⁸ "the surrounding productive land and seascape of the reserve area..... the coastal zone..... part of the GoTN's ICZM initiative.... clear definition of Reserve boundaries, particularly in the terrestrial area. People will know whether they live within the buffer zone or in a transition area and the types of activities they can pursue on the land part and the marine part..." UNDP-GEF Project Document

40. The MTE suggests that the following principles should be adhered to when making these determinations:

- The concept behind the Biosphere Reserve is to recognise that all parts of a region are ecologically inter-connected and therefore ecological problems cannot easily be “fenced out”. The GoM BR should be a sensible ecological and social geographic area within which the management of conservation and development issues can be integrated.
- The boundaries of the outer limits of the BR and of any differential activity zones within the BR should be aligned so as to be readily understood, communicated and identifiable ‘on the ground’ using simple navigation and visual aids that are commonly available. In other words, a depth contour is not a suitable boundary, because it is not readily identifiable; a straight line of sight between fixed landscape features is more readily understood, communicated and identified.
- Alignment and demarcation of GoM BR, NP and Zoning boundaries should be kept as simple and practicable as possible.

Recommendations: the Project overall

Recommendation 1: Reframe and re-confirm the Project essentials: supervision, implementation capacity, strategies, budget and timetable extension.

The MTE has a number of concerns about the project overall: the underlying concept and strategy have been largely not followed; co-financing has not been available for integrated programming; and there has been little progress made in some key areas of the initiative, despite the number of years since project inception, and the absence of any adaptive management measures. Against these concerns, the MTE recommends that within 3 months of the MTE final report completion, the project manager and project office, using stakeholder workshops and the MTE Report as a guide, with technical support from UNDP and others as required, should prepare a project completion plan based on a revised logical framework, which should specify component objectives and strategies; program budgets and co-financing; procedures for monitoring, evaluation, reporting and adaptive management.

- The new plan should be approved by a re-constituted Tri-Partite Review body (GoI, GoTN, UNDP India). The project’s implementation should then be delegated to the office of the Biosphere Reserve Authority Executive as recommended under component 1. below.
- An important aspect of reframing the project will be to carefully plan the strategies that will be used to implement each of the components of the project. This means setting clear objectives and targets; planning effective approaches, methods and tools; devising a suitable M&E system; allocating resources and responsibilities. This planning work should be treated as an in-service capacity development exercise for the project executives, using specialist consultants-facilitators as required.
- Following the MTE and the proposed re-framing and capacity development work, it will take a reasonable length of time for the project to achieve its purpose. The MTE recommends that the project period should be extended for 4 years beyond the current deadline, to reach completion and handover by end of 2012.

Recommendation 2: Integrate the planned co-financing and GEF funds in order to confirm and manage one program budget.

The funds allocated by GoI and GoTN for actions relevant to the overall Biosphere Reserve management area should be formally incorporated into a composite budget that is linked to an integrated program and under the control of BR Executive Director, and thus combined also with the project’s GEF budget.

Recommendation 3: Develop and manage a systemic capacity development program for the Biosphere Reserve management.

The Project is aimed at devising and developing a management system for a new type of conservation area in Tamil Nadu and India, a marine Biosphere Reserve within which a diversity of marine resources are used, but with an emphasis on ensuring that each use is ecologically sustainable. The GoM marine Biosphere Reserve concept requires innovation in the ways in which multiple species fisheries and species harvesting, mariculture, coastal land use, municipal and domestic waste, and resource-based livelihoods and employment are managed within and around the Biosphere Reserve area. Innovations in these areas require changes in policy and practice by the following groups of agencies – primarily Fisheries Department, Forest Department, Pollution Control Board and Coastal Management Authority; and secondarily Rural

Development Department and Social Welfare Department. The recommended way to achieve the necessary changes and innovations in policy and practice is to establish the joint program mechanism and then undertake systemic capacity development involving each of these agencies through the second half of the project.

- A comprehensive capacity development program should be planned and organised for all those working on Biosphere Reserve establishment and management, using “in-service learning” as the principal strategy. Within 3 months of the MTE report completion, the project manager and project office, using consultants as required, should plan a capacity development program for the next three years.
- The capacity development program could usefully include an intensive study tour for a core group of competent professional staff from the Trust office/ proposed BR Authority Executive, to investigate and learn from comparable marine conservation initiatives and then apply their developed competencies to the development of the Biosphere Reserve management system. A preliminary outline of a possible study tour was discussed during the MTE.
- The TPR and project manager/ Trust Director should consider contracting an external technical advisor to the project manager’s/ Trust office for the remainder of the project. This could be a part-time, off-line specialist, responsible for advising the manager/ Director on technical delivery of the project and development of the Biosphere Reserve, and for organising and contributing to the in-service capacity development program.

COMPONENT 1. PROJECT MANAGEMENT, GOMBR TRUST & FUNDING MECHANISM

Concept and Design

41. Project component 1 provides for the management and administration of the **project** itself; the establishment and operation of the management mechanism for the planned **Biosphere Reserve**; and the design and establishment of a **long-term funding mechanism (LTFM)** for the Biosphere Reserve. For the first of these, Project management, the requirement was to put in place a project supervision mechanism (Tri-Partite Review, TPR, and Project Steering Committee, PSC) and a professional project management office, called the Project Coordination Unit (PCU), with staff, equipment, office facilities and funds sufficient to supervise, direct and administer the project activities and expenditure over the planned 7-year duration. For the second and third sub-components, concerned with the Biosphere Reserve itself, the plan was to formally establish the Biosphere Reserve as a management entity, with a management body created as a statutory authority, comprising a Board and an executive office called the Biosphere Reserve Trust or Foundation; and a mechanism for securing independent long-term funding (LTFM) for the Biosphere Reserve management authority and its operations. The PCU was intended to operate under the Trust office, with the project funds being used for the duration to run the Biosphere Reserve Board, Trust office and management operations. By the end of the project period, the LTFM would have been set-up, and yielding sufficient income to maintain the day-to-day operations of the Biosphere Reserve.
42. Funds available for these three core sub-components totalled \$5.57 million. This was to be split into \$470,000 for PCU project management and operations for 7 years (approximately \$67,000 per year), \$100,000 to assess the feasibility, design and establish the LTFM; and \$5 million to deposit as investment capital for the LTFM, a perpetual endowment fund intended to yield sufficient income for the recurrent operations of the BR management statutory authority.

Table 4: Summary plan of outputs and financing for project Component 1. (for 2002-08)

Project Outputs Component and Outputs	Project Funding (US\$) 7 years		
	Total	GEF funding	Co-funding
Project, Trust, LTFM	5,570,000	1,450,000	4,120,000
Project coordination unit		350,000	120,000
LTFM feasibility study		50,000	-
LTFM establishment		50,000	-
LTFM capitalisation		1,000,000	4,000,000

Review and Evaluation of Activity and Achievements to Date

43. Table 5. below provides a summary of the planned results for this component, drawn from the project document and logical framework, and notes the achievements that are apparent to the MTE.

Table 5: Component 1. Summary of planned results and achievements

Key planned results (and Year)	Achievements at MTE (April 2008)
Component 1: Establish the Gulf of Mannar Biosphere Reserve Trust as a statutory authority	
[Y1] Establish GoMBR Trust, PCU and local Panchayat co-ordination structure	The Gulf of Mannar Biosphere Reserve Trust has been registered as a Society under the Tamil Nadu Registration of Societies Act. The Trust has not been established as a statutory authority. 252 VMCEDCs have been set up in the project area. Formal connection to local Panchayat structure needs to be strengthened.
[Y2] LTFM study concluded	LTFM study terms of reference have been drawn up. Major achievement of Village Conservation & Development Funds established with virtually all coastal communities in the Project area. 90% of the \$1 million GEF funds available have been used to capitalize the Village Funds.
[Y3] Initial LTFM co-financing	Co-financing for LTFM (GoTN \$4 million) not deposited.
[Y?] Final LTFM co-financing	ditto

Project management, the PCU

44. Supervision of the Gulf of Mannar Biosphere Reserve project is the responsibility of the "Tri-Partite Review" body, comprising GoI (MoF, MoEF), GoTN (DEF) and UNDP. The senior representative of the GoTN DEF on the Board of Trustees/ Project Steering Committee is the Secretary, DEF, and this position is also designated National Project Director. The MTE notes that the TPR has not been convened for the GoMBR project, and that no clear distinction has been drawn between the Project Steering Committee and the Board of Trustees and subsidiary committees created as the governing structure for the Biosphere Reserve Trust. As a consequence, rigorous attention to the supervision and management of the project has been lacking.
45. The project office or coordinating unit (PCU) responsible for managing implementation of the Project is identical to the office of the GoM Biosphere Reserve "Trust", which was set up in March 2003 with headquarters in rented premises at Ramnathapuram. The Trust office is headed by the Trust Director, who is also therefore the Project Manager. This position has been filled by a senior officer on deputation from TN Forest Department. The Project/ Trust office has 6 program staff and 4 administrative staff members. Refer to **Annex IV**. These positions have been filled mainly by contracted individuals. To manage project implementation over the extensive geographic area, which comprises the coastal zones of two local government Districts, Ramanathapuram and Thuthikodi, the project office has introduced a regional structure, with 4 zones (Mandapam, Erwadi, Kilakarai and Tuticorin) sub-divided into 12 sub-zones. The Project/ Trust office staff include 4 zonal and 12 sub-zonal positions. These have been filled on deputation, approximately equally from FD and FSD. The salaries of all PCU staff including those of deputised officers are paid from the project GEF budget.
46. In addition, 66 Field Project Workers (FPWs) and 40 anti-poaching watchers (APW) have also been employed to assist in the organisation of project activities at village community level and along the length of the coastal zone. The first group (FPWs) work largely as liaison and facilitators between the zonal officers and village committees (VMCED Committees, see component 5.2 description below and **Annex V.a**). Their salaries are borne by the project but routed through the respective village committee, with the understanding that the VMCED Committees will try to continue employing them from the Village C&D Funds once the project is over. The second group (APWs) have formed the beginnings of a community ranger or conservation corps, undertaking patrols along the coast, and working directly with the forest guards on NP and wildlife enforcement duties. Their salaries are borne by the project but routed through the Wildlife Warden and the village committees.
47. The system of filling positions by deputation from the line departments has not provided continuity or motivated staff for the project/ Trust office. Being posted to the Gulf of Mannar BR has not been regarded as an attractive career or personal move for officers, so that there has been difficulty in filling positions and keeping staff. The deputations are also for short fixed periods only. Officers on deputation from FSD have all reverted back to the home department, so that for the six months prior to the MTE there have been no FSD officers working in the project/ Trust office.
48. The budget provides for Project/ Trust office funding of \$350,000 (GEF) plus \$120,000 (co-financing), which together equate to \$67,000 per annum over 7 years. The intention at project formulation appears to have been for higher levels of expenditure in the first four years, to enable the Project/ Trust office to "buy-in" technical assistance and organise a more intensive program of systemic capacity development. From year 5 onwards, it was intended that line departments' capacity would have been developed and be operating effectively across most of the technical Biosphere Reserve management programs. Beyond the project, Trust office operating costs would be borne either by the GoTN directly or by income from the LTFM.
49. The MTE concludes that the level of Project/ Trust office funding has not been sufficient. Expenditure has been more than double the budget for each year from 2003 to 2007, with only GEF funds and no co-financing being made available. The budget for this item should have been amended to a more reasonable level during project inception. For the project to continue to completion, formal budget revision will be required, with funds re-allocated from other parts of the budget.

Biosphere Reserve Trust Establishment

50. The Gulf of Mannar Biosphere Reserve Trust was declared by government order in December 2000 (G.O. Ms.263 E&F Department (FR-V)), following the notification of the Biosphere Reserve in 1998. The Trust was registered as a Society under the Tamil Nadu Registration of Societies Act on 23 February

2001. The Trust is considered to be a special purpose vehicle of government, charged with coordinating the actions of government line departments operating in the Gulf of Mannar.

51. The MTE observed that the Trust as a Society is a weaker institution than was intended. It is clear from the Project document that the Trust was envisaged as a Biosphere Reserve management authority established under a specific statute, with sufficient authority vested in this body to enable a reasonable degree of control to be exerted over the line departments' actions and to develop a sufficiently strong management regime for the new type of marine conservation and development area. The present situation is that the Gulf of Mannar Biosphere Reserve remains only a concept, not a legally designated area, and without a formally established management authority.
52. There was a clear need identified in the project document for joint authority to be established to manage the Biosphere Reserve, in particular between Forest Department, Fisheries Department, the Coastal Management Authority and Pollution Control Board. Such a collaboration has not been achieved to any significant degree. The present Trust and Director are seen as belonging to the Forest Department, and have not been given the authority to develop and direct a joint program of management operations in the area, not even across different offices of the Forest Department, let alone across the several line departments with responsibilities for conservation, protection and regulation of use in the area.

Governing Committees for the Biosphere Reserve, Trust and Project

53. Over the years, the GoTN has established the following six Committees to govern the Biosphere Reserve Trust and the Project; the details are described in **Annex III**:
 - a) Board of Trustees [20 members]
 - b) State-level Coordinating Committee [14]
 - c) Empowered Committee/ Project Steering Committee [14]
 - d) Empowered Sub-Committee [10]
 - e) 2 District-level Coordinating Committees [21 members each]
Ramanathapuram and Thuthikodi Districts.
54. The complex structure was created to meet the overlapping needs to govern and coordinate responsibilities for the Trust funding mechanism (LTFM), the Biosphere Reserve, and the Project itself. The MTE concludes that the committee structures need considerable streamlining. They place a burden on the line department offices of the GoTN and their non-government partners, and on the Project/ Trust office. For instance, the Project Manager/ Trust Director or his deputy is a member or member secretary of each of the six committees, each of which is required to meet at least twice a year, necessitating generation of agenda papers, reports and minutes. A considerable portion of the capacity of the small Trust office is thus spent on servicing the committee mechanisms. At the same time, the Committees have not resulted in significantly improved integration of line department activities in the Biosphere Reserve; a key issue is that under the present system, the Trust Director takes instructions from each committee rather than being able to use any of the committees to direct an integrated program of Biosphere Reserve activities.

Long-Term Funding Mechanism (LTFM)

55. The plan was to create a mechanism that would secure long-term funding for the Biosphere Reserve management authority and its operations. The mechanism was to be autonomous, so that the Biosphere Reserve and Trust would not be reliant on government funding for core operations. The LTFM concept of a perpetual endowment or trust fund was to be investigated in the first years of the project, and if feasible and agreeable, was to be set up before the end of the project period. \$1 million of the GEF funds were earmarked for capitalization of the trust fund, on the agreement that this was matched 1:4 by GoTN fund-raising. The calculation was that the \$5 million capital would yield around 7% or \$350,000 per annum in investment income, and that this would be sufficient to administer the funding mechanism and contribute towards Biosphere Reserve co-management.
56. The MTE notes that the proposed first step, to conduct a feasibility study, has been planned; terms of reference for the study have been prepared but the study has not yet been commissioned. In the meantime, a system of coastal community micro-funds has been established successfully through a contract with each of the Village Conservation & Development Committees (VMCEDCs) with which the Project and Trust office have been working. A total of over \$900,000 of GEF funds (out of the \$1 million budgeted) has been used to set up and provide initial capital for 252 community micro-funds.

The amount of capital made available to each village account is in three tiers based on the level of dependency of (and threat posed by) the village on local marine resources. See also section on Component 5. Sustainable Livelihoods Development.

57. The MTE concludes that the creation and initial capitalization of the 252 community micro-funds is a significant achievement for the Project/ Trust office working in partnership with the entire local community in the coastal zone adjacent to the Biosphere Reserve. Although the formal process to establish a LTFM has not been followed as intended in the Project document, and there is a risk that the effort has been spread too thinly, the MTE considers that the village micro-funds provide an appropriate, innovative and reasonably strong foundation for establishing the Long Term Funding Mechanism for the Gulf of Mannar Biosphere Reserve.

Financial analysis

58. The summary table 6. below on expenditure under component 1. indicates that the budget available for managing the project and Trust office, \$450,000, has been overspent by 215%. Roughly \$200,000 has been spent on this budget item each year from 2003 to 2007, against a budget of less than \$100,000. The MTE concludes that the original budget was not sufficient to undertake the activities that were envisaged for the project/ Trust office, and notes also that, since the budget plan was originally drawn more than 10 years ago, inflation and currency fluctuation have reduced the value of the funds available by perhaps 30%. However, the MTE notes also that the project office does not have an adequate system in place for monitoring expenditure against the budget, and for ensuring that expenditure remains within the limits set.
59. Most of the budget under this component was earmarked for capitalization of a long-term funding mechanism. By the end of 2007, 91% of the GEF \$1 million contribution to the LTFM had been deposited in the micro-funds established through the project's efforts with the VMCEDCs. The recommendation of the MTE is for the GoTN to complete the establishment of an effective LTFM for the Biosphere Reserve, by depositing their contribution of \$4 million in a trust account for the GoMBR Community Foundation, incorporating the 250+ village micro-funds. Refer to Recommendation 9. below).

Table 6: Component 1. budget and expenditure

Project Expenditure (US\$) 2002-2007					
Components		Budget	Expenditure		Balance
1. PCU, Biosphere Reserve Trust	GEF	450,000	967,418	215%	0
LTFM design and capitalization	GEF	1,000,000	908,345	91%	91,655
	Private	120,000	0		120,000
	GoTN	4,000,000	0		4,000,000

Recommendations: Component 1. Project management, Trust and LTFM

60. The MTE makes the following recommendations for strengthening Component 1.

Recommendation 4: Strengthen Project supervision, management and administration

The MTE recommends that project supervision should be streamlined and tightened to improve efficiency and reduce the time and financial costs incurred. A clear distinction should be made between Project supervision and governing the Biosphere Reserve. Senior representatives from GoI, GoTN and UNDP should form the project supervisory body, the Tri-Partite Review (TPR), responsible for approving project work and budget plans for the year, receiving quarterly summary and annual progress reports, and approving appropriate follow-up actions.

