

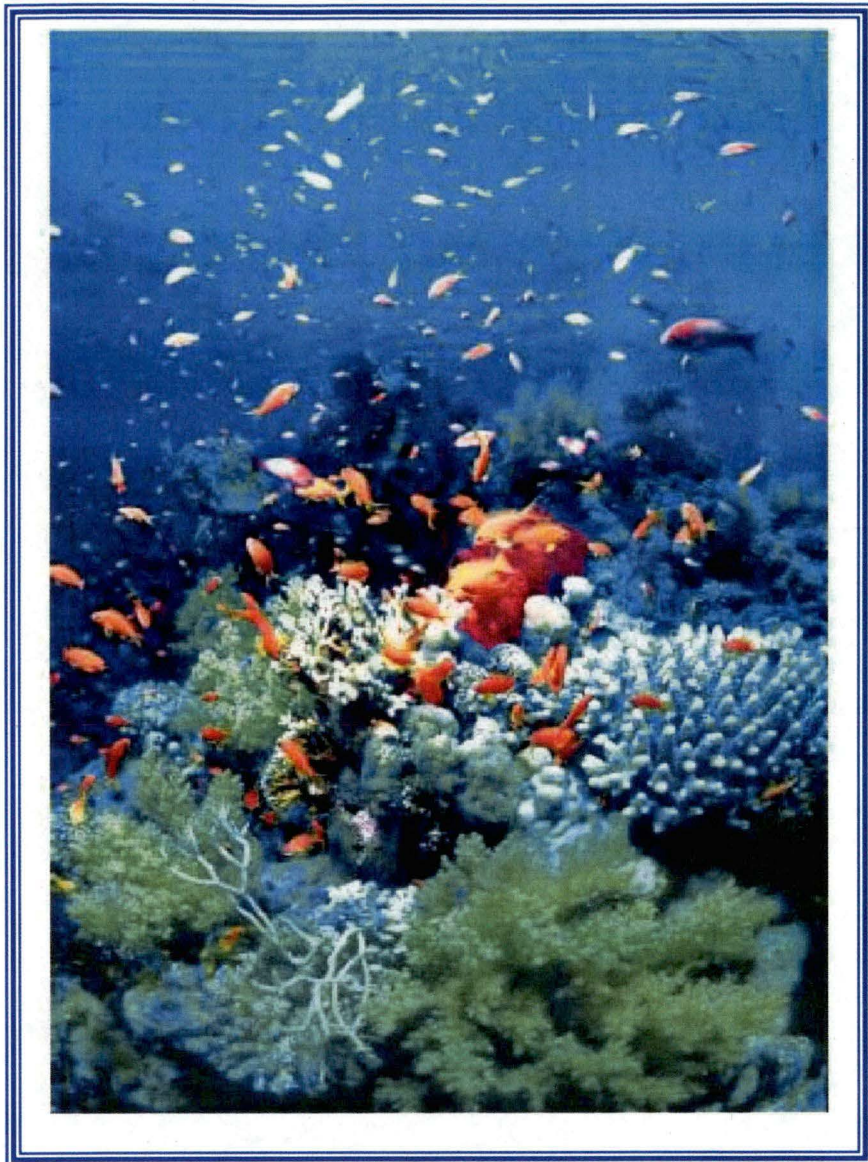
Management of Marine National Parks for
Tourism Value: A Case Study of
Mu Ko Chang Marine National Park, Thailand

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*Most of our planet is a marine system.
Human impacts on the seas need to be effectively
managed, a process in which Marine Protected Areas
(MPAs) are vital.*

(Pomeroy, et al., 2004)

STATEMENT OF AUTHENTICITY

This thesis contains no material which has been accepted for the award of any other higher degree or graduate diploma in any tertiary institution and, to the best of my knowledge and belief, the thesis contains no copy or paraphrase of material previously published or written by other persons except when due reference is made in the text of the thesis.

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ABSTRACT

Marine Protected Areas (MPAs) play an important role in meeting conservation, tourism, and scientific study/education objectives. Most MPAs in Thailand are established as Marine National Parks (MNPs). This study aims to enhance the understanding of the benefits and negative impacts of MNPs in terms of economic, socio-cultural and environmental uses and values, as well as analyse the management status of Mu Ko Chang Marine National Park (MKCMNP), and the effectiveness of existing management objectives in relation to tourism. MKCMNP is located in the Gulf of Thailand. The condition, size and species diversity of its coral reefs are of international significance, and it attracts more than two hundred thousand visitors per year who engage in diving and other activities. Visitor management in the park includes a visitors fee, ferry and boat access, activity management, information centres, zoning management and visitors' services and facilities. MKCMNP faces management issues relating to tourism development, particularly protection of valued natural resources from over-development by private operators. These issues make achievement of park management objectives difficult.

Visitor surveys and an interview with a key informant were conducted to provide information on the effectiveness of tourism management at MKCMNP. Site observation was also undertaken to gain familiarity with the park and to complement the visitor survey data. The visitor survey was administered in two languages (Thai and English) to 162 participants, and assessed visitor behaviour, values and attitudes in order to identify the degree to which existing park management satisfied the needs and expectations of visitors. The survey of visitor attitudes towards management revealed that the communication of management approaches by park education materials and interpretation program are not effective. Visitors perceived that management to achieve the park management objectives was at least partly successful. The worst performing objectives were preventing illegal activities and controlling litter and pollution. The

quality of existing visitor facilities should be maintained at the current level, but waste disposal facilities, visitor information centres and information signs should be increased. The interview with the park manager was significant for understanding park management issues related to tourism impacts, sustainable tourism and ecotourism activities. The park manager revealed that the major management problems of MKCMNP were garbage and wastewater, and lack of water supply during the summer. He recommended the four main factors to achieve sustainable tourism development were: firstly, tourists must take any garbage away with them when they leave. Secondly, local people must be able to sustain their livelihood from tourism. Thirdly, tourist activities must not damage natural resources. Finally, co-operation between government agencies and the private sector must form a significant component of future tourism development.

Tourism management recommendations were derived from the results to assist the management agency in better achieving sustainable tourism development. More effective tourism management will require visitor education and an interpretation program, waste management strategies and integrated land use planning process. Such strategies need to match visitor needs with protecting the natural resources. In addition, to ensure sustainable tourism public participation and co-management approaches should be incorporated into the management plan.

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CHAPTER 1: INTRODUCTION

1.1 Rationale/Statement of Problem

The marine environment has been accepted as an important component of the natural and cultural heritage of the world. Various marine areas support a huge diversity of ecosystems; the oceans play a vital role in climatic cycles and other global processes (Kelleher *et al.*, 1995). Marine environments in South East Asia are internationally recognized for their diversity of its marine habitats, open waters, coral reefs, seagrass beds, soft sediment communities, mangrove forests and beaches and “the myriad varieties of fish, other marine animals and organisms, make Aseanarean waters a natural wonderland” (Lee & Chou, 1998:13). Marine tourism in the area is claimed to have the potential to yield sustainable economic benefits to local communities (Lee & Chou, 1998). Thailand’s coastal and marine areas are becoming a critical component in the development of the national tourism industry. However, tourism development on coastal and marine areas can also lead to marine environmental degradation and also have a negative impact on valuable marine resources. Coastal and marine development for tourism and other commercial uses have taken their toll. Unless addressed, these problems will lead to the severe loss of habitats and species, changing the marine ecosystems that have taken millennia to develop and compromising the very values that make these environments attractive for tourists. To address such issues, many countries have established Marine Protected Areas (MPAs) to protect their marine resources. In Thailand, most MPAs are established as Marine National Parks (MNPs). These MNPs not only play vital roles in maintaining ecological stability and preserving biological diversity, but also provide numerous opportunities for outdoor recreation and environmental study and research.

The number of tourists coming to Thailand has been growing significantly and this increases the pressure on the MNPs. Some existing parks have more than 1,000,000 visitors per year (DNP, 2005). It is expected that in the next few years the number of visitors will increase due to the rapid growth of parks and tourism promotion. This means that a lot of development activity will be carried out in the park to support visitors. Tourists depend on a variety of services and infrastructure provided in and around MNPs, including accommodation, guided boat tours, and other services. Tourism development should be based on sustainable use of resources. However with the rapid growth of tourism, management has been less than rigorous. Tourist infrastructure has usually resulted in negative impacts to the marine environment and serious ecological degradation (ICEM, 2003). The most recent area to be subjected to rapid increase in the development of tourism is Mu Ko Chang Marine National Park.

Mu Ko Chang* Marine National Park (MKCMNP) called by some “the last paradise island in South-East Asia” (TAT, 2004a) is a group of over forty large and small islands which were established as a nature preserve at the end of 1982 to become the 45th National Park in Thailand (Innuruk *et al.*, 2001). The park covers a total area of 650 square kilometres or 67,942 hectares (UNEP-WCMC, 2005). This area excludes the two islands of Ko Kood and Ko Maak, although this is currently being reconsidered (Jaisaard, S., 2005. pers. comm., 25 March). In this project, these two islands were also studied.

Visitor surveys can make a significant contribution to the design of tourism development plans in MNPs (Orams, 1999; Eagles *et al.*, 2002) because they can be used to identify user conflicts, visitors’ behaviour, values and attitudes, problem conditions, and perceptions of management actions. Providing high-quality, satisfying experiences to visitors is a core management objective for many MPAs, and should be considered along with environmental preservation objectives.

*
Mu Ko means island groups
Chang means elephant

This study aims to enhance the understanding of the impacts, use and value of a MNP in Thailand, as well as providing information on park management related tourism, including visitors' behaviour, values and attitudes. This will assist the sustainable development of tourism guidelines for MNP management.

1.2 Research Goal

To assist the Designated Area for Sustainable Tourism Administration (DASTA), Tambon Administrative Organisations (TAOs), Marine Park Division and Department of National Park, Wildlife and Plant Conservation to better manage tourism in MKCMNP.

1.3 Research Objectives and Methods

1. To identify tourism related issues that make achievement of park management objectives difficult. (Methods: literature and site observation)
2. To identify visitor behaviour, values and attitudes regarding management of the MKCMNP. (Method: visitor survey)
3. To determine the degree of correspondence or conflict between the park management objectives and visitor experiences and perceptions. (Method: analysis of visitors survey data in comparison with the park objectives, and interview with manager of MKCMNP)
4. To make recommendations for future visitor management in relation to sustainability in MKCMNP. (Method: integrate outcomes from objectives 1 to 3)

1.4 Thesis Layout

Chapter Two, divided into three parts, provides background information on MPAs and sustainable tourism in Thailand. The first part covers the broader context of MPA management, giving a historical overview. It also covers the current state of Thai MPAs. The second part deals with sustainable tourism and ecotourism in National Parks, particularly in Thailand. Finally, visitor satisfaction and visitor diversity with implications for MPA management are outlined.

Chapter Three presents an overview of the study area, including park administration and management, physical features, and baseline biophysical and cultural data about MKCMNP. Detail is provided on natural features, biological and cultural values, recreation, tourism and tourism management issues of the park.

In Chapter Four, population sample and methodology are explained and justified, as well as the process used to administer the survey and conduct the interview.

Chapter Five presents the research results from the author's field study in 2005. Most data were collected during a visit of two weeks at MKCMNP. This chapter identifies visitor behaviour, values and attitudes regarding management of the MKCMNP, and reports on the results of the key informant interview.

Chapter Six gives a discussion of the results of the site observations, visitor survey and key informant interview. The degree of correspondence and conflict between the park management objectives and visitor experiences and perceptions are outlined. These results are considered in relation to sustainable tourism management, stakeholder participation and co-management. Limitations of the research are also covered in this chapter.

Chapter Seven presents the conclusion of the research program and offers recommendations for the future of tourism development at MKCMNP.

CHAPTER 2: MARINE PROTECTED AREAS AND TOURISM

This chapter provides a board context for Marine Protected Areas (MPAs), and gives a historical overview, classification of MPAs, their management, and zoning. It also covers the current state of Thai MPAs. The second part deals with tourism and MPAs, including impacts of tourism, sustainable tourism, and ecotourism, with a particular focus on Thailand. Finally, visitor characteristics and associated implications for MPA management are outlined. Literature related specifically to the study area is considered in Chapter 3.

2.1 Marine Protected Areas

MPAs pay a significant role in marine conservation and management around the world. They offer practical ways to conserve marine heritage, biodiversity and to ensure the health of marine resources. They are not only sites for conservation and scientific study, but also essential sites for sustainable ecotourism which contributes to the economic and social welfare of human communities (Kelleher *et al.*, 1995; Kenchington *et al.*, 2003). There are many definitions of Marine Protected Areas (MPAs); the most widely cited being:

Any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment

(IUCN, 1998).

MPAs may include terrestrial land, marine parks, nature reserves and locally managed marine areas which protect reefs, seagrass beds, shipwrecks, archaeological sites, tidal lagoons, mudflats, saltmarshes, mangroves, rock platforms, underwater areas on the seashore and the seabed in deep-water (Kenchington *et al.*, 2003).

2.1.1 Historical overview

Originally, MPAs tended to be small extensions of terrestrial Protected Areas and were only integrated for ease of drawing boundaries. As support for MPAs has grown, specific policies have been established. Although usually adjacent to coastline where there is a risk of negative impacts from human activities, MPAs can cover whole seas (Gubbay, 1995).

The first MPA was the Fort Jefferson National Monument in Florida, which was nominated in 1935, but the main support for MPAs came much later (Gubbay, 1995). In 1975, the first objectives for MPAs were set by Ray (1975, 1976) as cited in Baker (2000), which consisted of preservation of habitat and species, conservation of genetic resources, research, recreation/tourism, education, aesthetics, cultural purposes, special uses, and multiple uses. During the same decade, the IUCN conference in Tokyo called for the institution of a well-monitored system of MPAs representative of the world's marine ecosystems, and a follow-up meeting in 1982 called for the incorporation of marine, coastal and freshwater sites into the worldwide network of Protected Areas (Kelleher, 1999). In 1988, the goal of a global representative system of MPAs was adopted by the IUCN in a resolution of their General Assembly which called upon national governments, international agencies and the non-governmental community to:

provide for the protection, restoration, wise use, understanding and enjoyment of the marine heritage of the world in perpetuity through the creation of a global, representative system of marine Protected Areas and through the management in accordance with the principles of the World Conservation Strategy of human activities that use or affect the marine environment

(Kelleher, 1999:xx).

The importance of MPAs is now recognized in such key international instruments as the Convention on Biological Diversity. However, unlike the rapid growth in the reservation of terrestrial environments (with over 12% now in Protected Areas), marine areas remain under represented in the reserve system (with less than 0.5 % of areas protected) (Chape *et al.*, 2003).

2.1.2 Classification of MPAs

Around the world there are many different types of protected area. In order to establish definitions and guide protected area management, the IUCN has developed and refined a classification system for Protected Areas that recognises six categories:

- category Ia: Strict Nature Reserve which is managed mainly for science;
- category Ib: Wilderness Area which is managed mainly for wilderness protection;
- category II: National Park managed which is managed mainly for ecosystem protection and recreation
- category III: Natural Monument which is managed mainly for conservation of specific natural features
- category IV: Habitat/Species Management Area which is managed mainly for conservation through management intervention
- category V: Protected Landscape/Seascape which is protected area managed mainly for landscape/seascape conservation and recreation
- category VI: Managed Resource Protected Area which is managed mainly for the sustainable use of natural ecosystems

(IUCN, 1994).

Each category is associated with particular management objectives (Table 2.1). MPAs are also covered by this system. In this study, category II is most relevant, being described by the IUCN in the following way:

Natural area of land and/or sea, designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations, (b) exclude exploitation or occupation inimical to the purposes of designation of the area and (c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible.

(Chape *et al.*, 2003:12)

Table 2.1: Matrix of management objectives

Management Objectives	Ia	Ib	II	III	IV	V	VI
Scientific research	1	3	2	2	2	2	3
Wilderness protection	2	1	2	3	3	-	2
Preservation of species and genetic diversity	1	2	1	1	1	2	1
Maintenance of environmental services	2	1	1	-	1	2	1
Protection of specific natural/cultural features	-	-	2	1	3	1	3
Tourism and recreation	-	2	1	1	3	1	3
Education	-	-	2	2	2	2	3
Sustainable use of resources from natural ecosystems	-	3	3	-	2	2	1
Maintenance of cultural/ traditional attributes	-	-	-	-	-	1	2

Note: 1. Primary objective

2. Secondary objective

3. Potentially applicable objective

-- Not applicable

(Source: IUCN, 1994).

A 2003 report by the United Nations detailed 102,102 Protected Areas covering more than 18.8 million km² which equals 12.65% of the Earth's land surface. This also included a large number of MPAs, of which 3,881 were designated as National Parks, covering 4.4 million km² (Chape *et al.*, 2003). The largest MNP in the world is the Great Barrier Reef Marine Park in Australia, covering 34.4 million hectares (Kelleher *et al.*, 1995).

According to the IUCN matrix of management objectives, Protected Areas in Thailand can be classified into four different IUCN categories: Wildlife Sanctuary (Ia), Watershed Class I (Ib), National Park (II), Forest Park (III), Non-hunting Areas and Mangrove Conservation Areas (VI). The Protected Area network in Thailand includes 145 National Parks, 69 Forest Parks, 52 Non-hunting Areas, and 53 Wildlife Sanctuaries. These extend over 108,064 km² or about 21% of the country's land surface (DNP, 2003 as cited in Chettamart & Emphandhu, 2003).

In Thailand, beautiful scenery and productive marine environments are to be found on both the Gulf of Thailand (the east coast) and the Andaman Sea (the west coast). The first MPA in Thailand was established in 1966 when Khao Sam Roi Yot was designated

in the gulf of Thailand (Lee & Chou, 1998). Up to now, 26 MNPs have been established, with most of them located in the South of Thailand (Mu Ko Chang Marine National Park is in the East of Thailand). Of the 26 MNPs, 21 are officially designated while 5 are currently under the legislative process (Table 2.2). The 21 proclaimed MNPs cover an area of approximately 5,810 square kilometres (Sethapun, 2000). Of these, four are being considered as Wetlands of International Importance under the Ramsar Convention: Mu Ko Ang Thong, Pang Nga Bay, Laemson and Had Chao Mai, and Tarutao. The latter has been proclaimed an Asian World Heritage Area (UNEP-WCMC, 2005).

Table 2.2: Marine National Parks in Thailand

No.	Park Name	Year Inscribed	Total Areas (Km ²)	Marine Areas (Km ²)
1	Khao Sam Roi Yot	1966	98.08	20.88
2	Tarutao	1976	1,490.00	1,264
3	Thaleban	1980	196	2
4	Mu Ko Ang Thong	1980	102	84
5	Ao Phangnga	1981	400	347
6	Mu Ko Surin	1981	135	102.05
7	Sirinath	1981	90	68
8	Khao Leam Ya - Mu Ko Samet	1981	131	123
9	Had Chao Mai	1981	230.87	137.22
10	Mu Ko Similan	1982	140	124.24
11	Mu Ko Chang	1982	650	458
12	Laemson	1983	315	267
13	Had Nopparatthara - Mu Ko Phi Phi	1983	387.9	325.96
14	Mu Ko Preta	1984	494.38	468.38
15	Khao Lam Pee - Had Thai Muang	1986	72	0
16	Mu Ko Lanta	1990	134	108.96
17	Khao Lak - Lam Ru	1991	125	0
18	Had Vanakorn	1992	38	15.36
19	Tarn Boke Koranee	1998	104	0
20	Mu Ko Chumporn	1999	317	265.55
21	Lam Nam Kraburi	1999	160	64
		Total	5,810.23	4,245.60
22	Tharnsadet	Proposed		
23	Mu Ko Phanom	Proposed		
24	Had Khanom	Proposed		
25	Ko Ra - Ko Pra Thong	Surveying		
26	Ao Manao - Khao Tanyong	Surveying		

(Source: Sethapun, 2000)

2.1.3 Uses and benefits of Marine Protected Areas

MPAs can serve as persuasive symbols for the value of protecting marine environments and they can also help to improve understanding of marine systems, and the benefits to be obtained from conservation of marine systems. There is also much to enjoy in such areas. The potential benefits of MPAs can be divided into four functional categories: protecting marine biodiversity and ecosystems; enhancing fisheries; promoting tourism, and supporting education and scientific research (Kenchington *et al.*, 2003).

