

PROJECT BRIEF

1. Identifiers

Project Number:	PIMS 1040
Project Title:	Conserving Marine Biodiversity through Enhanced Marine Park Management and Inclusive Sustainable Island Development.
Duration:	5 years
Implementing Agency:	United Nations Development Programme
Executing Agency:	Ministry of Agriculture
Requesting Country:	Malaysia
Eligibility:	Malaysia ratified the Convention on Biological Diversity on 24 th June 1994
GEF Focal Area:	Biodiversity
GEF Programming Framework:	OP #2 (Coastal, marine and freshwater ecosystems)
GEF Strategic Priority:	BD1: Catalysing Sustainability of Protected Areas

2. Summary

The project will strengthen the system of marine protected areas in Malaysia and thereby contribute to the conservation of globally significant biodiversity. The project targets 164,534.2 hectares of sea, under improved management, for the conservation of marine biodiversity.

The project will build upon significant nationally driven initiatives to conserve the marine biodiversity of east coast Peninsula Malaysia. Project activities will be carried out in three marine parks (MPs) - Tioman, Redang and Sibutu-Tinggi, as well as on the national level. The project's objectives are to widen the existing development planning processes, to strengthen the capacity for marine park management and to enable an influential advocacy for the conservation of marine biodiversity in Malaysia. Stakeholder involvement is crucial to the success of the project and has been incorporated into all objectives.

The project also has activities on the national and systemic level as well as for ensuring to the extent possible the replicability of new initiatives demonstrated in the three project sites. Therefore it is hoped that after the end of this project, all the marine protected areas in Peninsular Malaysia (569,447.7 hectares) are under improved management in order to better address threats to marine biodiversity.

3. Costs and Financing (Million US\$)

GEF:	Project	: \$	1,952,400
	PDF B	: \$	149,750
	PDF A	: \$	25,000
	Sub-total GEF	: \$	2,127,150

Co-financing: Government (cash)	: \$	1,012,229
Government (in-kind)	: \$	225,000
Government (in-kind) PDF B Phase	: \$	39,110
WWF (PDF B Phase)	: \$	7,150
Other	: \$	729,655
Sub-total CO-financing	: \$	2,013,144
Total Project Cost	: \$	4,140,294

4. Associated Financing (Million US\$): **\$ nil**

5. Operational Focal Point Endorsement:

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 Date of endorsement: **09.01.2004**

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GLOSSARY AND LIST OF ACRONYMS / ABBREVIATIONS

CBD	Convention on Biological Diversity
CC	Conservation Charge
DANCED	Danish Cooperation for Environment and Development
DoE	Department of Environment
DoF	Department of Forestry
DoFM	Department of Fisheries Malaysia
DSS	Department of Sewerage Services
EIA	Environmental Impact Assessment
EPU	Economic Planning Unit
GEF	Global Environment Facility
GIS	Geographic Information System
IWK	<i>Indah Water Konsortium</i>
JNPC	Johor National Parks Corporation
JPA	<i>Jabatan Perkhidmatan Awam</i> (Public Services Department)
JPP	<i>Jabatan Perkhidmatan Pembentungan</i> (Department of Sewerage Services)
KEN	<i>Kumpulan Ekonomi Nelayan</i> (Fishermen's economic group)
LKIM	<i>Lembaga Kemajuan Ikan Malaysia</i> (Malaysian Fisheries Development Board)
MA	Ministry of Agriculture
MD	<i>Majlis Daerah</i> (District Council)
MHLG	Ministry of Housing and Local Government
MIMA	Maritime Institute of Malaysia (<i>Institut Maritim Malaysia</i>)
MNS	Malayan Nature Society
MOSTE	Ministry of Science, Technology and the Environment
MOCAT	Ministry of Culture, Arts and Tourism
MP	Marine Park
MPD	Marine Park Division
MPRTF	Marine Park and Reserves Trust Fund
MPKT	<i>Majlis Perbandaran Kuala Terengganu</i> (Kuala Terengganu Municipal Council)
MPU	Marine Parks Unit
NACMPR	National Advisory Council for Marine Parks and Reserves
NDP	National Development Policy
NGO	Non-Government Organization
NPBD	National Policy on Biological Diversity
NRM	Natural Resource Management
OPP2	Second Outline Perspective Plan, 1991-2000
PERHILITAN	Department of Wildlife and National Parks
RM8	<i>Rancangan Malaysia ke-8</i> (Eighth Malaysian Plan)
SEATRU	Sea Turtle Research Unit
SEPU	State Economic Planning Unit
SEDC	State Economic Development Corporation
SIR	Sibu Island Resort

TDA	Tioman Development Authority
TDC	Tourism Development Council
TIES	International Eco-tourism Society
TIR	Tinggi Island Resort
TNA	Training Needs Assessment
TOI	Tour Operators Initiative
TSC	Tioman Stewardship Council
UNDP	United Nations Development Programme
UPEN	<i>Unit Perancang Ekonomi Negeri</i> (State Economic Planning Unit)
UPM	<i>Universiti Putra Malaysia</i>
WWF-M	Worldwide Fund for Nature - Malaysia

BACKGROUND AND CONTEXT

Environmental context

1. Coral reefs and shallow in-shore zones are thought to be the most productive and biologically diverse ecosystem in the world, and the marine and coastal waters of Malaysia have some of the most important remaining in South-East Asia. Malaysia has 4,800 kilometres of coastline and lies at the convergence of three major seas, the Indian Ocean, South China Sea and Sulu-Sulawesi Sea, resulting in high biodiversity of marine life. These waters are known to hold 30% of the world's coral reefs and the area has 4 to six times more coral species than the Caribbean and two to four times more than found in African waters (World Resources Institute, 1996). During a study by Coral Cay Conservation in 2000, a total of 221 of coral species were identified in the marine parks of the east coast of Peninsular Malaysia. The fish fauna of the marine parks off the east coast of Malaysia is also globally important since a total of 298 species were identified during the Coral Cay study.
2. Coral reefs are high biodiversity ecosystems, with the greatest number of species of any marine ecosystem, and have long been recognised as having some of the highest levels of gross productivity on earth (Wilkinson, 1994; Bryant et al, 1994). Southeast Asia reefs, extending over 68 000 km² and comprising 30% of the world's reefs, are the most species-rich on earth, with over 700 coral species (Bryant et al, 1998; Wilkinson et al, 1994).
3. Recent surveys (2000) indicate that the three marine parks, which were chosen as project sites, constitute a globally important area for biodiversity, especially when considering the limited number of reef types (dominated by shallow fringing reefs). A total of 221 coral species have been identified in the project area including 67 species not previously been reported from Malaysia (Harborne, *et al.*, 2000). This figure represents about 80% of the number of species identified in an equivalent area in the 'Coral Triangle', which is known to have the greatest coral diversity on earth. One species of coral new to science (from the genus *Lobophyllia*) was collected and seven other species may also be new. Four species were found which were previously thought to be endemic to other countries.
4. Using coral cover as an indicator of reef health, Harborne *et al.*, (2000) indicated that the three project marine parks are in a 'fair' condition, with some sites in 'good' condition (using criteria of the ASEAN-Australia Living Coastal Resources project). The percentage of recently killed coral was relatively low (5.3%) and most seemed to be caused by corallivore feeding. Total non-coralline algal cover was less than 10% for all sites combined and this is consistent with the reefs being in fair to good condition. Although there are many healthy areas, reefs in the marine parks have been impacted by a variety of factors, including the 1998 coral bleaching event. Hence large sections appear to have significantly reduced coral cover. However, the presence of 'young' corals and coral spawning indicates that there are areas of reef, which are sufficiently healthy, large and frequent to facilitate recovery in the more impacted areas.
5. The fish fauna of the three project sites is also known to be globally important with at least 298 species identified. Of these 158 species found in the project area were not previously known to be present in Malaysia and, following the surveys, approximately 450 species are now known from the marine waters of Malaysia. There is also evidence that, as with corals, Malaysia has 80% of the number of fish species of the 'Coral Triangle'.

6. The waters of the three project sites also provide important habitat for four of the seven marine turtle species in the world: the Leatherback (*Dermochelys coriacea*), the Green (*Chelonia mydas*), the Hawksbill (*Eretmochelys imbricata*), and the Olive Ridley (*Lepidochelys olivacea*) (WWF Malaysia, 1999). Redang is one of the major nesting areas for Green (*Chelonia mydas*) and Hawksbill (*Eretmochelys imbricata*) turtles in Malaysia. Ten cetacean species have also been documented (Nadarajah, 2000) and resident populations of dugong (*Dugong dugon*) have been confirmed in the Johor Marine Park (Hiew, pers. comm.). For a full analysis of biodiversity at each project site see Annex V).

Socio-economic context

7. The three groups of islands selected as project sites are predominantly rural communities depending on activities such as fisheries and small scale agriculture as a sources of income. There is yet to be any major industrialisation initiative at all the three sites and besides the source of income mentioned above, tourism derived income is the only other alternative available to the local communities. The establishment of the marine parks (MP) in these areas has somewhat affected the economic situation of the local communities. They are, for example, less dependent now on fisheries and more on tourism. While the income from the tourism sector is welcomed, there is still residual tension among the local communities concerning the limitations imposed to them by the marine park regulations, primarily the prohibition of fishing within the 2 nautical mile limit of the MP, an area which is traditionally used by artisanal fishermen. These feelings are frequently expressed during the course of the information collection phase of the project and during discussion with senior officials from the Ministry of Agriculture and the Department of Fisheries. Given this situation, the project has the potential to illustrate co-existence between local communities and MPs through activities such as co-management.

8. Tourism is the most important economic activity at all three marine park sites. It is estimated that annually 300,000 tourists visit Tioman, 100,000 tourists visit Redang and about 17,000 visit Sibul and Tinggi.

9. Tourism derived income is seasonal as all three sites are subjected to the monsoon season from September to March each year. The seasonal variation could be observed in the fact that most chalets are closed during this time of the year. The tourism sector consists of the accommodation sub-sector, the transportation sub-sector, and tour sub-sector, which cater to the needs of divers and snorkellers. Of the accommodation sub-sector two segments are observed – large resorts operated by major hotel chains such as the Berjaya Group and small and medium scale chalet and accommodation operators owned by locals as well as owners from the mainland. This situation presents an interesting challenge to the project design, which needs to cater towards the needs and impacts of different economic sub-sectors with different financial and economic strengths. These three island groups present a cross-section of conditions occurring in MPs in Peninsular Malaysia. Similar conditions could also be observed in other MP islands with tourism activities such as Pulau Perhentian.

10. **Tioman** is the largest of the three project islands. There are five settlements on the island and official statistics indicate 2,907 people and about 600 households. According to the socio-economic analysis (Annex III) the actual figure is probably closer to 1,500 people and 277 households. Demographically, the communities on Tioman are middle-aged with about 36% of population <15 years old and 3.8% >64 years old. This indicates a lower than national average “dependency rate” for the island. Very little of the island is privately owned (only 5.4%) and much of the interior is gazetted as Wildlife Reserve. There are no real roads on the island and the small airport services Kuala Lumpur and Singapore daily.

11. There will undoubtedly be massive expansion of tourism infrastructure and visitor numbers on at least one of the project islands if plans are implemented. The Tioman master plan – developed prior to recent Tax Free Island status proposals - indicates that expected development would be rapid. The number of tourist rooms is expected to increase from 1,875 to 5,500 by 2027. The estimated maximum population (residents and visitors at any one time) is expected to increase from about 6,000 in 2000 to about 26,000 in 2027. Overall, the island’s planned growth of population and tourist activities is estimated to be two to three times over the 20-year period. The projected carrying capacity, or numbers of people on the island at any one time (developed by the Tioman Development Authority, TDA) is expected to be about 40,000 people by 2027. Associated infrastructure development is likely to include upgrading of existing single-track roads, new roads, a possible new airport, more large-scale hotels and jetty development.

12. Although the main economic activities on Tioman appear to focus on tourism there is considerable variation between the villages. In the remoter villages (Kg. Juara and Kg. Mukut), 30% and 70% of households engage in agriculture and fisheries respectively, with only 30% and 20% employed in the tourism sector (mostly chalet and boat operators). In Kg. Genting, the majority of villagers are involved in tourism (operating guesthouses and boats), although in actuality combined incomes from both fishing and tourism account for nearly 90% of the village’s economy. Kg. Tekek is the main community on Pulau Tioman, housing the airport and main jetty, and is heavily focussed on tourism, with almost 80 per cent of households engaged in it. In Kg. Salang more than 86% of the households are involved in the tourism business, with about 75% of these chalet operators.

13. Average *per capita* annual incomes on Tioman are about USD 1,660 with figures ranging from USD 995 (agriculture), USD 1,165 (fisheries), USD 1,780 (tourism) and USD 1,790 (Government service). Only about 30% of households on Tioman have annual incomes below the Malaysian Income Poverty Line (USD 1,610)

14. **Redang** has one main settlement (Kg. Sungai Redang) and official statistics indicate 1,500 residents from 223 households. The actual figure is believed to be closer to 800 residents from 124 households. The settlement is fairly new (re-located from Pulau Pinang in 1998), and the government is in the process of building more facilities on-site, such as a new mosque, school, hospital, quarters for government staff, police station and some community facilities. In 1978, a group of Redang islanders took up the government resettlement programme and moved to the mainland. Redang appears to be a matured community with about 66% of the heads of household between the ages of 31 and 50. The working age population (15 – 64 years old) comprises only 52.4% leading to a dependency ratio of 90.7 - higher than the national average.

15. In 1988 it was estimated that 81% of the population were involved in the fisheries sector (fishing and fishery processing) with a further 6% in agriculture, 6% in the Government sector and only 3.8% involved in tourism. By 2001 this had changed considerably with only 55% in the fisheries sector (with 20+ fishing boats registered on the island), no agriculture and nearly 33% involved in tourism. Although tourism appears to be the major growth sector on Redang, many of the households are still involved in fishing activities with about 53% of heads of households involved in this. The community at Redang appears to be in transition in terms of livelihood and occupations with most of the older generation retaining links to fisheries with the tourism industry attracting the younger generation.

16. The average annual income per household on Redang is USD 2,255 although more than a third of the households have annual incomes below the Malaysian Income Poverty Line (USD 1,610). Average annual *per capita* income is about USD 1,450 and incomes from the tourism sector are better than those from fisheries, with tourist boat operators averaging USD 1,400, fishermen USD 1,124 and the tourism service industry USD 1,888 per annum.

17. **Sibu** and **Tinggi** are remote and sparsely populated. Sibu has only one settlement with about 220 people and 43 households and Tinggi has three settlements with 270 people and 39 households. In the 1970s, Tinggi had a much larger population, but as fishing incomes declined many of the residents settled on the mainland under Government supported schemes managed by the Federal Land Development Authority (FELDA). About 50% of Tinggi residents remain as fishermen and only 35% are involved in tourism. Agriculture is now of minimal importance. There are only two tourist resorts on Tinggi, employing mostly locals and using local boats for tourist services. In all there are about 135 rooms on Tinggi, although the numbers of tourists are very much lower than Tioman or Redang. Occupancy rates are probably below 40% over the year.

18. Like Tinggi, there has been a significant change in terms of the occupational profile of the local people on Sibu. Previously, about 70% of the community were fishermen, with the remainder working on agricultural jobs. Today, only about 40% are fishermen, 10% are in agricultural work, and about 50% work in tourism related jobs. There are a number of small-scale resorts specialising in dive operations, fishing trips, seafood restaurants and outward bounds. The luxury Sibu Island Resort (SIR) focuses on Singaporean tourists.

19. Sibu and Tinggi appear to have matured communities with more than 50% of the heads of household between the ages of 31 and 50. The working age population (15-64 years old) comprises about 75% on Sibu and 54% on Tinggi, giving contrasting dependency ratios of 34.5 on Sibu and 84.1 on Tinggi, one much higher and the other much lower than the national average.

20. Although average annual household incomes on Sibu and Tinggi are USD 1,910 and USD 1,740 respectively, more than half the households have annual household incomes below the Malaysian Income Poverty Line (USD 1,610). Annual *per capita* incomes are generally lower than the other islands at about USD 1,420. Incomes in the fisheries sector are higher on Tinggi (USD 1,100) than Sibu (USD 950), but the reverse is true for tourism (Sibu: USD 1,950, Tinggi: USD 1,400).

21. For the three project areas, there has been a gradual shift away from economic reliance on the fisheries sector towards the tourism sector in the last 20 years. Tioman is the most advanced in this transformation, especially the villages of Tekek and Salang, whilst the communities on Redang, and especially Sibut-Tinggi, have a stronger reliance on fishing for their incomes. The average annual per capita incomes from each island and the economic status of the communities with respect to the Malaysian Income Poverty Line reflect this. For a full socio-economic analysis see Annex III.

Policy context

22. All government policies are developed within the framework of 5-year Malaysia Plans (Rancangan Malaysia, RM). These are development plans that provide the general policy and planning directions for the socio-economic development of the country. The need to protect the environment has been recognised as part of the development planning process since the Third Malaysia Plan (RM3, 1976-1980).

23. In 1991, the overarching national development objective (known as Vision 2020) was articulated, for Malaysia to achieve a fully developed nation status by the year 2020. This resulted in the Second Outline Perspective Plan (OPP2), 1991-2000, a longer-term development plan, and a National Development Policy (NDP) was introduced to replace the New Economic Policy (NEP). In the context of biological diversity conservation, the OPP2 noted that “adequate attention will be given to the protection of the country’s environment and ecology so as to maintain the long-term sustainability of the country’s development”. Additionally, “strategies for environmental protection as well as nature and natural resources conservation will be incorporated in all development plans and programmes”.

24. In addition to the Malaysia Plans, the national policies on biological diversity, mineral, agriculture, forestry and tourism provide more specific and sectoral objectives. The National Environment Policy mentioned since RM3 has recently been adopted by the government. The National Policy on Biological Diversity (NPBD) launched in 1998 consisted of 15 strategies and 87 action plans to achieve its goal and objectives. The NPBD noted that Malaysia’s marine ecosystem is biologically rich, in particular the coral reefs as one of the most diverse in the world. The NPBD reflects Malaysia’s international commitments in implementing the Convention on Biological Diversity (CBD) nationally, which Malaysia became a party to on 24 June 1994. This includes the commitment to implement the work programmes as agreed by the Conference of Parties (COP), including the Jakarta Mandate. To facilitate the implementation of the NPBD, the Ministry of Science, Technology and the Environment (MOSTE) has established ecosystems-based working groups under the rubric of the National Council on Biotechnology and Biodiversity. One of these working groups is the Working Group on Marine and Coastal Biodiversity, which has the responsibility to study and make recommendations on issues, which affect marine and coastal biodiversity.

25. In terms of marine environmental protection, the Sixth Malaysia Plan (RM6, 1991-1995) noted the importance of corals as “essential for the maintenance and delicate ecosystem that shelter marine organisms and marine life”. RM6 also recognised the threats to such corals from land-based pollution, oil and waste discharges in the marine waters, clearing of mangroves, large-scale reclamation and increasingly from tourism development. The early strategies on marine environmental protection emphasised the control of pollution from both land and sea based sources, using primarily legal instruments such as the Environmental Quality Act 1974 and the Merchant Shipping Ordinance 1952. These were complimented by gazetting waters off 38 islands as marine parks, with 6 others gazetted as ‘fisheries prohibited areas’ under the Fisheries Act 1985. The Seventh Malaysia Plan (RM7, 1996-2000) suggested the establishment of a National Islands Development Board to issue policy guidelines on island and coastal development. Such guidelines will be complemented with the inclusion of tourism and recreational activities as prescribed activities under the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 1987. The Eighth Malaysian Plan (2000-2004) calls for the implementation of the NPBD in all States, presumably inclusive of marine parks and marine biodiversity.

26. The Fisheries Act 1985 remains the main legislative tool for the establishment and management of marine parks and marine reserves (that is, the area of water two nautical miles seaward from an island, with some exceptions). This Act empowers the Minister of Agriculture to make regulations for the zoning, management, development, control and protection of the Marine Parks and Reserves. Under the Fisheries Act, the Fisheries (Prohibited Areas) Regulations 1994, also acts to conserve marine resources by declaring certain areas as prohibited areas. Therefore, no collection of shells, molluscs or corals is permitted. The killing or capture of any fish in this area must be with licence. Section 27 of the Fisheries Act 1985 also provides for the protection of all aquatic mammals. This is complemented by the Fisheries (Control of Endangered Species of Fish) Regulations 1999 which provides protection to species of whales, dolphins, whale sharks and giant clams. It is also noted that the Protection of Wildlife Act 1972, although mainly focussed on the protection of terrestrial animal species and habitats, provides for the protection of marine mammals, for example the dugong.

27. The general protection and preservation of the marine environment, through the control of discharges or pollutants is afforded by the Exclusive Economic Zone Act 1984. The Federal Fisheries Act provides for the conservation, management and development of maritime and estuarine fishing and fisheries in Malaysian fisheries waters. This legislation also covers matters relating to marine turtles and riverine fishing. However, this is subject to State adoption of the relevant provisions covering such matters.

28. Legislation pertaining to the conservation, use and management of coastal land areas, including islands that are adjacent to marine waters is also relevant to marine biological resources. Some examples of such laws are the National Forestry Act 1984, National Land Code 1965, Town and Country Planning Act 1976, Local Government Act 1976 and the Environmental Quality Act 1974. The Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 1987 requires an EIA to be conducted on 19 prescribed activities, of which land reclamation, resort and recreational development, waste treatment and disposal, ports and forestry are particularly significant to the marine environment.

29. The National Ecotourism Plan (NEP) (1997) is also an important policy instrument for the management of sustainable tourism on Malaysian marine park islands. Four categories of “guidelines” are defined, relating to categorising tourism sites, establishing carrying capacity and limits of acceptable change, specific guidelines for sensitive marine ecosystems and coastal areas, and guidelines for community participation, marketing, visitor behaviour and biodiversity conservation.

Institutional context

30. In 1985, the Fisheries Act was amended to provide the policy mechanisms for the establishment, control and protection of marine parks. Five marine protected areas were established under this Act, three on the east coast of the Peninsula, one on the west coast and another in the Federal territory of Labuan (Borneo). These marine parks include 40 islands. The objectives of the marine parks are: a) the conservation and protection of coral reefs to sustain fisheries resources, b) the upgrading and conservation of natural habitats for endangered species of marine life, c) the establishment of specific management zones for the conservation of marine life, and d) the establishment of zones for recreational use consistent with the carrying capacity of each area. Each of these areas is managed by one Marine Parks Unit (MPU) under the Marine Park Division (MPD) of the DoFM, Ministry of Agriculture.

However, all land matters (including land development) relating to the marine park islands themselves are under State jurisdiction. Agencies such as the State Economic Planning Unit, State Economic Development Corporations, Departments of Forestry, Departments of Environment, Department of Irrigation and Drainage, Departments of Land and Mines, State Tourism Development Boards and local governments (such as the land and district offices) all play a role in the decision-making process.

Besides these MPs, Fisheries Prohibition Zones have also been established in the areas around Tanjung Tuan, which straddles the border of Negeri Sembilan and Melaka and Pulau Sembilan in the State of Perak, both on the West Coast of Peninsular Malaysia. The Tanjung Tuan area is the last representative of coastal fringing reef on the West coast of Peninsular Malaysia while Pulau Sembilan is an important nursing ground for the anchovy fisheries on Pulau Pangkor. In the case of Pulau Sembilan, the State Government has also indicated interest in making the island into a MP to sustain the anchovies fishing sector.

31. In 1993, the DoFM developed a Conceptual Plan for Marine Park Island Management to focus management and conservation of the nation’s marine biological diversity. Whilst this is a general management tool, applicable to all marine parks, only the Terengganu Marine Park, and Redang in particular, has an operational management plan resulting from this. In 1999, the first draft Marine Parks Malaysia Strategy was developed by the Marine Park Branch, however this has yet to be completed, has not been discussed outside of the Marine Park Branch, and has yet to undergo a process of stakeholder consultation. While the stakeholder consultation was not envisaged during the initial formulation of the Strategy, it is the intention of this project to incorporate such a phase into the finalisation of the Strategy document. It is likely that the Strategy will form the basis for MP management during the life-time of the project.

32. At the Federal level, besides the DoFM and its MPU, a National Advisory Council for Marine Parks and Reserves (NACMPR) has been established (in 1987), but was only formalised in 1993 under the Ministry of Agriculture. Its functions are to:

- Determine guidelines for the implementation at the national level with respect to the protection, conservation, utilisation, control, management and development of marine parks and marine reserves;
- Co-ordinate the development of any area of a marine park or marine reserve with the federal government and any corporate body; and,
- Provide technical advice to state governments regarding development projects on any island situated within marine parks or reserves.

33. Additionally there is the Marine Park Trust Fund Management Committee that manages funds collected from entrance fees (known as Conservation Charges) at marine parks.

34. The State Economic Planning Units (SEPU) play the lead role in policy and project planning, co-ordination and development in each state. Any land-based development proposals for marine park islands need approval by the state through the SEPU. Often project implementation is conducted by the commercial arm of the state government, such as the State Economic Development Corporations (SEDCs) or other state owned corporations. Other important state institutions are the local land and/or district authorities, these have the power to administer and develop land within their district. Some states have developed specific agencies to deal with island development. For example, the Tioman Development Authority's (TDA) main role is to develop Pulau Tioman into a major tourism centre, especially since the island was declared as a duty-free status island in 2002. In Johor, the Johor National Parks Corporation (JNPC) has the power to gazette land areas adjacent to marine waters as state conservation areas. Marine Park State Consultative Committees have also been set up to discuss marine park issues at the state level.

All coastal (island) land use, development and infrastructure planning on the marine park islands is under the purview of the state agencies, and of these the role of the State Economic Planning Units (SEPU) is critical. Generally island development projects are identified by the relevant state or district agency and articulated in documents such as draft Structure Plans or Town Plans. These are then reviewed by the SEPU who establish *ad hoc* inter-departmental Committees to review each proposal. The inter-departmental Committee acts as the technical advisor to the State Executive Committees (State Exco) and invites other agencies (such as DoFM) to raise concerns at this stage.

35. In Terengganu as set of guidelines for island development have been issued by the Town and Country Planning Department (JPBD) – however these guidelines are not comprehensive and do not include recommendations on mitigating measures to prevent, reduce or control adverse impacts on the environment. In Redang, all new development proposals are first approved by the SEPU, following which project planning approval from the Kuala Terengganu Municipal Council (MPKT) is necessary. If this is forthcoming, an EIA must be submitted to the State Department of Environment prior to any development. With respect to the negligence and weak enforcement of EIA requirements the Government of Malaysia has recently stated the intention to make federal approval necessary for EIA applications for development projects on islands. Up to today solely the approval of the respective State Department of Environment was required.

36. The Ministry of Culture, Arts and Tourism (MOCAT) is the government agency responsible for the management, promotion and regulation of tourism and tourism-related sectors in Malaysia. MOCAT continues to promote the marine parks nationally and internationally and aims to increase mass tourism to these areas considerably. For instance, the recent announcement (2001) that Tioman would be given tax free island status and that the projected numbers of tourists expected to visit the island daily was in the region of 26,000 will put significant pressure on the island resources. MOCAT is supported in its work Tourism Malaysia, the destination marketing organisation of Malaysia, whose aim is to increase visitor numbers to Malaysia and promote the environmental benefits associated with a visit to the country.

BASELINE SITUATION

Legislative framework

37. Undoubtedly the most challenging aspect to planning and managing the marine park islands of Malaysia continues to be the federal-state separation of legislative powers for land and sea resources as defined in Schedule 9 of the Federal Constitution. Effective management and use of natural resources and biological diversity needs a more compatible policy and legislative framework.

38. Incompatibility between legislation at federal and state levels are further compounded by conflicting development objectives from stakeholder agencies. Whilst the conservation of marine parks and marine resources is a federal priority, development of tourism infrastructure and promotion of mass tourism or large-scale island development are priorities of State EPU and agencies such as MOCAT. There remains little compatibility between framework documents such as the draft Marine Parks Strategy (1999) and draft Local Structure Plans developed by District Offices and State level Town and Country Planning agencies.

39. Malaysia has also completed a national plan for integrated coastal zone management. The work is the result of an earlier initiative to prepare a draft “National Coastal Zone Policy” for the country. The plan will take into account the need for physical planning in the coastal zone including on islands and will suggest institutional changes to facilitate integration in the management of the country’s coastal zone.

Island Development Planning Framework

40. Technically the National Advisory Council for Marine Parks and Reserves should play a role here – but this council is rarely involved. Recognizing the growing conflict between development and conservation in ecologically sensitive areas, the Government of Malaysia has established a Cabinet Committee on Highlands and Islands to monitor and regulate developments in highlands and on islands. The committee recently issued a detailed guideline for development in highland areas and has established a senior officers task force which will, among others, recommend to the Cabinet Committee future directions for development on islands; establish appropriate mechanisms for monitoring development on islands; suggest to the Cabinet Committee suitable steps to address environmental degradation; and provide the Cabinet Committee with regular reports of the monitoring and enforcement activities.

41. The Tioman Development Authority has in 2003 taken over the functions of the Rompin District and Land Office (RDLO) as the local government on Tioman and has been allocated a sum of USD 21 million under the Eighth Malaysia Plan for the task which would include among others environmental improvement activities. However, at the moment TDA has only a minimal number of staff on Tioman. While there is a plan to increase the presence of TDA on Tioman, no provision has been made for employing a staff who would be responsible for environmental protection on Tioman. In addition to the funds allocated to the TDA, the Indah Water Konsortium (IWK) has also allocated a portion of its USD 22 million allocation for the construction of a centralized sewage treatment plant on Tioman. There is also a proposal for an additional incinerator to be built on Tioman to handle the expected increase in solid waste as a result of the making of Tioman as a tax-free island.

42. The master plan makes no assessment of the impacts of such large-scale tourism development on the marine park ecosystem. In addition, there have been plans to construct a new airstrip on Tioman Island. This planned infrastructure project is expected to have adverse effects on the coral reefs off the coast of Tioman.

43. On Redang, development of an airstrip has been in the planning pipeline for several years. Despite objections to the EIA and other concerns, it now seems likely that the development will go ahead during the lifetime of the project. This will undoubtedly lead to increased tourism numbers and associated developments on the island. In reality there have been few EIAs undertaken for development on Redang (in contravention of the EIA provisions that require EIA for all projects in marine park areas) and it appears that the DoE lacks the powers to stop developments that do not follow EIA requirements. This power is vested with the Kuala Terengganu Municipal Council (MPKT) (as per under Section 82 of the Local Government Act 1976). In addition, under the National Land Code 1965 (section 425) the District and Land Office have the authority to remove or demolish any illegal structures on government land, or structures built on land gazetted for other purposes. On Redang, a stop work order was issued for a resort developer in April 2003, which is the first case so far.

44. In 2002 the Johor State Government incorporated the Sibul and Tinggi Island group into the Johor National Parks system and placed the islands under the jurisdiction of the Johor National Parks Corporation (JPNC). The JPNC was given the authority to manage these islands to overcome the jurisdictional problems related to cross-sectoral issues. In addition, the JPNC has the authority to raise funds for the management of these islands through a fee collection system similar to the Conservation Charge imposed on visitors to marine parks. The JPNC plans to complement the work of the MPU by locating JPNC park management staff on Sibul and Tinggi in addition to constructing facilities and deploying staffs on islands where there is no MPU presence.

45. Despite the obvious economic and social importance of tourism to the local and national economy of Malaysia, there has been very little consideration of the sustainability of increasing tourism on marine park islands. Some studies have been carried out by the Maritime Institute of Malaysia (MIMA), focused on 'Limits of Acceptable Change' (LAC) and by WWF-M on the carrying capacity of tourism on Tioman and plans are afoot for a new study on Tioman prior to implementing tax free island status. MOCAT has also been the lead agency responsible for the development of a blue flag-style rating scheme for beaches, marinas and resorts, which is in formulation currently.

Marine parks management framework

46. The role of the Department of Fisheries and its Marine Parks Branch in the current planning process for marine park islands is limited. The Marine Park Branch oversees the Marine Park Units (MPU), which are in place at each of the marine parks and responsible for the management and conservation of the respective marine park, the enforcement of regulations and the operation of the visitor centres.

47. The Marine Parks Branch has been recently upgraded to a "Division" within DoFM. The transformation will be effective from January 2004. This will result in increased budgets and personnel. It is envisaged that the capacity of the new Marine Parks Division (MPD) to manage the parks more effectively will be increased as a result of this important initiative. To simplify matters, the MPD is referred to as the institution under the DoFM with the national responsibility for the management and conservation of the marine parks throughout this project brief. The MPUs are referred to as the institutions that have the responsibility for operations and management on site level.

48. **Tioman** has a marine park headquarter on the island with staff accommodation, offices and seminar rooms and a visitor centre. There are currently 19 staff employed at this Marine Park, each working 2 week shifts on the island. Of these, there is one Fisheries Officer and 5 Fisheries Assistants; the remainder are boatmen and mechanics. **Redang** also has a marine park headquarter on Pulau Pinang, with staff quarters, a training centre, laboratory, offices and seminar rooms and a visitor centre. Staffing is greater than Tioman, with a total of 27 full-time staff, including one Fisheries Officer, five Fisheries Assistants, six Laboratory Assistants and the remainder boatmen, mechanics and general workers. **Sibul and Tinggi** have the lowest levels of staffing of the project sites. Although there is a newly established Marine Park Visitor Centre on Pulau Tinggi, the headquarters for this Park is in Mersing Town. There are 18 full-time staff, including one Fisheries Officer, five Fisheries Assistants and 12 boatmen and technicians.

49. In conjunction with the promotion to a division the MPD hopes to establish “centres of excellence” at each of the three marine park islands. Under RM8 budget requisitions a total of USD 6.5 million has been applied for this initiative. Redang would become the focus for MP management and training, Tioman for environmental education and public awareness, and Sibutinggi for marine mammal research and rehabilitation, particularly focusing on dugong. In addition, a further USD 6.3 million has been requested under RM8 for the conservation and enhancement of fisheries resources (primarily design and maintenance of artificial reefs, rehabilitation and reef demarcation), and conservation of marine turtles and other threatened species (primarily focused on research, hatchery development, education and training)

50. The MP management framework while focusing only on marine ecosystems would derive significant benefit from efforts to address issues or problems resulting from land-based activities. At the national level, this initiative is the focus of an EPU funded project to develop a national policy for coastal zone management and an accompanying integrated coastal zone management plan. The ongoing work involves analysing the land-sea relationship in the coastal zone from planning and environmental management perspectives including the possibility of incorporating consideration for coastal and marine environments into the preparation of local and structure plans. The project would also contribute to the policy development by providing an example of the integration of marine and coastal biodiversity conservation in the form of a revised Tioman master plan.

Environmental education and awareness framework

51. Since the establishment of marine parks in Malaysia, a wide variety of public awareness activities and outreach programmes have been conducted by the MPD in conjunction with partner organisations such as WWF-M. Most of these initiatives have been funded with assistance from private sector companies such as HSBC Bank Malaysia Berhad and BP Malaysia. However most of these activities have taken place on an *ad hoc* basis and their effectiveness remains questionable. Education tools have been produced and disseminated to schools nationally – these have included six posters on turtles and corals, a Marine Education Kit (MEK) for teachers, visitor information leaflets and brochures, a coffee table book on ‘*Marine Parks of Malaysia*’, and three videos (Marine Parks of Malaysia, Turtles and Reef Etiquette). There is also a marine parks website (<http://agrolink.moa.my/dof/tlaut/tlaut.html>).

52. All three project areas have Marine Park Visitor Centres (MPVCs) on the islands and there is also a MPVC on the mainland at Mersing, Johor. These Centres have large poster displays, audio-visual facilities, museums and other resources – but surveys show that they are grossly under-utilised by marine park visitors. None of the MPVC employs an “outreach” officer and there are few programmes targeting local schools and community groups. At Redang, students from local universities have fulfilled this role as part of their ‘industrial training’. The MPVCs have enormous potential for outreach activities – but under the prevailing circumstances will continue to be under used. In the current situation, even though some awareness activities are being undertaken, there is almost no activity on nature interpretation, so that the visitors can learn to appreciate the value and the beauty of the marine experience.

53. Many of the activities have been inadequate in information, poorly communicated and done in a fragmented and *ad hoc* basis due to lack of funding resources and personnel responsible for Communications, Education and Public Awareness (CEPA) activities. The MEK was never formally part of the school curriculum and many of the posters and leaflets are only available through a visit to a MPVC. As such these activities have not made a particularly significant impact on the target audiences and address the urgency of a need to reduce the rate with which the marine biodiversity of Malaysia is declining.

Overview of threats to marine biodiversity

54. The primary **threats** to biological diversity and ecological integrity in the MPs of Malaysia are identified as follows:

- Declining fish stocks and exploitation of breeding grounds
- Loss of habitat for marine life and destruction of coral reefs
- Habitat degradation and degradation of water quality

55. The direct drivers of these threats can be analysed from two angles: while some of the reasons for the abovementioned threats lie within the jurisdiction of the marine park management, others have external causes and lie outside the jurisdiction of the marine parks authority, such as drivers that result from island-based development.

Reasons for the threats within the jurisdiction of marine park management:

- Illegal trawling within the 2-mile protection zone around the marine park islands.
- Violations of marine park regulations regarding the conservation of endangered species (turtle poaching).
- Direct impacts from snorkellers and boat operators not adhering to reef etiquette and marine park regulations, resulting in trampling on corals and destructive boat anchorage; further exploitation by souvenir hunters and other mass tourism activities.
- Coral dredging and excavations for construction sites within marine park boundaries.

56. Reasons for the threats outside of the jurisdiction of marine park management:

- Increasing siltation through beach front construction, coral dredging, hillside construction sites and run off of sewage and liquid waster in the streams.
- Degrading water quality and eutrophication from land-based pollution by discharge of untreated sewage, grey water and kitchen grease from small and medium accommodation facilities as well as local villages and inadequate handling of solid waste. Further impact on water quality by discharge of oil from motorised boats.

57. The following are the **intermediate causes** for this situation:

- **Inadequate management of marine parks including weak enforcement capabilities:**

Given the current capacity and equipment of the marine park units at the project sites, the DoFM is unable to ensure sufficient and effective enforcement of the marine park regulations including the regulations aiming at conservation of endangered species.

There is a general disregard for the Fisheries Act by the trawler operators. Such behaviour is not significantly influenced by the fines that are not prohibitive and the fact that chances of being caught are considerably low. Most of the illegal trawlers come from outside the geographical scope of the project (sometimes even from outside Malaysia) and are therefore a difficult to reach as a group. Illegal fishing in marine parks is seen as the only economically viable option for many trawler operators as fisheries have declined everywhere else. As fish populations decline, trawlers are becoming more opportunistic and encroach the two nautical mile zones around the marine park islands frequently.

Even with the sufficient funds allocated for equipment from the Department of Fisheries, the MPUs have little guidance as how to improve their practices and procedures. Daily operations are not standardized under a management plan or standard operating procedures. Time-consuming activities such as the collection of the Conservation Charge or administrative work and the low number of staff that are trained to operate boats are further factors that diminish the efficiency of the enforcement of marine park regulations.

On the policy level, the draft National Marine Parks Strategy, which was produced in 1999, has yet to be finalised.

- **Jurisdictional conflicts:**

Since the MPUs only have authority on the two-nautical mile water body surrounding the marine park islands they have little influence on land-based development and have no authority to immediately react to violations on the islands, which ultimately affect the biodiversity in the surrounding waters. Generally, cooperation between enforcement agencies are not established, however, the cooperation between the MPU in the Johor Marine Park (Sibu and Tinggi islands) with the Johor National Park Corporation, which has the mandate of managing and protecting the islands in the Johor Marine Parks seems to be working towards an effective collaboration.

- **Existing regulations for island developments are often neglected or ignored:**

EIA procedures for development projects and constructions on the islands are often ignored due to weak enforcement of EIA provisions. Furthermore the DoE has no permanent presence on the islands and there is an unclear distribution of responsibilities among local authorities and agencies resulting in vacuums of enforcement and enabling common bypassing of the EIA provisions.

In some cases, it has been observed that EIAs are undertaken after the construction has started and the damage has been done. Furthermore the monitoring of the implementation of mitigation strategies identified in the EIAs is also weak.

States have incentives that conflict with conservational efforts due to the fact that their revenues from the development on marine park islands are the assessment and property taxes only. Hence there is a push for further land development, logically preferring projects and constructions with a high level of land use, in order to increase the state's revenue. There is little other incentive for the states in terms of increasing their revenue, as the service taxes from the islands' tourism sector are collected by the federal treasury.

- **Benefits and long-term incentives of marine conservation are not considered in daily operations and development planning by many stakeholders:**

The positive benefits and long-term incentives of the conservation of biodiversity in the marine parks are not perceived by many stakeholders, especially tourism operations, local communities, state governments and local authorities.

Boat operators like many other stakeholders, are driven by short-term economic and financial gains thus neglecting a consideration of preserving the substance for future income (coral reefs) Furthermore boat operators regard the marine parks and their regulations as potentially reducing their livelihoods and economic activities.

Increasing number of visitors and a changing profile of tourists, from those with more appreciation of nature to mass weekend tourists have resulted in a growing quantity of visitors who are reluctant to being advised on reef-etiquette and snorkelling techniques.

Up to now a system of zoning schemes alongside with the installation of mooring buoys has not been implemented to prevent snorkelling in areas that are too shallow and boats from anchoring in the corals. Existing mooring buoys at dive sites are not well maintained and are frequently destroyed by encroaching trawlers.

Existing wastewater treatment services only cover a small portion of the population and businesses. As for the accommodation sector, only larger hotels and resorts perceive incentives for an environmentally sound treatment of their waste and have the financial capacity to install the necessary equipment. There is very little collaboration among small and medium businesses in the three project sites to share costs and benefits from joint instalment and maintenance of wastewater treatment facilities.

[Note: As a spin-off from the stakeholder and logical framework workshops on Redang, local chalet operators have founded an association and are exploring possibilities to improve the practices of solid and liquid waste treatment.]

The value of conservation is not fully appreciated by tourism operators and local communities. This derives partly from the fact that there is little knowledge among small and medium tourism operators as well as members of local communities regarding the long-term impacts of the destructive practices. There is no realization that these practices, which are in place at the three project sites currently, will eventually degrade the substance of their businesses and livelihoods.

There is no sense of shared ownership of the natural resources on and around the marine park islands among local communities as well as tourism operators. Most of the tourism operators are not local residents, and many owners of tourism facilities are from the mainland. Unfortunately, most tourism operators and many local residents do not regard it as their responsibility to mitigate their impacts on the surrounding biodiversity.

[Note: Dive operators mostly are an exception to this intermediate cause since there is a widespread concern about the conservation and sustainable use of marine resources among the diving community.]

Owners of small and medium tourism business are reluctant to invest in sewage and solid waste treatment due to financing problems.

○ **Increasing unsustainable tourism:**

Tourism throughout the marine park islands in Malaysia has been increasing rapidly over the last decade (Table 1), and is set to increase further in the coming decades. Without proper development and management the very resources (pristine beaches, clear waters and coral reefs and fishes) that attract most tourists to the islands will be degraded. Tourism development and management needs careful planning and there is currently little coordination between agencies such as MOCAT who are promoting increased tourism to the islands and DoFM that is trying to manage the marine parks in a sustainable manner.

Table1. Total number of visitors to marine parks (1999 – 2002)

	1999	2000	2001	2002
Tioman	184,954	200,527	243,052	213,172
Redang	47,008	52,634	73,580	63,825
Mersing	62,262	105,917	40,060	38,908
Payar	83,203	106,784	125,485	133,775

Direct impacts of tourism include trampling and boat damage to reefs – particularly in the shallow reef zones at all marine parks and increased tourism numbers equates to increased infrastructure development pressures – often unplanned and uncoordinated. Private sector tourism operators (tours, dive, hotels) currently have little or no role in the planning and development of the marine parks, they have limited access to investment funds and no incentive to organize themselves and adopt “best practice” principles to protect their environment. Current and previous “education” campaigns have largely failed to stimulate necessary change in tourist and operator behaviour – often wrongly targeted, providing no incentives and with no “outreach” to target groups.

- **MPU's and the Marine Park Division are not in a position to influence wider development decision-making:**

Currently, neither the MPUs nor the Marine Park Division have any influence in the development planning on the islands and they are rarely involved in high-level decision-making bodies.

The primary **root causes** underlying the threats to biological diversity and ecological integrity are identified as:

- **Federal-State split in jurisdiction**, which translates on the ground as the state having control over decision-making on land and natural resource management issues on the islands, and the federal Marine Parks Division only has jurisdiction on the marine park waters. This creates a significant barrier in attempting to holistically address land-based pollution and effects of island development on the marine biodiversity.
- **Sector-based policy-making and planning on and around the marine park islands:** There is little coordination between the relevant line-agencies and as yet no examples of coordinated development planning for any of the islands, which take into account local development needs, tourism development needs and the sustainability of the marine park. State EPU and the corresponding District and Land Offices have the mandate to endorse proposals and issue planning permission on the islands and this is often done in an *ad hoc* manner. An additional problem, which also translates in uncontrolled land-based development are the various development priorities at different levels. Local, state and federal agencies and institutions often pursue different priorities. In this respect it is important to generate incentives for contributing to the conservation in the marine parks across all levels and enhance the understanding of the long-term benefits of a rich biodiversity in the marine parks in Malaysia. In this regard, Tioman requires special attention: the declaration of Tioman as a duty-free island lying within a marine park requires a strong cross-sectoral approach to integrate conservation issues into the future development plans for the island. Furthermore the recently developed masterplan for Tioman lacks the integration of all stakeholders and pays little respect to the marine park Tioman is a part of. The masterplan aims for example at increasing the capacity for overnight visitors significantly in combination with the construction of a new offshore airport, enabling direct flights from neighbouring countries.
- **Political decisions on higher levels do not reflect the consideration of marine conservation issues:** The NACMPR has had limited influence on policies and development planning affecting the marine parks and marine park islands in the past. The budget allocations under RM8 do however reveal an increased commitment to the conservation of marine biodiversity from the Government of Malaysia. The institutions that will table the respective issues at high levels of decision and policymaking have yet to be strengthened in their capacity and involvement.

- **Low level of awareness across all sectors and stakeholders:** Tourists, tourism operators, mid-level managers, policy makers, local communities as well as the general public have a low level of understanding on the necessity to conserve biodiversity and the benefits the respective stakeholders could gain from it. There is also very little knowledge on impacts of tourism activities and their long-term effects on the biodiversity and even the economy. More significantly, the various stakeholders have not been exposed to ways on how to reduce their impact and contribute to the consistent health of the marine biodiversity such as practices of treating solid and liquid waste, boat navigation, briefing for tourists on snorkelling techniques and potential damages etc. Awareness and outreach messages are mainly transmitted in prohibitive and punitive terms. For example, visitors are briefed by the boat or tour operators not to take any coral because if they are found by the marine parks officers, they will be fined. This way of presenting information to visitors on marine biodiversity is unfortunate because it does not demonstrate to tourists the value of marine biodiversity, for example, why coral reefs are important and why there are regulations to protect them. Instead, the approach currently taken reinforces the perception that the marine parks unit is acting more as a policing agent and their presence is reducing, instead of enhancing, the visitors' experience in the marine parks.

58. Factors such as those associated with global and regional climatic events such as rising sea temperatures (leading to mass coral bleaching and die-off) are no doubt also playing a role in this deterioration. However, there is evidence to show that more localized, anthropogenic factors such as inadequate development planning, increasing tourism and illegal fishing are playing an increasingly negative role, and it is the removal of these underlying causes that the project will target.

59. The project design therefore focuses on two approaches:

1. The strengthening of the marine park management, in order to reduce the threats within their jurisdiction and
2. A broader consideration of marine biodiversity values among development planners and policy makers at local, state and national-level in order to tackle the threats that derive from land-based drivers.

Please refer to Annex VI for a comprehensive analysis of threats to marine biodiversity in Malaysia and further details on additional yet minor causes of the identified threats.

RATIONALE AND OBJECTIVES (GEF ALTERNATIVE)

Project rationale and goal

The overall project goal is to ensure the conservation and sustainable use of marine biodiversity in Malaysia and sustainable island development.

The project purpose is to contribute towards this overall goal through achieving enhanced marine park management and inclusive sustainable island development. The purpose is two-pronged, which is consistent with the threats analysis that has shown that there are two categories of drivers behind the threats to marine biodiversity. *Firstly*, with enhanced marine park management, it is hoped that the system of parks will be resilient enough and also capable of adapting to different challenges that have so far hampered its ability to enforce marine park regulations in the waters under its jurisdiction. *Secondly*, the other category of driver behind the threats shows that to be successful, the proposed initiative also has to contribute towards reducing the negative impacts of island-based development, which, in the case of the marine park islands in Malaysia, are mainly tied in to development of the tourism sector.

