

INTEGRATED MANAGEMENT OF MARINE-BASED ECOTOURISM IN MALAYSIA

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Abstract: Malaysia is a tropical wonderland that is rich in a variety of ecological pursuits. It is one of the twelve “megadiversity” countries of the world and these countries together contain at least 60 percent of the world’s known species. The flora and fauna of Malaysia is exceedingly rich and is conservatively estimated to contain about 12,500 species of flowering plants, more than 1,100 species of ferns and fern allies, about 300 species of wild mammals, 700-750 species of birds, 350 species of reptiles, 165 species of amphibians and more than 300 species of freshwater fish. Many of these are unique and are found nowhere else in the world. These ecological resources have great potential for ecotourism development through conservation and protection. The marine ecosystem is considered as one of the most productive ecosystems with its rich diversity of aquatic flora and fauna. Coral reefs are important breeding and nursery grounds for many commercially important species of marine organisms and fish. These beautiful ecosystems are great potential sites for recreational development. In Malaysia, marine based-ecotourism involves mainly the island ecosystem, considered or gazetted as a marine park. Marine Parks are gazetted in order to conserve, preserve and manage in perpetuity, representative marine ecosystem of significance in order that they remain undamaged for future generations and to inculcate public understanding, appreciation and enjoyment of Malaysia’s marine heritage. Effective management of these heritages will have to involve integrated planning and management of both land and sea and strong cooperation management between various agencies to control and minimize the adverse impacts on the marine environment.

Keywords: Marine ecosystem (Marine Park), Ecotourism, Integrated management

INTRODUCTION

The marine ecosystem is considered one of the most productive ecosystems in the world, with its rich diversity of aquatic flora and fauna. Coral reef community is important as a breeding and nursery ground for many commercially important species of marine organisms and fish. These beautiful ecosystems are great potential sites for recreational development. For example, for the year 2001, the ecosystem of Pulau Redang Marine Park received more than 73,000 tourists, coming to enjoy and experience the nature of marine beauties. People who visit marine ecosystem can enjoy through observing and appreciating aquatic flora and fauna, snorkeling and scuba activity, underwater photographing and swimming. The initiative for the conservation of the natural marine heritage in the form of Marine Parks was largely due to Dr. Mahathir Mohamad, the former Prime Minister of Malaysia. In late 1983, Dr. Mahathir directed the Ministry of Agriculture to undertake the protection of offshore islands and their surrounding marine waters. Though earlier efforts had been made by individuals and non-governmental bodies interested in conservation for establishment of such Marine Parks, such efforts had not culminated in any success. This initiative by the former Prime Minister enabled successful implementation of marine based-ecotourism. The establishment of marine ecosystem as Marine Park or protected areas also benefits the environment. The ecosystem of marine life will be protected and properly managed. There will be protection of threatened and endangered marine species and rejuvenation of over exploited zones. Marine ecosystems have great potentials for the development of an ecotourism industry in the country. Sustainable development should be taken into consideration in order to make our marine natural heritage still enduring for future generations. Action must be taken constantly to ensure that the conservation objectives of marine ecosystem are not compromised by tourism activities. Tourism planning for the marine ecosystem must be well integrated with the overall plan [7], which have to involve integrated planning and management of both land and sea to control and minimize adverse impacts on the marine environment. This paper examines the integrated management of marine-based ecotourism in Malaysia.

Integrated marine-based ecotourism management must begin by defining the appropriate management unit, which should be broad enough to include all the relevant elements that play a significant role in the tourism system. The agency or department with major responsibility for coordination should have a mandate to initiate cross-sectoral planning. Setting up consultative committees would ensure that all the legislation avoids overlapping and allows participation in the development of physical institutional structure. The agency also has to ensure all the information is circulated as widely as possible. This paper also highlights the need for increased cooperation management between the Federal and State Governments, the various decision-making agencies and all relevant stakeholders, including NGOs and community groups.