Protecting marine biodiversity and ecosystems

Protection of marine species and habitats/biodiversity provides a reservoir of genetic diversity, and various types of flora, fauna and estuarine species for the re-population of surrounding exploited areas (Natural Heritage Trust, n.d.). MPAs can protect representative or highly productive area components of marine systems (Parks Victoria, 2003). These areas assist the preservation of habitats and organisms, for example, by protecting significant sites for reproduction such as feeding areas, nursery grounds and spawning grounds. As a result, MPAs contribute the maintenance of life-support systems. Kenchington *et al.* (2003) argues that the importance of a life-support system is often only appreciated after it has been lost or damaged. “The most immediate benefits of MPAs are that they provide natural areas with lower human impacts. Most species and biological communities have evolved some capacity to survive or recover after periodic stresses such as high or low salinities, temperatures or severe storms” (Kenchington *et al.*, 2003:6).

Enhancing fisheries

MPAs with core ‘no take’ reserves have a significant responsibility for arresting and reversing the global and local decrease in fish populations and productivity (Kenchington *et al.*, 2003). Kenchington *et al.* (2003:8) argue that there are four fisheries-related benefits that can be gained from MPAs:

- support for stock management, including: protection of specific life stages such as nursery grounds; protection of critical function such as feeding grounds, spawning grounds; provision of spillover of an exploited species; and provision of dispersion canners for supply of larvae to fishery;
- improved socio-economic outcomes for local communities;
- support fishery stability; and
- ecological offsets, including; trade-off ecosystem impact; and better understanding of impacts and options.

Promoting tourism

MPAs have great value to the local, national, and international communities for public enjoyment. The areas can enhance recreational and tourism activities such as swimming, SCUBA diving, snorkelling, kayaking, and many other activities both water-based and land-based. Nowadays, tourism is a major source of social and economic benefit for many developing countries (Natural Heritage Trust, n.d.). This topic is addressed in more detail in Section 2.2.

Supporting education and scientific research

MPAs can support the education of both students and the general public. They can also help instill conservation values in the public in relation to the marine environment (Government of the South Australia, 2005). MPAs can be used for training park staff, managers and specialists in helping people understand how to protect their marine environments (Kenchington *et al.*, 2003). A major aspect of environmental education is to provide training and supporting information to local tourist guides. Moreover, MPAs also have a key role in the education of local communities and visitors about the protection of cultural and natural heritage sites.

The protection of marine ecosystems can also provide benchmarks to allow scientists to measure changes caused by human influences such as fishing, human activities and natural events on the natural environment, thereby contributing to sustainable management (Natural Heritage Trust, n.d.; Kenchington *et al.*, 2003).

Lately, there has been an increasing appreciation of the need for more MPAs and for better management of coastal and marine environments in many parts of the world (Kenchington *et al.*, 2003). Over 4,000 MPAs have been established around the world (Chape *et al.*, 2003). In addition to the declaration of MPAs by individual countries, many different international organisations have also been involved in establishing MPAs, including UNEP's Regional Seas Program, UNESCO's Marine Science Program, the south Pacific Regional Environment Program and initiatives of the Food and Agriculture Organisation of the United Nations (FAO), and The World Bank (Kelleher, 1999).

2.1.4 The management of MPAs

Most MPAs in Thailand are established as MNPs. Ideally, a MNP provides two major functions; first is the protection of significant natural resources, which includes water, wildlife, marine life, scenic beauty and cultural resources; second is the provision of services for users such as visitors and researchers. As a result, park planning and management is required to ensure the best use of resources. According to International Centre for Environmental Management (ICEM) (2003), MNPs often share planning and management with terrestrial parks, so sometimes it is not clear who will take jurisdiction for issues relating to parks, fisheries and harbours, beaches or tourism development.

In Thailand, the Department of National Park, Wildlife and Plant Conservation (DNP) under the Ministry of Natural Resources and Environment (MONRE) has responsibility for managing MNPs (Chettamart & Emphandhu, 2003). MONRE has recently created a Department of Marine and Coastal Resources (DMC) which also helps to manage the protection and conservation of mangrove and marine resources in order to achieve sustainability of marine resources, while satisfying social and economic demands (ICEM, 2003).

The legislation relevant to MPAs management are: the National Park Act B.E. 2504 (1961), National Reserve Forests Act B.E. 2507 (1964), Wildlife Preservation and Protection Act B.E. 2535 (1992), Fishery Act B.E. 2537 (1994) and Enhancement and Conservation of National Environmental Quality Act B.E. 2535 (1992) (Chettamart & Emphandhu, 2003; ICEM, 2003). Their functions can be seen in Table 2.3.

Table 2.3: Thailand Marine National Park legislation and related functions

Legislation	Function
The National Park Act B.E. 2504 (1961)	Covers all land that has been determined as National Park. The law establishes most parks are for the protection of fauna and flora and prohibits any trade or transport of species out of the park
National Reserve Forests Act B.E. 2507 (1964)	Controls the utilization and protection of forest areas and resources of the national reserved forests
Wildlife Preservation and Protection Act B.E. 2535 (1992)	Concerns hunting, propagating, possessing and trading of wildlife, their carcasses and carcass products, importing, exporting, and transporting the wildlife
Fishery Act B.E. 2537 (1994)	Regulates fishing and marine resource gathering, including issues related to encroachment of trawlers into protected seawater areas
Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992)	Deals with all control of development projects including those within MNPs

(Source: adapted from Sethapun, 2000)

The DNP has produced a management plan (Master Plan) for each National Park using the process outlined in Figure 2.1. The Master Plan addresses the following objectives:

- preserving and maintaining the marine ecosystem integrity, biodiversity, and scenic beautiful for use by the present and future generations without compromising them;
- providing for the general public a ground for education and research;
- providing the general public the opportunities for nature tourism and recreation, which are compatible with park ecosystem and its carrying capacity;

(Faculty of Forestry, 1987 as cited in Chettamart, 2003:4)

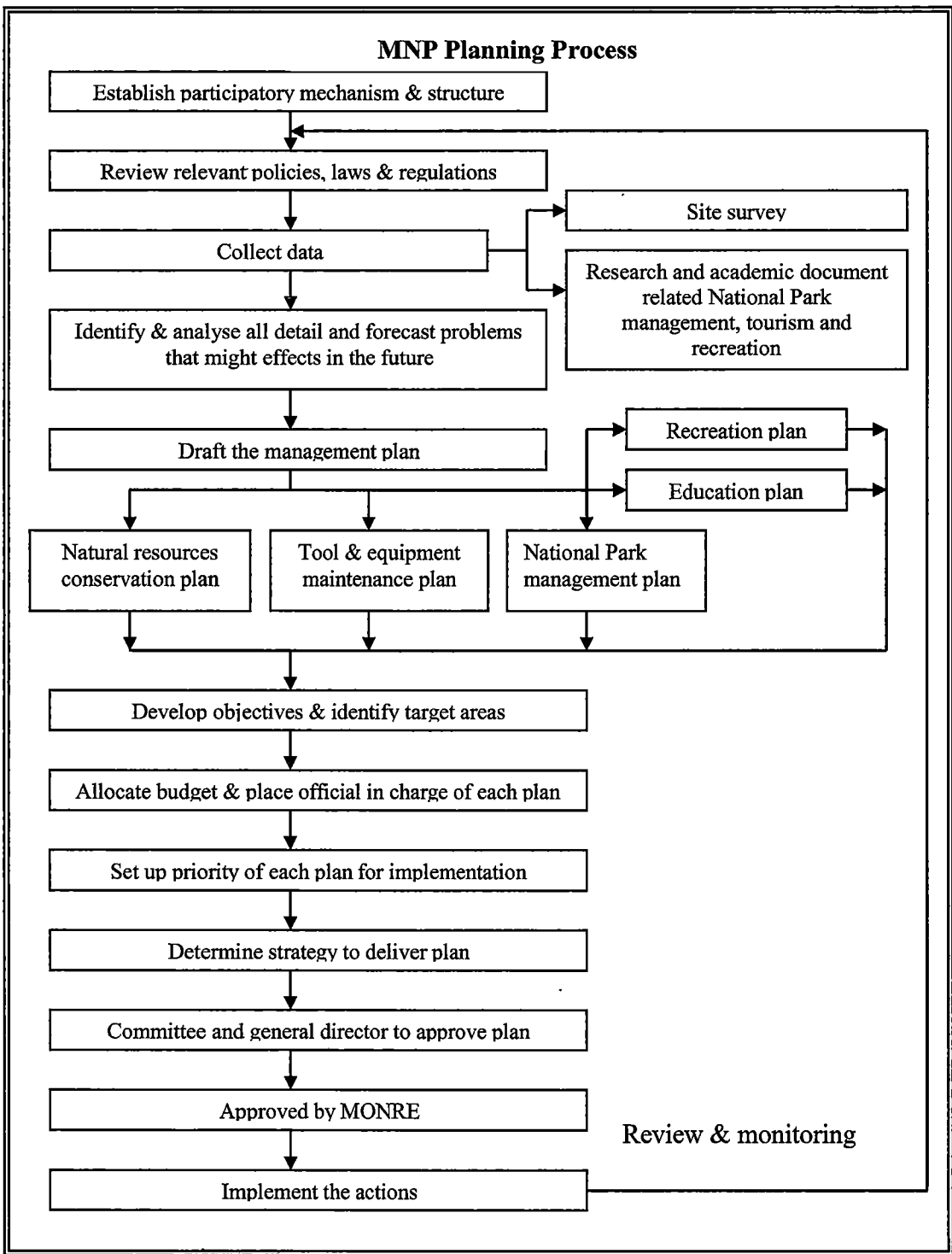


Figure 2.1: Planning Process for Thai MNP Master Plan

(Source: adapted from Sethapun, 2000)

The planning process identified in the Master Plan incorporates a collaborative approach, involving the various stakeholders such as the DNP, Local Governmental Authorities, non-government organizations (NGOs), the private sector, and local communities (ICEM, 2003).

2.1.5 The effective management of MPAs

Effective planning and management of MPAs requires explicitly stated goals and objectives (Schomaker, 1984 as cited in Stankey *et al.*, 1998). Objectives provide definitive statements of desired recreational opportunities, social and environment conditions, and outcomes of Protected Areas management (Stankey & McCool, 1984). Officially, the objectives derive from the legislation or policy, thus objectives will help to determine the appropriateness of management actions and judge the success of management actions being employed to resolve issues and problems (Stankey *et al.*, 1998).

Kelleher (1999) suggested that the most efficient ways of achieving objectives will change over time, so the management should be adaptive. This approach is useful for MPAs which are comprised of a variety of ecosystems/habitat types and also where multiple-uses are permitted (Baker, 2000). Adaptive management is the process of testing the problems or issues related to the areas and evaluating the results and further reviewing to improve management practices (Pomeroy *et al.*, 2004). Reviewing or monitoring should be based on the patterns of activity use, monitoring of impacts and the effectiveness of the management objectives (Kelleher, 1999) and should involve various stakeholders such as, key government institutions, MPA managers, tourism operators, tourists, NGOs and local communities. Participation can be facilitated through interviews, workshops, questionnaires, surveys and other tools.

Kelleher (1999) states that the primary function of public participation and consultation is to inform users who are interested in the MPA and to make direct contact with major stakeholders. The public review process should include the following steps:

- consultation of public and review of the proposed plan;
- preparation of an officially endorsed draft plan;
- consultation of public and review of the legitimately endorsed draft plan; and
- finalization and implementation of the plan.

(adapted from Kelleher, 1999)

Ensuring the full range of stakeholder groups participate in this process will help to ensure that all values and view points are incorporated in the final plan. During this process compromises or conflict resolution may be required.

The IUCN has built a management effectiveness framework in order to “develop guidelines to measure and evaluate the effectiveness of management, provide tools for better understanding and improve the management of Protected Areas worldwide” (Hockings *et al.*, 2000 as cited in Pomeroy *et al.*, 2004:3).

Although MPA management plans in Thailand have a process of review and monitoring, they do not effectively operate due to poor performance, insufficient staff and expert advice, insufficient time, limited funds, inadequate equipment (Sethapun, 2000, UP-MSI, ABC, ARCBC, DENR, ASEAN, 2002) and lack of relevant information for visitors. They do not provide adequate actions to mitigate the main pressures and challenges facing Protected Areas (Clarke, n.d. as cited in ICEM, 2003). This thesis will examine some of these problems and propose actions that may assist in improving the situation.

2.1.6 Zoning

Zones are the most useful MPA management device for MPA managers to identify areas of conflicting uses, accommodate multiples uses (Kelleher, 1999) and establish limitations on particular uses. According to Eagles *et al.* (2002:98), there are three benefits of zoning.

- The process of zoning can help managers, operators, visitors and local communities to understand what park values are located where.
- Zoning provides a better understanding of the distribution and nature of different recreation and tourism opportunities within around the protected area.
- Zoning oriented to establishing standards of acceptable human impact helps to control the spread of undesirable impacts.

However, there is no universal set of zones; the format of a zoning plan will rely on its legislative basis and on the agencies responsible for the plan, local conditions and needs (Kelleher, 1999). Kelleher and Kenchington (1992) as cited in Laffoley (1995) stated that the concept of biosphere reserve is suitable for MPA planning and designation. Internationally, there has been interest in biosphere reserves and their application to MPAs (Agardy, 1994). The simplest arrangement consists of a core zone that must be strictly protected as specified by a set of conservation objectives. The core area is surrounded by a buffer zone, where uses such as recreational activities and accommodation, research and education are permitted. The transition area surrounds the buffer zone where a range of sustainable uses are permitted. The IUCN (1995) has recommended buffer zones for the protection of the core zone from impacts, although this is possible only in large MPAs.

Elaborate zoning classifications of parks has been developed in several countries. For example, eight zones are provided in Great Barrier Reef, the largest MPA in Australia which include: General Use Zone, Habitat Protection Zone, Buffer Zone, Scientific Research Zone, Marine National Park Zone, Preservation Zone and Commonwealth Island Zone (Great Barrier Reef Marine Park Authority, 2003). In Canada, five zones have been accepted where resource protection and visitors' opportunities within each

zone are highlighted. These consist of: Special Preservation Zone, Wilderness Zone, Natural Environment Zone, Outdoor Recreation Zone, and Park Services Zone (Eagles *et al.*, 2002). In Thailand, six zones are designated which include Intensive Use Zone, Outdoor Recreation Zone, Conservation Zone, Primitive Zone, Special Use Zone and Recovery Zone (Innuruk *et al.*, 2001). Nevertheless, it is not necessary to have all zones in each park. Specification of these six zones is given in more detail in the next chapter.

2.2 Tourism and MPAs

Tourism is one of the world's largest industries and one of its fastest growing economic sectors (Lickorish *et al.*, 1991; Lickorish & Jenkins, 1997). Definitions of tourism generally refer to the activities of persons traveling and staying overnight, for less than one year away from the usual place of residence, for leisure, business and other purposes. Generally, tourism activities do not include paid work (World Tourism Organization, 2004), although it is apparent that tourism may include components of both leisure and business. Craik (1991:25) recommends that "day trips and excursions are now also being recognized as almost indistinguishable in some tourist sectors". Domestic weekend recreation also effectively comprises tourism in its effects on the tourist resource (Mercer, 1991). Tourism surveys are invaluable for providing statistics on the volume and impact of tourist activities, which is essential for measurement and reporting (Eagles *et al.*, 2002).

The tourism industry is growing around the world, especially in developing countries such as Thailand. The number of international tourists coming to Thailand increased gradually from 9.51 million in 2000 to 10.80 million in 2002 (Table 2.4). Because of the Severe Acute Respiratory Syndrome (SARS) epidemic in Asia in 2003, the number of international tourists decreased by about 7% (Table 2.4). Since then, there has been a steady rise which seems to be continuing (TAT, 2004a) which is in part attributable to the government significantly increasing tourism promotion. SARS did not effect domestic tourism, and the number of domestic tourists has grown significantly from

54.74 million in 2000 to 73.18 million in 2004 (TAT, 2004a). The number of tourists coming to MNPs in Thailand increased steadily from 2.16 million in 2000 to 2.56 million in 2001. In 2003 the number of tourists decreased to 1.83 million due to SARS (DNP, 2005). The large numbers of tourists has the potential to significantly impact on MNPs. As indicated in Table 2.4, tourism also generates significant revenue for Thailand.

Table 2.4: Target of Tourism in Thailand, 2000-2004

Year	International Tourist		Domestic Tourist		Total	
	Number (million)	Revenue (million baht)	Number (million)	Revenue (million baht)	Number (million)	Revenue (million baht)
2000	9.51	285,272	54.74	210,516	64.25	495,788
2001	10.06	299,047	58.62	223,732	68.68	522,779
2002	10.80	323,484	61.82	235,337	72.62	558,821
2003	10.00	309,269	69.36	289,987	79.36	599,256
2004 *	12.00	384,000	73.18	322,300	85.18	706,300

* Tourism Strategy of the Ministry of Tourism and Sports

(Source: Adapted from Tourism Authority of Thailand, 2004a)

Tourism has always been a key factor in the establishment of MPAs. The relationship between tourism and conservation in MPAs requires careful visitor management to minimize conflicts (The Royal Forest Department, 2001; Eagles *et al.*, 2002; Ross, 2003). During the last decade, Thai people have become more concerned with nature and their living environment in response to the increasing urbanization of society. The number of urban people visiting National Parks and other Protected Areas has doubled over in the previous decade (Chettamart & Emphandhu, 2003). International and Thai visitors travelling to National Parks and other Protected Areas can bring both potential benefits and negative impacts to the community or country.

2.2.1 Impacts of tourism in MPAs

Tourism has a multitude of both positive and negative impacts, on economic, socio-cultural and environmental values.

Economic impacts

Tourism development has provided economic benefits to National Parks, local communities and the country as a whole. For example, tourism can generate revenue and jobs in local areas (Lickorish *et al.*, 1991). Tourism is often regarded as a source of foreign exchange earnings (Lickorish & Jenkins, 1997; UNEP, 2003; Eagles *et al.*, 2002; Oram, 1999). Tourism can provide economic benefits, in terms of products and services, such as food, accommodation and transportation, which can improve the quality of life for local people and also facilitate further tourism (UNEP, 2003). Moreover, tourism can generate local tax revenues and contribute to government revenue.

On the other hand, an increase in tourism can lead to increasing costs of managing the Protected Area, resulting from such things as the provision of facilities, extra personnel, goods and services. If the living cost is significantly raised, local people will have financial problems since their income is markedly lower than that of the tourists (Eagles *et al.*, 2002). Tourists with expectations for certain goods and services are one source of economic 'leakage' faced by developing countries. Such goods and services must be imported to encourage tourism (Lickorish & Jenkins, 1997; UNEP, 2003).