60. On a broad level, the proposed project will contribute towards three of the four major cross cutting themes of GEF's biodiversity strategic priorities:

- a) Capacity building,
- b) Participation of government agencies beyond "green" agencies and
- c) Enhancing participation of local communities and the private sector.

61. The project design is compatible with the rationale behind **Strategic Priority #1 on Catalysing Sustainability of Protected Areas**. The project design is based on a comprehensive approach to strengthening the marine protected area system in order to promote its sustainability. There will be activities at the national level, which would result in strengthened policy for MPs in the country, with the finalisation of the draft National Marine Parks Strategy and the strengthening of the national level National Advisory Council for Marine Parks and Reserves. In addition, there will be nation wide activities with regards to capacity building and awareness raising.

62. There will be some support to individual marine protected areas, but where this is the case, it is designed with the intent that the results of this support will feed into strengthening the national level system of marine protected areas, through replication effects. Most of the site-specific work has been designed to demonstrate specific interventions such as the use of economic instruments (user fee system), which, if successful, can be recommended as an input into the national level Marine Parks Strategy, or in the case of integrated development planning frameworks, to be inputs to the national Island Development Guidelines.

63. Further, the project has a strong emphasis on building capacity at all levels – systemic, institutional and individual - for strengthened development planning in the marine parks of Malaysia. It focuses on creating an enabling environment for long-term planning and policy making regarding the development and conservation of the marine parks by the management of the MPs and key authorities at national, state and local level. Long-term partnerships with universities and other institutions will provide the scientific base for the management of the MPs. In combination with capacity building among marine park managers this will make the introduction of adaptive management methods possible and thus enable timely intervention for the prevention and mitigation of future circumstances, which can lead to the degradation of biodiversity.

64. Local communities have been included in the project design and are key stakeholders as well as beneficiaries of the projects activities. The project aims at improving local communities' access to the benefits of successful protected area management by building capacity to pursuit sustainable livelihoods as well as by providing access to supportive financing mechanisms for micro business development.

65. Additionally the project contributes to the goals of **Strategic Priority # 2 on Mainstreaming Biodiversity in Production Landscapes and Sectors** by creating incentives for an enhanced commitment towards biodiversity conservation by the tourism industry. The participation of the private sector tourism industry in the conservation efforts of the marine parks will ensure sustainable development beyond the project's implementation.

66. The project will focus on three of the most significant marine park islands in Malaysia with significant biodiversity resources, which are increasingly in conflict with growing tourism related developments and tourism activities. The focus of the project while aimed largely at resolving these conflicts are also aimed at increasing the stake of the local communities in MP management via co-management activities and opportunities to improve the socio-economic well being of the local populace through involvement in high-end tourism activities by training local youths as nature guides as opposed to being just boatmen. In terms of tourism development the selected project sites range from hardly visited islands to mass tourism destinations thus representing valuable demonstration sites for intervention strategies at different stages of tourism development.

- Pulau Tioman in Pahang has the longest history of development of infrastructure and tourist facilities, with several major resorts and a strong village-based tourist network. The intense tourism pressure has significantly damaged many of the shallow reefs, and without adequate planning, the impacts of proposed land development on the marine environment are likely to be high. Tioman provides an example of a high impact tourism and development site.
- Pulau Redang in Terengganu has much less development than Tioman but supports a thriving small-scale tourist industry and one large resort. Many of the reefs remain in a near pristine condition but increasing tourist pressure is seen as a threat. The islands are expected to come under increasing pressure over the next ten years following the completion of an airstrip. Redang provides an example of a medium impact tourism and development site.

- Pulau Sibul-Tinggi in Johor is the least developed marine park on the east coast. The islands are relatively difficult to get to (there is no airstrip) and there are few facilities for tourists outside village-based chalets. Despite this, tourism pressure is beginning to be felt and there are plans by the state government to develop the islands as a major tourist destination over the next ten years. Many of the reefs remain in good condition. Sibul-Tinggi provides an example of a low impact tourism and development site.

The three project sites were selected during the PDF stage following these criteria:

- Criteria 1: Presence of globally / regionally significant species and / or ecosystems,
- Criteria 2: Condition or status of those species and / or ecosystems,
- Criteria 3: Presence of management issues / threats which have the most relevance to other marine areas in the country / region, and the manageability of those threats,
- Criteria 4: Evidence of potential duplication and overlap of projects that would decrease the impact of the UNDP-GEF investment,
- Criteria 5: Evidence of on-going or planned local community and / or Government commitments focused on marine biodiversity protection and a suitable baseline on which to build a UNDP-GEF intervention.

67. Each of the project sites is experiencing problems which are cross-sectional in nature: primarily inadequate institutional set-up for managing tourism on marine park islands, low level of awareness among large portions of tourists and tour operators and the perceived incompatibility between tourism promotion and development and conservation of biodiversity in marine parks. By focussing on these three project areas with common problems yet different levels of impact from tourism and development, the project will provide Malaysia with a replicable model for testing new integrated approaches to marine biodiversity conservation and tourism management at other important marine sites.

68. The project will build upon significant investments and proposals by the Malaysian federal and state authorities to ensure sustainable tourism development and improved marine resource management on the east coast. It will, for example, work with MOCAT in the disbursement of the Special Fund for Tourism, which targets small and medium sized tourism industries. It will also complement other marine projects in the region such as UNDP-GEF-IMO Building Partnerships for Environmental Protection and Management of the East Asian Seas which has considerable expertise and experience in areas such as coastal zone management, the UNEP-GEF Project on Reversing Environmental Degradation Trends in the South China Sea and the Gulf of Thailand that includes activities related to coral reefs, seagrass and land based pollution and the UNEP-GEF Sulu-Sulawesi Marine Ecoregion Project. The project will collaborate with the project on Investigations of the impacts of Localized Stress and Compounding Effects of Climate Change on the Sustainability of Coral Reef Ecosystems, and the Implications for Management, a proposal that was submitted by the World Fish Centre, through the World Bank as GEF Implementing Agency and approved by the GEF Council in November 2003.

Immediate objectives

69. The project has three immediate objectives, which correspond to seven project outcomes. The combinations of the objectives are targeted to overcome the underlying root causes as identified in the threat analysis. It is aimed at creating mechanisms in order to reduce threats resulting from the split in federal and state jurisdiction on the marine park areas. Furthermore, political decisions on higher levels as well as policies are targeted to reflect the consideration of marine conservation issues. The achievement of these objectives will further ensure that these policies as well as other decisions with relevance to the marine park areas are based on a cross-sectoral planning process. The overall goal of the project will also be supported by a strengthened level of awareness and advocacy on a national level.

Objective I: To widen the existing development planning process in order to support marine ecosystem management as well as sustainable tourism through stakeholder involvement

Objective II: To strengthen the capacity of the marine parks management system in Peninsular Malaysia and to ensure effective enforcement of MP regulations at three project sites

Objective III: To enable an influential advocacy framework for the conservation of marine biodiversity supported by a raised level of awareness of the importance and benefits of marine biodiversity conservation

Note: Outcomes and outputs under Objective III will also contribute to the achievement of Objectives I and II

Project activities and expected results

70. For each project outcome, there will be one or more target project areas (islands) in which barrier or threat removal will be demonstrated. Each of the proposed project outcomes has at least one output linked to the replicability of the lessons learnt and best practices introduced. There are also outputs, which are targeted at the national level. A summary of activities within each outcome is given in the following section. A full breakdown of outputs and activities is provided in Annex I, Logical Framework and Project Planning Matrix. A summary of all the outputs of the project and their level of implementation is provided below.

Table 2; Project implementation level summary matrix

Output							
		National	State	Redang	Tioman	Sibu-Tinggi	Replic-ability
<u>Immediate Objective I: To widen the existing development planning process in order to support marine ecosystem management as well as sustainable tourism through stakeholder involvement</u>							
Outcome 1.0: Adaptive MP management by a mechanism of cross-sectoral information sharing and knowledge transfer into decision-making bodies							
1.1	Effective information sharing			x	x	x	N
1.2	Implementation of continuous observation			x	x	x	N
Output							
		National	State	Redang	Tioman	Sibu-Tinggi	Replic-ability
1.3	Networking among managers and expert groups	x		x	x	x	N/I
1.4	DEVELOPMENT OF INTERACTIVE DATABASE	x	x	x	x	x	
1.5	Distribution of tools and manuals	x		x	x	x	
Outcome 2.0: Mechanisms for effective multi-sectoral policy making, development planning and an improved financial sustainability							
2.1	Finalisation of Draft National Marine Parks Strategy	x					
2.2	Federal - state agreement on multi-sectoral island development planning	x	x				
2.3	Revised Tioman master plan		x		x		N
2.4	Development of special/local area management plans			x	x	x	N
2.5	Replication of integrated, multi-sectoral planning	x	x				N/I
2.6	Pilot initiative in the implementation of eco-tax on visitors to Pulau Tioman				x		N
2.7	Complementary sources of revenue for MP management and conservation identified	x					

2.8	Application of existing financial mechanisms to promote environmental investments	x					I
2.9	Revised scope of the MPRTF	x					
2.10	Replication of appropriate institutional and planning arrangements	x					
2.11	Strengthening of island monitoring committees			x	x	x	
Outcome 3.0: Local communities involved in marine parks management and share access to benefits of biodiversity conservation by generating alternative livelihoods							
3.1	Formulation of co-management plan					x	N/I
3.2	Efficient and structured management of designated zones			x	x	x	N
3.3	Generation of additional incomes			x	x	x Pilot squid fishing area	N
3.4	Replication of appropriate co-management plans	x	x				N
Outcome 4: Tourism operators integrated into protected area management and reduction of the direct and indirect impacts of tourism activities on biodiversity							
4.1	Best practices among tourism operators			x	x	x	N
4.2	Implementation of rating scheme			x	x	x	N
4.3	Reduction and elimination of sewage discharge			x	x	x	N/I
4.4	Proper disposal of solid waste			x		x	N/I
4.5	Proper collection and disposal of oil and grease			x	x	x	N
4.6	Empowerment of tourism operators			x	x	x	N/I
4.7	Replication of tourism sector involvement	x					N
<u>Immediate Objective II. To strengthen capacity of the marine parks management system in Peninsular Malaysia and ensuring effective enforcement of MP regulations</u>							

Outcome 5.0: MPUs follow international standards of protected area management and achieve efficient enforcement and prevention of violations							
5.1	Capacity of MPU staff enhanced			x	x	x	N
5.2	Development of MP management plan			x	x	x	N
5.3	Improved level compliance with MP regulations			x	x	x	N
5.4	Improved management and protection of endangered species			x		x	N
5.5	Capacity building among Malaysian MP managers	x	x	x	x	x	I
5.6	Improved efficiency in the collection of the Conservation Charge			x	x	x	N
<u>Immediate Objective III: To enable an influential advocacy framework for the conservation of marine biodiversity supported by a raised level of awareness of the importance and benefits of marine biodiversity conservation</u>							
Outcome 6: Raised awareness of the importance of biodiversity conservation and marine park system in Malaysia among selected target groups							
6.1	Enhanced awareness among local communities			x	x	x	N
6.2	Increased awareness among decision makers and managers	x	x				N
6.3	Development of national level outreach and awareness programme	x	x	x	x	x	I
6.4	Expansion of outreach and awareness programme	x					I
Outcome 7.0: Framework for strong advocacy from stakeholders for the conservation in the marine parks of Malaysia							
7.1	Increased involvement of NACMPR in national decision making	x					
7.2	Increased advocacy	x					I
7.3	Implementation of MP Watchdog	x	x				I

Note on replicability: N (National level replication including to other MPUs)

I (Potential for replication on international and regional level replication through dissemination of lessons learnt etc.)

Immediate Objective I: To widen the existing development planning process in order to support marine ecosystem management as well as sustainable tourism through stakeholder involvement

71. The first immediate objective will be achieved through a combination of four outcomes, which together will ensure an improvement in development planning, addressing the abovementioned root cause of sector-based policy-making. The “widened” development planning process would be achieved through the inclusion of stakeholders such as the tourism industry, local communities and authorities with the mandate for development planning in marine park areas. Furthermore the outcomes will ensure an adaptive marine park management by creating a channel, which ensures that the decision-making, with respect to island and marine park development, is based on scientific information. The achievement of this objective will also tackle the root cause of political decisions that are inconsiderate of marine conservation issues. It will also contribute to a raised level of awareness, especially among development planners and will support the goal of overcoming the split in federal and state jurisdiction.

OUTCOME 1.0: ADAPTIVE MP MANAGEMENT BY A MECHANISM OF CROSS-SECTORAL INFORMATION SHARING AND KNOWLEDGE TRANSFER INTO DECISION-MAKING BODIES

72. The activities to achieve this outcome will address the problems related to the lack of established mechanisms to share research, knowledge and information across sectors. Activities under this outcome will generate the right information, in the right format and at the right time in order to provide decision-making bodies with the scientific base for timely intervention for marine biodiversity conservation. They will further: enable the project to apply adaptive management techniques to project implementation; provide a source of up-to-date information on state of biodiversity in MPs; develop a directory “green” tourism products and services; and establish standard procedures for the conduct of research in MPs. Because of its project-wide implementation, this component has good potentials for replication at other MPs in Malaysia.

Output 1.1 A mechanism for effective information sharing among researchers, marine parks management and stakeholders

73. Activities under this output are aimed at ensuring that research carried out in the MPs benefits and contributes to MP management. They are based on the information that research in MPs are affected by several problems, namely, a lack of standard procedure for approving research in MPs, the absence of a common regulation to regulate the collection, analysis and dissemination of information collected through research in MPs, and the lack of opportunities to exchange research findings and views among researchers working in MPs. Furthermore, activities under this output will ensure that research will serve as a base for decision-making at higher levels of development planning by establishing a channel to the data for institutions such as NACMPR, CCHI and other local, state and federal authorities identified in the island development planning framework.

Activity 1.1.1 Improve information sharing between researchers, marine parks and stakeholders

74. The project will develop a database of all research activities carried out in MPs, which will house data from studies conducted within the parks, or in adjacent waters. This will provide a 'clearing-house mechanism' for all the research information available on MPs and would enable researchers to better identify gaps in knowledge and hence avoid duplication of work. The database would also benefit other stakeholders who would be able to access information gained from research in MPs. In addition, the database would also promote networking among researchers and other stakeholders.

Activity 1.1.2 Creation of a common research permit system in MPs

75. This activity will develop a common approval system for the conduct of research in MPs in Malaysia with initial implementation at the three project sites. The approval system consists of a research permit which stipulates conditions for conducting research in MPs including the requirement for researchers to submit all information and reports from their activities to the MPD for inclusion in the overall web-enabled database developed under Activity 1.5.1.

Activity 1.1.3 Develop linkages with universities, research institutions and other projects to tap into research funding for marine conservation and coastal management.

76. It is expected that through the activities under this output will enhance linkages with institutions of higher learning and research organizations in the country and abroad. The project would provide a more formal structure for these linkages based on institution-wide arrangements rather than on personal contact. One organisation that the project will be looking to develop links with is the Penang-based World Fish Centre, for example, especially through the World Bank project on Localized Stress and Compounding Effects of Climate Change on the Sustainability of Coral Reef Ecosystems, and the Implications for Management (approved by GEF Council in November 2003), which would allow the project to tap into the vast research and knowledge network of the World Bank targeted research project. Similarly, local universities will benefit from these improved linkages, which would in turn enable their better participation in the MP management process. The Intensification of Research in Priority Areas scheme (IRPA), which is managed by the Ministry of Science, Technology and Environment (MoSTE), will financially as well as institutionally support this activity.

Output 1.2 Implementation of mechanisms for continuous observation and monitoring of state of the MP environment and analysis of collected data

77. To provide the necessary information for inclusion in the enhanced information management system for MP management, a mechanism for continuous observation, monitoring of the MP and analysis of the data collected will be built into the project. The system could be implemented on a decentralized and participatory basis with the involvement of volunteer programmes such as Coral Cay Conservation to enable young scientists to contribute to the monitoring of coral reefs and other marine ecosystems. More importantly research links will be established between the project and local universities as well as research organisations in order to develop a more sustainable monitoring programme at the project sites. The link could include providing opportunities and support for monitoring activities to be conducted by university researchers or students, particularly those pursuing graduate and postgraduate research. The

enhancement of the monitoring component of MP management will also include building the capacity of MPU staff to conduct monitoring and supervise monitoring activities. This will also be strengthened by the implementation of standard monitoring procedures as proposed under output 5.2

Activity 1.2.1 M.Sc. students to conduct research on marine biodiversity

78. Part of the monitoring programme would also involve undertaking academic research in MPs to provide baseline information on the state of the MP environment. This would entail the conduct of graduate (MSc) level studies on the biodiversity of the MP and its management. This activity could be carried out in conjunction with, for example, the Terengganu Science and Technology University College (KUSTEM) and would have the added benefit of building capacity in biodiversity conservation and MP management.

Activity 1.2.2 Develop and disseminate standardized analysis and data storage procedures and build capacity of MPU staff in monitoring and supervision of monitoring

79. As the monitoring by the students and volunteers needs to be of a consistent quality in order to provide useful information to the marine park management, a standardized system of monitoring, analysis and data storage needs to be developed. This will be done in conjunction with activities under outputs 5.2 and would also include training for MPU staff in monitoring techniques as well as in the supervision of monitoring activities

Output 1.3 Networking among marine park managers, project teams, conservation programmes and development organizations' networks of experts

80. Activities under this output will ensure that the lessons learnt from this project can be shared with a broad range of peers outside the country, and that the Malaysian marine park staff can benefit, through networking, from the experiences outside the country. In this regard, this project will also contribute to strengthening the GEF Strategic Priority #4 on the generation and dissemination of best practices for addressing emerging and current biodiversity issues.

Activity 1.3.1 Establish network of Malaysian experts in marine park management and disseminate lessons learnt to other MPs and at international level

81. The project will document the lessons learnt from the project activities and disseminate the information to other MP managers in Malaysia and outside of the country. The dissemination will also include network of experts established by agencies such as UNDP, GEF and the World Bank.

Activity 1.3.2: Facilitate and enable participation of Malaysia's marine park managers and staff in exchange programmes with other networks of experts.

82. This activity is intended to provide support for the participation of MP management staff in exchange programmes of expert-networks on marine protected area management. There are examples of existing networks of experts in coral management such as the International Coral Reef Action Network (ICRAN) and the wider International Coral Reef Initiative. The extent of Malaysia's involvement in these activities need to be identified and if necessary enhanced to

provide more opportunities for exchanges with and participation in these programmes. This activity will include communicating with these initiatives and building linkages with these programmes. This will include organizing and facilitating a study-tour for managers of marine protected areas and members of expert-networks.

Output 1.4 Development of an interactive database on private sector activities

83. This output is essential to the project because it recognizes the tourism industry (tourist operators, dive operators, chalet and hotels' owners and managers and so on) as important stakeholders in marine park management. Activities to achieve this output are two-pronged: firstly to gather the vast amount of practical experience that the tourism private sector has to offer, in terms of knowledge of the industry and secondly, to be a channel for information going out to the tourism sector on how to green their businesses. This database is targeted for use by tourism and non-tourism businesses with internal environmental policies, involvement in conservation and/or are also potential sources of donations, sponsorship or other contributions to conservation efforts. Capacity will be built among staff of the Marine Parks Division to operate, up-date and maintain the database beyond the implementation phase of the project. An examination of existing databases shows that information sources such as ReefBase exist to provide information on status of coral health and other related information. However, information on private sector activities is lacking and needs to be developed. The database on private sector activities will complement and enhance existing databases.

Activity 1.4.1 Develop web-based database for the tourism sector

84. The principal activity for this output is the development of a database with potential for application in the tourism and non-tourism businesses. It will be designed as an interactive data base so that operators can also access it on a regular basis, update information on their activities, use it as one of the channels of communication with the marine parks management and also possibly to use it for promotional and public relations purposes. The data base could also include e-benchmarking for tourism operators, in particular the hotel industry so that hotel owners and managers may make simple self-assessments of their environmental performance, for example, water and energy consumption and from there obtain a better idea of how they can improve their performance, and how they could respond to the guidelines of the National Ecotourism Plan. The database would also include information related to biodiversity and tourism in MPs including environmental policies, tourism information and sources of funding for conservation activities.

Activity 1.4.2 Develop directory of green product suppliers

85. Activity 1.4.2 is a positive spin-off from and complements Activity 1.4.1 in that it provides tourism operators and to a lesser extent the general public with information on where to obtain "green products". It is the view of some tourism operators that the lack of information on green products is a barrier to their efforts to green their businesses. Through this activity, a directory of manufacturers and producers of a wide range of green products will be developed to meet the requests from tourism operators. As the directory will be incorporated into the web-enabled database developed under Activity 1.4.1, the general public will also have access to the information it contains.

Activity 1.4.3 Create web-based directory of eco-friendly resorts

86. Another positive spin-off from Activity 1.4.1 is the creation of a directory of eco-friendly resorts. This directory will allow hotels, which have implemented environment-friendly practices to showcase their achievements and will act as one of the incentives for the private sector to improve their environmental performance and/or to contribute towards the management of the marine park. In addition, this activity would also form the initial steps towards the development of a more comprehensive ecotourism rating programme envisaged under this project (Output 4.2). There would be a need to coordinate this activity with the ongoing work by MoCAT and Tourism Malaysia (the tourism promotion arm of MoCAT) to develop an overall ecotourism rating scheme for the country.

Output 1.5: Distribution of standard analysis kit, data storage procedures and other kits or manuals developed at the project sites to other marine parks.

87. In order to ensure the replicability of the activities developed under the above outputs, several add-on activities are proposed to support the implementation of activities under this project at other MPs.

Activity 1.5.1 Development of manuals and tools to support database development at other MPs

88. This activity will develop manuals and tools for other MPs in Malaysia to contribute to and to use the databases that have been set up under Output 1.4.

Activity 1.5.2 Examine the wider application of research permit/approval process to other marine parks in Malaysia

89. This activity will investigate how to expand the research permitting process in other marine parks in Malaysia, perhaps through a national level regulation or administrative circular.

OUTCOME 2: MECHANISMS FOR EFFECTIVE MULTI-SECTORAL POLICY MAKING, DEVELOPMENT PLANNING AND IMPROVED FINANCIAL SUSTAINABILITY

90. This outcome will establish broad-scale mechanisms for multi-sectoral and sustainable development planning that will be relevant to all marine park islands in Malaysia at federal, state and local government levels. It will also provide a practical demonstration of how these mechanisms will be implemented on the ground at Pulau Tioman in Pahang where coordination and co-operation between the relevant state and federal agencies and other local stakeholders will be facilitated to ensure sustainable development in the Tioman Marine Park. The set of activities within this outcome will benefit from the fact that many Federal and State agencies are already members of the PDF-B Project Steering Committee and have been initiated into the project objectives, outcomes and activities.

Output 2.1 Finalization of the draft National Marine Parks Strategy (as of 1999) with inputs from the government and stakeholders

91. The National MP Strategy has yet to be finalised and a series of activities is planned to facilitate the completion of the strategy document including a stakeholder consultation component. While this component has not been incorporated in the initial phase of the study, it is important that stakeholders contribution are sought during the finalisation stage of the project to ensure its relevance to all stakeholders and promote stakeholder participation during at the earliest possible stage of MP management. The document will incorporate Integrated Coastal Zone Management (ICZM) principles and approaches into the management of MPs.

Activity 2.1.1: Organise national level consultation workshops to finalise the strategy

92. Several consultative workshops including a national level workshop with representation from all stakeholders at national, state, local authority and local community level will be organised to obtain their inputs into the finalisation of the Strategy document. This workshops would also have the implicit intention of building awareness among decision-makers about the project and ensure early buy-in into the project activities and outcomes. It is envisaged that these workshops will be organised at the earliest possible stage of the project and during the inception phase of the project.

Output 2.2: Federal-State agreements for multi-sectoral island development planning mechanisms

93. Activities to meet this output require strong support from the State Government and State EPU in particular. Agreements and endorsements at the state-level (State Exco) will be necessary to enable multi-sectoral approaches to sustainable island development planning and significant changes in the current planning mechanism will need to be facilitated. As a first stage in project implementation agreements will be developed and facilitated between State EPUs, DoFM, DoE, District Land Offices, MOCAT and other relevant stakeholders such as the SEDC and island development agencies (e.g. TDA).

Activity 2.2.1 Conduct a review of the value of closer state-federal collaboration and the costs of failure to cooperate

94. This activity would illustrate to the state authorities the values of cooperating with the federal government in MP management. These values would include financial and economic benefits as well as non-monetary benefits such as capacity building for state and local government staff. This activity is an important first step in convincing the state and local governments of the values of closer cooperation with the federal government in conserving the biodiversity of the MPs and would facilitate the Memorandum of Understanding (MoU) proposed under Activity 2.2.2.

Activity 2.2.2 Prepare MoU between state and federal agencies over cooperation on marine parks policy

95. The MoU would form the basis of the relationship between all levels of Government in the conservation of biodiversity in MPs and in the development of tourism, on MP islands. In the long term, the MoU should also be extended to include all policy having an effect on the marine park waters. This Activity will benefit greatly from Activity 2.2.1, which clarifies and strengthens the role of the NACMPR. The MoUs should represent an agreed and endorsed mechanism for multi-sectoral planning on marine park islands. It should establish meaningful targets and indicators that can be monitored, for example including provisions for ensuring the EIA process for infrastructure works on the islands is followed. In addition, this activity will gain from the series of consultative workshop proposed under Activity 2.1.1.

Output 2.3 A revised Tioman master plan, reflecting multi-sectoral approaches to development planning, is agreed and endorsed by State EPU

Activity 2.3.1 Establish the Tioman Stewardship Council (TSC)

96. A multi-sectoral Tioman Stewardship Council (TSC) will be formalised under the auspices of TDA with representation from SEPU, MOCAT, RDLO, DoFM, DoE, JKKK and local tourism operators such as Berjaya and smaller operators. The TSC will facilitate the establishment of tri-sector partnerships, between government, private sector and local communities to ensure that the Tioman master plan provides the sustainable platform for island development. If necessary, under the TSC, technical sub-committees will be created to address specific issues such as sewerage and waste management.

Activity 2.3.2 Revise Tioman master plan

97. Regular inputs from the Tioman Stewardship Council (TSC) will enable the TDA to revise and develop a multi-sectoral master plan for development of Tioman. The Tioman master plan will specifically address a) local infrastructure development and control of erosion and pollution, b) solid waste and sewerage management, c) sustainable tourism development, and d) zonation and management of natural resources – the Wildlife Reserve and MP in particular. The master plan will adhere to existing guidelines and policies on control and management of coastal development (specifically those developed by DID as *Garispanduan* JPS 1/97). It will include clear mechanisms for project planning and approval, for monitoring and enforcement and clear mandates for each of the agencies involved. Implementation of the master plan will likely begin in Year 2 or 3 of the project – it will require significant investment and support by the state government. Investments in improved solid waste and sewerage management will likely come from additional sources such as the DANIDA-funded IWK program. The revision of the Tioman master plan is critical in light of the recent declaration of Tioman as a tax-free island. The revision will come at crucial stage of Tioman’s development as no clear plan exist for operating Tioman’s new status as a tax-free island. Recent discussions with the TDA indicates that there is no plan on the part of the TDA to turn Tioman into a “shopping-haven” in the form of another Langkawi but to promote tourism by making Tioman a more attractive destination for tourists through cheaper basic items such as food.

Given the varying needs of the many stakeholders on Tioman, it is important that the revision of the Masterplan be undertaken with a view to integrate the management of the various sectors. One way to do this is to adopt the ICZM approach in the revision of the Masterplan. This would allow for integration to happen at the earliest possible stage as opposed to later in the process.

Activity 2.3.3 Hold consultative meetings to discuss the draft revised plan

98. A process of local stakeholder consultation and consensus for the new master plan will be facilitated prior to its submission to State EPU.

Activity 2.3.4 Provide training opportunities for TDA staff in island development planning, tourism development and marine park management and integrated coastal zone management.

99. TDA staff capacity will be built to deal with its revised mandate as local authority on Tioman. It will provide TDA with the inputs and analytical tools necessary to revise the Tioman master plan.

Output 2.4 Development of Local/ Special Area Plans for environmentally sensitive areas, for all three sites

Activity 2.4.1 Build capacity within local authorities in the design of participatory management plans

100. This activity, like Activity 3.1.4 will build on the experience of UNDP and the Ministry of Housing and Local Government gained from the Local Agenda 21 pilot project. The training materials produced under that project could be modified and adapted to suit the needs of this project.

Activity 2.4.2 Develop special area plans

101. The development of the special area plans is an integral part of the development of MP management plans for all the three project sites. The special area plans however will cater specifically to areas, which have the highest biodiversity level and are most vulnerable to development or visitor impact. This activity includes an assessment of resources on the islands, based on a literature review of all other resource assessments done in the past for each of the three project sites, as well as updates from local communities and researchers who have been working in the area. The process of the development of the plan should include inputs from a wide range of stakeholders.

Output 2.5 Replication of integrated, multi-sectoral planning processes

Activity 2.5.1 Hold workshop and training programmes for decision makers and mid-level managers.

102. Using the links between the NACMPR and the CCHI established under this project, decision makers and mid-level managers involved in tourism and infrastructure development will be given exposure to the benefits of multi-sectoral planning processes on the marine park islands. This will be done via a series of workshops and training programmes and the production of appropriate materials to assist in future tourism and infrastructure development on marine park islands. This activity will also actively support and feed into the development of the Island Development Guidelines that are going to be developed by the CCHI.

Output 2.6 Pilot initiative on implementing an eco-tax on visitors (Tioman)

103. To complement the CC collection and disbursement and to enhance the sustainability of the activities identified under this project, complementary sources of funding will be identified during the course of this project. This output will build on the work carried out in Tioman by the EPU, DANIDA and the TDA on economic instruments for environmental management, which resulted in the design and recommendation of an “ecotax” of RM 5 (USD1.30), which is the same amount as the CC, to be collected from visitors. The recommendation made by the Danida-EPU study, which was concluded this year, was that the eco-tax would be collected at the hotels. The revenue collected from the proposed eco-tax was to have been used to finance solid waste management investments on the island. However, the eco-tax has not yet been implemented, in part due to the perception that the additional charge, over and above the CC might be a factor that results in a lower number of visitors to the island.

Activity 2.6.1 Carry out a study on the modalities for integrating the ecotax together with the Conservation Charge

104. An initial study will be carried out to examine the feasibility of integrating the ecotax with the CC, so that there is only one charge for visitors to the marine parks in Tioman. This study will also draw on the various willing-to-pay surveys that have been carried out in the MPs.

105. Should the results of Activity 2.6.1 show that it is feasible to integrate the two charges, then another study will be undertaken to investigate the most efficient and practical methods of collecting and then disbursing the joint eco-tax-CC. In particular, the study would evaluate the scenario in which the TDA, as the local authority on Tioman Island would be responsible for the collection of the joint charge.

Activity 2.6.2 Pilot initiative to collect the joint eco-tax and CC

106. Based on the two studies, a pilot initiative will be carried out on Tioman on the above in collaboration with TDA.

Output 2.7 Complementary sources of revenue for marine park management and biodiversity conservation identified

107. The private sector in Malaysia has in the past been active in funding conservation activities in the marine parks such as the production of the Marine Education Kit. The contribution has been diminished somewhat as a result of the economic crisis. This project will work to identify opportunities for “smart-partnerships” between the private sector, the NACMPR, MPU, MOCAT and the state governments for conservation of biodiversity in marine parks

Activity 2.7.1: Establish fund-raising programmes where visitors and tourism businesses can contribute to financing of conservation activities

108. Under this activity, the project will recommend to the MPD various modalities of donation programmes that can be set up. The project will refer to other bodies and NGOs in the country and abroad, which have extensive experience of fundraising through such donation programmes, for example, the *Kawan WWF* (Friends of WWF) programme of WWF Malaysia and the Adopt-a-Turtle and Adopt-a-Nest programme of SEATRU.

Activity 2.7.2 Recommend annual contribution programmes to the Marine Parks and Reserves Rust Fund (MPRTF) for larger resort properties

109. This would include identifying the leadership role, which could be played by the larger tourism operators such as hotel and resort chains (e.g., the Berjaya Group) in championing the integration of tourism and biodiversity conservation in marine parks among tourism operators. The design of the contribution programmes will be undertaken with active support from the MPUs in the project sites. This will allow the MPUs to take up a pro-active role for resource mobilisation and private sector partnerships and increase the sustainability of the contribution schemes and partnerships.

Output 2.8: Examine the application of existing financial mechanisms to promote environmental investments among small and medium scale industries.

110. This output will depend to a large extent on the newly established MoCAT special fund for SMEs. This fund has a RM 400 million (USD 106 million) allocation under the current Malaysia Plan and is loaned to SMEs at the concessional interest rate of 3.75%. The Fund is disbursed through a development bank, Bank Pembangunan and two commercial banks, Bank Bumiputra-Commerce and Maybank. All the applications to the Fund must be first endorsed by MoCAT.

Under this output the project will

- a) Work together with MoCAT and Bank Pembangunan in order to introduce green lending criteria.
- b) Provide support to tourism operators who wish to access these funds for the greening of their businesses.

Activity 2.8.1 Investigate needs of potential beneficiaries of the financing mechanism

111. The project will undertake a study of the needs of the potential beneficiaries of funding since the fund is relatively new, and also because the fund is not restricted to investments for the improvement of environmental performance. This will enable the project, together with MoCAT to determine the amount of financing needed and if possible, to earmark a portion of the fund for environmental projects.

Activity 2.8.2 Facilitate access of SMEs to the MoCAT soft loans

112. Under this activity, the project will aid SMEs which wish to apply to the MoCAT fund for investments needed to upgrade their environmental performance.

Output 2.9 Revised scope of the MPRTF and improved efficiency in Conservation Charge related operations

113. Given the significant role of the CC in marine park management in the Peninsular Malaysia, it is important that the present structure of the CC be reviewed to ensure efficiency in collection and distribution and the make sure that the amount collected is sufficient for activities in the marine parks. At the same time it is also important to allay some of the concern of the stakeholders over the use of the MPRTF and to promote transparency in the decision-making.

Activity 2.9.1 Revisit the scope and operations of the Marine Parks and Reserves Trust Fund (MPRTF)

114. Under this activity, the project, will in close collaboration with MPU, explore the institutional, human, technical and financial capacity of the trust fund to achieve its mandate. Possible recommendations could include:

- Exploring the need for full time trust fund staff person charged with fundraising and partnership building with corporate, donor and government sectors,
- Making the MPRTF decision making processes more transparent to all stakeholders from each park,
- Earmarking a percentage of revenues collected for return to projects in the park in which they were collected, in order to create incentives for the park staff to increase efficiency of collection of the CC

Activity 2.9.2 Revisit the past proposal on establishing a two-tier fee system for CC (Malaysian/non-Malaysian)

115. There was a proposal for a two-tier fee system for foreigners and local visitors, where the non-Malaysian visitors to the MPs would be charged twice the amount of the current CC. However this proposal was not approved by Cabinet. Many stakeholders are of the opinion that this proposal should be revisited, while looking into the reasons for its initial rejection. This activity will also include examining the two-tier arrangements being practiced by the Sabah Parks management authority and the JNPC.

Activity 2.9.3 Study best practices on the rate of CCs in the region

116. This comparative review will be used to make the case for a reasonable amount for the CC, which will be acceptable to tourists and sufficient to sustainably finance the marine park management operations. The CC is currently at USD 1.30 for adults and \$0.65 for children, and it is valid for seven days. This rate is extremely low if compared to the user charges at other sites. This study will also look into the possibility of the diversification of fees.

Output 2.10 Replication of use of economic instruments to other MPs

Activity 2.10.1: Feasibility study on the establishment of TSC- & monitoring committee-equivalent institutions at other marine parks in Malaysia

The study will investigate the need, chances and challenges of the replication of the establishment of a stewardship council at other marine parks in Malaysia and will draw out specific recommendations for the replication at the remaining project sites as well as general recommendations for a replication at other marine parks in Malaysia.

Activity 2.10.2: Feasibility study on establishing local /special area plans in other Malaysian marine parks, primarily focused on Redang and Sibut-Tinggi

Recommendations, lessons learnt and guidelines for the replication of the local/special area plans and the respective planning phase will be laid out in the feasibility study. General recommendations for other marine parks in Malaysia will also be included.

Activity 2.10.3 Document and disseminate information on eco-tax and new approach to collection of CC

117. The project will disseminate information on the experiences in the project sites on the joint eco-tax and CC to other MPs in the country among development planners. If the replication of the joint fee structure is deemed as supportive for the conservation of marine biodiversity the recommendations will be channelled into the decision-making process and development planning by institutions as NACMPR and CCHI and local authorities.

Output 2.11: Strengthening of Island Monitoring Committees (e.g. EIA Monitoring) In Redang and replicating in other sites

Activity 2.11.1: Defining the roles and composition of committee members.

118. Following the model of the multi-sectoral island monitoring committee on Redang, which is a joint coordinated monitoring committee for EIA monitoring, similar committees will be set up on the other project islands. The composition of the committee, its terms of reference and the roles of the individual members will be defined under this activity.

Activity 2.11.2: Review of the existing guidelines, regulations and jurisdictions for the island monitoring committee.

119. Prior to the establishment of island monitoring committees a review of the mandate, outreach and channels for recommendations, complaints, etc. for the proposed committees will be undertaken.

OUTCOME 3: LOCAL COMMUNITIES INVOLVED IN MARINE PARK MANAGEMENT AND SHARE ACCESS TO BENEFITS OF BIODIVERSITY CONSERVATION BY GENERATING ALTERNATIVE LIVELIHOODS

120. Under this outcome, the outputs and respective activities are designed to improve the integration of local communities in the management of the marine ecosystem they are surrounded by and hence creating a level of responsibility and incentives for the active contribution to biodiversity conservation by local communities. Currently the contribution to the conservation efforts of the marine park management is below the desired level due to a lack of training and financial constraints of the islands' population. An improvement of the situation will enable members of local communities to participate in the tourism industry as small businesses or employees of medium and large companies while generating an additional source of income for them. However it is not the intention of this component to effect a drastic shift in the sources of livelihoods but to enable local residents to access the benefits of the area they live in, in most cases complementing their normal livelihoods rather than substituting them with new economic activities.

121. Furthermore, it is the goal to develop a sense of co-ownership of the area the local communities live in and a perception of appropriate development. An increased involvement in the management of the marine parks will lead to more responsibility for the surrounding areas of the local communities and will sustain the project's activities leading to the desired outcome.

122. Although this outcome focuses on Pulau Redang in Terengganu and Pulau Sibul and Tinggi in Johor it will also provide a highly relevant demonstration of best practices in integrating tourism management in marine park operations for other marine parks in Malaysia. Capacity will be strengthened within the government sector (through training of the marine park staff), within the private sector (through building capacity for improving practices amongst tour, boat and dive operators, and in the public sector (through enhanced knowledge and information availability on marine parks and marine biodiversity). This will ensure that opportunities for replicating successful elements of the outcome at other marine parks takes place. Support from

private sector partnerships will be essential and Redang provides many existing opportunities to improve practices within the tourism sector and for the further development of innovative environmental education and outreach centred on the marine park. It is envisaged that this component of the project will contribute to the improvement of the livelihood of a significant portion of the population on Pulau Redang and Sibul – Tinggi who are involved in fisheries and tourism. A table summarising the link between the project activities, likely target groups and their socio-economic status is provided below.

Targets	Proposed Project Activities	Target Groups	Percentage of Population
<u>Redang</u>			
1. Better employment opportunities in addition to working at Berjaya Resort and as boatmen, guides and fishing	<i>Activity 3.2.1</i> Local island communities organized to manage designated zones for community fisheries and tourism.	Local fishermen	40.2
	<i>Activity 3.3.1</i> Evaluation of possibilities for alternative income generation, focusing on well-managed dive sites, development of eco-tourism based on dugong spotting and sustainable tourism fishing.	Boatmen	25.8
	<i>Activity 3.3.4</i> Increase community members' ability to participate in tourism sector.	General worker	10.8
	<i>Activity 5.3.5</i> Investigate alternative livelihood options during the monsoon season. <i>Activity 5.3.7:</i> Investigate opportunities for local communities to access funds under the Micro Credit Scheme of the Economic Stimulus Package		
<u>Sibu – Tinggi</u>			
1. Alternative source of income to alleviate poverty level.	<i>Activity 3.2.1</i> Local island communities organized to manage designated zones for community fisheries and tourism	Local fishermen	40
	<i>Activity 3.3.7:</i> Investigate opportunities for local communities to access funds under the Micro Credit Scheme of the Economic Stimulus Package.	Boatmen	17
	<i>Activity 3.3.1</i> Evaluation of	General worker	23
		Outside trawlers	?

<p>2. Establishment of “squid-park” for recreational fishing.</p> <p>3. Better enforcement of fisheries regulations and shared responsibility for protected area</p>	<p>possibilities for alternative income generation, focusing on well-managed dive sites, development of eco-tourism based on dugong spotting and sustainable tourism fishing.</p> <p><i>Activity 3.3.4</i> Increase community members’ ability to participate in tourism sector <i>Activity 5.3.6</i> Investigate alternative livelihood options during the monsoon season</p> <p><i>Activity 3.3.2</i> Local community plans to develop a squid fishing area to enable development of alternative incomes based on small-scale squid fishing and tourism fishing will be reviewed</p> <p><i>Activity 3.1.5</i> Implementation of co-management pilot project</p>		
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123. Given that 76 % Redang’s population and 80 % of the household heads on Sibu-Tinggi are dependent on the biodiversity of the islands to sustain their livelihood as fishermen, boatmen or tourism industry workers, the project interventions to enhance biodiversity conservation, reduce the impact of the tourism industry, lessen the detrimental effect of trawling and provide alternative livelihoods, will contribute to enhancing the socio-economic status of the local communities. In addition, activities aimed at providing alternative livelihood could also have the indirect result of reducing the local communities’ impact on the marine biodiversity at the project sites.

Output 3.1 Formulation of a co-management plan in conjunction with local communities and local governments

124. The first output under this component addresses the problem that local communities are not involved in the management of the marine parks. This is partly because the concept of co-management has not been widely implemented in Malaysia, in marine or terrestrial areas.

Activity 3.1.1 Review of best practices of co-management

125. Since the concept of co-management is relatively new in Malaysian MPs it is important to identify best practices in co-managing protected areas. Case studies and lessons learnt from other Marine Protected Areas around the world as well as consultations of their management staff and expert networks of development organizations will be undertaken under this activity.

Activity 3.1.2 Develop a co-management planning committee, which includes local stakeholders, local, state, and federal management agencies

126. To support the establishment of a functioning co-management programme, this activity will be setting-up a planning committee and will also provide the initial training of the concept and incentives of co-management. The representation of all stakeholders as well as relevant state agencies and local authorities in this committee is essential for the planning of a well-designed co-management plan and to enable a meaningful discourse between stakeholders on co-management issues. The committee will also monitor the effects of the co-management and will be equipped with the authority to adjust the co-management plan accordingly.

Activity 3.1.3 Develop a participation plan for local communities in terms of contributing to the protection of endangered species

127. Under this activity members of local communities will be given the opportunity to contribute to the protection of endangered species. This contribution will have multiple aspects - report on sightings of endangered species and the observation of breeding grounds are one example. Participation in the running of turtle hatcheries can be a focus activity for the local youth.

In this respect it will be part of the activity to create a channel for information on the status of the endangered species to the relevant institutions. The MPD will act as the information hub in this case.

Activity 3.1.4 Training of local government and local communities

128. The training will emphasise case studies of best practices in co-management and illustrate the advantages of co-management. Practical examples on how co-management was integrated into policies and development planning will be presented. Lessons will be drawn from the UNDP Malaysia TRAC supported Pilot Project on Local Agenda 21, which had done extensive work on how to create participatory mechanisms so that local authorities and communities could work together to create a vision for the local area, and a plan to achieve that vision. The outputs of this project included a training manual for local authorities, which would be a useful input to this GEF project.

Activity 3.1.5 Implementation of co-management pilot project

129. A pilot project will be initiated in collaboration with the co-management planning committee (see activity 3.1.2) and a local community at one of the project sites. Guidance and assistance will have to be provided as part of this activity in order to ensure a functioning implementation. From the mid-term of the project period, this activity will feed into the replication of the co-management plan to the other project sites. (see output 3.4)

130. This output will focus on the Sibutinggi group of islands in Johor where activities will specifically build upon the current DoFM and local community linkages to demonstrate community co-management in the marine park. Whilst these activities will have some relevance to the other Project areas, their value lies in providing examples of how these difficult issues can be tackled in under-developed MP elsewhere in Malaysia. In addition, mechanisms to involve “hard-to-reach” marine resource users from the commercial trawling industry will be implemented to alleviate illegal fishing pressure in marine park waters.

Output 3.2 Efficient and structured joint management of designated zones of the marine parks

131. This output will build on activities to develop management plans for the MPs in the project. This activity will involve developing and putting into place the necessary administrative and lower level institutional structures essential for co-management to function. This will support the physical aspects of co-management, which is the zoning of the designated zones.

Activity 3.2.1 Local island communities organized to manage designated zones for community fisheries and tourism

132. This activity was developed to ensure that there is an understanding of the co-management concept among local communities and that they are provided with adequate training to manage the designated zones. The training will be undertaken in collaboration with the co-management planning committee and will be initially focused on the local communities, which are targeted by Activity 3.1.5. Thereafter the scope of the training would be broadened to enable and support initiatives from local communities and Marine Park Units in the other marine parks to replicate the co-management pilot project.

Activity 3.2.2 Implement a “community ranger” programme to enable local communities to patrol and enforce the community fishing zones

133. This activity will be undertaken in close collaboration with the MPUs in order to foster the relations between Marine Park Units and the local communities and further to enhance the level of compliance with the marine park regulations. Functioning channels for reporting of violation as well as the ability among the MPUs to respond to the report are critical for the success of the community ranger program. These aspects are addressed under output 5.3

Activity 3.2.3: Develop and agree upon multi-jurisdictional zoning plans in the marine parks with allocation for community use

134. The co-management planning committee will be assisted in the negotiations leading to the successful agreement for specially designated zones in the MP. This would include the development of management plans to be incorporated in to the overall management plans of the MPs. The agreement is needed to enable the establishment of a zoning scheme critical to implementation of the co-management programme.

Activity 3.2.4 Facilitation of dialogues to air grievances and resolve conflicts relating to marine resource use in and around the marine park

135. One of the important functions of the co-management planning committees will be to facilitate dialogues with local communities during the process of planning for co-management. This will be critical in providing the local communities with an avenue for them, provide their inputs into the development of plans for the special zones as well as the MP management planning process as a whole.

Output 3.3 Generation of additional sources of incomes for the local communities

136. This output is essential to generate a sense of responsibility and co-ownership among the local communities by enabling them access to the benefits of protected areas and the participation in the tourism industry by micro-enterprises. This output is based on a three-pronged approach of providing opportunities for local communities to become involved in tourism activities, establishing a support infrastructure for local community-based businesses and providing financial support to such businesses through programmes such as the recently announced Micro Credit Scheme of the Economic Stimulus Package and through “vendor” programmes in cooperation with major resort operators.

Activity 3.3.1 Evaluation of possibilities for alternative income generation, focusing on well-managed dive sites, development of eco-tourism based on dugong spotting and sustainable tourism fishing

137. This activity is designed to identify new tourism activities as additional sources of income for the local communities based around their involvement in the co-management of endangered species and specially designated zone in the MPs. This will ensure the flow of financial benefits from tourism activities to local communities while encouraging their involvement in the management of these resources. This activity will also include identifying possible economic loss as a result of decline in biodiversity and tourism.

Activity 3.3.2 Local community plans to develop a squid fishing area to enable development of alternative incomes based on small-scale squid fishing and tourism fishing will be reviewed

138. The local community on Sib u and Tinggi has expressed interest in the establishment of a local community managed squid fishing area in the MP. The project will review this idea with a view to making it a pilot project of co-management of fisheries resources.

Activity 3.3.3 If found appropriate implement local community plans from activity 3.3.2.

Activity 3.3.4 Increase community members’ ability to participate in tourism sector

139. This activity seeks to increase local community participation in the tourism industry through hospitality, tour-guide and language training; technical training (e.g. diving and boat operation), and the development of small-scale enterprises such as homestays and shops. This activity broadens the scope of activity 3.3.1 to entire local communities. Furthermore hospitality, safety, environmental good-practice, and interpretation skills training could also be provided to members of boat operator cooperatives.

Activity 3.3.5 Investigate alternative livelihood options during the monsoon season

140. This activity seeks to explore, identify and promote alternatives among the local communities for the time when visitor numbers are low and the fishing is seldom possible due to the weather circumstances.