Project management and administration need greater care and attention, and project activity planning, monitoring and reporting need to be improved. The project management does not have adequate capacity for risk management or adaptive management. Despite the lengthy periods of time since the project document was prepared (1998) and implementation commenced (2002), and events that have occurred subsequently – notably the 2004 tsunami – no adjustments have been made to any part of the project plan or budget. An early capacity development exercise should be organised by the TPR for project supervision, management and administration staff. See MTE Recommendation 3. More rigorous use should be made of the main

tools available of the logical framework (for planning and monitoring), annual and overall budget plans, routine reporting, and adaptive management.

The project budget plan needs to be revised carefully, with adequate funds for a no-cost extension of the project for five more years allocated to each planned result area. The revised budget should be approved by the TPR, and authority should be delegated to the project manager and staff to spend the annual budget on the approved work plan, and to monitor and report back on expenditure against the budget. Adequate systems for financial expenditure monitoring, accounting and reporting should be put into operation by the project office immediately following the MTE.

The Project would operate under the proposed BR Authority – see below - so that the Executive Director and staff would also be the Project manager and staff for the duration of the Project. Adequate technical/ professional staff need to be employed – on deputation or contract – to direct each major area of project activity – BR and village conservation planning; marine (fisheries) and coastal resource management; environment protection; sustainable livelihoods development; research, information system and monitoring. These staff should become the Executive staff of the BR Authority when it is formed. The zonal officers should not be project employees, but should be trained and developed to serve as the main body of Biosphere Reserve Field Managers, supported and directed by the project technical directors/ Executive staff – see also Recommendation 7. The current Field Workers should not be employed by the project, but should be converted to technical (eco-development) advisors employed by the proposed GoM BR Community Foundation and VMCEDCs as affordable – see also Recommendation 9.

Recommendation 5: Revise the Project budget and strengthen financial management

The MTE recommends that UNDP (TPR) and the project office should undertake urgently a complete review of the project budget and expenditure to date; and draw up a new budget to be approved by the project's supervisory body, the TPR. See Recommendation 1. The new budget should contain sufficient funds for the planned extension of the project, including this component: for the project office to operate for the duration of the planned extension; for the GoM Biosphere Reserve and Authority to be established soundly in law and capacity; for the establishment of the GoM Biosphere Reserve Community Foundation. An outline for an extension budget is suggested in **Annex II**. A capacity development program should be undertaken over the six months following the MTE, to strengthen the administration of the project office and finances, information system, monitoring and reporting; and to develop comparable capacity in the offices of the GoMBR Authority and Community Foundation. See also Recommendation 3.

Recommendation 6: Formally establish the GoM Biosphere Reserve and Authority – Board, Executive, Director, Executive Coordination Group

One of the MTE's main recommendations is to address the weakness in the current institutional arrangements by establishing (a) a body with adequate powers to govern and manage the Biosphere Reserve, and (b) the position of Director with authority to direct the actions of all line departments in the Biosphere Reserve as a fully integrated program.

It is suggested that in order to establish the Biosphere Reserve effectively, the following actions should be organised as a matter of urgency by Gol and GoTN:

- The Gulf of Mannar Biosphere Reserve should be formally established as a designated area under appropriate legislation, such as the Environment Protection Act, with a statutory management body, the GoM Biosphere Reserve Authority.
- The existing committee structure should be disbanded and replaced with a streamlined Authority, comprising three parts, the Board and the Executive, plus an executive Coordination Group. The Board should be a part-time body of 3-5 senior officials plus the representative of the BR Community Foundation – see below. The Executive Director would also be a member of the Board. The Board would be responsible for providing overall direction to the Biosphere Reserve management and ensuring whole-of-government accountability and policy coordination.
- The BR Executive would comprise the Director and staff, and would be responsible for managing the operations of the Biosphere Reserve. It would be equivalent to the current Trust office, which should be re-named the office of the Authority and Executive. The Executive office would implement the integrated management program of the Biosphere Reserve, incorporating the local operations of the relevant line agencies (FSD, FD-WW, CMA, PCB). The Executive would set up and direct joint systems, joint planning, joint budgeting

and joint operations for all these agencies' activities in the Biosphere Reserve area, with the aim of delivering an integrated program of actions addressing the management of the Biosphere Reserve.

- There should be an Executive Coordination Group chaired by the Director with members representing each line department and agency with work relevant to the Biosphere Reserve.

Recommendation 7: Strengthen the Executive staff of the Biosphere Reserve Authority

Within two months of the MTE, the project/ Trust Director should review the current Trust office staff and prepare a 5 year plan for strengthening the team to serve as the proposed BR Executive.

- There is an urgent need to enhance the capacity of the project office/ the Trust office/ Biosphere Reserve Executive office to be able to manage the technical programs which it is responsible for organising.
- The GoTN should enable the BR Authority Executive to recruit and retain motivated staff and invest in their capacity development, by amending its human resource management procedures if necessary. The Biosphere Reserve Authority should be able to offer excellent opportunities for long term personal and professional capacity development of officers appointed there. See Recommendation 3.

Recommendation 8: GoM Biosphere Reserve Advisory Committee

A GoM BR Advisory Committee is recommended, with membership representative of GoTN, research institutions, private sector, and the local community. The Advisory Committee would be responsible for providing advice to the Director and the Board of the Authority. Sub-committees should be formed under the Advisory Committee as required to deal with specific matters such as research, international liaison, etc. for the Biosphere Reserve. The project/ Trust Director should prepare a plan for the new BR Authority Board to approve a streamlined advisory committee structure.

Recommendation 9: GoM BR Community Foundation and Long-Term Funding Mechanism

The MTE recommends that a separate GoM BR Community Foundation should be established as a partner body to the BR Management Authority, with a director of the Community Foundation on the Board of the BR Authority. Within 4 months of the MTE report, the project/ Trust office should facilitate the necessary process to formalise these institutional arrangements for the BR Community Foundation and BR Fund.

- The BR Community Foundation should be a community organisation mandated to support village conservation and eco-development; to own and manage the BR Fund, formed from the combined community micro-funds held by each VC&DC.
- The project/ Trust office should modify the planned LTFM feasibility study, to obtain sound legal and financial advice on the best mechanism to follow; to formally register the BR Community Foundation and Fund in law, as an umbrella body incorporating each of the village committees and micro-funds. The legal purpose of the Community Foundation should be confirmed as a registered community organisation serving the conservation and development interests of the resident community in the coastal zone adjacent to the Biosphere Reserve, within the wider national and global community.
- A diligent governing mechanism for the BR Community Foundation should be established, with the individual Village C&D Committees as shareholders, and community representatives drawn from the Committee executives having a controlling majority on the Foundation's Board of Directors. The BR Community Foundation should be formally linked to the GoM BR Authority, with a representative on the Board of the Authority.
- A formal plan and procedures for owning, governing and utilising the Foundation's endowment Fund and micro-funds should be prepared (as part of the modified LTFM feasibility study) and approved as part of the formal establishment of the Foundation as a legal entity. The plan should provide for the endowment fund to be used to support both conservation and development – i.e. community contributions to co-management/ conservation planning and actions for the Biosphere Reserve, as well as on-going support for eco-developments, sustainable livelihoods and business ventures based on sustainable use of Biosphere Reserve resources.
- Once the BR Community Foundation is registered, half of the \$4 million leveraged funds from GoTN should be deposited with the Foundation as a capital trust fund linked to the village micro-funds. Within two years, the remaining half of the GoTN capital funds should be deposited with the Foundation. By this process, the \$5 million endowment fund will be capitalized by 2010 and yielding an income that can be disbursed by the BR Community Foundation.

COMPONENTS 2. & 3. NATIONAL PARK MANAGEMENT STRENGTHENING

Concept & Design**Component 2. Strengthening National Park Operations****Component 3. Expanded National Park Infrastructure**

61. Under these two linked components, the existing National Park (NP) designated over the 21 islands and their immediate surrounding sea areas was intended to become properly established, with adequate infrastructure facilities and efficient and effective Park management operations. The MTE notes that these were relatively straightforward components, which should have been quickly mobilised and achieved once the Project was started, given that the NP had been designated and management operations started in 1986: basic infrastructure, information system, management plan, NP office and field staff, and operations were all in place, with annual GoI and GoTN funding, prior to the Project starting.
62. The plan for component 2. provided for significant improvements in NP management. These included: capacity development in the form of increased staff and staff capacities; a substantially improved management plan for the Park, prepared and implemented cooperatively with local coastal village communities on the adjacent mainland; priority species and habitat protection and restoration programmes based on specific management plans; a cooperative enforcement program between FD and the Coast Guard; well-developed and managed Park tourism and visitors' programs. A major extension of public awareness raising and education was also planned in support of Park management and biodiversity conservation. For all of these activities, the GEF would provide the majority of funding (\$2.275 m) and GoTN Forestry Department would add \$665,000, doubling their current (ca.1998) baseline budget allocation of \$700,000.
63. Component 3. was to provide for NP infrastructure improvements, specifically "modest new field structures (e.g. guard facilities, visitor centre)"; equipment for "required park management, research and monitoring tasks", plus training in its use; and demarcation of NP zoning and boundaries.

Table 7: Summary plan of outputs and financing for project components 2. and 3. (2002-08)

Project Outputs	Project Funding (US\$) 7 years		
	Total	GEF funding	Co-funding
2. Strengthened Park Operations	2,940,000	2,275,000	665,000
Strengthened management/enforcement		450,000	500,000
Park management plan		430,000	-
Eco-tourism programme		30,000	75,000
Species and habitat mgt. plans*		455,000	40,000
Targeted research programme		185,000	-
Awareness and env. education		500,000	50,000
Monitoring programme		225,000	-
3. Expanded Park Infrastructure	975,000	975,000	-
Demarcated boundaries		305,000	-
Strengthened Park infrastructure		670,000	-

64. The intention in the project document appears to have been for the implementation of these two components to be overseen and guided by the PCU, but carried out by the Forest Department. The budget provided also for outside technical assistance to be contracted. The Project document prescribes implementation of a "Sub-contract to operationalize the GoMNP", to cover all the component 2. activities. It is not clear to whom the sub-contract should be given; the advice given to the MTE is that the intention of specifying a series of "sub-contracts" was that this would enable project implementation to be by NGOs. In the event, this did not happen; the project has been implemented as a Forest Department project with little or no responsibility allocated to other departments or non-government partners.
65. The specific indicator of substantive impact suggested for strengthened NP management operations and infrastructure (components 2. and 3.) was that the ecological condition of "seagrass (and) coral reef core natural areas" would be improved by the end of year 4.

Review and Evaluation of Activity and Achievements to Date

66. For the two project components 2. and 3., the key results that were planned and the apparent achievements noted during the MTE are summarised in table 8. below.

Table 8: Components 2. & 3. Summary of planned results and achievements

PLANNED RESULTS (AND YEAR)	ACHIEVEMENTS AT MTE (APRIL 2008)
Component 2 : Strengthened Park Management	
[Y1] Full NP status for notified NP areas	No action taken; the "intention to notify" as made for GoM NP is apparently now sufficient.
[Y1] Cooperative enforcement regimes in place	Partially achieved; villagers aware of but not respecting the FD policy of prohibited NP access; village anti-poaching watcher groups created; coral reef mining within NP areas by coastal villagers apparently ceased.
[Y1] over 1000 Park visitors	No visitors are allowed under current FD policy for NP.
[Y2] Eco-tourism management guidelines	No plan for GoM NP eco-tourism, nor guidelines prepared to date.
[Y2] Community-based management plan	Original NP management plan prepared in 1993. New integrated management plan prepared for BR & NP by WII in 2007; NP provisions approved by FD, but no legal framework for approval of the BR provisions. Stronger provisions are needed for community engagement in the planning process and proposed management actions.
[Y2] Monitoring program operational	No apparent NP activity recording or monitoring in place. NP biological resource monitoring limited to series of 2007-08 commissioned research surveys and studies.
[Y2] 10 youth conservation corps operating throughout BR	40 village "anti-poaching watchers" formed; provides good start towards a model of conservation corps or community rangers.
[Y2] Coral reconstruction demonstration underway	Coral transplant trial started by SDMRI (Tuticorin); no strategy yet prepared for coral reef reconstruction or enhancement.
[Y3] Staff capacity improvement	All staff have been trained in basic biology and conservation; capacity for planning and management, and to work in the marine environment still requires strengthening.
[Y3] Species management plans prepared and implemented	Various species plans prepared as part of WII-commissioned overall management plan; no species management plans implemented.
[Y3] Protection extended for coral and seagrass	Seagrass protected in NP areas only; damaged by fishing gears elsewhere. Corals more widely protected under WPA Schedule 1. Coral mining appears to have virtually ceased in the BR area; average of 4.5% increase in live coral cover has been recorded. Joint patrols by FD, FSD, coastal police and APWs have commenced. Wildlife guards plus APWs conduct land "patrols" along GoM BR coast.
[Y3] Education outreach programs reaching 20% of schools	In 2007, 226 Trust-funded education activities were conducted in 59 project area schools, reaching 28,492 students and 235 teachers.
[Y3] Awareness of industry stakeholders increased by 25%	No data available.
[Y6] Public awareness of BD values and BR increased by 50%	Large number of public awareness activities carried out; planned result not readily monitored or evaluated; no baseline established.
Component 3 : Expanded Park Infrastructure	
[Y1] Park zoning boundaries agreement signed between GoTN and local communities;	FD has maintained NP policy of no-access, no-use; no consideration has been given to activity zones for non-consumptive uses within the NP; a zoning plan has not been developed; there has been no agreement reached between GoTN and communities.
[Y1] Park and zone legal boundaries demarcated (in sea)	Basic NP boundaries are not demarcated; legal boundaries have not been re-aligned for practicability.
[Y2] Park building and equipment improvements	Vehicles and basic equipment have been purchased and training provided.
[Y2] Training provided in Park infrastructure use	Visitor centre under construction at Ramnathapuram.

NP management operations and infrastructure strengthening

67. The GoM National Park that was established in 1986 remains in force in 2008. To support the NP management operations, the FD maintains an office in Ramanathapuram and sub-offices in Kilakarai and Tuticorin, with staff under the Wildlife Warden, as the officer in charge of the GoM NP. Facilities available include 6 old and unseaworthy boats, office infrastructure and vehicles. This structure and operation extends across the two Districts of Ramanathapuram and Thuthikodi within which the NP lies. Routine NP management operations comprise occasional visits to or around the NP islands by boat.
68. The establishment and systems in operation at the time of the MTE do not appear to have been developed a great deal since the time the Park was designated in 1986 or the project was designed in 1998. There do not appear to have been any "new field structures (e.g. guard facilities, visitor centre)" constructed, although the MTE was advised of office renovations and visitor centre construction in the District centre, Ramanathapuram. A number of vehicles, snorkelling equipment, binoculars etc. have apparently been purchased by the project for the NP.
69. A basic reason for slow progress with strengthening the GoM National Park appears to be that no one office has been given the authority to direct these aspects of the project. Both the Project Manager (Trust Director) and the Wildlife Warden in charge of the NP are FD officials required to follow the policy and instructions of the Department, but the Project Manager and staff are quite separate from the National Park management, and have been given no authority to organise any actions on behalf of the NP management, nor therefore to ensure that the proposed Park management strengthening under component 2. is organised and takes place. The FD has created an additional position of "Director of the GoM Biosphere Reserve", again completely separate from the Trust Director.
70. For greater efficiency and effective management: (a) overall authority within the GoMBR area, including over the National Park and the off-Park responsibilities of the FD-WW, should be assigned to the Trust Director (i.e. the BR Authority Executive Director recommended by the MTE). Similarly, there should be no separate FD position of "Director of the Biosphere Reserve". (b) the annual allocation of funds for the GoM NP and the BR from central government MoEF should be amalgamated with the funding provided by the GEF, and placed under the authority of the BR Authority Executive Director.

Management Plan and Policy

71. The project document provided for preparation of a new management plan, covering the National Park as well as the Biosphere Reserve. An emphasis was placed on creating a framework plan of management in the first year of project implementation. A previous National Park management plan had been in place since 1993. In 2006, the project commissioned an "integrated Management Plan for the GoM National Park and Biosphere Reserve" by the Wildlife Institute of India (WII).
72. The "National Park portion" of this new Management Plan was apparently approved by FD in late 2007, while the "Biosphere Reserve portion" was not approved; there is no legal framework for approval of BR management provisions. The MTE makes a number of recommendations below for strengthening and developing the BR & NP Management Plan, in line with current best practice and in keeping with the need for management of the NP to be closely integrated with the remainder of the Biosphere Reserve.

National Park staffing and capacity development

73. No information was provided to the MTE on additional staff appointed to the NP as a consequence of the project. The project office has organised and paid for existing NP staff to be given training in basic biology, and skills for a variety of tasks such as response to stranded marine mammals. There does not appear to have been any analysis of capacity needs, nor recruitment of new staff with specific competencies relevant to the National Park's marine and island resources.