Overview of Tourism In Malaysia

Malaysia is a tropical country that is rich in a variety of ecological pursuits. It is one of the twelve "megadiversity" countries of the world and these countries together contain at least 60 percent of the world's known species. The marine ecosystem surrounding the country's landmass, which includes the coral reefs, is also extremely rich in the variety of life-forms. The coral reefs in Malaysia are considered as one of the most diverse in the world. Malaysia is an ecological area of much tourist potential. This potential can be harnessed through destination developed for tourists. They can be converted as an essential element for any successful destination for tourists.

Tourism has been identified as the second largest sector in terms of the country's foreign exchange earnings after manufacturing [5]. The industry is fast developing in Malaysia as indicated by the total number of visitors arrivals to the country (Table 1). In the last decade (1990-2000), the number of visitors to Malaysia increased from 7.5 million to 10.2 million and income generated from tourism rose from RM4,473 million to RM18,757 million. During this 10-year period, the growth rates were 70% for number of visitor arrivals and 319 % in terms of income. Tourism industry in Malaysia registered 13.6% annual growth rate during the 1995-2000 period, surpassing the average annual gross domestic product (GDP) growth rate of 4.7% for the same period. For the year 2001 alone, the total revenue from tourism was equivalent to 7.2% of Malaysia's GDP. In terms of tourism receipts to nominal GDP ratio, Malaysia's is the highest in the region compared with Singapore (6%), Thailand (5.2%), Indonesia (3.8%), Philippines (2.4%) and South Korea (1.5%). Among the export oriented services industry, the tourism industry is the biggest accomplishment for Malaysia. In 2001, inbound tourists reached 12.7 million, and the revenue generated was RM24.2 billion. Hence, under the Eighth Malaysia Plan (2001-2005), the Malaysian government's policy thrust is "to achieve rapid tourism growth on a sustainable basis" [2]. With that commitment, the allocation for development spending on tourism is expected to increase to more than RM1 billion during the Eighth Malaysia Plan period from RM132.1 million spent during the 5th Malaysia Plan period, with a progressively greater portion of the allocation going into facilities and infrastructure.

Table 1: Malaysia's Key Tourism Industry Indicators

Indicators	Year				
	1985	1990	1995	2001	2005E
Tourist arrivals (mil.)	3.1	7.5	7.5	12.7	14.3
Tourist spending (RM bil)	1.5	4.5	9.2	24.2	29.5
Tourist spending per capita (RM)	498	604	1,228	1,896	2,067
Average stays (nights)	4.5	4.5	4.8	6.1	5.8
Number of hotels	851	989	1,220	1,492*	1,541
Number of hotel rooms	35,720	45,032	76,373	134,503*	140,503
Average hotel occupancy rate (%)	50.1	72.9	65.5	58.6	60.0
Hotel industry employment	25,170	39,961	67,214	78,671*	79,603

Source: Liew Lai Jing. 2002

note: * Data for the year 2000

E – estimated

Marine Ecosystem (Marineparks) and Ecotourism

As stated earlier, marine based-ecotourism in Malaysia involves the islands ecosystem gazetted as a Marine Park. The establishment of Marine Park is the effort to protect the aquatic flora and fauna of

such area and also to allow the natural regeneration of aquatic life. The idea is to promote scientific study and research on the marine ecosystem. The Marine Parks with their beauties are suitable as 'pleasuring grounds or picnic sites' which offer places for recreation and enjoyment especially for those who live in the urban areas [1]. The interest in ecotourism in all parts of the world arises from the concern to conserve and preserve flora and fauna and their habitats that are still not degraded by human activities and interferences. Today, many authorities realize that promoting areas which are still in virgin condition and protected under the laws can lead to greater interest in ecotourism. In the case of Marine Parks, it provides excellent ecotourism products which can become an economic force in the future and the increase in the number of visitors to Marine Parks does indicate its economic potential.