Activity 3.3.6 Establishment of a business support mechanism to help local communities sustain their micro-businesses and extend the possibilities of additional income generation beyond the implementation phase of the project

141. This activity will train local authorities to function as business support offices for basic assistance to the local communities' micro-businesses (e.g. basic legal issues, taxation, payment procedures etc.). This is to ensure the sustainability of the additional sources of income.

Activity 3.3.7: Investigate opportunities for local communities to access funds under the Micro Credit Scheme of the Economic Stimulus Package

142. Under the recently announced Economic Stimulus Package, the Government of Malaysia has established a Micro Credit Scheme to help in the establishment of small-scale businesses and to support the enhancement of existing small-scale enterprises. This project will investigate opportunities for local communities to access this scheme by providing information on criteria for application and eligibility for loan.

Output 3.4 Replication of appropriate co-management plans at other Malaysian MPs and local communities

143. This output is to ensure that the successful implementation of additional livelihood options as well as the zoning scheme and the co-management plan are evaluated and mechanism for their replication in other MPs in Malaysia will be established.

Activity 3.4.1 Feasibility study to replicate co-management plan and zoning-scheme at other MPs in Malaysia

144. Under this activity the pilot initiative of co-management in Sibutinggi (see activity 3.1.5) will be evaluated. Further studies will be undertaken to determine where and under what circumstances co-management of the marine parks by local communities is possible. Recommendations on sites and specific re-adjustments will be presented to the relevant agencies together with proposals for the establishment of a co-management planning committees.

Activity 3.4.2 Conduct inter-project study visits and exchange programmes for marine park staff and local communities

145. This activity aims at supporting marine park managers and representatives of local communities, who interested in the concept of co-management and take the initiative to replicate the co-management plan and zoning scheme. It also serves the purpose to raise awareness about the possibilities, incentives and impacts of co-management of protected areas.

Activity 3.4.3 Feasibility study to replicate additional livelihoods options at other MPs in Malaysia

146. The feasibility study will evaluate the activities under output 5.3. Recommendations for the replication to other local communities in MPs in Malaysia will be submitted to the village heads and local authorities. Thereafter assistance and guidance – if necessary – can be facilitated to support the development of participation mechanisms for local communities in the tourism industry.

OUTCOME 4: TOURISM OPERATORS INTEGRATED INTO PROTECTED AREA MANAGEMENT TO REDUCE THE DIRECT AND INDIRECT IMPACTS OF TOURISM ACTIVITIES ON BIODIVERSITY

147. Activities leading to the achievement of this outcome will deal with the impacts from tourism activities by the tourism businesses (indirect impacts) and the visitors (direct impacts). The aim is not merely in the improvement of the current situation but in the generation of competitive advantages and incentives for the tourism businesses to develop and continually pursue environmental conservation. It is envisaged to strengthen the link between marine park management and the tourism private sector. The goal is to develop a sense of responsibility and co-ownership among the tourism operators. Achieved outputs are to be replicated to the remaining project sites and introduced to the management of other Malaysian marine parks.

Output 4.1 Tourism operators (hotel, boat, and dive) in direct contact with the marine park and its resources have capacity and incentives to implement best practices to conserve the marine environment

148. The achievement of this output is important for an improved collaboration and exchange between tourism operators, which are based in the marine parks, and the management of the marine parks. Activities leading there include the generation of possibilities for the tourism industry to participate in the future development of the marine parks.

Activity 4.1.1 Develop a mechanism to ensure that local tourism operators play an active role in marine park management.

149. This activity will ensure that there is a formal mechanism for mutual contact and exchange between the tourism businesses and the MPU's management staff. The idea is to guide the Marine Park Units to initiate and explore exchange possibilities with the local tourism industry through simple instruments such as regular meetings, half-day site visits, collection and administration of contact information. Through mutual update on development plans of the marine parks as well as the individual tourism businesses it is the goal to achieve a climate of collaboration and shared responsibilities. This activity will be supported by the training of long-term MPU staff as liaison officer, who will be serve as a permanent link for collaboration and exchange between the islands tourism businesses and the marine park management.

Activity 4.1.2 Establish grassroots groups such as the Redang Environmentally-friendly Tourism Association (REFTA) in order to organize and support tourism operators to ensure their active participation in the decision making and planning process

150. In order to organize and foster the tourism operators' involvement in the decision-making this activity seeks the establishment of grassroots organizations. Where this development has taken place already (as in Redang) it is important to foster the role of those associations and their relations to the marine park-related agencies and institutions. Assistance in the foundation of the grassroots organizations as well as guidance for the organizational arrangements will be a part of this activity.

Activity 4.1.3. Tourism operators will be provided with opportunities to learn from other initiatives and other organizations and agencies

151. The tourism operators in the marine parks will be enabled under this activity to gain experience from international and national initiatives and programs such as from the International Eco-tourism Society (TIES) and the Tour Operators Initiative (TOI) as well as through study tours and training programs such as the various tourism training schemes from MoCAT. This activity is a combination of the promotion of these initiatives to the local tourism businesses as well as generating possibilities for their participation for example through rebates or funding.

Activity 4.1.4 Training programs for tour operators to improve the marine park 'visitor experience' of their clients and to lessen the impacts of their interaction with the ecosystem

152. This activity will consist of island based workshops in collaboration with the respective MPU officers at the three project sites and aims at improving the understanding among tourism operators and their employees how to add-value to the service they are offering by including interpretational aspects and "edu-tainment" and thereby adding value to their services at very little additional costs while at the same time enhancing the marine experience of their clients, contributing to their awareness raising and reducing their direct impacts (such as destructive snorkelling)

Activity 4.1.5 Incentives for cooperation between MP staff and tourism operators will be created through joint training exercises, building awareness of the importance of the MP for tourism

153. This activity complements many of the above but is not designed to create additional workshops, trainings and meetings but rather to feed the aspects of incentives for the collaboration between Marine Park Units and the tourism businesses into the workshops and trainings of the abovementioned activities. However the importance of this activity lies in the identification of incentives to support the marine park system and conserve biodiversity, which are to be "translated" appropriately and result in a visible effect and are achievable in a relatively short term.

Activity 4.1.6 Conduct a series of workshops for accommodation providers on green/environmentally friendly practices, linking strongly with the economic benefits associated with retrofitting. Workshops must be tailored to budget or high-end accommodation facilities

154. While the previous activity is focused on the entire marine park based tourism industry, this activity is aiming at the improvement of the accommodation sector in terms of environmentally friendly behaviour. But similar to the previous activity it is essential that the workshops be focused on clear, achievable benefits from retrofitting their businesses. Introduction and promotion of best practices from representative companies of the accommodation sector around the globe will play an important role here. This activity will also support the establishment of the directories and databases under output 1.4.

Activity 4.1.7 Conduct a series of workshops for boat operators, dive/snorkel operators on environmentally sound boating practices, diver briefings and interpretation programming

155. Here again best practices and their incentives will be promoted and introduced though this activity is catered towards the specific needs of the boat operators and the dive and snorkel operators. This activity unlike 4.1.6 does not have to be differentiated for the larger and smaller businesses.

Activity 4.1.8 Develop and implement a peer-review system for sustainable diving, snorkelling, boat operations

156. Complementing the workshops from activities 4.1.7 this activity is going to use peer representatives from the different tourism sectors (hotel, chalet, dive and boat operators) to demonstrate the benefits of the best practices and incentives introduced in the workshops. These peers will also be used for the promotion of replicating the successful activities under this project component (see 4.7.1)

Activity 4.1.9 Instruct operators on how to conduct self-audits to assess environmental performance, and implement individualized environmental management plans or strategies for larger resorts

157. The goal is to coach tourism operators on how to evaluate the level their businesses' environmental friendliness and to enable them to conclude necessary steps to take in terms of future development and change of behaviour. Further instructions will include aspects of long-term development planning for the improvement and management of environmentally friendly performance of tourism businesses. This activity will complement the information system created under Output 1.1, as the capacity of the tourism operators will be built to enable them to make better use of the tools made available through the database.

Output 4.2 Establishment, implementation and monitoring of a system of “rating schemes” associated with the different tourism sectors. These activities will complement and realise MoCAT's plans while feeding in best practices

158. In the last few years, rating schemes – especially on environmental friendliness of private sector companies - have become widespread and have proved to enhance competitive advantages of certified businesses and improve compliance with the certification criteria of the rating scheme. Rating schemes are complex since their development itself is multifaceted, and upon establishment rating criteria, certified companies have to be re-evaluated regularly. Furthermore such rating schemes have to be promoted extensively in order to reach the customer and result in a perception of the rating scheme as a proof of quality and environmental commitment.

The activities under this output have been designed to complement the plans that have been developed by MoCAT so far but which have yet to see their finalization and implementation. Improvement of these plans will be sought by identifying and promoting the adoption of best practices with regards to the rating schemes. Therefore all the following activities will be undertaken in close collaboration with MoCAT.

Activity 4.2.1 Establish certification criteria for resorts, based on eco-friendliness

159. It is necessary to identify a set of certification criteria on which the rating scheme will be based. Furthermore it is important that these criteria remain valid over a longer term and that they are achievable by the target group. The criteria should also be designed in a way that will foster the sustainability of the eco-friendliness of the resorts.

Activity 4.2.2 Establishment, implementation and monitoring of a system of rating-schemes associated with the different tourism sectors. These will include hotel and tour rating

160. This activity focuses on operating the rating schemes including their promotion to the prospected tourism businesses as well as the establishment of a monitoring and evaluation body which will be equipped with the responsibility of certifying businesses which achieve the rating criteria and re-evaluating the issued certifications regularly, ensuring the credibility of the rating schemes as well as their quality level.

Activity 4.2.3 Training of Tourism Malaysia staff to help the implementation of the rating schemes

161. In order to reach out to the end-client of the tourism businesses in the marine parks - international travellers and national vacationers - and to promote the rating schemes as a indicator of quality and environmental friendly performance it is important to train the staff of Malaysia’s destination marketing organization (Tourism Malaysia) on the backgrounds of the rating schemes and their value to the customer. This activity will be carried out in close collaboration with the communications professional to be hired under outcome 6 (Activity 6.3.4).

Activity 4.2.4 Promotion of the rating scheme, in conjunction with the operators

162. Also the certified operators have to be enabled to promote their achievements to their customers. This activity aims at the development of tourism operators' understanding of the value of being certified and the way they can use this for their advertisements. This activity will complement activity 1.1.3 on the web-based directory of eco-friendly resorts.

Activity 4.2.5 Identification of best practices for rating schemes, certification criteria in order to feed lessons learnt and best practices into MoCAT's plans

163. In collaboration with MoCAT this activity will identify best practices from other rating schemes and extract suitable practices for the Malaysian schemes. Furthermore steps are to be identified from the lessons learnt of other rating schemes what would have to be done in terms of re-adjustment of the criteria and expansion of the rating scheme.

Output 4.3 Reduction and elimination of sewage discharge from marine park islands

164. Discharge of untreated sewage - an indirect impact from tourism activities - is a major threat to the marine biodiversity in the near surrounding of the islands and the coral reefs. The possibilities for appropriate treatment of sewage depends to large extent on the size of the business. At the moment, only the larger resorts on these islands have sewage treatment facilities while the smaller resorts and villages employ the "kerek" system, which basically consists of culverts sunk into the ground. Therefore it is necessary to include ways of collaboration among the tourism operators in terms of financing, maintaining and using appropriate sewage treatment facilities. The national sewerage company, the Indah Water Konsortium (IWK) is proposing to spend USD 21 million to upgrade the sewerage system on the three project sites and to establish centralized sewerage treatment facilities at major settlements. These investments will probably be realised during the lifetime of the project. Additionally, MOCAT is now conducting a study to standardise basic infrastructure facilities on tourism islands, which would also include waste disposal and sewage treatment infrastructure.

Activity 4.3.1 Development, identification and installation of appropriate sewage treatment technology for marine park islands

165. Under this activity the project hopes to achieve an improved situation in sewage management. This activity will identify the various technologies of sewage treatment according to the needs of small, medium and large businesses as well as the conditions of the island. The identified and suitable treatment technology and their long-term value in reducing the deterioration of the marine biodiversity will be promoted to the tourism industry. It is expected that co-funding for this Activity can be obtained through the Special Loan Scheme of MoCAT that targets small and medium sized tourism industries, which wish to upgrade the quality of their operations.

Output 4.4 Proper disposal of solid wastes from marine park islands without solid waste disposal facility

166. Solid waste is another indirect threat from tourism activities on the marine biodiversity but similar to sewage it has an extremely direct effect on the habitats of many species. Therefore it is necessary to improve the situation by establishing a monitoring a system of solid waste handling. The activity under this output mainly focuses on the Sibutu-Tinggi Island and Redang because of the three islands, only Tioman has incinerators while garbage from Redang and Sibutu-Tinggi are transported to the mainland on barges. Even though there are still problems on Tioman regarding the solid waste handling, which will be addressed by the activities under output 2.3.

Activity 4.4.1 Pilot audit of solid waste transferred from islands to mainland

167. The identification of possible and suitable solutions for appropriate solid waste handling from the islands is the aim of this activity. The findings and recommendations will be shared with the relevant island development agencies and the respective State Departments of the Environment.

Output 4.5 Proper collection and disposal of oil and grease from kitchens and fishing vessels and reduced oil pollution in marine park waters

168. Oil and grease are extremely harmful to the sensitive marine biodiversity and contribute to the deterioration of marine water quality. Most oil and grease are discharged into the sea by the kitchens of the accommodation sector, representing another indirect impact from tourism activities.

Activity 4.5.1 Promote installation of oil and water separators in kitchens of chalets and placing of oil collection containers at fishing jetties

169. This activity will focus on the replication of the approach used at the Layang-Layang resort in Sabah, where simple water and oil separators were installed and a system of collecting and discharging the used grease and oils properly was established. Here again it is important to convince tourism businesses of the long-term effect in case of further untreated discharge of oil and grease. Again clear and achievable incentives translating into economic gain will have to be introduced.

Output 4.6 Empowerment of tourism operators in implementing park regulations

170. In order to enhance and sustain a sense of responsibility for the future development of the marine parks among the tourism operators it is important to involve them in the surveillance of the marine park regulations. Though this must go alongside with the development of channels of reporting and the ability of the Marine Park Units to respond to the reported breaches. The activity under this output will also contribute to the achievement of a higher level of compliance with the marine park regulations (Output 5.3)

Activity 4.6.1 Establishment of instruments for voluntary surveillance by tourism operators to report violation of marine park regulations

171. This activity will seek to develop channels for reporting on violations of marine park regulations. This activity will further draw from experiences of other marine protected areas around the globe where volunteer-ranger programs have been established.

Output 4.7 Successful replication of the involvement of the tourism sector to other Malaysian marine parks and recommendations to implement impact-reducing activities at other marine parks in Malaysia and thereafter dissemination of lessons learnt to regional and international marine protected areas

172. Under this output the activities and successful outputs under this project component are to replicated at the remaining project sites (if any), to the other Malaysian marine parks and thereafter recommendations and lessons learnt shall be disseminated to other marine protected areas' management, expert-networks and institutions.

Activity 4.7.1 Establish "Training of Trainers" and system of private sector peer spokes persons

173. In order to replicate the activities from the above outputs under this component, it is necessary to train facilitators for further workshops outside the scope of the project. In conjunction with an expanded network of spokespersons from the tourism businesses of the various sectors (see activity: 4.1.8) this will lead to a possibility for other Malaysian marine parks to replicate the successes of this component.

Activity 4.7.2 Evaluate efficiency and cost-effectiveness of measures implemented to green the businesses in the tourism sector

174. It will be an advantage for the further promotion of the impact reducing activities and installations as this activity will determine the efficiency and cost-effectiveness of the installations. This evaluation will demonstrate to what extent environmentally friendly technologies and practices can, besides improving the environmental performance of the businesses, also improve other aspects of the business as such the financial aspect.

Activity 4.7.3 Hold workshop for private sector representatives at other MPs in Malaysia on how to replicate the successes of the project sites in reducing tourism-based impacts

175. This again is an activity that should be facilitated by the trainers under activity 6.7.1. However lessons learnt from the workshops undertaken are to be incorporated in the further replication of the workshop concepts.

Activity 4.7.4 Adjust rating schemes after pilot implementation and evaluation and expand the schemes nationally

176. This activity will assist MoCAT in the evaluation of the pilot phase of the rating schemes proposed under output 4.2 and determine lessons learnt. Furthermore it will be a part of this activity to give support in the re-adjustment of the rating scheme and recommendations for the national launch.

Activity 4.7.5 Disseminate lessons learnt from tourism sector involvement and implementation of a rating scheme to other marine protected areas in the region and internationally

177. Finally the lessons learnt and recommendations for the replication of activities pursuing an improved involvement of the tourism sector in MPs and an enhanced sense of responsibility among them will be compiled. These will be disseminated to the management staff of the rest of Malaysian marine parks as well as international marine protected areas. Furthermore the information will be fed into expert teams of development organizations, other institutions dealing with marine protected areas.

Immediate Objective II: To strengthen the capacity of the marine parks management system in Peninsular Malaysia and to ensure effective enforcement of MP regulations at three project sites

178. The second immediate objective will strengthen the management of the MPUs on site-level as well as the Marine Park Division on a national level in managing, enforcing and enhancing the conservation of marine biodiversity around the marine park islands. The objective targets the reduction of threats, which are caused within the jurisdictional scope of the Marine Park Units.

OUTCOME 5: MPUS FOLLOW INTERNATIONAL STANDARDS OF PROTECTED AREA MANAGEMENT AND ACHIEVE EFFICIENT ENFORCEMENT AND PREVENTION OF VIOLATIONS

179. This outcome seeks to improve the management and operations of the MP management units so that they can respond efficiently to conservation needs while effectively enforcing marine park regulations.

Output 5.1: Capacity of MPU staff in marine park management, monitoring and enforcement of regulations is enhanced

180. This output will build on the recently approved strengthening of the MPU into a division within the DoFM. The project will assist in the reorganization of the MPU staff to ensure their most effective and efficient deployment. Capacity building activities will be identified to enhance the ability of the MPU staff in managing marine resources and enforcing MP regulations.

Activity 5.1.1 Identify capacity needs

181. An assessment will be carried out on the MPU's institutional and human capacity, in order to identify the gaps and hence capacity building needs for each of the three project sites. The capacity building needs could include training in "new" areas, for example, in community participation and community conflict resolution.

Activity 5.1.2 Provide training in areas where capacity building is needed.

182. The workshops will be demand driven and also determined by the results of activity 5.1.1. Where there are common needs, common workshops will be held for MPU staff from the three project sites, so as to encourage exchanges of information and experience among the staff. Given the emphasis on participatory and multi-stakeholder planning, there will be courses to guide MPU staff through participatory techniques and local community outreach.

Output 5.2 Development and implementation of a marine park management plan for the three sites taking into consideration ICZM practices and approaches

Activity 5.2.1 Revise the Redang MP Management Plan

183. Further building upon the relationships developed between MP managers and the local community at Redang the existing Redang MP Management Plan will be revised. This will include inputs from local stakeholders and the project will facilitate the necessary meetings, workshops and consultations to achieve consensus on the various issues. Support will be provided to ensure that adequate zoning of the Redang MP takes place to enable stricter control over resource use (limiting access to fragile reefs, turtle landing beaches, providing recreational fishing areas and fish feeding zones, implementing "no go" zones and research areas, etc)

Activity 5.2.2 Develop marine park management plans and standard operating procedures for all three islands

184. The project will take advantage of the experience of Redang to develop management plans for the project islands. The management plans should also take into account targeted threatened species, and the plans should also determine the zonation for sanctuaries (protection zone, buffer zone, activity zone, research zone). If there is a need, the management plan should recommend the establishment of sanctuaries for dugong and turtles.

185. On Sibu and Tinggi integrated management of the terrestrial and marine component of the marine parks will be demonstrated through the preparation of an integrated management plan and operational procedures to guide the day-to-day management of the parks. (note: in Sibu and Tinggi, the terrestrial component is also gazetted as a protected area). On Tioman a Tioman MP management plan will be developed in parallel to the revision of the Tioman master plan.

Activity 5.2.3 Review and implement the standard operating procedures for MPU

186. This activity would also include reviewing the standard monitoring procedures on biophysical-mechanical monitoring for management, identifying performance indicators. The reviewed standard operating procedures (SOP) would be made available to all MPU staff, which would also receive refresher courses to keep themselves up to date on the SOP.

Output 5.3 Improve level of compliance with marine park regulations

Activity 5.3.1 Enhance patrolling effectiveness of enforcement units

187. This activity will be carried out in partnership with the enforcement unit of DoFM, together with the Marine police and the Malaysian Maritime Enforcement Agency. These agencies plan to increase the frequency of their monitoring activities, in order to reduce the incidents of encroachment by trawlers in the marine park waters. The project can support capacity building for the staff of those agencies.

Activity 5.3.2 Create partnerships with the private sector (fishing cooperatives)

188. This activity will build on the positive on-going dialogue with the Johor commercial fisheries cooperative, which is committed to solve illegal fishing issues in the marine park waters. The activity will also address the development of more outreach and consultation mechanisms to continue to engage the Johor commercial fisheries cooperative. This will also require strengthening the capacity of State Fisheries extension officers.

189. Under this activity, the project will also investigate options for collaborative development and implementation of mechanisms to involve commercial fisheries representatives in marine park management and generation of incentives to encourage application of the laws.

Output 5.4: Improved management and protection of endangered species

Activity 5.4.1 Management plan of targeted species based on ecosystem approach established and implemented

190. This activity will feed aspects necessary for the continued protection of endangered species in the 3 project sites (esp. Dugongs in Sibutinggi and Turtles in Redang) into the management planning and thus ensure an enhanced efficiency in the protection effort as well as an improved scientific monitoring of the abundance and population of the endangered species.

Activity 5.4.2 Determine the zonation for sanctuaries (protection zone, buffer zone, activity zone, research zone).

191. This activity will facilitate a collaboration among researchers, local experts on endangered species, the MPUs and the local authorities to agree upon a zonation scheme for the enhanced protection of the endangered species.

Activity 5.4.3:Dugong and turtle sanctuaries established.

192. Sanctuaries with a major focus on Dugongs are to be established in Sibutinggi and in Redang for turtles.

Output 5.5: Replication: Capacity built among Malaysian marine park managers to implement the management concept to other Malaysian marine parks. Distribution of information on lessons learnt relevant to UNDP and GEF agencies, individuals, projects and programs

Activity 5.5.1: Design of tools and manuals to replicate the management concept at other MPs in Malaysia

193. This, in combination with activity 5.5.4 and 5.5.2 will enable the replication of the achieved outcome 5.0, which will be driven by the already trained marine park managers and supported by the Marine Park Division thus adding to sustainability of the project, national relevance and enhancing the effect of the conservation of globally significant biodiversity.

Activity 5.5.2: Hold a series of Workshops on the management concept for other MPs managers with already trained managers from the project sites as peers

Activity 5.5.3: Evaluate and report to relevant UNDP and GEF agencies, individuals, projects, programs and expert-networks about the management concept and lessons learnt

194. In order to share the challenges and chances experienced during the implementation of the activities leading to outcome 5.0 this activity seeks to channel back this information into the global protected area management community and development organizations.

Activity 5.5.4: Cross project-site learning visits for marine park managers

195. To encourage exchange of information and experiences and to promote cross-fertilization of ideas on various aspects of MP management, an exchange programme between the three project sites will be organized. The programme will include cross-project learning visits involving all stakeholders as well MP management staff.

Output 5.6. Improvement in the efficiency in the collection of the Conservation Charge

Activity 5.6.1 Study the different modalities for decentralising the collection of the CC and incorporation into management plans.

196. The review will include an examination of existing mechanisms to identify weaknesses in the approach used to collect the CC and recommend a cost-effective mechanism for decentralizing the CC collection. Besides using resources efficiently (especially MPU staff), a decentralized collection modality would also give other stakeholders such as dive operators, tour operators a stake in the collection of the CC. The possible improvements for the collection of the CC will then be incorporated into the management plans of the marine parks and the daily operating procedures (Output 5.2)

Immediate Objective III: To enable an influential advocacy framework for the conservation of marine biodiversity supported by a raised level of awareness of the importance and benefits of marine biodiversity conservation

197. The third immediate objective will be achieved by a combination of two outcomes aiming at an enhanced level of awareness among selected target groups and an improved advocacy for the protection of marine biodiversity on a national level, involving high-level decision making bodies and authorities. This objective will be supportive to the achievement of Objective I and II since it targets the broad underlying root cause of a low level of awareness on the values of marine biodiversity that is prevalent among many stakeholders as it was identified in the threat analysis. The strengthened advocacy will further support the intention of Objective I and II to remove the barriers that have up to today hindered a multi-sector development planning process and will foster collaboration among agencies beyond the split between state and federal jurisdiction.

OUTCOME 6: RAISED AWARENESS OF THE IMPORTANCE OF BIODIVERSITY CONSERVATION AND MARINE PARK SYSTEM IN MALAYSIA AMONG SELECTED TARGET GROUPS

198. One of the principal challenges faced by the marine park management; especially on islands where the tourism sector is rapidly growing is the lack of awareness on the importance of the biodiversity in the marine park. This lack of awareness does not only apply to the tourists, but also to the different levels of marine park and tourism management and among various user groups and local communities. The problem has contributed significantly to the decline of biodiversity in marine parks as a result of development and visitor impact and has persisted despite continuous awareness building campaigns and programmes conducted by the MPU and NGOs such as WWF-M. The project will address the problem through the development of a comprehensive awareness building programmes targeted at policy makers, managers, tourism operators, researchers and visitors.

Output 6.1 Enhanced awareness of the marine park system, its regulations and biodiversity conservation efforts among local communities

199. Local communities in some of the islands feel marginalized from the benefits that they see flowing to the tourism industry in the marine park areas. This feeling is compounded by the fact that they feel constrained by the marine park regulations and that their livelihoods are being threatened by the strict marine park regulations. The activities proposed under this output are intended to address the information gap among the local communities while at the same time developing the capacity of the local community to undertake co-management activities proposed for them under outcome 3.0 of the project

Activity 6.1.1 Building awareness and capacity of local youth in ecotourism

200. Through this activity it is hoped that firstly, the local youth will learn more about and appreciate their natural heritage, and the irreversible impact of unsustainable practices on marine biodiversity. Secondly, the activity would also include awareness building of the economic opportunities that exist in ecotourism activities. Training seminars would be carried out to build capacity among local youth so that they will be able to take part in the tourism activities on the island. This activity could be carried out through the youth clubs of the local schools on the islands, where there is a secondary school.

Activity 6.1.2 Organize campaign/dialogue with fishermen associations and local communities

201. This will be one of the approaches employed by the project to try to improve the communication channels between the local communities and the MP management. This would increase the confidence and conviction of the local communities with regards to the MP management and serve as a platform for the communities to voice their opinions on the issues related to park management. This activity will be carried out together with the local community leaders and the Village Development and Security Committees (JKKK). This activity will be carried out in close collaboration with the activities in outcome 3.0.

Output 6.2 Increased awareness of decision makers and mid-level managers on the use of economic instruments for conservation efforts

202. This output will target the decision makers at both state and federal levels, as well as the managers and officers in the local councils and municipalities in the project sites. It is important to address what appears to be a misconception on the potential of economic instruments in addressing conservation and sustainable use of marine biodiversity.

Activity 6.2.1: Organize a series of seminars to disseminate information and raise awareness about the concept behind and application of economic instruments in fund raising and in changing visitor behaviour in marine parks.

203. There is a misconception that the primary purpose of economic instruments is for increasing public revenue. However, this perspective excludes the other argument in favour of economic instruments, which are aimed to change the behaviour of consumers and producers, or in general, users of the protected areas. Besides that, economic instruments are also a way in which awareness can be raised, so that users are conscious that they are in a protected area, and therefore that there are regulations that need to be respected in these areas.

204. Therefore a series of information seminars on this topic will be held. Park management agencies in Malaysia (such as Johor National Parks Corporation and Sabah Parks) and from the region which have successfully implemented economic instruments such as diversified user fees, or visitor taxes in their protected areas would be the main speakers for the seminars, so that they can share their experiences and demonstrate the impact stemming from the use of economic instruments.

Activity 6.2.2: Organize study tours for state and federal level officers to protected areas where economic instruments are being applied for conservation purposes.

205. In order to complement the information seminars as briefly described in the previous activity and to reinforce the concept of the use of economic instruments, state level officers will be selected to go on study tours to protected areas – both marine and terrestrial.

Output 6.3 Development and implementation of a comprehensive environmental education and outreach program targeting those having the greatest impact on marine biodiversity.

206. There are two principal target groups – the tourism operators and the tourists. The main objectives of the activities proposed under this output is the reduction of visitor impact on marine biodiversity through the development and dissemination of awareness materials. Activities under this output will also build capacity of tourism operators so that they can play a role in educating and increasing the awareness of tourists.

Activity 6.3.1 Strengthen application of existing “code-of-conducts” using new materials such as posters, pamphlets and brochures and new approaches which encourages positive visitor compliance with marine park regulations

207. Through this activity the project will reinforce the values of marine protected areas and of marine biodiversity, so that visitors to the MPs appreciate why there are restrictions on activities in these areas. The current approach many tourist operators take when explaining the restrictions on activities in MPs to their visitors is mainly in negative terms, coupled with the threat of fines imposed by the marine park management. Therefore the majority of the visitors view the park management solely as ‘policing’ forces and park regulations as an unnecessary hindrance and which runs counter to their visitor experience on the island. Under this activity, the project will produce material that can be used directly by the tourists and also by the tourism operators, to correct the negative misconception of MP regulations and management.

Activity 6.3.2: Publish regular/periodic newsletter for the tourism industry and other stakeholders.

208. This activity addresses gaps of information, among tourism operators over the use and distribution of the Conservation Charge (CC), which is being collected from their guests/clients. The lack of information on the application of the CC has caused some scepticism among tourism operators about the usefulness of the CC, which sometimes result in the tourists not being properly informed of the rationale behind and use of the CC. The newsletter could inform tourism operators of the disbursement of the funds collected under the CC, and how it has translated into concrete action on the ground. This will reinforce the transparency of the way in which the CC is being collected and used.

209. Through the newsletter, the MPD can publicise a checklist of essential points about the CC that tourism operators can incorporate into promotional literature, web sites and press releases. This will ensure that a consistent and accurate message about the CC is presented to tourists. This could be done based on the current 'frequently asked questions' on the CC, which was produced by the MPU but hardly disseminated, to the tourists. Furthermore, the newsletter can be used as a way to exchange information and to replicate the activities on one island to the other project islands, and on the national level, to the other Malaysian MPs.

Activity 6.3.3 Organise and conduct study tours for selected tourism operators

210. This activity will involve selected tourism operators who have shown a commitment to contributing to the marine park management, especially in raising awareness on marine biodiversity among their business partners and their guests. The study tours would focus on best management practices in other MPAs in the region. It is expected that follow up activities be carried out with and by the participants of the study tours, for example, in disseminating lessons learnt to other tourism operators and in implementing those lessons learnt where applicable in their own business and visitor management operations.

Activity 6.3.4 Employ a full time communications manager to increase the awareness of the importance of marine conservation

211. Because of the ad-hoc nature in which awareness programmes are being carried out in Malaysia's MPs at the moment, there is a pressing need to bring about a high level of coordination into the development and dissemination and awareness materials being proposed under this project and in the future. This could be addressed partly by the appointment of a full time communications professional, at least at the national level to be responsible for the following:

- Development of appropriate interpretation materials to target tourism operators
- Development of a Marine Parks and Reserve Trust Fund logo/brand (in harmony with MPU logo) that is easily identifiable by visitors and locals and combine with adequate signage to indicate what projects have been funded by the MPRTF.
- Liaison with the media (including electronic) and producing segments for airing on TV/ radio.
- Preparation of regular updates for both operators and tourists on the status of tourism attractions.
- Creation of linkages with promotion/marketing channels (i.e. destination marketing organizations (DMOs) such as local tourism centres and Tourism Malaysia; the Internet; travel book and magazine publishers) to manage image and information distribution regarding tourism experiences at park, Conservation Charge, etc.
- Development of an education campaign that targets external audience / potential visitors focused on travel books, magazines, and travel web sites.
- Production of press kits, including an on-line database with pictures and other information.
- Revision and upgrading of the marine education kit for schools, looking at best practice, e.g. Reef Ed from the Great Barrier Reef
- Formulation of an overall communications and awareness strategy for all the MPs in Malaysia

Activity 6.3.5 Establish volunteer programmes for monitoring coral reefs

212. This activity will be carried out in conjunction with Activity 1.3.1. The volunteer programme will include both international and local volunteers. A good example of volunteer programmes which this project can draw lessons from is the Sea Turtle Research Unit (SEATRU) volunteer research programme on Redang Island, where volunteers monitor the stretch of beach where the green turtles lay their eggs. Besides contributing towards the constant monitoring of the state of the coral reefs, the volunteer programmes will contribute towards raising awareness about the importance of coral reefs and marine biodiversity

Activity 6.3.6: Develop education campaign that targets external audience / potential visitors focused on travel books, magazines, web sites, press agencies, etc.

213. This education campaign will build upon other campaign that have helped to increase the public advocacy for marine biodiversity conservation in other marine protected areas of the world, such as in Australian Great Barrier Reef. Available and positively evaluated education campaigns will be the base for this activity.

Activity 6.3.7: Revise and upgrade marine education kit for schools, looking at best practice, e.g. Reef Ed from the Great Barrier Reef

214. Similar to activity 6.3.6 this activity will be based on successful integration of marine biodiversity aspects into school curricula in other countries.

Output 6.4 Expansion of the outreach and education campaigns to other marine parks in Malaysia

Activity 6.4.1 Documenting and disseminating the lessons learnt from the project sites

215. The experiences from the development and implementation of the outreach and education activities in the selected project sites will be documented and analysed to compare the experiences from one project site to another, evaluate the relative success of the awareness raising strategies and determine the factors that influence the effectiveness and the impact of the awareness activities. This information will be disseminated to the other MPUs in Malaysia to promote replication and to better spread the benefits from the project to other MPUs.

Activity 6.4.2 Capacity building for the decentralization of the communications activities

216. Part of the responsibilities of the national-level communications manager (see Activity 6.3.4) would be to draw up a national communications and awareness raising strategy. Under Output 7.2, there will be capacity building activities at state levels as well as at the MPU field office levels so that the officers are capable of carrying out some of the communications activities in the awareness raising strategy. The training would have to be presented in such a way that the state and field officers have the capacity to develop site-specific communications, outreach and awareness strategies while being consistent with the corporate priorities and messages in the national communications and awareness strategy.

217. A summary table of the awareness raising component and its replicability among target groups and other MPUs in Malaysia is provided below.

Outcome 6: Raised awareness of the importance of biodiversity conservation and marine park system in Malaysia among selected target groups						
	National	State	Redang	Tioman	Sibu-Tinggi	Replicability
6.1 Enhanced awareness among local communities			X	X	X	N
6.2 Increased awareness among decision makers and managers	X	X				N
6.3 Development of national level outreach and awareness programme	X	X	X	X	X	I
6.4 Expansion of outreach and awareness programme	X					I?

OUTCOME 7: FRAMEWORK FOR STRONG ADVOCACY FROM STAKEHOLDERS FOR THE CONSERVATION IN THE MARINE PARKS OF MALAYSIA

Output 7.1 Increased involvement of the National Advisory Council for Marine Parks and Reserves (NACMPR) in governmental decision-making with reference to the marine park areas and island development

218. One of the most pressing institutional problems in MP management in Malaysia is the ambiguity of the position and role of the NACMPR within the overall decision-making structure at the federal level. While the NACMPR has the potential to make an impact in national level committees such as the CCHI, the NACMPR has so far been left outside of this decision-making circle. For the NACMPR to realise this potential and to have a more meaningful role in the decision-making process vis-à-vis development on MP islands in Malaysia, a set of activities is proposed under this project to clarify the role and function of the NACMPR and to build the capacity of NACMPR members.

Activity 7.1.1 Clarify and strengthen the mandate of the National Advisory Council for Marine Parks and Reserves (NACMPR)

219. Firstly, the role of the NACMPR will need to be clarified. The mandate of the NACMPR should ideally not just be limited to decisions on the marine park waters. It should also be able to review other sectoral policies that have an impact on marine parks. In addition, the newly formed Cabinet Committee on Highlands and Islands (CCHI) provides an opportunity for the NACMPR to play an active technical advisory role to both the CCHI and the State Executive Committees (Excocs). The linkages between the CCHI and NACMPR must be made clear and regular meetings of the NACMPR and CCHI should be facilitated. A study on the possibilities to expand the responsibility and say of the NACMPR will be undertaken under this activity with recommendations on how to institutionalise these aspects into the NACMPR.

Activity 7.1.2 Build capacity of NACMPR members

220. There will be opportunities for council and board members to study multi-sectoral planning mechanisms for marine parks in other countries will also be provided. Periodic talks will be held, perhaps held back-to-back with the council meetings to disseminate information to council members about successful case studies of multi-sectoral planning and policy-making mechanisms.

Output 7.2: Increased advocacy from the general public the media & international audience of the conservation of biodiversity in Malaysian marine parks

Activity 7.2.1: Increase linkages with tourism promotion/marketing channels

221. In order to manage the appropriate image of the marine park as a tourism destination and the information distribution regarding tourism experiences at park, Conservation Charge, etc. this activity seeks the collaboration with national and international marketing channels such as destination marketing organizations (local tourism centres and Tourism Malaysia); the Internet; travel book and magazine publishers.

Activity 7.2.2: Involvement of national media through a media workshop and production of press kits, including an on-line database with pictures and other information.

222. For sustained national interest in marine biodiversity issues, it is important to involve the media and establish a consistent stream of information into the general public, which will be sought by this activity. Capacity will be built within the Marine Park Division for the continued update and maintenance of the online database beyond the implementation phase of the project.

Activity 7.2.3 Establish a fund, which can be accessed by NGOs and other organisations for awareness raising efforts

223. This activity will establish a small Fund of USD 15,000 in order to support NGOs and other organisations, universities or associations in their awareness raising efforts. Thereby the national advocacy for the conservation of marine biodiversity in Malaysia will be strengthened further. However there will be an approval process in order to ensure that the proposed awareness raising activity is relevant to the marine parks of Malaysia and reaches out to a significant target group.

Output 7.3: Implement marine park watchdog (Quality control)

224. This output seeks the establishment of a watchdog organization focussed on progress in marine conservation by involvement in positive dialogues and by advocating for the values of marine biodiversity. It will serve as a platform for individuals and institutions such as environmental NGOs with a strong interest in the conservation of marine biodiversity.

Activity 7.3.1: Establish watchdog organisation with representatives from all stakeholder groups

225. For the concept of a positive and constructive dialogue and advocacy it is important that all stakeholders are represented in the organisation. The activity will establish the organisation with support from interested individuals and focus on the integration of all stakeholders.

Activity 7.3.2: Build capacity among watchdog members in running a dialogue-focussed watchdog

226. This activity will facilitate training on the operation and management of a constructive watchdog organisation among the members of the watchdog.

Activity 7.3.3: Create channels for exchange between watchdog with other stakeholders such as regular forums

227. As an important factor for the constructive input into the development planning process this activity aims at establishing mechanisms for a regular and mutually beneficial exchange process between the watchdog and the Marine Park Units, the Marine Park Division, local, state and federal institutions and especially the NACMPR.

Activity 7.3.4: Design and implement Excellence Award for “green” tourism operators in the marine parks.

228. This activity will assist the watchdog organisation in the implementation of a national excellence award for exemplary contributions to the conservation of marine biodiversity in Malaysia by the private sector.

RISKS AND SUSTAINABILITY

229. There are a number of foreseeable risks to the project stemming from both the environmental and institutional components of the project. From an environmental standpoint, the project sites are susceptible to coral damage from events such as crown of thorn (COT) infestations and any repeat of the El-Nino phenomenon, which saw coral bleaching at all three project sites. There are regular expeditions or activities to collect COT from the waters in the three project areas and this could be used to illustrate cooperation among various stakeholders including visitors to the park and to disseminate information about the project. Coral bleaching as a result of El Nino or “El-Nino-like” occurrences are impossible to prevent although close monitoring of the coral may be implemented to identify damage and observe the recovery of these areas.

230. From an institutional standpoint, there are risks associated with the lack of experience among the staff of the MPU, JNPC and the TDA in integrated management of protected areas, both from an overall policy point of view as well as in the day-to-day management of the sites. It is envisaged that the training to be provided during the course of the project and the preparation of documents such as park management plans and the revised Tioman master plan will assist in alleviating the problem. In addition, awareness building among policy makers and senior planners at state and federal levels would also contribute to minimizing the risks associated with the lack of institutional and individual experience in integrated protected area management.

231. Given the importance of stakeholder involvement in the project, any risks resulting from non-cooperation of stakeholders in the activities of the project need to be given serious attention. The project benefited from good stakeholder participation during the consultation process and this should be used as a foundation for further stakeholder participation during the life of the project. In the interim it is important to keep the stakeholders abreast on issues in the implementation of the project lest they suffer from “consultation-fatigue”. A project newsletter has been distributed to principal stakeholders and could be translated into Bahasa Malaysia for distribution to local communities at the project areas. In addition, it is envisaged that the project will be working with existing local community groupings such as the REFTA and Fishermen Associations in the project study areas.

232. The sustainability of the project rests on the continued availability of trained human resource to carry out identified activities and to a lesser extent on the provision of adequate financial resources for implementing activities beyond the life of the project. The project proposes to provide training to key individuals in government agencies as well as among the stakeholders. It is important then to ensure that these individuals remain in their current organization or division at least during the course of the project to ensure continuity. This maybe less of a problem with the JNPC and the TDA as these are corporatised bodies with their own staff-establishment but the MPD may encounter problems with staff transfer. However, the recent upgrading of the MPD to a division of the DoFM may lessen the problem as there are now greater opportunities for promotion within the division.

233. Financially, the activities beyond the life of the project will have to depend a number of sources:

- The Conservation Charge currently imposed on visitors to the marine parks by the MPU. The USD 1.50 (for adults) charge is used to finance various activities in the marine parks such as awareness building programmes, hiring of contract staff and limited infrastructure activities. While the charge, held in the Marine Parks and Reserves Trust Fund, is considered to be adequate to fund the activities in the park, the USD 1.50 charge is considered to be too low. There was a proposal to have a two-tier Conservation Charge system for locals and foreigners but the proposal was objected to by MOCAT. It is important to revisit this idea considering that a similar system is already in operation in areas under JNPC jurisdiction and in the parks in Sabah. The possibilities of introducing innovative financial instruments was studied in great detail by a project funded by DANIDA and supported by EPU on Tioman. The implementation of the outcome of the study will be of great interest to this project.
- Annual budgets of the respective participating organizations, specifically the MPU. In order to ensure that annual allocations are made for the continuation of the project in the long term, project activities will be incorporated into the annual operational budget of the respective agencies. This will supplement other sources of income such as the Conservation Charge.
- In the past the corporate sector in Malaysia has been very interested in funding marine conservation activities. While this interest has somewhat diminished, specific project activities such as awareness building and production of interpretation materials could be used to regenerate interest among the private sector.

STAKEHOLDER PARTICIPATION AND IMPLEMENTATION ARRANGEMENTS

234. Stakeholder involvement is crucial for the success of the project. There are several level of stakeholder participation envisages for the project. Primary among these is the involvement of local communities in the management of the marine parks and specific areas zoned for local community us. In addition close cooperation from the local communities is needed in demonstrating alternative livelihood opportunities for local communities. Besides communities residing on the islands, the fishing communities that affect the biodiversity of these marine parks will also need to be engaged to minimize their impact. The involvement of these stakeholders will be undertaken via a joint management committee on Sibu Tinggi and continuous training and capacity building programme conducted to enhance the ability of local communities to provide inputs into and undertake management activities. The intervention needed to bring into the project commercial fishermen will initially involve dialogues with commercial fishermen and eventually incorporating the views of the commercial fishermen into marine park management committees.

235. The other important group of stakeholders on the islands are the tourism operators. The involvement of these operators is essential to the success of the rating schemes proposed in this project. The involvement of the tourism operators will be realized through their involvement in the TSC and in the improved communications between tourism operators and marine park management staff envisaged under this project.

236. Secondly, the involvement of institutional stakeholders at federal, state and local government levels will be facilitated through a capacity building programme aimed at promoting integrated planning and management in marine parks and in developing mechanisms for horizontal integration of marine park management such as the establishment of the Tioman Stewardship Council.

237. The third level of stakeholder involvement involves providing opportunities for the NACMPR to present its views in the national level planning process. This would require an improvement of the NACMPR profile and the establishment of a mechanism for the NACMPR to provide inputs to the CCHI and State Excos.⁸⁸ A summary of proposed stakeholder involvement plan is provided in Table 4.

Table 4. Summary of Stakeholder Involvement Plan

Stakeholder Category	Involvement Plan	Project Activity
Local communities	Training and capacity building Involvement in joint management committees (Sibu Tinggi and Redang); Membership in Tioman Stewardship Council	3.1.2 2.3.1
Commercial fishermen	Dialogues Long term involvement in park management	3.2.4, 3.3.5 5.3.2
Tourism operators	Membership in Redang and Sibu Tinggi management committees; Membership in Tioman stewardship Council; Improved communications with park management staff	3.1.2, 2.1.1 1.1.4 2.3.1
Institutional stakeholders	Capacity building Membership in Tioman Stewardship Council	2.3.1
NACMPR	Improve profile; Direct inputs into CCHI and Exco; Capacity building for Exco	7.1.1 7.1.2

Project execution and implementation arrangements

It is proposed that the Ministry of Agriculture would have the overall responsibility for the execution of the project, and should be named the “executing agency” of the project. The Department of Fisheries Malaysia would be the Implementing Agency.

The executing agency shall name a senior officer to assume the role of National Project Director. The NPD should be an employee of the executing agency or implementing agency and is appointed before project activities commence. The NPD is accountable to Government and UNDP for the implementation of the project in line with the signed project document. He/she is the approving officer for the project. The NPD is the focal point for responsibility and accountability in the National Execution Agency. The NPD will be appointed at Director or higher level in the NEA. The NPD works on the project on a part time basis and should be able to devote a reasonable amount of time to project activities.

It is proposed that the Deputy Director (Development) of the Department of Fisheries be appointed as the NPD.

Project Management Unit

A Project Management Unit (PMU) will be established at the implementing agency. The PMU will be headed by a Chief Technical Advisor and a Project Officer (government counterpart funding) with a complement of secretarial and support staff. In addition, given the spread of the project, smaller liaison project offices may be established at the three project areas.

Chief Technical Advisor

The CTA is responsible for the operational management of the project. The CTA handles the day to day business of the project. For this reason the manager must be full time on the project and not have other responsibilities if appointed from within the NEA.

Monitoring and advisory arrangements

National Steering Committee

The PMU will be responsible to the National Steering Committee (NSC). The NSC will be established to provide the overall guidance to the implementation of the project. It is proposed that the NSC be chaired by the Executing Agency, which has the authority to bring the discussion to a policy level, and provide the linkage with the Senior Officials Task Force (SOTF) on Islands.

Project Review Committee

Regular monitoring of the project's activities will be carried out by a working-level Project Review Committee (PRC). The PRC meets on a monthly or bi-monthly basis and will be chaired by the National Project Director.

The PRC will closely monitor the project staff and consultants in the implementation of the Project's activities and ensure that related activities remain directed towards the project's goal and objectives;

Other suggested monitoring modalities

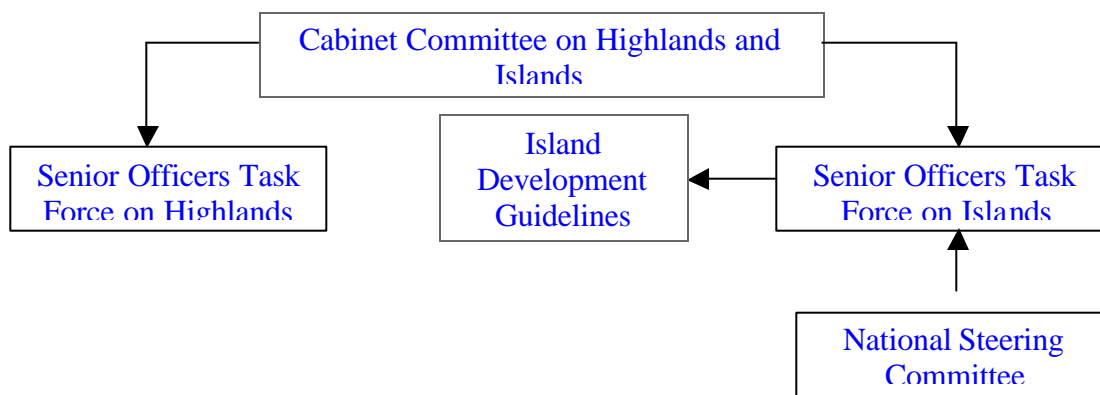
While the NSC will be responsible for the overall monitoring of the implementation of the project, it is suggested that a second tier monitoring mechanism be established at the project-site level to monitor activities intended for implementation at "island-level" as opposed to "national level" activities (see Implementation Matrix). This body could be established as part of the NACMPR set-up, as this advisory council consists of representatives of State UPENs as well as State MP offices. Besides providing island-level monitoring, the body would also provide opportunities for providing awareness training to State UPEN officers while facilitating information exchange.