Socio-cultural impacts

Tourism can bring a potential benefit of socio-cultural conservation to host communities. It can give rise to social improvements through job creation, poverty alleviation and income redistribution (UNEP, 2003). Tourism revenue in MPAs can result in social benefits to a local community in terms of standard of living through upgrading infrastructure, health care, transport improvement, and development of

education and training programs (Eagles *et al.*, 2002). Cultural festivals, events and traditions of local communities can generate income for the protection and restoration of landscape features and renaissance of cultural traditions, arts and crafts (Eagles *et al.*, 2002; UNEP, 2003). Moreover, tourism results in the interaction of different cultures, which can lead to benefits for both parties, host and visitors. Cross-cultural communication can foster mutual understanding and transform racial prejudice (UNEP, 2003).

On the other hand, the growing number of tourists can have a negative impact on socio-cultural values. Tourism can bring culture clashes, change local identity and values, and social stress (UNEP, 2003). Culture clashes can arise from juxtaposition of different cultures, ethnic and religious groups, values and lifestyles, languages and levels of prosperity in the same location (UNEP, 2003). The negative impacts are particularly likely to occur when communities have no control over their involvement with tourism. This can lead to changes in local community structure, traditional life styles, ceremonies and morality (Lickorish *et al.*, 1991; UNEP, 2003). For example, responding to tourist demand such as souvenirs, arts and crafts, crafts people have changed their traditional design of products to suit a commercial tourist trade, which was caused loss of value and quality (UNEP, 2003). Moreover, poorly planned tourism development can cause serious social stress to the local communities through increased infrastructure cost, congestion, conflict, littering, pilferage, vandalism and crime (Eagles *et al.*, 2002).

Environmental impacts

Tourism in Protected Areas is one of the main issues for the conservation of the environment in such areas. The attractiveness of natural areas is significant for tourists and must be maintained if tourism is to be sustainable. Tourism can therefore contribute to environmental protection, improvement of environmental quality and infrastructure, conservation and restoration of natural areas and sustainable use of natural resources (UNEP, 2003; Lickorish & Jenkins, 1997). It also can provide incomes through entrance

fees and local taxes which can be used to help protect natural and marine areas, as well as maintenance of facilities and amenities (Lickorish *et al.*, 1991).

Negative environmental impacts that can occur in Protected Areas include land use problems, environmental hazards, ecological disruption, and improper waste disposal (Lickorish & Jenkins, 1997). Tourism activities can result in environmental effects; for instance, the construction of infrastructure such as roads and airports, accommodation, and marinas that cause direct impacts on the ecosystem. Moreover, the negative impacts of tourism can devastate the environmental resources such as soils, vegetation, visual, water, air, wildlife and marine life (Eagles *et al.*, 2002; UNEP, 2003). Lickorish *et al.* (1991:103) said that “to a large degree these problems have been caused by too rapid increase in tourist arrivals which puts pressure on infrastructure and the environment”.

The dimensions of society, culture and the economy remind people that natural resource planning and management in MPAs takes place within politicized contexts. The objective of preserving the natural environment is usually impacted by the desire to support recreational use, especially government aims for economic development and the role of ecotourism within those programs (Stankey *et al.*, 1998). Management within MPAs must be done carefully by means of planning, management in collaboration with stakeholders, and monitoring in order to ensure achievement of long-term MPA sustainability objectives.

2.2.2 Sustainable tourism development

Over the past few decades, ‘Sustainable Development’ has come out as a new pathway for increasing public participation in intergovernmental communications (Lele, 1991). The emphasis of sustainable development is ensuring economic development and environmental protection; the political involvement of stakeholders in society; and a better quality of life for people, now and for future generations (Jacobs, 1999). The origin of sustainable tourism is derived from the Brundtland Report titled ‘Our Common Future’ produced by the World Commission on Environment and Development

(WCED). This defined sustainable development as meeting “the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987:87).

Sustainable tourism development is a key issue for tourism (Hall & Lew, 1998). Its concept has been utilized to lead the tourism industry toward global sustainable development (Leksakundilok, 2004). The World Tourism Organization (WTO) defines that the development of sustainable tourism:

meets the needs of the present tourists and host regions while protecting and enhancing the opportunity for the future. It is envisaged as leading to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled, while maintaining cultural integrity, essential ecological processes, biological diversity and life support systems

(WTO, n.d. as cited in UNEP, 2003).

Bramwell and Lane (1993:2) state that sustainable tourism should “reduce the tensions and frictions created by the complex interactions” between the environment, tourism industries, tourists and local communities. The concept of sustainable tourism development as described by The Tourism Authority of Thailand (TAT) is to wisely and effectively organise the prevailing resources to maintain cultural, social and natural diversity in a manner that integrates tourism development with national policy. Through public participation the TAT aims to encourage local communities in waste control and disposal (Chettamart & Emphandhu, 2003), preserve the natural environment, and promote Thai culture and heritage (Leuandee, 2001 as cited in Ross, 2003).

Moscardo *et al.* (1998) recognises that sustainable tourism is related to quality, continuity and balance which vary according to place and management practices. An integrated approach to tourism planning and management is required to achieve sustainable tourism. A sustainable approach to tourism development and maintenance involves the interdependence of three different areas of human activity: economy, society and environment (Table 2.5).

Table 2.5: Description of sustainability

Type of sustainability	Description
Economic	This usually refers to economic growth, but from an environmental point of view it may also include some idea of being protective of the underlying natural environment, and of using renewable resources in preference to non-renewable.
Social	The ongoing basic human need for food, water and shelter, coupled with such values as liberty, education, health services, recreation, work, equality, happiness, justice and the ability to preserve our culture and customs.
Environmental	The protection and preservation of biodiversity and management of ecosystems in a way which will not degrade them but will ensure their being able to continue serving their purpose in the biosphere.

(Source: adapted from Leuangdee, 2001 as cited in Ross, 2003:7)

Commonly, park management plans are focused strongly on how the natural resources are managed in the park, and many plans are weak on specification of tourism objectives and how to achieve those objectives (Eagles *et al.*, 2002). Thus, the issues of tourism in Protected Areas must be addressed in the policies within the management plan. Eagles *et al.* (2002:44) pointed out that given “the potential complexity of plan making, it is important that policies and plans should be integrated with those at different levels, that their relationship should be made clear, and that all management action in different plans should be co-ordinated”. There are six components of the sustainable tourism development approach in National Parks and other Protected Areas.

- “The natural and cultural environment within the protected area should form the basis for all other uses and values affecting the park and its management. These fundamental assets must not be put at risk” (Eagles *et al.*, 2002:44).
- Tourism development must ensure the maintenance of physical environment, ecological processes and cultural conditions as these are most important factors to secure the economic and well-being of host communities (Hall, 1998; Eagles *et al.*, 2002).
- Sustainable tourism should provides more enjoyable experiences through more meaningful connections with local communities, and a better understanding of local cultural, social and environmental issues.

- Protected Area visitors should accept and understand the need for restrictions on their activities. A diversity of recreational activities is preferred for tourists but unfortunately, not all parks can satisfy every tourist demand (Eagles *et al.*, 2002).
- Tourism development should guarantee the conservation of “the uniqueness and integrity of the destination” at national and community level (Hall, 1998:25).
- Sustainable tourism development requires full public participation and community involvement. In each particular protected area, planning should be carried out by taking into account all stakeholder values and interests (Hall, 1998; Eagles *et al.*, 2002).

Recently, Tourism Authority of Thailand (TAT), Ministry of Tourism and Sport (MOTS) and Designated Area for Sustainable Tourism Administration (DASTA) have cooperated to develop tourism in Thailand in order to promote tourist destinations in Asia and draft a tourism development master plan which has focused on sustainable tourism and ecotourism development (DASTA, 2005). MOTS, TAT or DASTA is required to work with DNP on ecotourism policy, guidelines and regulations and tourism management in National Parks.

2.2.3 Ecotourism

Ecotourism has developed as a form of sustainable development (Thavarasukha, 2002; Ross, 2003). Many academics such as Boo (1990) and Weaver (2001) point out that ecotourism is concerned with natural resource conservation, provides education, and does not ignore local communities. The TAT definition is as follows:

Ecotourism is responsible travel in areas containing natural resources that possess endemic characteristics and cultural or historical resources that are integrated into the area's ecological system. Its purpose is to create awareness among all concerned parties of the need for and the measure used to conserve ecosystems and as such is oriented towards community participation as well as the provision of a joint learning experience in sustainable tourism and environmental management.

(TAT, 1997 as cited in TAT, 2001)

Ecotourism practice in National Parks and other Protected Areas in Thailand is focusing on the main components of nature-based and activity-oriented ecotourism, regularly involve activities such as SCUBA diving, boat trips, trekking, canoeing/kayaking, elephant trekking, hiking and wildlife viewing which are attractive to both domestic and international visitors (ICEM, 2003; Leksakundilok, 2004).

The Thailand, Institute of Scientific and Technological Research (TISTR) supported by TAT established an ecotourism policy in 1996-1997, based on research, surveys, and discussion with various stakeholders (Leksakundilok, 2004). All aspects of ecotourism development have been addressed, including: tourism resources and environmental management, ecotourism education, local community involvement, marketing, promotion and tour guides, facilities and services management, financing and investment (TAT, 1997 as cited in Chettamart, 2003). During 2001, TAT developed the National Ecotourism Action Plan to support the policy (Leksakundilok, 2004). Chettamart (2003) points out some important aspects of ecotourism management arising from this plan.

- Under National Park policy and TAT's ecotourism policy, ecotourism has been adopted as a framework for tourism management. Recreation and tourism which include tourist services and facilities (accommodation, souvenirs, foods and safety), and an education program are provided as one section with in the Master Plan.
- To become well-known for tourists, all National Parks have promoted their place by using information brochures and booklets as well as TAT campaigns on special occasions such as the monthly tourism magazines, and a website. Other promotion can be seen in sorts of mass media.
- The National Parks management zones can guide all activities for resource and biodiversity protection, recreation and tourism, research, and local community development.

- Charging entrance fees and other services fees from visitors are potential economic instruments in order to generate revenue to maintain those facilities and to support other management activities.
- Local communities can support the activities of park staff beyond the area of the park and provide alternative tourism activities to those available inside the park. Local communities are encouraged to participate in the development of management plans (Emphandhu, 2003 as cited in Chettamart, 2003).

Ecotourism management within MPAs must include careful planning, managing and monitoring in order to ensure their long-term objectives for achieving sustainability. Otherwise, tourism will generate negative impacts and cause deterioration of the areas (The Royal Forest Department, 2001).

2.3 Visitor Diversity: Implications for MPA Management

The measurement of public use is one of the management strategies for MPAs. As the requirement for outdoor recreation and visitation to MNPs and Protected Areas grows, the number of managers must increase in response to the need to guide or control visitor use to protect the park resources (Hornback & Eagles, 1999). An increase in demand of visitation will impact park communities both negatively and positively (Hornback & Eagles, 1999). Manning (1999) stated that managers are generally focused on reducing negative impacts on the resource at the same time as providing high-quality outdoor recreation opportunities for visitors to enjoy. However, evaluating and identifying standards of quality which both protect the natural resources and provide a satisfactory visitor experience are a big hurdle for Protected Area managers. As a result, objective information on the aspects influencing visitors' experiences such as visitors' attitudes, preferences and perceptions is a vital requirement to organize the management and provision of quality recreational opportunities (Manning, 1999).

Visitor surveys are increasingly recognised as a major component in the design of effective visitor management plans in Protected Areas (Stankey, 1989, Moscardo, 1999, Orams, 1999). Achieving visitor satisfaction is a significant goal within MPAs, due to a range of social, economic, and environmental benefits.

In terrestrial environments, it has long been acknowledged that “there is no such thing as the average protected area visitor” (Eagles *et al.*, 2002:21). Visitors to MNPs are no exception to this rule. Visitor research demonstrates this by segmenting visitors into distinct groups, and identifying differences among visitor groups, expectations, activities, participation and spending patterns in perceived desirable settings (Stankey *et al.*, 1998; Eagles *et al.*, 2002). MPA managers can apply this segmentation to provide different settings within different zones, in a way that matches different visitor types as well as possible, while meshing this with the overall management objectives for the area (Shafer & Inglis, 2000).

Generally, dimensions along which park visitors are segmented include ‘socio-demographic’ characteristics (Eagles *et al.*, 2002), and the amount of experience with an activity (McFarlane *et al.*, 1998).

2.3.1 Socio-demographic characteristics

Socio-demographic characteristics are identified on the basis of population statistics such as age, gender, occupation, origins and level of education. These can be correlated with visitor preferences for different types of activities. For example, Wight (1996) states that according to a survey of adventure tourism and ecotourism operators, older people dominated wildlife watching whereas younger people were dominant in activities such as SCUBA diving. By gender, the research has shown that males are more sensitive to crowding in marine environments than females (Inglis *et al.*, 1999). Anderson (1994) found that more passive activities such as beach walking, sunbaking and swimming demonstrate a much more diverse demographic profile.

2.3.2 Visitor experiences

According to Scott and Shafer (2001), experience level can have a vital influence on attitudes, behaviour, standards of environmental quality, and preferences for different types of settings. For example, in a natural setting with evidence of degradation of nature, Burton (1998) indicated that less experienced nature tourists were more satisfied with their experience, while dedicated nature tourists with greater amounts of experience were less satisfied.

The 'specialization' or 'intensity of involvement' concept is building on the idea that experience influences recreational preferences and attitudes, which is considered to be a development process where people tend to progress towards higher stages of involvement the longer they participate in a leisure activity (Scott & Shafer, 2001). Other studies have segmented populations into specialization categories, using factors such as past experience and participation in an activity (Schreyer *et al.*, 1984; Eagles *et al.*, 2002). Specialists usually develop higher standards of environmental quality in recreational settings (Virden & Schreyer, 1988).

2.4 Conclusion

The main function of MPAs is conservation and management within marine areas. The management of MPAs are directed by regulations to preserve marine heritage and biodiversity systems in order to guarantee the health of marine resources and to provide sustainable ecotourism which contributes to the economic and social welfare of human communities (Kelleher *et al.*, 1995). MPAs in Thailand, especially MNPs such as Mu Ko Surin, Mu Ko Similan, Mu Ko Ang Thong and Mu Ko Chang Marine National Park, have become more accessible and well-known to tourists because those islands have richness of marine ecosystem such as mangrove forests, coral reefs, seagrass beds, soft

sediment communities and beaches which provide a variety of plants and animals species.

Recently, the Thai government has increased tourism promotion, particularly in National Parks and Marine Parks that bring a growing number of both Thais and foreigners to visit the parks. Increasing numbers of tourists in National Parks can bring both benefits and costs to the community and country in terms of economic, socio-cultural and environmental impacts. Ecotourism is one of the tourism strategies directed toward sustainable development. The collaboration between DNP, TAT and various stakeholders including academics, NGOs, the private sector, local communities and the tourists themselves is necessary to manage and develop ecotourism in National Parks and Marine Parks to ensure their long-term objectives for achieving sustainability.

The effective development of MPAs for the future will involve many different perspectives. In this study, visitor behaviour, values and attitudes toward environmental management and quality of services will be measured in order to assist in improving tourism development with regard to service design, staff training, and increasing the quality of visitors' experiences and hence profitability and/or enterprise sustainability and to get public involvement in the preservation of marine natural resources. The use of visitor surveys is a key component in the design of effective visitor management plans in Protected Areas. Achieving visitor satisfaction is a significant goal for MPAs because it may bring significant benefits to the park, local community and country. Thus measures of visitor satisfaction and attitudes are important in order to assist sustainable development within MPAs.

CHAPTER 3: OVERVIEW OF THE STUDY AREA

Mu Ko Chang Marine National Park (MKCMNP) (Figure 3.1) is a collection of small and large islands on Thailand's eastern coast, close to the boundary with Cambodia. There are a variety of habitats on the islands, including coral reefs, seagrass meadows and mangrove forests. Many islands in this National Park, such as Ko Chang, Ko Chang Noi, Ko Rang, Ko Lao Ya, and Ko Wai, have their own attractions, especially coral reefs. As suggested by Sethapun (2002) the importance of such sites is widely acknowledged: "Mu Ko Chang contain some of the finest coral reefs in the country in term of size, species diversity and condition and these sites are of international significance." Two other islands – Ko Kood and Ko Maak – which are being considered for inclusion into the MKCMNP have also been included in this study.

Ko Chang, the second largest island in Thailand after Phuket, is the main tourism centre, with roads connecting almost all the island with amenities of many types. There are various habitats, coral reefs, mangrove forests and clear water which are suitable for swimming and diving (DNP, 2004). In addition, after the Tsunami in December, 2004, most visitors now tend to travel to the Gulf of Thailand instead of Andaman Sea Coast. Therefore, effective tourism management is essential. MKCMNP has become a particular focus of visitor interest.

This chapter presents information on the islands in MKCMNP. The first section deals with an overview of park administration and management. The second section covers physical features which comprise location and accessibility, topography and climate. Thirdly, biological value, flora and fauna are outlined. The fourth section examines cultural value which includes history, community and economic value. The fifth section

deals with recreation and tourism value. The final section discusses trends in local tourism and tourism management. The chapter ends with a discussion of current management issues related to tourism.



Figure 3.1: MKCMNP, Ko Maak and Ko Kood

(Source: adapted from Guide to Thailand.com, 2005)

3.1 Park Administration and Management

MKCMNP is under the Department of National Park, Wildlife and Plant Conservation of the Ministry of Natural Resources and Environment. It was established on 31 December 1982 to become the 45th National Park in Thailand (Innuruk *et al.*, 2001). Its administration is centralized and governed by the Office of National Parks located in Bangkok while the superintendent cooperates with provincial officers and district officers. Park objectives include: preservation of nature and the ecosystem both on land and water; development of research and study; and management of natural resources and tourism services for both Thai and international tourists (Innuruk *et al.*, 2001).

The two main components of the administration and management of MKCMNP are the headquarters and ranger stations. The headquarters is the center of administration, protection coordination and home to park superintendents. The ranger stations are mostly responsible for the protection of specific areas, and provision of tourism services and information. Presently, there are two headquarters for the National Park. One is on the mainland in Lam Ngob District and the other is on Ko Chang. Throughout the National Park area, there are six sub-stations with 11 staff rangers working in each site. On Ko Chang, there are five sub-stations: Than Ma Yom Ranger Station, Klong Son Headquarters, Sa Lak Phet Ranger Station, Klong Plu Ranger Station and Bang Bao Ranger Station. Another ranger station is located on Ko Rung (DNP, 2004).

Zoning is an important tool for managing the MKCMNP. According to the National Park objectives and environmental conditions, MKCMNP is divided into six different use zones: Intensive Use Zone, Outdoor Recreation Zone, Primitive Zone, Conservation Zone, Recovery Zone and Special Use Zone (Innuruk *et al.*, 2001a). The function of each zone is shown in Table 3.1, while the location of each zone is shown on Figure 3.2. Although the National Park includes areas of private land and local communities (displayed as 'out of National Park area' on Figure 3.2), the park retains responsibility

for the protection of coastal beaches, beach forests and mangrove forests (Jaisa-ard, S., 2005. pers. comm., 11 May).