Education and awareness raising

74. The principal strategy followed by the project under this component to strengthen the National Park, has been to "raise public awareness" and educate local people and officials about nature, the environment and conservation needs. The project commissioned four NGOs, Arumbugal Trust, CEE,

CPR Foundation and WWF, to develop and run awareness and education programs for schools around the project area. In the past year, these organisations have conducted 226 education activities in schools, reaching 28,492 students and 235 teachers; and 123 training and awareness activities in project area villages, in which approximately 9,000 people participated, including Village Committee and SHG members. Arumbugal Trust organised street dance and drama '*natyams*' in 70 village clusters, and report that 17,700 people watched the programs.

75. The MTE concludes that these are important activities for the project to sponsor, and are being implemented to a high standard. In addition, they are only a first step and are insufficient as a strategy to strengthen the NP and the conservation of the Biosphere Reserve area. While awareness-raising and education have been very actively deployed by the project, it is apparent from observations and discussions during the MTE that the fundamental problems facing the Gulf of Mannar have actually grown worse, and the condition of the marine and coastal environments and biodiversity has continued to deteriorate. It is essential to connect education, training, awareness-raising activities directly to the issues of resource over-use and abuse that are the major immediate concerns needing to be addressed much more urgently and rigorously.

Community engagement ~ co-management

76. One of the key objectives of the project was to introduce a more inclusive, participatory regime to the management of the GoM NP, based on recognition that genuine participation of the public and especially the local community in NP management is the most effective and appropriate approach to ensure long term conservation; and in addition that recreational and educational enjoyment by the public constitutes reasonable use of the GoM NP. Under the GoM Biosphere Reserve initiative, the project envisaged introduction of a "co-management regime", with deliberate community engagement and genuine participation in decision-making and management actions for the NP and BR areas.
77. While the NP has been in existence for 20 years and the GoM BR Project plan has been in place and resources available for 10 years, there has been inadequate engagement of the local public in NP management, and no development of facilities for visitors to the NP islands or marine areas. These innovations do not appear to have been adopted as policy or followed to any great extent since the NP was established in 1986 or the project was designed in 1998. As noted above, the process by which the new Management Plan was prepared does not appear to have been adequately "participatory". There appears to have been no change in the FD's NP policy and practice of discouraging public engagement and recreational visitors.
78. The MTE concludes that the project provides an outstanding opportunity to engage local people in the conservation and use of their traditional natural resource base. An important step that should be taken to provide some local community equity would be to develop community-operated eco-tourism in the NP, as envisaged in the 1998 project document.
79. One notable success of the project relevant to this component has been co-option of local villagers to work with the NP guards, as a means of deterring "poaching" within the NP. To date 40 "anti-poaching" watchers (APWs) have been recruited. The project has provided funding to the FD, for these men to be employed, and to work out of villages along the entire adjacent coastline, providing good contact with the whole of the nearby population. These project activities make a strong contribution to the other (off-Park) role of the FD Wildlife guards, which is to enforce the protection of species in Schedule I of the Wildlife Protection Act. In the GoM these include notably corals, holothurians and other marine invertebrates, seahorses, dugong and turtles. The MTE concludes that an important achievement of the project is the apparently virtual cessation of coral reef mining in the NP areas (and more widely), and that this is attributable in part to the information-extension activities of the APWs, plus the broader conservation awareness raising that has been carried out in virtually all the coastal villages.
80. The groups of APWs are thus a significant step in the direction of a co-management strategy for the GoM BR marine area, islands and coastline. It is important for the BR Authority to plan for and introduce a mechanism for the development and maintenance (funding) of the APWs as "community rangers" and as a long-term mechanism for BR co-management, beyond the project. In line with the broader concept of the GoM Biosphere Reserve being a multiple use area, it is important that the awareness raising and APW activities are deployed widely, so that besides reinforcing (a) the NP protection and (b) scheduled species protection under the wildlife legislation, they should also be

used to support the complementary strategies of (c) sustainable fisheries management; (d) sustainable coastal land use/ ICZM; and (e) pollution and waste management.

Boundary demarcation

81. One of the actions that was considered most required to strengthen the NP's protective measures was to demarcate the outer marine boundaries of the designated NP areas. To date, this has not been done, the most recent hitch being in the procurement tendering process for marker buoys, halted under a stay order by the Chennai High Court. The lack of identifiable boundaries means that to date boats continue to go through and into the area, and even anchor there. Although there are no data collected or estimates made on the degree of non-compliance with the NP policy of no-use, no-access, it is clear that at least some islands are still visited regularly – they continue to provide shelter for fishing boats and fishermen.
82. However, the MTE concludes that before any marker buoys are laid, it would be advisable for the positions of designated lat-long boundaries to be re-examined and re-aligned, to take into account (a) the broader activity zoning scheme that is required under the Biosphere Reserve as it encompasses the four separate blocks of the GoM National Park; and (b) the need to ensure that any demarcated zoning boundaries are readily understandable and identifiable from a boat at sea with only basic navigation capabilities. See note above also on boundary issues. The MTE considers that the proposal in the new draft Management Plan to deploy large numbers of conventional marker buoys throughout the Biosphere Reserve "from Dhanuskodi Island to Cape Comorin" would prove prohibitively expensive to deploy and maintain and, more importantly, ineffective.

Financial analysis

83. The summary table 9. below on expenditure under components 2. and 3. indicates that totals of \$561,877 (25%) and \$286,885 (29%) were spent to the end of 2007. Virtually all these funds were spent in the past three years, 2005 to 2007.

Table 9: Project Components 2. and 3. budget and expenditure

Project Expenditure (US\$) 2002-2007					
Components		Budget	Expenditure		Balance
2. Strengthened Park Operations	GEF	2,275,000	561,877	25%	1,713,123
	FD	665,000	?		?
3. Expanded Park Infrastructure	GEF	975,000	286,885	29%	688,115

84. The MTE concludes that 25% after six years is a low rate of expenditure of the component budget and that there has not been satisfactory progress made in components 2. and 3. to date. While these were the most straightforward components ready to be mobilised at the start of the project in 2002, there was no activity or expenditure in either component over the first three years, and even over the past three years only around a quarter of the funds have been spent. For most of the key planned results, progress has not been adequate to constitute strengthened GoM NP management. It is of particular concern to the MTE that the GoM NP was expected to be developed to serve as a world class demonstration of marine protected area management, yet is still faced, 22 years after notification, with a number of basic outstanding issues, notably that key policy decisions, management strategy, zoning, boundary description and operating plans are not yet developed.

Recommendations: Components 2. and 3. National Park Strengthening

85. The MTE makes the following recommendations for developing components 2. and 3.

Recommendation 10: Fully integrate the National Park into the management and development of the Biosphere Reserve

Strengthening of the National Park management should be carried out as a part of establishing and developing the GoM Biosphere Reserve, with full integration of all systems and programs, rather than as a separate entity. For this to occur, the second half of the project should be focused much more directly on the task of establishing the management system for the Biosphere Reserve.

- Following the MTE, all elements of National Park management and its strengthening – staffing, recruitment, supervision and training; research, monitoring and information system;

management and operations planning; budget planning and financial management; etc – should be integrated with those of the Biosphere Reserve.

- The bulk of the remaining GEF funds from components 2. and 3. should be transferred into a re-planned component 4. The future budget for components 2. and 3. will draw on the co-financing and baseline funding from MoEF and GoTN, which should be programmed and spent as an integral part of the Project/ Trust operations, under the single authority of the GoMBR Authority Executive Director.

Recommendation 11: Capital equipment purchases

The MTE was advised that the main items of equipment to be purchased include two boats to support NP and BR management, yet notes that there is as yet no specification of what NP or BR management operations are to entail. It is recommended that any major equipment purchase – including the two proposed boats – should be planned and approved with reference to the GoMBR framework management plan and operational strategy, once these are prepared and in force; in other words, first define the management strategy, then organise the facilities to implement the strategy.

Recommendation 12: Develop the GoMBR (and NP) management planning and policy framework

The MTE recommends that the Management Plan should be further developed and revised so that it may be approved and brought into force as a framework for the whole Biosphere Reserve including the National Park. A key indicator that an integrated management regime for the GoM has been established will be the development and eventual bringing into force of the single integrated management plan.

- The process of compiling the new draft Management Plan was intended to be “participatory”, ensuring adequate “shared ownership” by the government management agency responsible for implementing it, and the local villagers and users of the area who are intended to be “primary stakeholders” in the management regime. The MTE recommends that the draft Management Plan should be subjected to the following development and completion steps: a framework of key policy prescriptions should be defined, to specify the general rules by which the area’s natural resources (island, marine, intertidal, coast) may be accessed and used, including clear distinction between consumptive and non-consumptive uses. These rules should be negotiated through an adequate participatory process with each group of representative key stakeholders, to reach consensus and “co-ownership”. The framework management plan should be formally ratified under the legislation used to designate the Biosphere Reserve.
- The new draft management plan stresses that the only activities to be permitted in the NP are “research, monitoring and restoration of biodiversity”. The MTE recommends a much more constrained approach be adopted towards “restoration”. The new Plan refers to restoration of “mangroves, coral reefs, seagrass (and) stock enhancement of seahorses and holothurians”. It is advisable to adhere to the principle that artificial stock enhancement cannot replicate nature, and to concentrate instead on ensuring that the natural processes of regeneration are able to proceed strongly e.g. by removing island weeds, litter and remains of fires; preventing direct benthic habitat damage, for example from anchors, feet, destructive fishing gears, and facility construction; and restricting water and air pollution from human activities both within and outside the Biosphere Reserve and its surroundings.
- The MTE recommends adoption of a more rigorous approach to using the management plan to drive the work plan. For example, while both the 1993 and the 2007 Plans document the extent of plant weed species on the NP islands (notably that the pervasive *Prosopis juliflora* has increased markedly in the intervening period), neither the 1993 prescription of manual removal of *Prosopis* nor the 2007 reiteration appear to have been responded to.

Recommendation 13: Make provision for community-owned eco-tourism in the NP and GoMBR

The new draft Plan does not address the need expressed in the project document for the FD policy of no-access, no-use for NPs to be relaxed slightly to permit tourism, recreation and educational visitors access.

- The MTE recommends that the Biosphere Reserve and NP management program would be strengthened considerably by permitting members of local communities to operate a small number of low-key, low-impact eco-tourism ventures, able to access and use designated island and reef sites within the NP and BR.
- The strategy and ventures should be planned carefully and managed through a permit system issued by the Biosphere Reserve Authority. The aim should be to ensure no

significant impact on any part of the area's ecology or biodiversity. There are several examples in India of successful eco-tourism ventures established in National Parks, from which the GoMBR Authority can draw ideas and guidance.

Recommendation 14: Strengthen GoMBR and NP staffing and capacity development.

The project design envisaged that training of NP staff would be the main mechanism used to strengthen the overall capacities for management of the NP. A series of conventional-style trainings have been given to existing staff with the aim of conveying routine knowledge and skills. This was probably not a realistic expectation, without first tackling underlying, systemic issues in recruitment and human resource management, and weaknesses in such areas as the overall management policy and plan for the NP; public participation in NP management decision-making; NP activity zoning and boundaries; the relationship between the NP and BR.

- Once these basic policies have been determined, a systematic capacity development program for the entire Biosphere Reserve (including NP) operation should be prepared and then implemented. Refer also to Recommendation 3.
- In order to achieve a staff complement with the new competencies required for marine Biosphere Reserve management, GoTN should consider instituting special rules for the GoM BR. The BR Authority and Executive should prepare a staffing and capacity development plan for the entire Biosphere Reserve and NP, to be based on the management plan that is under preparation. The aim should be to ensure that there is an integrated body of Biosphere Reserve and National Park staff, and that staff are drawn from all relevant line departments and provided with a high standard of in-service training. Refer also to Recommendation 7.

Recommendation 15: Development of the GoM BR Management Information System

The BR Trust/ Executive office needs to develop adequate capacity to receive, organise and disseminate, assimilate and apply the range of results and data sets that are being generated by the current research contracts. There is a risk that too much unrefined data will come in at once, with no system in place to handle it, and no capacity for it to be used to achieve the underlying objectives of devising and establishing an effective marine resource management and conservation regime.

- To date, there is no adequate information system in place for management of the GoM Biosphere Reserve (or NP). The current focus is on improving "inventories" of the natural features of the NP area – species present and abundance – and relies on occasional surveys and studies conducted by a research institute to provide up-dated information.
- Within 4 months of the MTE report, the project/ Trust office, using consultants as required, should have devised and put in place a substantially improved Management Information System (MIS) to organise all aspects of Biosphere Reserve management and development – research, monitoring, planning, operations. This should serve as a common system to be used by each of the management/ enforcement agencies involved in the Biosphere Reserve and NP – FSD, CMA, PCB, FD-WW – under the auspices of the BR Authority.
- The MTE recommends that a different approach should be taken to develop a suitable information system: first determine what the management issues are, and how they are to be addressed; and then design the information system to provide the information required to address the issues. The BR MIS information should be focused more dynamically on monitoring anthropogenic influences or threats to the whole Biosphere Reserve, including the NP areas. This is in line with the principle that conservation area management has to focus on people – resource users, their actions and impacts – rather than on the natural site or biodiversity present. A good development in this direction is provided by the operations of the anti-poaching watcher groups. They have been given basic training to log and collate their actions and any noteworthy events occurring in "their" areas. This database can be used as a starting point for developing a useful GoM BR management information system.

COMPONENT 4. DEVELOPMENT OF BIODIVERSITY OVERLAY

Concept & design

86. At the centre of the Gulf of Mannar Project was the objective of establishing a new type of marine resource management or conservation system, called a marine Biosphere Reserve. Notification of the GoM Biosphere Reserve had been made by government order in 1998, but there was an outstanding need to formalise and operationalise the Reserve and its management. This need was to be met by actions under this project component 4: to devise and facilitate establishment of a multiple-use conservation area extending over the sea and adjacent coastal land areas of the Gulf of Mannar. The line of coral islands and reefs lying several kilometres offshore, which had been designated earlier as National Park, were to form the core to the Reserve, and the surrounding sea and adjacent land areas were to form a buffer area, which would be managed for a variety of sustainable resource uses, including fisheries and marine invertebrate harvesting; island, coastal and marine tourism; low impact agriculture, agro-forestry; domestic and urban pollution controls; and related terrestrial activities.
87. The strategy for establishment and management of the marine Biosphere Reserve was not clearly planned and spelt out in the project document, which mentioned a mixture of approaches, and was not determined and acted upon following project inception. One emphasis was on Integrated Coastal Zone Management (ICZM), with a focus on adjacent coastal land use. The project was intended to pilot a strengthened mechanism for ICZM, linked to a State-wide ICZM initiative that was apparently being developed by GoTN. At the same time, the strategy was intended to be guided by UNESCO's MAB Biosphere Reserves scheme and IUCN's guidelines for marine protected areas (MPA). On the other hand, as indicated by the vague title given to this component 4. "Development of biodiversity overlay", the main activities proposed were biological research and inventories, biodiversity conservation planning, and biodiversity and pollution monitoring. The MTE considers that the lack of clear strategy for this key component has contributed to the project failing to date to serve as a pilot for either strengthened ICZM in Tamil Nadu or for the development of marine Biosphere Reserves in India. The project plan (logical framework and component strategies) and project implementation need to be strengthened with a greatly increased emphasis on the tasks of devising and developing a novel type of integrated or multiple-use marine resource management regime that will be the Gulf of Mannar "Biosphere Reserve".
88. Of the total funds of \$3.85 million budgeted for component 4., the GEF contribution was \$1.5 m and co-funding was \$2.35 m, from GoTN and Gol sources, as summarised in table 10. below. The proposal was to spend this additional \$3.85 million over the 7 year period, on targeted research (\$1.2 m); management planning (\$1.95 m); and strengthening marine monitoring (\$0.7 m); on top of estimated baseline funding in these areas of just under \$1 m.

Table 10: Summary plan of outputs and financing for project component 4. (2002-08)

Project Outputs	Project Funding (US\$) 7 years		
	Total	GEF funding	Co-funding
Component and Outputs			
4. "Biodiversity overlay"	3,850,000	1,500,000	2,350,000
Framework coastal management plan		100,000	200,000
Strengthened CZMAs		300,000	350,000
Targeted research		300,000	550,000
			350,000
Biodiversity management plans*		500,000	500,000
Monitoring program (BD/ pollution)		300,000	400,000

Review and Evaluation of Activity and Achievements to Date

89. For project component 4., the key results that were planned and the apparent achievements noted during the MTE are summarised in Table 11. below.

Table 11: Component 4. Summary of planned results and achievements

Key planned results [and Year]	Achievements at MTE (April 2008)
Component 4 : "Development of biodiversity overlay" (establishment of GoM Biosphere Reserve)	
[Y1] "Biodiversity training" for CMA, FSD, DoEF	Basic biology and conservation training provided to FSD and FD-WW field staff. No apparent prior capacity needs assessment ("knowledge survey").