National Policy Linkages

The project will be able to channel upstream policy inputs through the NSC to the Cabinet Committee on Highlands and Islands (CCHI) set-up, more specifically, under the purview of the Senior Officials Task Force (SOTF) on Islands which is one of the two task forces under the CCHI (see flow diagram). The SOTF is currently in the process of preparing a set of guidelines for development on islands to complement the guidelines already developed for the highlands.

Therefore the channel of communication between the NSC and the SOTF would provide this project with a more direct access to the SOTF and the CCHI and more importantly into the development of the national guidelines itself.

The diagram shows the possible linkage with the CCHI.



INCREMENTAL COSTS AND PROJECT FINANCING

251. The cost of baseline activities is approximately **US\$ 1,295,924** for the full five-year project period. The incremental cost of the new activities required by the alternative strategy is **US\$ 3,919,284** (excluding GEF's project development and support costs). Of this amount, GEF is requested to contribute **US\$ 1,952,400** for activities that will provide global environmental benefits. Co-financing comprises **US\$ 1,012,229** – Government of Malaysia (cash); **US\$ 225,000** (in kind), and private sector **US\$ 729,655** in cash.

Co-financing Sources				
Name of Co-financier (source)	Classification	Type	Amount (US\$)	Status
Govt of Malaysia	Government	Cash	1,012,229	Confirmed (letter of support included)
Govt of Malaysia	Government	In-kind	225,000	Confirmed
Private sector	Private sector	Cash	729,655	Partly confirmed. Expression of interest received.
Sub-Total Co-financing				1,966,884

252. Significant co-financing will be contributed by the Government of Malaysia, which has in many ways been supportive to the project over the design period. The Government of Malaysia has undertaken further action revealing a strong commitment towards the achievement of the project's objectives, such as the plan to raise the level of responsibility for the approval of Environmental Impact Assessments for constructions on islands from state to federal departments of Environment. The Government commitment ensures that the project's activities find a fertile ground to grow on and will sustain the successes of the project over the period of its implementation.

253. The Tioman Development Authority has expressed their interest in collaborating on development planning issues such as the reviewing of the Tioman master plan regarding ecological impacts of current plans and will also contribute to the financing of the project.

254. The Intensification of Research in Priority Areas (IRPA) grants program, which is handled by the Ministry of Science, Technology and Environment (MoSTE) will financially support activities under the project, that aim at improving the scientific basis for an improved management of the marine parks. Further mechanisms will be established to share the results of research in order to enable the management to adapt to topical issues.

255. The private sector in Malaysia has in the past been active in funding conservation activities in the marine parks such as the production of the Marine Education Kit. The contribution has been diminished somewhat as a result of the economic crisis. This project will work to identify opportunities for long-term strategic partnerships between the private sector, the National Marine Parks Advisory Council, Marine Park Units, the Ministry of Culture, Arts and Tourism and the State governments for the collaborative conservation of biodiversity in marine parks.

256. Beyond that, the project will enhance the effect of the micro-credit scheme under Malaysia's Economic Stimulus Package that is being implemented by Bank Pertanian Malaysia. The micro credit scheme will provide RM500 million to finance small-scale entrepreneurs. It targets to provide individuals, sole proprietors, partnerships and groups whether incorporated or unincorporated with loans of RM 20.000 at maximum.

257. The credit scheme aims at providing working capital to entrepreneurs who undertake agricultural activities. However initial consultations with Bank Pertanian have revealed their interest in making the micro-credit scheme accessible under the activities and outputs of the project, which aim at improving the livelihoods of local communities by micro-business development.

258. It is not the intention of the project to effect a drastic shift in the sources of livelihoods but to enable local communities to access the benefits of the area they live in, in most cases complementing their normal livelihoods rather than substituting them with new economic activities.

259. A positive socio-economic impact is expected among local communities. They will be enabled to access these credits while receiving training for the establishment and running of micro-businesses. An improvement of the situation will enable members of local communities to participate in the tourism industry as small businesses, contractors or employees of medium and large companies while generating an additional source of income for themselves.

MONITORING AND EVALUATION

260. The project will be subject to standard UNDP and GEF project monitoring and evaluation procedures. UNDP requirements include Annual Project Reports (APR), Tripartite Reviews (TPR) at least once every 12 months (including subsequent TPR reports distributed to all project proponents). The executing agency is responsible for ensuring these requirements are met. A Project Terminal Report will be prepared by the Project Manager for consideration at the terminal Tripartite Review meeting. It shall be prepared in draft, sufficiently in advance, to allow review and technical clearance by UNDP-GEF and the executing agency prior to the terminal Tripartite Review Meeting.

261. The project will also have to meet GEF monitoring requirements, including annual Project Implementation Reviews (PIR) to be completed by the project staff and Executing Agency and Quarterly Operational Reports (QOR) to be completed by the UNDP Country Office. The project will also be expected to contribute to any monitoring or evaluation requirements requested of UNDP as a GEF Implementing Agency.

262. Regular monitoring of the project will be undertaken by the Project Steering Committee (PSC) through the progress and final reports that are required from the Project Manager who in turn must receive them from team leaders, major consultants, and others involved with the project. Progress and final reports will need to refer to performance indicators as established in the project document.

263. USD 60,000 has been budgeted for project evaluation, which will include an independent mid-term evaluation and an independent final evaluation. The evaluations will focus on progress in meeting the indicators for measuring the impact (i.e. the success of the project in achieving lasting, sustainable conservation of globally significant biodiversity). They will be expected to also report on stakeholder participation and satisfaction, in addition to the usual evaluation parameters.

264. The first progress report, which will be due within the first 3 months of commencement, will serve as the Inception Report, which will ensure the full operation of the UNDP Project Document. Following that there will be Annual Tripartite Review reports presented to the PSC.

265. Independent Evaluations: The project will be subject to independent mid-term review, as per GEF guidelines. Technical review meetings will also be organised as required. Towards the end of project, a final, independent evaluation of the project will be carried out by project evaluation specialists selected by UNDP-GEF. The evaluations will focus on progress in meeting the indicators for measuring the impact (i.e. the success of the project in achieving lasting, sustainable conservation of globally significant biodiversity). They will be expected to also report on stakeholder participation and satisfaction, in addition to the usual evaluation parameters.

266. Monitoring will occur at several levels and a performance measurement framework has been developed (Annex I A). Practical, targeted socio-economic and biodiversity baselines will be established in the initial stages with the emphasis on identifying cost-effective indicators that can be monitored beyond the project's life and be adopted as part of replication. Periodic surveys of these parameters will be undertaken to ascertain ecological, social, and economic trends. Stakeholders will play a critical role in the M&E of the Project, including the National Steering Committee to foster local ownership in the entire project cycle and to strengthen the accuracy and use of the monitoring information, as well as promote participatory management of biodiversity resources for both conservation and sustainable use purposes. Strengthening local capacity for planning, monitoring and reflection is also important for modelling transparent and accountable governance systems, and it contributes to capacity-building of community management and sustainable use of marine resources. Relevant training and technical inputs will be provided as necessary.

267. The impact indicators as detailed in the Results Management Table (Annex IA) will be monitored through the Marine Park Units in each of the project sites as well as using data from other agencies such as the Department of Environment, which conducts regular water sampling. Monitoring the impact indicators, while important for demonstrating project results, will be viewed as an integral part of the overall efforts to improve marine biodiversity conservation in the long term. This will be addressed as part of Activity 5.2.2 on the development of marine park management plans and standard operating procedures for all three islands. Together with Activity 5.2.3, this will involve reviewing the standard monitoring procedures on bio

267. The Project Management Unit and UNDP will ensure effective documentation of all processes undertaken, lessons learnt and successful initiatives through a database for long-term planning and management purposes. Information on successful experiences and lessons learnt will be disseminated through national and local networks as well as to the international twinned sites in order to stimulate replication. Project experience will also be disseminated internationally, nationally, and locally through appropriate vehicles.

268. As GEF has officially endorsed the WWF / World Bank Management Effectiveness Tracking Tool the project will use these tools to monitor the improvement in the management of the three project areas.

ANNEX I - PROJECT LOGICAL FRAMEWORK

**ANNEX I A) RESULTS MEASUREMENT TABLE,
ANNEX I B) LOGICAL FRAMEWORK ANALYSIS
ANNEX I C) WORKPLAN FOR PROJECT IMPLEMENTATION**

Annex I a) Results Measurement Table

Objectives	Key Performance Indicators	Target (Year 5)	Sampling Frequency	Remarks	Cost Estimation
<p style="text-align: center;"><u>OVERALL OBJECTIVE</u></p> <p>The project will strengthen the management of the MPs on the East Coast of Peninsular Malaysia through a series of programmes and activities aimed at enhancing local community involvement and tourism industry participation in the management of the MPs thus ensuring the sustainability of the MPs and the livelihood of the local communities and the tourism industry which are dependent on the MPs.</p>	<p>1. Percentage of live coral cover at project sites maintained and increased during life of project.</p>	<p>Tioman Loss of live coral cover stopped by end Yr. 3 following completion of infrastructure projects. Overall live coral cover increased from 45.3* % in 2001 to 55 % by 2009.</p> <p>Redang Loss of coral cover stopped by end of Yr.2.Overall live coral cover increased from 43.7* % in 2001 to 55 % by 2009.</p> <p>Sibu-Tinggi Loss of live coral cover stopped by end of Yr.1 as Sibu Tinggi is also maintained as a State Park by Johor Park Corporation which provides added protection to the area. Overall live coral cover increased from 34.5* % in 2001 to 55 % by 2009.</p> <p>Size of sea grass area maintained</p>	<p>Start of project to establish “start-of-project-baseline”, in comparison with 2001 data.</p> <p>Annual survey at 17 sites surveyed during CCC study.</p> <p>Start of project and annually to determine change in size.</p>	<p>2001 baseline ** should be used as a starting point for comparing pre-project and post-project live coral coverage and coral health.</p> <p>There are recent records (1995) of sea grass areas in Sibu and Tinggi but no current data exist.</p>	<p>USD 20,000 per annum.</p> <p>USD 10,000</p>

Objectives	Key Performance Indicators	Target (Year 5)	Sampling Frequency	Remarks	Cost Estimation
	<p>2. Number of coral fishes maintained at pre-project level including key indicators of biodiversity such as <i>Lutjanus carponatus</i></p> <p>Mean abundance of common species</p>	<p>Overall Number of fish species maintained at 298 for all three project sites Tioman Number of coral fishes maintained at 233 Redang Number of coral fishes maintained at 209 Sibu-Tinggi Number of reef fishes maintained at 219</p> <p>Archamia fucata abundance maintained at >50 to <250 Cheilodipterus quenquelineatus abundance maintained at >50 to <250 Pterocaesio chysizona abundance maintained at >50 to <250 Caesio cuning abundance maintained at >50 to <250 Abudefduf sexfasciatus abundance maintained at > 50 to <250 Pomacentrus chrysurus abundance maintained at > 250</p>	<p>Start of project to establish baseline, then annually.</p> <p>Annual survey at 17 sites surveyed during CCC study.</p>	<p>2001 baseline** should be used as a starting point for comparing pre-project and post-project coral fishes diversity.</p>	

Objectives	Key Performance Indicators	Target (Year 5)	Sampling Frequency	Remarks	Cost Estimation
<p>Immediate Objective 1: I. To widen the existing development planning process in order to support marine ecosystem management as well as sustainable tourism through stakeholder involvement</p>	<p>1. Level of pollutants from land-based sources (sewage and sediment) in marine waters at project sites</p> <p>2. Amount of funds available for marine biodiversity conservation at the Marine Parks and Reserve Trust Fund (MPRTF) and from Government of Malaysia</p>	<p>BOD, E-Coli, Ammoniacal nitrogen Levels of organic pollutants at project sites based on the measurements of the three parameters above reduced by 80 % at end of project.</p> <p>Sediment Levels of suspended solid in marine waters of study sites reduced by 50 % at the end of project.</p> <p>MPRTF Amount of funds available at MPRTF increased by 25 % as a result of the two-tier collection system. Project funding MPRTF funds able to finance all non-physical development at all three project sites especially awareness building materials and programmes specific to the three project sites.</p> <p>Procedures for more efficient collection of Conservation Charge</p>	<p>Start of project and then annually.</p> <p>Start of project and annually.</p> <p>Start of project and annually.</p> <p>By end of Yr.2 and annually.</p> <p>By mid. of</p>	<p>The Department of Environment monitors these parameters as part of its Island Monitoring Programme and this will not incur any additional cost to the project.</p> <p>Amount collected is dependent on visitor numbers, which may fluctuate depending on factors such as economic condition etc. The indicator is chosen to reflect increased efficiency in fee</p>	<p>No cost to project as monitoring is conducted by DOE.</p>

Objectives	Key Performance Indicators	Target (Year 5)	Sampling Frequency	Remarks	Cost Estimation
		<p>in place. Number of “man-hours” the MPUs spend collecting CC reduced by 75 %. Number of “man-hour spent on patrol increased by 50%.</p> <p>Malaysia Plan Increase in Malaysia Plan funding for marine biodiversity conservation programmes and activities from RM 3 million in 8th Malaysia Plan to RM 5 million in 9th Malaysia Plan.</p>	<p>Yr.2.</p> <p>8th Malaysia Plan as baseline and 9th Malaysia Plan (2005-2010) allocations.</p>	<p>collection</p>	
<p>Immediate Objective 2: To strengthen the capacity of the marine parks management system in Peninsular Malaysia and to ensure effective enforcement of MP regulations</p>	<p>1. Number of violations of marine park regulations.</p> <p>2. Management plans</p>	<p>Violation Violation of marine park regulations related to taking and damaging of corals and infringement of marine park boundaries by illegal trawlers reduced by 75%.</p> <p>Overall Management plans resulted in positive changes to development practices and local community compliance with marine park</p>	<p>Start of project and annually</p>	<p>Annual survey will focus on specific snorkelling sites and monitor visitor impacts over a certain period</p>	

Objectives	Key Performance Indicators	Target (Year 5)	Sampling Frequency	Remarks	Cost Estimation
		<p>regulation . Tioman Development on Tioman complies with the recommendations and requirements of the masterplan.</p> <p>Sibu-Tinggi Local community complaints about encroachment reduced by 25 % by Yr.3 and eliminated by end of Yr. 4.</p> <p>One additional community-managed fishery area established.</p> <p>Redang Management plan incorporating stakeholder views and lessons from other project sites prepared by Yr.4</p>	<p>End of Yr.3 and annual review of development project proposals and approval by Tioman Development Authority.</p> <p>Yr.4 and annually.</p> <p>End Yr. 5</p>	<p>The Tioman Masterplan is a long-term development plan for the island.</p>	
<p>Immediate Objective 3: To enable an influential advocacy framework for the</p>	<p>1. Level of visitor impact on marine ecosystems at sites</p>	<p>Amount of visitor damage Amount of visitor damage to corals reduced by 30 % by Yr. 3 and 75 % by Yr.5.</p>	<p>Start of project for</p>	<p>This activity is closely related to</p>	

Objectives	Key Performance Indicators	Target (Year 5)	Sampling Frequency	Remarks	Cost Estimation
conservation of marine biodiversity supported by a raised level of awareness of the importance and benefits of marine biodiversity conservation.	where there is heavy visitation from snorkellers and day-trippers.	Selected sites where there is heavy use by snorkellers and day-trippers will be monitored for coral damage and visitor numbers.	coral status baseline. End of Yr. 2 to establish extent of visitor damage and then annually using live coral cover data and fish survey data.	the performance indicators for the overall objectives of the project.	

* The figures are for existing live coral cover at three project sites as surveyed by Coral Cay Conservation (CCC)

* *The 2001 survey was conducted by CCC as part of the PDF B Phase of the project.

Annex I b) Logical Framework Analysis

Overview of Project Logic

GOAL	To ensure the conservation and sustainable use of marine biodiversity in Malaysia and sustainable island development
Project Purpose	To achieve enhanced marine park management and inclusive sustainable island development.

Immediate Objectives

I. To widen the existing development planning process in order to support marine ecosystem management as well as sustainable tourism through stakeholder involvement	II. To strengthen the capacity of the marine parks management system in Peninsular Malaysia and to ensure effective enforcement of MP regulations at three project sites	III. To enable an influential advocacy framework for the conservation of marine biodiversity supported by a raised level of awareness of the importance and benefits of marine biodiversity conservation Note: This objective is supportive to the achievement of objective I and II
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Outcomes²

1.0 Adaptive MP management by a mechanism of cross-sectoral information sharing and knowledge transfer into decision-making bodies	2.0 Mechanisms for effective multi-sectoral policy making, development planning and an improved financial sustainability	3.0 Involvement of local communities in Marine Parks management and enabling them to benefit of biodiversity conservation by generating alt. livelihoods	4.0 Tourism operators integrated into Protected Area Management and reduction of the direct and indirect impacts of tourism activities on biodiversity	5.0 MPUs follow international standards of protected area management and achieve efficient enforcement and prevention of violations	6.0 Raised awareness of the importance of biodiversity conservation and Marine Park System in Malaysia among selected target groups	7.0 Framework for strong advocacy from stakeholders for the conservation in the marine parks of Malaysia
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88 ² Each component has an output that seeks the replication of successful outcomes to other marine parks in Malaysia, and the sharing of the successful practices with national and international expert networks

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
Immediate Objective I: To widen the existing development planning process in order to support marine ecosystem management as well as sustainable tourism through stakeholder involvement			
<u>Outcome 1.0: Adaptive MP management by a mechanism of cross-sectoral information sharing and knowledge transfer into decision-making bodies</u>			
Output 1.1 Effective information sharing among researchers, marine park managers and stakeholders			
<p><i>Activity 1.1.1: Improve information sharing between researchers, parks and stakeholders by developing a database and clearing-house mechanism of all research carried out in marine parks.</i></p> <p><i>Activity 1.1.2: Facilitate research in marine parks through a standardized and simplified approval process incorporating terms and conditions for research.</i></p> <p><i>Activity 1.1.3: Establish linkages with universities, research organizations and other projects for networking and funding purposes.</i></p>	<ol style="list-style-type: none"> 1. Availability of up-to-date information on various components of the marine park in the clearing-house 2. Enhanced collaborative research between MPU, research organizations and universities 3. Marine park management incorporates research findings and recommendations 	<ol style="list-style-type: none"> 1. Number and quality of reports available from clearing-house mechanism 2. New procedures and permit for the conduct of research in marine parks 3. Number of permits issued for research in marine parks 4. Marine park management plans 	<ul style="list-style-type: none"> • Consultation between MPU and researchers results in a permit system that is acceptable to all parties • Research results and reports are deposited with the MPU for inclusion into the clearing-house mechanism • A common standard for quality of research is developed and made available to researchers
Output 1.2: Mechanisms for continuous collection, collation, analysis and distribution of data obtained from research in marine parks.			
<p><i>Activity 1.2.1: Conduct research in marine parks using graduate (MSc) students.</i></p> <p><i>Activity 1.2.2: Develop and distribute</i></p>	<ol style="list-style-type: none"> 1. Data collected and deposited at clearing-house is of a common standard and 	<ol style="list-style-type: none"> 1. Standard analysis kit and data storage procedures. 	<ul style="list-style-type: none"> • Standard analysis kit and data storage procedures is of

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
<i>standard analysis kit and data storage procedures and build capacity of MPU staff in monitoring and supervision of monitoring</i>	<p>quality</p> <p>2. Clearing-house mechanism is continuously provided with up-to-date information on status of the marine environment and ecosystems</p> <p>3. Database hosted by the clearing-house contains time-series information</p> <p>4. Continuous monitoring of the MP is carried out</p>	<p>2. Number of thesis deposited with the MPU.</p> <p>3. Data from thesis incorporated into clearing-house mechanism</p> <p>4. Database containing information from research activities</p> <p>5. Number of MPU staff trained in monitoring techniques and in supervision of monitoring activities.</p>	<p>sufficiently high quality</p> <ul style="list-style-type: none"> • Researchers are able to use analysis kit and follow developed procedures • Application of analysis kit and data storage procedures is linked to research permit system in Activity 1.2.2
Output 1.3 Networking among marine park managers, project teams, conservation programmes and development organizations' networks of experts.			
<p><i>Activity 1.3.1 Establish network of Malaysian experts in marine park management and disseminate lessons learnt to other MPs and at international level.</i></p> <p><i>Activity 1.3.2: Facilitate and enable participation of Malaysia's marine park managers and staff in exchange programmes with other networks of experts.</i></p>	<p>1. Experts regularly meet to discuss MP management in Malaysia</p> <p>2. Colloquium on marine parks research and management is organized on annual basis with participation of researchers and MP managers</p> <p>3. MP managers and researchers in Malaysia are</p>	<p>1. Documents establishing network of experts in MP management in Malaysia</p> <p>2. Minutes of experts group meetings</p> <p>3. Proceedings from colloquiums</p> <p>4. Malaysian MP managers who are actually members of experts groups within</p>	<ul style="list-style-type: none"> • Adequate secretariat support is provided to facilitate the running of the workshop group • The expert group has the support of MP managers and experts in the field • Resources are made available to Malaysian MP managers and researchers to enable them to participate in meetings,

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
	actively involved in or are members of international experts groups on MPA management	organizations such as IUCN	conferences and other activities
Output 1.4 Development of an interactive database on private sector activities			
<i>Activity 1.4.1: Develop web-based database for the tourism sector.</i> <i>Activity 1.4.2: Develop directory of green product suppliers</i> <i>Activity 1.4.3: Create web-based directory of eco-friendly resort (with links to rating scheme)</i>	<ol style="list-style-type: none"> 1. Usage of website by public, researchers and tourism operators. 2. Availability of green produce in the market 3. Public patronage of resorts with eco-friendly credentials 	<ol style="list-style-type: none"> 1. Number of hits on webpage counter. 2. Frequency and amount of information downloaded from webpage. 3. Survey of prevalence of green products in the market. 4. Statistics on occupancy rate of resorts involved in rating scheme. 	<ul style="list-style-type: none"> • Sufficient publicity is given to the presence and use of the website • Public awareness about the existence of the website and its values is built early and enhanced continuously.
Output 1.5: Distribution of standard analysis kit, data storage procedures and other kits or manuals developed at the project sites to other marine parks.			
<i>Activity 1.5.1: Create manuals and tools for other marine parks in Malaysia to take advantage of and contribute to Output 1.1</i> <i>Activity 1.5.2: Examine the wider application of research permit/approval process to other</i>	<ol style="list-style-type: none"> 1. Application of manuals and kits at other MPs in Peninsular Malaysia 2. Interest shown in manual 	<ol style="list-style-type: none"> 1. Number of requests received from other MPs for manuals and kits developed under the project. 	<ul style="list-style-type: none"> • Adequate training is provided to MP managers in the use of manuals and kits • Development of

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
<i>marine parks in Malaysia</i>	and kit at workshops or discussion sessions to develop and promote these tools	2. All MPs in Peninsular Malaysia employing manuals and kits in management of MPs	manuals and kits carried out in consultation with other MP managers as well as researchers
Outcome 2.0: Mechanisms for effective multi-sectoral policy making, development planning and an improved financial sustainability			
Output 2.1: Finalisation of the draft National Marine Parks Strategy (1999) with inputs from the government and stakeholders.			
<i>Activity 2.1.1: Organise national level consultation workshop/s to finalise the strategy</i>	1. All stakeholders agreed to and endorse the finalized National Marine Parks Strategy	1. Finalised National Marine Parks Strategy document. 2. Agreement document containing endorsement of the stakeholders 3. Proceedings or minutes of consultation workshop	<ul style="list-style-type: none"> Stakeholders are fully briefed and aware of the strategy document, its objectives and functions Consultation sessions held is able to garner contribution or inputs from all stakeholders
Output 2.2: Federal-State agreements for multi-sectoral island development planning mechanisms			
<i>Activity 2.2.1 Conduct a review of the value of closer state-federal collaboration and the costs of failure to cooperate</i> <i>Activity 2.2.2: Prepare Memorandum of Understanding between Federal and State agencies on cooperation and marine parks policy</i>	1. All federal and State agencies signed and implemented the MoU on cooperation in MP management 2. Federal and State agencies are able to cooperate more closely in	1. Signed MoU between Federal and State agencies 2. Data from monitoring of impact of development and status of coral reefs by volunteer programme	<ul style="list-style-type: none"> There is a willingness on the part of the Federal and State agencies to enhance their existing cooperation in MP management

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
	island development and marine biodiversity conservation		
Output 2.3 A revised Tioman master plan, reflecting multi-sectoral approaches to development planning, is agreed and endorsed by State EPU			
<i>Activity 2.3.1 Establish the Tioman Stewardship Council (TSC)</i> <i>Activity 2.3.2: Revise Tioman master plan</i> <i>Activity 2.3.3: Hold consultative meetings to discuss the draft of the revised master plan</i> <i>Activity 2.3.4 Provide training opportunities for TDA staff in island development planning, tourism development and marine park management and integrated coastal zone management</i>	<ol style="list-style-type: none"> 1. A Tioman master plan which takes into account the need to conserve marine biodiversity in island development 2. The TDA is able to implement island development projects which have reduced impact on the environment 3. Development on Tioman is carried out in a more sustainable basis with due regard given to environmental requirements 	<ol style="list-style-type: none"> 1. A finalized multi-sectoral Tioman master plan 2. Environmental Impact Assessment reports of proposed development on Tioman 3. Data from monitoring activities conducted by government agencies and volunteer groups 4. Number of training courses conducted for TDA staff 5. Creation of environmental management posts within the TDA 	<ul style="list-style-type: none"> • The TDA is prepared to allocate human and financial resources for the creation of environmental management positions within its organization • Consultative meetings held are able to generate inputs from all stakeholders • Stakeholder contributions are incorporated into the revised Tioman master plan
Output 2.4: Local/Special Area development plans for environmentally sensitive areas at all three sites.			
<i>Activity 2.4.1: Build capacity within local authorities in the design of participatory management plans</i> <i>Activity 2.4.2: Develop special area plans</i>	<ol style="list-style-type: none"> 1. Local communities are implementing plans for local or special area management 2. There is increased 	<ol style="list-style-type: none"> 1. Marine park management plans documents which incorporate local or special area development plans 	<ul style="list-style-type: none"> • Adequate training is provided to authorities and local communities in the co-management of tourism and fisheries areas

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
	<p>understanding and reduced conflicts between local communities, MP managers and staff and local authorities</p> <p>3. Local communities enjoy improved level of income as a result of local tourism areas and community management of certain fisheries</p>	<p>2. Number of training workshops held in co-management</p> <p>3. Number of co-managed local/special areas</p> <p>4. Records of compliance/non-compliance with MP regulations</p> <p>5. Household survey of local community income pre and post local/special area plan development</p>	<ul style="list-style-type: none"> The preparation of the MP management plans envisaged in Output 4.2 is carried out with stakeholder consultation
Output 2.5: Replication of integrated, multi-sectoral planning processes.			
<i>Activity 2.5.1: Hold workshop and training programmes for decision makers and mid-level managers.</i>	<p>1. More local authorities have the capacity to integrate environmental considerations into island development plans or physical plans</p> <p>2. Participation of local authorities and local communities in training workshops and programmes aimed at integrated island development</p>	<p>1. Number of local or island development plans prepared in an integrated fashion</p> <p>2. Number of training workshops held</p> <p>3. Proceedings from training workshops organised</p> <p>4. Number of local authority staff and local community members trained in</p>	<ul style="list-style-type: none"> A “train-the-trainers” programme is in place to support the replication of integrated multi-sectoral planning process Sufficient training has been provided to the local authorities and stakeholders in the other marine parks

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
		integrated, multi-sectoral planning	
Output 2.6: Pilot initiative in the implementation of eco-tax on visitors to Pulau Tioman			
<i>Activity 2.6.1: Carry out feasibility study on the integration of the eco-tax with the Conservation Charge</i> <i>Activity 2.6.2 Pilot initiative to collect the joint eco-tax and CC</i>	1. Possibility of incorporating eco-tax into CC is examined 2. Revenue for conserving MP environment is enhanced as eco-tax is implemented on Tioman and effectiveness of CC collection is improved	1. Accounts of the NMPRTF 2. Reports examining feasibility of incorporating the eco-tax into the CC and effective collection of CC	<ul style="list-style-type: none"> • Government agrees to the implementation of the eco-tax on a pilot basis on Tioman • Incentives are provided to parties involved in the collection of CC
Output 2.7: Complementary sources of revenue for marine park management and biodiversity conservation identified			
<i>Activity 2.7.1: Establish fund-raising programmes where visitors and tourism businesses can contribute to financing of conservation activities</i> <i>Activity 2.7.2: Recommend annual contribution from large resort operators to the Marine Park Trust Fund</i>	1. Visitor contribution to MP management and biodiversity conservation goes above and beyond the CC 2. Special ‘vehicles’ for visitor and large resort operators contribution identified, for example, “Adopt-a-Reef” programme of programmes aimed at conserving endangered species particularly turtles 3. The possibility of a “tourism-cess” system	1. NMPRTF accounts 2. Number of conservation programmes funded by visitor contribution and contribution from large resort operators	<ul style="list-style-type: none"> • Clear identification of mechanisms for contribution and programmes for funding is carried out in cooperation with tourism operators and local communities • Transparent accounting procedures is in place to show how public and tourism sector contributions are being spent • Regular evaluation of programmes funded through public

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
	<p>similar to the system employed in the forestry industry is examined</p> <p>4. The sum of money available for MP management and biodiversity conservation is increased</p>		<p>contribution and tourism sector contributions</p>
<p>Output 2.8: Examine the application of existing financial mechanisms to promote environmental investments among small and medium scale industries.</p>			
<p><i>Activity 2.8.1: Investigate needs of potential beneficiaries of the financing mechanisms</i> <i>Activity 2.8.2 Facilitate access of SMEs to the MoCAT soft loans</i></p>	<p>1. Small and medium scale operators are able to access financing mechanisms to improve environmental performance</p> <p>2. Target groups have clear guidelines as to access and availability of Bank Pertanian’s micro-credits</p> <p>3. More small and medium scale operators are able to comply with environmental regulations as a result of access to funds</p>	<p>1. Guidelines on access, availability and eligibility to MoCAT’s soft loans for small and medium scale tourism operators</p> <p>2. Amount of money disbursed to small and medium scale tourism operators for environmental improvement projects</p> <p>3. Data on compliance with environmental regulations among small and medium scale tourism operators</p>	<ul style="list-style-type: none"> • Bank Pertanian is agreeable to the idea of extending the soft loan programme to include financing of activities to improve environmental performance of small and medium scale industries • Disbursement of loans is linked to environmental performance of tourism operators • Small and medium scale tourism operators are aware of the availability of funds for environmental

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
			improvements project
Output 2.9 Revised scope of the MPRTF and improved efficiency in Conservation Charge related operations			
<p><i>Activity 2.9.1 Revisit the scope and operations of the Marine Conservation Trust (MPRTF)</i></p> <p><i>Activity 2.9.2 Revisit the past proposal on establishing a two-tier fee system for CC (Malaysian/non-Malaysian)</i></p> <p><i>Activity 2.9.3 Study best practices on the rate of CCs in the region</i></p>	<ol style="list-style-type: none"> 1. Recommendations are included into the management of the MPRTF 2. The proposal for the Two-tier fee is re-tabled for approval by MPRTF and endorsed by stakeholders 3. CC is elevated to a higher level following the recommendations drawn from the best practices 	<ol style="list-style-type: none"> 1. Reports and minutes from the MPRTF meetings 2. Official implementation of a restructured CC alongside with publications 	<ul style="list-style-type: none"> ○ MPRTF is supportive and the misconception that an increased CC will result in a decline of visitor numbers can be rectified.
Output 2.10: Replication of appropriate institutional and planning arrangements at other Marine Protected Areas in Malaysia			
<p><i>Activity 2.10.1: Feasibility study on the establishment of TSC- & monitoring committee- equivalent institutions at other marine parks in Malaysia</i></p> <p><i>Activity 2.10.2: Feasibility study on establishing local /special area plans in other Malaysian marine parks, primarily focused on Redang and Sibut-Tinggi</i></p>	<ol style="list-style-type: none"> 1. By the end of the project initiatives are taken by other marine park managers in Malaysia, that aim at replicating outcome 2.0 with the respective 	<ol style="list-style-type: none"> 1. Respective means of verification as stated in the outputs under outcome 2.0 	<ul style="list-style-type: none"> ○ Feasibility studies reveal the reasonability for the replication of the outputs under the outcome 2.0

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
<i>Activity 2.10.3 Document and disseminate information on eco-tax and new approach to collection of CC</i>	indicators		
Output 2.11: Strengthening of island monitoring committee (e.g. EIA monitoring) in Redang and replicating in other sites			
Activity 2.11.1: Defining the roles and composition of committee members. Activity 2.11.2: Review of the existing guidelines, regulations and jurisdictions for the island monitoring committee.	1. There is active stakeholder involvement in the island monitoring committees	1. Membership of island monitoring committees	o Linkages are developed between the island monitoring committees and the various volunteer programme for monitoring of coral reefs
Outcome 3.0: <u>Local communities involved in marine parks management and share access to benefits of biodiversity conservation by generating alternative livelihoods</u>			
Output 3.1: Formulation of co-management plan in conjunction with local communities and local governments.			
<i>Activity 3.1.1: Review best practices in co-management in marine protected area setting</i> <i>Activity 3.1.2: Establish co-management planning committees with members from local stakeholders, and government agencies at all levels</i> <i>Activity 3.1.3: Develop participatory plan for local community involvement in the protection of endangered species</i> <i>Activity 3.1.4: Train local government and</i>	1. Local communities in project sites are becoming actively involved in MP management particularly in areas allocated for community-based tourism activities and fisheries 2. Protection of endangered species is enhanced through	1. Community management plan document to be incorporated into MP management plans 2. Minutes of co-management planning committee meetings 3. Survey of endangered	<ul style="list-style-type: none"> • Preparation of co-management plans is carried out in tandem with MP management plans preparation • Local government officials and local communities accepted their roles in the co-management of MPs

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
<p><i>local communities in co-management</i> <i>Activity 3.1.5: Implement co-management pilot project on Sibu-Tinggi</i></p>	<p>community participation</p> <p>3. Sibu-Tinggi MP is managed using co-management approach involving cooperation from MPU, JNPC and local communities</p>	<p>species to determine number before and after co-management is implemented</p> <p>4. Number of turtle eggs deposited at hatcheries</p> <p>5. Number of training sessions held for government officials and local communities</p> <p>6. Number of trained government officials and local community members</p>	<ul style="list-style-type: none"> • Better incentives are provided to local communities for turtle eggs deposited at hatcheries • Programme s and incentives (such as community managed tourism and fisheries) to support co-management are put in place to encourage community participation
<p>Output 3.2: Efficient and structured joint management of designated zones with the marine parks.</p>			
<p><i>Activity 3.2.1: Train and organize local communities in the management of designated zones for community fisheries and ecotourism</i> <i>Activity 3.2.2: Implement community ranger programme to enable local community participation in enforcing regulations in local community fishing zones</i> <i>Activity 3.2.3: Develop and agree upon a multi-jurisdictional zoning plans in the marine parks with allocation for community use</i> <i>Activity 3.2.4: Facilitate dialogue to air</i></p>	<p>1. Local communities are involved in the management of special zones designated for community tourism and fisheries</p> <p>2. Plans for management of special zones are incorporated into MP management plans</p> <p>3. More communities request for community-</p>	<p>1. Number and size of community ranger programmes established</p> <p>2. Number of community managed zones in MPs</p> <p>3. MP management plans incorporating plans for community managed areas</p> <p>4. Number and frequency of dialogue sessions</p>	<ul style="list-style-type: none"> • Preparation of co-management plans is carried out in tandem with MP management plans preparation • Local communities are trained in the concepts and practices of co-management • Local communities realize the economic potential of well-managed community fisheries and

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
<i>grievances and resolve multiple-use conflicts in and around the marine parks</i>	<p>managed zones to be established in their areas</p> <p>4. Regular dialogues or meetings are held to resolve conflicts and facilitate co-management</p>	<p>5. Minutes of and documents from dialogue sessions</p>	<p>ecotourism areas</p>
Output 3.3: Generation of additional sources of income for local communities			
<p><i>Activity 3.3.1: Evaluate possible sources of additional income</i></p> <p><i>Activity 3.3.2: Develop local community plans for the management of squid fishing area in Sibut-Tinggi</i></p> <p><i>Activity 3.3.3: Implement local community plan</i></p> <p><i>Activity 3.3.4: Provide language and technical training to local communities to increase their ability for involvement in the tourism sector</i></p> <p><i>Activity 3.3.5: Investigate alternative source of income during the monsoon season</i></p> <p><i>Activity 3.3.6 Establishment of a business support mechanism to help local communities sustain their micro-businesses and extend the possibilities of additional income generation beyond the implementation phase of the project</i></p> <p><i>Activity 3.3.7: Investigate opportunities for local communities to access funds under the</i></p>	<p>1. Possible additional sources of income for local communities are identified</p> <p>2. Local communities are involved in the management of special zones designated for community tourism and fisheries</p> <p>3. Local community members are able to provide high-end tourism services to visitors</p> <p>4. A 'chamber of commerce' is established to support local community tourism ventures</p> <p>5. Fishermen no longer</p>	<p>1. Report on the study to identify additional and alternative sources of income for local communities</p> <p>2. Household survey of income at pilot site</p> <p>3. Number of language and technical courses organized for local communities</p> <p>4. Statistics on encroachment of fishing vessels into MP boundaries</p> <p>5. Household income survey of local community members involved in tourism activities.</p>	<ul style="list-style-type: none"> • Local community inputs are obtained in the study to identify additional and alternative sources of income • A support system is established to assist local community ventures into ecotourism and community-managed fisheries areas • Local communities are trained in basic business management approaches such as accounting and marketing • Local community initiatives are included into the overall webpage including the green product listing (Output

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
<i>Micro Credit Scheme of the Economic Stimulus Package</i>	encroach into MP boundaries during monsoon season		1.1.1)
Output 3.4: Replication of appropriate co-management plans in other marine parks of Malaysia and local communities.			
<p><i>Activity 3.4.1: Study the feasibility of replicating co-management plans and zoning schemes at other marine parks</i></p> <p><i>Activity 3.4.2: Conduct inter-project study visits and exchange programmes for marine park staff and local communities</i></p> <p><i>Activity 3.4.3: Study feasibility to replicate additional livelihood programmes at other marine parks of Malaysia</i></p>	<ol style="list-style-type: none"> 1. Lessons from project sites documented for distribution and uploaded onto webpage 2. Training and awareness including “how-to” manual materials generated from project study sites and distributed to other MPs 3. More stakeholders from MPs are exposed to the value of co-management in MPs 	<ol style="list-style-type: none"> 1. Study report on possibility of implementing co-management at all Malaysia MPs 2. Training documents and manuals on how to start and manage co-management activities 3. Report outlining potentials and pitfalls of co-management derived from study sites 4. Number of exchange study tours conducted for local communities to project sites to observe co-management in operation 5. Number of participants on study tours 	<ul style="list-style-type: none"> • Lessons from study sites are properly documented and analysed to serve as guidance for replicating experience at project sites • Local communities outside of project areas recognize the economic benefits to be gained from co-management • Local communities at project study sites are able to contribute to the awareness building and training in co-management

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
<u>Outcome 4: Tourism operators integrated into Protected Area management and reduction of the direct and indirect impacts of tourism activities on biodiversity</u>			
Output 4.1: Tourism operators have the capacity and incentives to implement best practices to conserve the marine environment.			
<p><i>Activity 4.1.1: Develop mechanisms to ensure active participation of local tourism operators in marine park management</i></p> <p><i>Activity 4.1.2: Establish grassroots groups to organize and facilitate the involvement of tourism operators</i></p> <p><i>Activity 4.1.3: Provide opportunities for tourism operators to learn from other initiatives, organizations and agencies</i></p> <p><i>Activity 4.1.4: Train tour operators in improving visitor experience and lessening visitor impact on marine parks ecosystems</i></p> <p><i>Activity 4.1.5: Create incentives for cooperation between MPU staff and tourism operators through training exercises and awareness building</i></p> <p><i>Activity 4.1.6: Conduct workshops for accommodation providers on environmentally friendly practices</i></p> <p><i>Activity 4.1.7: Conduct workshops for boat, dive and snorkel operators on environmentally sound boating practices, diver briefings and interpretation programming</i></p>	<ol style="list-style-type: none"> 1. Tourism operators are actively involved in MP management particularly in monitoring, visitor impact reduction and awareness and education programmes 2. Impact from tourism industry is reduced 3. Tourism operators are in active communications with MP staff regarding state of the MP environment 4. Tourism operators show interest in participating in rating schemes and green product listing programme 	<ol style="list-style-type: none"> 1. Number of training programmes organized for different tourism sectors 2. Number of tourism operators trained in areas such as visitor management, impact reduction and monitoring 3. Marine environment quality data collected during the course of the project 4. Number of tourism operators becoming involved in volunteer programme such as community ranger 5. Self audit documents submitted by tourism operators to MPU or project office 	<ul style="list-style-type: none"> • Incentives are identified and promoted to tourism operators to encourage them to participate in implementing best practices • Tourism operators recognize the economic benefits to be gained from the implementation of best practices in tourism activities

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
<p><i>Activity 4.1.8: Develop and implement peer-review system for sustainable diving, snorkelling and boat operations</i></p> <p><i>Activity 4.1.9: Train operators in self-audits of environmental performance and implement site-specific environmental management plans for larger resorts</i></p>		<p>6. Number of contacts recorded between tourism operators and MP staff from MP centre logbook</p>	
<p>Output 4.2: Establishment, implementation and monitoring of a system of “rating schemes” associated with the different tourism sectors. These activities will complement and realize MoCAT's plans while feeding in best practices.</p>			
<p><i>Activity 4.2.1: Establish certification criteria for resorts based on eco-friendliness</i></p> <p><i>Activity 4.2.2: Establish, implement and monitor rating schemes for specific tourism sectors including hotel and tour rating</i></p> <p><i>Activity 4.2.3: Training of Tourism Malaysia staff in implementing rating scheme</i></p> <p><i>Activity 4.2.4: Promotion of rating scheme in cooperation with tourism operators</i></p> <p><i>Activity 4.2.5: Identify best practices for rating schemes and certification criteria</i></p>	<p>1. Tourism operators in project sites subscribe to rating scheme and associated activities such as green product listing</p> <p>2. The MP rating scheme is incorporated into overall MoCAT tourism rating scheme programme</p> <p>3. Tourism operators outside of project site show interest to subscribe to rating scheme</p> <p>4. Rating schemes criteria is established including a system of incentives and disincentives</p>	<p>1. Number of tourism operators subscribing to rating scheme</p> <p>2. Number of tourism operators on green product listing</p> <p>3. Rating schemes criteria document</p> <p>4. Number of training courses organized for MoCAT staff and tourism operators</p>	<ul style="list-style-type: none"> • Propose rating scheme for tourism operators in MP is approved by MoCAT • Sufficient publicity and awareness building campaign is conducted to explain and promote rating scheme • A system of incentives and disincentives is put in place to encourage participation in rating scheme • Tourism operators recognize the importance of participation in the rating scheme for their financial and economic well being

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
Output 4.3: Reduction and elimination of sewage discharge from marine park islands.			
<i>Activity 4.3.1: Development, identification and installation of appropriate sewage treatment technology for marine park islands</i>	1. Marine water quality in MP where sewage pollution improves 2. Discharge of raw sewage into MP waters is eliminated	1. Water quality monitoring data for <i>E-coli</i> and Biological Oxygen Demand (BOD) by DOE	<ul style="list-style-type: none"> • Installation of sewage treatment technology is accompanied by monitoring of water quality and strict enforcement of the provisions of the Environmental quality Act 1978 to ensure compliance
Output 4.4: Proper disposal of solid wastes from marine park islands without solid waste disposal facilities			
<i>Activity 4.4.1: Pilot audit of solid waste transferred from islands to mainland</i>	1. Incidents of solid waste disposal into MP waters reduced and eliminated 2. Dumping of solid waste at illegal dump sites eliminated	1. Weighing of waste at departure site on islands and disposal sites on land 2. Report from volunteer monitoring by tourism operators, local communities and visitors	<ul style="list-style-type: none"> • Local government is able to provide proper and accessible waste collection sites on islands
Output 4.5: Proper collection and disposal of oil and grease from kitchens and fishing vessels and reduced oil pollution in marine park waters.			
<i>Activity 4.5.1: Promote installation of oil water separators in kitchens and chalets, placement of oil collection containers at fishing jetties</i>	1. Discharge of oil and grease into MP waters is reduced and eliminated	1. Water quality monitoring data for oil and grease by DOE 2. Reports of oil and grease pollution incidents by volunteer programmes and visitors	<ul style="list-style-type: none"> • Sufficient and accessible collection points are made available on islands • Resort operators recognize the importance of reducing oil and grease pollution in MP waters

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
Output 4.6: Empowerment of tourism operators in implementing park regulations.			
<i>Activity 4.6.1: Establishment of instruments for voluntary surveillance by tourism operators to report violation of marine park regulations</i>	<ol style="list-style-type: none"> 1. Tourism operators are involved in surveillance programme through direct contact with MP staff and early involvement in the formulation of MP management plan 2. Tourism operators are able to implement self-regulation of MP regulations and report violation from within the industry 3. MP management plans contain provision for easy reporting by tourism operators such as a dedicated hotline and e-mail contact 	<ol style="list-style-type: none"> 1. Number of incidents reported by tourism operators through reporting mechanism 2. Number of violations of MP regulations reported by tourism operators 3. Number of tourism operators involved in volunteer programmes 	<ul style="list-style-type: none"> • Tourism operators are involved at the very beginning of the MP management plan development process and are aware of the avenues provided for their involvement in implementing MP regulations • MP staff are able to provide quick response to reports by Tourism operators
Output 4.7: Successful replication of tourism operators involvement in marine park management at other marine parks in Malaysia			
<p><i>Activity 4.7.1: Establish “training-of-trainers” and system of private sector spokes persons</i></p> <p><i>Activity 4.7.2: Evaluate efficiency and cost-effectiveness of measures to ‘green’ businesses in the tourism sector</i></p> <p><i>Activity 4.7.3: Hold training workshops for tourism operators in other marine park islands to promote replications of tourism</i></p>	<ol style="list-style-type: none"> 1. Tourism operators who have been involved in MP management at project sites promote the approach to operators at other MPs 2. More tourism operators are trained to promote and programmes such as rating 	<ol style="list-style-type: none"> 1. Report of study evaluating green business practices in MPs 2. Number of tourism operators trained as spokesperson or trainers 3. Number of training courses conducted in areas outside of project areas 	<ul style="list-style-type: none"> • Tourism operators are involved in the programmes designed for the industry at the earliest possible stage to build understanding and also a sense of belonging to the programmes and activities

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
<p><i>operators' involvement in marine parks management</i></p> <p><i>Activity 4.7.4: Adjust rating scheme following implementation and evaluation prior to expansion to other sites</i></p> <p><i>Activity 4.7.5: Disseminate lessons learnt from tourism sector involvement and implementation of a rating scheme to other Marine Protected Areas in the region and internationally</i></p>	<p>scheme, volunteer programmes and self regulation of the tourism industry</p> <p>3. Tourism operators outside of project area requests that rating scheme be implemented in the MPs that they operate in</p> <p>4. Lessons from project sites are documented and distributed widely to promote tourism operators involvement in MP management</p>	<p>4. Number of requests received from tourism operators for the implementation of various green tourism business programmes outside of project area</p> <p>5. Number of requests for documents such as manuals for green tourism business practices</p>	<ul style="list-style-type: none"> • Sufficient trainers are trained to conduct training programmes • MP staff and project management office are able to support activities • Incentives and disincentives are expanded outside of the project area
<p>Immediate Objective II. To strengthen capacity of the marine parks management system in Peninsular Malaysia and ensuring effective enforcement of MP regulations</p>			
<p><u>Outcome 5.0: MPUs follow international standards of protected area management and achieve efficient enforcement and prevention of violations</u></p>			
<p>Output 5.1: Capacity of MPU staff in marine park management, monitoring and enforcement of regulations is enhanced</p>			
<p><i>Activity 5.1.1: Identification areas for capacity building.</i></p> <p><i>Activity 5.1.2: Provide training in areas</i></p>	<p>1. More MP staff are able to undertake activities proposed under the project such as</p>	<p>1. Report identifying capacity building needs of MP staff</p>	<ul style="list-style-type: none"> • MPU is able to retain the service of trained staff • The training needs