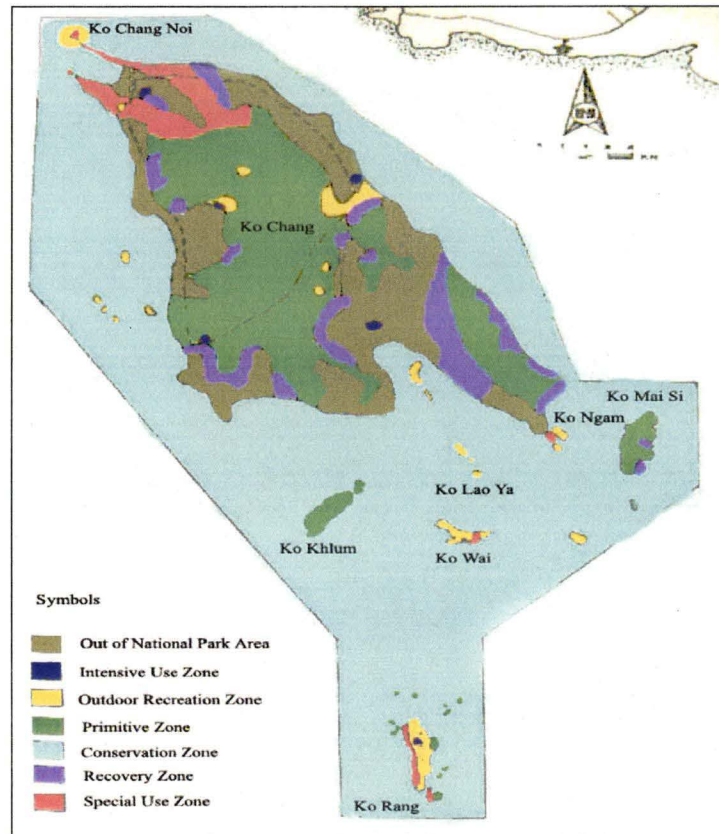


Figure 3.2: MKCMNP zoning map

(Source: adapted from Innuruk et al., 2001a:137)

The management zones are important to guide all activities for resource and biodiversity protection, recreation and tourism, research, and local community development. Most significant are the Outdoor Recreation Zone, and the Conservation Zone, which are more prone to damage by visitors. New directions for the National Park authorities include the recovery of degraded reefs within the tourism zone at Ko Rang and Ko Ngam, and also providing support for ecotourism development (Jaisa-ard, S., 2005. pers. comm., 11 May).

Table 3.1: Zoning in Mu Ko Chang Marine National Park

Name	Management prescriptions
Intensive Use Zone	The zone is where buildings for the lodging of visitors and staff are located (e.g. Klong Son head quarter and six sub-stations).
Outdoor Recreation Zone	This area is larger than the Intensive Use Zone. It serves sightseeing locations and rest-stops. This zone is a buffer zone between the Intensive Use Zone and the Primitive Zone (e.g. Than MaYom and Klong Plu waterfalls, Ko Rang, Ko Wai, around Ko Chang Noi, Ko Lao Ya and Ko Nham).
Primitive Zone	The zone shall be retained in its natural state. The zone also serves as a source of agriculture water to irrigate the plains (e.g. closed forest in the middle of Ko Chang, Ko Klum and Ko Mai Si).
Conservation Zone	The zone may be modified for the purposes of research, recreation and also fisheries. However, nature conservation remains a priority, and penalties may be imposed if boats enter specified sub-zones.
Special Use Zone	The zone covers areas in which various activities were being carried out before the area was designed as a National Park, to ensure they as far as possible conform to the purpose of administering and operating the National Park (e.g. the west area of Ko Rang, the north of Ko Chang).
Recovery Zone	This zone includes degraded areas which can be restored. Access is restricted in this zone except for researchers who are involved in the restoration program with park staff (e.g. around Ko Chang and the east of Ko Mai Si).

(Source: adapted from Innuruk et al., 2001)

In developing the principles of the management plan, relevant agency groups include those that can be involved in, affected by, or state a strong interest in, the management of a particular resource or area. The key relevant agencies are divided into two types: local government/non-government and central government. Each group of agency has their role and responsibility to play in the management plan and it will be their joint efforts that eventually improve the environmental quality of the park (Table 3.2).

Table 3.2: The key relevant agencies in MKCMNP management

Agency	Role/Responsibility
<u>Local Government Agencies</u>	
Designated Area for Sustainable Tourism Administration (DASTA)	The agency's role is to manage tourism on Ko Chang and its satellite islands for enhance sustainable tourism ¹
Tambon Administrative Organisations (TAOs) (Ko Chang and Ko Chang Tai)	These agencies control the construction of infrastructure and waste treatment facilities include garbage collection and disposal; and To ensure sustainable use, and conservation of local natural resources and the environment ³
Tourism Authority of Thailand, Trat Province	The agency's role is to develop and distribute guidelines for environmental sustainable tourism and/or ecotourism ²
Office of fisheries, Trat Province	The Office's role is to control of fishing efforts and promote mariculture ⁴
<u>Local Non-Government Agency</u>	
Ko Chang Conservation Association	The group's role is to raise public awareness on Ko Chang issues will be targeted for training and as communicator among local residents ²
Ko Chang Local Tourism Association	The group's role is to be involved in services related to ecotourism and home-stay ²
<u>Central Government Agency</u>	
Ministry of Natural Resource and Environment	
Department of Marine and coastal Resources	The Department is responsible for conservation, rehabilitation and management of marine and coastal resources aiming to achieve the sustainable of the resources and the needs of social and economic basis. ⁵
Marine Park Division, Department of National Park, Wildlife and Plant Conservation	The department is responsible for the protection and development of natural resources within the marine park boundary. ⁵
Pollution Control Department	This department formulates implements and evaluates pollution control measures which include measures aimed at controlling, preventing and rectifying environmental problem caused by pollution. ⁵
Office of Natural Resources and Environment Policy and Planning	This office, in collaboration with other government agencies is responsible for the formulation of a national policy and plan to enhance national environmental quality. ⁵
Ministry of Transport	
Marine Department	The Department's role is to promote and supervise water transport system including maritime transport and port management. ⁵
Ministry of Agriculture and Cooperatives	
Department of Fisheries	The main function of this Department is to implement fisheries and related legislation in order to conserve and manage fisheries resources for sustainable use and for responsible fisheries. The Department also conducts and supports research into all aspects of fisheries industry. ⁵

References: ¹ (DASTA, 2005)² (UNEP/GEF South China Sea Project, 2004a)³ (Koh Chang Tourism Information Center, 2005)⁴ (UNEP/GEF South China Sea Project, 2004)⁵ (Office of Environmental Policy and Planning, 2002)

3.2 Physical Features

3.2.1 Location and access

MKCMNP, comprises of forty large and small islands, is located in the Gulf of Thailand within the province of Trat from 10° 38' to 12° 46' North latitudes and 102° 15' to 102 ° 55' East longitudes in the east of Thailand. The south and east sides of the park are adjacent to the border of Cambodia (Innuruk *et al.*, 2001).

Visitors can conveniently drive or take a bus approximately five hours from Bangkok to Trat and from Trat there is another half an hour of onward travel to Laem Ngob which is the port for MKCMNP. Visitors can take a boat or ferry to Ko Chang from three piers: Laem Ngop Pier, Centre Point Pier and Ao Thammachart Pier.

3.2.2 Topography

From over 40 islands of MKCMNP, Ko Chang is the main island which parallel to the Thailand east coast. The appearance of the island is dominated by a mountain ridge that runs along the length of the island. The ridge has made up of numerous peaks, the tallest of which are Khao Lan, Khao Chom Prasat, Khao Khlong Mayom, Khao Salak Phet and Khao Yai, which is the highest peak reaching 743m above sea level (DNP, 2004). The beaches along the east of the island are comprised of mud and rock, whereas the beaches along the west are sand and rock. The majority of rock on the island is igneous, sedimentary and metamorphic. The island geology gives rise to rounded slopes rather than sheer cliffs (Mcquistan *et al.*, 2000).

From the rainfall collected on the mountainous slopes of the island, Ko Chang has a lot of streams and rivers. Because of the high rainfall, these streams are very clean and supply water all year round. The main streams on the island are Klong Son, Klong Ma

Yom, Klong Khangkhao, Klong Bang Bao, Klong Prao, Klong Non Si and Klong Chaiyachet. This combination of mountains and streams produces some stunning waterfalls; the most famous waterfalls are Than Ma Yom, Klong Plu, Klong Non Si, Khiriphet and Klong Nung Waterfalls (Mcquistan *et al.*, 2000; Innuruk *et al.*, 2001a).

3.2.3 Climate

Generally, MKCMNP is divided into three seasons: the rainy season, dry season and summer season. From May to October is the rainy season. It is the time of the Southwest monsoon, whereas the dry season, from November to February, is the time of the Northwest monsoon which cools the temperature down. From March to April is the summer season; the weather is very hot especially in April (DNP, 2004). Temperature figures are only available for Trat, adjacent to the island. The mean summer temperature is approximately 34 degrees Celsius and in the dry season is about 20 degrees Celsius (Vijan, S. 2005. pers. comm., 11 May).

The seas are generally calm, giving perfect conditions for diving and other sea sports. The tidal regime is mixed, ranging from 2.2 to 3.0 m. The oceanic high tides flow in a northeasterly direction with a speed of about 0.5 km/hr, while at low tide the direction is the opposite with the same speed (Innuruk *et al.*, 2001a).

3.3 Biological Value

Mu Ko Chang Marine National Park lies on the edge of the Sunda Platform. As much as 70% of the centre of Ko Chang remains covered by three types of forest: tropical rain forest, mangrove forest and beach forest. Unfortunately, the forests in some other islands in the group have, over the generation, been almost cut down to become cultivated land. Ko Chang represents a remarkably species-rich type of evergreen forest characteristic of Thailand's southeast (Innuruk *et al.*, 2001).

3.3.1 Flora

According to Innuruk *et al.* (2001a), the forest in MKCMNP is occupied by a combination of tropical rain forest, mangrove forest, beach forest and swamp forest. Surveys have recorded 78 species of plants which can be seen in tropical rain forest, such as Yang-Kao (*Dipterocarpus alatus* Roxb.), Kra-bak (*Anisoptera costata* Korth.), Takhian-Yai (*Hopea odorata*), Pa-Oung (*Calophyllum saigonense* Pierre.), Tao-Lank-Dang (*Caryota mitis* Lour.) and Paya-Mai (*Podocarpus neriifolius* D.Don). In the areas where freshwater enters the sea, most mangrove forests species are found such as Kongkang-Baiyai (*Rhizophora mucronata* Poir.), Plong-Kao (*Ceriops decandra* Ding Hou.), Samah-Kao (*Avicennia alba* Bl.), Kongkang-Huasum (*Bruguiera gymnorrhiza* Lamk.) and Taboon-Dum (*Xylocarpus moluccensis* Roem.). They have also found some plants in the beach forest and swamp forest around the villages of Salak Phet, Salak Khok, Klong Son and Klong Prao Bay, the main species are: Huu-Kwang (*Terminalia catappa* Linn.), Kra-Ting (*Calophyllum inophyllum* Linn.), Chompuu-Pa-Mao (*Eugenia grandis* Wight.), Sametdang-Baimon (*Eugenia spicata* Lamk.) and Lam-Jeak (*Pandanus odoratissimus* Linn.f.).

3.3.2 Fauna

In 1992, a wildlife survey record 22 species of mammals present in the National Park. The wild animals that can be normally seen such as the Wild Pig (*Sus scrofa*), Barking Deer (*Muntiacus muntjak*), Stump-tailed Macaque (*Macaca arctoides*), Small Indian Civet (*Viverricula indica*), Eastern Mole (*Euroscapfor klossi*) several species of bats, squirrels and rats (Innuruk *et al.*, 2001a). The list for the park presently numbers 74 species of birds; 61 species are resident. More general sightings consist of the Pacific Reefegret (*Egretta sacra*), Yellow-Vented Bulbul (*Pycnonotus goiavier*), Pacific Swallow (*Hirundo tahitica*), and Oriental Pied Hornbill (*Anthracoceros albirostris*). Migatory visitors to the islands include the Little Heron (*Butorides striatus*), Greater Sand-Plover (*Charadrius leschenaultia*), White-Winged Tern (*Chlidonias leucopterus*), Artic Warbler (*Phylloscopus borealis*) and Barn Swallow (*Hirundo rustica*). Two

common breeding visitors to the islands are the Blue-Winged Pitta (*Pitta moluccensis*) and the Hooded Pitta (*Pitta sordida*), both of which have characteristic whistling calls frequently heard early in the morning and in the evening. In general, migrants include the Blue-Throated Fly Catcher (*Cyornis rubeculoides*), Blue-and-White Flycatcher (*Cyanoptila cyanomelana*) and the Eastern Crowned Warbler (*Phylloscopus coronatus*) (Innuruk *et al.*, 2001a). A survey team found 42 species of reptiles and amphibians. The commonly seen are the Malayan Mud Turtle (*Amyda cartilagineu*), Water Monitor Lizard (*Varanus salvator*), King Cobra (*Ophiophagus hannah*) and several species of snakes. One endemic species found here and nowhere else is the aptly named Ko Chang Frog (*Rana kohchang*) (Figure 3.3) (Mcquistan *et al.*, 2000; Innuruk *et al.*, 2001a).



Figure 3.3: Ko Chang Frog (*Rana kohchang*)

(Source: Digital Library Project, 2005)

Focusing on marine fauna, the sea surrounding the islands has a good variety of hard and soft coral, as well as a particularly variety of colourful soft corals, gorgonian corals, sea anemone and giant clams. The total areas of coral reef are about 16 km² and over 130 scleractinian coral species are recorded with around 40% are live coral (UNEP/GEF South China Sea Project, 2004). UNEP/GEF South China Sea Project (2004) also found that coral reef conditions are fair in the north of Ko Chang, the species including Hump Coral (*Porites lutea*) and Dented Brain Coral (*Symphyllia spp.*) whereas the conditions are poor in the south of Ko Chang and Ko Maak. The Tube Sponge (*Xetospongia sp.*),

Digitate leather Coral (*Sinularia sp.*) and Giant Clam (*Tridacna spp.*) are commonly found in these areas. However, Lee and Chou (1998) state that the most popular snorkelling sites are mainly situated around the small islands in the south of the park, such as Ko Kra, Ko Wai and Ko Rung. In the sea surrounding Ko Kood, coral reef conditions are fair with an abundance of Hump Coral (*Porites lutea*), Favia Coral (*Diploastrea heliophora*), Dented Brain Coral (*Symphyllia spp.*), and Giant Clams (*Tridacna spp.*) (UNEP/GEF South China Sea Project, 2004). In 1998, there had been a high percentage of coral reef degradation due mostly to severe coral reef bleaching phenomenon, but natural recovery is observed (UNEP/GEF South China Sea Project, 2004).

UNEP/GEF South China Sea Project (2004) found that more than 113 species of fishes are recorded in MKCMNP. The economically vital species are: Sweeper (*Pempheris sp.*), Serpenthead (*Channa striatus*) and *Rastrellier nrglectus* (Innuruk *et al.*, 2001a). Common coral reefs fishes such as, Butterfly Fish (*Chaetodon cotofasciatus*, *Chaetodon sp.*) and Angle Fish (*Pomacanthus annularis*) (Innuruk *et al.*, 2001a), however, Mcquistan *et al.* (2000) found that reef fish species in the region are less than the western Gulf of Thailand and the Andaman Sea. There are endangered species of sea cow, dolphin, whale, sea turtle (*Chelonia mydas* and *Eretmochelys imbricata*) and Whaleshark (*Rhincodon typus*) can be seen in the area (UNEP/GEF South China Sea Project, 2004).

3.4 Cultural Values

3.4.1 Cultural sites of Ko Chang

The most famous waterfall on Ko Chang is the Than Ma Yom waterfall (Figure 3.4). The names of many kings and other members of the Thailand royal family have been found on the cliff beside the waterfall. Those names are Phra Chula Chomklao Chaoyuhua, the King Rama V (1876), Phra Monggutklao Chaoyuhua, the King Rama IV

Chaoyuhua, the King Rama V (1876), Phra Monggutklao Chaoyuhua, the King Rama IV (1922), Phra Pokklao Chaoyuhua, the King Rama VII (1927) and the Queen of Rama VII (1973) (Innuruk *et al.*, 2001).

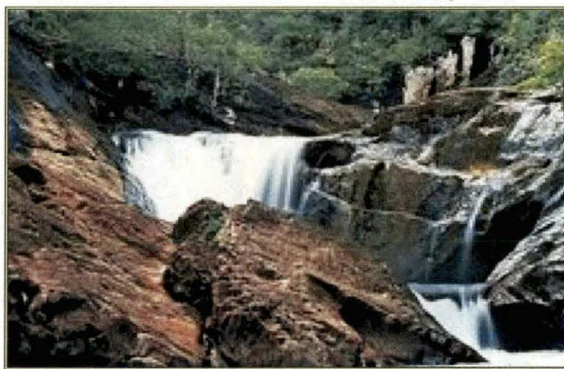


Figure 3.4: Than Ma Yom waterfall

(Source: Charlie, 2004)

Innuruk *et al.* (2001) reports that an area to the south of Ko Chang is famous in Thai history as the site of the Ko Chang Naval Battle. In 1941, during the Indochina War, French troops based in Cambodia invaded Thailand via Ko Chang. They tried to take over Ko Chang but, after an intense battle, and the loss of ships and men on both sides, the Thai troops were victorious, and drove the French squadrons out. A Buddhist merit-making ceremony is dedicated to the deceased sailors and officers of the Royal Thai Navy, and a memorial day is held every year on 17 January (Innuruk *et al.*, 2001). The Naval War Memorial is situated on Ko Chang beach (Figure 3.5) and Laem Ngob. The former includes a memorial monument and shrine, and acquaints people with the details of this brush with the enemy (Ko-Chang.info, 2004). The memorial on Laem Ngob consists of the figure of Krom Luang Chumpon Khet Udomsak turning his face to Ko Chang, and a warship-shaped museum building, where an exhibition on the historic naval war at Ko Chang is on display. People from Trat and visitors from elsewhere frequently go to pay their respects at this memorial, and also use it as a place for recreational activities.



Figure 3.5: The Naval War Memorial in Ko Chang

(Source: *Ko-Chang.info*, 2004)

3.4.2 Community and economic value

Mu Ko Chang local administration is separated into two sub-districts: Ko Chang and Ko Kood. In 2002, a total population of 6,724 was recorded (UNEP/GEF South China Sea Project, 2004). Ko Chang sub-district is the main island which is divided into two sub-districts: Ko Chang and Ko Chang Tai (the north and the south) (Figure 3.6) which are managed by Tambon Administration Organisations (TAOs). There are four villages in Ko Chang sub-district, include Ban Klong Non Si, Ban Dan Kao, Ban Klong Son and Ban Klong Prao and five villages in Ko Chang Tai which are Ban Bang Bao, Ban Salak Phet, Ban Jek Bae, Ban Salak Kog and Ban Salak Phet Nue (Koh Chang Tourism Information Center, 2005). TAOs provide local people with the opportunity to voice their opinion on the management plan for natural resource conservation.

A population of 4,773 was recorded for Ko Chang sub-district in 2002, and average population density was about 30.83 people per square kilometer (UNEP/GEF South China Sea Project, 2004). There are schools, temples and health centre services in those two sub-districts. Most people have graduated from primary school and a few finished from high school or higher academic level (Innuruk *et al.*, 2001a). Ko Kood sub-district consists of Tambon Ko Kood and Ko Maak which is managed by Tambon Councils. There were 1,951 people recorded in Ko Kood sub-district in 2002, and average

population density was about 12.02 people per square kilometer (UNEP/GEF South China Sea Project, 2004).