Recently, Marine Parks are becoming increasingly important in ecotourism. For example, Pulau Redang Marine park in Terengganu, which is the earliest marine ecosystem gazetted as a marine protected area under the Fisheries Regulation 1983, received more than 73,000 tourists during the year 2001 (Table 2) and this figure was estimated to increase in future. This situation or trend becomes a challenge to the authorities to cater the needs of tourists and at the same time ensuring the ecosystem is well preserved. The main attraction of the Marine Parks to tourists is its coral reefs, which cater mostly for snorkellers, although some diving activity does occur in the area.

The number of visitors to the Malaysian marine parks increased significantly from year to year. Record kept for the year 2001 showed that 127,541 visitors went to Pulau Payar Marine Park, 243,052 to Pulau Tioman Marine Park, 73,580 to Pulau Redang Marine Park and more than 40,000 have visited Marine Parks off Johor (Table 2). Marine Parks may not be the biggest provider within the economic sector but they are significantly important to the local economy, and contribute towards keeping our local environment. This role enables our future generations to enjoy the benefits of our beautiful natural marine heritage.

Table 2: Number of Visitors To Several Marine Parks in Malaysia

Year	Number of visitors			
	Pulau Tioman	Pulau Payar	Pulau Redang	Mersing
1997	182,649	91,167	30,852	21,913
1998	200,209	87,291	37,556	17,777
1999	184,954	83,246	47,008	62,626
2000	200,527	106,830	52,734	56,975
2001	243,052	127,541	73,580	40,060

Source: Marine Park Unit, Department of Fisheries Malaysia

DISCUSSION

Policy and Concepts For Malaysian Marine Parks

- i. *Overall goal for a park* - The overall goal of Marine Parks Malaysia is to protect, conserve and manage in perpetuity marine environments of significance and to encourage public understanding, appreciation and enjoyment of Malaysia's natural marine heritage by present and future generation of Malaysians. This goal will be achieved through the concept of Marine Ecosystem Management and Development whereby unalienated land at that area or adjacent to the Marine Parks will be converted into land parks. Both land and water will be managed as one integrated ecosystem.
- ii. *Park objectives* - To protect and conserve the marine ecosystem especially coral reef areas as a natural heritage to be exploited rationally by present and future generations. To conserve and protect the natural marine areas for research on biodiversity for purposes of education and recreation/ecotourism.

- iii. *Legislation* - A Marine Park area is a public land with natural features, that are of national interest and that shall be maintained in its natural condition for the benefit of research, public education and recreation. Activities which endanger any resource within the park boundaries are strictly prohibited. These activities include destroying, removing or collecting any coral and other aquatic life, water skiing, speed boat racing and jet ski, vandalizing any structure or object within the park area, carrying and using weapons that can endanger or kill aquatic life, anchoring of boats over the coral area, fishing in the park area, discharging pollutant and rubbish and constructing or erecting any building or other structure within a Marine Parks area.
- iv. *Management objectives* - Within the above overall goal and objectives, four main management objectives provide the basis for developing a long-term strategy for the Marine Parks Programme, services and facilities. These management objectives relate to resource protection, visitor use, interpretation and research.
- a. *Resource protection* - This is the highest priority for the Marine Parks management. This management objective can be achieved by developing the means to manage the impacts of Marine Parks visitors. It is necessary to develop guideline for the management and development of the offshore islands in order to control and minimize the impact of land activities on the marine environment. Reviewing the effectiveness of the management plans and regulations and promulgate plans and revised regulations as needed to protect the marine environment on a regular basis is also important.
- b. *Visitor management* - This objective is to encourage recreational use that is compatible with the Marine Park resource and to provide opportunities for the understanding, appreciation and enjoyment of marine resources and the associated ecosystem. This objective will be achieved by:
- Encouraging public involvement in and enjoyment of compatible recreational opportunities within the Marine Parks.
 - Increasing opportunities for a wider variety of users to enjoy and appreciate the Marine Parks.
 - Improving visitors safety within the Marine Parks.
 - Providing facilities and services essential to the public use, appreciation and enjoyment of the Marine Parks.
- c. *Interpretative management* - The main objectives of interpretation of the environment are to increase public appreciation and understanding of Malaysia's marine environment and to inculcate in the visitor an appreciation and understanding of the role of the Marine Park System. These objective will be achieved by:
- Directing and orientating visitors to the Marine Park and their services.
 - Increasing public awareness of the existence of and need for management of Malaysia's natural marine and offshore island heritage.
 - Provide accurate and relevant information and well designed interpretive materials and programmes related to the park for general public and major park user groups.
- d. *Research management* - The objective of the Marine Parks research programme is to direct activities to provide baseline information for the development of a management plan, increase understanding of the Marine Parks and to apply that research knowledge to resolve management issues. Knowledge gained through research will help implement other programme such as interpretation, visitor management and resource protection. The Marine Parks research programme seeks to meet the above by:
- Establishing a framework for research programmes that is primarily towards effective management of the Marine Parks resources.
 - Identifying those projects for the Marine Parks that should be given the highest priority for early implementation.
 - Making effective use of research by incorporating them into information and interpretative programme.
 - Monitoring impacts on the resources such as visitors use, water quality and etc. in order to recommend measures to eliminate or minimize adverse impacts on the marine resources.