[Y2] BR framework management plan prepared and in place	Comprehensive conventional-style management plan drafted (2007); requires modification to serve as an adequate framework plan for BR management.
[Y?] "Biodiversity hotspot management plans" developed and implemented	To a limited extent, specific species or habitat management plans are incorporated within the draft 2007 management plan.
[Y2] Environmental baseline established; monitoring program underway [Y?] Cooperative monitoring program established	Research surveys have been commissioned. There is as yet no adequate marine environment or biodiversity monitoring system in place.
[Y?] Commercial fish species baseline established	Research studies have been commissioned.
[Y3 onwards] bi-annual BR integrated operations plan in use [Y3] "Trust-inspired inter-sectoral coordination mechanisms strengthened"	There is not yet a mechanism in place allowing a BR integrated operations plan to be devised and implemented. There is as yet little inter-sectoral or inter-departmental coordination. There has been no real engagement of the key line agencies – FSD, CMA, TNPCB – in the BR initiative. The Trust office has not been given the authority or capacity to take on the role of directing an integrated program or operations plan.
[Y3] "Cross-sectoral authorisation of enforcement people"	Little progress has been made in this regard.
[Y?] 2 all-weather boats and communications equipment in place	2 boats are apparently on order. It is not clear that their specifications have been based on operational needs for BR management.
[Y?] Targeted biodiversity research program	A series of research studies was commissioned by the Trust office in 2007. The management plan contract also included a large amount of field and desk studies and data collation. The Trust office will need additional capacity to receive the results from these studies and apply them to management planning.
[Y?] Information management (GIS) system strengthened at existing institution	Some progress has apparently been made in this direction, but the Trust office will need additional capacity in order to avoid a piecemeal and ineffective approach to information management for the BR.

Establishment of the GoM Biosphere Reserve

90. The project concept and plan, written 10 years ago, were aimed at establishing a novel type of marine conservation system, a Biosphere Reserve, over the extensive and ecologically-significant waters of the Gulf of Mannar. 10 years on, the project has enabled useful actions to be taken in some directions, but there has been little progress made towards formally instituting the management arrangements for a Biosphere Reserve, nor towards addressing the significant challenges facing the marine and coastal conservation initiative. The impression gained by the MTE is that once it was written, the project plan was not used to any great extent to guide implementation, and was perhaps not fully understood, or accepted and owned by those made responsible for its implementation. Part of the reason for this may have been the complexity of the concept and plan, and the multi-faceted nature of the proposed project activities.
91. To date, project implementation has not focused directly on establishment of the Biosphere Reserve, but has concentrated on the development of community engagement and livelihoods support – under component 5. The MTE notes that the Board of Trustees at its first meeting in 2003 had a lengthy discussion about how to initiate and implement the complex project, and decided that the project should follow "an eco-development approach" rather than the strategy of "integrated marine resource management" or "integrated coastal zone management" that had been indicated. Accordingly, seven years down this track, the steps of formally establishing a Biosphere Reserve and developing a program of management have not yet been taken. The "Biosphere Reserve" remains a concept only, with no legal basis, management structure or formal management.
92. In 2007, the Project/ Trust office commissioned a useful analysis of prevailing legislation and policies pertinent to the establishment and management operations of a GoM Biosphere Reserve, from a local NGO consortium (ATREE & CAG, June 2007). The analysis provides clear guidance to the project/ Trust office and government on options available for the formal establishment and management of the Biosphere Reserve in law. The MTE agrees with the CAG analysis that the best option appears to be to use the Environment Protection Act and Environmentally Sensitive Area designation to formally establish the Biosphere Reserve. This will be an important early action in the follow-up to the MTE.

Management Planning

93. A key step proposed in the project document was to prepare in the first year a framework management plan for the Biosphere Reserve. This was not picked up by the project management. The project document refers also to preparing "Biodiversity Hotspot Management Plans" under this component 4, in addition to the "NP Management Plan" and "Species & Habitats Management Plans" proposed under component 2. (NP Strengthening). The project designers clearly recognised the importance of a strong and effective "management planning" function for the project and the Biosphere Reserve, but unfortunately did not specify clearly how to organise such a function.
94. In many jurisdictions undertaking natural resource management, a Management Plan is used as a key instrument for stipulating the policy prescriptions and procedures to be applied to the issues being targeted, i.e. in this case the management of the area known as the GoM Biosphere Reserve. The proposal for this project was to follow good practice by formulating a framework management plan at the outset of the initiative, in order to state "from day 1" the fundamentals of the GoM Biosphere Reserve regime and overall policy. These should have included: (a) designation of the area and its management rules under specific legislation; (b) specification of the authoritative body established under the legislation, and its rules of procedure to implement and enforce the provisions for management of the area; (c) clear description of the overall geographic limits to the areas; and (d) identification of the (human use) activities that will be subject to the management plan.
95. As described above under component 2, in 2006, the project paid for preparation of an "integrated Management Plan for the GoM National Park and Biosphere Reserve" by WII. The "Biosphere Reserve portion" of the new draft Management Plan prepared has not yet been approved by government – there is no legal framework for doing so – and the MTE concludes that this provides an opportunity to further refine the draft Management Plan before it is approved to be brought into force. The project document proposes a series of additional management plans to deal with "biodiversity hotspots". Initial coverage of these has been provided in the draft new Management Plan prepared by WII. The comments above on the management plan apply to these "hotspot plans" as well. The recommendation of the MTE is to re-focus management directly on to the various resource use activities or anthropogenic threats facing the Gulf of Mannar, and to develop similarly-focused ancillary plans progressively over the next 3-4 years, as knowledge accumulates. Thus for example, it will be useful to frame a strategy for addressing directly the problem of solid waste entering the waterways and marine areas of the Gulf, and a similar strategy for each of the major threats identified. The job of management would then be to systematically implement these "issue management strategies", using whatever tools are available.

Strengthened ICZM and CZMAs

96. The project was intended to serve as a pilot for the development of a strengthened system of coastal zone management that would be applied throughout the State. Each coastal district of Tamil Nadu has a local Coastal Management Authority (CMA) headed by the District Collector, and the proposal was for the project to work with this coordinating body and develop an improved District plan for Integrated Coastal Zone Management. To date, the project has not addressed this component, and the Biosphere Reserve office, the Trust, has not engaged with the two CMAs to any great extent, nor attempted to draft an improved ICZM plan.
97. In the meantime, the MTE understands that in 2007 GoI has embarked on a country-wide initiative to strengthen the planning and control of coastal zone development, as part of which a Tamil Nadu State-wide ICZM plan will be prepared during 2008 and early 2009. In the Gulf of Mannar region, it will be important for this new CZM planning initiative to engage closely with the Biosphere Reserve Authority (Trust office) and to be able to make use of the project/ Trust databases, Village Committees and zonal Officers, and especially the Village C&D Micro-plans and the re-drafted GoMBR framework Management Plan. In other words, there is an important and timely opportunity for the new ICZM plan for the two BR Districts to be inter-meshed carefully with the GoMBR Management Plan, including the Micro-plans.

Engagement of line agencies in an integrated GoMBR management program

98. The project document identifies the line agencies with important roles to play in managing the resources and human activities in the Gulf of Mannar and adjacent coastal zone. Agencies with responsibilities in the marine area include Fisheries Department (FSD), Forest Department's Wildlife Wing (FD-WW), Environment Department's Coastal Management Authority (CMA) and Pollution

Control Board (PCB), together with the Coast Guard. On land a broader group of government service and development agencies operate, including Department of Rural Development (DRD), Forest Department (FD), Agriculture Department (AD), Social Welfare Department (SWD) and so on. The Biosphere Reserve area extends over two local government Districts, in each of which the District Collector's office serves as an important focal point for delivery of government services.

99. The MTE observes that a key difficulty encountered by the GoMBR project to date has been the requirement for each of the line departments to change its modus operandi and develop special Biosphere Reserve-relevant strategies for working in the Gulf of Mannar. In particular, there is an outstanding need for operational programs to be both planned and implemented collaboratively and jointly, i.e. between the agencies and under the auspices of the Biosphere Reserve management. These are the innovative institutional arrangements that are essential for managing the Biosphere Reserve as a new type of program - integrated, multi-disciplinary and adaptive.
100. It is apparent that little has happened in the Gulf of Mannar to date along these lines, towards integrated, inter-Departmental planning or operations. The Forest Department has been given responsibility for directing the Trust and the project office, and thus there is regular interaction between the Trust/ project office and the offices of the GoM NP Wildlife Warden and Divisional Forest Officers/ Conservator of Forests. Beyond this however, the other key marine and coastal management agencies, notably FSD, PCB and CMA⁹, do not regard themselves as part of the project or the Biosphere Reserve initiative, contributing to a joint operations program to manage the Gulf of Mannar. There have been some recent positive moves, notably a number of joint boat patrols by Trust, FSD and FD-WW. However, the specific indicators of successful collaboration nominated in the project document – an integrated operations plan, inter-sectoral coordination mechanisms, cross-agency authorisation of management/ enforcement officers, and development of a common management information system – have not yet been achieved.

Financial analysis

101. The financial report summarised in table 12. below indicates that expenditure under component 4. has been limited to organising research and, to a lesser extent, monitoring. Overall expenditure amounts to only 23% of the budget, and less than half the expenditure expected at the mid-term.
102. Between this component and component 2., virtually 100% of the project's "research budget" of \$485,000 of GEF funds has been spent. The MTE notes that all of this expenditure was incurred in 2007, as a concerted effort by the project office to "make up for lost time" by issuing a large package of research commissions to a series of marine research institutions. It would have been a more effective strategy to have spent the research budget in incremental fashion over the life of the project, applying results from one set of studies to improve the design of the next set.
103. *Co-financing*: A key issue for the project is the failure to secure and link the planned co-financing with the GEF funds. The issue has affected this component in particular, where the plan was for \$1.5 million of GEF funds to be merged with government co-financing of \$2.35 million in order to organise substantial technical programs of management-oriented research (\$1.2 m) and monitoring (\$0.7 m); management planning (\$1.3 m); and management strengthening for CZMAs (\$0.65 m). There was no indication given to the MTE that any of this co-financing had been made available or spent, either by the project manager/ Trust Director or by a line department. The limited amount of progress that has been made on the significant tasks under this component – mostly initiating a series of research contracts - has been under the GEF budget.

Table 12: Project Component 4. budget and expenditure

Project Expenditure (US\$) 2002-2007

Component Outputs	Budget	Expenditure	Balance
4. Biosphere Reserve/ "Biodiversity overlay"	GEF 1,500,000	347,607	23%
Management planning	600,000		
CZ management	300,000		
Targeted research	300,000	285,714	95%
Monitoring program	300,000	61,893	21%

⁹ In this regard, it is important to note that the Coastal Management Authority (CMA) and Pollution Control Board (TNPCB) are both parts of the Environment Department, within the joint Forest and Environment Department, and are thus readily able to be closely engaged in the initiative.

Recommendations: Component 4. “Biodiversity Overlay”, Biosphere Reserve

104. The MTE makes the following recommendations for developing Component 4.

Recommendation 16: Formal establishment of the GoM Biosphere Reserve, governance arrangements and management policy.

Following the MTE and subject to government endorsement of the ATREE-CAG (2007) advice on a suitable legal mechanism, the project office should organise a submission for formal establishment of the Gulf of Mannar Biosphere Reserve. The submission should specify the following:

- Designation of the overall purpose and area boundaries of the Biosphere Reserve.
- A governing Authority comprising Board, Executive and Coordination Committee.
- A framework management plan outlining the general rules governing management of access and use of the Biosphere Reserve resources.

Recommendation 17: Formal establishment of an integrated program of management for the Biosphere Reserve

As soon as practicable following the MTE report, GoTN should put in place institutional arrangements for all activities relevant to management of the Biosphere Reserve to be planned, budgeted and supervised under the direction of the proposed GoM BR Authority Executive Director. This will require the Biosphere Reserve to be formally set up in law; adequate executive authority to be vested in the proposed BR Authority Executive office as the responsible management agency; and for the BR Authority Executive to directly engage FD, FSD, CMA and PCB in planning and then implementing a common strategy and joint program for managing the Biosphere Reserve.

Recommendation 18: Establish an effective management planning function

The management plan needs to be a readily-usable policy document of the GoTN and BR management authority. In this regard it is good practice to maintain the management plan as a dynamic document, subject to periodic review and up-date. Over time, detailed, ancillary sub-plans can be added as knowledge accumulates. The following management planning actions are recommended – see also MTE Recommendation 12:

- Formulate an overall policy framework for the whole Biosphere Reserve; extract the key policy prescriptions for accessing and using the area’s natural resources (island, marine, intertidal, coast; National Park; fisheries and marine harvesting; coastal land use; pollution and waste management).
- Specify in the framework plan the BR governance and management operations structure. Provide for the framework plan to be ratified under appropriate legislation; e.g. the EPA.
- Provide for the Village Conservation Plans, currently part of the “VMC&DC Micro-plans”, to be incorporated and supported within the overall framework Plan.
- Make separate provision for an integrated operations plan, prepared on a multi-year rolling basis.
- Over time, incorporate additional specific management plans within the formal framework Management Plan. Use this approach to prescribe how each issue will be managed, as knowledge of the issue and how to manage it accumulate.
- The current draft Management Plan is focused primarily on the natural resources and biodiversity features of the area. The MTE recommends instead planning how each of the human activity or use sectors that are operating and threatening various parts of the area will be managed.
- Such a re-focus should specify management of not only the diverse range of fishing activities but also the several large municipalities and hundreds of industrial and commercial activities that pose a variety of serious threats to the ecological health and future viability of area.

Recommendation 19: In the GoM region, synchronize and merge the new TN CZM planning initiative with the BR management plan.

The Biosphere Reserve overlies various other resource management and environment protection schemes where they are applied to the Gulf of Mannar region (at village, District, State or National scales). Examples include the new State-wide CZM planning initiative. The management provisions for the Biosphere Reserve need to encompass and integrate the provisions of these other schemes. This requires an integrated approach to planning to be adopted and regarded as a positive opportunity by the different agencies and programs involved.

COMPONENT 5. DEVELOPMENT OF SUSTAINABLE LIVELIHOODS

Concept and Design

105. Under this component the project effort was to be extended to the people who live in the Gulf of Mannar coastal zone and use the marine and coastal resources of the area, with the aim of enabling them to participate directly in the Biosphere Reserve initiative, and to change from practices that are unsustainable and damaging to the area's marine resources by developing livelihood and employment options that are ecologically sustainable. The project was designed to contribute to the removal of a number of barriers to both public participation in marine resource conservation and to widespread adoption of sustainable practices in using the marine resources and living in the coastal zone. Barriers to be targeted under this component included the following:

- insufficient awareness of the importance and need for conservation and of the cumulative impacts of human activities on the area's marine biodiversity and environment.
- the common property–open access regime and little public participation in management.
- inappropriate fishing methods, and conflict between artisanal and mechanised fishers.
- lack of capacity to develop sustainable alternative resource uses and livelihood options.
- inadequate and unfair credit systems.
- lack of collaborative relationship with industry.

106. The implementation strategy for this component required a combination of two ambitious sets of activities. The first set was to strengthen marine and coastal resource management and conservation actions by communities and line departments throughout the GoM region; the project document specified developing types of fishing and marine harvesting that would be ecologically sustainable; prescribing limits on fish harvests; identifying alternate fishing grounds and reduced-impact techniques for the trawling industry; in addition to agro-forestry development on coastal land. The second set of activities was to support local "eco-development", community development and rural development, with specific attention to strengthening of credit schemes, sustainable livelihoods and employment, social welfare services, and village infrastructure. The overall indicators of effectiveness nominated for these two sub-components were that fisheries production levels and harvests would stabilize and that incomes of fisherfolk, particularly women, would also stabilise or increase.

107. The planned outputs and financing for component 5. are summarised in table 13. below. The funds available were \$1.45 m (10%) from the GEF and \$11.95 m (90%) from co-financing. The significant proportion of co-financing illustrates the ambitious and multi-stranded nature of the collaborative program that was envisaged: the idea was that the Biosphere Reserve initiative would use the GEF funding to facilitate and direct the establishment of the new BR management system, but that the substantive results would be achieved primarily through the direct engagement and co-financing of MSSRF (for livelihoods development), UNDP (user rights), FSD (fisheries management), TNPCB (pollution control), SWD (community services), DRD (rural roads, water supply), FD (coastal land management, tree planting), and Gol and GoTN funding for research programs. It is also significant that the calculated baseline funding for this component included just under \$10 million for development of fisheries and marine harvesting in the Gulf of Mannar, by FSD, CMFRI, and CSMCRI.

Table 13: Summary plan of outputs and financing for project component 5. (2002-08)

Project Outputs	Project Funding (US\$) 7 years		
	Total	GEF funding	Co-funding
5.1 "Integrated marine resource management"	5,250,000	300,000	4,950,000
Commercial species inventories			400,000
Improved marine resource management			2,100,000
Coastal woodlands development			1,000,000
Improved enforcement regimes			2,000,000
Cooperatives/User rights agreements			450,000
Village marine conservation plans		300,000	
5.2 Sustainable Livelihoods Development	8,150,000	1,150,000	7,000,000
Micro-credit program			900,000
Improved local infrastructure			2,500,000
Modified social welfare programs			1,000,000
<i>Demonstration program</i>			
i. Sustainable use of marine resources		300,000	1,600,000
ii. Mariculture and coop.marketing		850,000	

Review and Evaluation of Activity and Achievements to Date

108. For project component 5., the key results that were planned and the apparent achievements noted during the MTE are summarised in table 14. below. To assist understanding of the complex component, it has been divided into two parts, 5.1 and 5.2.