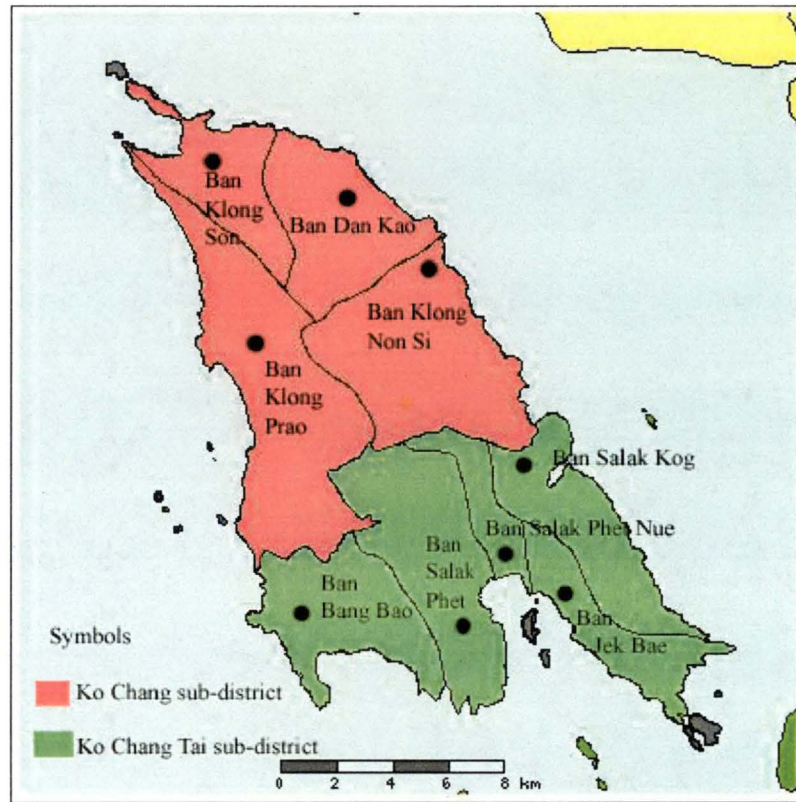


Figure 3.6: Map of the villages in Mu Ko Chang

(Source: adapted from Koh Chang Tourism Information Center, 2005)

The major occupations of local people are in agriculture and fisheries. Important commercial plants are coconut, pomelo, mangosteen, rubber tree, rambutan and durian. Fisheries in Ko Chang are both small-scale, in which local people use fishing gear such as nets and gill nets; and commercial-scale fisheries such as anchovy trawlers, squid traps, inland farming and coastal aquaculture.

The average household income for local people is approximately 75,000 baht per year (\$AUD 2,500) Income varies from village to village depending on environmental conditions (Innuruk *et al.*, 2001a).



Figure 3.7: Bang Bao fishing village

(Photos by Nitjanate)

3.5 Recreation and Tourism Value

MKCMNP is one of the most popular recreational spots in Thailand for visitors because it can be easily accessed by a short sea voyage free from the strain of traffic congestion. Currently, each sub-station except Bang Bao provides campsites for visitors, although there is only a National Park guest house located in Than Ma Yom sub-station. The headquarters and all sub-stations on Ko Chang are located in close proximity to the various activities for visitors, such as trekking, nature trail study, waterfall traveling, wilderness experience, nature appreciation, snorkelling and SCUBA diving.

MKCMNP has a variety of beautiful islands and beaches, waterfalls, as well as scenic cliffs that are favoured viewing points over the individual beaches, bays and adjacent islands. The DNP lists 37 attractive areas on MKCMNP and Ko Kood, most of which are natural views and beaches. There are also several historical and cultural sites, such as the Ko Chang Naval Memorial (Figure 3.5) and Than Ma Yom waterfall (Figure 3.4) (Innuruk *et al.*, 2001a).

3.5.1 Tourists attractions and activities

The major islands which attract a large number of tourists are Ko Chang, Ko Rang, Ko Wai, Ko Lao Ya, Ko Maak and Ko Kood. The background details of those islands are as follows.

3.5.1.1 Ko Chang

Ko Chang is the main island of MKCMNP. This island is where people can enjoy swimming, both in the sea and in waterfall pools. Of the five waterfalls in the park, the most prominent and accessible is Than Ma Yom. It is only 400 metres from the park headquarters. Other waterfall attractions to visit are Klong Non Si, Klong Nung, Klong Plu and Khiriphet (Figure 3.8). In addition, Ko Chang is also famous for its long beaches, for example, White Sand Beach (Figure 3.9). This beach is one of the most stunning spots on the island at sunset, and it is considered safe for swimming and diving (Koh Chang Tourism Information Center, 2005). On the west coast of the island, Klong Prao Beach is a beautiful beach with several suitable activities, such as camping, fishing and swimming (Charlie, 2004). Further south from Klong Prao Beach, Kai Bae Beach (Figure 3.9) is an attraction for international visitors, being a good spot for swimming and sunbathing and also suitable for outdoor activities (Koh Chang Tourism Information Center, 2005).

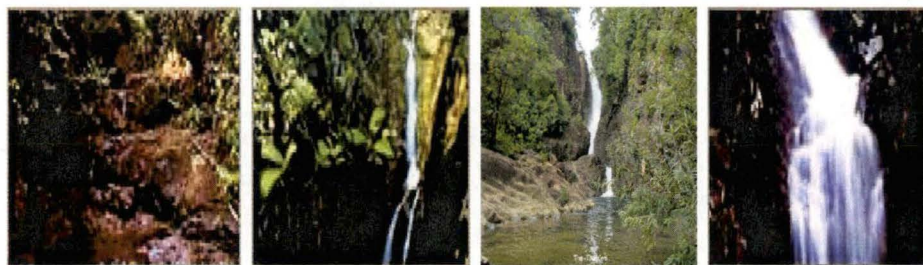


Figure 3.8: Klong Non Si, Klong Nung, Klong Plu and Khiriphet waterfalls

(Source: DNP, 2004)



Figure 3.9: Sunset at White Sand Beach and Kai Bae Beach

(Photos by Nitjanate)

The most popular activities for tourists at Ko Chang include trekking on foot or by elephant, kayaking or canoeing, cycling or motorcycling, trekking, SCUBA diving, fishing and squid catching.

3.5.1.2 Ko Lao Ya

Ko Lao Ya is one of the most famous sites for SCUBA diving. It takes about 2 hours by ferry from the piers at Laem Ngop on the mainland or half an hour from Bang Bao fishing village by boat. On the island, there are many resorts located on beaches with clear water and beautiful coral reefs.

3.5.1.3 Ko Rang and Ko Wai

On Ko Rang and Ko Wai, bird's nest harvesting is carried out by a contracted company. The largest coral colonies in Mu Ko Chang are located here and perhaps the most popular snorkelling sites (Figure 3.10) (Innuruk *et al.*, 2001a). Small schools of porpoise are also often seen in these areas. There are no facilities on Ko Rang but a good campsite is located near Ko Rang sub-station. The approved activities for visitors on Ko Rang are camping, snorkelling/SCUBA diving and beach activities such as sunbathing.

The coast of Ko Wai is mainly rocky with beautiful offshore coral reefs. Well established accommodation is available for tourists, in the form of resorts.

3.5.1.4 Ko Maak

Ko Maak is a small island located between Ko Chang and Ko Kood. Although most of the land is used for growing coconuts, many beautiful beaches and coral reefs can be seen there. The most suitable time to visit this island is from November to April (Koh Chang Tourism Information Center, 2005).



Figure 3.10: Snorkelling and underwater at Ko Rang

(Source: Charlie, 2004)

3.5.1.5 Ko Kood

Ko Kood, one sub-district of Mu Ko Chang, is the second largest island in Mu Ko Chang, famous for its natural wealth of beaches, waterfalls, and coral reefs. Because of the monsoon, travelers are advised not to visit Ko Kood from June to September. Its interesting sites include Klong Chao waterfall (Figure 3.11), which is a popular three-level waterfall running throughout the year. Most visitors prefer to bathe at the ground level. Along the way to the waterfall, there is mangrove forest along both sides of the Klong Chao River (Innuruk *et al.*, 2001a). Klong Yai Kee Beach is situated on the west of Ko Kood. On the way to the Yai Ki River, are the Klong Yai Ki falls, which are

similar to Klong Chao falls, but the Klong Chao waterfall is regarded as being more beautiful (Koh Chang Tourism Information Center, 2005). In the northeast of Ko Kood is Ko Mai Si Lek; an island around which coral reefs can be found. While the west coast is suitable for swimming, the east coast is occupied by a pearl farm operated by Mook Thai Co. Ltd., which opens for visitors with the caretaker's approval (Koh Chang Tourism Information Center, 2005).

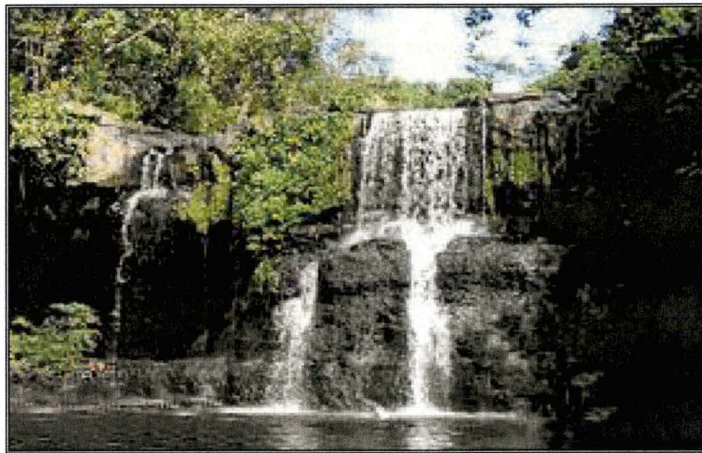


Figure 3.11: Klong Chao Waterfall

(Photo by Nitjanate)

3.5.2 Tourism trends and management

MKCMNP has promoted their own places by producing information brochures and a variety of booklets for ecotourism marketing. In addition, TAT campaigns on special events such as Unseen Thailand, the monthly Tourism Magazines, and a variety of websites promote the park, so that it has become more well-known, both nationally and internationally. Other promotions are featured in mass media such as television, radio, newsprint, and in-flight magazines. Due to the promotion of tourism development on Mu Ko Chang by the Thai government, the tourism industry grew rapidly in 2000. Since 2001, Mu Ko Chang has been selected as a first model for sustainable tourism development by Thai government to turn Ko Chang and its satellite island into a world-

class tourist island (DASTA, 2005). The number of tourists in the park had increased steadily from 274,354 in 2000 to 290,877 in 2002, producing an income of about 4.31 million baht per year (about \$AUD 140 thousand) to the park (DNP, 2003). However, the number of tourists dropped significantly in 2003 due to the Severe Acute Respiratory Syndrome (SARS) epidemic as outlined in Chapter 2. In 2004, there were 147,828 local tourists and 24,570 foreign tourists (DNP, 2003).

Entrance fees are charged at most areas administered by the National Park service. For domestic visitors, MKCMNP charges an entrance fee of 20 baht^{*} per adult and 10 baht per children. For international visitors, it charges 200 baht for adult and 100 baht for children. MKCMNP provides camping facilities. Camping fees at the campgrounds costs 150 baht for two-person tent, 400 baht for an eight-person tent, and 20 baht per person when camping in your own tent. The campgrounds have a fee collection station near the campground entrance.

In the coastal areas, especially well-known beaches, such as White Sand Beach, Klong Prao Beach and Kai Bae Beach, many types of accommodation are built to support the mushrooming tourism industry. The majority of accommodation owners come from outside Ko Chang. In addition, there are diving businesses, tourist boat businesses, souvenir shops, restaurants and tour businesses (UNEP/GEF South China Sea Project, 2004a). Although the increasing number of tourists can bring economic benefits to communities, they can generate some negative impacts and cause deterioration of the park. Therefore, the main challenge for managing tourism at Mu Ko Chang is to find the appropriate balance between tourist's expectations, developer's ambitions and environmental conservation.

Currently, the government has invested 900 million baht (about \$AUD 30 million) (Samabuddhi, 2005) to Designated Area for Sustainable Tourism Administration

^{*}
1 dollar = 30 baht

(DASTA) to draft the tourism development plan to turn Ko Chang into a world-class eco-village destination; establish Ko Maak as a place for diving and other water sports; and develop Ko Kood for exclusive tourism (Waeoklaihong & Suksamran, 2005). These developments are focusing on “sustainable management” which generates high-yield revenue tourism and brings economic benefits for local communities, at the same time protecting the land resources and marine resources (DASTA, 2005). For effective sustainable tourism management, the cooperation with other stakeholders is required. The main key agencies of DASTA are Tourism Authority of Thailand (TAT) and Ministry of Tourism and Sport (MOTS) (DASTA, 2005). However, it is important that they work with MKCMNP and local communities to ensure local cultures, economics and environments are not put at risk.

This study will enhance the understanding of the economic, socio-cultural and environmental impacts of the park and associated tourist activities. This information will assist the agency to draft a tourism development strategy for Ko Chang and its satellite islands.

3.6 Current Management Issues Related Tourism

There are several issues related to tourism which affect MKCMN such as fisheries, ecosystem degradation, land encroachment, garbage collection and wastewater, and agency conflict.

3.6.1 Fisheries

Fishing is obviously an important issue in MNPs. All fishers need a license to run their business; however, many fishers on Ko Chang do not have one (Innuruk *et al.*, 2001a). Illegal and inappropriate equipment for fishing is used and has had a considerable impact on the marine environment. For example, the use of fine fishing nets damages

marine habitat such as seagrass which can destroy various marine animals' food sources. The use of fine nets can also damage coral reefs (Sethapun, 2000). Some studies have found that the coral reefs surrounding Ko Wai and Ko Rang have been damaged due to anchorage of fishing boats (Jaisa-ard, S., 2005. pers. comm., 11 May).

The growth of tourism activities in MKCMNP has helped reduce the illegal fishing and increased the income of local communities (Sethapun, 2000). For instance, many fishers from Bang Bao village have turned their fishing boats into tour boats (Figure 3.7), taking tourists to dive, snorkel, and fish. Another use has been the transport of tourists and local people to the mainland.

3.6.2 Ecosystem degradation

For coastal and marine ecosystems, mangrove forests, coral reefs and seagrass beds are complex ecosystems with rich biodiversity, and are the most influential factors for fish spawning, recruitment and nutrition. Mangrove forests are nursery grounds for commercially significant fishes and prawns that live in surrounding habitats. Unfortunately, clearing of mangroves for tourism development has been a serious issue at Ko Chang, particularly in the surrounding area of Klong Prao and Chai Ya Chet. Furthermore, a road constructed has caused die-off of mangroves (Figure 3.12).



Figure 3.12: Mangroves destroyed by road construction

(Photo by Nitjanate)

The increase in shrimp farming also damages the existing mangrove forests, and wastewater discharge from the farm probably degrades the marine ecosystem (Figure 3.13) (Samabuddhi, 2005a). Since tourism development has grown quickly, this will cause further damage to coral reefs. It is impractical to prevent damage at locations where a pier, a restaurant, resorts and public utilities are to be built. (Tourism Investigation and Monitoring Team, 2002). In addition, lack of awareness of diving boat and poor regulations for snorkelling and SCUBA diving can also damage coral reefs.

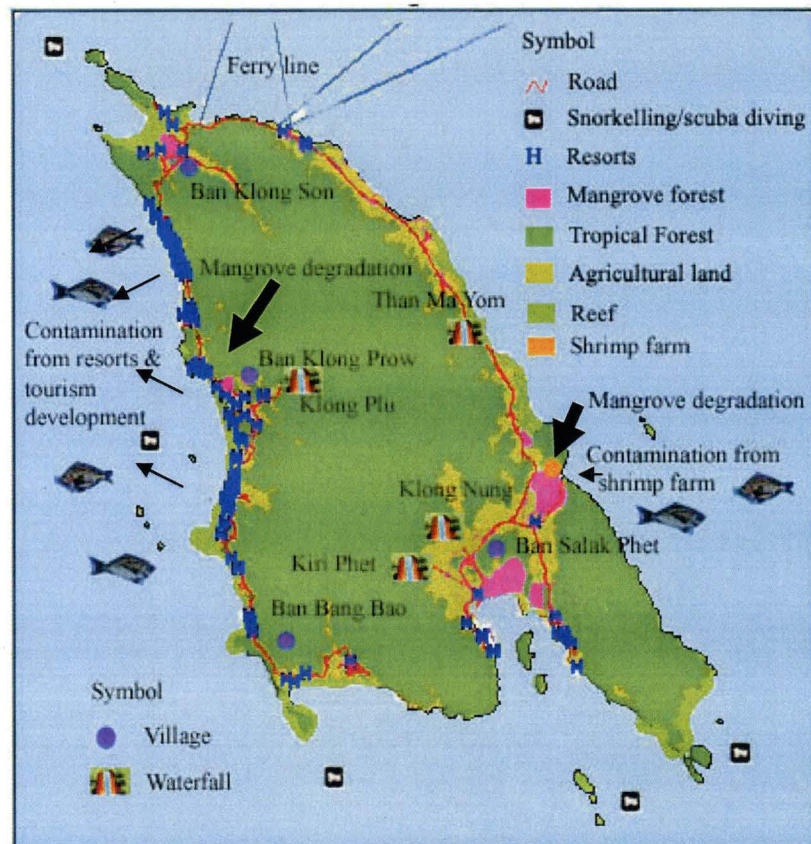


Figure 3.13: Ecological degradation from tourism developments and shrimp farms
(Developed by the author)

3.6.3 Land encroachment

Private sectors tourism development on Ko Chang, but outside the park boundary, cannot be controlled, particularly on the west coast where the most tourist activity takes place. This has the potential to affect the National Park areas especially the Primitive Zone and Conservation Zone (Table 3.1). Before Mu Ko Chang was selected as tourism destination, there were about 50 resorts on Ko Chang (Innuruk *et al.*, 2001a). After that, the number of resorts has increased to approximately 140 resorts, most of them operating without a license and some are encroaching on the National Park areas, especially along beaches and near mangrove forests (Tourism Investigation and Monitoring Team, 2002; Tansubhapol, 2005). One resort holder surrounding Klong Prao not only cleared mangroves in the National Park area, but also changed the flow of a public pond. This rapid growth of resorts and encroachment is having major impacts on both terrestrial and marine ecosystems. Grandpa Bat (local person on Ko Chang) said that

the peaceful island was being threatened by the presence of investors who had tried to swallow the community. The abundance of natural resources on the island had gradually depleted as vast areas of forest were destroyed and the number of wild animals fell rapidly in 6-7 years. The canals and waterfalls are drying up. The water level drops sharply during the dry season and this year the situation is critical. It will get worse as investors continue to expand their resort

(Hutasingh, 2005).

A provincial officer also said that “more public land was being encroached on as private individuals and companies expected land prices to rocket after the island was fully developed” (Tansubhapol, 2005). The conflicts are more complicated by the significant economic benefits gained from tourism businesses using the park.

3.6.4 Garbage collection and wastewater

The increasing number of tourists has greatly increased the amount of garbage and wastewater on the islands and also brought about fresh water shortages during the summer. As yet, none of these issues have been effectively managed. In addition, several

coral reef species on Mu Ko Chang like Hump Coral (*Porites lutea*) and other marine life such as Giant Clam (*Tridacna spp.*) and Sea Urchin (*Diadema setosum*) have been affected by the organic and inorganic contaminations in the seawater from tourism development, and materials from community wastewater (UNEP/GEF South China Sea Project, 2004a). The main organic waste problems come from faecal bacteria, oil, nutrients and litter originating from some resort areas along the coast (Figure 3.13). Declining water and sediment quality has led to outbreaks of toxic algae (UNEP/GEF South China Sea Project, 2004a). Moreover, coral reefs, fishes and marine animals have been slowly deteriorating as a result of deposition of suspended material from shrimp farms and garbage from households and tourists (Samabuddhi, 2005a; UNEP/GEF South China Sea Project, 2004a).