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
<i>where capacity building is needed.</i>	<p>outreach programmes, multi-sectoral planning, co-management and preparation of management plans</p> <p>2. Overall skills of MP staff are enhanced</p>	<p>2. Number of training courses held for MP staff</p> <p>3. Number of MP staff trained in various skills</p>	<p>identified is supported by an increase in MPU staffing under the recently approved upgrading of the MPU</p>
Output 5.2: Development and implementation of marine park management plans for all three sites.			
<p><i>Activity 5.2.1: Revise the marine park Management Plan for Pulau Redang.</i></p> <p><i>Activity 5.2.2: Develop marine park management plans and standard operating procedures for all three islands</i></p> <p><i>Activity 5.2.3: Review and implement standards biophysical-mechanical monitoring including identification of performance indicators.</i></p>	<p>1. All three project sites are equipped with management plans prepared in consultation with stakeholders incorporating local/special area management plans as well as opportunities for stakeholder participation</p> <p>2. Monitoring activities of marine park environment is carried out within a standard and is of a certain quality as stipulated in Activity 1.2.2 and Activity 1.4.1</p> <p>3. Research carried out in MPs have direct linkages to management and is able to support management</p>	<p>1. Management plan documents for all three project sites</p> <p>2. Local/special area plans incorporated into management plans</p> <p>3. Review of quality of research in marine parks</p> <p>4. Number of research permits issued to researchers</p> <p>5. Amount and quality of information uploaded onto webpage database (see Output 1.1)</p>	<ul style="list-style-type: none"> • Preparation of management plans include consultation with stakeholders • Management plans prepared are of high standard • Clear links are spelled out between biophysical-mechanical standards and management needs • Researchers are fully cognisance of the conditions for carrying out research in MPs as per Activity 1.2.2

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
	activities		
Output 5.3: Improvement in the level of compliance with marine park regulations.			
<p><i>Activity 5.3.1: Enhance effectiveness of patrols by marine park Unit and other DoFM enforcement units</i></p> <p><i>Activity 5.3.2: Create partnership with commercial fishermen (fishing cooperatives)</i></p>	<ol style="list-style-type: none"> 1. Incidence of non-compliance with MP regulations are reduced 2. Number of patrols are increased 3. Better and more equipment is made available to MPU for patrolling duties 4. Other enforcement agencies such as the Marine Police are involved in patrolling MPs and surrounding areas 5. Incidents of encroachment by commercial fishermen are reduced 6. Commercial fishermen are involved in MP management through self-enforced 'ban' on encroachments into marine parks 	<ol style="list-style-type: none"> 1. Statistics of violations of MP regulations 2. Patrol logbook of MPU and other enforcement units 3. Number of meetings held with commercial fishermen 4. Number of encroachment incidents reported by commercial fishermen 	<ul style="list-style-type: none"> • Upgrading of MPU into a division is accompanied by an increase in staff and financial resources allocation • MPU staff are properly trained in the use of additional equipment • Other enforcement agencies are aware of the significance of biodiversity and MPs so as to enable effective enforcement of MP regulations • Commercial fishermen are engaged in a satisfactory manner and accept that they have a role to play in MP management particularly in complying with fisheries zonation regulations

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
Output 5.4: Improved management and protection of endangered species			
<p><i>Activity 5.4.1: Management plan of targeted species based on ecosystem approach established and implemented</i></p> <p><i>Activity 5.4.2: Determine the zonation for sanctuaries (protection zone, buffer zone, activity zone, research zone).</i></p> <p><i>Activity 5.4.3: Dugong and turtle sanctuaries established.</i></p>	<p>1. Monitoring data reveals an increased protection of endangered species, in terms of abundance of species, individual sizes</p>	<p>1. Monitoring data by CCC, research institutions and from the monitoring that is undertaken by the MPUs</p>	<p>Influences that lie outside the scope of the project (parasites, natural phenomena, etc.) could result in false monitoring data</p>
Output 5.5: Replication: Capacity built among Malaysian marine park Managers to implement the management concept (incorporating lessons learnt and best practices) to Malaysian marine parks. Distribution of information on lessons learnt relevant to UNDP and GEF agencies, individuals, projects and programs			
<p><i>Activity 5.5.1: Design of tools and manuals to replicate the management concept at other Marine Protected Areas in Malaysia</i></p> <p><i>Activity 5.5.2: Hold a series of Workshops on the management concept for other Marine Protected Areas managers with already trained managers from the project sites as peers</i></p> <p><i>Activity 5.5.3: Evaluate and report to relevant UNDP and GEF agencies, individuals, projects, programs and expert-networks about the management concept and lessons learnt</i></p> <p><i>Activity 5.5.4: Cross project-site learning visits for marine parks managers</i></p>	<p>1. By the end of the project implementation there are self-driven (MPUs of other marine parks in Malaysia) initiatives that aim at the replication of the outputs under outcome 5.0</p> <p>2. Lessons learnt are incorporated into future development planning by UNDP and GEF</p>	<p>1. Respective Means of Verification as under the outputs 5.1 – 5.4</p> <p>2. UNDP and GEF project proposal and documentations</p>	<p>Management concept is successful and the replication activities consider local circumstances that lie beyond the scope of the project</p>
Output 5.6. Improved efficiency in the collection of the Conservation Charge			

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
<i>Activity 5.6.1 Study the different modalities for decentralising the collection of the CC</i>	Deployment of MP staff for enforcement, monitoring and outreach programmes is improved as new ways of collecting the CC are identified	2. MP tasking logbook showing deployment of staff	Cooperation is obtained from parties designated for CC collection for example tourism operators and local authorities
Immediate Objective III: To enable an influential advocacy framework for the conservation of marine biodiversity supported by a raised level of awareness of the importance and benefits of marine biodiversity conservation			
<u>Outcome 6: Raised awareness of the importance of biodiversity conservation and marine park system in Malaysia among selected target groups</u>			
Output 6.1 Enhanced awareness of the marine park system, its regulations and biodiversity conservation efforts among local communities.			
<i>Activity 6.1.1: Building awareness and capacity of local youth in ecotourism</i> <i>Activity 6.1.2: Organize campaign with fishermen associations and local communities</i>	<ol style="list-style-type: none"> 1. More local youths are involved in higher end ecotourism activities such as nature guides and their skills in nature interpretation enhanced. 2. Increased local awareness of the significance of biodiversity conservation and role of MP system in resource management 3. Inputs from local 	<ol style="list-style-type: none"> 1. Number of training programmes organized for local youths in biodiversity conservation and ecotourism 2. Number of local youths working as ecotourism guides 3. Number of dialogues held between MPU and local community 	<ul style="list-style-type: none"> • There is sufficient interest among local youths to undertake training and awareness building programmes • Opportunities are provided to the local communities to provide inputs into the formulation of the management and special area plans

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
	communities are obtained during the preparation of MP management plans and special area management plans envisaged under Outputs 4.2 and 5.1	<ol style="list-style-type: none"> 4. Incorporation of local community views into MP management plans and special area management plans 5. Decrease in the number of complains from local communities about the role of MPs 	
Output 6.2 Increased awareness of decision makers and mid-level managers of the use of economic instruments for conservation efforts.			
<p><i>Activity 6.2.1: Organize a series of seminars to disseminate information and raise awareness about the concept behind and application of economic instruments in fund raising and in changing visitor behaviour in marine parks.</i></p> <p><i>Activity 6.2.2: Organize study tours for State and Federal level officers to protected areas where economic instruments are being applied for conservation purposes.</i></p>	<ol style="list-style-type: none"> 1. Decision makers and managers are more aware of the use of economic instruments in MP management 2. Information and examples of use of economic instruments in local, regional and international settings are disseminated to decision makers and planners 3. Decision makers and managers show interest in the application of economic instruments as a source of revenue and as 	<ol style="list-style-type: none"> 1. Number of workshops or training courses held on use of economic instruments 2. Number of participants trained in the use of economic instruments 3. Actual application of economic instruments in protected area management in State-run national parks as well MPs 	<ul style="list-style-type: none"> • Decision makers are managers are receptive to the idea of applying economic instruments in protected area management • Examples are illustrated in the use of economic instruments as a source of revenue for the State
Output 6.3: Implementation of a comprehensive environmental education and out reach programme targeted at those having the greatest impact on			

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
marine biodiversity.			
<p><i>Activity 6.3.1: Strengthen application of existing “code-of-conducts” using new materials such as posters, pamphlets and brochures and new approaches which encourages positive visitor compliance with marine park regulations</i></p> <p><i>Activity 6.3.2: Publish regular/periodic newsletter for the tourism industry and other stakeholders.</i></p> <p><i>Activity 6.3.3: Organise and conduct study tour for selected tourism operators</i></p> <p><i>Activity 6.3.4 Employ a full time communications manager to increase the awareness of the importance of marine conservation</i></p> <p><i>Activity 6.3.5: Establish volunteer programme for the monitoring of coral reefs</i></p> <p><i>Activity 6.3.6: Revise and upgrade marine education kit for schools, looking at best practice, e.g. Reef Ed from the Great Barrier Reef</i></p> <p><i>Activity 6.3.7: Develop education campaign that targets external audience / potential visitors focused on travel books, magazines, web sites, press agencies, etc.</i></p>	<ol style="list-style-type: none"> 1. Less impact from tourism on MP ecosystems and environment 2. More tourists are aware of visitor impact reduction efforts as publicized repackaged and redistributed “code-of –conducts” 3. More tourism operators are actively involved in the reduction of visitor impact through education and outreach programmes 4. Tourism operators and tourists are actively involved in monitoring the state of the coral reefs in the project sites 5. School curricula integrate marine conservation aspects 6. Media coverage increases significantly over the course of the project 	<ol style="list-style-type: none"> 1. Repackaging and redistribution of existing “codes-Of-conduct” such as “Reef Etiquette” to tourism operators (TOs) and main TOs such as Malaysian Airline and Berjaya Air 2. Production and distribution of new educational materials to tourism operators and tourists 3. Number of requests received from tourism operators for educational materials 4. Number of requests from tourists for educational materials 5. Logbook of volunteer reef monitoring programme (to be placed at MP centre) 6. Statistics on compliance with MP regulations 	<ul style="list-style-type: none"> • Existing “code-of-conduct” is still suitable for use • Tourism operators are provided with sufficient educational and outreach materials for display and distribution • New educational and outreach materials are prepared in cooperation with tourism operators to ensure applicability and use
Output 6.4: Replication: Expansion of the outreach and education campaign to other marine parks in Malaysia.			

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
<p><i>Activity 6.4.1: Documenting and disseminating lessons from the project sites to other marine parks</i></p> <p><i>Activity 6.4.2: Build capacity to enable decentralization of communications activities</i></p>	<ol style="list-style-type: none"> 1. All MPs in Peninsular Malaysia are provided generic educational and outreach materials such as code of conducts, posters and brochures 2. MP managers in other MPs have the capacity to develop site-specific educational and outreach material based on examples from project sites 	<ol style="list-style-type: none"> 1. Number of educational and outreach materials disseminated to all MPs in Peninsular Malaysia 2. Number of requests for materials from other MPs. 3. Number of training courses conducted for MP managers and staff in the development of educational and outreach materials 	<ul style="list-style-type: none"> • Sufficient materials are produced for distribution to other MPs • Training provided to MP managers and staff is sufficient for them to develop their own educational and outreach materials
<p>Outcome 7.0: Framework for strong advocacy from stakeholders for the conservation in the marine parks of Malaysia</p>			
<p>Output 7.1: Increased involvement of the National Advisory Council for Marine Parks and Reserves (NACMPR) in governmental decision-making with reference to the marine park areas</p>			
<p><i>Activity 7.1.1: Clarify and strengthen mandate and role of NACMPR</i></p> <p><i>Activity 7.1.2: Build capacity of NACMPR members</i></p>	<ol style="list-style-type: none"> 1. CCHI meetings incorporate recommendations and views from NACMPR 2. NACMPR has a permanent membership in the CCHI 3. NACMPR members at State and Federal levels incorporate considerations of 	<ol style="list-style-type: none"> 1. Minutes of CCHI meetings 2. Number of training courses provided for NACMPR members 3. Environmental Impact Assessment of development project on islands 4. Post-development monitoring of projects on marine park islands 	<ul style="list-style-type: none"> • NACMPR members need to fully recognize their role and their potential in influencing the CCHI, the State government, and their respective agencies as to the significance of marine biodiversity within the context of tourism promotion and development

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
	the needs of marine biodiversity conservation into the day-to-day operations and policy-making within their organisations		
Output 7.2: Increased advocacy from the general public the media & international audience of the conservation of biodiversity in Malaysian marine parks			
<p><i>Activity 7.2.1: Increase linkages with promotion/marketing channels (i.e. Destination Marketing Organization (DMOs) such as local tourism centres and Tourism Malaysia; the Internet; travel book and magazine publishers) to manage image and information distribution regarding tourism experiences at park, Conservation Charge, etc.</i></p> <p><i>Activity 7.2.2: Involvement of national media through a media workshop and production of press kits, including an on-line database with pictures and other information</i></p> <p><i>Activity 7.2.3 Establish a Fund, which can be accessed by NGOs and other organisations for awareness raising efforts</i></p>	<ol style="list-style-type: none"> 1. Official promotion material reveals a consideration of the value of marine biodiversity 2. Consideration of factors that reveal a shift in tourist profile by the end of the project in the annual tourism profile survey by MoCAT 3. Shift in tourism profile is evident by the end of the project 4. Media coverage increases significantly over the course of the project 5. Proposal to access the Fund are approved under 	<ol style="list-style-type: none"> 1. Promotional material distributed via Tourism Malaysia's network 2. Annual tourism profile survey conducted by MoCAT 3. Media reports, journals, websites, newspapers etc. 4. Reports from the Curriculum Development Centre under the Ministry of Education and official publication of the school curricula by the MoEd 5. Criteria for approval of proposals and evaluation reports. 	<p>- Priorities of national promotion are inclusive of marine conservation aspects</p> <p style="padding-left: 40px;">- Sufficient "space" for environmental education is allocated within the school curricula</p> <p>- Fund is perceived and utilised as a support tool by NGOs and other organisations</p>

OBJECTIVES AND OUTPUTS			
	Indicators	Means of Verification	Risks and Assumptions
	condition that the enhanced advocacy and outreach can be measured as a contribution to the conservation efforts of the Malaysian marine parks		
Output 7.3: Implement marine park Watchdog (Quality control)			
<i>Activity 7.3.1: Establish watchdog organisation with representatives from all stakeholder groups</i> <i>Activity 7.3.2: Build capacity among watchdog members in running a dialogue-focussed watchdog</i> <i>Activity 7.3.3: Create channels for exchange between watchdog with other stakeholders such as regular forums</i> <i>Activity 7.3.4: Design and implement Excellence Award for “green” tourism operators in the marine parks.</i>	Watchdog panel members appointed by Q3 Yr2006 Effectiveness of the watchdog is revealed in decision making at higher levels System of regular forums and meetings is established Award issued alongside with broad campaign and media involvement	Appointment letters issued Notes, reports and minutes from bodies that are involved in policy and decision making regarding the marine parks and the marine park islands. Letters of agreements with stakeholder associations, agencies and institutions.	Industry acceptance, public recognition

ANNEX I C) WORKPLAN FOR PROJECT IMPLEMENTATION

OUTPUTS AND ACTIVITIES	OUTPUTS AND ACTIVITIES																			
	YEAR 1				YEAR 2				YEAR 3				YEAR 4				YEAR 5			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Outcome 1.0: Adaptive MP management by a mechanism of cross-sectoral information sharing and knowledge transfer into decision-making bodies																				
1.1 Output 1.2 Effective information sharing among researchers, marine park managers and stakeholders																				
1.1.1: Improve information sharing between researchers, parks and stakeholders by developing a database and clearing-house mechanism of all research carried out in marine park.						X	X	X	X	X	X	X								
1.1.2. Facilitate research in marine parks through a standardized and simplified approval process incorporating terms and conditions for research.						X	X													
1.1.3. Establish linkages with universities, research organizations and other projects for networking and funding purposes.		X	X																	
Output 1.2: Implement mechanisms for continuous collection, collation, analysis and distribution of data obtained from research in marine parks.																				
1.2.1. Conduct research in marine parks using graduate (MSc) students.				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.2.2. Develop and distribute standard analysis kit and data storage procedures			X	X																

1.3 Output 1.5: Network of marine park managers, project team members, other conservation programmes and roster of experts from development organizations																				
1.3.1. Establish network of Malaysian experts in marine park management.			x																	
1.3.2. Facilitate and enable participation of Malaysia's marine park managers and staff in exchange programmes with other networks of experts.					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	xx
1.4 Output 1.1 Development of an interactive data base on private sector activities																				
1.4.1: Develop web-based database for the tourism sector.		x	x	x																
1.4.2 Develop directory of green product suppliers											x	x								
1.4.3 Create web-based directory of eco-friendly resort (link to rating scheme)															x	x				
Output 1.5: Distribute standard analysis kit, data storage procedures and other kits or manuals developed at the project sites to other marine parks.																				
1.5.1 Create manuals and tools for other marine parks in Malaysia to take advantage of and contribute to Output 1.1																x	x	x		
1.5.2 Examine the wider application of research permit/approval process to other marine parks in Malaysia																			x	x
Outcome 2.0: Mechanisms for effective multi-sectoral policy making, development planning and an improved financial sustainability																				
Output 2.1: Finalisation of the draft National Marine Parks Strategy (1999) with inputs from all stakeholders.																				
2.2.1 Organise national level consultation workshop/s to finalise the strategy					x	x														
Output 2.2: Develop and obtain Federal-State agreements for multi-sectoral island development planning mechanisms.																				

2.2.1 Identify benefits of closer Federal-State relations and costs of status-quo or non-cooperation		x																			
2.2.2 Prepare Memorandum of Understanding between Federal and State agencies on cooperation and marine parks policy			x	x																	
Output 2.3 A revised Tioman master plan reflecting multi-sectoral approaches to development planning.																					
2.3.1 Establish the Tioman Stewardship Council (TSC)				x	x	x															
2.3.2 Revise Tioman master plan							x	x	x	x											
2.3.3 Hold consultative meetings to discuss the draft of the revised master plan							x	x	x	x											
2.3.4 Train TDA staff in island development planning, tourism development and marine park management					x	x	x	x													
Output 2.4 Local/Special Area development plans for environmentally sensitive areas at all three sites.																					
2.4.1 Build capacity within local authorities in the design of participatory management plans					x	x	x														
2.4.2 Develop special area plans							x	x	x												
Output 2.5 Replication of integrated, multi-sectoral planning processes.																					
2.5.1 Hold workshop and training programmes for decision makers and amid-level managers.																		x	x	x	x
Output 2.6 Pilot initiative in the implementation of eco-tax on visitors to Pulau Tioman																					
2.6.1 Carry out feasibility study on the integration of the eco-tax with the Conservation Charge							x	x	x												
2.6.2 Pilot initiative to collect the joint eco-tax and CC										x	x	x	x								
Output 2.7 Complementary sources of revenue for marine park management and biodiversity conservation identified																					

2.7.1 Establish fund-raising programmes where visitors to resorts and marine parks and contribute to															X	X							
2.7.2 Recommend annual contribution from large resort operators to the Marine Park Trust Fund																X							
Output 2.8: Examine the application of existing financial mechanisms to promote environmental investments among small and medium scale industries.																							
2.8.1 Investigate needs of potential beneficiaries of the financing mechanisms							X	X	X														
2.8.2 Facilitate access of SMEs to the MoCAT soft loans									X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Output 2.9 Revised scope of the MPRTF and improved efficiency in Conservation Charge related operations																							
Activity 2.9.1 Revisit the scope and operations of the Marine Conservation Trust (MPRTF)																							
Activity 2.9.2 Revisit the past proposal on establishing a two-tier fee system for CC (Malaysian/non-Malaysian)																							
Activity 2.9.3 Study best practices on the rate of CCs in the region																							
Output 2.10: Replication of appropriate institutional and planning arrangements at other Marine Protected Areas in Malaysia																							
Activity 2.10.1: Feasibility study on the establishment of TSC- & monitoring committee- equivalent institutions at other marine parks in Malaysia																			X	X	X		
Activity 2.10.2: Feasibility study on establishing local /special area plans in other Malaysian marine parks, primarily focused on Redang and Sibut-Tinggi																			X	X	X		

3.2.2 Implement community ranger programme to enable local community participation in enforcing regulations in local community fishing zones													X	X								
3.2.3 Develop and agree upon a multi-jurisdictional zoning plans in the marine parks with allocation for community use							X	X	X	X												
3.2.4 Facilitate dialogue to air grievances and resolve multiple-use conflicts in and around the marine parks									X	X	X	X	X	X	X	X	X	X	X	X	X	X
Output 3.3: Generation of additional sources of income for local communities																						
3.3.1 Evaluate possible sources of additional income							X	X														
3.3.2 Develop local community plans for the management of squid fishing area in Sibut-Tinggi														X	X							
3.3.3 Implement local community plan																X	X	X	X	X	X	X
3.3.4 Provide language and technical training to local communities to increase their involvement in the tourism sector					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3.3.5 Investigate alternative source of income during the monsoon season							X	X														
3.3.6 Establishment of a business support mechanism to help local communities sustain their micro-businesses									X	X												
Activity 3.3.7: Investigate opportunities for local communities to access funds under the Micro Credit Scheme of the Economic Stimulus Package		X	X	X	X																	
Output 3.4: Replication of appropriate co-management plans in other marine parks of Malaysia.																						
3.4.1 Study the feasibility of replicating co-management plans and zoning schemes at other marine parks																			X	X		

3.4.2 Conduct inter-project study visits and exchange programmes for marine park staff and local communities										X	X	X	X	X	X	X	X	X	X	X	X	X	
3.4.3 Study feasibility of replicating additional livelihood programmes at other marine parks of Malaysia																			X	X	X		
Outcome 4: Tourism operators integrated into protected area management and reduction of the direct and indirect impacts of tourism activities on biodiversity																							
Output 4.1: Tourism operators in direct contact with MPU and have the capacity and incentives to implement best practices to conserve the marine environment.																							
4.1.1 Develop mechanisms to ensure active participation of local tourism operators in marine park management													X	X	X								
4.1.2 Establish grassroot groups to organize and facilitate the involvement of tourism operators															X	X							
4.1.3 Provide opportunities for tourism operators to learn from other initiatives, organizations and agencies																X	X	X	X	X	X	X	X
4.1.4 Train tour operators in improving visitor experience and lessening visitor impact on marine parks ecosystems														X	X	X	X	X	X	X	X	X	X
4.1.5 Create incentives for cooperation between MPU staff and tourism operators through training exercises and awareness building															X	X							
4.1.6 Conduct workshops for accommodation providers on environmentally friendly practices																X		X		X			

4.1.7 Conduct workshops for boat, dive and snorkel operators on environmentally sound boating practices, diver briefings and interpretation programming															X		X		X			
4.1.8 Develop and implement peer-review system for sustainable diving, snorkeling and boat operations																				X	X	X
4.1.9 Train operators in self-audits of environmental performance and implement site-specific environmental management plans for larger resorts															X	X	X	X	X			
Output 4.2: Establish, implement and monitor rating schemes for specific tourism sectors in collaboration with MoCAT's plans.																						
4.2.1 Establish certification criteria for resorts based on eco-friendliness							X	X														
4.2.2 Establish, implement and monitor rating schemes for specific tourism sectors including hotel and tour rating																		X	X	X	X	X
4.2.3 Train Tourism Malaysia staff in implementing rating scheme								X	X	X	X											
4.2.4 Promote rating scheme in cooperation with tourism operators											X	X	X	X	X	X	X	X	X	X	X	X
4.2.5 Identify best practices for rating schemes and certification criteria					X	X																
Output 4.3: Reduction and elimination of sewage discharge from marine park islands.																						
4.3.1 Development, identification and installation of appropriate sewage treatment technology for marine park islands								X	X	X	X	X										
Output 4.4: Proper disposal of solid wastes from marine park islands without solid waste disposal facilities																						
4.4.1 Pilot audit of solid waste transferred from islands to mainland					X	X	X															
Output 4.5: Proper collection and disposal of oil and grease from kitchens and fishing vessels and reduced oil pollution in marine park waters.																						

4.5.1 Promote installation of oil water separators in kitchens and chalets placement of oil collection containers at fishing jetties						x	x	x	x													
Output 4.6: Empowerment of tourism operators in implementing park regulations.																						
4.6.1 Establishment of instruments for voluntary surveillance by tourism operators to report violation of marine park regulations									x	x	x											
Output 4.7: Successful replication of tourism operators involvement in marine park management at other marine parks in Malaysia																						
4.7.1 Activity 6.7.1: Establish “training-of-trainers” and system of private sector spokes persons																		x	x	x	x	
4.7.2 Evaluate efficiency and cost-effectiveness of measures to ‘green’ businesses in the tourism sector																			x	x		
4.7.3 Hold training workshops for tourism operators in other marine park islands to promote replications of tourism operators’ involvement in marine parks management																				x	x	x
4.7.4 Adjust rating scheme following implementation and evaluation prior to expansion to other sites																					x	x
4.7.5 Disseminate lessons learnt to the region and internationally																					x	x
Outcome 5.0: MPUs follow international standards of protected area management and achieve efficient enforcement and prevention of violations																						
Output 5.1: Capacity of MPU staff in marine park management and enforcement of regulations is enhanced																						
5.1.1 Identification areas for capacity building.		x	x																			
5.1.2 Hold workshops in areas where capacity building is needed.			x				x				x						x					

Output 5.2: Development and implementation of marine park management plans for all three sites.																			
5.2.1 Revise the marine park Management Plan for Pulau Redang.						x	x												
5.2.2 Develop marine park management plans for all three islands								x	x	x	x								
5.2.3 Review and implement standards biophysical-mechanical monitoring including identification of performance indicators.												x	x						
Output 5.3: Higher level of compliance with marine park regulations.																			
5.3.1 Enhance effectiveness of patrols by Marine Park Unit and other DOFM enforcement units						x	x	x											
5.3.2 Create partnership with commercial fishermen (trawlers)											x	x	x	x					
Output 5.5: Capacity of marine park managers in Malaysia to implement management plans built.																			
5.5.1 Design of tools and manuals to replicate the management concept at other Marine Protected Areas in Malaysia															x	x	x		
5.5.2: Hold a series of Workshops on the management concept for other Marine Protected Areas managers with already trained managers from the project sites as peers																	x	x	x
5.5.3: Evaluate and report to relevant UNDP and GEF agencies, individuals, projects, programs and expert-networks about the management concept and lessons learnt																		x	x
5.5.4: Cross project-site learning visits for marine parks managers									x	x	x	x	x	x	x	x	x	x	x

Outcome 6: Raised awareness of the importance of biodiversity conservation and marine park system in Malaysia among selected target groups																			
Output 6.1 Enhanced awareness of the marine park system, its regulations and biodiversity conservation efforts among local communities.																			
6.1.1 Building awareness and capacity of local youth in ecotourism				X	X	X	X	X	X	X	X	X	X						
6.1.2 Organise campaign with fishermen associations and local communities							X	X	X	X									
Output 6. Increased awareness of decision makers and mid-level managers of the use of economic instruments for conservation efforts.																			
6.2.1: Organise a series of seminars to disseminate information and raise awareness about the concept behind and application of economic instruments in fund raising and in changing visitor behaviour in marine parks.								X					X				X		
Activity 6.2.2: Organise study tours for State and Federal level officers to protected areas where economic instruments are being applied for conservation purposes.							X	X	X	X	X	X	X	X	X	X			
Output 6.3: Implementation of a comprehensive environmental education and out reach programme targeted at those having the greatest impact on marine biodiversity.																			
Activity 6.3.1: Strengthen application of existing “code-of-conducts” using new materials such as posters, pamphlets and brochures and new approaches which encourages positive visitor compliance with marine park regulations			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Activity 6.3.2: Publish regular/periodic newsletter for the tourism industry and other stakeholders.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Activity 6.3.3: Organize and conduct study tour for selected tourism operators													X	X	X	X	X	X	X

Activity 6.3.4: Employ a full time communications manager to manage awareness building activities	x																			
Activity 6.3.5: Establish volunteer programme for the monitoring of coral reefs						x														
Activity 6.3.6: Revise and upgrade marine education kit for schools, looking at best practice, e.g. Reef Ed from the Great Barrier Reef									x	x	x	x	x							
Activity 6.3.7: Develop education campaign that targets external audience / potential visitors focused on travel books, magazines, web sites, press agencies, etc.					x	x	x	x	x	x	x	x	x							
Output 6.4: Expand the outreach and education campaign to other marine parks.																				
Activity 6.4.1: Documenting and disseminating lessons from the project sites to other marine parks										x	x	x	x							
Activity 6.4.2: Build capacity to enable decentralization of communications activities												x	x	x	x	x				
Outcome 7.0: Framework for strong advocacy from stakeholders for the conservation in the marine parks of Malaysia																				
Output 7.1 Facilitate and increase involvement of the NACMPR in high-level government decision making with reference to marine parks.																				
7.1.1 Clarify and strengthen mandate and role of NACMPR			x	x	x															
7.1.2 Build capacity of NACMPR members					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Output 7.2: Increased advocacy from the general public the media & international audience of the conservation of biodiversity in Malaysian marine parks																				

Activity 7.2.1: Increase linkages with promotion/marketing channels (i.e. Destination Marketing Organization (DMOs) such as local tourism centres and Tourism Malaysia; the Internet; travel book and magazine publishers) to manage image and information distribution regarding tourism experiences at park, Conservation Charge, etc.				X	X	X	X	X													
Activity 7.2.2: Involvement of national media through a media workshop and production of press kits, including an on-line database with pictures and other information				X	X	X	X	X													
Activity 7.2.3 Establish a Fund, which can be accessed by NGOs and other organisations for awareness raising efforts							X	X	X	X											
Output 7.3: Implement marine park Watchdog (Quality control)																					
Activity 7.3.1: Establish watchdog organisation with representatives from all stakeholder groups								X	X	X	X										
Activity 7.3.2: Build capacity among watchdog members in running a dialogue-focussed watchdog										X	X										
Activity 7.3.3: Create channels for exchange between watchdog with other stakeholders such as regular forums										X	X	X									
Activity 7.3.4: Design and implement Excellence Award for “green” tourism operators in the marine parks.										X	X	X	X					X			

Glossary and list Of Acronyms / Abbreviations used in the Logical Framework

CC	Conservation Charge	MPRTF	Marine Park and Reserves Trust Fund
DoE	Department of Environment	MPU	Marine Parks Unit
DoFM	Department of Fisheries Malaysia	NACMPR	National Advisory Council for Marine Parks and Reserves
EIA	Environmental Impact Assessment		
EPU	Economic Planning Unit	NPBD	National Policy on Biological Diversity
GIS	Geographic Information System	NRM	Natural Resource Management
IWK	<i>Indah Water Konsortium</i>	SEATHRU	Sea Turtle Research Unit
JNPC	Johor National Parks Corporation	SEPU	State Economic Planning Unit
MHLG	Ministry of Housing and Local Government	SEDC	State Economic Development Corporation
MIMA	Maritime Institute of Malaysia	TDA	Tioman Development Authority
MNS	Malayan Nature Society	TSC	Tioman Stewardship Council
MOSTE	Ministry of Science, Technology and the Environment	UPEN	<i>Unit Perancang Ekonomi Negeri</i> (State Economic Planning Unit)
MOCAT	Ministry of Culture, Arts and Tourism	UPM	<i>Universiti Putra Malaysia</i>
MP	Marine Park	WWF-M	Worldwide Fund for Nature - Malaysia

ANNEX II – INCREMENTAL COST ANALYSIS

Component	Category	US\$ million	Domestic Benefit	Global Benefit
Outcome 1: Adaptive MP management by a mechanism of cross-sectoral information sharing and knowledge transfer into decision-making bodies	Baseline	0	Currently no mechanism exists to ensure that research feeds into marine park management needs.	Many gaps remain in the information necessary of biodiversity decision making.
	Alternative	Total: 0.173		
	Increment	GEF: 0.133 GoM (cash): 0.04	Mechanisms to share knowledge would benefit the marine parks unit by providing them with the necessary information to make decisions, as well as to influence other national level decision makers.	Biological monitoring systems will provide data for informed decision making. This would allow adaptive management by park management authorities and allow them to better manage the marine resources according to the ecosystem approach.
Outcome 2: Mechanisms for effective multi-sectoral policy making, development planning and an improved financial sustainability	Baseline	0.133	Even with the strengthening of the marine parks management, a challenge remains to create the political and conceptual “space” for marine biodiversity issues given the conflicting agendas of various government agencies and other stakeholders	This domestic situation means that the majority of the threats to globally significant marine biodiversity will not be addressed. For example, threats linked to the Federal-State jurisdiction split will persist.
	Alternative	Total: 0.371		
	Increment	GEF: 0.203 GoM (cash): 0.03 GoM (in-kind): 0.005	More integrated development planning processes will be demonstrated, first on the site level, and then on the national policy making level. The dialogue between Federal and States will also benefit other biodiversity conservation efforts, not just those pertaining to marine biodiversity.	Better integrated planning and management will help to contain and reverse threats currently affecting marine biodiversity. This management model, if successful, for example, the Federal-State MoUs could be replicated in other similar governance structures outside the country, hence increasing the impact.

Component	Category	US\$ million	Domestic Benefit	Global Benefit
Outcome 3: Involvement of local communities in marine parks management and enabling them to benefits of biodiversity conservation by generating alt. livelihoods	Baseline	0.133	Local communities will continue to feel sidelined and deprived of a source of livelihood, due to the gazettement of the marine protected areas and the no take zones.	The tension between the local communities and the marine park management
	Alternative	Total: 0.258		
	Increment	GEF: 0.115 GoM (in-kind): 0.01		
Outcome 4: Tourism operators integrated into Protected Area Management and reduction of the direct and indirect impacts of tourism activities on biodiversity	Baseline	0	Difficult to quantify the baseline as there are only small and occasional efforts to engage tourism operators in marine park management.	Lost opportunity to get a buy-in from this group of stakeholders, which cause part of the threats to globally significant biodiversity but also can participate significantly in removing those threats
	Alternative	Total: 0.827		
	Increment	GEF: 0.138 Pvt sector: 0.689	Through Indah Water Konsortium (IWK) investment on Tioman Island (and possibly also to Redang island, although that has not been included in this co-financing figure), there will be a substantial improvement in the sewerage system in the islands.	The reduction of untreated discharge from sewage (mainly from the small and medium sized hotel operators will improve the water quality in the marine park waters and therefore improve the habitat of globally significant marine biodiversity. Furthermore the positive engagement of the tourism sector will have high impact, as they can transmit messages on conservation to their clientele.
Outcome 5: MPUs follow international standards of protected area management and achieve efficient enforcement and prevention of violations	Baseline	0.862	The marine parks unit has been upgraded to a division level, and thus should be able to play a greater role in the management of marine parks. However, enforcement of marine park regulations still remain a problem.	Marine parks management in Malaysia are still not following international best practices in terms of managing protected areas in the light of challenges of increasing tourism as well as island development
	Alternative	Total: 1.444		

Component	Category	US\$ million	Domestic Benefit	Global Benefit
	Increment	GEF: 0.243 GoM (cash): 0.300 Pvt sector (cash): 0.04	Strengthened capacity of the marine parks division as well as increased surveillance and enforcement of no-take core zones would ensure repopulation of stocks with positive effects on fishing effort/catch levels in permitted zones	More effective conservation of globally significant biodiversity because of strengthened capacity of the marine park management as well as more efficient standard operating procedures, which allows marine park staff to concentrate on enforcement and outreach.
Outcome 6: Raised awareness of the importance of biodiversity conservation and marine park system in Malaysia among selected target groups	Baseline	0.168	The marine parks division would continue to fund awareness raising publications using the Marine Park and Reserve Trust Fund. However, these materials are not widely distributed.	The understanding of the importance of biodiversity conservation would remain low, and stakeholders, including national and international tourists would not view the marine parks in Malaysia as a quality destination with good marine and coral biodiversity.
	Alternative	Total: 0.991		
	Increment	GEF: 0.326 GoM: (cash) 0.577	The project would not only support enhanced and better targeted awareness raising initiatives, but also introduce improved nature interpretation activities. This would increase the number of “quality” visitors visiting the Malaysian marine parks	Increased awareness would help ensure that the management plans of the marine protected areas are well respected, and would decrease the number of “free riders”. This would allow the conservation efforts to be relatively un-hindered by the direct effects of tourism and other island development activities.
Outcome 7: Framework for strong advocacy from stakeholders for the conservation in the marine parks of Malaysia	Baseline	0	There is current no strategic support for advocacy groups on marine conservation in Malaysia. Advocacy effort through the national media and NGOs will remain piecemeal and adhoc.	Opportunity to harness multistakeholder advocacy initiatives towards constructive improvement of marine parks and better protection of marine biodiversity will be lost
	Alternative	Total: 0.141		

Component	Category	US\$ million	Domestic Benefit	Global Benefit
	Increment	GEF: 0.141	The project will support NGOs and CBOs in carrying out advocacy actions, as well as build capacity of the media – both mainstream and independent – to highlight marine biodiversity issues and in so doing, raise national awareness.	Global benefit will mainly arise from the increased awareness on marine protected areas. In addition, the higher “visibility” – both national and international - given to marine biodiversity conservation efforts will ensure that these efforts are sustained at acceptable levels, even after the project is over.
Establishment of the national project management structure	Baseline	0		
	Alternative	Total: 0.930		
	Increment	GEF: 0.653 GoM (cash): 0.065 GoM (in-kind): 0.210	The project structure will include linkages to national level policy making bodies and provide inputs into the National Island Development Guidelines. The project structure will, in addition, strengthen links between policy makers, academic and park managers	The project management arrangements will ensure the sustainability, impact and replicability of project activities, thus contributing to the continued and intensified efforts of conservation of marine biodiversity in Malaysia.
Total costs	Baseline	1.296		
	Alternative	Total: 5.215		
	Increment	GEF: 1.952 GoM (cash): 1.012 GoM (in-kind): 0.225 Pvt sector: 0.729		

ANNEX III – SOCIO-ECONOMIC ANALYSIS

1.0 Demographical Profiles of the Project Sites

Figure A1: Households and Population on Marine Park Islands of Study

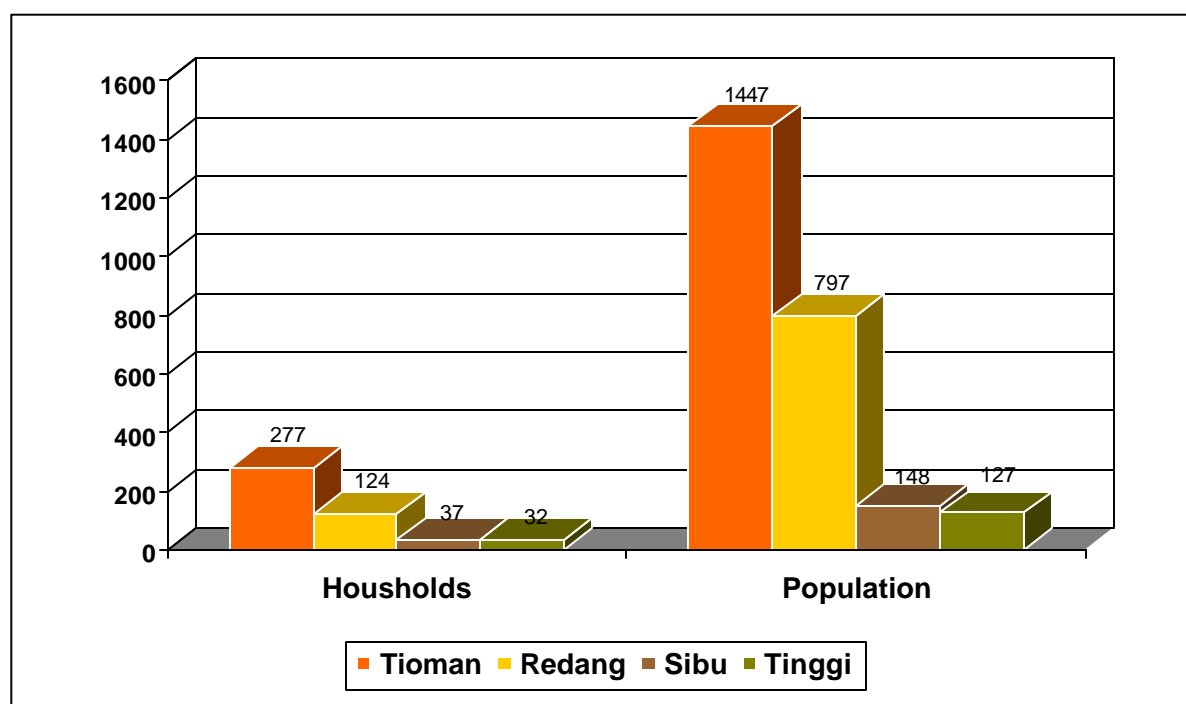


Table A1: Demographic Profile of Communities

	Male	Female	Total	Male %	Female %	Average Household Size
Pulau Tioman	755	692	1,447	52.2	47.8	5.2
Pulau Redang	397	400	797	49.8	50.2	6.4
Pulau Tinggi	58	69	127	45.7	54.3	4.1
Pulau Sibul	76	72	148	51.4	48.6	4.0
Total	1,286	1,233	2,519	51.1	48.9	

Source: Socio-economic Survey, PE Research, 2001

Table A2: Place of Birth of Local Community (%)

	Pulau Tioman	Pulau Redang	Pulau Tinggi	Pulau Sibiu
Current Village	69.4	81.4	63.8	88.5
Other Village on Island	8.9	n.a.	16.5	5.4
State Mainland	11.6	15.3	16.5	2.0
Other States	10.1	3.3	3.1	4.1

Source: Socio-economic Survey, PE Research, 2001

Table A3: Community Age Profile (%) and Dependency Ratio

	< 15 years	15 - 64	65 and above	Dependency Ratio
Pulau Tioman	35.7	60.5	3.8	65.4
Pulau Redang	46.3	52.4	1.3	90.7
Pulau Tinggi	44.9	54.3	0.8	84.1
Pulau Sibiu	23.7	74.3	2.0	34.5
Rural Malay	42.1	53.6	4.3	86.5
Rural Malaysia	40.0	55.9	4.1	78.9

Source: Socio-economic Survey, PE Research, 2001; General Report of the Population Census, 1991, Department of Statistics.

It is noted that there is a very high dependency ratio in the case of Pulau Redang. The age profile shows that Pulau Tioman is more akin to a small urban setting while the other islands are more similar to rural Malaysia.

Table A4: Occupational Profile of Communities (%)

Aged 15 years & above	Pulau Tioman	Pulau Redang	Pulau Tinggi	Pulau Sibiu
Students	13.8	21.5	1.4	11.5
Housewives	23.7	26.6	44.3	25.7
Fishermen/Boatmen	17.5	26.9	31.4	31.9
Farmers	2.9	-	-	-
Chalet Operators	7.6	-	1.4	-
Professional/Technical/Managerial	3.3	1.7	1.4	4.4

Sales & Services	11.4	4.4	1.4	3.5
General Workers	11.9	16.9	15.7	15.9
Unemployed	7.8	2.1	2.9	7.1

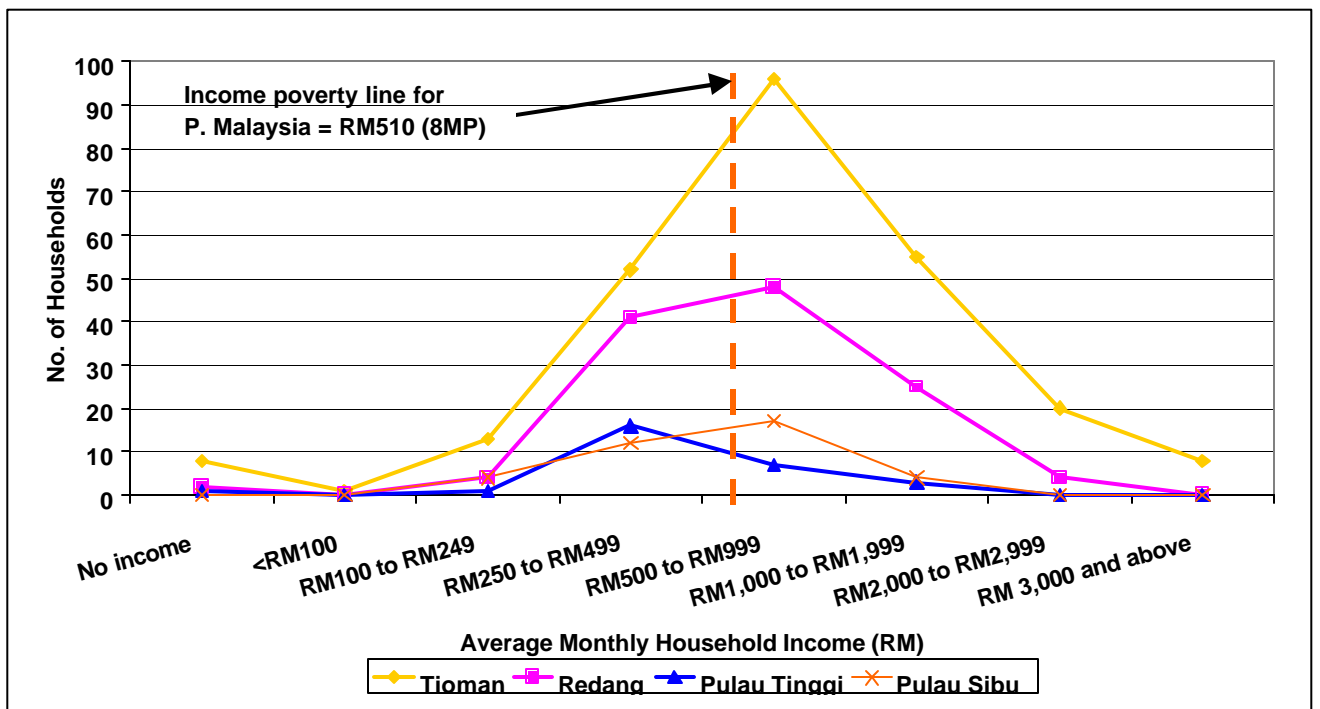
Source: Socio-economic Survey, PE Research, 2001

Table A5: Average Monthly Individual Income (RM)

Sector	Pulau Tioman	Pulau Redang	Pulau Tinggi	Pulau Sibiu
Agriculture	315	n.a.	n.a.	n.a.
Fisheries	369	356	352	300
Tourism	563	454	617	442
Government	567	660	375	930
Retail, transport & construction	-	430	-	-
Others	488	-	600	425
Total Average	526	458	450	441

Source: Socio-economic Survey, PE Research, 2001

Figure A2: Average Monthly Household Income (RM)



More than half of the households in Pulau Tinggi and Pulau Sibul have average household incomes of below RM500, which is below the income poverty line of RM510 (RM8).

- More than a third of the households in Pulau Redang have average household incomes of below RM500.
- In comparison 30% of the households in Pulau Tioman have average household incomes of below RM500.
- The lower average household incomes in Pulau Sibul-Tinggi & Redang (below poverty line incomes) is because the transition to tourism is less extensive.

2.0 Socio-economic Impacts on the Marine Environment

2.1 Tioman

Key Issue-1: Solid Waste

Most *kampungs* collect their solid waste daily. Some burn it outside the village and bury it. Most of the villagers from Mukut to Salang transport on a daily basis, their garbage to the incinerator in Tekek. The bulk of the solid waste collection, transport and incineration cost is borne by the Tioman Development Authority (TDA).

Most villages have a clean appearance, however with a distinct difference that seems to reflect different management skills on part of the JKKK. Lack of capacity is an issue, both at the village dumps and for the incinerator. At the incinerator, four persons are hired to burn off all garbage brought there. A hardware solution has been suggested, namely establishing an additional incinerator. This is expensive. This is compounded by a perception by the local chalet operators that environmental infrastructure services should be for free. Nevertheless, the residents do pay an assessment fee to the Rompin District Council, but this sum is not disbursed to the TDA for handling the solid waste problem.

The solid waste system costs about RM0.5 million per year to operate, and that includes the collection, transport and incineration costs. The system is implemented through the local JKKK. About half of this is paid to the four villages (Salang, Tekek, Genting and Mukut) for collection and transport, and the other half is the cost of operating the incinerator.

Key Issue-2: Wastewater

The wastewater issues seem to be critical in Salang, at Genting and possibly in Air Batang and maybe from Berjaya. Genting has one of the highest numbers of chalets in a single village.

It seems that the current thinking in central systems (multi-point central sewer). It may be that density is such that on-site sanitation is impractical, but this may not have been thoroughly investigated. In Salang, one major issue is the lack of desludging of septic tanks, and the apparent untreated discharge into the stream. This reflects an apparent lack of technology available on the island (no room for access for specialty trucks and no alternative technologies available).