Institutional Structure of Tourism Government Planning and Policy

Tourism is currently included within the Ministry of Culture, Arts and Tourism. It is responsible for policy formulation, planning, regulations and overall monitoring of the tourism industry in Malaysia. The Ministry of Culture, Arts and Tourism also includes the Department of National Archive, National Museum and Antiquity. Also includes under this Ministry is Agency of National Art Gallery and Malaysia Tourism Promotion Board (MTPB). The MTPB was established under the Malaysia Tourism Promotion Board Act 1992 and it is responsible for tourism marketing, product development and management. Other related key government agencies are the Department of Wildlife and National Parks (which is responsible for national parks management, wildlife reserves and sanctuaries and protection of wildlife), Forestry Department (which is responsible to the management of recreational forests, education forests and maintenance of the permanent forest estate), all State Governments, the Federal Economic Planning Unit, and State Economic Planning Units and other agencies such as Ministry of Public Enterprise, Department of Orang Asli Affairs, Veterinary Service Department, Forest Research Institute Malaysia and universities. Apart from these, there are many national and international NGOs such as WWF [6], with their own skill and experience, are also concerned.

In the case of management of Malaysian Marine parks, as mentioned earlier the Department of Fisheries Malaysia under the Ministry of Agriculture has the authority in managing these ecosystems. This Department plays the role to manage and administer the Marine Parks areas which is clearly instituted in Fisheries Act 1985, which provides the legal mandate towards protection and conservation of the marine ecosystem. The department has the mandate only to cover an area up to 2 nautical miles offshore. Land matter is under the authority of other department. For example in the case of wildlife management, it is responsibility of the Department of Wildlife and National Parks. Here there is a need for cooperation and integrated management between these two agencies.

Concept of Integrated Management In Marine Ecosystem

The purpose of integrated management is to allow multisectoral development to progress with the fewest unintended setbacks and the least possible imposition of long-run social costs. In contrast to a sectoral development plan, the focus of an integrated management plan is on mitigating measures to reduce social costs associated with sectoral activities accruing both inside and outside the sector in question. To be effective, a management plan should be integrated with development plans and implemented in a coordinated fashion. Marine area management employs an integrated, multisectoral, strategic approach for the efficient allocation of scarce resources among competing uses and minimizing unintended natural resource and environmental effects. The policy options and management strategies formulated within this framework are founded on information on the natural function of ecosystem, the assimilative capability of the environment, the motivations of and incentives faced by people using the resources, the economic setting, and the ways and the means to bring private behavior in line with social goals.