3.6.5 Agency conflict

Many conflicts still occur between government agencies, the private sector, and local communities. An example of conflict between agencies and local government is found in the refusal of the TAOs to collaborate with DASTA because they think that this agency is a threat to their power (Samabuddhi, 2005). Of conflict between park managers and local people, for instance, the latter have said that DASTA and MKCMNP have formulated the tourism development master plan without their agreement and consideration of public opinion (Samabuddhi, 2005b). Moreover, conflict between park managers and visitors often occurs in the park areas because the demands of tourist activities impact on the park. For example, some tourists often go fishing in the prohibited areas within the park (Jaisard, S., 2005. pers. comm., 11 May).

3.7 Conclusion

This chapter has provided readers with the necessary background on the characteristics and management of the MKCMNP and its surrounds. The implications for tourism

development in the park and current issues related to tourism which pose challenges for park managers were discussed. Designated Area for Sustainable Tourism Administration (DASTA) now has the responsibility to draft the tourism development plan to turn Mu Ko Chang into a world-class destination for tourism. The aim of this tourism development is focusing on sustainable tourism management to generate high-yield revenue tourism and bring economic benefits for local communities, while at the same time protecting the land and marine resources (DASTA, 2005). The next chapter will describe the methods used to collect data that can inform sustainable tourism development in the area, and contribute to the achievement of park management objectives.

CHAPTER 4: RESEARCH DESIGN

This chapter outlines the population sample and methodology used in the study, as well as the process used to administer the survey and conduct the interview.

4.1 Populations and Sample Selection

The first step of developing the survey was to identify the target population (McGuirk & O'Neill, 2005). Given the research objectives, background information and understanding of tourism development in MKCMNP (Chapters 1, 2 and 3), ideally this research should seek relevant information from MNP managers, tourism operators, local communities and visitors. However, information could not be obtained from all these groups because of limitations on the study time, funding and access to potential participants. This research concentrated on those stakeholders who were most accessible to the researcher: tourists and the local park manager.

Ideally, the visitor survey would have been done on a random sample of visitors, taking into account both temporal (season, time of stay, holiday periods) and spatial (cross-section of the major sites). However, practical limitations again ruled out such a strategy. The sampling strategy used could be most accurately defined as a convenience sample. To ensure the survey sampling effort was as random as possible under the circumstances, surveys were administered in proportion to the number of tourists at a site so, if more tourists were present, more questionnaires were distributed. Sampling intensities were also higher at peak times on weekends.

The limitation of the sampling strategy was that it was impossible to ensure that sampling intensity would be entirely representative of the visitor population in the MNP.

Therefore, the sample may be biased with respect to sampling intensity at different sites and times in the MNP.

4.2 Methodology

For the visitors survey, both quantitative and qualitative approaches were employed and for MNP manager interviews, my approach was qualitative because evaluating the efficacy of the MNP management processes required detailed and in-depth knowledge.

Basically, a quantitative approach involves the use of methodological techniques that represent human experience in numerical groups, whereas qualitative approaches provide description in detail and a subjective analysis of the factors beneath various behavioural patterns (Marvasti, 2004). Babbie (2002) recommends that questionnaires are the best method to collect data for describing a population which is too large to observe directly. Surveys enabled the researcher to measure attitudes in a broad population (Babbie 2002; McGuirk & O'Neill, 2005). Questionnaires are useful for gathering original data about people, behaviour, attitudes, opinions, and awareness of events (McLafferty, 2003 as cited in McGuirk & O'Neill, 2005). Human geographers often use a qualitative research approach because it assists the researcher to understand the ways people experience the same places, events and different processes (McGuirk & O'Neill, 2005). Furthermore, qualitative research draws on the methods that reveal and interpret the complexities, context and significance of their life (Eyles & Smith, 1998 as cited in McGuirk & O'Neill, 2005). Careful research design is a significant component of ensuring rigour in qualitative research (Gould, 1988 as cited in Bradshaw & Stratford, 2005).

Babbie (2002) stated that because each method has different strengths and weaknesses, and that research design should employ more than one research method. Triangulation is

simply using a combination of methods to test the research in the same issue with the same unit of analysis. The concept of triangulation is suggested to use as a suitable checking process by several authors such as Marvasti (2004), Creswell (2003) and Bradshaw and Stratford (2005).

In this project, two ways of triangulation were engaged. The first refers to the mixed use of qualitative and quantitative approaches in the visitor survey and interview. The data were collected and analysed with a focus on the quantitative approach in the questionnaire survey in order to gain data on the point of use, visitors' behaviour, values and attitudes toward future development of MKCMNP, whereas a qualitative approach was also included through the use of some open-ended questions to assist understanding.

4.2.1 Ethical clearance

This research proposal was submitted to the University of Tasmania Human Research Ethics Committee to assess ethical issues associated with questionnaires and key informant interviews. As a result of this process adjustments were made to the interview consent form and survey information sheet.

The questionnaire procedure consisted of an Information Sheet (Appendix A), which explained the background to the project, general purpose of the project, anticipated outcomes, ensured confidentiality, invited participation in the study, provided contact details of the researcher and referred to ethical approval from the University of Tasmania. All visitors agreeing to participate in the survey were provided with this Information Sheet. They were also informed that they were free to withdraw from the survey once they had read the Information Sheet, or at other time.

A combined Information Sheet and a Consent Form (Appendix B) were developed for the key informant. The informant was asked to read and sign the document before

participating in the study. The key informant was advised that his involvement was voluntary; he was free to withdraw from the interview once he had read the Information Sheet, or at any time during the interview. He was assured that the interview information would be treated as confidential.

4.2.2 Site observation

Visitor observation was undertaken to compliment the research and assist in interpreting the visitors survey findings (Kern, 2005). The site observation was undertaken to gain familiarity with the park and helped to establish the accuracy of information provided by visitor survey participants and determine how visitors actually behaved in the surrounds of MKCMNP. The selected site of the survey was developed after I observed visitors during the first time on 21st to 25th January 2005. The site observation of relevant issues related to tourism in the park was explored in order to ensure that the information was as up to date as possible. Some of the results of site observations have already been reported in Chapter 3.

4.2.3 Questionnaire design

A questionnaire was selected as the best method to obtain a cross-section of visitor responses within constraints imposed by funding and time. The survey needed to be simple in format to minimize the rejection rate and maximise the reliability of responses. The short length of the questionnaire also interfered minimally with the visitor's enjoyment of their activity. To accommodate the range of national and international tourists at MKCMNP, the questionnaire was translated from English into Thai. The English version of the questionnaire can be found in Appendix A.

The contents of the questionnaire were divided into five sections that dealt with specific topics relevant to the research questions: knowledge of the park; transport and group size; details of the trip; park management; and information about participants. In

addition, a comment section on tourism at the park was provided at the end of questionnaire.

Knowledge of the park

The first main section concern visitors' knowledge of MKCMNP and associated items. This section was divided into three sub-questions.

Question 1.1: *Information resources about MKCMNP*. A closed question was used to ask visitors to select possible types of categories, rank items as an indicative measure of opinions. The categories were exhaustive i.e. covering every possible category, with 'other (please specify)' alternative, allowing for other responses to be accommodated.

Question 1.2: *Number of visits to MKCMNP*. This question was presented so as to find how often the park was used. A closed question was appropriate for this question.

Question 1.3: *Season*. This question was a closed item and asked visitors to select the seasons from categories.

Transport and group size

The second section identified visitors' means of transportation and traveling companions. It was separated into two sub-questions.

Question 2.1: *Means of transportation* and Question 2.2: *Companions traveling with visitors*. These closed questions asked visitors to choose categories and rank items. The items categories covered all major possible responses, with 'other' categories, allowing additional possibilities to be accommodated.

Details of the trip

The third section dealt with visitors' behaviour toward the trip which was linked to the length of time, accommodation, places to visit and activities in which visitors were involved. It was divided into four sub-questions.

Question 3.1: *Length of stay*. This question was presented in an effort to obtain an indication of time spent at the park.

Question 3.2: *Accommodation*. This question was directed to visitors who stayed in the park overnight. A closed question was used to ask visitors to select possible types of accommodation in the park, rank items as an indicative measure of opinions. The categories were wide-ranging with an 'other' alternative allowing for other responses to be accommodated.

Question 3.3: *Places visited*. This question was separated in to three site types: islands, beaches and waterfalls. A closed question format was appropriate for this question and all alternatives were covered.

Question 3.4: *Activities*. This question was presented to obtain an indication of activities in which visitors were involved. This question (Q3.4a) was a closed question and all activities categories were exhaustive and exclusive, with an 'other' alternative allowing for other responses to be accommodated. After that, an open question (Q3.4b) was used for listing the most enjoyed activities. The open-ended question was used to ensure that only the activities listed in Q3.4a would be written in Q3.4b. Finally, an open-ended question (Q3.4c) was provided to accommodate explanatory comments from each visitor.

Park management

The fourth section related to education of marine conservation and the park officers on duty. It also covered visitors' attitudes and values regarding on the importance of the park objectives, current the park management performance, and visitors' expectations toward services and facilities at the park. This section was divided into five sub-questions.

Question 4.1: *Information on marine conservation*. This closed question asked visitors to choose a point on a scale as indicative of the intensity with which an opinion was held.

Question 4.2: *National Park officers on duty*. This question was a dichotomous item that assessed whether participants observed a National Park officer on duty.

Question 4.3: *Importance of the park objectives*. This question listed the park objectives and asked visitors to rate their attitudes to the importance of the park objectives on a

scale of 'do not know', 'not important', 'slightly important', 'important' and 'very important'.

Question 4.4: *The achievement of current park management*. This question also listed the park objectives and asked visitors to rate their attitudes with the achievement of current the park objectives on a scale of 'do not know', 'not being achieved', 'partly achieved' and 'fully achieved'.

Question 4.5: *Facilities*. This question listed the facilities and asked visitors to rate their attitudes toward the level and type of facilities that should be provided in the park on a scale of 'less than at present', 'same as at present' and 'more than at present'.

Information about participants

The last section concerned background information related to socio-demographic characteristics. Question 5.1: gender, Question 5.2: age, Question 5.3: occupation, and Question 5.4: origin. The background information used closed questions except for age which allowed the participants to select from two or more fixed categories.

4.2.4 Administration of questionnaire

The survey was administered to tourists at MKCMNP from 23rd to 30th March 2005 (Wednesday to Wednesday). The weekends were proved to be the days that people visited the area the most. In the surveying procedure, for Thai residents, the Thai information sheet was handed out and the questionnaire was presented and filled in, while for international visitors, an English version of both documents were distributed. All questionnaires were collected by the researcher as soon as completed.

The questionnaire was delivered face-to-face, because personal contact with respondents tends to motivate them to participate and provide the opportunity for respondents to ask when they would like to be clarified (McGuirk & O'Neill, 2005). To introduce the survey to visitors, individuals were approached by the researcher, and the survey was

described verbally in either English or Thai. If the approached individual was not proficient in English or Thai, they were unable to complete the survey. Pens and pencils were distributed to visitors agreeing to complete the questionnaire. The researcher was present nearby respondents as they completed questionnaire. In case of any misunderstandings respondents were encouraged to ask the researcher to clarify the intent or meaning of the questions. Nonetheless, most respondents did not have any enquiries.

Survey booklets were distributed at Ko Chang, Ko Wai, Ko Rang, Ko Maak, Ko LaoYa and Ko Kood because these islands have been attracted a large number of tourists. On Wednesday 23rd the questionnaire surveys were distributed at Ao Tham Ma Chart pier while visitors waiting for ferry going back to Trat town. On Thursday 24th the questionnaire surveys were distributed at Ko Wai and Ko Lao Ya, while visitors were enjoying their activities on the beach, sitting on a boat, and waiting for food in Ko Wai Pakarang Resort restaurant. On Friday 25th after an interview with the head manager at MKCMNP office, the questionnaire surveys were distributed at Centrepont pier while visitors were waiting for a ferry going back to Trat town. From Saturday 26th the surveys were handed out at Ko Chang on the White Sand Beach, Klong Prao Beach and Kai Bae Beach while visitors were sitting or lying on the beach. On Sunday 27th the surveys were distributed at Bang Bao fishing village in the morning while visitors were waiting for taxi and I proceeded to hand out more questionnaires at Long Beach in the afternoon. On Monday 28th the surveys were handed out to visitors on a tour boat which was taking people to Ko Rang and while visitors were doing their activities on the beach. On Tuesday 29th the surveys were distributed at Ko Maak while visitors were enjoying lying on the beach and on a tour boat which was taking people to diving. On Wednesday 30st the surveys were distributed at Ko Kood while visitors were enjoying sunbathing on the beach and on a tour boat which was taking people to diving. The surveys were also handed out on the ferry while it was returning to Trat town.

4.2.5 Structured interview with key informant

The second main data collection method involved conducting a structured interview with the manager of MKCMNP. Interviewing is one of the best methods of gaining access to information about attitudes, events, and experiences, and also be used air alternative opinions (Dunn, 2005). The majority of questions in the interview were open questions.

The manager of MKCMNP was approached by phone and asked if he would agree to participate in the research interview. An appointment was made for a face-to-face interview at his office on 25 March 2005 (Friday). The interview schedule lists various topics covered in the interview (Appendix B).

Questions 1, 2 and 3, presented as descriptive primary questions, asked about manager's role, responsibility and experience related to the park management. Questions 4 and 5 asked about sustainable tourism. Questions 6 and 7 were related to ecotourism and ecotourism activities. Question 8 dealt with problems of tourism management. Question 9 asked about tourist information that was provided by the park agency. Question 10 asked about tourism benefits in the MNP related to local community, country, visitors and the MNP. The last question asked for comments on the future development of tourism at MKCMNP.

The list of questions and the Information Sheet were presented with brief summary of the project, and a Consent Form. Eleven questions were asked in Thai in the same order, as the structured interview, and the informant also offered his own ideas and opinions. The interview took approximately one hour and was tape-recorded and then transcribed.

4.2.6 Data analysis

The visitor survey was administered using both quantitative and qualitative styles of questions, and two styles of data analysis were adopted. Data gained from quantitative

questions were transferred into a computer program, and analysed with Microsoft Excel and Statistical Package for the Social Sciences (SPSS). The majority of the data were illustrated by tables and graphs which were represented by their frequency, whereas some of the data were analysed to compare responses between participants from Thailand and international visitors. Spearman correlations were used to test for any significant relationships between key variables of interest. Data gained from open-ended questions were summarised manually, while some were represented as percentages. The results from these analyses are presented in Section 5.1.

Data obtained from the interview were translated into English and summarised in question order. Main ideas of the interview transcription were extracted and reported, and these are presented in Section 5.2.

4.3 Conclusion

This chapter has provided an outline of the population sample and an overview of methodology used to administer the survey and conduct the interview. The concepts of quantitative, qualitative and mixed method approaches were briefly described. The triangulation or mixed method approach was adopted for the research: a detailed structured interview with MKCMNP manager and a survey of visitors on the same topic were used to provide complementary data on topics of interest. The results of the survey and key informant interview are to be presented in Chapter Five.

CHAPTER 5: RESEARCH RESULTS

This chapter presents the results of the survey conducted in Mu Ko Chang Marine National Park on 23-30 March 2005, and the key informant interview conducted on 25 March 2005.

The survey and key informant interview sections (Sections 5.1 and 5.2 respectively) identify the most significant results. Survey data are divided into sub-topics, beginning with the visitors' background information then other topics presented in the same order as questions were asked: knowledge about the park, transportation and the group size of visitors, details of the kinds of trips that visitors made, park management, and general comments. Results of the interview with the key informant cover eleven major topics. Appendix A contains the visitor questionnaire and Appendix B presents the interview questions.

5.1 Visitor Survey Results

The survey questions are separated into five sections. The first section deals with visitors' background information including gender, age and occupation. The second covers their knowledge about the park (including information resources, number of visits and seasons). The third section outlines transportation and the group size of visitors in relation to means of transportation and companions traveling with visitors. The fourth section deals with details of the kinds of trips that visitors make including length of time, accommodation, places to visit and activities. The fifth section covers park management in relation to information on marine conservation, National Park

officers on duty, importance of park objectives, the achievement of current park management, and facilities. The section ends with comments from park visitors.

Of the 200 individuals approached, 26 (13%) were unable to complete the survey due to language barriers (some tourists only spoke Spanish, Swedish, and German, for example). An additional 12 individuals (6%) refused to complete the questionnaire. A total of 162 (81%) of those asked to participate were able and willing to complete the questionnaire.

5.1.1 Information about visitors

Data from questionnaire responses reveal that there were three main groups of participants in this study: local residents, Thai tourists and international visitors. Of the 162 participants, 82 were Thai (50.6%) including 6.2% of local residents from MKCMNP and Trat province and 80 were foreign visitors (49.4%). Most (89%) of international visitors with came from Europe, 8% from America, and 3% from Australia.

Gender of visitors

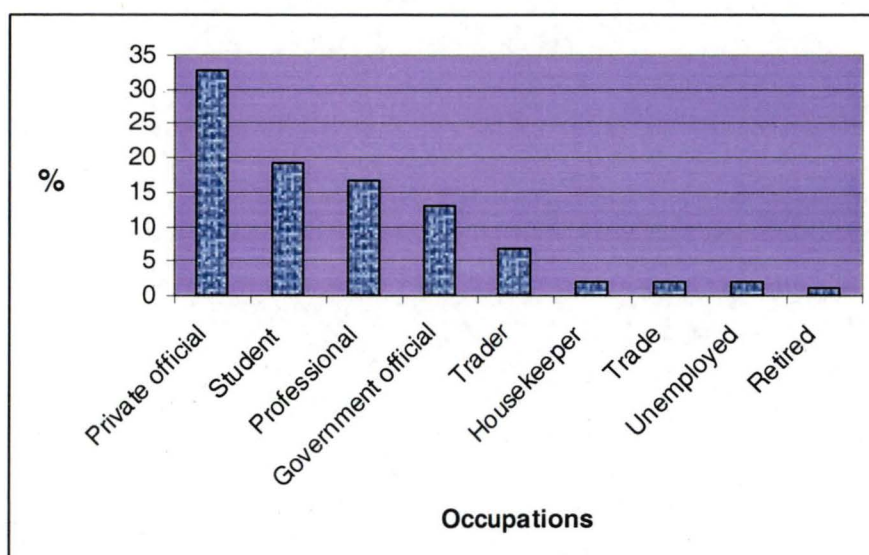
Of the survey respondents, 45.1% were male and 54.9% were female (n=162).

Age of visitors

The largest cohort of visitors were aged 21-30 years (46.9%) (Table 5.1). Others were spread evenly across the age groups.

Table 5.1: Age groups of questionnaire participants (n=162)

	<20 years old	21-30 years old	31-40 years old	41-50 years old	>51 years old
Visitors	4.9%	46.9%	27.8%	11.1%	9.3%

Figure 5.1: Occupation of questionnaire participants (n=162)

Occupation

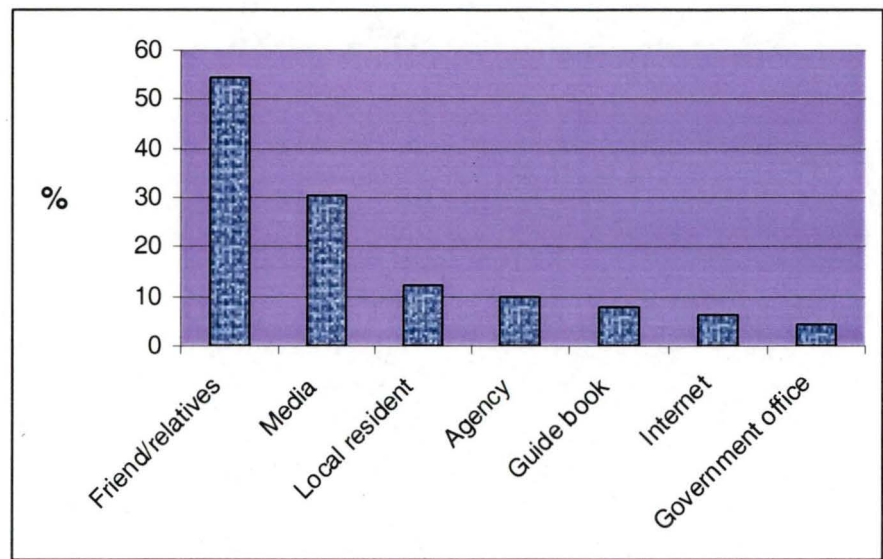
According to the survey, the majority of all participants (32.7%) worked in the private sector. More than 10% of participants visiting Mu Ko Chang were government officials, students and professionals. The percentages of participants who were unemployed, housekeepers, traders and retired persons were identical at 2% each (Figure 5.1).