Table 14: Component 5. Summary of planned results and achievements

Planned results (and Year)	Achievements at MTE (April 2008)
Component 5.1 : Improved marine and coastal resource management	
[Y?] CMFRI and FSD to establish fisheries production levels and harvest limits; develop regulations	Fisheries production levels and harvest limits not established Government regulations not in place Baseline data to prescribe harvest limits is being collected by FC&RI.
[Y?] Revised FSD fisheries management program emphasising sustainable resource use	The FSD has apparently not revised its policies or programs to emphasise sustainable marine resource use.
[Y3] FSD proactive enforcement strengthened: 75 equipped and trained staff and community reps in community based management	No evidence of strengthened FSD management or enforcement program. 66 Field Project Workers act as the liaison between the Project/ Trust and village communities; 40 anti-poaching watchers have been appointed and trained to support routine NP and BR 'patrols'. Several trainings – general conservation awareness – have been given to FD, FSD and other line departments (197 officers and field staff have attended).
[Y6] User Right Agreements in place	No work has apparently been done on this issue; no user rights agreements are in place or under consideration.
[Y6] GoMBRT to demonstrate less harmful fishing techniques to 10,000 fishermen	Demonstration of alternative fishing techniques not initiated. Trawlers continue to violate the 3 nm limit. FSD continues to subsidise unsustainable fishing practices through diesel fuel subsidy scheme.
[Y?] Incomes of targeted fisherfolk stabilised or increased	No survey appears to have been initiated.
[Y7] Catch-effort ratio stabilised	No hard data appears to be available; by all anecdotal accounts, effort has increased significantly; catches of most if not all species have declined; the unit value of catches has increased.
[Y?] 10,000ha of woodlands and agro-forests planted	No apparent activity; no information available to the MTE.
Component 5.2: Alternate livelihoods and improved infrastructure	
[Y3 to 6] Marine Conservation Plans developed by 20 village communities. Threat and root cause analysis done and priority remediation activities/needs identified	252 village "micro-plans" have been prepared, identifying villages' "conservation" and "development" issues and needs. The plans were prepared in 2006-2007 by the communities through PRA exercises facilitated by an outside NGO.
[Y2-7] UNDP to provide Micro-credit to 700 self help groups of approximately 30 members each in alternate livelihoods	The Project/ Trust has facilitated formation of 252 Village Committees, with a current combined membership of 53,068 members (2 per household), and with a total of 2145 Self-Help Groups (SHG) registered with the Committees. Each Committee has established a revolving loan fund with capital provided by the Project. 1125 SHGs have obtained credit from the revolving funds, and have developed a diverse range of small business ventures.
[Y2-7] 600 women per VMC trained each year in mariculture	Seaweed mariculture trials are underway and apparently successful, involving village SHGs and CSMCRI Mandopam lab contracted to provide research and technical guidance.
[Y?] SWD to update, sustainable development-oriented government social welfare programme	There is no evidence that specific welfare initiatives linked to the BR have been established in the area.
[Y?] RDD to improve infrastructure: smoothed roads, 2 docking / take off points with refrigeration facilities	There is no evidence that specific rural development initiatives linked to the BR have been established in the area. Following the 2004 tsunami, numerous additional schemes – boats, houses, roads, water supply – have been available in the area; none is apparently linked to the BR initiative.

109. The GoM coastal communities have long been recognised as among the poorest in the region and the state in terms of income, livelihood options, government services and infrastructure development. Village economic activity has been reliant on fishing and salt production, but neither of these areas has been managed for ecological sustainability. It is clearly crucial to enable the GoM coastal communities to develop livelihoods, employment and income that are both economically

worthwhile and ecologically sustainable. It is likely that this will be achieved only by developing suitable business enterprises that are based on using the marine resources of the locality, and not by trying to stop outright the utilisation of marine resources and to introduce non-marine alternatives; nor by providing handouts such as fishing boats without regard for the viability or sustainability of the fishery. The conclusion from the project document, the work of the Trust so far, and the assessment of the MTE is that the sustainable future for the GoM coastal community and economy is most likely to be found in carefully-managed fishing, mariculture and marine tourism; supplemented by some direct benefits from employment in the management operations of the Biosphere Reserve itself*. It is in these areas that the second half of the project must concentrate its technical assistance efforts. If these efforts are not successful, the Biosphere Reserve as a whole will not be viable.

110. *Rural development complementary to the Biosphere Reserve*: An important part of the project strategy was to link the Biosphere Reserve establishment to the broader question of rural development in the adjacent coastal zone. The project document referred to the various programs of the Departments of Rural Development, Social Welfare, Fisheries and Forestry in supporting rural development – welfare services, roads, water supplies, infrastructure, housing, forest planting, and so on. The MTE concludes that more should be done to ensure that all these efforts are linked to those of the Biosphere Reserve project and Trust office, so that they are planned and implemented systematically to contribute to the overall goals of the Biosphere Reserve initiative. If they remain separate, they run the risk of losing synergy and even conflicting with the GoM BR goals of conservation and ecological sustainable development. On the other hand, they provide a major opportunity for all the line Departments active in the two Districts adjacent to the Biosphere Reserve to make a positive integrated contribution to the development of the GoM as a special place, worthy of being designated the first national marine biosphere reserve.
111. *2004 Tsunami recovery*: The assistance schemes that have been mobilised following the 2004 tsunami illustrate an apparent failure of integrated planning and programming in the Gulf of Mannar: the development of the fishing fleet, livelihood activities and equipment, housing, village infrastructure, roads and water supplies have not taken into account the long-term needs for conservation and sustainable development that are at the heart of the Biosphere Reserve program. Some recovery actions have had negative impacts on these objectives. It would have been valuable for the GoM BR Trust and project office to have been involved or consulted and able to influence these additional assistance activities to ensure their compatibility. The recommended creation of an effective GoM BR Authority should ensure that this happens in the future.

Eco-development demonstration

112. The planned strategy for this component was to implement two demonstration activities. One was to train 10,000 artisanal and mechanised fisherfolk in five locations over six years, in sustainable use of marine resources, specifically alternatives to destructive trawling practices. It is apparent that this strategy has not been followed directly by the project.
113. The second was to trial and develop seaweed farming. The project started work in this area in 2007, with a contract to the Central Salt and Marine Chemicals Research Institute's (CSMCRI) Mandapam laboratory to trial and transfer seaweed culture techniques, partnered with one SHG in each of the project's four coastal 'zones'. To date, 3 SHGs from Erwadi and one from Kilakarai are engaged. Further details are in **Annex V.c**. CSMCRI has provided seed material, 75% of the cost of rafts and nylon ropes has been met by bank loans and 25% as loan from the project, via the VMCEDC. CSMCRI field scientists visit the raft sites once a week. The first seeding–harvest cycle has been completed, and the produce has been used to seed an expanded number of rafts. The trial appears to be progressing well, and serves as a good model upon which the project/ Trust can build.

Integrated marine resource management

114. *Fisheries reform*: A crucial element of the project plan was to enable the Fisheries Department to actively develop a broader mandate, moving beyond its welfare function for fisher folk, towards actively managing fisheries for long-term sustainability. Their fisheries management program would then be a cornerstone of the integrated management program for the Biosphere Reserve as a whole. In this way, the GoM BR project was seen as a significant pilot for the FSD, with State-wide and country-wide relevance.
115. Specific parts of the project plan were for FSD and CMFRI, with field stations at Mandapam and Tuticorin, to assess fish stocks in the BR area and prescribe harvest limits based on the data obtained.

They would conduct inventories of indicator species and develop site-specific use rules. Another planned action was for FSD to assess the fish resources in the wider EEZ, with a view to being able to separate artisanal and mechanised trawler fishing grounds. These assessment and planning activities would enable greater conservation measures to be introduced.

116. The MTE concludes that these ideas have not been taken up by the government agencies, and there has been little change in the fisheries management regime in force in the Gulf of Mannar. Nearshore waters throughout the Gulf of Mannar appear to be seriously over-exploited, with very poor catches being reported. No effective management – of numbers of fishing boats, types of fishing gear, area closures, species or size limits – seems to be in place. The FSD reported to the MTE that their primary function continues to be fisherfolk welfare, and that they have not been able to engage in the Biosphere Reserve project because it has been too “restrictive” in its approach, i.e. it follows too closely the FD policy of using the Wildlife Protection Act to prohibit harvesting of an increasing range of species. While the field stations of CMFRI have been collecting fish landing data, no-one appears to be analysing or translating these data into management prescriptions. FSD do not appear to be engaged in data analysis or management planning. As part of its series of commissioned research studies, the project/ Trust office contracted FC&RI in 2007 to collect baseline fish stock data, and this is apparently underway, although again FSD does not seem to be involved.
117. Amendments to the Schedules of the Wildlife Protection Act have had a bearing on the Gulf of Mannar, by imposing complete bans on marine species included in Schedule 1, notably holothurians, corals and some molluscs.
118. The 2004 tsunami had major consequences for the Gulf of Mannar. Despite the minor impact of the tsunami itself around the GoM, compared to the rest of the Tamil Nadu coast, the event stimulated a large number of assistance schemes, which have resulted in a much larger and better equipped fishing fleet in the Gulf, and proportionally increased pressure on the already seriously stressed stocks.
119. *Local fisher co-operatives and user right agreements:* The lack of property rights over nearshore resources was considered to be a root cause of over-exploitation and conflict between fishing groups. The plan in the project document was for the Fisheries Department, with UNDP support, to develop a property management regime involving local community co-operatives, community engagement in enforcement, and establishing user right agreements between local stakeholders. Spatial and temporal limits for fishing were proposed. There have been no apparent developments in the project area towards pursuing these objectives or introducing such mechanisms. It will be important for the next phase of the project to address this issue. This can be done as part of the strategy recommended below (paragraph 130; Recommendation 21.) of fishing community engagement, Micro-planning, LMMAs, and self-regulation of closed areas and destructive fishing methods.
120. *Fisheries enforcement:* The project document also provided for improvements to enforcement of fisheries and marine resource management measures, and there appear to have been some limited achievements in this area. The Trust/ project office has initiated joint patrols by the Forest Department, Fisheries Department and coastal/ marine police, using boats hired by the project. The patrols aim to reduce infringements of the National Park rules, deter trawling within the 3 nautical mile zone, and police the prohibitions on collecting Wildlife Protection Act Schedule 1 species.
121. It is doubtful that these patrols have had any perceptible impact on fishing activities. Around the Gulf of Mannar there is clearly major conflict between fishing by country craft and mechanised bottom trawler. FSD management mechanisms appear to be limited to the provision of subsidised diesel fuel for mechanised boats, attached to a token allowing a boat to fish for the day. There is a ban on trawling within 3nm of the shore, but this is widely reported to be disregarded and unenforced. While there are no accurate data available on the number of trawlers fishing illegally within 3nm, or within the BR area, marine scientists estimated for the MTE that 80% of the 300+ trawlers based at Tuticorin fish regularly within the 3nm zone. There have been a number of meetings to address fisheries grievances, instigated by the District Collectors’ offices, but these do not seem to have resulted in significant changes to agencies’ enforcement programs.
122. *Catch per effort:* The optimistic end-of-project indicator was that “the fish-catch-per-effort ratio would have been stabilised or increased compared to baseline”. Although no data on a baseline or subsequent catch-per-unit-effort appear to be available to the FSD or project/ Trust office, the MTE considers it highly probable that in the 10 years since the indicator was proposed, the fishing effort in

the Gulf of Mannar has increased markedly, impacting a large number of target and non-target species populations, and the fish catches have decreased alarmingly. It is also reported that the widespread poor catches have resulted in higher prices, which have enabled fishing to be continued at levels that would earlier have been uneconomic. The only significant improvements to the health of the marine area appear to be the virtual cessation of coral reef quarrying, and the reduced collection of holothurians, both through a combination of listing under the Wildlife Protection Act Schedule 1 and education/ awareness raising activities by the Trust/ project (and APWs) among the 252 villages with which it is actively working.

123. There is clearly an outstanding need to set harvest levels and impose complementary conservation measures (such as closed areas, seasons, times and fishing methods) for all fished species populations in the Gulf of Mannar, to try to enable recovery and move back towards ecological sustainability. There has been no apparent movement in this direction since the project document was written ten years ago. This sub-component appears to have been constrained by a lack of strategic direction. To make effective progress in the next phase, it will be essential for the project/ Trust office, FSD and relevant scientists to draw up a clear and dynamic strategy for systematically introducing integrated marine resource management throughout the Gulf of Mannar and the Biosphere Reserve.
124. Following inaction on this component for the first four years, the project/ Trust office commissioned research in 2007 into the main fishing methods and has asked for advice on management guidelines. In the assessment of the MTE, the Gulf of Mannar cannot wait until research results come in and can be applied. Reasonable management decisions can and must be taken and acted upon even without comprehensive information. The precautionary principle should have been applied on day one of the project by introducing provisional restrictions on selected fish populations, specific habitat sites and fishing methods where there is obvious, urgent need for conservation measures. An early action of the project/ Trust office following the MTE should be to introduce an interim set of such restrictions.
125. Consideration should be given also to the immediate introduction of the following:
- *Community-based resource management:* The artisanal fishing community in each village should be assisted to set up a locally-managed marine area (LMMA) close to the village and its local fishing grounds. This should be managed as a follow-up action to, and guided by, the village Micro-planning exercise. The entire LMMA might extend from the shore to an offshore reef. Within its LMMA the village might delineate a no-fishing area(s) to encompass a reasonable portion (perhaps 25%) of the important fish habitats found in the LMMA, such as seagrass and reef. The project/ Trust office would be able to organise an assistance program, involving FSD and scientific expertise as required, to enable each village to delineate the area; select a no-fishing area; and ensure that the closure is understood and respected by the whole fishing community. Subsequently, over the long term the community could be assisted to monitor and publicise the changes in fishing and catches that occur.
 - *Stop trawling campaign:* A campaign could be organised by the project/ Trust office – involving all relevant partners – as an alternate strategy to tackle the long-standing problem of illegal trawling activity, using the newly-raised political profile of the GoM Biosphere Reserve to ensure that no further trawling occurs within the closed inshore zone (3 nautical miles). Actions could include: (a) direct advice warning each trawler operator that the closure will be enforced from now on; (b) provision of prepared marine charts that show clearly the exact location of the 3 nm line, and the Biosphere Reserve and NP zone boundaries; (c) mobilisation of all local artisanal fisherfolk and the APWs to record the evidence (date, time, location; trawler number; names of the owner and captain) of each infringement they observe; (d) issue (and publishing) formal warnings directly to each trawler owner and captain logged as infringers; (e) organisation of a series of intensive enforcement days - placing an enforcement officer, APW and FPW on as many local boats as possible; policing the entire closure line; arresting and impounding all trawlers found infringing the ban; and (f) briefings for court officials and judges on the trawling ban, the impacts of trawling, the available penalties, and the campaign being mounted to save the Biosphere Reserve. The immediate campaign outlined above should be followed by a carefully targeted benthic monitoring study to document and then publicise the effects of the stoppage.
 - *Stop destructive fishing:* A campaign should be launched to urge and persuade local fisherfolk to cease all use of unreasonably destructive fishing methods. The project/ Trust office, with the APWs, deputised FSD officers and VMCEDCs, should organise each fishing village community (a) to list all fishing methods that are excessively destructive or wasteful – again, drawing on the Micro-plans and scientific advice as required; (b) to agree to stop using all

these methods within the Biosphere Reserve; and (c) to work together to ensure that no-one uses these methods. Fisherfolk who have been closely dependent on these methods should be targeted directly to receive assistance through the BR Community Foundation and VMCEDCs, to change methods or change occupations.

Village-based conservation & development

126. The project has been most effective and successful in this second part of component 5, focused on providing support to communities living along the Gulf of Mannar coastal zone. The project has established a sound system for village-based “eco-development” and extended it to virtually all of the village communities in a 10 km wide zone along the 160 km length of the coast adjacent to the proposed Biosphere Reserve. In summary, the following system has been established – further details are in **Annex V.a**:

- Directed effectively by the project’s Eco-Development Officer, the zonal officers and Field Workers have assisted over 250 “villages” to form representative institutions known as *Village Marine Conservation & Eco-Development Committees* (VMCEDCs). These serve as focal points for the community’s efforts towards both conservation and development. The VMCEDCs are linked to a greater or lesser extent to the local Panchayat structure. Executive committee members and FPWs have received basic training from the project, in management, accountancy and recording.
- Each village, through its VMCEDC, has been helped by an NGO commissioned by the project to prepare a “*Micro-plan*”, as a compilation of historical, socio-economic and marine and land resource use information about the village; a description of perceived problems and needs; and a list of proposed actions to be taken by the BR Trust and government line departments (and villagers themselves perhaps?). Measures are proposed to stop damaging fishing activities and enhance marine biodiversity/ productivity.
- With zonal officer support, each VMCEDC has set up a savings bank account with a capital loan from the project/ Trust office, and has put in place procedures for approving *micro-credit* to registered applicants.
- Also through the VMCEDCs, the project has supported individuals to attend a variety of *vocational training* programs, principally at the Mohammed Sathak Polytechnic.
- The VMCEDCs and FPWs have encouraged *Self-Help Groups* (SHGs) – both existing and freshly-established – to register with their VMCEDC and develop *small business ventures*. To date 2,145 SHGs are registered with the VMCEDCs, and 1,268 of these SHGs have taken out loans and initiated a venture.
- Over 50 different types of small businesses are being tried by the 1,268 groups, the most popular ones being palm mat making; fresh fish and dried fish selling; pickle manufacture; rice selling; goat rearing (for meat); buying and selling textiles; and charcoal making (Refer to **Annex V.b** for details).

127. The MTE considers that the project/ Trust office has done a remarkable job in achieving so much with the coastal communities around the Gulf of Mannar, especially as this has occurred mainly over the past two years only. The Trust Director and Eco-Development Officer who have been in position for this short period are to be commended for driving the village “eco-development” work with such dynamism and dedication. The assessment of the MTE is that their achievements under this sub-component are creating a solid foundation for realising the broader objectives of establishing the Biosphere Reserve as an effective marine resource management regime.