In this sense, marine areas management must be viewed as a system with three mutually supporting dimensions [3], graphically represented as a cube in Figure 1. The dimensions of the cube are: [1] management process; [2] identified management issues; and [3] management actions. The cube is actually made up of a number of blocks fitted together. The base of the cube is formed by the planning blocks, which have both management issue and management action dimensions. The next layer of the management system cube is formed by the implementation blocks, and the final layer by the monitoring and evaluation blocks, both of which also have management issue and action dimensions. All three dimensions of the management system is essential. If any of the dimensions is ignored, the system will eventually collapse or rendered ineffective.

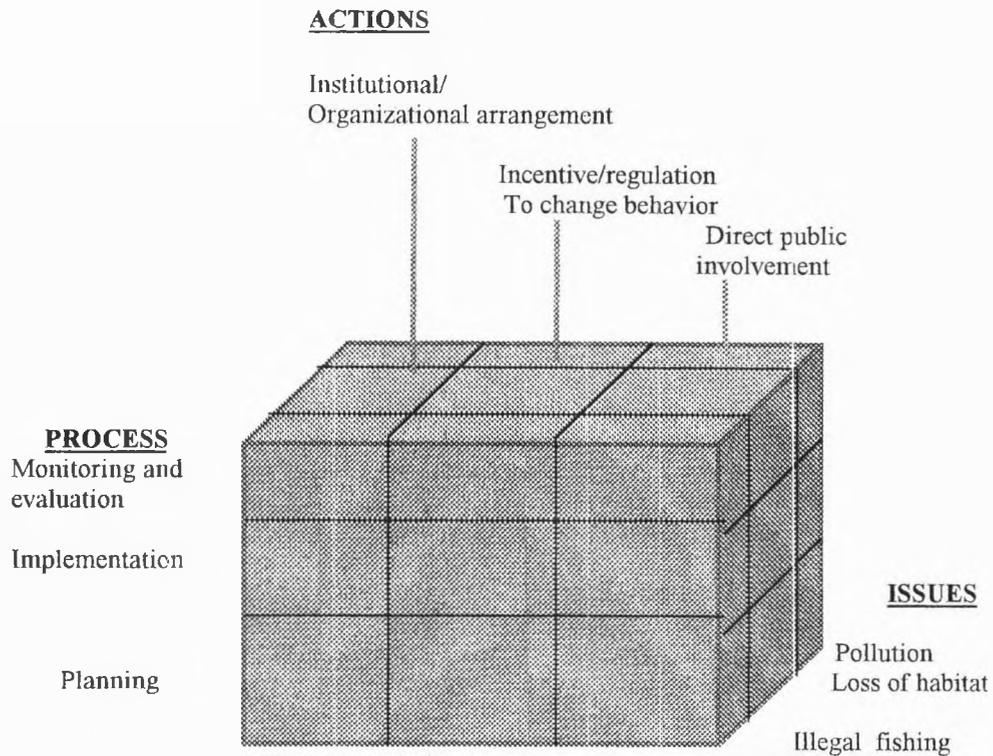


Figure 1: Marine Area Management System (Adapted from Hufschmidt 1986)

Integration

1. *Ministries and government agencies* - These groups should be most concerned with coordination and collaboration in terms of policy management of the marine ecosystem. Conflict can arise in cases where jurisdictions overlap or are not clearly defined. These include the department concerning fisheries, tourism and forestry. To handle any issues that will almost inevitably arise, interministerial and intraministerial groups should be set up at the national level in order to define and share responsibilities. Decisions must be relayed to corresponding local bodies, or upwards if devolution is in place, through structured and functional linkages at the various administrative levels. Authorities at the highest level should sanction such joint decision-making to ensure the output are effectively applied.