5.1.2 Knowledge of the park

Information resources about MKCMNP

As Figure 5.2 shows, approximately half of the participants knew about MKCMNP from friends and relatives, whereas 30% were informed by media. Only 12% of participants were informed by local residents. Less than 10% of participants knew of MKCMNP from travel agencies, government offices, internet and guide books.

Figure 5.2: Percentages of visitors who knew about MKCMNP (n=162)



Number of visits to MKCMNP

Half the respondents had visited MKCMNP only once, while approximately one fifth had been twice (Table 5.2). The majority of first-time visitors were Thai residents and international visitors. The percentages Thai residents and international visitors visiting the site for the first time were respectively about 35% and 75%. Only 6.3% of foreign participants had visited this site three and four or more times.

Table 5.2: Number and percentage of times visitors have been to MKCMNP (n=162)

	Once (%)	Twice (%)	Three (%)	Four++ (%)
Thai residents	36.6	28.0	13.4	22.0
International visitors	76.3	11.3	6.3	6.3
All visitors	56.2	19.8	9.9	14.2

Seasons visitors usually come to MKCMNP

Table 5.3 demonstrates that visitors come to MKCMNP in every season. Both Thai residents and international visitors who had come to MKCMNP more than once usually came in summer (32.7%) and winter (11.1%); much less visited during the rainy season (3.7%). However, these results may merely reflect the fact that the survey took place in summer. Unfortunately about 60% of visitors did not respond because this trip was their first.

Table 5.3: Seasons for visits (n= 71)

	Rainy Season (%)	Summer (%)	Winter (%)	No response (%)
Thai residents	2.4	50.0	12.2	37.8
International visitors	5.0	15.0	10.0	75.0
All visitors	3.7	32.7	11.1	56.2

5.1.3 Transportation and group size

Means of transportation

In general, a little more than half of the participants travelled by bus or on tour and about 30% travelled by private car. The percentage of visitors who travelled by rented car was nearly the same as the percentage who travelled by plane (6.5%). Participants who travelled by boat and by motorbike came up equally at about 1% (Figure 5.3).

Companions travelling with visitors

Most of the participants came with their friends (41%), and the percentage coming with families was about 36%. Only 1% went with a tour agency. The percentage of visitors who came with friends and family was nearly equal to the percentage who came alone (about 10%) (Figure 5.4).

Figure 5.3: Means of travelling to MKCMNP (n=162)

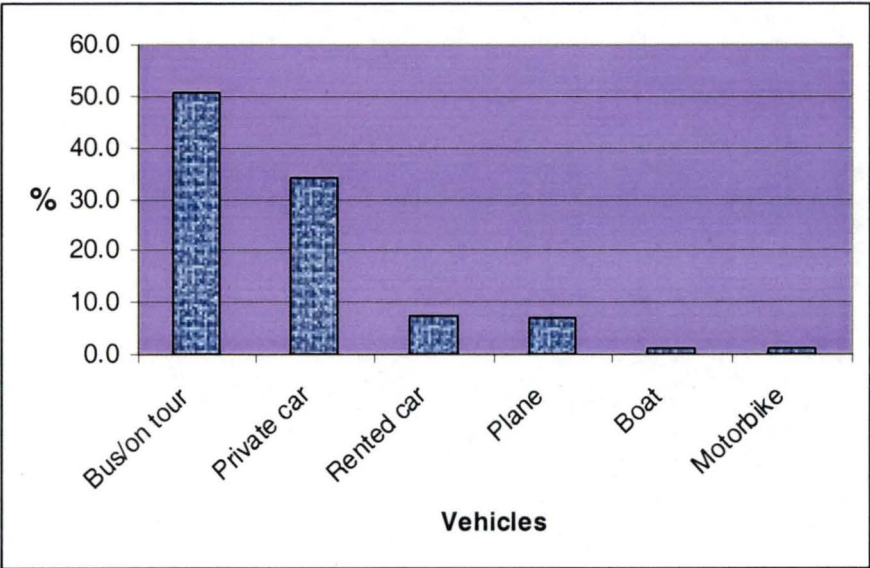
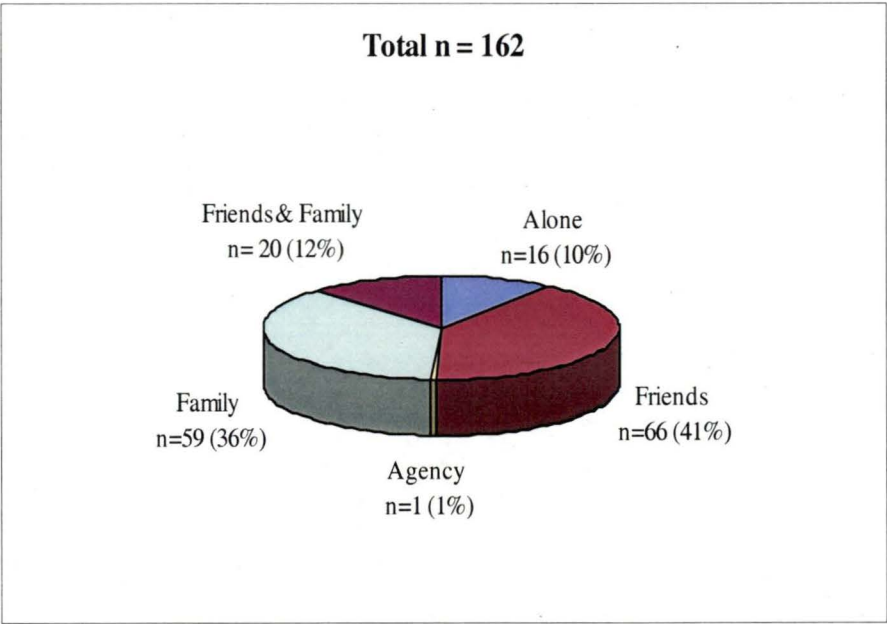


Figure 5.4: Numbers and percentages of companions travelling with visitors



5.1.4 Details of the trip

Length of time

More than half of the participants usually spent more than three days at MKCMNP, while 4.9% spent only one day. Of the survey participants, 13.6% said that they liked to stay for two days and 27.8% wanted to stay for three days (Table 5.4). As shown in Table 5.4, the international visitors were mostly like to spend more than three days but to visit less frequently, while the time spent by Thai visitors varied from two or three days.

Table 5.4: Number of days spent at MKCMNP (n=162)

	One day (%)	Two days (%)	Three days (%)	>Three days (%)
Thai residents	8.5	24.4	47.6	19.5
International visitors	1.3	2.5	7.5	88.8
All visitors	4.9	13.6	27.8	53.7

Table 5.5: Types of visitor accommodation (n=162)

Type of Accommodation	Thai residents (%)	International visitors (%)	All visitors (%)
Resort	67.1	42.5	54.9
National Park guest house	3.7	5.0	4.3
Residence in nearby community	6.1	0	3.1
Tent	4.9	0	2.5
Hut/Bungalow	31.7	47.5	39.5
Rented house	0	5.0	2.5

Accommodation

From Table 5.5, around half of participants usually stayed in resorts and 39.5% in huts or bungalows. Less than 5% of visitors stayed in National Park guest houses, residences in the nearby community, tents or rented houses. Foreign participants who wanted to

stay in huts or bungalows comprised 47.5% whereas 67.1% of Thai residents tended to stay in resorts. No Thai respondents stayed in rented houses and international respondents tended not to stay with the community residents.

Places to visit

Table 5.6: Numbers and percentages of visitors coming to the islands (n=162)

Islands	No. of visitors	Visitors (%)
Ko Chang	157	96.9
Ko Wai	25	15.4
Ko Maak	24	14.8
Ko Rang	21	13.0
Ko Kood	17	10.5
Ko Lao Ya	12	7.4
Ko Khlum	12	7.4
Ko Chang Noi	7	4.3
Ko Mai Si	3	1.9
Ko Ngam	3	1.9

Table 5.6 shows that Ko Chang was the target island for both participants from Thailand and abroad (96.9%). This is because Ko Chang is the main island of MKCMNP and also the visitors spent more time there. The percentages of visitors who intended to visit Ko Rang, Ko Maak, Ko Wai and Ko Kood were 13%, 14.8%, 15.4% and 10.5% respectively. These four islands are beautiful places for SCUBA diving and snorkelling. Less than 15 participants indicated that they visited Ko Lao Ya, Ko Khlum, Ko Mai Si and Ko Ngam.

Most participants intended to visit White Sand Beach (106 visitors or about 65%) and Kai Bae Beach (103 visitors or about 64%) probably because these beaches are suitable

for swimming, easy to access and also close to the piers. About 30% of participants liked to visit Klong Prao Beach and nearly 10% Ta Pao Beach and Long Beach. The percentage of participants who visited Klong La Haan Beach was equal to the respondents who visited Bang Bao Beach (6.8%) (Table 5.7).

Table 5.7: Numbers and percentages of visitors coming to beaches (n=162)

Beaches	No. of visitors	Visitors (%)
White Sand Beach	106	65.4
Kai Bae Beach	103	63.6
Klong Prao Beach	49	30.2
Long Beach	16	9.9
Ta Phao Beach	15	9.3
Bang Bao Beach	11	6.8
Klong La Haan Beach	11	6.8
Klong Chao Beach	10	6.2
Klong Yai Kee Beach	7	4.3
Lonely Beach	2	1.2

Table 5.8 below illustrates that most participants preferred to visit Klong Plu and Than Ma Yom waterfalls (27.8% and 15.4% respectively). Less than 10% of all visitors visited Nang Yom, Klong Non Si, Klong Nung, Klong Chao and Khiriphet waterfalls. This may be because the survey took place in summer and the waterfalls were not as beautiful as they would be in the wet season.

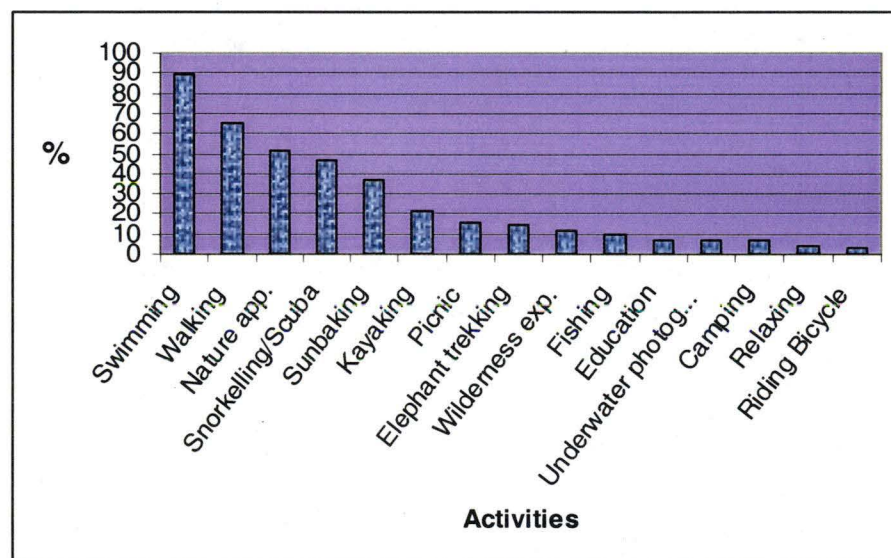
Table 5.8: Numbers and percentages of visitors visiting waterfalls (n= 162)

Waterfalls	No. of visitors	Visitors (%)
Klong Plu	45	27.8
Than Ma Yom	25	15.4
Klong Chao	9	5.6
Nang Yom	7	4.3
Klong Non Si	6	3.7
Khiriphet	4	2.5
Klong Nung	3	1.9

Activities

On the whole, the two most popular activities in which all visitors were involved were swimming and walking (Figure 5.5). The third and fourth most popular activity was nature appreciation and snorkelling/SCUBA diving, undertaken by approximately half of all visitors. Sunbaking and kayaking represented 37% and 21.6% respectively. About 15% of the visitors were involved in elephant jungle trekking or used the site as a picnic area. Approximately 10% were involved in fishing or wilderness experience. The percentages of visitors who were involved in camping, education/research and underwater photography were equal at about 7%. Under the category of other activities, less than 5% indicated activities such as riding and relaxing.

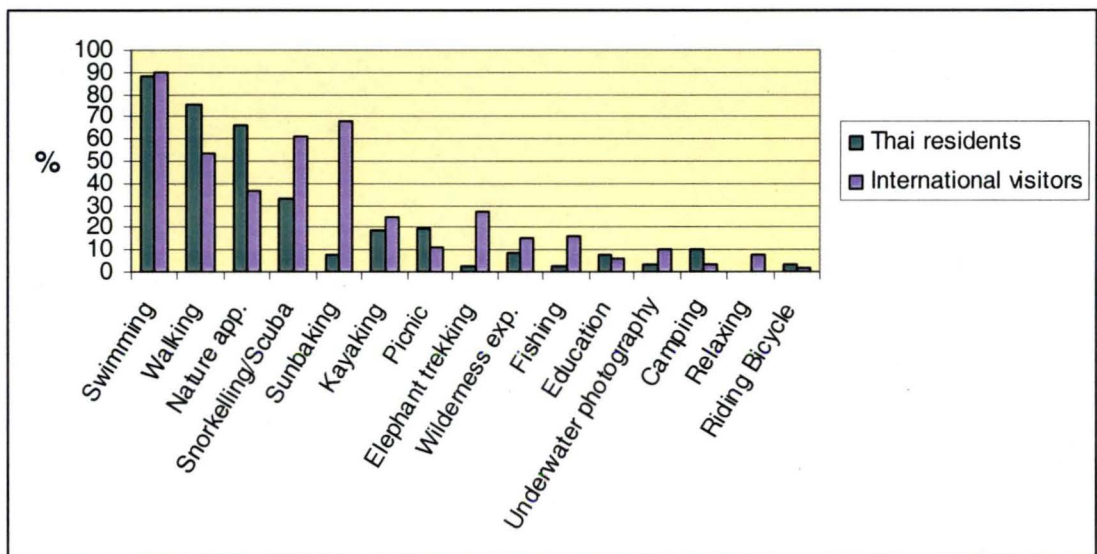
Figure 5.5: Activities undertaken by visitors (n=162)



Data in Figure 5.6 demonstrates that the similarity in types of activities was found to be undertaken by both Thai residents and international visitors. Swimming and walking were overall identified as the two most popular activities for both Thai residents and international visitors. However, the proportion of visitors who participated in walking was quite different between the two groups: 75.6% compared with 53.8% of the international visitors who responded. The majority of Thai residents went swimming

(87.8%) which approximately equals to the percentage of the international visitors undertaking this activity. International visitors participated in sunbaking (67.5%) and snorkelling/ SCUBA diving (61.3%) which was very different from the percentage of Thai residents, at 7.3% and 32.9% respectively. Nature observation also accounted for more than 60% of the responses from Thai residents, compared to 30% from international visitors.

Figure 5.6: Activities undertaken by Thai residents and international visitors (n=162)



Most visitors (40%) did not have any comments on the most enjoyed activities. Swimming (about 20%) was the most enjoyed activity for all visitors. The percentages of all visitors who enjoyed snorkelling/ SCUBA diving, walking and nature appreciation were nearly equal at approximately 15%. Sunbaking represented about 5%.

Most Thai and international participants did not have any comments on the most enjoyed activities: about 50% for Thai residents and about 40% for international visitors (Figure 5.7). The percentages of all activities were different between Thai residents and international visitors. Swimming and snorkelling/ SCUBA diving were the most enjoyed

activities for international visitors, whereas walking and nature appreciation were the most enjoyed activities for Thai residents. About 10% of international visitors enjoyed sunbaking while no Thai residents stated that they enjoyed this activity.

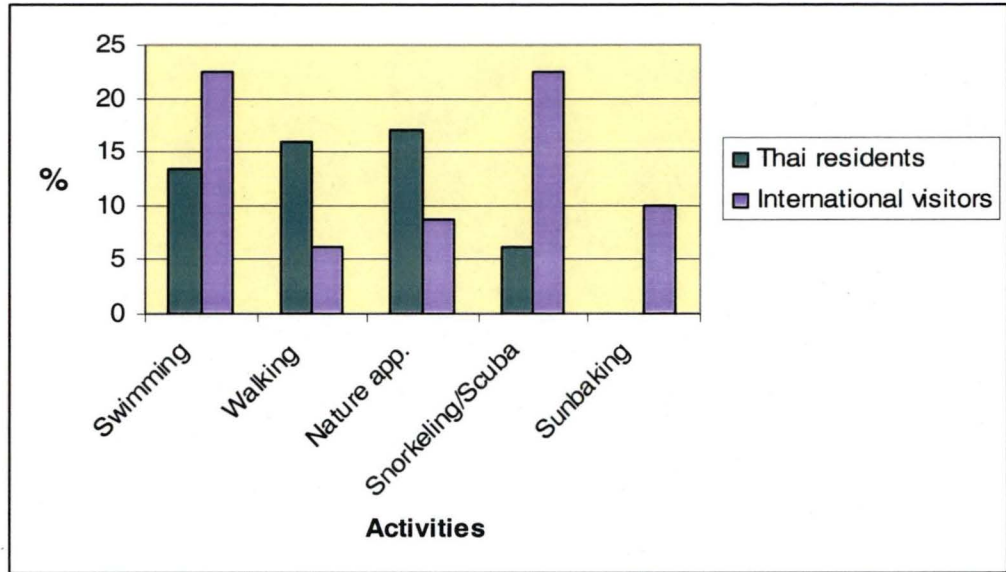
For snorkelling/ SCUBA diving respondents made comments such as the following:

- great sea life;
- see a different underwater world / love the underwater world;
- all the beautiful things you will get to see;
- corals reef are beautiful; and
- it is fun.

For swimming, sunbaking, walking and nature appreciation, respondents made comments such as the following:

- love hot water and very relaxing;
- clear water and nice beaches;
- need to get away from the winter;
- beautiful scenery around beaches;
- enjoy walking with boyfriend/girlfriend; and
- like ecotourism;
- perfect way to relax;
- interested in nature and enjoy peaceful environment; and
- the beautiful is an incredible buzz.