128. The following elements of the system form a good platform for the future: community institutions, the VMCEDCs; democratic planning and decision-making about local conservation and development issues, through the village Micro-plans; a financial credit scheme forming the basis for the planned LTFM, available to community-based Self-Help Groups. At the same time, the MTE perceives some potential weaknesses with the system created so far, mainly (a) that it has been too narrowly an “eco-development” project, with inadequate attention to developing a sustainable marine resource use regime; and (b) that the effort has been spread too thinly and carried out too quickly so that there is a serious risk that the various elements of the system will not be sustained beyond the project and the whole Biosphere Reserve initiative will founder.

Village marine conservation plans

129. The project document proposed introduction of local community-based marine resource management. The proposed mechanism was to assist coastal village communities to develop local site conservation plans for the important habitats and species in their respective marine areas of the

Biosphere Reserve. The conservation plans would be integrated to form a common plan within the overall BR management framework.

130. As noted above, after a greatly-delayed start, the project/ Trust office has made remarkable progress in encouraging and facilitating the preparation of so-called "Micro-plans" by each of the 252 villages with which the Trust is working in the 10km wide coastal belt around the Gulf. These plans aim to outline the community's issues and objectives with respect to both conservation (local natural resource management and sustainable exploitation) and development (livelihoods, village and community development). The Micro-plans have been developed through a Participatory Resource Appraisal approach driven by a contracted NGO over the period 2005-2007.
131. The MTE considers that the Micro-plans provide a significant step towards the objective of establishing a marine conservation system that is planned and managed both by and with the local community. Care is needed to consolidate this step, by taking some more time to develop the soundness of each plan with respect to both conservation and development. It has been an ambitious undertaking to generate 250+ village C&D plans in two years, and it is apparent that for some villages at least, the planning process was very rapid and may not have left much lasting impression.

Anti-Poaching Watchers - towards community-based management

132. Another significant step towards community-based resource management and conservation in the Biosphere Reserve has been the formation of the Anti-Poaching Watchers. The MTE concludes that there is now in place a useful body of motivated and active villagers who are well placed to take on a broader role as community "rangers" (wardens, stewards, monitors). With additional training and support, this role could include routine resource monitoring and activity monitoring in the Biosphere Reserve as a whole; and leading the establishment and field management of local marine management areas (LMMA) close to and identified with individual village communities. Under the auspices of the VMCEDCs, the LMMAs could extend to community-managed protection sites and replenishment sites (coral reef and seagrass habitats; fish populations), artificial reef trials, seaweed culture sites, etc..
133. *The APWs provide also a good example of an employment opportunity for local villagers in Biosphere Reserve management operations. Other opportunities could be provided by GoTN mobilising a *community employment scheme* for GoM villagers, through the mechanism of the BR Foundation, VMCEDCs and SHGs, to undertake the following types of paid work: coastal vegetation planting; waterways and coastline clean-up projects; solid waste recycling ventures; coral reef regeneration schemes (to rehabilitate reef areas adjacent to villages; to serve as "home reefs" and artificial reef projects for fishing, recreation, education and tourism); mangrove restoration and protection schemes. The MTE recommendation is for the project in the next two years to devise, stimulate and guide the establishment and development of such schemes.

Financial analysis

134. The financial report summarised in table 15. below indicates a low level of expenditure of the GEF funds for this component, amounting overall to only 19% of the budget. The main reason is as noted above that little work has been done to date on developing and demonstrating marine resource uses that are ecologically sustainable. Of the \$1.2 million available for these specific activities, only \$100,680, about 9%, has been spent.

Table 15: Component 5. budget and expenditure

Project Expenditure (\$) 2002-2007					
Component Outputs		Budget	Expenditure		Balance
5. Development of sustainable livelihoods	GEF	1,450,000	278,282 ¹⁰	19%	1,171,718
Village marine conservation plans		300,000	174,442	58%	
Sustainable use of marine resources		300,000	0	0%	
Mariculture/ cooperative marketing		850,000	100,680	12%	

¹⁰ The total expenditure figure of \$278,282. includes \$3,160 attributed erroneously to a non-budget line item. This should be rectified in the recommended budget review following the MTE.

135. Another reason is that work under this component has concentrated on building the capacity of Village Committees (VMCEDCs) to establish micro-credit schemes; on providing the initial capital for the 252 accounts that have been created; and on assisting SHGs to access and make use of the credit schemes to develop micro-enterprises. For this work, the main expenditure has been on capitalizing the micro-credit accounts, and these funds have been drawn from the budget for the LTFM, under project component 1. The second main cost to the project has been on employing and training the zonal officers and FPWs, and this cost has also been assigned to component 1 (contributing to the over-expenditure on the PCU and Trust office).
136. *Co-financing*: It is of concern that work under component 5. has not been developed as planned as a “co-financed” initiative with the bulk of funds derived from GoTN line department budgets and the GEF funds used to organise and direct the overall initiative. Instead, the project/ Trust office appears to have been regarded by the line departments as a source of funds, to subsidise the departments’ activities in the area. This is contrary to the purpose and intention of the GEF project. As noted above, 90% of the funds for this project component were to come from government co-financing (\$11.95 million), and only 10% (\$1.45 m) were from the GEF. If the project is to be successful and the GoM Biosphere Reserve established and developed effectively, the budget will need to be re-drawn, to incorporate the co-financing, enable the project management to utilise the co-financing, and even to influence the expenditure of the baseline budget of the GoTN and GoI on suitably integrated programs supportive of the overall GoM Biosphere Reserve system.

Recommendations: Component 5. Development of Sustainable Livelihoods

137. The MTE makes the following recommendations for strengthening project component 5.

Recommendation 20: Component 5. strategy re-planning and re-budgeting

To make effective progress in the next phase, it will be essential for the project/ Trust office to draw up a clear and dynamic strategy for systematically introducing integrated marine resource management throughout the Gulf of Mannar and the Biosphere Reserve.

- The general recommendation of the MTE for this project component is to concentrate on supporting carefully managed fishing, mariculture and marine tourism; supplemented by providing some direct employment opportunities in the management operations of the Biosphere Reserve itself.
- The budget will need to be re-drawn, to revise the GEF budget allocations and timing; to re-confirm and incorporate co-financing and enable the project management to utilise the co-financing; to influence the expenditure of the baseline budget of the GoTN and GoI on suitably integrated programs supportive of the overall GoM Biosphere Reserve system.

Recommendation 21: Strengthen GoMBR campaigns and programs for community-based marine resource management and sustainable fisheries

An early act of the project/ Trust office following the MTE should be to enable the coastal communities to use the institutions that have been initiated (VMCEDC, Micro-plans, APWs), to introduce an interim set of restrictions on harvest levels and complementary conservation measures (closed areas, seasons, times and fishing methods) for all fished species populations in the Gulf of Mannar.

- The MTE suggests several initiatives that should be introduced as soon as practicable, including: (a) community-based management of local marine areas (LMMA) with no-take zones; (b) a vigorous, multi-strand campaign to stop all trawling within the closed inshore zone; and (c) a campaign to persuade local fisherfolk to cease all use of unreasonably destructive fishing methods.
- Having mobilised these types of urgent on-the-ground management actions, the project should continue to develop the necessary long-term measures, including capacity development for each aspect of the BR management system being established.
- The Tamil Nadu Fisheries Act is undergoing review at present, which provides a significant opportunity to introduce amendments to strengthen the management of GoM marine species and habitats, including special provision under fisheries law for the existence of the marine Biosphere Reserve.
- Fisheries research should be more targeted, and undertaken more systematically over time to directly address the management issues that are encountered.

Recommendation 22: Strengthen the development of community institutions, village committees, conservation and development planning, eco-development and livelihoods support

It will be important for the next phase of the project to give attention to consolidating and strengthening the work under this component. The MTE makes the following recommendations to guide the actions of the project:

- The project/ Trust should strengthen the Village Committees, with formal linkage to the Panchayats, and by formal incorporation into a GoM Biosphere Reserve Community Foundation, which would be an umbrella body and the community partner institution to the BR Authority, with links to the District Collectors' offices and line departments' programs in the GoM coastal zone.
- Rather than continuing to provide support to livelihoods directly, the project should concentrate on building the capacity of the Community Foundation and Village Committees, so that these local institutions become the main, permanent vehicles for promoting, facilitating and providing technical expertise for the further development of livelihoods, employment and both rural and urban development in the GoM coastal zone.
- The Trust and TPR should complete the establishment of the LTFM for the Biosphere Reserve by incorporating the village micro-credit accounts into a trust fund established under the BR Community Foundation (refer to Recommendation 9.).
- The project/ Trust should strengthen the process and results of village Micro-plans so that they become effective as the long-term mechanism for marine and coastal resource use and conservation planning for the entire Biosphere Reserve. (Refer also to Recommendations 18. and 19.) This will require the Micro-plans to become integral parts of the BR management plan and policy framework, and solidly linked to any planning schemes for coastal zone management, rural development, District, municipal or State development schemes. The plans should include stronger focus on developing specific sustainable inshore fisheries, harvesting and mariculture ventures, within a long-term conservation framework.
- The project/ Trust office should also continue a systematic program towards development of specific fishing, marine resource harvesting and culture activities that are ecologically sustainable as well as economically viable and socially-beneficial. The work of the project with CSMCRI and some SHGs on seaweed culture appears to be an excellent example of this strategy, which the project/ Trust should aim to extend to other types of "marine eco-development" enterprises. Community-owned nature-oriented tourism should also be included in the potential portfolio of livelihood and employment opportunities for GoM communities (Refer also to Recommendation 13.).
- The project/ Trust should devise, stimulate and guide the establishment and development of a community employment scheme, using GoTN funding and the mechanism of the BR Foundation, VMCEDCs and SHGs, for GoM villagers to undertake a variety of types of paid work relevant to BR habitat conservation and restoration.

EVALUATION OF SPECIAL ISSUES

138. The Terms of Reference for the MTE highlighted a number of issues to be given special consideration. Evaluation comments on each of these issues are drawn together here, and reference is also made to other sections of the MTE report where the issue was considered.

The Structure and Functioning of the Biosphere Reserve Trust

139. The planned establishment of the new management body for the Biosphere Reserve is discussed under Component 1., pages 22 to 27 of the MTE Report. The evaluation is that the issue has not been addressed satisfactorily: the Biosphere Reserve and its management rules have not been formally gazetted; the Trust is established as a society only, not a statutory authority, and indeed has been given little authority to operate effectively. The MTE recommends two distinct bodies, a GoMBR Authority governing an inter-departmental marine resource management program, and a partner GoMBR Community Foundation governing a trust fund and supporting community engagement in the Biosphere Reserve through livelihoods development and resource management.

[Recommendations 6., 7. and 8.]

Long-term funding mechanism (LTFM)

140. The project has made considerable progress with establishing a perpetual trust fund capable of providing micro-credit for sustainable livelihood ventures by village Self-Help Groups. However, the scheme started by the project needs further development, in particular to (a) formally incorporate the village funds into a combined fund to support the Biosphere Reserve coastal community as a whole; and (b) secure the planned co-financing and complete capitalization of the trust fund. The project has not followed the process envisaged for establishing the LTFM, and needs urgently to organise the planned feasibility study in order to obtain sound legal and financial advice on how best to complete establishment of a suitable Foundation and to operate the combined trust fund, linked formally to the Biosphere Reserve. The MTE recommends a GoMBR Community Foundation to govern the trust fund to support livelihood development and community engagement in marine resource management within the Biosphere Reserve. **[Recommendation 9.]**

GEF Focal Area Strategic Objectives and Programs

141. The GoMBR project is funded under the GEF Biodiversity Focal Area. The definition of the Strategic Objectives, Strategic Programs and expected Outcomes for two of the current (GEF4) Strategic Objectives relevant to the GoMBR project, SO1 "Catalyzing the Sustainability of PA Systems" and SO2 "Mainstreaming biodiversity conservation into production land/seascapes and sectors, are summarised in Table 16. below.

Table 16: GEF4 Biodiversity Focal Area ~ Strategic Objectives and Expected Outcomes

Strategic Objective	Expected Long-Term Impacts
SO1: To catalyze sustainability of protected area systems	Biodiversity conserved and sustainably used in protected area systems
SO1 Strategic Programs	Expected Outcomes
1. Sustainable financing of protected area (PA) systems at the national level.	i. PA systems secure increased revenue and diversification of revenue streams to meet total expenditures required to meet management objectives.
2. Increasing representation of effectively managed marine PA areas in PA systems.	ii. Reduction in financing gap to meet PA management objectives.
3. Strengthening terrestrial PA networks.	iii. Increased coverage of marine ecosystems globally and in national PA systems.
	iv. Improved management of marine PAs.
	v. Improved ecosystem coverage of under-represented terrestrial ecosystems areas as part of national PA systems.
	vi. Improved management of terrestrial PAs.
SO2: To mainstream biodiversity conservation in production land-/seascapes.	Conservation and sustainable use of biodiversity incorporated in the productive landscape and seascape.
SO2 Strategic Programs	Expected Outcomes
4. Strengthening the policy and regulatory framework for mainstreaming biodiversity.	vii. Policy and regulatory frameworks governing sectors outside the environment sector incorporate measures to conserve and sustainably use biodiversity.

- | | |
|---|--|
| 5. Fostering markets for biodiversity goods and services. | viii. Markets created for environmental services.
ix. Global certification systems for goods produced in agriculture, fisheries, forestry, and other sectors include technically rigorous biodiversity standards. |
|---|--|
-

142. The assessment of the MTE is that the GoMBR project, as designed and as being implemented, serves both of these Strategic Objectives and all five of the Strategic Programs under the two SOs. Reference to Table 16 indicates clearly that, of the 9 Expected Outcomes nominated for the five SPs, the GoMBR project was intended to contribute to each of them, with the exception of ix., which seems to be concerned with the quality of global certification systems themselves rather than the use made of them in the Gulf of Mannar. This assessment is not surprising, given the project purpose of establishing a novel conservation management regime that involves incorporating improvements to the management of a protected area within a system of multiple sustainable resource uses. The GEF Tracking Tools for SO1 and SO2 activities are of generic relevance to the GoMBR project, but should be used to improve the project's own logical framework and M&E plan, not directly as a monitoring tool for the project.
143. The MTE comments on the project implementation difficulties caused by this broad scope of the project: it was required to test and demonstrate strengthened protected area management (Component 2, 3, and 4); integrated coastal zone management/ sustainable land management (Component 4.); fundamentally reformed fisheries management, and development of sustainable alternative livelihoods (Component 5.), all in an innovative enabling environment requiring unprecedented amounts of inter-departmental collaboration, integrated programming and co-financing, and community-government co-management of marine resources. The MTE recommends early actions to "re-frame and re-confirm" the project essentials, and to use capacity development to establish an effective system of integrated management of marine resource use and conservation. **[Recommendations 1. and 3.]**

Risk Management and Adaptive Management

144. The evaluators were requested to assess the use being made of UNDP's risk management system as an adaptive management tool; and to consider the need for adjustments to project design and strategy, given the "many developments in coastal and marine environmental management policy and practice..., both nationally and in Tamil Nadu, including in Gulf of Mannar, some as a result of the 2004 tsunami..." since the GoMBR Project was designed in the late 1990s. Review of the annual Project Implementation Reports (PIR) confirms that the section on Risks is being used. The MTE concludes that the description of the various types of risk is reasonably accurate, although limited in scope (for example, no environmental risks are identified). However, the management's assessments of the risks and the adequacy of the response tend to be overly optimistic and to suggest only lightweight adjustments. The PIRs are therefore not being used effectively to manage the project adaptively; to bring about the necessary improvements in the response.
145. In its Summary, the MTE Report comments that "There is little sign of adaptive management of the project overall, and there does not seem to be a system in place for strategic monitoring and reporting, rigorous risk analysis, progress review, feedback and adjustment." Part of the reason has been ineffective project supervision and direction, including the lack of attention to managing the project itself as a mechanism for bringing about change.
146. As IA, UNDP was concerned about the lack of progress with project implementation and undertook reviews in 2004 and 2005, which resulted in some changes to the committee structure and staff recruitment, but apparently did not question the change in project strategy that had been decided at the first meeting of the GoMBR Board of Trustees. The current project management team (in place only since 2005) was aware of the need to adapt the project to the changed circumstances and organised a consultative "project re-planning" workshop in January 2006, which proposed a modified strategy for project implementation and revisions to the logical framework. However, in the absence of a clear project supervisory mechanism or strategic management, there have not been any formal changes made to the logical framework, project strategy, or the budget (GEF or co-financing) since the project document was signed in 2002.
147. The MTE noted that there have been major changes in the Gulf of Mannar in the 10 years since the GoMBR Project was designed, including major growth in coastal village and town populations, commercial and industrial activities, and the range of associated pressures on the Gulf's inshore marine resources, from various forms of pollution, to high levels of all forms of fishing, including the use of destructive gears. These growing threats were considered in the January 2006 project workshop, but have not been reflected in any formal changes made to the project design or strategy. **[Recommendations 1. and 4.]**

148. Some new, larger-scale threats noted by the MTE include the December 2004 tsunami and its aftermath of development assistance schemes; the planned construction and operation of four additional power stations on the coast at Tuticorin; and the proposed Sethusamudram Ship Canal, which is planned as a dredged shipping channel through Palk Bay and into the more open waters of the Gulf. The project/ Trust office does not appear to have assessed or acted on the first two of these issues, but did commission a study of the possible impacts of dredging and operation of the SS Canal on the biodiversity of the GoMBR, and noted its results. On the other hand, it is apparent that in each of these cases, there has been little or no consideration given to the possible need to modify or halt the proposed development on grounds of incompatibility with the purpose of the GoM Biosphere Reserve. The MTE recommends that there is an outstanding need to formally establish the GoMBR and an effective management regime that will be able to respond properly to the range of growing and future threats. This will mean enabling a GoMBR Authority plus a Community Foundation to use scientific knowledge and political power to present the case for caution, mitigation of impacts and imposition of bans on activities that would impact unreasonably on the GoM region, its environment, biodiversity and local people. [**Recommendations 3. and 6. to 9.**]