2. *Stakeholders within the sector* - This group is the second in priority that must be integrated into the management and planning process. As stated earlier, local resource users are key actors in implementing ecotourism policies, often being at the base of the local economy. They generally know the area and its environment particularly well and can therefore be important allies in the monitoring of environmental impacts which benefit ecotourism projects. Through the participation or involvement of local community it can increase project efficiency and local empowerment. Empowering local communities requires linking the benefits of ecotourism to the conservation of the natural environment. One of the basic justifications for the development of ecotourism, rather than other more conventional forms of tourism, is that the ecotourism approach explicitly recognises that the key to maintain the wider benefits of ecotourism is to take proper care of its resource base. Activities that fail to take account of their impacts on the natural environment will ultimately not be sustainable, because the ecotourism industry especially in marine based areas will no longer be able to supply high quality ecotourism products that will meet the needs and wants of potential clients. Linking the benefits of ecotourism to conservation helps to ensure that

this interdependency is properly recognized and taken into account in the planning and management of ecotourism. For example the way which this linkage can be strengthened is to ensure that ecotourism providers purchase their inputs from local suppliers and employ local people. This helps keep the economic benefits of ecotourism within the local area, and gives local people more incentive to ensure that those benefits will still be received in the long term. The problem that arises in ecotourism initiative is that the benefits of ecotourism do not stay in the local area but are appropriated by outside interests, including tourism operators and governments. Meanwhile the costs of ecotourism, in the form of environmental damage, disturbance of marine wildlife or loss of access to resources formerly employed by the community [4], tend to remain localised.

Ensuring Effective Management for Marine Parks Ecosystem

Good management is a key to the success of protecting or conserving Marine Parks ecosystem. A dynamic and proactive management approach is required, which is able to respond on the ground to changes in internal as well as external pressures. There are many important management steps and various tools and techniques that can be employed and these should be guided by stated management objectives. If management of Marine Parks ecosystem is to be effective it must involve:

- A designated management authority
- Local management staff possessing enforcement powers
- A team of technically capable staff responsible for overseeing natural resource management intervention.
- A monitoring programme to guide management interventions
- Regulation of activities likely to result in the degradation of the Marine Parks ecosystem

Involvement of local people to the planning management is important. Any management approaches that exclude the people from the parks management can lead to conflict. Encouraged devolution of management control to stakeholders and the development partnership is quite reasonable. Wherever responsibility lies, it is important that the role of the management agency should be clearly defined and if more than one body is involved, coordination mechanism should be in place.

Best practice demands that management for the whole Marine Parks ecosystem (including land areas) are coordinated within the remit of specific site-level management plans. Ideally, these should be legally binding and provide the necessary authority to ensure effective management.

Towards Decision-Making of Decentralized Management

Cooperation is particularly important where more than one level of agencies has constitutional powers for marine areas management issues. The responsibility for marine resources in Marine Park is under Federal government according to Malaysian constitution. This has resulted a complex legal and administrative framework, which gives a Federal agency (the Department of Fisheries) responsibility for managing the Marine Parks ecosystem. This has led to a number of difficulties because the State governments, which own most of the land (including islands) and the country's natural resources, have preferred to retain control over the management of their land. Although both governments (Federal and State government) have agreed that the Fisheries Department, be given the authority to administer the management programmes for both the islands and the water surrounding them, the conflicts still arise especially where comes to the implementation stages. For examples, the Fisheries Department handles activities which has impacts in marine ecosystem (2 nautical miles offshore) but issues such as sewage system, development of infrastructure on land areas are also effecting the marine ecosystem, Fisheries Department have no authority to take any action on these aspects because land matter is under the authority of state government.

An approach to overcome these difficulties is to devolve more responsibility to State governments, with the Federal government playing more of a coordinating and advisory role. Such a change in the structure of management decision-making would have a number of institutional implications. Each State would require a strong organizing body and close cooperation between the various levels of management decision-making. There would also be implications for existing Federal agencies, particularly for the Department of Fisheries, which currently have responsibility for the management of

the Marine Parks ecosystem created under Federal legislation. Within such a framework, the Federal government's role would be to establish national policy, coordinate, provide technical support and resources.