There has been a much more extensive shift of the *kampung* occupations away from the fishery industry towards tourism-related businesses and jobs. In Tioman especially, chalet operations have been set up in the 1980s in a large way, and these have contributed to alternative occupations and jobs to the fishing industry. This has not happened in Redang, Tinggi or Sibul, because the beach land has been sold off.

Major development patterns are to be undertaken by the Tioman Development Authority. The major features include¹:

- Tekek on Tioman Island will be developed as the new entry point for all tourists and will be developed as a service centre for the island.
- New infrastructure will be constructed in Tioman including roads, recreational areas, and new jetties.
- Tioman is to be developed into a world-class centre for eco-tourism and all 22 islands are targeted for tourism-based activities.
- Disposal of solid waste on the island is privatised to 5 local operators (JKKK, or *kampung* committee on works, security and development), which comprise local island residents.
- Berjaya Tioman Resort manages her own solid waste and operates her own incinerator (5 tons per day) while the TDA has one incinerator (3 tons/day) which is located in Tekek.

¹ From Choy 2000

- TDA proposes to set up a sewerage system and another two units of incinerators under the Eighth Malaysian Development Plan at a cost of RM32 million.
- Discussion is on going with IWK and JPP with regards to disposal of sewage and wastewater on the island; for Tioman, the approved budget is RM26 million.
- Planning for an island population of 20,000 by year 2010 compared to 5000 in 1995

The government expects Tioman to face significant terrestrial development pressures. No doubt, there has been significant build-up of tourist capacities, as noted by the authorities. However, the current tourism situation is different. There is acknowledgement of competition from other destinations. In addition, the economic recession has trimmed tourist arrivals significantly. Not only that, tourists have told their agents that Tioman's waters and marine life has degraded or just not up to expectation. As such, this perception has filtered down to price. Today, many operators are complaining about the Conservation Charge, which they see as a minor deterrent, even though the amount is small compared to the total costs of holidaying in Tioman.

At the stakeholders' meeting, the TDA representative acknowledged that the planned development for Tioman may be reviewed because of the fact that existing problems are not yet resolved, and there could be physical carrying capacity limitations for an island with sensitive ecosystem. He highlighted the fact that the government has a tendency to approve physical types of development, but acknowledges that the operating and maintenance capacity needs also to be given due attention.

Summary of main issues with respect to local community

The major threat to marine bio-diversity arising from the local population appears to be localised at Salang, Tekek, and also Genting. These arise because of polluted effluent from sewage and sullage waters entering the marine waters through the rivers. The other major threat comes from the tourism activities, and these include contact from snorkelling, diving, collection of souvenirs, boat anchors, etc. The extent of these damages is widespread but it is reported to be minor. The major problems would likely arise from the planned tripling of tourism development on the island, from the current 1,875 rooms to 5,500 rooms by 2020². The maximum population on the island envisaged for Tioman is 25,336. The infrastructures to abate pollution as well as the funding for these investments need to be secured before further developments are approved for Tioman.

² UPEN Pahang 1995. *Kajian Semula Pelan Induk Pulau Tioman, Laporan Akhir*, Ogos 95, Jadual 3.1, ms 3-11. (Review of Pulau Tioman Master Plan, August 1995, Table 3.1, page 3-11, prepared by MSO Associates in conjunction with MAB Environmental Consultants Sdn Bhd and Gabungan Jurutera Melayu Sdn Bhd),

2.2 Redang

As for environmental facilities, the villagers have been left mainly to fend for themselves. In terms of solid waste, the *Majlis Perbandaran Kuala Terengganu* (MPKT) provided a service until this year (2001). This service was contracted to a local operator. It stopped when the people refused to pay assessment. Each household is expected to burn and bury their own waste on their 7,000 sq ft plot! Water is metered, and so is electricity, and the residents have to pay for its use. Solid waste sites are appearing along the road into the village from the K.Redang jetty.

Sewage is directed into a septic tank that came with the house, and probably provided by the rural sanitation programme of the Ministry of Health. Sullage is drained eventually into the Sungei Redang. This river pushes its way through a mangrove swamp (mainly *Api-api*, *Rhizophora* spp) before reaching the Kuala. The government has been considering the building of a water treatment facility at Kg Redang, but no further development has taken place.

Apart from these physical aspects, there was a complaint from marine park officials that the local village people, especially the boat operators, have a flagrant disregard for park regulations and regulations. The most frequently cited infringement is they bring tourists to the marine park headquarters during low tide, when the no-visitor signal has been put up. Other infringements include fishing within marine park waters, lack of civic consciousness (e.g. throwing rubbish from boats in mid-journey), using anchors when buoys have been broken, and closing an eye when tourists infringe “marine park” laws and regulations, such as collection of corals and shells.

One controversial matter between local people and conservation was on the issue of turtle egg collection. For the record, turtle egg collection is licensed and the license has been given to a local co-operative. During the workshop, the local co-operative complained that egg collection rates have been dropping. Pointing their finger at a local conservation effort, SEATRU, they claim that there were just too much restriction on visitations and collections. However, the scientists in SEATRU say that this decline is a result of previous egg collections, which has depleted the next generation of turtles. There is an on-going effort to conserve eggs through paying villagers for nestings, but apparently the remuneration is too low, and the villagers are not getting their capital back. The issue is therefore not the magnitude of collection of eggs but villagers are not making money on their investment.

Another area of concern was the apparent non-transparent way in which buildings were constructed without comments by or knowledge of marine park officers. More than that, these developments often were done without regard for soil protection or conservation, and did not follow any guidelines approved for marine parks.

Apart from the local people, other non-residents also cause several problems. Some of the key environmental issues that were raised by the chalet operators in Pasir Panjang (during individual visits as well as at the workshop) include:

- The solid waste and sewage problems on Pasir Panjang, where proper management needs to be put in place fairly soon, as it has affected the ground water;
- Cleanup of rubbish in the sea: needs to be properly organised, can even be privately initiated, but will need government to lend its authority to private initiative;
- Maintenance of beach needs to be organised better, due to rising cases of littering along the beaches, in the waters. Main culprits are tourists;

- The garbage problems on the mainland, e.g. Merang, merits attention as well;
- The diesel transport to Pasir Panjang which has some (unavoidable) leakages into the beachfront waters, and solutions need to be found;
- The large number of tourists do not have an appreciation of the value of nature or even that some of their activities could threaten the fragile marine ecosystem and its constituents
- The activities of tourists, in particular, the novices to snorkelling have been observed to be very damaging to shallow reefs. For the novice divers, damages to corals from fin and holding have also been observed
- An area where more information may be necessary is whether using sun-block lotion would degrade water quality and pose a danger to marine life, and also whether fish feeding could give rise to changing fish composition and degrade water quality
- The physical carrying capacity of Redang has been exceeded during peak periods such as school holidays and weekends, and crowds of tourists are difficult to handle, leading to overloading of boats
- Overloading of boats: or excess of boats in the waters – rising demand of tourists;
- Guides need to be taught ethics
- Need for control of first-time snorkellers in shallow waters;
- Limit the number (of tourists) into marine park waters

The *ketua kampung* indicated that the local people support the marine park because the Park protects marine resources. Corals, he says, are destroyed by tourists and not by boat anchors (*sauh*). However, few people believe that anchors pose a serious danger to the marine life, based on their experience. Moreover, they say that after the monsoon period, or through the last El Nino, there was a perceptible decline in the quality of the reefs.

As for fisheries, they do not believe that they are the cause of its decline. Many are still fishermen. If anything, they feel that the trawlers, the *pukat jerut*, and *pukat sotong* have depleted the fisheries resources. In any case, they believe that the mid-year catches, especially from June to September are always poor, and the switch to tourism has helped to provide an income during the lean months. Although the marine park authorities are responsible for enforcing the whole area, it is not possible for them to enforce over such a large area.

Summary of the key issues with respect to the Local Community:

- Residents feel left behind, despite many who've been employed in Berjaya, and some have been working with the chalet operators as boatmen, guides, and other jobs;
- Poverty is not that big an issue on Redang, even though on Tinggi and Sibu it appears to be of some significance. As fishery catch declines, the local people will want to take advantage of the growing tourism business;
- Tourism has provided not just regular income but higher than fishing incomes (so that explains the shift towards tourism);
- Some fishing pressure by mainland fishermen, perhaps leading to declining fisheries resources, but very little (effective) enforcement by Fisheries Dept/marine park;
- People's attitude: unwilling to pay but expect services (e.g. garbage collection);
- Local people in the *kampung* feel that environmental problems caused by the *kampung* in Ulu Redang is not as serious as that when it was over the waters at Kuala Redang. Moreover, natural causes of destruction probably worst than man-made ones; but tourists are the main culprits, not the local people.

2.3 Sibu, Tinggi

The main issue for the local community, measured in terms of the fishing community is damage to the fishery resource by the trawlers. Trawlers come mainly into the near-shore, within the marine park boundaries. However, there has not been any arrest of trawlers in these waters.

The Pulau Sibu fishing community, using traditional gears such as *jaring*, *bubu*, and *pancing* cannot match the efficiency of the trawlers. Hence, there is resentment that the fishery resource has been damaged by these fishing operations. There is usually no sight of the marine park officials whenever there is an infringement. Although they are not to be blamed, there is something lacking in the present system of enforcement and regulation.

In taking tourists out for their activities, snorkelling especially, boat operators will throw anchors overboard, if mooring buoys cannot be found on site. As such, there is some reporting to the consultants of anchor damage. However, the extent of the damage is small.

On the islands, there is no infrastructure for dealing with sewage or solid waste. Currently, the sewage is put into septic tanks, which then leach out over time. There is no waste collection system at the moment, and people burn and bury their wastes, an individual responsibility.

Summary of the Key Issues with respect to the Local Community

Some of the issues raised during the dialogue with Chalet Operators in Sibuluan Island³ are as follows:

- Physical destruction by indiscriminate mooring activities of boats.
- Need to organise marine parks and map out areas for different activities such as mooring areas, fishing areas, and coral gardens
- Recreational fishing should be allowed in designated areas within the parks
- Request for education and awareness programmes for the stakeholders
- Local government services need to be provided particularly on solid waste disposal
- Need to improve accessibility of tourists to the Sibuluan and Tinggi group of islands
- Trawler infringements, including shrimp trawlers are a major problem especially during the monsoon months.
- Direct disposal of raw sewage into the marine park by residents of *Kelongs*.
- Island residents are using traditional sewage systems
- Strong request to permit recreational fishing within park waters.

The stakeholders remain disorganized. Attempts to form groupings to represent their interests have not succeeded.

3.0 Stakeholder Analysis

Table 7.1 identifies all the relevant stakeholders for this GEF project. It also attempts to do a crude classification of the stakeholders. They are roughly grouped as institutions, interest groups and others.

Table 7.1: Classification of Stakeholders

Institutions	Interest Groups	Others
Marine Park Office	Fishermen	Future Tourists & Visitors
DoFM	Local Residents	
LKIM	Malaysian Tourists	
Development Authority	Foreign Tourists	
UPEN	Boat owners	
DOE	Guides	
District Council	Dive masters	
Land Office	Owners of chalets & hotels	
IWK/DSS	Research Groups	
Tour/Chalet Operators	Politicians	
GEF/UNDP		

³ Choy 2000

A brief analysis and summary of their features is contained in **Table 7.2**. Other team members should undertake further improvements to this table so that the overall understanding of stakeholders can be improved, and this information can form the basis of the forthcoming workshops.

Table 7.2: Description of Stakeholders

Stakeholders	Characteristics	Problems & Interests	Potential & Deficiencies	Implications for project
Local Fishermen	<ul style="list-style-type: none"> ▪ Fisheries, traditionally the important income source for island communities ▪ Significant change in the occupation of fishermen due to tourism industry 	<ul style="list-style-type: none"> ▪ Basis for living has declined ▪ Good local knowledge 	<ul style="list-style-type: none"> ▪ Familiar with local sea conditions ▪ Know areas of reef damage and pollution ▪ Unconvinced that tourist pressures destroy reefs 	<ul style="list-style-type: none"> ▪ <i>Strong support for pollution control or conservation</i> ▪ Strong resistance to restricting rights to fishing
“Outside Fishermen”	<ul style="list-style-type: none"> ▪ Using highly productive gears, deplete fisheries resources ▪ Isolated encroachment into marine parks 	<ul style="list-style-type: none"> ▪ Established good intelligence in DOFM/MPU, escapes from enforcement ▪ Maximise fisheries catch 	<ul style="list-style-type: none"> ▪ Very limited capacity to change jobs & work ▪ Exerting high fishing pressure in the in-shore and marine park waters 	<ul style="list-style-type: none"> ▪ Strong resistance to marine park enforcement
Tourists, snorkellers	<ul style="list-style-type: none"> ▪ Young, urban, non-Malay, some students ▪ 1st timers to marine park 	<ul style="list-style-type: none"> ▪ main cause of shallow reef damage, souvenir collectors ▪ fascinated by marine life ▪ expect urban comforts of life 	<ul style="list-style-type: none"> ▪ poor awareness & sense of conservation ▪ little experience with reefs and marine bio-diversity 	<ul style="list-style-type: none"> ▪ increased fees may drive some away
Divers	<ul style="list-style-type: none"> ▪ locals, greater appreciation of reefs 	<ul style="list-style-type: none"> ▪ want to experience wilderness and willing to 	<ul style="list-style-type: none"> ▪ conservation minded ▪ appreciate bio- 	<ul style="list-style-type: none"> ▪ support greater efforts in conservation

Stakeholders	Characteristics	Problems & Interests	Potential & Deficiencies	Implications for project
	than snorkellers <ul style="list-style-type: none"> ▪ foreigners, hi income ▪ aware of safety, dangers 	pay for it	diversity	
Chalet Operators	<ul style="list-style-type: none"> ▪ tuned to making the most of tourist revenue growth ▪ individualistic profit maximisers ▪ tenants/owners 	<ul style="list-style-type: none"> ▪ awareness of sustainability issues limited to those facing environmental problems ▪ sees enforcement as govt responsibility, not theirs 	<ul style="list-style-type: none"> ▪ those under pressure willing to pay to solve their problems ▪ some willing to invite government to intervene 	<ul style="list-style-type: none"> ▪ getting consensus will depend on local situation ▪ some will respond better to just regulations and authority
Tour Guides	<ul style="list-style-type: none"> ▪ work on contract, mostly monthly paid ▪ young and playful but are responsible to their jobs 	<ul style="list-style-type: none"> ▪ won't discipline guests, to protect interests of their boss ▪ sees business opportunity, but not long term issues 	<ul style="list-style-type: none"> ▪ capable swimmers, maybe lifesavers, crowd managers ▪ feel that they are qualified but no proper training 	<ul style="list-style-type: none"> ▪ probably resist to learning if at expense of incomes
Local Community	<ul style="list-style-type: none"> ▪ poor ▪ not well educated, dependent on government for social and economic organisation ▪ shifted from fishery-based economy to tourism 	<ul style="list-style-type: none"> ▪ not willing to pay for services e.g. garbage collection, water ▪ socio-economic status improved due to tourism 	<ul style="list-style-type: none"> ▪ can pressure politicians to get their way, e.g. subsidies, development rights, etc ▪ cannot withstand full force of the market, e.g. decline of tourists 	<ul style="list-style-type: none"> ▪ voiced support for marine park activities, but this is merely placatory remarks ▪ their real interests need to be taken into account
marine park officials	<ul style="list-style-type: none"> ▪ dedicated, committed to marine park objectives ▪ spend most of their 	<ul style="list-style-type: none"> ▪ feel compromised because have to close one eye to local infringement of laws 	<ul style="list-style-type: none"> ▪ need vision ▪ unable to act without support from their superiors 	<ul style="list-style-type: none"> ▪ support for more effective management of parks

Stakeholders	Characteristics	Problems & Interests	Potential & Deficiencies	Implications for project
	<p>time collecting Conservation Charge, rather than park management or regulation</p>	<ul style="list-style-type: none"> ▪ feel ineffective because not enough resources to do the needful 	<ul style="list-style-type: none"> ▪ greater training would improve their performance 	
<p>Researchers and scientists of marine parks</p>	<ul style="list-style-type: none"> ▪ dedicated researchers who have been focussed on marine studies for two or more decades 	<ul style="list-style-type: none"> ▪ long term interest in marine conservation ▪ creating new innovative people-oriented programs ▪ long term funding is an issue 	<ul style="list-style-type: none"> ▪ involving local residents in monitoring and research efforts ▪ lack of capacity to do more of the conservation work 	<ul style="list-style-type: none"> ▪ key stakeholder to develop capacities, involve locals and generate required information for planning and management
<p>Local government</p>	<ul style="list-style-type: none"> ▪ LG lack resources and capacity to deliver adequate levels of municipal services (e.g. garbage collection) ▪ LG is the most important regulatory agency of developments on marine parks but interest and motivation lacking ▪ No presence in islands 	<ul style="list-style-type: none"> ▪ Lack understanding of the importance of conserving marine park ▪ Little or no capacity or resources to deal with local problems on islands ▪ Distance between islands and local government's operational area limits their effectiveness 	<ul style="list-style-type: none"> ▪ Tioman Development Authority (TDA) – recognise importance of development initiatives ▪ TDA's legal status still needs to be sorted out ▪ TDA can be another channel to state/national level resources for development assistance 	<ul style="list-style-type: none"> ▪ TDA-type agency most appropriate to be a strategic partner to MPU to manage island – sea as single entity ▪ Existing LG do not have capacity nor resources to support, compliment conservation of marine parks

Stakeholders	Characteristics	Problems & Interests	Potential & Deficiencies	Implications for project
State government	<ul style="list-style-type: none"> ▪ Constitutional powers over land, water rests with State Government ▪ Main economic & socio-economic planner for the state ▪ Financial resources not adequate to meet state level needs ▪ Lack understanding on importance of marine parks or conservation 	<ul style="list-style-type: none"> ▪ Dependent on federal government to provide financial resources for development, operations ▪ Bias towards development, tourism, not conservation: development first, deal with social or environmental consequences later. ▪ State politicians interferes with certain administrative decisions 	<ul style="list-style-type: none"> ▪ Able to mobilise state resources to deal with state and local problems but on limited basis ▪ Lack capacity to regulate development effectively ▪ State policy decisions sometimes conflict with federal policies ▪ State government blessing on projects is essential 	<ul style="list-style-type: none"> ▪ key stakeholder on state development policy and can channel resources to improve marine park management ▪ State government needs to be convinced that conservation and development can work hand in hand for benefit of state
Federal government	<ul style="list-style-type: none"> ▪ Sets out national development policies ▪ National economic & socio-economic planner ▪ Controls 5-year & annual budgets & financial resources 	<ul style="list-style-type: none"> ▪ National commitment to bio-diversity conservation ▪ Development initiatives implemented through state governments or federal agencies/branches 	<ul style="list-style-type: none"> ▪ Can utilise financial carrot to influence state policies in desired way ▪ Can commit financial & administrative resources to important policy areas ▪ Slow to react in some areas (e.g. JPA staff) 	<ul style="list-style-type: none"> ▪ MPU is important driver for more effective policy implementation of marine conservation efforts, hence its status needs to be upgraded ▪ Federal agencies must support MPU efforts

Source: LFA workshop proceedings, PDF-B phase report, September 2001

ANNEX IV – LEGAL AND POLICY ANALYSIS

Executive Summary

Review Of Institutional And Policy Arrangements For The Management Of Marine Parks In Peninsular Malaysia

INTRODUCTION

1. The administration of Peninsular Malaysia's marine parks (MPs) and the islands around which these MPs are located is a complex affair that involves all three levels of Government (Federal, State and Local) in the country. The Federal Government formulates policies that govern national development such as the multi-sectoral Malaysia Plan documents as well as sectoral policies such as the National Agriculture Policy 3 and the National Policy on Biological Diversity. The State Government has control over land matters including on islands and decides on land use matters and economic development. The Local Government implements many of the decisions of the State Government and administers basic amenities on islands and in principal manage physical development activities.

2. The tiered system of government provides a good coverage of issues where MP and Island management is concerned but also results in a dichotomy between Federal managed MPs and State and Local Government managed marine park islands. This schism has sometimes resulted in conflict between the conservation objectives of the establishment of MPs and the economic objectives of the State and Local Governments in developing the islands.

3. A number of mechanisms exist to resolve the problems, most notably the National Advisory Council for Marine Park and Reserves, which includes representatives from State Governments as well as Non-Governmental Organisations (NGOs).

POLICY ISSUES

4. At the policy level, the primary instrument for the conservation of biodiversity is the National Policy on Biological Diversity (NPBD). The NPBD however, is a generic document applicable to both terrestrial and marine biodiversity. The lack of specific programme for marine biodiversity conservation in the NPBD means that the implementation of the NPBD where marine biodiversity is concerned is at best patchy and there is a low level of awareness among marine biodiversity managers of the opportunities and programmes that the NPBD offers.

5. At the development planning level however, a lot more effort is being made to put into place the necessary tools and mechanisms for the protection of marine biodiversity. The 7th Malaysia Plan (7MP) for example made specific mention of the need for a coastal zone management policy, which would contribute significantly, to marine and coastal biodiversity conservation. The 7MP also stated the need for more active implementation of the NPBD at all levels of Government.

6. The principal policy-making body where MP management and marine biodiversity conservation is concerned is the NACMPR. The composition of the NACMPR is ideal for the consultative process needed to manage the relationship between environment and development in MPs. However, the NACMPR at the moment is a “stand-alone” body with no direct input into the decision-making process at Federal and State level. This needs to be addressed if the NACMPR is to make a significant contribution into the decision-making process.

Administrative Issues

7. Administratively, there is no shortage of laws and guidelines to regulate development and conservation activities in MPS and on islands. What is lacking is the ability to enforce regulations such as the Fisheries Act, 1985 and the Environmental Quality Act, 1974 and guidelines such as the Guidelines for Development Planning in the Coastal Zone. This represents an important area for capacity building within Federal and State agencies.

8. The second important administrative issue is the need for a more encompassing decision-making and management process on the ground i.e., at island level. Presently while consultative mechanisms exist at district and State planning level, the MP division is rarely consulted and local communities are excluded. A more encompassing consultative process would eliminate conflict between environment and development in MPs at a very early stage. For such a mechanism to work however, the capacity of the local communities to be involved in decision-making and actual management needs to be built while at the same time reciprocal activities are also needed to train MP division staff and local government staffs in facilitating and accommodating local community involvement.

ANNEX V – BIODIVERSITY ANALYSIS

1.0. Summary of Key Findings

1. The marine parks of the east coast of Peninsula Malaysia constitute a globally important area of biodiversity, especially when considering the limited number of reef types (dominated by shallow fringing reefs). This is confirmed by a total of 221 coral species being identified during this study. This figure represents approximately 80% of the number of species identified at an equivalent number of sites in the ‘Coral Triangle’, which is known to have the greatest coral diversity on earth. Sixty seven species from this study had not previously been reported from Malaysia in published studies, giving a total of 323 for the country. One new species of coral (from the genus *Lobophyllia*) was collected for description and seven additional species may also prove to be undescribed. Four species were found which were previously thought to be endemic to other countries. Furthermore, a graph of species identified versus sites surveyed indicates that further survey effort will highlight a significant number of additional species.

2. The fish fauna of the marine parks is also globally important since a total of 298 species were identified during this study. Previous published studies indicated that 158 species found in this study were not previously known to be present in Malaysia and, following this study, approximately 450 species are now known from the country. There is also some evidence that, as for corals, the country has 80% of the number of fish species of the ‘Coral Triangle’. Furthermore, a graph of species identified versus sites surveyed indicates that further survey effort will highlight a significant number of additional species, particularly cryptic species which were not recorded in this study.

3. Coral cover is a general indicator of reef health and this study indicates that the selected sites (mean cover of 42.2%) are at least in ‘fair’ condition, with some sites in ‘good’ condition (using the criteria of the ASEAN-Australia Living Coastal Resources project). The percentage of recently killed coral was relatively low (5.3%) and most seemed to be caused by corallivore feeding. Total non-coralline algal cover was less than 10% for all sites combined and this is consistent with the reefs being in fair to good condition. *Diadema* urchins were frequently seen but their densities varied dramatically. However, the explanation for this variation, and the effect of *Diadema* on the reefs, is not currently clear. Commercially important edible sea cucumbers and *Tridacna* clams were frequently recorded but few lobsters and no triton shells were seen, suggesting past over-fishing.

4. Although there are many healthy areas, reefs in the marine parks have been impacted by a variety of factors, including the 1998 coral bleaching event. Hence large sections appear to have significantly reduced coral cover. The overall ratio is difficult to estimate and will vary between and within each marine park. However, the presence of ‘young’ corals and the observation of a coral spawning event indicates that there are areas of reef which are sufficiently healthy, large and frequent to facilitate recovery in the more impacted areas. Increased protection for some of these healthy reefs areas, possibly via designation as ‘sanctuary zones’, will aid recovery by conserving sources of coral and fish larvae.

5. An obvious current impact to the marine parks is the result of mass coral bleaching in 1998 but the parks facilitate the best possible chance of recovery from this, and future, bleaching events. Nutrient runoff is a significant threat to reefs in the parks, particularly near to large population centres. Similarly, sedimentation from island deforestation would heavily impact the fringing reefs. Fishing appears well controlled and apparently low to moderate in the marine parks but abandoned gear was seen during the surveys. Corallivorous *Acanthaster planci* and *Drupella* were seen during this study but there were no major population outbreaks. Additional threats include mechanical coral damage from anchors, discarded refuse, divers and snorkellers and, while minimal at the study sites, are likely to be significant within the parks and will increase with increased tourism.

2.0. Summary of the Status of the Reefs of Pulau Redang, Pulau Tioman and Pulau Tinggi Marine Parks

2.1. Coral biodiversity

A total of 221 species from 66 genera of hard corals (215 species from 60 genera of zooxanthellate Scleractinia) were found in the three marine parks (Appendix 4(a)). Of these species, 216 were seen at the 17 sites and an additional five were seen during additional dives or snorkels. Several further 'species' were sighted, but could not be identified without collecting samples. The number of species identified during this study is approximately 80% of the number (and at least 94% of the genera) identified by the same author (DF) using the same method at an equivalent number of sites in the Philippines, Indonesia and Papua New Guinea. In this study, there were a total of 202 species at 17 sites (counting only one dive per site for comparison with the other studies), while there were 249 species in the Philippines, 257 in Papua New Guinea and 250 in Indonesia. These three countries are known as the 'Coral Triangle' since they have the greatest diversity of species. Each has over 400 species of coral reported and a number of additional species yet to be published. Hence the east coast of Peninsular Malaysia has a very high coral species richness and can be considered to be a globally important area of coral biodiversity.

Among the 226 species identified in this study, 67 species had never been reported in previous published studies from anywhere in Malaysia, including Sarawak and Sabah (Searle, 1956; Pillai and Scheer, 1974; de Silva et al., 1980; Betterton, 1981; Veron, 1983; Rahman, 1986; Wood and Tan, 1987) and are listed in Appendix 4(b). However, it would be necessary to collect specimens before this list could be confirmed and formally published. The total number of species now known from published literature for Malaysia is 323, again approximately 80% of the number reported from the 'Coral Triangle' (about 411 species). A total of 346 species for Malaysia is reported by Ridzwan (1994) but it's validity is not clear and appears to originate from unpublished studies and anecdotal reports.

Of the 226 coral species identified in this study, a total of 119 species (Appendix 4(c)) had not previously been reported from Peninsular Malaysia (both coasts) by previous published studies (Pillai and Scheer, 1974; de Silva et al., 1980; Betterton, 1981; Rahman, 1986). This indicates that the area has not been well studied in the past but previous publications did report 44 species not found in this study, bringing the total number of species currently known from Peninsular Malaysia to 270, or 84% of those known from the entire country.

Among the species identified in this study, a few are of particular importance. One new species, from the genus *Lobophyllia*, was discovered and a sample taken (from outside the marine parks) to facilitate a full description for publication. Furthermore, four species were found which had each previously been reported from only one country. Three (*Montipora confusa*, *Pachyseris foliosa* and *Oxypora crassispinosa*) had previously been reported only from the Philippines and *Coscinaraea hahazimaensis* had been reported only from Japan. Each of the four species was rare at the study sites.

Figure 1 shows the correlation between the number of survey sites and the cumulative number of species identified. The curve represents a logarithmic relationship since this provides an excellent correlation ($R^2 = 0.98$). Figure 1 shows that the curve is still increasing steadily and supports the view that additional studies of Malaysia's corals will reveal many more species.

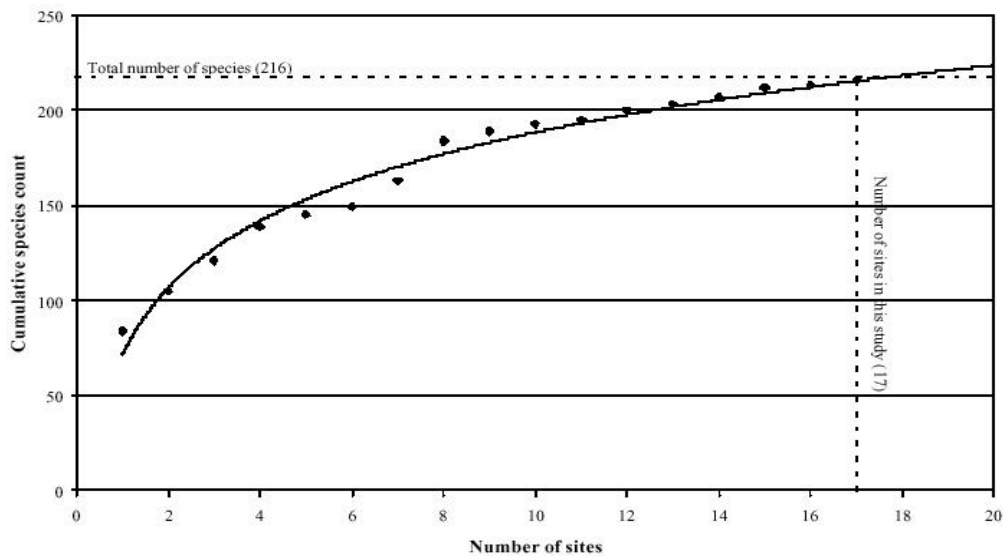


Figure 1. Curve showing the logarithmic relationship between number of sites surveyed and cumulative number of corals species identified in this study.

Table 1 shows the number of hard corals in each group of marine parks and the average number of species per site. To facilitate an accurate comparison between the marine parks, Table 1 also shows the total number of species in the first four sites, since this was the minimum survey effort in any one park (P. Tinggi). Differences between the three marine parks were relatively small and there was no clear pattern of varying biodiversity. However, there is some evidence that P. Redang has the fewest species, even though it had the highest number per site, but this could be a learning effect since P. Redang was surveyed first and the surveyor was still becoming accustomed to the area.

Marine park	Total number of species	Total number of species in first 4 sites	Mean number of species per site
Pulau Redang	149	139	87.2 (6.3)
Pulau Tioman	183	166	82.9 (13.6)
Pulau Tinggi	155	155	81.0 (1.4)

Table 1. Comparison of the number of coral species in each of the three marine parks. Standard deviations in parentheses.

2.2. Fish biodiversity

A total of 298 species of fishes from 44 families and 132 genera were found in the coral reefs of the three marine parks (Appendix 5(a)). Previous published studies of Malaysian reef fish reported 171 species for Peninsular Malaysia (Rahman and Ibrahim, 1996; Sin et al., 1994). Additional early studies (e.g. Fowler, 1938) included freshwater and non-reef fish and also used many names, which are no longer used by fish taxonomists. Hence, it is currently not possible to determine how many reef fish were included or what area of Malaysia they were recorded from. As shown in Appendix 5(c), 200 of the 298 species recorded in this study were not recorded by Rahman and Ibrahim (1996) and Sin et al. (1994), indicating that the area has been poorly studied. A total of 362 species of fish are now known from Peninsular Malaysia.

In addition to studies of Peninsula Malaysia, Wood and Wood (1987) reported 171 species of fish in Sabah. However, 158 species recorded in this study have never been previously reported in a published report from anywhere in Malaysia, including Sarawak and Sabah (Appendix 5(b)). When all studies are combined, the total number of coral reef fishes known for the whole of Malaysia is approximately 450. This is significantly higher than the 326 species reported by Ridzwan (1994), although the origin of this total is not clear and appears to originate from unpublished studies and anecdotal reports. Therefore, the east coast of Peninsular Malaysia has approximately 80% of the number of species known from the entire country, significantly higher than the figure of 43.9-55.2% given by Ridzwan (1994). Finding 80% of the fish fauna of the whole country on the east coast of Peninsular Malaysia is a very similar result to that for corals (84%). This concurrence with the better studied coral community supports the conclusion that the east coast of Peninsula Malaysia has approximately 80% of the entire country's reef fish fauna. Indeed the area may have a similar percentage of the fish fauna of countries in the 'Coral Triangle', as is the case with corals. There is also some evidence for this hypothesis from the Pomacentridae (damselfish). This study documented a total of 50 species (17 more than the 33 species previously reported from Peninsular Malaysia; Sin et al., 1994) and 51 additional species have been identified by Rahman and Ibrahim (1996), Wood and Wood (1987) and Sin et al. (1994). A total of 101 species of damselfish from Malaysia is 82% of the total from Indonesia and 86% of the total from the Philippines (Allen, 1991). Hence the east coast of Peninsular Malaysia has a very high fish species richness and is a globally important area of fish biodiversity.

Figure 2 shows the correlation between the number of survey sites and the cumulative number of species identified. The curve represents a logarithmic relationship since this provides an excellent correlation ($R^2 = 0.98$). Figure 2 shows that the curve is still increasing steadily and supports the view that additional studies of Malaysia's fish will reveal many more species. There was no correlation between fish and coral species richness at each site ($R^2 < 0.05$).

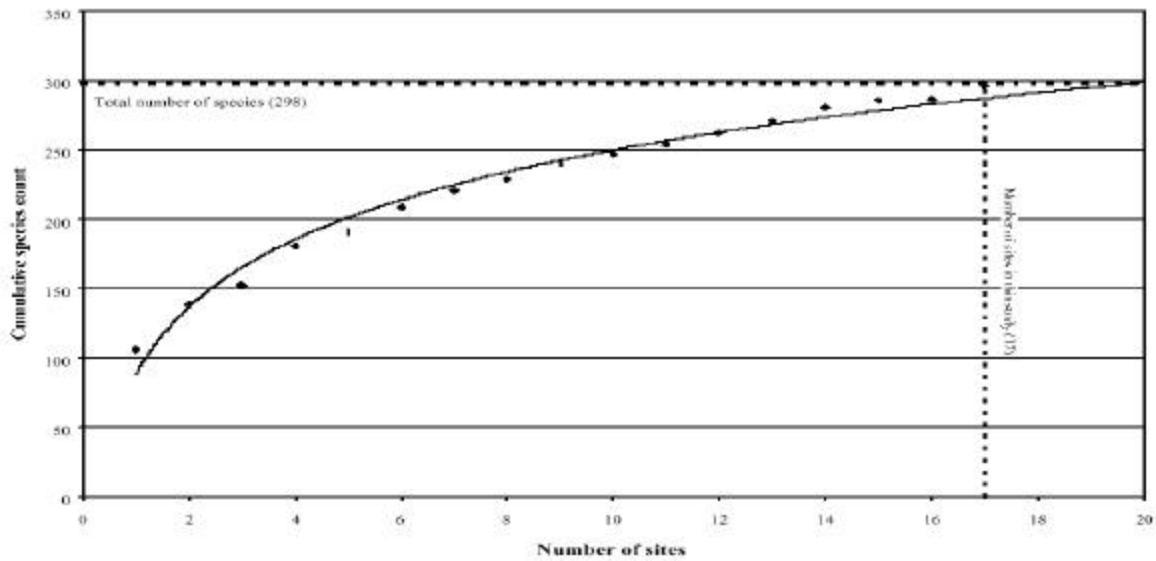


Figure 2. Curve showing the logarithmic relationship between number of sites surveyed and cumulative number of fish species identified in this study.

Since this study used a visual census, large numbers of cryptic species were not surveyed and represent an additional component of the fish fauna of the east coast of Peninsula Malaysia. Families such as Gobiidae (gobies) and Blennidae (blennies) cannot be adequately sampled without using a poison which also affects the benthic community and non-target fish species.

Table 2 shows the number of fish in each group of marine parks and the average number of species per site. Table 2 also shows the total number of species in the first four sites, since this was the minimum survey effort in any one group of parks (P. Tinggi). Differences between the three groups of parks were relatively small and there was no clear pattern of varying biodiversity. However, there is some evidence that P. Redang has the fewest species and that species richness increases from north to south, but this could be a learning effect since P. Redang was surveyed first and P. Tinggi last.

Marine park	Total number of species	Total number of species in first 4 sites	Mean number of species per site
Pulau Redang	209	181	120.0 (16.2)
Pulau Tioman	233	193	132.4 (15.4)
Pulau Tinggi	219	219	130.5 (19.1)

Table 2. Comparison of the number of coral species in each of the three marine parks. Standard deviations in parentheses.

During this study, schools of *Bolbometopon muricatum* (bumphead parrotfish) were sighted, along with some *Carcharhinus melanopterus* (blacktip reef sharks) and occasional adult *Plectropomus* spp. and large *Epinephelus polyphekadion* (marbled grouper). These species are known to be locally extinct or very uncommon in many parts of the Indo-Pacific region and their presence within the marine parks supports the conclusion that fishing pressure is low or moderate. Large fish are very sensitive indicators of fishing pressure, since they are the first to be removed (Jennings et al., 1999). It is possible that populations of the large and long-lived fish will increase further within marine parks in the future.

2.3.Reef Zonation

The reef profile transects at each site discriminated a total of ten benthic classes, which are shown in Table 3. The full characteristics of each class are described in Appendix 3.

With a few exceptions at particular sites, reef zonation is similar in each of the three marine parks. The transects generally began at a depth of greater than 15 m in a habitat dominated by rubble and / or sand with low hard coral cover. Only Batu Tikus (P. Tinggi marine parks) had significant reef development at 20 m or deeper but this lack of deep water coral communities is entirely natural because of geo-morphological and oceanographic conditions. At approximately 15 m this habitat merged into the zone of highest coral cover, which usually continued into shallow water at around 5 m. Usually, this area supported the benthic class ‘Dense corals’, which was a rich coral community of both *Acropora* and non-*Acropora* corals. Occasionally there was a further habitat in shallow water which was either *Acropora* dominated (P. Redang) or characterised by bedrock and relatively sparse hard coral cover at more exposed sites. Note that there is little correlation between the number of occurrences of any particular habitat and its areal extent in each of the marine parks. For example, although there were 13 occurrences of the benthic class ‘Dense corals’ it covers a much smaller area than ‘Rubble / sand and sparse algae and corals’ (10 occurrences) which probably covers a large proportion of the deep water between the islands.

Benthic class	Occurrences in each marine park			Distribution
	P. Redang (6 profiles)	P. Tioman (7 profiles)	P. Tinggi (4 profiles)	
Bedrock and <i>Acropora</i> rich corals	3	0	0	Restricted to P. Redang, generally in shallow water (<10 m).
Bedrock and mixed corals	1	1	1	Generally in wave exposed shallow water (<7.5 m) except P. Redang.
Bedrock and non- <i>Acropora</i> rich corals and octocorals	1	0	2	Found at a variety of depths, including deep water (>18 m).
Dense corals	4	6	3	Main benthic class in coral rich zone (approximately 5 – 15 m).
Rubble / sand and sparse algae and corals	6	2	2	Main benthic class below coral rich zone (generally >15 m).
Rubble and mixed corals, invertebrates and algae	0	3	0	Generally in deep water below coral zone but once across whole profile.
Rubble and sparse algae and corals	1	0	2	Below coral zone (P. Tinggi) but in shallower water in P. Redang.
Sand / bedrock boulders and scattered corals	0	1	1	Found in very shallow water (< 5 m).
Sand / rubble and scattered corals	0	1	1	Found in very shallow water at P. Tinggi but deeper at P. Tioman.
Sand / silt	0	2	0	Found below coral rich zone in relatively deep water (>14 m).
Total	16	16	12	

Table 3. Benthic classes found by reef profile transects, their occurrence in each marine park and notes on their distribution.

The geomorphology of the east coast of Peninsula Malaysia is relatively simple, with only shallow, narrow fringing reefs bordering the islands. This is partly because of the shallow seabed between Peninsula Malaysia, Vietnam and Borneo. Conversely, the presence of at least 10 benthic classes in the area shows that there is a reasonable level of habitat diversity (and hence species diversity), even though many of them have low coral cover. However, the indication that the fringing reefs of the marine parks may include 80% of the corals and fish found in the countries of the ‘Coral Triangle’, which have a complex series of fringing and barrier reefs and atolls, accentuates their importance as a globally important site of biodiversity.

2.4.Reef health

Reef health was assessed via the Reef Check transects which were conducted in the coral rich zone at depths between 7 and 10 m. The results of the quantitative benthic surveys are summarised for each marine park, and all sites overall, in Table 3b.

Benthic category	% cover							
	P. Redang		P. Tioman		P. Tinggi		All sites	
<i>Acropora</i> corals	14.5	(10.5)	22.8	(17.5)	13.1	(3.1)	17.6	(13.1)
Non- <i>Acropora</i> corals	29.2	(9.1)	22.5	(9.3)	21.4	(12.9)	24.6	(10.1)
Octocorals	2.2	(3.0)	2.4	(4.1)	4.1	(3.2)	2.7	(3.4)
Sponges	2.7	(2.0)	2.9	(2.2)	6.7	(4.8)	3.7	(3.2)
Zoanthids	7.7	(16.5)	0.1	(0.2)	0.0	(0.0)	2.8	(10.0)
Coralline algae	2.6	(1.0)	5.0	(2.6)	6.7	(5.0)	4.6	(3.2)
Non-coralline algae	7.9	(6.9)	7.8	(5.6)	7.0	(6.4)	7.6	(5.8)
Recently killed coral	4.7	(4.2)	6.7	(4.5)	3.8	(2.0)	5.3	(3.9)
Dead coral + algae	2.8	(3.2)	1.8	(2.1)	1.9	(2.1)	2.2	(2.4)
Rubble	7.0	(7.0)	5.7	(3.5)	9.8	(6.8)	7.1	(5.6)
Other substratum	18.8	(6.4)	22.4	(7.8)	25.5	(4.9)	21.8	(6.9)

Table 3b. Summary of the percentage cover of each benthic category as recorded by the Reef Check transect from each marine park and all sites combined. Standard deviations in parentheses.

Mean coral cover was 42.2% for all sites combined. The mean cover was slightly higher at P. Redang and P. Tioman (43.7% and 45.3% respectively) compared to P. Tinggi (34.5%). However, this latter mean included one site (P. Pemanggil) which had particularly low coral cover because the coral rich zone was naturally shallower than the Reef Check transect. When this site was discounted, mean coral cover was 40.8%. Coral cover is often used as a gross surrogate of reef health and the data presented here indicate that the selected sites are at least in ‘fair’ condition, using the criteria of the ASEAN-Australia Living Coastal Resources project (>75% = excellent, 75-50% = good, 50-25% = fair and <25% = poor; Chou et al.,1994). At the site level, five sites could be categorised at ‘good’, with two in the P. Redang Marine Parks and three in the P. Tioman Marine Parks. None of the sites selected in the P. Tinggi Marine Parks had >50% cover, providing some evidence that the reefs in this area are in the poorest condition. With the exception of P. Pemanggil, only the site on the east coast of P. Tioman could be classified as ‘poor’ (21.3% cover).

Data from this study are generally consistent with previous research. Chou et al. (1994) reported that 11.4% of Malaysian reefs were in 'excellent' condition, 52.8% are 'good', 27.5% are 'fair' and 8.3% are 'poor'. More detailed site specific data are provided by Ridzwan (1994), who concludes that 64% of the reefs in Malaysia are in 'fair' condition, with P. Perhentian, P. Redang and P. Tenggol having reefs in 'good' condition. Data from Ridzwan (1994) also highlighted low coral cover at P. Tioman (27%), which was supported by results presented here, and poor cover at P. Renggis (13%), which was not. It should be noted that Malaysia, along with the whole ASEAN region, was recently affected by a major coral bleaching event and that coral cover has inevitably been reduced from pre-1998 levels.

Although coral cover is a useful indicator of health, reefs are complex systems and cannot be fully assessed via a single parameter. One key index is the ratio of live to dead coral tissue but these data were not collected by this study because of time constraints and similarly coral diseases could not be identified reliably, although occurrences appeared limited. However, the percentage of recently killed coral was assessed during surveys and was relatively low (5.3%). Most of this recent mortality seemed to be caused by corallivore feeding (particularly *A. planci* and *Drupella* spp.). There was little variation in the amount of recently killed coral between marine parks. Percentage cover of algae is also important as this can indicate impacts such as a significant reduction of fish or invertebrate herbivores and / or increased nutrient levels. Total non-coralline algal cover was less than 10% for all sites combined and this is consistent with the reefs being in fair to good condition. Data are remarkably similar in the three parks, with cover varying between 8.9 and 10.7%. However, in the P. Tinggi Marine Parks, algal cover was lower at sites closer to the mainland than those further offshore (<3.5% compared to >13.5%) and seemingly correlated with urchin density. This may indicate spatial variation in impacts on the area. Octocorals, sponges, zoanthids and coralline algae were seen on most transects but were generally uncommon, except for one site (P. Ling in the P. Redang Marine Parks) where significant numbers of zoanthids were colonising *Acropora* rubble.

Reef Check transects also record the density of a series of invertebrates which are indicators of reef health. Nine taxa were recorded but only five were commonly observed and their densities in each marine park, and for all sites combined, are shown in Table 4.

Taxa	Density / 100 m ²							
	P. Redang		P. Tioman		P. Tinggi		All sites	
<i>Diadema</i>	11.7	(12.1)	54.7	(77.8)	139.5	(163.2)	59.5	(98.9)
Edible sea cucumber	4.7	(4.2)	2.8	(2.6)	11.9	(17.8)	5.6	(9.0)
<i>Tridacna</i>	5.0	(5.6)	2.3	(2.5)	1.3	(1.1)	3.0	(3.9)
<i>A. planci</i>	1.5	(1.0)	0.7	(0.7)	0.1	(0.1)	0.8	(0.9)
<i>Drupella</i>	4.3	(6.7)	11.4	(26.9)	6.6	(6.8)	7.8	(17.5)

Table 4. Summary of the density per 100 m² of commonly observed indicator invertebrate taxa as recorded by the Reef Check transect from each marine park and all sites combined. Standard deviations in parentheses.

Diadema urchins were frequent on most transects but their densities varied dramatically, as shown by the high standard deviations. For example, within the P. Tinggi Marine Parks, no *Diadema* were seen at the site around P. Dayang but 320.8 were seen per 100 m² at Batu Tikus. Given that there is significant local variation in density, there is an apparent pattern of increasing numbers of urchins from north (P. Redang) to south (P. Tinggi). The explanation for this pattern,

and the obvious clusters at some sites and not others, is not clear and requires further research. However, the reasons are likely to be complex and a synergy of natural and anthropogenic factors such as nutrient input which increases algal productivity, reduction of triggerfish predators, meta-population dynamics and physical and biological habitat preferences. *Diadema* are an important part of a reef's ecology and are required, along with herbivorous fish, to graze and hence maintain the competitive balance between corals and macro-algae. When insufficient herbivores are present, coral cover is reduced and macro-algae flourish. Grazing also increases the amount of coralline algae present (as was the case at the sites in the P. Tinggi Marine Parks with high *Diadema* densities), which is known to be an important cue for coral settlement (Morse et al., 1988). Conversely, if *Diadema* become over abundant, for instance following removal of predators, grazing can reach such high levels that coral recruits are killed shortly after settlement (McClanahan and Muthiga, 1988).

Commercially important edible sea cucumbers and *Tridacna* clams were frequently seen and suggest that fishing intensity is relatively low. However, it should be noted that most of the *Tridacna* recorded in this study were *T. squamosa*, and *T. gigas* were never seen. *T. gigas* is the largest of all bivalves (Colin and Arneson, 1995) and a highly prized fishery item. It is possible that none of these animals are left in any of the marine parks and they may be ecologically extinct in the area.

In contrast to the abundance of sea cucumbers and *Tridacna*, few edible lobsters (none on the Reef Check transects) and no triton shells (*Charonia tritonis*) were recorded. Lobster populations can sustain a commercially important fishery and their absence indicates significant past fishing pressure. It is possible that insufficient time has elapsed since the establishment of the marine parks for the replenishment of populations of these species. Triton shells are prized by the curios trade and again their absence seems to indicate significant collecting in the past. Such removal may have important ecological effects since *Charonia* are known to feed on *A. planci*. It is possible that there are none of these animals left in any of the marine parks and they may be ecologically extinct in the area.