Cross-cutting Issues

149. The evaluation was asked to assess the project's performance in relation to a number of cross-cutting issues:

- Poverty reduction: As is clear from the review of activities and achievements under component 5., the project has worked efficiently and effectively to improve livelihoods, employment and income for the coastal communities adjacent to the Gulf of Mannar. However, as a GEF Biodiversity project with a focus on generating global environmental benefits, it is not appropriate for the project to be working primarily on livelihoods or community development, and the MTE recommends a change of project focus: "Rather than continuing to provide support to livelihoods directly, the project should concentrate on building the capacity of the Community Foundation and Village Committees, so that these local institutions become the main, permanent vehicles for promoting, facilitating and providing technical expertise for the further development of livelihoods, employment and both rural and urban development in the GoM coastal zone" [**Recommendations 20 and 22.**] There is also a need to improve the quality of data available on local socio-economic conditions [**Recommendation 15.**]
- Governance: The project has made some good progress (notably the Anti-Poaching Watchers; Village MCED Committees; and Micro-plan compilation) towards engagement of the local community and resource users in natural resource management and decision making. However, urgent higher-level action is needed, to establish the formal system of GoMBR (and NP) governance, in which the local community can participate [**Recommendations 6. 9. 16. and 18.**]
- Promotion of gender equity: The project management is concerned about gender inequity, but the tendency has been perpetuation of unequal participation of men and women in decision making and activity at different levels. It is clear that men dominate in all of the governing committees; in the senior management of the project and Trust office; and in the field staff of the participating line departments. The project itself employs only young men as Anti-Poaching Watchers and only young women as its Field Project Workers. Gender equity is apparent only in the staff of non-government organisations, the UNDP Country Office, and perhaps to a lesser degree, in the various research organisations working with the project. Women dominate in the Village CED Committees that have been established, form the great majority of Self-Help Group members and micro-credit recipients, have clearly participated more enthusiastically, and consequently have been the main beneficiaries of the project to date. Men and women work together in some occupations, such as charcoal manufacture and fish buying, but men continue to dominate most fishing activities, including both ownership and employment on trawlers, whereas primarily women are engaged in seaweed gathering and the alternative activity of seaweed culture. According to village meetings with the MTE, this is leading to the feeling among fishermen of being excluded from the Biosphere Reserve initiative, which the project needs to address. There is clearly scope for the project to do more to inculcate gender equity in a number of situations, and the MTE recommends the project office doing this proactively, as part of its capacity development strategy. [**Recommendations: 3. 7. 8. 9. and 14.**]
- Project impacts on state and national policy, including mainstreaming of conservation efforts: The intention was for the project to introduce and test novel policies for managing conservation and use of marine and coastal resources, and to serve as a pilot for Tamil Nadu state, India and the wider region in a number of policy directions, including: integrated coastal zone management, sustainable fisheries management, marine conservation, marine biosphere reserve

management, co-management and community participation in natural resource management and rural development. To date, the project has not developed much traction in influencing policy in any of these areas. There appears to be a tendency to regard the project as an *ad hoc* initiative operating outside the main framework of government policy, and not as a mechanism and opportunity for bringing about change. For the project to achieve its objectives, formal policy changes will be needed, in legislation, regulations, governing mechanisms, management plans. [**Recommendations: 3. 16. 18. 19.**].

IV. COLLATED RECOMMENDATIONS

The Project overall

Recommendation 1: Reframe and re-confirm the Project essentials: supervision, implementation capacity, strategies, budget and timetable extension.

The MTE has a number of concerns about the project overall: the underlying concept and strategy have been largely not followed; co-financing has not been available for integrated programming; and there has been little progress made in some key areas of the initiative, despite the number of years since project inception, and the absence of any adaptive management measures. Against these concerns, the MTE recommends that within 3 months of the MTE completion, the project manager and project office, using stakeholder workshops and the MTE Report as a guide, with technical support from UNDP and others as required, should prepare a project completion plan based on a revised logical framework, which should specify component objectives and strategies; program budgets and co-financing; procedures for monitoring, evaluation, reporting and adaptive management.

- The new plan should be approved by a re-constituted Tri-Partite Review body (Gol, GoTN, UNDP India). The project's implementation should then be delegated to the office of the Biosphere Reserve Authority Executive as recommended under component 1. below.
 - An important aspect of reframing the project will be to carefully plan the strategies that will be used to implement each of the components of the project. This means setting clear objectives and targets; planning effective approaches, methods and tools; devising a suitable M&E system; allocating resources and responsibilities. This planning work should be treated as an in-service capacity development exercise for the project executants, using specialist consultants-facilitators as required.
 - Following the MTE and the proposed re-framing and capacity development work, it will take a reasonable length of time for the project to achieve its purpose. The MTE recommends that the project period should be extended for 4 years beyond the current deadline, to reach completion and handover by end of 2012.

Recommendation 2: Integrate the planned co-financing and GEF funds to confirm and manage one program budget

The funds allocated by Gol and GoTN for actions relevant to the overall Biosphere Reserve management area should be formally incorporated into a composite budget that is linked to integrated programming and under the control of BR Executive Director, and thus combined also with the project's GEF budget.

Recommendation 3: Develop and implement a systemic capacity development program for the Biosphere Reserve management

The Project is aimed at devising and developing a management system for a new type of conservation area in Tamil Nadu and India, a marine Biosphere Reserve within which a diversity of marine resources are used to support local development, but with an emphasis on ensuring that each use is ecologically sustainable. The GoM marine Biosphere Reserve concept requires innovation in the ways in which multiple-species fisheries and species harvesting, mariculture, coastal land use, municipal and domestic waste, and resource-based livelihoods and employment are managed within and around the Biosphere Reserve area. Innovations in these areas require changes in policy and practice by the following groups of agencies – primarily Fisheries Department, Forest Department, Pollution Control Board and Coastal Management Authority; and secondarily Rural Development Department and Social Welfare Department. The recommended way to achieve the necessary changes and innovations in policy and practice is to establish the joint program mechanism and then undertake systemic capacity development involving each of these agencies through the second half of the project.

- A comprehensive capacity development program should be planned and organised for all those working on Biosphere Reserve establishment and management, using "in-service learning" as the principal strategy. Within 3 months of the MTE completion, the project manager and project office, using consultants as required, should plan a capacity development program for the next three years.
- The capacity development program could usefully include an intensive study tour for a core group of competent professional staff from the Trust office/ proposed BR Authority Executive, to investigate and learn from comparable marine conservation initiatives and then apply their

developed competencies to the development of the Biosphere Reserve management system. A preliminary outline of a possible study tour was discussed during the MTE.

- The TPR and project manager/ Trust Director should consider contracting an external technical advisor to the project manager's/ Trust office for the remainder of the project. This could be a part-time, off-line specialist, responsible for advising the manager/ Director on technical delivery of the project and development of the Biosphere Reserve, and for organising and contributing to the in-service capacity development program.

Component 1. Project management, Biosphere Reserve Trust and LTFM

Recommendation 4: Strengthen Project supervision, management and administration

The MTE recommends that project supervision should be streamlined and tightened to improve efficiency and reduce the time and financial costs incurred. A clear distinction should be made between Project supervision and governing the Biosphere Reserve. Senior representatives of GoI, GoTN and UNDP should form the project supervisory body, the Tri-Partite Review (TPR), responsible for approving project work and budget plans for the year, receiving quarterly summary and annual progress reports, and determining appropriate follow-up actions.

Project management and administration need greater care and attention, and project activity planning, monitoring and reporting need to be improved. The project management does not have adequate capacity for risk management or adaptive management. Despite the lengthy periods of time since the project document was prepared (1998) and implementation commenced (2002), and events that have occurred subsequently – notably the 2004 tsunami – no adjustments have been made to any part of the project plan or budget. An early capacity development exercise should be organised by the TPR for project supervision, management and administration staff. See also MTE Recommendation 3. More rigorous use should be made of the main tools available of the logical framework (for planning and monitoring), annual and overall budget plans, routine reporting, budget management, and adaptive management.

The project budget plan needs to be revised carefully, with adequate funds allocated to each planned result area for the no-cost extension proposed for the project. The revised budget should be approved by the TPR, and authority should be delegated to the project manager and staff to spend the annual budget on the approved work plan, and to monitor and report back on expenditure against the budget. Adequate systems for financial expenditure monitoring, accounting and reporting should be put into operation by the project office immediately following the MTE.

The Project would operate under the proposed BR Authority – see below - so that the Executive Director and staff would also be the Project manager and staff for the duration of the Project. Adequate technical/ professional staff need to be employed – on deputation or contract – to direct each major area of project activity – Biosphere Reserve and village conservation planning; marine (fisheries) and coastal resource management; environment protection; sustainable livelihoods development; research, information system and monitoring. These staff should become the Executive staff of the BR Authority when it is formed.

The zonal officers should not be project employees, but should be trained and developed to serve as the main body of Biosphere Reserve Field Managers, supported and directed by the project technical directors/ Executive staff – see also Recommendation 7. The current Field Workers should not be employed by the project, but should be converted to technical (eco-development) advisors employed by the proposed GoMBR Community Foundation and VMCEDCs as affordable – see also Recommendation 9.

Recommendation 5: Revise the Project budget and strengthen financial management

The MTE recommends that UNDP (TPR) and the project office should undertake urgently a complete review of the project budget and expenditure to date; and draw up a new budget to be approved by the project's supervisory body, the TPR. The new budget should contain sufficient funds for the planned extension of the project. For component 1, the revised budget should provide for the project office to operate for the duration of the planned extension; for the capacity development program; for the GoM Biosphere Reserve and Authority to be established soundly in law and capacity; for the establishment of the GoM Biosphere Reserve Community Foundation. An outline for an extension budget is suggested in **Annex II**. The capacity development program should include, within six months following the MTE, strengthening the administration of the project office and

finances, information system, monitoring and reporting; and building comparable capacities in the offices of the GoMBR Authority and Community Foundation. See also Recommendation 3.

Recommendation 6: Formally establish the GoM Biosphere Reserve and Authority – Board, Executive, Director, Executive Coordination Group

One of the MTE's main recommendations is to address the weakness in the current institutional arrangements by establishing (a) a body with adequate powers to govern and manage the Biosphere Reserve, and (b) the position of Director with authority to direct the actions of all line departments in the Biosphere Reserve as a fully integrated program.

It is suggested that in order to establish the Biosphere Reserve effectively, the following actions should be organised as a matter of urgency by Gol and GoTN:

- The Gulf of Mannar Biosphere Reserve should be formally established as a designated area under appropriate legislation, such as the Environment Protection Act, with a statutory management body, the GoM Biosphere Reserve Authority.
- The existing committee structure should be disbanded and replaced with a streamlined Authority, comprising three parts, the Board and the Executive, plus an Executive Coordination Group. The Board should be a part-time body of 3-5 senior officials plus the representative of the BR Community Foundation – see below. The Executive Director would also be a member of the Board. The Board would be responsible for providing overall direction to the Biosphere Reserve management and ensuring whole-of-government accountability and policy coordination.
- The BR Executive would comprise the Director and staff, and would be responsible for managing the operations of the Biosphere Reserve. It would be equivalent to the current Trust office, which should be re-named the office of the Authority and Executive. The Executive office would implement the integrated management program of the Biosphere Reserve, incorporating the local operations of the relevant line agencies (FSD, FD-WW, CMA, PCB). The Executive would set up and direct joint systems, joint planning, joint budgeting and joint operations for all these agencies' activities in the Biosphere Reserve area, with the aim of delivering an integrated program of actions addressing the management of the Biosphere Reserve.
- There should be an Executive Coordination Group chaired by the Director with members representing each line department and agency with work relevant to the Biosphere Reserve.

Recommendation 7: Strengthen the Executive staff of the Biosphere Reserve Authority

Within two months of the MTE, the project/ Trust Director should review the current Trust office staff and prepare a 5 year plan for strengthening the team to serve as the proposed BR Executive.

- There is an urgent need to enhance the capacity of the project/ Trust/ Executive office to be able to manage the technical programs which it is responsible for organising.
- The GoTN should amend its human resource management procedures to enable the BR Authority Executive to recruit and retain motivated staff and invest in their capacity development. Using the project, the Biosphere Reserve Authority should be able to offer excellent opportunities for long term personal and professional capacity development of officers appointed there. See Recommendation 3.

Recommendation 8: Establish a GoM Biosphere Reserve Advisory Committee

A GoM BR Advisory Committee is recommended, with membership representative of GoTN, research institutions, private sector, and the local community. The Advisory Committee would be responsible for providing advice to the Director and the Board of the Authority. Sub-committees should be formed under the Advisory Committee as required to deal with specific matters such as research, international liaison, women's participation, traditional resource management practices, etc. for the Biosphere Reserve. The project/ Trust Director should prepare a plan for the new BR Authority Board to approve a streamlined advisory committee structure.

Recommendation 9: Establish a GoMBR Community Foundation and Long-Term Funding Mechanism

The MTE recommends that a separate GoMBR Community Foundation should be established as a partner body to the BR Management Authority, with a director of the Community Foundation on the Board of the BR Authority. Within 4 months of the MTE, the project/ Trust office should organise the necessary steps to formalise these institutional arrangements for the BR Community Foundation and BR Fund.

- The BR Community Foundation should be a community organisation mandated to support village conservation and eco-development; to own and manage the BR Fund, formed from the combined community micro-funds held by each VC&DC.
- The project/ Trust office should modify the planned LTFM feasibility study, to obtain sound legal and financial advice on the best mechanism to follow; to formally register the BR Community Foundation and Fund in law, as an umbrella body incorporating each of the village committees and micro-funds. The legal purpose of the Community Foundation should be confirmed as a registered community organisation serving the conservation and development interests of the resident community in the coastal zone adjacent to the Biosphere Reserve.
- A diligent governing mechanism for the BR Community Foundation should be established, with the individual Village C&D Committees as shareholders, and community representatives drawn from the Committee executives having a controlling majority on the Foundation's Board of Directors. The BR Community Foundation should be formally linked to the GoMBR Authority, with a representative on the Board of the Authority.
- A formal plan and procedures for owning, governing and utilising the Foundation's endowment Fund and micro-funds should be prepared (as part of the modified LTFM feasibility study) and approved as part of the formal establishment of the Foundation as a legal entity. The plan should provide for the endowment fund to be used to support both conservation and development – i.e. community contributions to co-management/ conservation planning and actions for the Biosphere Reserve, as well as on-going support for eco-developments, sustainable livelihoods and business ventures based on sustainable use of Biosphere Reserve resources.
- Once the BR Community Foundation is registered, half of the \$4 million leveraged funds from GoTN should be deposited with the Foundation as a capital trust fund linked to the village micro-funds. Within two years, the remaining half of the GoTN capital funds should be deposited with the Foundation. By this process, the \$5 million endowment fund will be capitalized by 2010 and yielding an income that can be disbursed by the BR Community Foundation.

Components 2. and 3. National Park Operations and Infrastructure

Recommendation 10: Fully integrate the National Park into the management and development of the Biosphere Reserve

Strengthening of the GoM National Park management should be carried out as a part of establishing and developing the Biosphere Reserve, with full integration of all systems and programs, rather than as a separate entity; in the future, if the BR is successful, the NP will be one part of the broader initiative. For this to occur, the second half of the project must be focused much more directly on the task of establishing the management system for the Biosphere Reserve.

- Following the MTE, all elements of National Park management and its strengthening – staffing, recruitment, supervision and training; research, monitoring and information system; management and operations planning; budget planning and financial management; etc – should be integrated with those of the Biosphere Reserve.
- The bulk of the remaining GEF funds from components 2. and 3. should be transferred into a re-planned component 4. The future budget for components 2. and 3. will draw on the co-financing and baseline funding from MoEF and GoTN, which should be programmed and spent as an integral part of the Project/ Trust operations, under the single authority of the Biosphere Reserve Authority Executive Director.

Recommendation 11: Capital equipment purchases

The MTE was advised that the main items of equipment to be purchased include two boats to support NP and BR management, yet notes that there is as yet no specification of what NP or BR management operations are to entail. It is recommended that any major equipment purchase – including the two proposed boats – should be planned and approved with reference to the GoM BR management plan and operational strategy, once these are prepared and in force; in other words, first define the management strategy, then organise the facilities to implement the strategy.

Recommendation 12: Develop the GoMBR (and NP) management planning and policy framework

The MTE recommends that the Management Plan should be further developed and revised so that it may be approved and brought into force as a framework for the whole Biosphere Reserve including the National Park. A key indicator that an integrated management regime for the GoM has been established will be the development and eventual bringing into force of the single integrated management plan.