Institutional Framework

Highly effective institutions are needed to administer the marine protected ecosystem laws and oversee their management. Implementation of the management cooperation will require institutions that have sufficient resources, confident leadership, institutional transparency, expertise, good staff morale and a strong sense of identity.

Currently, in Malaysia there is no single institution that is responsible for the whole Marine Parks areas. As mentioned earlier, there are number of different bodies at the Federal and State levels. The Federal Department of Fisheries is the main management authority for the park, however its responsibilities are limited to the surrounding waters up to two nautical miles gazetted under Federal legislation. Although the Fisheries Department also has offices in the State which have the Marine Parks, and responsible for the Marine Parks management at the State level, they are part of a Federal agency and are not fully integrated within the State level decision-making framework. This hinders their effectiveness as a management body, as their activities lack coordination with other departments that deal with marine resource management.

As mentioned above, In the case of marine-based ecotourism (refer to Malaysian Marine Parks), the Department of Fisheries Malaysia under the Ministry of Agriculture have the authority in managing these ecosystems. This Department plays the role to manage and administer the Marine Park areas which is clearly instituted in Fisheries Act 1985, which provides the legal mandate towards protection and conservation of the marine ecosystem. For consultative decision-making on policies related to Marine Parks, a National Advisory Council (NAC) for Marine Parks and Marine Reserves was established in 1987 and formalized in 1993. The Council has representation from the Federal and State governments, NGOs and the private sector. In this sense, the States which have Marine Parks should establish some form of co-ordination for any management decision making in relation to Marine Parks and the islands they surround, either through co-ordination committees for the management and administration of Marine Park islands, or through other appropriate existing committees. These Committees should comprise representatives of relevant State government agencies.

Any plans for the management of both the land and water areas have to be submitted to the State Management Committee first before being tabled to the NAC for decisions. Development plans for the islands both by the state government and private sector will be submitted to the Marine Parks State Management Committee for comment. Management plans approved by the NAC will be submitted to the relevant state government executive committee for consideration. Then the Fisheries Department will be given the function of administrating the management programmes for the Marine Parks ecosystem. Now, concerted efforts are being made by the Fisheries Department towards developing the full potential of the Marine Parks. With that, to make proper management of these parks, the Department has established Marine Park Centres on some of the major islands. These centres contribute to help visitors getting information on the various features of the Marine Parks. Currently, Marine Park Centres are located at Pulau Pinang (from the Redang group) in Terengganu, Pulau Tioman in Pahang, Pulau Payar in Kedah and the mainland town of Mersing in Johor. This arrangement is more efficient in terms of time, human resources and cost.

RECOMMENDATIONS AND CONCLUSION

1. A review should be undertaken on the role and effectiveness of the various agencies with responsibility for marine protected area (Marine Parks) management. It should explore the existing institutional weaknesses and put forward recommendations for institution building, improving cooperation and capacity building States with Marine Parks, should establish a coordinating body for management of the parks. This should include representatives from all the main State government departments, independent experts and from other stakeholder groups.

2. A national coordinating body should be established with representatives of both Federal and State government departments as well as stakeholder groups.
3. There should be a legal requirement for the development of management plans for all existing and future Marine Parks areas. The development process should involve local community groups as well as NGOs. Guidelines should be prepared for their implementation.
4. An integrated Marine Parks area management committee should be established to oversee the management of Marine Parks ecosystem. The committee should contain representatives of government as well as other stakeholders including NGOs and community representatives.
5. Consideration should be given to devolving management responsibility to local community groups.

The marine ecosystem is one of the best sites for ecotourism activities. Ecotourism promotes and encourages conservation apart from generating revenues to the government as well as local community. Ecotourism products in marine ecosystem, if marketed properly in an environmentally friendly manner, can have a maximum potential and will be a conservation and an economic force in the future. The future of ecotourism in Marine ecosystem in the country depends very much on the policy management and commitment of the public authorities to ensure that the planning is done in the sustainable basis. Furthermore, an integration and cooperation among all agencies involved is needed in order to make the management a success.

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