A. planci were seen on many transects but there was no evidence of large-scale population outbreaks. They were generally more abundant in the P. Redang Marine Parks sites. *Drupella* were more abundant, particularly in the P. Tioman Marine Parks although this density was biased by a cluster of animals at the P. Renggis site. Much of the recently killed coral cover was attributable to these corallivores.

2.5. Current impacts and existing threats to reef health

An obvious current impact to the marine parks is the result of mass coral bleaching in 1998, although quantitative mortality data were not available during the preparation of this report. Coral bleaching occurs when water temperatures exceed a critical threshold, typically approximately 1° C degree above the normal annual maximum. During bleaching events, corals expel their symbiotic algae and appear white or 'bleached'. Depending on temperatures reached, the duration of warm water and other oceanographic conditions, corals can either die within days to weeks or recover their algae and survive. Coral bleaching is often most apparent in shallower water, which may be critical in this area because the rich coral communities are all shallower than approximately 15 m. Increasingly frequent bleaching events are linked to global warming

but, although this cannot be altered regionally, other synergistic threats can be minimised and hence provide reefs with the best possible chance of post-bleaching recovery. Virtually no bleaching was seen during this study.

Another significant threat to reef health in the marine parks is nutrient runoff from human activities, particularly sewage. Nutrients added to reef systems can result in algal blooms which can consequently out-compete corals for space and light and lead to a reduction in coral cover or retard recovery. The threat is greatest near the largest concentrations of people (and downstream from those areas) but smaller populations can have significant negative effects. However, sufficient water quality data are not currently available to fully assess the current impacts (which appear limited) and future threats. Proper sewage systems and runoff controls are some of the tools that can control this problem.

Sedimentation could also represent a major threat to reef health. Where trees are cut and land cleared for building or agriculture, large quantities of fine soil particles are carried by rainwater into the coastal zone. Runoff is much higher during rainy seasons and the sediment blocks light reaching the benthos and reduces coral growth. Furthermore, sediment settles out of the water column and smothers coral polyps, requiring energy to be expended on cleaning (rather than on growth or reproduction). Sedimentation can kill whole coral colonies at high concentrations and also decreases water visibility and discourages snorkellers and divers. However, turbidity data collected within this study, via secchi disc, showed moderately clear water (mean reading 14.1 m) and there were no significant differences between marine parks (ANOVA analysis, $p > 0.05$). Further studies are required since sample sizes were limited and sites such as P. Simbang had noticeably lower values (secchi disc reading = 9.0 m). The forests on the islands in the area are largely uncut and any clearance would heavily impact the reefs, which are fringing and close to the shore.

Fishing appeared well controlled in the parks since only local fishermen have been given permission to fish and only via traditional techniques. A mean of only 0.6 fishing boats were observed per site but fishing pressure, probably low or moderate, was not fully assessed during this study. Fishing can have major economic and ecological impacts, including the reduction of herbivorous fish which can affect the ability of reefs to regenerate via increased macro-algal biomass and coral exclusion. However, it is possible that at current levels many of the fisheries are sustainable and finfish stocks will increase with time. Large fish, sensitive indicators of fishing pressure, were still observed, even though few lobsters and no triton shells or *Tridacna gigas* were seen. Abandoned fishing gear, which was seen at many sites, is not a major threat to coral health but nets can smother relatively large areas and continue to catch fish through 'ghost fishing'.

Coral eating *A. planci* were seen during this study, especially at P. Redang. These large sea stars eat the living coral tissue and can do severe damage when they occur in large aggregations at high densities. No outbreaks, which are too extensive for control efforts on a large scale, were seen in the marine parks. However, if observed on small reefs that are particularly important (e.g. for tourism) collection efforts and removal to a land site can be successful and worth the expense and effort. *Drupella* spp. is a second, less threatening animal which eats coral. This snail is normally present on healthy reefs, where it does minimal damage and only rarely does it cause significant damage. Similarly to *A. planci*, if they become common enough to do visible damage to valuable reefs, a removal campaign can be undertaken.

Additional anthropogenic threats to the marine parks included mechanical damage from boat anchors, discarded refuse, divers and snorkellers. Specific projects, such as the construction of a submarine freshwater pipeline to P. Redang, have also been shown to cause significant impacts on coral communities (Hamid Rezai et al., 1999). Some discarded refuse was observed at a few sites but two of the island groups have well-organized discarded refuse remove services and visible discarded refuse on the reefs was insignificant. Very little coral breakage was observed from anchors, divers, or snorkellers and there was no damage from blast fishing. However, this study's sites were generally away from population centres (mean distance of 1.8 km from communities averaging 600 people) and these threats are likely to be significantly higher elsewhere within the area and will increase with increased tourism. World class systems for controlling mechanical damage exist within the parks, such as the restrictions on snorkellers swimming over the Acropora rich shallows close to the P. Redang Marine Parks Centre (P. Pinang). Furthermore, dive operators seem conscientious in promoting environmental education and highlighting the consequences of contacting coral during dives.

2.6. Estimated condition of reefs not surveyed

In addition to the 17 survey sites, a series of manta tows and exploratory dives were conducted. This work was mainly to aid site selection within the three group of parks but the qualitative observations do facilitate a gross assessment of reefs which were not surveyed. However, many more surveys, combined with remote sensing, are required to accurately assess the true status of the marine parks.

There are unequivocally good reefs within each of the marine parks and qualitative observations indicate that these are certainly not limited to the survey sites covered by this study. However, these reefs and sections of reef are separated by areas that have been impacted by a variety of factors. Clearly the 1998 coral bleaching event significantly affected all three marine parks. For example, there was evidence that areas of shallow reef, thought to previously support high Acropora cover, were dominated by dead corals which were either still standing or had been reduced to rubble by storms and bioerosion. Acropora is particularly susceptible to coral bleaching (Marshall and Baird, 2000) and much of the dead coral had been overgrown by macroalgae. A posteriori assessment of the extent of bleaching related mortality is virtually impossible but it seems to have caused much of the dead coral. However, there is also anecdotal evidence that several of the sites themselves had been almost completely bleached but are now in good condition with numerous mature colonies that appears to have survived the warm water. Furthermore, although some areas were thought to be in relatively poor condition, natural coral cover was unlikely to be high because of natural levels of exposure to storm damage during monsoon conditions.

Bleaching effects have also occurred synergistically with impacts caused by over-fishing, sedimentation, nutrient enrichment, corallivores, anchoring and diving and snorkelling. Therefore, the overall conclusion was that, although there are excellent areas, the reefs in the marine parks have been impacted and many areas currently have significantly reduced coral cover. The overall ratio is difficult to estimate and will vary between and within marine parks.

2.7. Probability of recovery of damaged reef

Recovery of coral communities on reefal areas following major impacts, such as coral bleaching, requires the settlement and growth of new larvae and asexual reproduction of remaining colonies. Estimating coral settlement rates requires specialised research but this study was able to estimate the density of ‘young’ corals by recording the numbers of colonies between 1 and 5 cm in diameter. These data showed that all sites combined, already with good coral cover, had a mean of 4.2 young corals (SD = 2.7) directly under each section of the Reef Check transect line (20 m long). Although these were relatively healthy areas, it seems reasonable to conclude that there are viable coral larvae in the water column and that they will also settle on damaged reefs. Furthermore, coralline algae are known to be an important cue for settlement (Morse et al., 1988) and this was found at all locations. In addition to the presence of young corals, the vitality of the area was demonstrated by the observation of a mass coral spawning event close to P. Redang (initially discovered by Ab. Rahim Gor Yaman), which was almost certainly also occurring in the other parks.

The conclusion of this study, therefore, would be that there are areas of reef that are sufficiently healthy, large and frequent to provide recruits for the more impacted areas and hence facilitate recovery. Such recovery will obviously rely on minimising additional impacts, but this seems likely given the protection afforded by the marine parks system. However, it is possible that mitigation measures may need to be increased, particularly in the P. Tioman and P. Tinggi Marine Parks. Furthermore, increased protection for some of these areas, perhaps via designation as ‘sanctuary zones’, will aid reef recovery by conserving sources of coral and fish larvae. Management of tourism at all healthy areas will be critical since divers and snorkellers inevitably favour reefs with high coral cover and abundant fish.

3.0 Recommendations

The aim of this study was to document the biodiversity and health of the reefs in three groups of marine parks. However, during this work it was apparent that there are additional data collection programmes, training opportunities and educational requirements that would aid the management of the marine parks. Hence, the following recommendations are presented but they are relatively ad hoc and should not be viewed as either comprehensive or ranked in order of importance.

- Establishing the current status of reef health is limited by a lack of existing quantitative spatial and temporal data in the marine parks. A monitoring programme would provide standardised and consistent data on changes to reef health. Data on water quality would also assist assessment of threats, for example from nutrient enrichment, and help establish mitigation measures.
- Additional training for marine park staff would allow them to undertake monitoring programmes and rapidly respond to dynamic data collection requirements during coral bleaching events, *A. planci* outbreaks, changing *Drupella* populations or increases in the presence of coral diseases.

- Management of the marine parks would be assisted by a thorough assessment of the status of all reefs within the marine parks. Such an assessment can be assisted by the use of non-specialist divers to collect baseline data and should incorporate remotely sensed imagery and the mapping capabilities of Geographic Information Systems. This research could result in a marine resource atlas of the parks.
- The coral and fish biodiversity assessments generated by this study could be extended by additional survey effort by specialist researchers. Additional biodiversity assessments are possible for other taxa, particularly marine plants and invertebrates.
- Managing tourist use of the marine parks (particularly diving, snorkelling and boat anchoring) appears to be important for maintaining reef health. Excellent programmes for controlling tourist impacts to the reef exist within the parks and could be extended throughout the whole system. Such management requirements will increase with increasing tourism.
- Additional environmental education for both communities within the parks and tourists will assist management of the parks via greater awareness of threats to reef health, implications of decreased coral cover, fish populations and biodiversity and the interactions between marine and terrestrial systems.

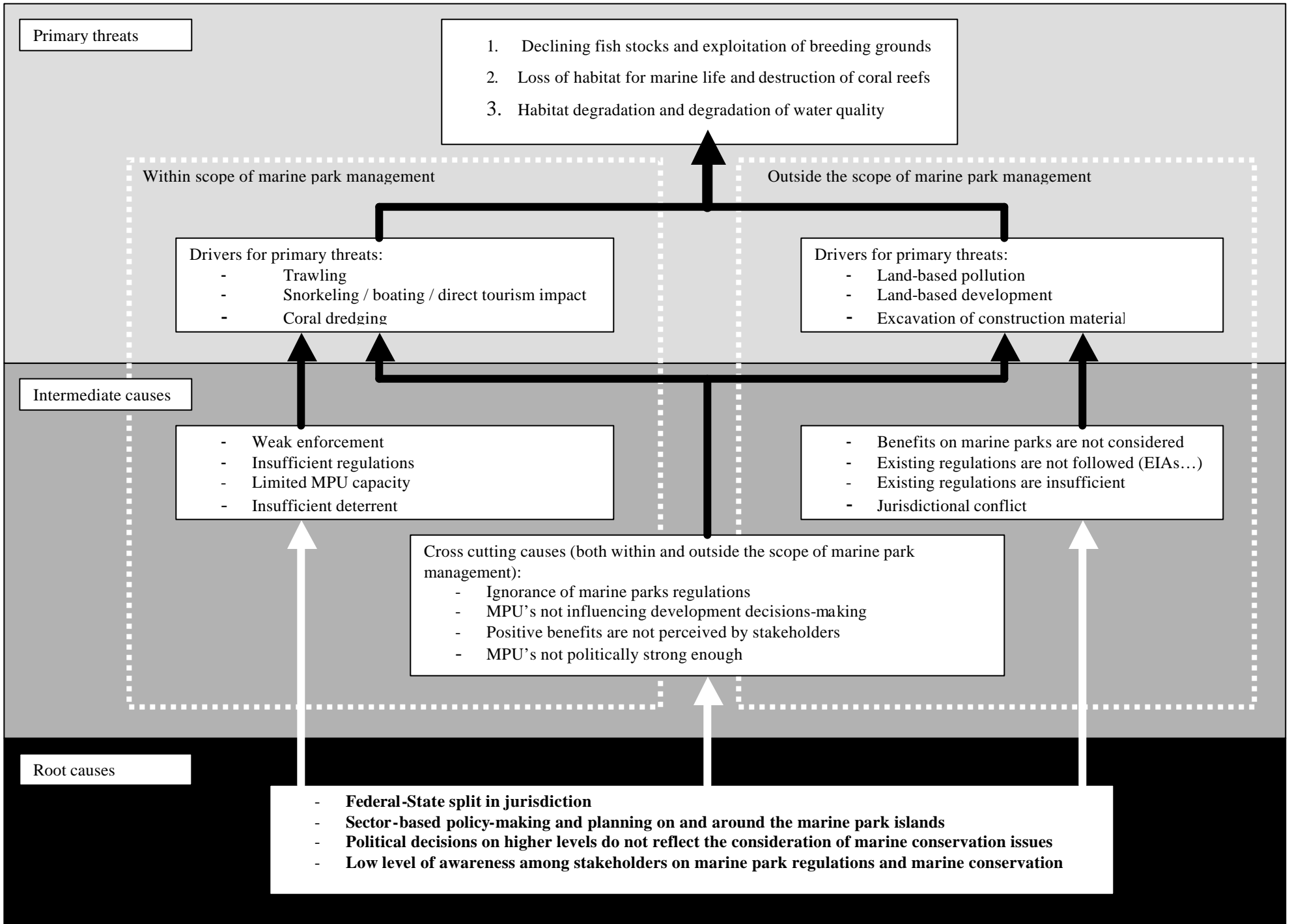
Since the reefs within the marine parks are a network of healthy and impacted reefs, the 'good' areas will be important in facilitating recovery of the 'poor' areas via production of coral and fish larvae. Increased protection for some of these healthy reefs areas, possibly via designation as 'sanctuary zones', may aid this process.

Annex VI - Threat Analysis

Introduction

Marine biodiversity in Malaysia is threatened by factors associated with global and regional climatic events such as rising sea temperatures (leading to mass coral bleaching and die-off) as well as more localized, anthropogenic factors. These are for example, inadequate development planning, increasing tourism and illegal fishing.

The combination of these threats is subjecting the Malaysian biodiversity to wide-scale deterioration in the marine ecosystem as a whole, to direct physical damage of important coral reefs and to the depletion in abundance and diversity of globally and regional significant species alongside with an increasing deterioration of the water quality.



THREATS AND THEIR IMPACTS	INTERMEDIATE CAUSES AND ROOT CAUSES
<p>Threat 1:</p> <p>Declining fish stocks and exploitation of breeding grounds by illegal trawling and recreational fishing within 2-mile zone and violations of marine park regulations regarding the conservation of endangered species (turtle poaching)</p> <p>Illegal night trawling takes place within marine parks throughout the east coast and the three project sites (i.e., within two nautical miles of the islands). Additionally abandoned fishing nets lead to high incidences of “ghost” captures of marine turtles and dugong.</p> <p>Fishing in disregard of the marine park regulations negatively impacts reproductive processes, gradually reducing stocks available for subsequent fisheries, with resulting reductions in fisheries revenue for local and national economies. Fishermen and dive operators have mentioned the decreasing diversity of fish on the reefs.</p> <p>Furthermore there are cases of poaching of endangered species such as turtles, whose nests are still being sought by hunters.</p> <p>On a smaller scale, illegal fishing by residents and tourists is also a problem.</p>	<p>INTERMEDIATE CAUSES</p> <ul style="list-style-type: none"> ▪ Given the current capacity and equipment of the marine park units at the project sites the DoFM is unable to ensure sufficient and effective enforcement of the marine park regulations including the regulations aiming at conservation of endangered species. ▪ There is a general disregard for the Fisheries Act by the trawler operators, partly enhanced by fines that are not prohibitive and the fact that chances of being caught are considerably low. Most of the illegal trawlers come from outside the geographical scope of the project (sometimes even from outside Malaysia) and are therefore a difficult to reach as a group. ▪ Illegal fishing in marine parks is seen as the only economically viable option for many trawler operators as fisheries have declined everywhere else. As fish populations decline, trawlers are becoming more "opportunistic" and encroach the two nautical mile zones around the marine park islands frequently. ▪ There remains little involvement of commercial (private sector) fishing concerns in fisheries management planning. Besides one or two “liaison officers” within each State Fisheries Department, there are currently no real consultative mechanisms in place to ensure commercial fisheries groups are included in the decision-making process or even informed of marine park management decisions. ▪ Inadequately managed marine parks alongside with weak enforcement capabilities. Even with sufficient money allocated for training and improvement of the management the MPUs have no guidance in how to improve their practices and procedures. Daily operations are not standardized under a management plan. Therefore the monitoring of the biodiversity in the marine parks is done at an <i>ad hoc</i> basis and often with no baseline to compare to best practices of marine protected areas management have not been introduced yet and therefore concepts of stakeholder participation by local communities or the island-based tourism industry have not been considered so far. ▪ Marine park field management have difficulty in obtaining scientific advice on management options. Research on the marine biodiversity is carried out

	<p>frequently though the topics and analysis are not coordinated with the MPUs as well as among the individual researchers themselves. Hence the scientific research does often not respond to real planning or management needs of the marine park management. In addition, the research results are not always shared with the MPU so that they can use it as guidance for their future management decisions.</p>
<p>Threat 2:</p> <p>Destruction of coral reefs by direct impacts from snorkellers and boat operators not adhering to reef etiquette resulting in trampling on corals and destructive boat anchorage; further exploitation by souvenir hunters and other mass tourism activities.</p> <p>Especially in the shallow reef zones snorkellers damage corals by standing on them or breaking them with their fins. This occurs due to the fact that they are not advised on snorkeling techniques and proper reef-etiquette and often are poor swimmers.</p> <p>Careless boat operators contribute to the destruction of corals by boat anchorage and reckless navigation.</p> <p>Additionally but on a smaller scale there are cases of souvenir hunting for the sale of corals, shells and sea cucumbers to visitors as well as for the aquarium industry and in the case of sea cucumbers for consumption.</p>	<p>INTERMEDIATE CAUSES</p> <ul style="list-style-type: none"> ▪ Boat operators as many other stakeholders, too, are driven by short-term economic and financial gains thus neglecting a consideration of preserving the substance for future income (coral reefs) ▪ Furthermore boat operators regard the marine parks and their regulations as potentially reducing their livelihoods and economic activities. ▪ Increasing number of visitors and changing profile of tourists, from those with more appreciation of nature to mass weekend tourists. This results in a growing quantity of visitors who are reluctant to being advised on reef-etiquette and snorkelling techniques. ▪ Up to now a system of zoning schemes alongside with the installation of mooring buoys has not been implemented to prevent snorkelling in areas that are too shallow and boats from anchoring in the corals. Existing mooring buoys at dive sites are not well maintained and frequently destroyed by encroaching trawlers. ▪ Market forces outside the scope of the project in combination with weak enforcement and no prohibitive punishments still provide economic incentives for hunting and souvenir selling.

	<ul style="list-style-type: none"> ▪ Visitors and tourism operators do not realize the vulnerability of corals as a complex living organism and commonly regard them as stones. Therefore they often have little understanding of their impacts on the corals. ▪ Extensive promotion of mass-tourism to the marine park islands by MoCAT. MoCAT and its destination marketing organization Tourism Malaysia are equipped with their own mandate to promote increased tourism to the marine park islands. To date traditional management concepts at DoFM have focussed on the protection of the marine parks and enforcement of the regulations as their sole responsibilities. The concept of widening DoFM’s responsibilities to managing and monitoring of visitor activities and impacts as well as good public relations with all major stakeholders has yet to be realized and integrated into the management of the marine parks. This circumstance has hindered an approach that aims at stakeholder participation in the marine park development and further has impeded mechanisms for establishing overall acceptable solutions for all stakeholders. ▪ Furthermore there is a misunderstanding about the relationship between tourism and the environment. Most agencies as well as NGOs view tourism and biodiversity as mutually exclusive, and not many grounds of common interest are identified. This is a missed opportunity to foster public-private partnerships and a hence create a mutually beneficial situation for both tourism operators and the marine park management. This misunderstanding is prevalent across all sectors and especially among policy makers. Addressing this root cause will help to enhance the understanding of biodiversity conservation and its long-term benefits and lead to a multi-sectoral planning approach.
<p>Threat 3:</p> <p>Degrading water quality and eutrophication through land based pollution by discharge of untreated sewage, grey water and kitchen grease from small and medium accommodation facilities as well as local villages and inadequate handling of solid waste. Further impact on water quality by discharge of oil and petrol from motorized boats</p>	<p>INTERMEDIATE CAUSES</p> <ul style="list-style-type: none"> ▪ Existing wastewater treatment services only cover a small portion of the population and businesses: As for the accommodation sector only larger hotels and resorts perceive incentives for an environmentally sound treatment of their waste and have the financial capacity to install the necessary equipment. There is hardly collaboration among small and medium businesses in the three project sites to share costs and benefit from joint instalment and maintenance of wastewater treatment facilities. <p>[Note: As a spin-off from the logical framework workshops on Redang, local</p>

<p>Most of the small and medium tourism businesses in the accommodation sector in the three project sites discharge their liquid waste into streams and thereby into the sea. This is also valid for many households in the local communities.</p> <p>There are common occurrences of oil and petrol spills from poor maintenance of motorized boats and repairs undertaken without precautionary measures to avoid discharges of chemicals.</p> <p>These organic and chemical contaminants result in eutrophication and / or chemical contamination of estuaries, reefs and sea grass beds, potentially causing threatening impacts to aquatic organisms.</p> <p>Eutrophication and contamination caused by increased sewage and organic loads leads to algal blooms suffocating corals and reducing oxygen availability, and exacerbating coral diseases and / or stress their recovery.</p>	<p>chalet operators have founded an association and are exploring possibilities to improve the practices of solid and liquid waste treatment]</p> <ul style="list-style-type: none"> ▪ The value of conservation is not fully appreciated by tourism operators and local communities. This derives partly from the fact that there is little knowledge among small and medium tourism operators as well as members of local communities regarding the long-term impacts of the destructive practices that are in place at the three project sites currently and which will degrade the substance of their businesses and livelihoods eventually. ▪ There is no sense of co-ownership of the natural resources on and around the marine park islands among local communities as well as tourism operators. Therefore most tourism operators and many local residents do not regard it as their responsibility to mitigate their impacts on the surrounding biodiversity. [Note: Dive Operators mostly are an exception to this intermediate cause since there is a widespread concern about the conservation and sustainable use of marine resources among the diving community] ▪ Owners of small and medium tourism business are reluctant to invest in sewage and solid waste treatment due to financing problems. ▪ There are only inadequate financing possibilities for improvement of small and medium businesses. Existing credit and loan schemes do not meet the requirements of affordability and accessibility of island-based tourism operators and local residents there.
<p>Threat 4:</p> <p>Increasing siltation through beachfront construction, coral dredging, hillside construction sites and run off of sewage and liquid waste in the streams.</p> <p>Uncontrolled extraction of material needed for construction (gravel, sand, soils, rock) from beaches is practiced throughout the three project</p>	<p>INTERMEDIATE CAUSES</p> <ul style="list-style-type: none"> ▪ EIA procedures for development projects and constructions on the islands are often ignored due to weak enforcement of EIA provisions. Furthermore the DoE has no permanent presence on the islands and there is an unclear distribution of responsibilities among local authorities and agencies resulting in vacuums of enforcement and enabling common bypassing of the EIA provisions. ▪ In the case that EIAs are undertaken they are often done after the construction has started and the damage has been done. Furthermore the monitoring of the

sites, whereas this is not a major threat on the islands of Sibuyan and Tubbataha so far.

These developments are resulting in onshore and offshore erosion and sedimentation, thereby causing beach erosion, sedimentation of adjacent reefs and natural channels. The damage to coastal and reef ecosystems leads to changes in composition of species. For example turtles are agitated by beachfront development thus having less potential nesting sites. Particular to reefs, sedimentation can bury corals and increase stress, thereby reducing their vitality, and / or restrict light penetration and photosynthetic processes of beneficial algae. Surface area of sea grass beds is lost to dredging and constant suspension of sediments negatively affects their development.

Hillside constructions result in a higher volume of runoff of rainwater in streams and thereby create further sedimentation in the areas of the river mouths.

implementation of mitigation strategies identified in the EIAs is also weak.

- States have incentives that conflict with conservational efforts due to the fact that their revenues from the development on marine park islands are the assessment and property taxes only. Hence there is a strive for further land development, logically preferring projects and constructions with a high level of land use in order to increase the state's revenue. Service taxes from the islands' tourism sector are collected by the federal treasury.

ROOT CAUSES:

- **Federal-State split in jurisdiction**, which translates as the State having control over decision-making on land and natural resource management issues on the islands, and the Federal marine parks unit only has jurisdiction on the marine park waters. This poses therefore a great problem in attempting to address land-based pollution and effects of island development on the marine biodiversity.
- **Sector-based policy-making and planning on and around the marine park islands.** There is little coordination between the relevant line-agencies and as yet no examples of coordinated development planning for any of the islands, which take into account local development needs, tourism development needs and the sustainability of the marine park. State EPIs and the corresponding District and Land Offices have the mandate to endorse proposals and issue planning permission on the islands and this is often done in an *ad hoc* manner.
- **Various development priorities at agencies of different levels.** An additional problem, which also translates in uncontrolled

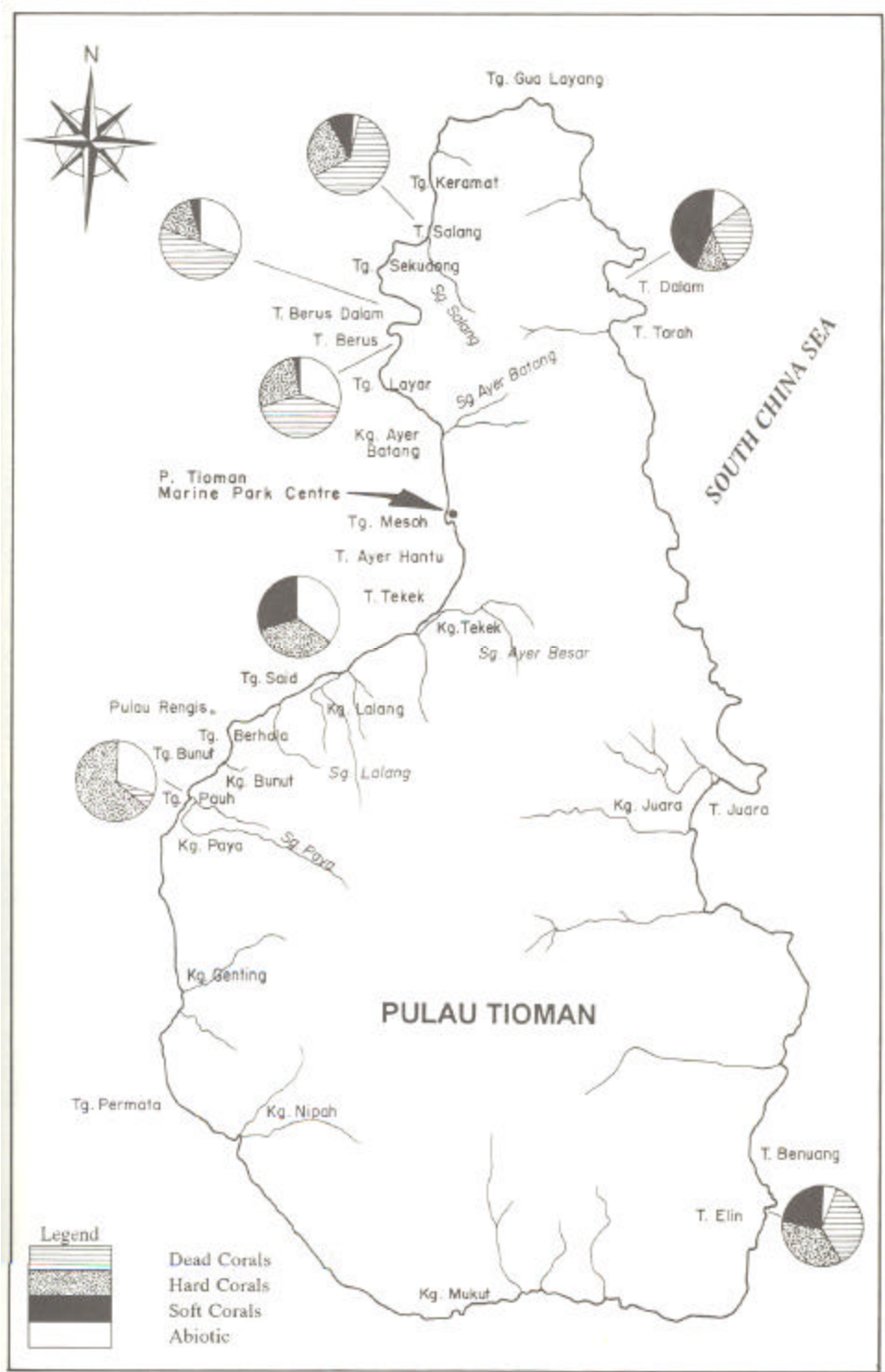
land-based development are the various development priorities at different levels. Local, state and federal agencies and institutions often pursue different priorities. In this respect it is important to generate incentives for contributing to the conservation in the marine parks across all levels and enhance the understanding of the long-term benefits of a rich biodiversity in the marine parks in Malaysia. In this regard Tioman requires special attention: The declaration of Tioman as a duty-free island lying within a marine park requires a strong cross-sectoral approach to integrate conservation issues into the future development plans for the island. Furthermore the recently developed masterplan for Tioman lacks the integration of all stakeholders and pays little respect to the marine park Tioman is a part of. The masterplan aims for example at increasing the capacity for overnight visitors significantly in combination with the construction of a new offshore airport, enabling direct flights from neighbouring countries.

- **Low level of awareness across all sectors and stakeholders.** Tourist, tourism operators, mid-level managers, policy makers, local communities as well as the general public have a low level of understanding about the necessity to conserve biodiversity and the benefits the respective stakeholders could gain from it. Furthermore there is also very little knowledge about impacts of tourism activities and their long-term effects on the biodiversity and even the economy. Additionally the various stakeholders have up to now not been exposed to ways on how to reduce their impact and contribute to the consistent health of the marine biodiversity by introducing best practices such as practices of treating solid and liquid waste, boat navigation, briefing for tourists on snorkelling techniques and potential damages etc.

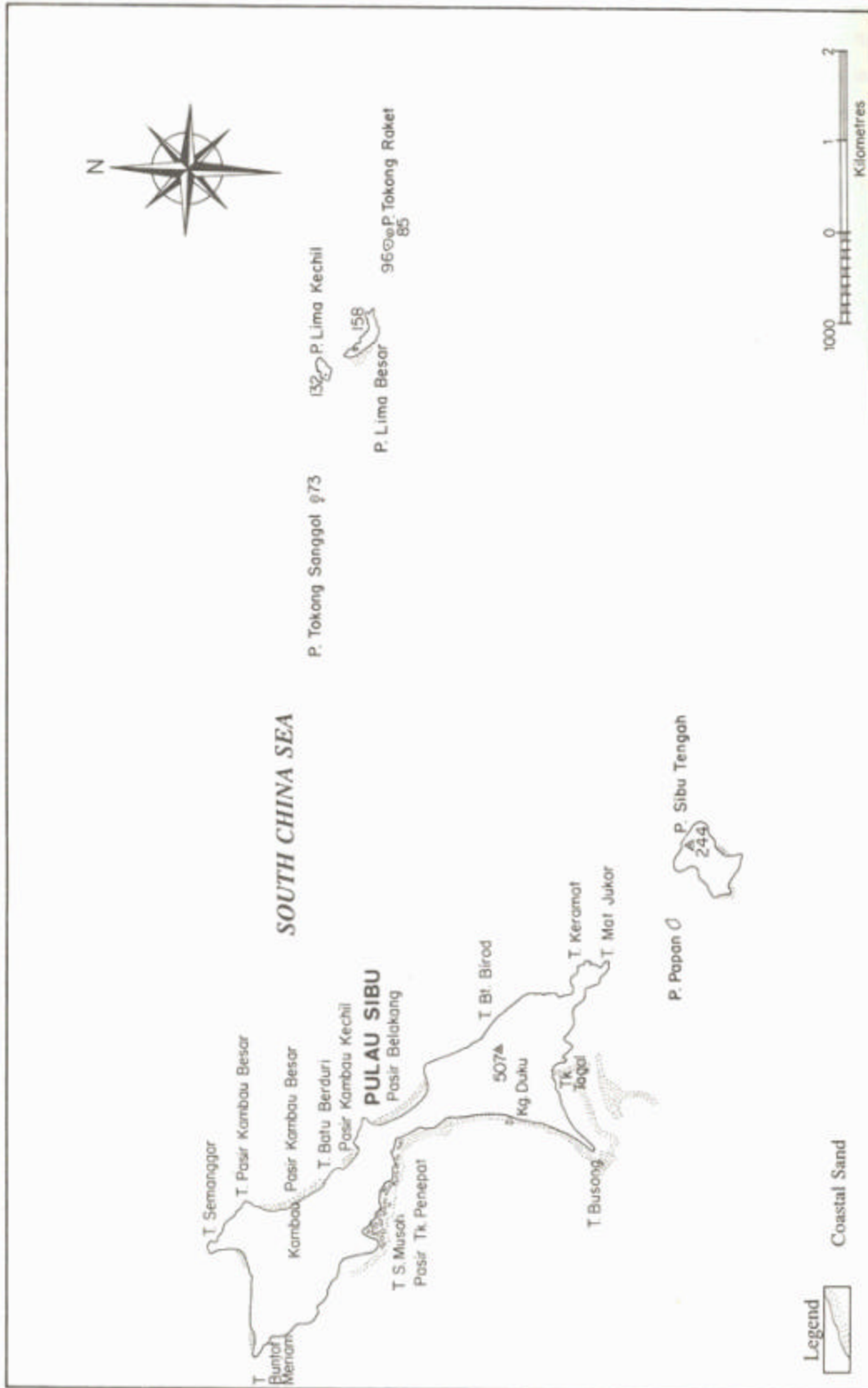
Awareness and outreach messages are mainly transmitted in prohibitive and punitive terms. For example, visitors are briefed by the boat or tour operators not to take any coral because if they are found by the marine parks officers, they will be fined. This way of presenting information to visitors on marine biodiversity is unfortunate because it does not demonstrate to tourists the value of marine biodiversity, for example, why coral reefs are important and why there are regulations to protect them. Instead, the approach currently taken reinforces the perception that the marine parks unit is acting more as a policing agent and their presence is reducing, instead of enhancing, the visitors' experience in the marine parks.

Furthermore, even if some visitors are aware of the importance of coral reefs, there is confusion on what exactly is the marine protected area. Many misleading maps of the islands show that the MPU's visitor centre as "marine park". Therefore it is no wonder that many tourists are under the impression that only one particular spot is a protected area, and not all the waters around the island. The produced material for raising awareness is often poorly distributed, for example any posters and brochures are only available at the Marine Park Visitor Centers, which are visited by tourists mostly already being aware of and interested in the protection of marine biodiversity.

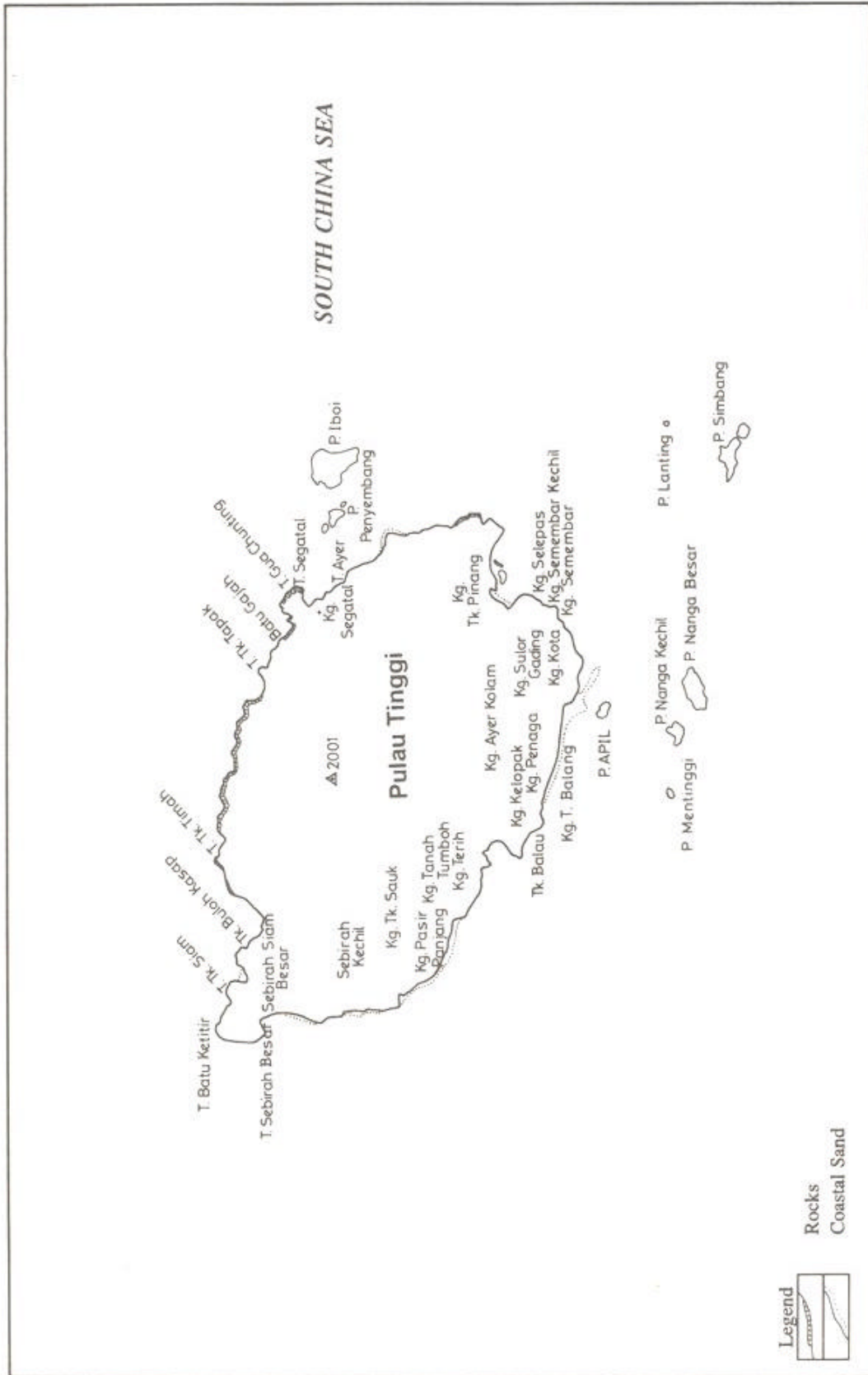
ANNEX VII - MAPS



Coral reef distribution at Pulau Tioman
(Data from Department of Fisheries Malaysia)



Map of Pulau Sibul (Data from Department of Fisheries Malaysia)



Map of Pulau Tinggi

ANNEX VIII – BIBLIOGRAPHY

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ANNEX IX – STAP REVIEWER’S COMMENTS

Note: The STAP reviewer provided his review in two documents. The two complementary reviews shall be named Annex IX.1a and Annex IX.1b respectively and the respective responses to the reviews, Annex IX.2a and Annex IX.2b.

Annex IX.1a

Comments from Clive Wilkinson on the Malaysian GEF project.

Key issues

Questions that could be raised under this issue are:

1. Is there sufficient ecological and technical information available to give the project a sound scientific base?

There is apparently a sound database for Tioman and Redang, but less so for the other two smaller islands. While the project does contain a reasonable understanding of Integrated Coastal Management, there would be benefits from preparing reviews of the status of the resources and communities and trends for the immediate future, and also in conducting reviews of nearby success stories, possibly including a visit to the Great Barrier Reef.

2. Have all the threats to the ecosystem been considered?

Yes and these are well detailed. The only concern is that the potential project managers and Marine Park managers do not consider that activities on the land including the nearby mainland are outside their influence. Maybe some outside their direct jurisdiction, but the threats from the land (sewage pollution, coastal development and sediment inputs) are certainly within their sphere of influence to attempt other arms of government to control.

3. Does the type of ecosystem management proposed require further research?

Yes and No. Their approaches are sound but as mentioned in 1. above, some more research prior to the start of the project and attention to some of the concerns expressed in the review will alleviate these potential problems.

4. Is there a need to develop indicators to achieve the objectives?

Again Yes and No. Success will appear obvious if the resources improve, the communities are happy and involved, the tourism sector is profitable (provided it is well managed) and the different arms of government are cooperating. They have listed the performance measures and if the prune the number of activities, it will be easier to measure success.

5. Will appropriate monitoring be put in place?

This appears to be a weak aspect with insufficient attention paid to both ecological monitoring and socio-economic assessments of the communities. Some of these are spelt out in the review.

6. Will the approach taken in the project proposal achieve the objectives of conserving biodiversity?

Should do so with the proviso that climate change events could throw a spanner in the works. If the communities understand the need to protect the biodiversity as a means of ensuring their future income from tourists, there is a greater chance of success, but it all depends on the comments about the problems between the different arms of government (below).

7. What are the risks and constraint associated with the approach?

The largest problems are associated with the apparent lack of cooperation between Federal and State governments and inter-sectoral disputes. Likewise if there is a lack of openness with respect to large tourism developments and a careless approach to building an airport on Tioman, then land based activities could cause major losses.

8. Is there any area weakness, gap in the project?

This is highlighted in the review – the need to get all arms of government ‘singing the same tune, from the same sheet of music’. This area requires most urgent attention.

9. Are there any controversial aspects about the project?

NO – it all looks relatively straightforward and achievable.

10. Does the project introduce incentives that may lead to overharvesting (in the case of a sustainable use project)?

Not evident. The objective is to divert effort towards tourism activities.

11. How will the drops in revenue as a result of conservation measures be compensated?

These islands are all potential tourism areas with the almost certainty that greater incomes will result for all parts of the island communities, if the tourism operators train and employ local people. This is a potential role for the project encourage and assist the industry to train and employ the local community and also source food and cultural items from them. More income will accrue from the top end of the tourism market for far less environmental damage.

12. Are there legal instruments aspects that should be dealt with?

There are plans to address the legal impediments, but first the governments have to be involved and convinced that the relatively minor restrictions on some activities will result in major increases in economic activity.

13. How will the model of sustainable use outlined in the project be developed?

I cannot answer the question as I cannot see into the future, but if they are conscientious, it should work.

14. How effective will the proposed model be in the local situation?

Cannot see why not – yes it should work as the problems are the same, the communities are not that different and the islands are sufficiently remote from the mainland to filter out both random visitors and land-based sources of damage and pollution.

15. Is there evidence that the project offers the best long-term solutions?

Yes – the methods are largely well tried and tested and if applied well with good buy in from the major stakeholders, there should be major improvements.

Identification of global environmental benefits

7. The purpose of the GEF is to provide funding for the agreed incremental costs

In other words, what are the global benefits for the conservation of biodiversity as interpreted by the COP of the CBD that will result from the intervention? Also: does the area of intervention have a global importance in terms of ecosystem and or key species?

This incremental part of GEF is always the hardest to put a handle on, but these resources are close to the highest focus of biodiversity of coral reefs and mangroves, and also they are in countries where there is a far greater chance of success. So in these aspects there are real global benefits.

How does the project fit within the context of the goals of GEF

8. Operational programs detail the strategic considerations in the focal area and outline the type of activities and approaches GEF supports to maintain biodiversity and diversity of biological resources in the four ecosystems. Assuming this question requires the knowledge of the Operational Strategy and Operational Programmes.

Yes I think so – but I do not have time to delve into the volumes of literature on GEF and UNDP to give a considered answer (and GEF should be able to accept good projects that will conserve biodiversity and ecosystems as well as help communities, if they do not fit exactly into concepts developed elsewhere in the world).

Regional Context

9. This question addresses the importance of the area of intervention from a conservation perspective in the region and may also refer to the transboundary aspects of an intervention in a single country. For example, if the ecosystem extends over two or more countries, there may be a need to establish a management link between the contiguous parts of the ecosystem.

These reefs are certainly larval sources (and sinks) for the other coral reefs and mangrove forest of the region – so Yes they are important in transboundary aspects.

Replicability of the project

Refers to the scope for replication of the intervention. If successful, could the intervention be replicated elsewhere on the basis of experience and learning?

Yes and there are plans to do so.

Sustainability of the project

What is the potential for continuation of the changes the project aims to achieve? How will the project activities and impact be sustained after the completion of the project?

There are strong chances for this to continue. I was involved in a project in the ASEAN countries that finished 10 years ago and many aspects still continue. Asia is a great place to do projects, and Malaysia is rapidly coming towards developed country status where there will be a greater respect for the environment and more leisure time to enjoy things like coral reefs.

Secondary issues

Linkage to other focal areas

For example, actions to sequester carbon and minimize land degradation may offer opportunities for biodiversity conservation, while international waters activities may offer opportunities for integrating aquatic biodiversity components. ***The question is then whether the project has taken into consideration impacts on other focal areas.***

Yes!

Linkage to other programmes and action plans at the regional or subregional level

GEF activities are to be coordinated with past, ongoing and prospective work of the Implementing Agencies and other bodies.

Are adequate links established with relevant ongoing regional or subregional programs and action plans? Is there evidence that the GEF intervention will be considered with other ongoing initiatives?

Appears so and will be improved if UNDP do their job now and ensure widespread consultation with the other projects in the region.

Other beneficial or damaging environmental effects

Good examples for the rest of Asia.

Degree of involvement of stakeholders in the project

The question should be asked whether the project contains adequate mechanisms for participation and influencing the management of the project?

- 1. Are there provisions for the establishment of appropriate lines of communication?***
- 2. Is there a plan for facilitating the flow and exchange of technical information between communities and stakeholders?***
- 3. Are the participatory schemes adequate?***
- 4. Have conflict issues being dealt with?***

Yes but can be improved – (Far too many questions for a 2 day review). There are some major concerns about building a ‘Rolls Royce’ database and decision support system when there are insufficient roads on the islands. They should apply the KISS rule and look at other database examples and communication networks.

Capacity building aspects

One of the activities GEF is funding is supporting capacity building efforts that promote the preservation and maintenance of indigenous and local communities, knowledge, innovation, and practices relevant to conservation of biodiversity with their prior informed consent and participation.

One of the outputs of GEF projects should be stronger institutions and well-trained staff to address these issues.

1. Has adequate attention been paid to capacity building aspects?

Yes – there are plans to leave in Malaysia a cadre of well trained Park managers and people able to interact with the tourism industry and local communities

2. Is there sufficient human capacity to tackle the issues addressed in the project?

Apparently there is sufficient capacity to develop the project and get it started. Malaysia has a well developed tertiary education with world class universities. Thus there should be a core group of people able to start the project. A feature of this is that there is considerable openings for more training and if Malaysia does not have the trained people, there are many in the other ASEAN countries who can assist.

Innovativeness of the projects

In which respect are the approaches of the project innovative?

One of the important features is that the project does not attempt a large level of novelty. All too often donors and granting bodies seek novelty in new projects, including ones that are trying to build on experience elsewhere to tackle non-novel problems.

The continual search for new ways of doing things is a tacit admission of failure in that all the previous methods are assumed to be either worthless or failures. Thus a lack of gimmick novelty is seen as an advantage; not a disadvantage.