- The process of compiling the new draft Management Plan was intended to be “participatory” ensuring adequate “shared ownership” by the government management agency responsible for implementing it, and the local villagers and users of the area who are intended to be “primary stakeholders” in the management regime. The MTE recommends that the draft Management Plan should be subjected to the following development and completion steps: a framework of key policy prescriptions should be defined, to specify the general rules by which the area’s natural resources (island, marine, intertidal, coast) may be accessed and used. These rules should be negotiated through an adequate participatory process with each group of representative key stakeholders, to reach consensus and “co-ownership”. The framework management plan should be formally ratified under the legislation used to designate the Biosphere Reserve.
- The new draft management plan stresses that the only activities to be permitted in the NP are “research, monitoring and restoration of biodiversity”. The MTE recommends a much more constrained approach be adopted towards “restoration” in the marine environment. The draft Plan refers to restoration of “mangroves, coral reefs, seagrass (and) stock enhancement of seahorses and holothurians”. It is advisable to adhere to the principle that artificial stock enhancement cannot replicate nature, and to concentrate instead on ensuring that the natural processes of regeneration are able to proceed strongly e.g. by removing island weeds, litter and remains of fires; preventing direct benthic habitat damage, for example from anchors, feet, destructive fishing gears, and facility construction; and restricting water and air pollution from human activities both within and outside the Biosphere Reserve and its surroundings.
- The MTE recommends adoption of a more rigorous approach to using the management plan to drive the work plan. For example, while both the 1993 and the 2007 Plans document the extent of plant weed species on the NP islands (notably that the pervasive *Prosopis juliflora* has increased markedly in the intervening period), neither the 1993 prescription of manual removal of *Prosopis* nor the 2007 reiteration appear to have been responded to.

Recommendation 13: Make provision for community-owned eco-tourism in the NP and GoMBR

The new draft Plan does not address the need expressed in the project document for the FD policy of no-access, no-use for NPs to be relaxed slightly to accommodate tourism, recreation and educational visitors access.

- The MTE recommends that the Biosphere Reserve and NP management program would be strengthened considerably by permitting members of local communities to operate a small number of low-key, low-impact eco-tourism ventures, able to access and use designated island and reef sites within the NP and BR.
- The strategy and ventures should be planned carefully and managed through a permit system issued by the Biosphere Reserve Authority. The aim should be to ensure no significant impact on any part of the area’s ecology or biodiversity. There are several examples in India of successful eco-tourism ventures established in National Parks, from which the GoMBR Authority can draw ideas and guidance.

Recommendation 14: Strengthen GoMBR and NP staffing and capacity development

The project design envisaged that training of NP staff would be the main mechanism used to strengthen the overall capacities for management of the NP. A series of conventional-style trainings have been given to existing staff with the aim of conveying routine knowledge and skills. This was probably not a realistic expectation, without first tackling underlying, systemic issues in recruitment and human resource management, and weaknesses in such areas as the overall management policy and plan for the NP; public participation in NP management decision-making; NP activity zoning and boundaries; the relationship between the NP and BR.

- Once these basic policies have been determined, a systematic capacity development program for the entire Biosphere Reserve (including NP) operation should be prepared and then implemented. Refer also to Recommendation 3.
- In order to achieve a staff complement with the new competencies required for marine Biosphere Reserve management, GoTN should consider instituting special rules for the GoMBR. The BR Authority and Executive should prepare a staffing and capacity development plan for the entire Biosphere Reserve and NP, to be based on the management plan that is under preparation. The aim should be to ensure that there is an integrated body of Biosphere Reserve and National Park staff, and that staff are drawn from all relevant line departments and provided with a high standard of in-service training. Refer also to Recommendation 7.

Recommendation 15: Development of the GoMBR Management Information System

The BR Trust/ Executive office needs to develop adequate capacity to receive, organise, disseminate, and apply the range of results and data sets that are being generated by the current research

contracts and routine monitoring system. There is a risk that too much unrefined data will come in at once, with no system in place to handle it, and no capacity for it to be used to achieve the underlying objectives of devising and establishing an effective marine resource management and conservation regime.

- To date, there is no adequate information system in place for management of the GoM Biosphere Reserve (or NP). The current focus is on improving “inventories” of the natural features of the NP area – species present and abundance – and relies on occasional surveys and studies conducted by a research institute to provide up-dated information.
- Within 4 months of the MTE, the project/ Trust office, using consultants as required, should have devised and put in place a substantially improved Management Information System (MIS) to organise all aspects of Biosphere Reserve management and development – research, monitoring, planning, operations. This should serve as a common system to be used by each of the management/ enforcement agencies involved in the Biosphere Reserve and NP – FSD, CMA, PCB, FD-WW – under the auspices of the BR Authority.
- The MTE recommends that a different approach should be taken to structure a suitable MIS: first determine what the management issues are, and how they are to be addressed; and then design the information system to provide the information required to address the issues. The BR MIS should be focused more dynamically on monitoring anthropogenic influences or threats to the whole Biosphere Reserve, including the NP areas. This is in line with the principle that conservation area management has to focus on people – resource users, their actions and impacts – rather than on the natural site or biodiversity present. A good development in this direction is provided by the operations of the anti-poaching watcher groups. They have been given basic training to log and collate their actions and any noteworthy events occurring in “their” areas. This database can be used as a starting point for developing a useful GoM BR management information system.

Component 4. “Biodiversity Overlay”, Biosphere Reserve

Recommendation 16: Formal establishment of the GoM Biosphere Reserve, governance arrangements and management policy.

Following the MTE and subject to government endorsement of the ATREE-CAG (2007) advice on a suitable legal mechanism, the project office should organise a submission for formal establishment of the Gulf of Mannar Biosphere Reserve. See also Recommendation 6. The submission should specify the following:

- Designation of the overall purpose and area boundaries of the Biosphere Reserve.
- A governing Authority comprising Board, Executive and Coordination Committee.
- A framework management plan outlining the general policies and rules governing management of access and use of the Biosphere Reserve resources.

Recommendation 17: Formal establishment of an integrated program of management for the Biosphere Reserve

As soon as practicable following the MTE report, GoTN should put in place institutional arrangements for all activities relevant to management of the Biosphere Reserve to be planned, budgeted and supervised under the direction of the proposed GoM BR Authority Executive Director. This will require the Biosphere Reserve to be formally set up in law; adequate executive authority to be vested in the proposed BR Authority Executive office as the responsible management agency; and for the BR Authority Executive to directly engage FD, FSD, CMA and PCB in planning and then implementing a common strategy and joint program for managing the Biosphere Reserve.

Recommendation 18: Establish an effective management planning function for the GoM BR

The management plan needs to be a readily-usable policy document of the GoTN and BR management authority. In this regard it is good practice to maintain the management plan as a dynamic document, subject to periodic review and up-date. Over time, detailed, ancillary sub-plans can be added as knowledge accumulates. The following management planning actions are recommended – see also MTE Recommendation 12:

- Formulate an overall policy framework for the whole Biosphere Reserve; extract the key policy prescriptions for accessing and using the area’s natural resources (island, marine, intertidal, coast; National Park; fisheries and marine harvesting; coastal land use; pollution and waste management).
- Specify in the framework plan the BR governance and management operations structure. Provide for the framework plan to be ratified under appropriate legislation; e.g. the EPA.

- Provide for the Village Conservation Plans, currently part of the “VMCDC Micro-plans”, to be incorporated and supported within the overall framework Plan.
- Make separate provision for an integrated operations plan, prepared on a multi-year rolling basis.
- Over time, incorporate additional specific management plans within the formal framework Management Plan. Use this approach to prescribe how each issue will be managed, as knowledge of the issue and how to manage it accumulate.
- The current draft Management Plan is focused primarily on the natural resources and biodiversity features of the area. The MTE recommends instead planning how each of the human activity or use sectors that are operating and threatening various parts of the area will be managed.
- Such a re-focus should specify management of not only the diverse range of fishing activities but also the several large municipalities and hundreds of industrial and commercial activities that pose a variety of serious threats to the ecological health and future viability of area.

Recommendation 19: For the GoM region, synchronize and merge the new TN CZM planning initiative with the BR management plan.

The Biosphere Reserve will overlies various other resource management and environment protection schemes where they are applied to the Gulf of Mannar region (at village, District, State or National scales). Examples include the new State-wide CZM planning initiative. The management provisions for the Biosphere Reserve need to encompass and integrate the provisions of these other schemes. This requires an integrated approach to planning to be adopted and regarded as a positive opportunity by the different agencies and programs involved.

Component 5. Development of Sustainable Livelihoods

Recommendation 20: Component 5. strategy re-planning and re-budgeting

To make effective progress in the next phase, it will be essential for the project/ Trust office to draw up a clear and dynamic strategy for systematically introducing integrated marine resource management throughout the Gulf of Mannar and the Biosphere Reserve.

- The general recommendation of the MTE for this project component is to concentrate on supporting carefully managed fishing, mariculture and marine tourism; supplemented by providing some direct employment opportunities in the management operations of the Biosphere Reserve itself.
- The budget will need to be re-drawn, to revise the GEF budget allocations and timing; to re-confirm and incorporate co-financing and enable the project management to utilise the co-financing; to influence the expenditure of the baseline budget of the GoTN and GoI on suitably integrated programs supportive of the overall GoM Biosphere Reserve system.

Recommendation 21: Strengthen GoMBR campaigns and programs for community-based marine resource management and sustainable fisheries.

An early act of the project/ Trust office following the MTE should be to enable the coastal communities to use the institutions that have been initiated (the VMCEDCs, Micro-plans, and APWs), to introduce an interim set of restrictions on harvest levels and complementary conservation measures (closed areas, seasons, times and fishing methods) for all fished species populations in the Gulf of Mannar.

- The MTE Report suggests several initiatives that should be introduced as soon as practicable, including: (a) community-based management of local marine areas (LMMA) with no-take zones; (b) a vigorous, multi-strand campaign to stop all trawling within the closed inshore zone; and (c) a campaign to persuade local fisherfolk to cease all use of unreasonably destructive fishing methods.
- Having mobilised these types of urgent on-the-ground management actions, the project should continue to develop the necessary long-term measures, including capacity development for each aspect of the BR management system being established.
- The Tamil Nadu Fisheries Act is undergoing review at present, which provides a significant opportunity to introduce amendments to strengthen the management of GoM marine species and habitats, including special provision under fisheries law for the existence of the marine Biosphere Reserve.
- Fisheries research should be more targeted, and undertaken more systematically over time to directly address the management issues that are encountered.

Recommendation 22: Strengthen the development of the community institutions, village committees, conservation and development planning, eco-development and livelihoods support.

It will be important for the next phase of the project to give attention to consolidating and strengthening the work under this component. The MTE makes the following recommendations to guide the actions of the project:

- The project/ Trust should strengthen the Village Committees, with formal linkage to the Panchayats, and by formal incorporation into a GoM Biosphere Reserve Community Foundation (refer to Recommendation 9.), which would be an umbrella body and the community partner institution to the BR Authority, with links to the District Collectors' offices and line departments' programs in the GoM coastal zone.
- Rather than continuing to provide support to livelihoods directly, the project should concentrate on building the capacity of the Community Foundation and Village Committees, so that these local institutions become the main, permanent vehicles for promoting, facilitating and providing technical expertise for the further development of livelihoods, employment and both rural and urban development in the GoM coastal zone.
- The project/ Trust and TPR should complete the establishment of the LTFM for the Biosphere Reserve by incorporating the village micro-credit accounts into a trust fund established under the BR Community Foundation (refer to Recommendation 9.).
- The project/ Trust should strengthen the process and results of village Micro-plans so that they become effective as the long-term mechanism for marine and coastal resource use and conservation planning for the entire Biosphere Reserve. (Refer also to Recommendations 18. and 19.) This will require the Micro-plans to become integral parts of the BR management plan and policy framework, and solidly linked to any planning schemes for coastal zone management, rural development, District, municipal or State development schemes. The plans should include stronger focus on developing specific sustainable inshore fisheries, harvesting and mariculture ventures, within a long-term conservation framework.
- The project/ Trust office should also continue a systematic program towards development of specific fishing, marine resource harvesting and culture activities that are ecologically sustainable as well as economically viable and socially-beneficial. The work of the project with CSMCRI and some SHGs on seaweed culture appears to be an excellent example of this strategy, which the project/ Trust should aim to extend to other types of "marine eco-development" enterprises. Community-owned nature-oriented tourism should also be included in the potential portfolio of livelihood and employment opportunities for GoM communities (Refer also to Recommendation 13.).
- The project/ Trust should devise, stimulate and guide the establishment and development of a community employment scheme, using GoTN funding and the mechanism of the BR Foundation, Village Committees and SHGs, for GoM villagers to undertake a variety of types of paid work relevant to BR habitat conservation and restoration.

V. LESSONS

150. The Gulf of Mannar Biosphere Reserve Project is a significant undertaking which provides a number of lessons that may be useful for those planning and managing comparable initiatives. This section of the MTE report draws out four lessons.

LESSON: INSTITUTING MARINE RESOURCE MANAGEMENT AND CONSERVATION

151. The GoMBR Project was planned in the late 1990s with the aim of enabling the establishment of the Biosphere Reserve that had been announced ten years previously, as the first marine conservation area of its kind in Tamil Nadu, India and the South Asian region. The project document emphasised also the aim of strengthening coastal zone management planning, and of the GoM National Park as the state's first marine protected area. Each of these planned schemes was highlighted also as an innovative pilot and demonstration, intended to be extended or replicated elsewhere in Tamil Nadu and other coastal states. The MTE concludes that the mixture of approaches suggested in the project design has been confusing, and has not assisted the government to address the key challenge, which is to devise and test an effective institutional arrangement for governing marine conservation.

152. The lesson that may be drawn from the GoMBR Project to date is that efforts to manage and conserve marine natural resources must be treated distinctly as marine initiatives, rather than follow conventional land management and conservation strategies. The model of trying to protect marine sites and species under National Park and wildlife legislation as administered by the Forest Department is not going to be effective for long term conservation in the Gulf of Mannar. Neither is the model of fisheries management, based narrowly on increasing fisheries development with fuel subsidies and providing fisherfolk with additional welfare. And neither will the model of coastal zone management if it is focused narrowly on controlling land use and development. The nature of the marine environment means that management efforts must address in an integrated manner all human activities using marine resources.

153. The several strategies suggested for the project need to be combined into a common management framework for the marine Biosphere Reserve. The framework plan should use broad zoning and a system of linked local marine management areas (LMMAs) to regulate multiple resource uses operating at local and regional scales. The framework must integrate the functions of each of the line departments' marine and coastal operations. There is an outstanding need to establish and give a clear mandate to a marine conservation authority plus community co-management.

LESSON: THE PROJECT AS A MECHANISM TO BRING ABOUT CHANGE

154. The GoMBR Project is intended to bring about changes in policy and practice governing the management and use of the Gulf region's marine and coastal resources. The underlying premise providing the rationale for the project is that policy and practice to date have not been adequate or suitable in some way and need to be developed. The lesson is that in order to be effective, the project has to be planned and managed deliberately as a mechanism for change, and this purpose has to be understood and accepted by all stakeholders. For change to be brought about with reasonable efficiency, i.e. within the period and resources of the project, there must be an agreed plan of action for the required changes, and rigorous execution of that plan, with built-in monitoring, review and adaptive management.

155. The areas in which changes are called for in the GoMBR initiative comprise a rather overwhelming list, including fisheries management, mariculture management, marine wildlife protection, marine and coastal pollution and waste management; national park management; coastal zone management, physical land-use and development planning; local participation in decision-making about both conservation and development; support services for rural livelihoods and social and economic development; and, not least, integration of line departments' mandates and operations. One potential difficulty is that the organisations assuming responsibility for project implementation will themselves be primary candidates for change. Instituting the GoM Biosphere Reserve as a novel management system has significant implications for each of the GoTN line departments and their offices running operations in the Gulf region and the two Districts. However, there has been no systematic attempt by these departments to revise policies, regulations or operational practices, or

to use the project as an opportunity to this end. Although it may be difficult to accept the need, more use should be made of the GoMBR Project as a significant opportunity for proactive reform, to change the status quo, rather than for maintaining business as usual.

LESSON: OWNERSHIP AND DIRECTION OF THE BIOSPHERE RESERVE INITIATIVE

156. The areas in which the GoMBR Project has worked to greatest effect are those where the management team have been able to direct and organise activities with confidence in their mandate and competence. These include notably the community-based eco-development work of setting up Village MCED Committees, revolving loan schemes, micro-planning, and livelihoods support; and the related research and development trials for seaweed farming. The areas where the project has progressed least are those for which no clear mandate has been given to the project or Trust office, including especially the task of bringing together line departments to organise novel, joint or integrated programs for managing the GoMBR.
157. The lesson is to ensure that the project is wholly owned, understood, agreed with and applied or used by the project implementers, managers and supervisors. To achieve these conditions requires substantial attention to be given to project handover, inception and initial establishment, and to adopting adequate participatory mechanisms throughout the initiative.

LESSON: MANAGEMENT CAPACITY DEVELOPMENT AS THE CORE PROJECT STRATEGY

158. A key lesson from the GoMBR Project is that it is most useful for capacity development to form the core strategy for project implementation. Each project component action should be organised so that the specific organisational unit responsible for its execution – community organisation, government agency, committee, program or project office – receives whatever support is necessary to first develop the required system and capacities to manage the action. The capacity development process needs to start with initial problem identification and analysis, and needs to continue throughout the process of project planning, appraisal, approval, inception, implementation, monitoring and adaptive management. The key is to use the project primarily to build the capacity to enable implementation of the action, rather than an exercise in implementing the action directly.
159. For any particular management action, a combination of five basic system capacities are required: the capacity for stakeholders **to be engaged** in the management initiative; **to have information** available on the target issue and the initiative, including feedback from monitoring; to be able **to plan**, make decisions and set policy; **to organise actions** for plans and policy to be implemented; and **to monitor** results and issues arising during implementation, which feeds back further information for management. In the GoMBR initiative, the project should be focused on enabling each of the participating institutions – of government, resource user and community – to develop these management system capacities.