Annex IX.2a Response to STAP review Annex IX.1a

1	<p>There would be benefits from preparing reviews of the status of the resources and communities and trends for the immediate future, and also in conducting reviews of nearby success stories, possibly including a visit to the Great Barrier Reef</p> <p><u>Response:</u> The recommendations regarding the preparation of further reviews of the status of the resources and communities and trends as well as reviews of nearby success stories as suggested by the STAP reviewer will be incorporated into the workplan of the project and it is hoped that the co-financing through the Intensified Research Priority Areas (IRPA) would also be used for this purpose.</p> <p>Visits to examples of best practices have been budgeted for, for example, under Output 1.3 on networking, so that appropriate study tours and visits can be carried out.</p>
2	<p>The only concern is that the potential project managers and Marine Park managers do not consider that activities on the land including the nearby mainland are outside their influence. Maybe some outside their direct jurisdiction, but the threats from the land (sewage pollution, coastal development and sediment inputs) are certainly within their sphere of influence to attempt other arms of government to control.</p>

	<p><u>Response:</u> Through our conceptualisation of the threats analysis, we did not mean to convey the message that ‘potential project managers and Marine Park managers do not consider that activities on the land including the nearby mainland are outside their influence’. We used our framework as a means to differentiate a first group of threats which are endogenous to the failings of the marine park management itself, and hence can be addressed by for example, specifically targeting marine park management improvement. The second group of threats where those whose main drivers fell outside the jurisdiction of the marine park management. Therefore the challenge to be addressed would be how to enable and empower the marine park management to effectively influence other government and non-government bodies, many of which might have different motivations.</p> <p>We therefore definitely agree with the reviewer that the threats resulting from land-based development although falling under the jurisdiction of the respective states, are within the sphere of influence by the Marine Park Units as well as the Marine Park Division, and this is what the project will attempt to enhance even further. This will be done by strengthening the ability of the Marine Park Units and the MPD to translate their influence into results on the ground by achieving the following outputs, which call for a close collaboration of the MPUs, the MPD and the state and local authorities:</p> <ul style="list-style-type: none"> - Output 2.2: Federal-State agreements for multi-sectoral island development planning mechanisms - Output 2.3: (Regarding Tioman): A revised Tioman Master Plan, reflecting multi-sectoral approaches to development planning, is agreed and endorsed by State EPU - Output 2.4: Local/Special Area development plans for environmentally sensitive areas at all three sites - Output 2.5: Replication of integrated, multi-sectoral planning processes. - Output 2.10: Replication of appropriate institutional and planning arrangements at other Marine Protected Areas in Malaysia - Output 5.1: Capacity of MPU staff in Marine Park management and enforcement of regulations is enhanced - Output 5.2: Development and implementation of Marine Park management plans for all three sites - Output 7.1: Increased involvement of the NACMPR in governmental decision-making with reference to the Marine Park areas
3	<p>Their [ecosystem] approaches are sound but as mentioned in 1. above, some more research will alleviate potential problems.</p> <p><u>Response:</u> As mentioned under 1. the suggested initial research will be incorporated into the workplan.</p>
4	<p>(in terms of the need to develop indicators) Success will appear obvious if the resources improve, the communities are happy and involved (...). They have listed the performance measures and if the[y] prune the number of activities, it will be easier to measure success</p>

	<p><u>Response:</u> We agree that the success will appear obvious through a collaboration of stakeholders. Besides the performance measurements that were mentioned by the STAP reviewer, which are placed in the logical framework, additional impact indicators have been added into the Results Measurements Table (ANNEX I a). These indicators focus on biodiversity aspects such as coral recovery and the abundance of species as well as on improved status of land based pollution affecting the marine ecosystem. There are also indicators for the increased awareness and the improved management of the marine parks.</p>
5	<p>Appropriate monitoring appears to be a weak aspect with insufficient attention paid to both ecological monitoring and socio-economic assessments of the communities.</p> <p><u>Response:</u> The present monitoring of marine park ecosystems in Malaysia is largely based on availability of volunteers or organizations like the Coral Cay Conservation. This provides only ‘snapshots’ of coral health and fish diversity.</p> <p>This is an acknowledged barrier to effective management of the marine parks. Therefore the project proposes a more sustainable approach to the exercise by adopting a standard monitoring approach. The project team agrees with the comment that there needs to be higher level monitoring by MPU staff and has addressed this under the following outputs and activities:</p> <ul style="list-style-type: none"> - Output 1.2. : Mechanisms for continuous collection, collation analysis and distribution of data obtained from research in marine parks - Activity 5.2.3: Review and implement standards for biophysical-mechanical monitoring including identification of performance indicators. - The link between the project and universities as well as research organizations in the development of monitoring programmes has been clarified in the project brief under Outputs 1.1 and 1.2 especially in identifying the linkages and mechanisms for collaboration in monitoring activities. <p>Since the monitoring of influences on the marine ecosystem and the successes in mitigating these is an essential part of successful marine park management, the project development has included the design and pursuit of a consistent monitoring strategy into the activities and outputs of the project. This will ensure that the monitoring will be continued after the implementation of the project by the built capacity among marine park staff and will not end due to the termination of UNDP and GEF required project monitoring at the end of the implementation phase.</p> <p>Following the STAP review IX.2a, additional indicators have been identified and incorporated into the Results Management Table to provide a balanced selection of indicators for species diversity and abundance.</p>

6 The largest problems are associated with the apparent lack of cooperation between Federal and State governments and inter-sectoral disputes between the different arms of government.

The need to get all arms of government ‘singing the same tune, from the same sheet of music’

Response: The reviewer rightly points out a challenge for the project team. However, past experience in natural resource and conservation projects funded by UNDP and GEF in Malaysia show that this challenge is not insurmountable and in some cases, bringing about a platform for Federal-State deliberations on conservation issues has been the one of the more important contributions of the projects to the country.

Increasing, States begin to see environment conservation issues in a positive light and not as a regulatory burden to be complied with. A State Government itself has requested one of our UNDP GEF project teams to assist them by providing technical inputs on an expedited basis to their critical and strategic decision-making processes on forest planning in order to ensure that high value conservation areas are conserved. Another example is the UNDP-funded Highlands Study provided strategies and guidelines for the conservation and sustainable use of highlands that were approved by the Cabinet in January 2003. While this in itself is a significant achievement, what is even more encouraging is that this study is being used by the Federal Government as a basis on which to hold consultations with State governments. This will enhance the Federal-state dialogue so that the States themselves start to see the necessity of protecting their highlands.

At the political level, this marine parks project will be able to influence the Federal-State issues through the linkages that we have made to the work of the Cabinet Committee on Highlands and Islands which feeds into the (states’) Chief Ministers’ meeting which is chaired by the Prime Minister. As in other projects, the project National Steering Committee also provides yet another platform to push Federal-State policy dialogues.

At the working level, project will also work together with Federal as well as State planning authorities through the National Advisory Panel.

The project design itself explicitly addresses these challenges for example, through Activity 2.2.1: Conduct a review of the value of closer State-Federal collaboration and the costs of failure to cooperate and Activity 2.2.2: Prepare and recommend draft MoUs between State and Federal agencies over cooperation on marine parks policy and sustainable island development. In addition to the two activities mentioned above, the project will also be contributing to enhance Federal-State collaboration through its inputs to the Island Development Guidelines.

7	<p>(regarding drops in revenue)</p> <p><u>Response:</u> As the reviewer suggests, the opposite effect should result from the activities that involve local communities in the conservation and co-management of the marine parks and especially by the activities that aim at introducing supplementary livelihoods to local communities on marine park islands.</p>
8	<p>There are plans to address the legal impediments, but first the governments have to be involved and convinced that the relatively minor restrictions on some activities will result in major increases in economic activity</p> <p><u>Response:</u> Yes, with the involvement of the federal and state governments as a prerequisite, the activities which aim at establishing or improving the existing legal instruments such as EIA regulations and the enforcement of marine park regulations will prove to be successful.</p> <p>The chronology of activities in the workplan has been designed to initiate the involvement of government and state agencies prior to the establishment or improvement of legal instruments. In addition, <u>Activity 2.2.1: Conduct a review of the value of closer State-Federal collaboration and the costs of failure to cooperate</u> aims to use valuation techniques to estimate a financial value of cooperation and non-cooperation, which could also demonstrate changes in economic activity.</p> <p>Furthermore, the Government of Malaysia has begun to undertake initiatives to strengthen the conservation of marine ecosystems:</p> <ul style="list-style-type: none"> ○ The Government recently announced that EIA approvals for development projects on islands will soon require the approval of the federal Department of Environment (DoE). Presently the approval of the state DoE is sufficient. ○ The Government of Malaysia is further in the process of establishing a federal agency for the enforcement of marine laws, which will also improve the situation regarding the encroachment of trawlers into marine park area.
9	<p>The project contains adequate mechanisms for participation and influencing the management of the project, but can be improved – (Far too many questions for a 2 day review). There are some major concerns about building a ‘Rolls Royce’ database and decision support system when there are insufficient roads on the islands. They should apply the KISS rule and look at other database examples and communication networks.</p> <p><u>Response:</u> The involvement of stakeholders is essential to the achievement of the desired outcomes under this project. The project outcome I aims to ensure that the marine protected area system (and sites) generate the right information, in the right format and at the right time for decision-makers to use.</p> <p>Comments about the database are addressed in IX.2b below.</p>

Annex IX.2a

Review by Clive Wilkinson, January 2004

Endorsement

I wish to support this proposal for GEF funding as it has clear objectives and will, if successful, ensure that large areas of Malaysian coral reefs, and other coastal biodiversity components, are better managed. They will also be provided with far improved chances of both being retained and assisting in the economic development of Malaysia through a developing tourist industry along with some small scale (sustainable) fisheries. The budgets appear sound and there is clear evidence of some buy in by the Malaysian governments and some private sectors, notably the larger tourist operators. But obtaining stronger involvement is the area that needs strengthening and this forms the basis for some recommendations to improve the project (with the stronger recommendations early in the review).

Obviously there is a major potential advantage if approval is gained soon in that an announcement can be made at the major COP meeting of Convention on Biological Diversity in Kuala Lumpur in February. My major concerns are about achieving high level acceptance and involvement by the top levels of governments in Malaysia; the CBD meeting may be a catalyst to accelerate such acceptance of the economic and ecological importance of managing the coral reefs of Peninsular Malaysia in a more sustainable manner.

Thus I recommend funding, after consideration of the concerns and recommendations in this review.

Introduction:

The major basis for the proposal is the need to conserve major biodiversity resources of the east coast of Peninsular Malaysia, especially the coral reefs and seagrass beds of Johor. These resources include major the transboundary aspects as there is a high level of connectivity between these reefs and those of Thailand, Singapore and Indonesia and further east to Sabah and Sarawak. The suggested intervention in a single country is of regional (and global) importance as most other reefs in this area are under far greater levels of anthropogenic (not 'anthropomorphic') pressures, thus conservation and sustainable management of these resources is critical to a) ensure a viable supply of larval corals, fishes and other tropical coastal biota for export to other areas; and b) to demonstrate to other countries in the region that sustainable management through the development of an involved tourism sector can be successful and will achieve far greater community benefits than just exploiting the resources until they collapse.

The project responds to the objective of the GEF **Operational Program 2** on coastal, marine and freshwater ecosystems, but suggesting that it specifically responds to the theme "The needs of tropical island ecosystems will receive special attention" is stretching it a bit, because this particularly refers to Small Island Developing States.

There are 7 major outcomes with a total of 40 subsidiary outcomes. Many of these overlap and could be combined. The plethora of outcomes and then activities within these will ensure a nightmare in following the process to ensure that it is on track and then attempting to assess success or failure. Moreover, most of the activities are only vaguely stated. Thus there are several recommendations to condense some of the activities (which appear to have been split to create the appearance of multiple activities to warrant the millions of dollars requested) and other sections could also be condensed and the whole document edited down to a more manageable format.

The major concern, however, is that shared by the project proponents – that the inherent inter- and intra-government disputes will markedly reduce the potential for this project to achieve its major goals. Budget allocations under RM8 do however reveal an increased commitment to the conservation of marine biodiversity from the Government of Malaysia. It is stated that the institutions that will table the respective issues at high levels of decision and policymaking have yet to be strengthened in their capacity and involvement. This is the core of the project and if the inter-sectoral and federal state issues are not resolved, then much of the money will be dissipated in cosmetic activities and meetings.

The report contains significant economic analyses and predictions for the growth in tourism. In my experience such predictions usually fall well short of the mark and the prediction that on Tioman, visitors will increase from 6,000 in 2000 to 26,000 in 2027 is probably an underestimate. Similar predictions in Thailand were way out.

Major Comment:

The key objective for the project is “Activity 2.1.1: Organise national level consultation workshops to finalise the strategy”; with paragraph “92. *Several consultative workshops including a national level workshop with representation from all stakeholders at national, state, local authority and local community level will be organised to obtain their inputs into the finalisation of the Strategy document*”. Success at this objective will prove to be critical in achieving all the other 39 objectives of the project. Thus this should be the first and most important task of the GEF project. There is a similar set of activities under Outcome 7.

The stated overall goal is: *to ensure the conservation and sustainable use of marine biodiversity in Malaysia and sustainable island development.*

This can be paraphrased into: conserving the biodiversity and coastal ecosystem integrity of three island regions of the east coast of Peninsular Malaysia while at the same time encouraging a sustainable tourism industry that involves and benefits the local community, the fishers, farmers and small tourist operators.

The second goal then becomes to demonstrate to other parts of Malaysia that collaborative and cooperative arrangements between all sectors of the society (Federal, State and Local governments as well as the private sector and the public) can both promote ecosystem health and economic development. Outputs 2.1 to 2.5 are essentially all part of this process.

To quote: *“The project purpose is to contribute towards this overall goal through achieving enhanced marine park management and inclusive sustainable island development. The purpose is two-pronged Firstly, with an enhanced marine park management, it is hoped that the system of parks will be resilient enough and also capable of adapting to different challenges that have so far hampered its ability to enforce marine park regulations in the waters under its jurisdiction. Secondly, the other category of driver behind the threats shows that to be successful, the proposed initiative also has to contribute towards reducing the negative impacts of island-based development, which, in the case of the marine park islands in Malaysia, are mainly tied in to development of the tourism sector”*.

There is a more important first step before these. Throughout the proposal, there is continual reference to the problems of differences between Federal and State jurisdictions and inter-sectoral problems within and between departments. There is also poor involvement of academia, communities and large sectors of the tourism industry. Unless these blockages are overcome and there is effective collaboration and cooperation between Federal and State jurisdictions, operational departments and other stakeholders, then most of the other efforts will be futile and a similar situation will be present at the end of the project with only minor advances.

The major goal should be to ensure that the two levels of Government have reached an understanding on shared responsibilities and all sectors within government share the same objectives. The current plan appears to approach the collaboration indirectly by involving the MP ground staff and then hopefully the senior staff and finally the Ministers will follow and encourage the process (*Activity 2.5.1 Hold workshop and training programmes for decision makers and mid-level managers*). It may be more effective to turn this around to ensure that senior government people, at both Federal and State levels, buy into the process early and then encourage their staff to proceed rapidly and conscientiously. Otherwise the project will start and finish and the 1999 **National Marine Parks Strategy** will still be in Draft format.

Under Output 2.2: Federal-State agreements for multi-sectoral island development planning mechanisms “Activities to meet this output require strong support from the State Government and State EPU in particular. Agreements and endorsements at the state-level (State Exco) will be necessary to enable multi-sectoral approaches to sustainable island development planning and significant changes in the current planning mechanism will need to be facilitated. As a first stage in project implementation agreements will be developed and facilitated between State EPUs, DoFM, DoE, District Land Offices, MOCAT and other relevant stakeholders such as the SEDC and island development agencies (e.g. TDA).’ This is a critical requirement, but there is no mechanism to determine HOW these agreements would be achieved.

There is an opportunity, if GEF funding is granted and the equivalent Malaysian counterpart funds are secured, to commence the project with a series of major meetings with the objective of presenting the status, trends and predictions for the future of the coral reefs, other resources and the tourism operations, outlining the current and future threats and suggesting the potential rectifying options to ensure that the development planned for these three islands is sustainable. These meetings should cover all levels of the potential partners with senior government ministers involved at some stage. Their involvement can be suggested as a partial condition of funding by GEF.

The result of these meetings could be to form two committees for these Marine Parks: one constituted by relevant ministers of Federal and State jurisdictions that reports to the Deputy Prime Minister (or Prime Minister#) and the Cabinet Committee on Highlands and Islands, and an equivalent level in the States to provide overall guidance of the project and ensure that all relevant levels of government are cooperating; and another committee that meets more regularly of senior Federal and State departmental leaders and senior officials, plus community leaders (including religious leaders), academia and representatives of the private sector that reports to Ministerial Committee and implement the directives of that Committee to provide more direct guidance to the Marine Park management teams. A potential model for these committees can be seen in the management of the Great Barrier Reef World Heritage Area, where a similar committee structure has assisted in overcoming Federal-State bureaucratic mistrust.

(# the Malaysian Cabinet Committee on Highlands and Islands was chaired by the previous Deputy Prime Minister. Now he is the Prime Minister and comes from Penang and there may be a greater level of understanding of the problems behind this biodiversity proposal).

These meetings should be preceded by the reviewing component of Activity 2.4.2 Develop special area plans, with an additional task of assembling this material into concise summaries of status, trends and predictions on the ecological, sociological and economic aspects of the three islands. It is obvious that much of this has already been undertaken as there are valuable data on these aspects throughout the proposal documents e.g. the process is well in train for Pulau Tioman.

Recommendation 1:

- a) Start the project with a major exercise in informing and involving the top levels of governments, academia, communities and the private sector with a briefing on the problems, the predictions and the proposals for finding solutions. This is aimed at obtaining greater cooperation between the various sectors of governments and other stakeholders;
- b) Perform an assessment of the ecological status of the islands, the sociological conditions of the communities and the economics of the tourist resorts and other sectors, with an economic assessment of the business-as-usual option of what would happen if this project did not proceed;
- c) Consider establishing two high level committees in order to strengthen understanding and the need for a coordinated approach among all levels of government and stakeholders. The suggestion here is that these committees be a ‘ministerial level oversight committee’ and a ‘senior officials and leaders committee’;
- d) These meetings and committees would be responsible for drafting the MoUs outlined in *Activity 2.2.2 Prepare MoU between state and federal agencies over cooperation on marine parks policy*
- e) That GEF and UNDP play a major catalyst role in establishing these meetings and committees and informs all players of the global, regional and national significance of this project (from UNDP and GEF perspectives).

Structure of the Project:

The proposed project has many initiatives and objectives, which are sound in principle, but there is no indication as to how they would be undertaken. Examples are the development of a database, preparation of manuals, development of a 'green resort' categorisation, greater involvement of communities / tourist operators / academics in many aspects of the Marine Park management etc. Many of these aspects have been tackled elsewhere in the world with varying degrees of success. Prior to commencing the project, it is recommended that a small team consult widely with experienced people and look at both successful examples of effective management and the published literature to develop strategies to achieve the 'in principle' objectives.

Recommendation 2:

The core management team (including if possible the project manager and chief technical advisor) examine other examples of effective marine park management and gather key literature on MPA management. There are several effectively managed Parks in Southeast Asia as well as the Great Barrier Reef Marine Park in Australia and the Florida Keys in USA.

Economic Assessments:

Gathering amazing amounts of data and information on biodiversity, endangered species and improved amenity experienced by tourists from a healthy environment rarely have any impact on senior decision makers. However, analyses of actual and potential economic benefits in sustaining the environment for viable tourism and small scale fisheries do influence decision makers. Moreover analyses of potential costs involved if the resources are not retained, will also improve awareness. If fisheries on these coasts collapses, there will be large scale migration of people to the mainland and also a need for increased welfare from the government.

If a viable tourism industry is established on a sustainable basis, with strict adherence to the limits of carrying capacity, and if this industry makes a major effort to employ and involve people from the local communities, then there will be major economic benefits for all concerned. Malaysia has the ideal mix of a tropical environment, stable governments and secure localities, and exotic cultures and foods to attract tourists. The emphasis should increasingly be on the top end of the market as cheap package tours usually return small benefits for the increased environmental and cultural pressures applied by insensitive package tourists. Many of the assessments (e.g. Objective 2) are about violations and complaints and not measuring positive outcomes in communities and tourism operators e.g. number of community members involved in local management committees; changes in incomes of locals; improvements in education and employment for the young people.

Recommendation 3:

MP managers should always seek to obtain the best economic analyses of the gains from effective management and the potential losses from a business-as-usual approach to the environment. This should be accentuated in the proposal.

Monitoring:*Output 1.2 Implementation of mechanisms for continuous observation and monitoring of state of the MP environment and analysis of collected data*

There are two major values of monitoring within a project such as this: data and information are gathered for use in performance evaluation of management and also to be applied in adaptive management; and in raising awareness amongst all stakeholders. Nothing raises awareness on the status of resources showing evidence of damage than taking senior decision makers and key private sector people into the field and putting a mask on them to observe damage directly. Evidence of anchor and snorkeller damage, over-fishing and pollution by sediments and nutrients are clear to relatively inexperienced eyes. Also the potential of the resource if well managed can also be demonstrated.

Leaving the monitoring to students and volunteers would appear to be a mistake. They could be involved in doing much of the routine monitoring, but the overall direction for monitoring needs to be tackled at higher level of management. Ideally all members of the management team should be trained in basic monitoring and participate in a few days of annual monitoring to ensure that they are aware of the status of the resources and the progress in management. Likewise, leaders in the tourism sector and the community should also be involved in some monitoring. This will raise more awareness than the production of a thousand brochures, videos and posters, and many lectures from park staff and academics.

Statements like “needs to be of a consistent quality in order to provide useful information to the marine park management, a standardized system of monitoring, analysis and data storage needs to be developed” are vague suggestions of what should be done without explaining a mechanism. Apparently the current monitoring has been able to demonstrate the status and possibly the trends in the resources. Thus caution should be applied in any approach that will seek to design a new monitoring system that in the end may not be sustainable. There is considerable capacity in the ASEAN countries for monitoring and there are key people in Malaysian Universities who were involved in designing the monitoring methods that are currently used across much of the Indo-Pacific region through the Global Coral Reef Monitoring Network and Reef Check.

One of the major criteria for assessing effectiveness is that the percentage of live coral cover at project sites is maintained or increased during life of project. Any monitoring should include sites outside the management regime to demonstrate the effectiveness of monitoring. This is essential as it is quite probable that there will be losses in coral cover through the influence of Global Climate Change and any repeat of the El-Niño - La-Niña climate shifts in 1998 (Note that most of the damage to reefs in Southeast Asia occurred in 1998 during a La-Niña phenomenon). Another assessment is stated as the need to measure diver damage. There has been considerable development of such methods in Egypt on the Red Sea, and also they have developed strategies for raising awareness amongst divers to reduce the damage.

Equal emphasis should be placed on monitoring of fishes, especially the prominent target fishes taken by fishers. The table of indicator fishes lists 2 apogonids, a caesionid and 2 pomacentrids which are often abundant on coral reefs, but not of major interest to a manager wanting to retain the biodiversity of the reef. Missing from the lists are the key targets of serranids, lutjanids, scarids etc. (*Abudefduf septemfasciatus* probably should be *Abudefduf sexfasciatus*).

Output 1.3 Networking among marine park managers, project teams, conservation programmes and development organizations' networks of experts

This is also a vague statement on how it will be achieved. As mentioned later, Malaysia may profit from playing a stronger role in the International Coral Reef Initiative and GCRMN. As mentioned later, Malaysia may profit from playing a stronger role in the International Coral Reef Symposium in June, 2004 in Okinawa and by sending key project personnel.

There is also a statement – “decision-making with respect to island and marine park development is based on a science.” This is a sound principle, but there is no evidence provided of contacts made with key Universities and researchers.

Recommendation 4:

Any monitoring programs developed should focus on sustainability after the project has ended and on obtaining those data that will assist management (from a resource managers perspective and not that of a scientist). Also all staff and other stakeholders should be exposed to some monitoring to both gain an awareness of the status and value of the resources and understand how data are gathered during monitoring (including the statistical limitations of such data).

Databases:

In my experience, many projects have included the development of databases and decision-support systems, but I have never seen one of these actually perform what the design criteria have anticipated. These include the assumption that if all the relevant data are assembled into a single location and then some very sophisticated analyses and graphic presentations are made, decisions will be made on the basis of data and the analyses of these data.

Decision-makers are not known to sit in front of a computer and assemble all the relevant data or pose the ‘what if’ questions prior to making decisions. The usual situation is that databases are developed without a mechanism to use the data to provide information for decision makers. Decision-makers rarely use databases; but rely on information produced by others. Thus the value of a database is for the staff who must respond to requests from or provide advice to the decision-makers.

The project will develop a database of all research activities carried out in MPs, which will house data from studies conducted within the parks, or in adjacent waters. Such databases rarely work, but meta databases that indicate where the primary and often summary data are to be found are more successful. More important would be the development of mechanisms to analyse data through provision of regular reports on status of the resources and trends analyses. Developing a database is seen as a magic wand in projects, but rarely do they achieve anything and then just corrode away at the end of the project period. Thus there should be a process whereby the people who generate the data are required to cooperate each year to produce reports on the status of these resources, thus the project should start with a status situation (with any apparent trends highlighted) then proceed through annual reviews and revisions of these reports.

ReefBase (based in WorldFish Center in Penang) has an extensive database on Malaysian coral reefs, which will include considerable information on these three island groups (#Note potential conflict position below). A question – have the project proponents looked at this database and questioned the material? My concern is that this project will develop a database from scratch with the involvement of some very keen young database people without determining what is already out there and building on this. A possible mechanism is that the project could subcontract the database activities to ReefBase and use them to train the staff who would be involved in developing and managing the data at the three island groups by cycling people through Penang. This will have a range of immediate benefits:

- a. The databases will be developed by people with considerable experience (and who have already made the obvious mistakes);
- b. There are people there who can train in effective database development and introduce quality control;
- c. There will be continuity after the project is finalised; and
- d. The database is then available for global use as a source of reference (with provision for sensitive data to be retained as confidential e.g. data received from tourist operators).

(# I have a potential position of conflict in that ReefBase is an active partner in the Global Coral Reef Monitoring Network and serves as the global database for both GCRMN and Reef Check).

Recommendation 5:

The project personnel should seriously examine the database aspect of this proposal and consult widely on suitable mechanisms to gather, archive, analyse and report on data and information obtained during the project and required to make sound decisions. The discussions should start with the WorldFish Center in Penang and also look at examples of successful databases such as the ones developed for the Great Barrier Reef and the Florida reef tract.

The following are some examples of database activities:

Activity 1.4.1 Develop web-based database for the tourism sector. It is naïve to think that tourist operators will use a database for day-to-day operations or put their economic and procedural data and information into a database that could be shared with other operators. It would be better to use a database to generate the information for them and to display this at regular meetings of all stakeholders.

Activity 1.4.2 Develop directory of green product suppliers. Similar processes are in train in many parts of the world where there are tourism operations on coral reefs – see **Green or Blue Labelling below**.

Output 1.4 Development of an interactive database on private sector activities. This anticipates that something magical will happen if a database is produced. Precedence is no.

Tourism Charges and Fund Raising:

Outputs 2.6 to 2.10: The activities around funding for the MPs appear sound and are based on experience of Malaysians. Only a few minor comments are warranted.

Output 2.6 Pilot initiative on implementing an eco-tax on visitors (Tioman). It is well recognised that any funds collected by tourist operators or Marine Parks staff should be used solely to improve the management of the Park and improve facilities for the communities and tourists. The suggestion of using the funds for waste management is applauded, but it should be stressed to governments that funds should be retained on the Islands and should not be used to undertake tasks that the government was going to do anyway. Efforts should be concentrated on overcoming the resistance of government agencies to either a one or two-tier system of Conservation Charges. Staff, communities and tourists become discouraged and suspicious of such taxes if they go into central government coffers, and there is little incentive for MP staff to collect them. Moreover tourists will pay more respect for resources that they are ‘paying rent’ for, and there is no evidence that a tourist Conservation Charge will discourage tourists or drive them to other islands. On the contrary, tourists anticipate a better product in sites that charge these fees and even increase them. This was the theme of a study performed during the PEMSEA project and discussed at the Meeting in Putrajaya in December 2003.

Recommendation 6:

As suggested in the proposal, the Conservation Charge should be levied on all three island groups for tourists and the funds generated be ploughed directly back into providing better amenities for the community and tourists.

Output 2.8: Similarly, the suggestions to enhance schemes of small grants and loans is welcomed and should be encouraged.

Outcome 3: These all appear sound and well reasoned and essential for the success of the project. As mentioned above, the project will not succeed if there is not high level support from all levels of government. Likewise if there is not bottom up support for the goals and objectives of the project, it will most certainly fail.

Government incentives and gentle ‘encouragement’ measures may be necessary to ensure that members of the local communities receive training and employment in the tourist operations (outside the small grants scheme). Frequently it is easier for larger tourist operators to bring in trained staff, rather than train locals (who may have lower levels of education and language skills) and provide them with employment. There is a comment ... *“to improve the socio-economic well being of the local populace through involvement in high-end tourism activities by training local youths as nature guides as opposed to being just boatmen”*. All sectors of the staffing of resorts should be open to the local populace, and it is patronising to consider that a boat driver is of lesser status than a nature guide. Many fishermen with little education can make excellent boat drivers guiding tourists and will certainly earn more stable and probably more money than if they continued fishing. If the locals are not employed, there will be resentment in the community and obviously more time and need to continue previous extractive and damaging practices in the Marine Parks.

Recommendation 7:

That the project management group specifically seek ways of training local community members in tourist related activities (including tourist boat operators, dive guides, and managerial staff) and provide incentives and encouragement for the tourist operators to provide stable employment.

Demonstration of Success:

Output 4.1 Tourism operators (hotel, boat, and dive): This appears soundly based with 9 similar and over-lapping activities that aim to involve the tourism sector more closely with the MP management and the community. The proposal recommends peer-to-peer exchanges between sites and this should be more formally established as this has shown success in other parts of the world. The International Coral Reef Initiative (ICRI) has an Action Network (ICRAN) that operates much of their activities by establishing demonstration sites of best practice in coral reef management, thus it is recommended that this project make contact with the ICRAN regional office at UNEP in Bangkok to determine ways of linking with this network and gaining mutual benefits.

One of the themes (somewhere in the documents) is to specialise activities in each site with Redang as the focus for MP management and training, Tioman for environmental education and public awareness, and Sibit-Tinggi for marine mammal research and rehabilitation. This is encouraged and would emphasise the need for regular peer-to-peer exchanges, which should include both the MP managers and rangers as well as members of the communities and tourism operators. There are many examples of community people listening to their peers and following advice, while not being receptive to the same messages from government staff or academics.

It is stated that “Boat operators like many other stakeholders, are driven by short-term economic and financial gains thus neglecting a consideration of preserving the substance for future income (coral reefs) Furthermore boat operators regard the marine parks and their regulations as potentially reducing their livelihoods and economic activities.” This is a top down assessment and probably arises because these people have not been given a direct role in the management of the resources and given to understand that these are resources they can bequeath to their children. This further accentuates the need for community involvement in MP management.

Recommendation 8:

- a) The project management group should stress peer-to-peer exchanges that include members of the local community, as well as tourism operators and management staff; and
- b) It is suggested that the project coordinators make contact with the UNEP regional offices in Bangkok to determine whether there are opportunities to benefit from the ICRAN process.

Green or Blue Labelling:

Output 4.2 Establishment, implementation and monitoring of a system of “rating schemes”: and the 5 associated activities. This is linked to *Activity 1.4.2 Develop directory of green product suppliers* earlier in the proposal. Similar processes are in train in many parts of the world where there are tourism operations on coral reefs. The proponents are advised to link with the other activities that are trying to produce these listings and sets of definitions e.g. Green Globe, Blue Flag etc. Some of the initiatives under way from memory are: the UNEP Division of Technology, Industry and Economics in Paris in association with the French Government for the UNEP/UNESCO/WTO Toru Operator’s Initiative for Sustainable Tourism Development (giulia.carbone@unep.fr); Reef Check in Los Angeles (www.reefcheck.org); the Coral Reef Alliance in San Francisco (www.coral.org); the Great Barrier Reef Marine Park in Townsville (www.gbrmpa.gov.au); and others. The proponents will find that the process of developing guidelines and gaining acceptance from the industry is far more complex and slower than anticipated and most under development for years have still not being adopted. Moreover, unless MoCAT initiates this then it will not happen and will not be accepted by either government or the industry.

Recommendation 9:

The project management group is recommended to make contact with the UNEP DTIE in Paris and other similar organisations to join with their development of ‘green’ tourism operations, rather than attempt the long process of developing their own (only to create more confusion in the global tourism market place).

Waste Controls:

Output 4.3 Reduction and elimination of sewage discharge from marine park islands:

This is an essential activity (either as an associated part of the project or independent) if the water quality and human health status of the waters around the islands are to be improved. Nothing dissuades a tourist more than a notice saying that the beach is contaminated and unsuitable for swimming. I have experience of this at a tourist resort in Kuala Terengganu where the resort had a sewage treatment plant that was not maintained and far too small for the resort. Thus raw sewage flowed over the beach (and combined with the lack of sewage in the nearby houses) meant that the beach was closed for swimming.

There is an apparent dichotomy of understanding of the role of management with issues like this. Here the project is advocating treating sewage to acceptable levels to protect the biodiversity, whereas elsewhere on p. 25 of the Executive Summary the following statements are made:

“Reasons for the threats within the jurisdiction of marine park management:

- *Illegal trawling within the 2-mile protection zone around the marine park islands*
- *Violations of marine park regulations regarding the conservation of endangered species (turtle poaching)*
- *Direct impacts from snorkellers and boat operators not adhering to reef etiquette and marine park regulations, resulting in trampling on corals and destructive boat anchorage; further exploitation by souvenir hunters and other mass tourism activities*
- *Coral dredging and excavations for construction sites within marine park boundaries*

Reasons for the threats outside of the jurisdiction of marine park management:

- *Increasing siltation through beach front construction, coral dredging, hillside construction sites and run off of sewage and liquid waste in the streams*
- *Degrading water quality and eutrophication from land-based pollution by discharge of untreated sewage, grey water and kitchen grease from small and medium accommodation facilities as well as local villages and inadequate handling of solid waste.”*

These last two issues are very much within the direct interests of the MP Management, although they may not carry the legislative stick to enforce compliance. On small islands like these, Integrated Coastal Management includes the whole ecosystem and it should be a clear objective of management to influence developments to prevent damage from sediments and polluted water from impacting on the coral reefs. This is another reason for attempting to gain full cooperation of Federal and State authorities in controlling damaging impacts from the land and this should be a theme of any major meetings and committee deliberations. It is stated that owners of small and medium tourism business are reluctant to invest in sewage and solid waste treatment due to financing problems. In most parts of the world this is the role of government or for government-industry partnerships.

Recommendation 10:

MP management should attempt an Integrated Coastal Management approach to developments on these islands and seek to gain agreement from Federal and State Government departments to ensure that Environmental Impact Assessments are applied to all developments (both small and large) and that the goal of these EIAs should be to minimise damage to the reefs from land-based activities.

Output 4.4 Proper disposal of solid wastes .. Output 4.5 Proper collection and disposal of oil and grease

These are major, and uncontroversial themes for MP Management and to be encouraged. Tourists are similarly turned off by piles of solid wastes and oil slicks on the water. While they do not have the health consequences of untreated sewage, their visual impact is immediate. A simple measure would be to have all tourist boats sign up to returning rubbish and return rubbish to specific sites for disposal.

Output 4.6 Empowerment of tourism operators .. and Output 4.7 Successful replication ... There are also necessary roles for this process. In attempting to disseminate the findings of these project activities within and outside Malaysia, the project proposers may wish to advise the Malaysian government of the potential benefits to be gained from involvement in the International Coral Reef Initiative. Many of the activities in these two Outputs are similar and can be condensed into fewer numbers for ease of administration. Likewise these activities are largely repeated in *Output 5.5: Replication:*

Other Themes:

Outcome 5: MPUs Follow International Standards of Protected Area Management and Achieve Efficient Enforcement and Prevention of Violations

These are natural extensions of many of the activities above and could be pruned to fewer activities to ease the administration of the project. There are also many overlaps with activities above. Again linkages into the ICRI Network and the performance indicators programs being initiated by the IUCN marine parks project (WCPA) out of NOAA USA would yield benefits to the management team and provide them with a broader perspective on their activities and how they compare with activities elsewhere in the world.

Two other activities are also unexplained: enhancement of South-south cooperation; and complementing other projects such as UNDP-GEF-IMO Building Partnerships for Environmental Protection and Management of the East Asian Seas (PEMSEA), the UNEP-GEF Project on Reversing Environmental Degradation Trends in the South China Sea and the Gulf of Thailand and the UNEP-GEF Sulu-Sulawesi Marine Ecoregion Project. The mechanisms for these need to be developed and explained.

Outcome 6: Raised awareness of the importance of biodiversity conservation and marine park system in Malaysia among selected target groups

Similar comments apply. Considerable duplication between activities and overlaps with others in the project. All are natural progressions from the activities above.

Outcome 7: Framework for strong advocacy from stakeholders for the conservation in the marine parks of Malaysia

This is the key outcome and is covered at the start of this review. Unless the project proponents gain higher level support from key areas of Federal and State Governments, key stakeholders especially the tourism industry and the community leaders, then most of the activities above will be considerably more difficult and unlikely to achieve substantial success. Thus this should be the first outcome sought and the first range of activities attempted. In all there are 9 activities, which could be condensed into about 3 larger tasks. But they are not designed to aggressively tackle the current inter- and intra-governmental blockages for sustainable development and sound environmental management required in this project. See the first Recommendations on Page 1 and 2.

Part of the problem in a lack of apparent government commitment and a source for inter-sectoral problems is that the proposal falls under the Ministry of Agriculture for the overall responsibility, and the Department of Fisheries Malaysia as the Implementing Agency. While their mandates are obviously evolving, neither has sustainable development of natural environments as a core mandate. The ministry with the carriage of environmental issues, Ministry of Science, Technology and Environment (MoSTE) will play a relatively minor role in providing some funding and scientific advice for the project. The arrangements within the Government of Malaysia are not a topic that the proposal can approach directly, but eventually it is hoped that the themes of the environment will achieve greater recognition within the government. The upgrading of the MPU to a Division within the Department of Fisheries Malaysia may lessen the problem, and provide more opportunities for the environment to be at the centre of discussions. Obviously the Cabinet Committee on Highlands and Islands (CCHI) and the Senior Officials Task Force (SOTF) on Islands are approaches in this direction, but in this project it appears to state that they will be side issues for these committees.

Maybe in the future, the Government of Malaysia could establish large Marine Managed Areas or Marine Protected Areas that would seek to implement sustainable management of large parts of the coastline and nearby seas, such as the East coast of Peninsular Malaysia. These three islands would then become constituent parts of the larger plan.

Final Small Points:

- the header on the tables in the Executive Summary have amounts in US\$ which should be US\$ x million;
- it was disappointing to find many English grammatical errors from a country that once was strong in English education;
- ‘crown of thorn (COT) infestations’, whereas the accepted terminology is vs crown-of-thorns starfish (COTS) infestations (with or without hyphens, and the ‘starfish’ should be probably be called ‘seastars’, but nobody does);
- the number of turtle eggs deposited at hatcheries came out of nowhere;
- I could not read Table 2 P 36;
- a reference to maps earlier would have saved me time looking up others (not obvious if the document is not printed out);

- ‘anthropomorphic factors’ were not the problems with the coral reefs, but anthropogenic ones are;
- MPU’s – not possessive but plural MPUs; and
- the ‘World Fish Centre’ is actually the ‘WorldFish Center’

Closing Comments:

The real value of the GEF approach is not through the portfolios of biodiversity, international waters etc. or through the goal of incremental value and global significance, but through using the UN system and the lure of money to achieve high level input from governments to make things happen at the scales that matter. This is not through a series of small projects, but upping the scale to attack problems at Large Marine Ecosystem of similar scales. The value of this approach is likely to make the Malaysian and State Governments take sustainable development, ecosystem management, EIAs, adaptive management seriously and attempt to collaborate to conserve some of the few remaining coral reef and other coastal resources in the ASEAN region.

I have considerable experience in international areas and have encountered numerous acronyms – but I found a new set of ones here that I had never met before – please think of the reviewer when writing these documents and use fewer acronyms and then spell them out often.

In an ideal world, reviewers should be able to network with relevant scientists and examine pertinent literature when reviewing proposals of some magnitude. But this is a real world and there was insufficient time to examine this proposal in great detail and consult colleagues. Two reasons are pertinent: one is that less than four days were available for a two day review; and secondly, the review period was over the New Year holiday periods when colleagues are probably lazing on a beach somewhere. Similarly I did not structure the review along the ToR for Technical Reviews – I may look again at these tomorrow.

Another comment pertains to a saying from Mark Twain, and loosely quoted here: “please accept my apologies for writing you a long letter; I did not have enough time to write you a short one”. There were three documents submitted for review:

- The 5 page terms of reference for reviewers;
- The 62 page Executive Summary (hardly a summary in 62 pages); and
- The 180 page Project ‘Brief’ (an obvious misnomer).

While I realise that the application is for millions of dollars, some effort should be made to force the proponents to provide a summary Executive Summary and a briefer Project Brief. There was considerable repetition within the documents and between documents. If limits are enforced, the job of reviewer will be easier and more accurate, and the proponents will have a more concise framework for their work program if and when funded. This review was performed under considerable time constraints and it was not possible to examine in detail all details in the attached documents. I would be happy to comment further on specific aspects covered in this review or those I have overlooked.

Annex IX.2b Response to STAP review Annex IX.2a

Reviewer's Comments	Response	Action
<p>Recommendation 1 *</p> <p>Obtaining early government “buy-in” into the proposed outcomes and activities</p>	<p>The project team recognises the need to attain this and will address the issue at the project development and project implementation levels. Government “buy-in” on the project is present. MoSTE is awaiting this project as it needs activities under this project to come up with guidance to MoSTE for the Island Development Guidelines. In addition, the Government of Malaysia is looking to this project to provide inputs to the 9th Malaysia Plan on marine biodiversity conservation.</p>	<p>Activities 2.1.1, 2.2.1 and 2.2.2 of Outputs 2.1 and 2.1 in brief have been amended to ensure that government agencies are engaged at the earliest possible stage i.e., at the start of the project.</p> <p>Please also refer to proposed institutional arrangements and also response number 6 in IX1.b above.</p>
<p>Recommendation 2</p> <p>Core management team study other examples of marine park management</p>		<p>This activity will be carried out as a pre-project activity by the project management team and staff of MPU.</p>
<p>Recommendation 3</p> <p>The need to incorporate social and economic data which shows the benefits to be accrued from sustainable tourism and benefits lost if sustainable tourism is not practiced</p>	<p>The project document discusses the significance of the tourism industry to the local economy and this indirectly suggests that any decline in the tourism industry would adversely affect the income of the local communities.</p> <p>However the reviewer suggests that this be taken a step further would require some analysis be done to project loss of economic benefit as a result of decline in tourism.</p>	<p>Analysis of economic losses as a result of the loss of biodiversity and tourism has been incorporated as a project activity under Output 3.3.</p> <p>To support this activity , additional economic indicators have been incorporated into output 3.3.</p>
<p>Recommendation 3</p> <p>Networking – need to identify clearly this could be achieved</p>		<p>Clear identification of opportunities for networking has been incorporated as an activity under Output 1.3 of project brief.</p>

Reviewer's Comments	Response	Action
<p>Recommendation 4</p> <p>Monitoring</p> <ul style="list-style-type: none"> - need for overall direction in monitoring - need for mechanism to explain the requirement for consistent and standardised monitoring - inclusion of other sites to demonstrate effectiveness of monitoring - addition of indicator species to list of coral fish species to be monitored 	<p><i>Please see also point 5 of section IX1b above</i></p> <p>The present monitoring of marine parks ecosystems is largely based on availability of volunteers or organizations like the Coral Cay Conservation. This provides only 'snapshots' of coral health and fish diversity. The project proposes a more sustained approach to the exercise by adopting a standard monitoring approach. The project team agrees with the comment that there needs to be higher level monitoring by MPU staff and has addressed this under Output 1.2.</p> <p>The use of students is one way of involving universities into the project and this will be done in collaboration with the university staff. In addition this would contribute to human resource development in the field.</p> <p>The project team recognises the need to include fish species which are indicators of species diversity in the area.</p>	<p>The link between the project and universities as well as research organizations in the development of monitoring programmes has clarified in the project brief under Outputs 1.1 and 1.2 especially in identifying the linkages and mechanisms for collaboration in monitoring activities.</p> <p>Additional indicators have been identified and incorporated into the Results Management Table to provide a balanced selection of indicators for species diversity and abundance.</p>
<p>Recommendation 5: Database</p> <ul style="list-style-type: none"> - need to provide data which is of use to decision makers - avoiding duplication in data collection - consultation with existing data managers 	<p>The project team recognises the need to provide useful data and to avoid duplication of data but feels that at this stage because of a lack of sufficient time-series data on coral health in Malaysia there is a need to develop a database structured around the monitoring activities proposed under the project.</p> <p>Having said that the project team will also take up the suggestion that</p>	<p>A review of existing data bases has been incorporated into project brief and the proposals for the database refined following this. Pls. Refer to Outputs 1.4 and 1.5.</p> <p>At the project implementation stage, the team will examine existing databases before proceeding with</p>

Reviewer's Comments	Response	Action
	the project team consult with existing data managers/programmes such as ReefBase to refine the proposal.	development of new database in order to identify gaps in existing information and identify specific data requirements. If necessary establish meta databases as a resource.
<p>Recommendation 6 Tourism charges and fund raising – the need to ensure that funds collected are used for activities on the islands</p>	<p>The proposal for the eco-tax is to complement the Conservation Charge (CC) currently being collected. The CC is used exclusively for conservation and minor infrastructure projects in marine parks but is insufficient to finance activities such as waste disposal. The eco-tax is intended for this and will be collected by the local authorities. In the case of Tioman this is the Tioman Development Authority (TDA). Since the TDA is a statutory body, the revenue it collects will not go to the Federal Government.</p>	<p>The replication of this activity is already in the brief as part of Output 2.10: Activity 2.10.3.</p>
<p>Recommendation 7 All sectors of the tourism industry should be open to local communities and comment on “local youths to be trained as tour guide as opposed to just boatmen”.</p>	<p>There is a substantial component on training of the local communities to enable them to participate in the tourism sector under Output 3.3.</p> <p>The project team accepts the comment that its is important to provide training at all levels to enhance skills of the local community members which does not have to result in changing jobs.</p>	<p>The language in project brief has been amended to better reflect on skills enhancement. See indicators for Activity 6.1.1</p>
<p>Recommendation 8</p> <ul style="list-style-type: none"> - project management team should stress peer-to-peer exchanges - project coordinators should contact UNEP regional 	<p>Opportunities for this are provided under the train-the-trainers programme. See Output 4.7.</p>	<p>Project coordinators will contact UNEP in Bangkok for information about ICRAN.</p>

Reviewer's Comments	Response	Action
office in Bangkok about ICRAN		
Recommendation 9 Project management group contact UNDP DTIE in Paris for their work on 'green' tourism	The project does not intend to create a new eco-label rather it will work with MoCAT in the development of a Malaysian eco-label scheme for the tourism industry. MoCAT is currently developing the scheme based on the "Blue-flag" scheme.	Project team will communicate with UNEP DTIE for the information.
Recommendation 9 Labeling and rating schemes – the project should avoid creating new schemes	The project does not intend to create a new eco-label rather it will work with MoCAT in the development of a Malaysian eco-label scheme for the tourism industry. MoCAT is currently developing the scheme based on the "Blue-flag" scheme.	
Recommendation 10 Adoption of ICM approach in project	This is an excellent suggestion and ICM principles will be considered in the development of the Management Plans for the project sites and the revision of the Tioman Masterplan. On the provision of sewerage facilities, the Indah Water Konsortium has a proposal to establish centralized sewage treatment facilities under an RM 80 million project.	The need to adopt ICM principles in the development of management plans and revision of Tioman Masterplan has been incorporated into activities under Outputs 2.1, 2.3 and 5.2
General comment on "plethora of outcomes ... and activities" and the difficulties this will create in monitoring the project	The project consists of a set of activities intended to support the attainment of the seven outcomes needed to ensure the success of the project. The significant number of activities is borne out of the need to sustain the outcomes with short-term, medium-term and long-term activities within the context of the project. Should the need arise these activities could be streamlined and consolidated during the finalisation of the project document and during the inception phase of the project to	Activities in the project brief will be revisited during the finalisation of the project document and inception phase with a view to consolidate and streamline activities in order to facilitate project monitoring.

Reviewer's Comments	Response	Action
	reduce overlaps and reconcile possible inconsistencies between activities.	
Other themes:		
Outcome 5 on mechanisms for linking the project to the regional initiatives		More details of the regional projects have been provided in brief and possible links identified.
Outcome 7 on the need to identify more direct means to address inter-agency issues and obtain support from agencies for the project *	The project proposal has addressed part of the issue by recommending that Federal and state agencies form two committees at their respective levels to monitor and guide the project. Furthermore these agencies are already involved in the development of the project as they presently constitute the Project Steering Committee under the PDF-B phase of the project. What is quickly needed perhaps is to organise a briefing for these agencies to update them on the progress of the project.	

* This is an important component of the project and needs to be addressed early in the project. This will be undertaken by a combination of activities aimed at raising the awareness of the decision-makers at all levels of government. This would facilitate the process of obtaining the agreements from agencies to cooperate in the development and management of tourism in marine parks and on islands. The next stage of the process involves stakeholder consultation in the finalisation of the Draft Strategic Action Plan and the management plans for each of the study site. This process would include extensive consultation and participation of government agencies. The project would also draw benefit from the existing PDF-B Project Steering Committee, which already consists of representatives from essential Federal and State agencies.

Following the STAP reviewer's comment on the quality of the English language, the re-edit of the project brief and executive summary in some sections, reviewed and proofread in its entirety to address this concern.