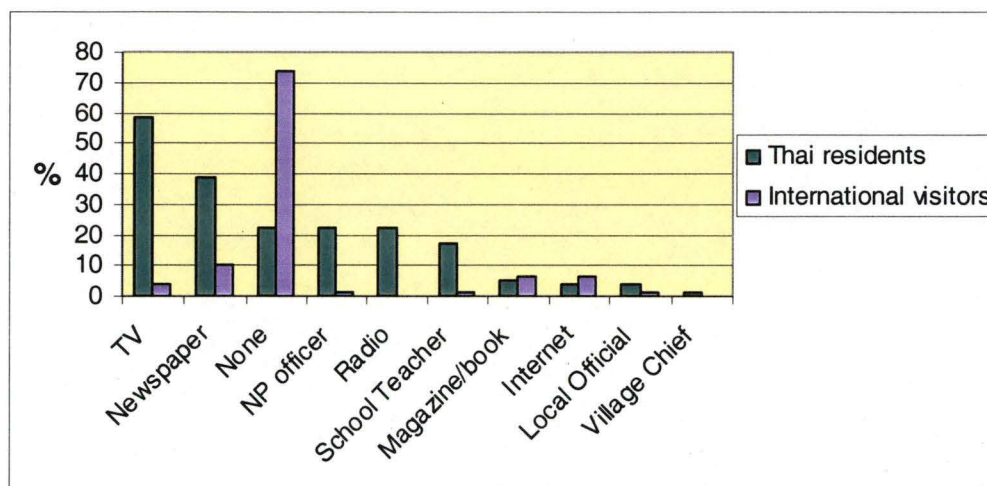
Figure 5.7: The activities most enjoyed by Thai residents and international visitors (n = 69)



5.1.5 Park management

Information on marine conservation

The information sources related to marine conservation in MKCMNP accessed by visitors were very different for international and Thai residents (Figure 5.8). More than 70% of international participants had never been given information on marine conservation, compared to about 20% of Thai participants. Most Thais had obtained information on marine conservation from TV (58.3%) and newspapers (39%), compared with percentages for international visitors of 5% and 10% respectively. About 20% of Thai participants had obtained the information from National Park office, whereas less than 5 % of international visitors had obtained such information. The same percentages (5%) of participants from both Thailand and from abroad had obtained information from magazines or books and the internet. No international participants had obtained information from the village chief or radio broadcasting.

Figure 5.8: Information sources for visitors on marine conservation (n=162)

National Park officers on duty

Most participants (66.7%, n= 108) revealed that they had never seen National Park officers on duty.

Importance of Park objectives

Visitors said that *conserving marine environment*, *preventing illegal activities* and *controlling litter and pollution* were very important, with an average response of almost four in all three cases (Table 5.9). *Maintaining scenic attractions* was importance scale almost as important in visitors' opinions. *Providing economic benefits for local communities*, *providing tourist services and facilities*, and *allowing public access* were considered important for visitors.

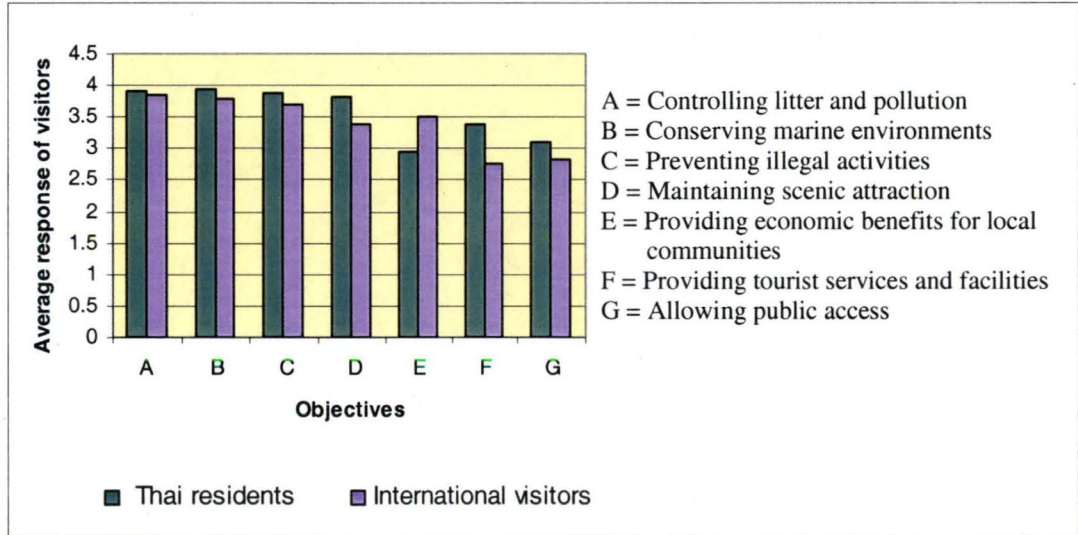
The level of environmental of concern among people has been found to be correlated with gender, age and geographic location (Rickinson, 2001). For the data set generated by this survey, however, Spearman correlation coefficients indicated that there were no strong or significant relationships between the importance ratings and these demographic variables.

Table 5.9: Importance of the park objectives (n=162)

Objectives	Average response of visitors
Controlling litter and pollution	3.88
Conserving marine environments	3.86
Preventing illegal activities such as fishing	3.78
Maintaining scenic attraction	3.60
Providing economic benefits for local communities	3.23
Providing tourist services and facilities	3.08
Allowing public access	2.97

Response options: 1 = Not Important 2 = Slightly Important 3 = Important 4 = Very Important

Figure 5.9: Average visitor responses on importance of park objectives for Thai residents and international visitors (n=162)



Response options: 1 = Not Important 2 = Slightly Important 3 = Important 4 = Very Important

Similarly, correlation tests indicated that there were no significant differences between Thai residents’ and international visitors’ views on the relative importance of the three of the park objectives: *controlling litter and pollution* (Spearman’s $p=0.486$), *conserving marine environments* (Spearman’s $p=0.144$), *preventing illegal activities* (Spearman’s $p=0.075$). Four objectives were significantly different: *maintaining scenic attraction* (Spearman’s $p=0.000$); *providing economic benefits for local communities* (Spearman’s $p=0.000$); *providing tourist services and facilities* (Spearman’s $p=0.000$);

and *allowing public access* (Spearman's $p=0.029$). The average responses of Thai participants for all objectives were higher than for foreign ones except the objective for *providing economic benefits for local communities* (Figure 5.9).

The achievement of current park management

From Table 5.10, average responses of visitors indicated that all the park objectives were nearly fully achieved, while other objectives were partly achieved. The worst performing objectives were *preventing illegal activities* and *controlling litter and pollution*.

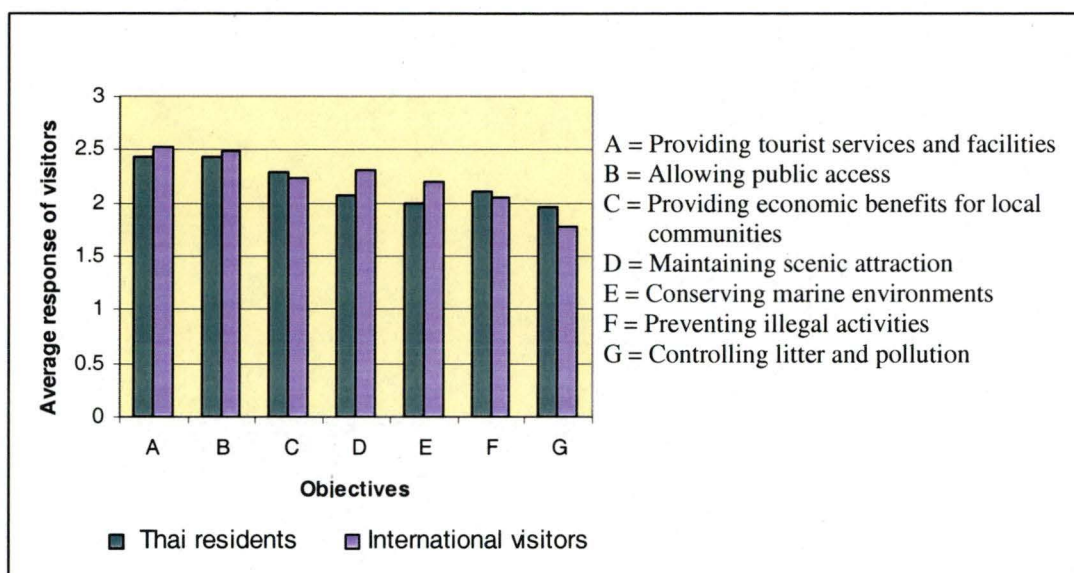
Table 5.10: Visitors' opinion on the achievement of park objectives (n= 145)

Objectives	Average response of visitors
Providing tourist services and facilities	2.47
Allowing public access	2.45
Providing economic benefits for local communities	2.28
Maintaining scenic attractions	2.16
Conserving marine environments	2.10
Preventing illegal activities such as fishing	2.09
Controlling litter and pollution	1.89

Response options: 1 = Not Being Achieved 2 = Partly Achieved 3 = Fully Achieved

Correlation tests indicated that there were no significant differences between Thai residents and international visitors view on the relative importance of the various park objectives.

Figure 5.10: Average visitor responses on the achievement of park objectives for Thai residents and international visitors (n=145)



Response options: 1 = Not Being Achieved 2 = Partly Achieved 3 = Fully Achieved

Table 5.11: Type of facilities that should be provided in MKCMNP (n=162)

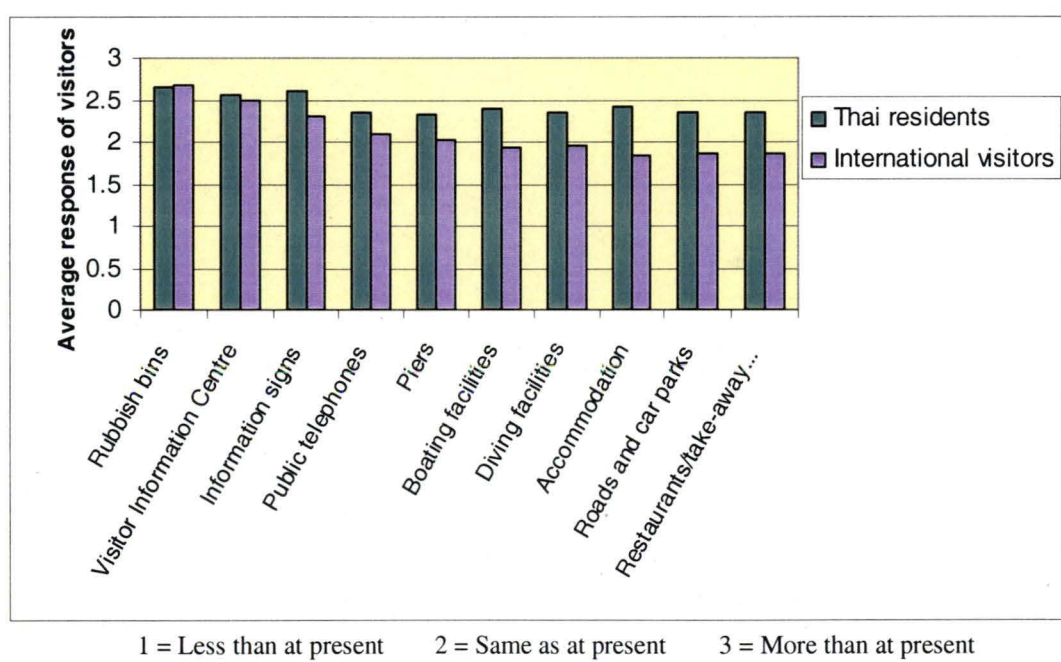
Facility	Average response of visitors
Rubbish bins	2.67
Visitor Information Centre	2.51
Information signs	2.45
Public telephones	2.22
Piers	2.17
Boating facilities	2.16
Diving facilities	2.15
Accommodation	2.14
Roads and car parks	2.11
Restaurants or take-away food	2.11
Convenience stores	2.05

Response options: 1 = Less than at present 2 = Same as at present 3 = More than at present

Facilities

As can be seen from Table 5.11, visitors generally wanted greater provision of rubbish bins, visitor information centres and information signs. The current level provision of other facilities (public telephones, piers, boating facilities, diving facilities, accommodation, roads and car parks, restaurants or take-away food, and convenience stores) was considered adequate. No visitors thought that there should be less facilities provided than at present.

Figure 5.11: Average visitor responses on type of facilities that should be provided in MKCMNP for Thai residents and international visitors (n=162)



The average response for both Thai residents and international visitors in terms of rubbish bins (Spearman’s $p=0.976$) and visitor information centers (Spearman’s $p=0.202$) were not significantly different by the Spearman statistic test, whereas the average for other facilities were significant different (Spearman’s $p<0.05$). Thai residents desired significantly more information signs (Spearman’s $p=0.000$), public

telephones (Spearman's $p=0.007$), piers (Spearman's $p=0.001$), boating facilities (Spearman's $p=0.000$), diving facilities (Spearman's $p=0.000$), accommodation (Spearman's $p=0.000$), roads and car parks (Spearman's $p=0.000$), restaurants or take-away food (Spearman's $p=0.000$), and convenience stores (Spearman's $p=0.003$) than international visitors. The average responses for Thai residents for all facilities except rubbish bins and visitor information centres were greater than for the international visitors at about 2.5 compared with 2 (Figure 5.11).

5.1.6 Comments from visitors on MKCMNP

Most Thai and international participants did not have any additional comments on MKCMNP (about 70% for each group). Both Thai respondents and international visitors commented on over-development (about 10%). About 20% of Thai respondents commented on environment whereas only about 10% of international visitors commented on this issue. Some of visitors said corals are partly destroyed by snorkelling and diving boats; therefore, visitors should take good care of the environment, and the park should emphasise eco-tourism and enforce sustainable development. Visitors also stated that too much development was occurring at Ko Chang; for example, hotels and resorts were growing too rapidly and that construction could destroy the scenery and atmosphere. About 10% of visitors from Thailand and abroad gave comments on access to the park and waste. For example, some visitors stated that the transportation system should be organized better. In addition, the main road on Ko Chang was very dangerous and the existing footpaths for pedestrians along the sides of the road should be improved and more footpaths constructed. Visitors commented on waste and rubbish scattered along the beaches and footpaths and sometimes floating in the sea. Moreover, some visitors stated that cost of living was very high on Ko Chang.

5.2 Key Informant Interview Results

5.2.1 Role and responsibility

In the interview of MKCMNP on 25 March 2005, the manager of MKCMNP, pointed out that there are three important roles for the park agency. A first role is the preservation of the whole area, especially the recreation areas, including land resources and marine resources, which covers more than 40 islands. A secondary role is to assist the academic work, such as, research, nature studies and so on. A third role which he emphasised was the importance of providing tourism and recreation ecotourism for both Thai tourists and tourists from around the world.

5.2.2 Park management

Focusing on park management, the manager said there were two headquarters for park management. One is on the mainland in Lam Ngob District and the other is on Ko Chang. There is a visitor centre, a library and a demonstration zone at Lam Ngob headquarters. Another one is under construction near Kai Bae. Around the National Park area, there are six more sub-stations with 11 staff rangers employed in each. Five sub-stations were located on Ko Chang and one sub-station was located on the farther island, Ko Rung. All staff in the headquarters and sub-stations worked co-operatively to protect the whole area, providing tourism services and giving information for academic purposes.

5.2.3 Management Experience

The manager had 11 years of experience as a head of National Park working in different National Park headquarters before coming to be head of MKCMNP and he had been on duty in MKCMNP for nearly 18 months.

5.2.4 Sustainability of tourism

When being asked about his opinion concerning sustainable tourism, the manager pointed out that any area which had been declared to be National Park had to meet three main requirements: the area of land must be larger than ten square kilometres; and biological diversity and natural phenomena such as wildlife, tropical rainforest, waterfalls, marine resources and marine animals must be found. He added that there should be a sustainable tourism master plan including organisation and management, staff, zoning specifications and how to deal with or manage the Special Use Zone where is located in the National Park e.g. radar stations, military bases on meteorological stations. This answer by the manager largely avoids commenting specifically on the sustainability of tourism in the park. However, he did make comment on this topic in relation to ecotourism.

5.2.5 Ecotourism activities

The manager mentioned ways of making Ko Chang ecotourism more sustainable. As ecotourism is rapidly growing and making an important contribution to the national income, routine work has to be done strictly as it has been specified by government policy, that aims to deliver sustainable tourism. The manager explained that ecotourism was based on three main factors. Firstly, tourists must carry or take any garbage away with them when they leave. Secondly, local people can make money or earn their income working as tour guides, waiters, drivers, SCUBA-driving trainers or selling local products. Finally, tourists are required to not damage natural resources. The manager further stated that coral reefs surrounding Ko Wai and Ko Rang had been damaged due to anchorage of fishing boats, diving boat and unskilled snorkelling or diving.

Ecotourism activities on Ko Chang include: snorkelling, SCUBA diving, walking the nature trail and hiking. The National Park also provides guidance to educate visitors if they request it.

5.2.6 Tourism management problems

With regard to the tourism management problems at MKCMNP, the manager said that ferry service can bring increasing numbers of tourists to the island with trucks and cars which cause more road accidents.

Garbage and waste water cannot be properly controlled or eliminated. Thirty tons of garbage is produced everyday during the high season, while in the low season this figure drops to ten tons. Garbage must be urgently taken into account. The government is planning to have a garbage disposal system constructed with a 56 million baht budget.

The water supply cannot be maintained during summer time. A large proportion of the budget was generally spent on gasoline for cars and boats (nearly 10 million baht) for sub-rangers in each sub-station to patrol area to prevent illegal activities and undertake environmental protection works.

5.2.7 Tourists information

The manager discussed information given to tourists. He explained that adequate information was provided in various information and tourist centers, both in the two headquarters and six sub-stations. If anyone needed more details about tourism value and culture, the information was available at the provincial cultural centre. Tourist information was also available at resorts and hotels around the island, but it was very brief and focused only on particular local places. The Lam Ngob information centre provided more information for tourists because it was a regional centre of the Tourism Authority of Thailand in Trat.

5.2.8 Tourism benefits to MKCMNP

When asked about the benefit that tourism at MKCMNP brings to the local community, the manager pointed out that the Navy base gave tourists historical resources, especially about the Ko Chang sea battle between the Thai Royal Navy and a fleet of French warships in 1940-1941. Tourism can bring economic benefit to local communities, for example, snorkelling and SCUBA-diving demonstration booths were available at Bang Bao village where most owners of boats are local members of fishing communities. In addition, entrance fees for access to the National Park are contributed to the Thai government which can generate income resources for Thailand.

5.2.9 Comments on the future tourism development and management

Finally, the manager gave his comments on the future development and management of tourism at MKCMNP. He pointed out that co-operation between government sectors and private sectors were an important component to consider in any future management. In addition, the manager further stated that there were approximately 600,000 tourists to Mu Ko Chang every year, thus a Master Plan and a strategy should be drawn up for sustainable tourism in this area.

5.3 Conclusion

This chapter has reported the results of the visitor survey, the study of visitor behaviour, values and attitudes towards the MKCMNP tourism management. In addition, the interview with the key informant regarding tourism management was discussed. Both the survey and the interview indicated significant directions for further development at MKCMNP. Chapter six discusses these results and recommendations for the future development are provided in Chapter seven.

CHAPTER 6: DISCUSSION

This chapter provides discussion of the visitor's survey and interview with key informant results. It also determines the degree of both correspondence and conflict between the park management objectives, park manager and visitor experiences and perceptions. Implications of the results are considered in relation to sustainable tourism management. The discussion also draws on the literature review of Marine Protected Areas (Chapter 2), and issues related to tourism management considered in Chapter 3. This discussion provides a basis for developing the recommendations for improving tourism management in MKCMNP presented in Chapter 7.

6.1 Discussion of the Results

6.1.1. Visitor's behaviour in the park

For areas aspiring to be developed as world-class tourism destinations, there is much to be gained from understanding visitors' behaviour, values and attitudes. The majority (54%) of all visitors knew about MKCMNP from friends and relatives, whereas 30% knew from media. This indicated that prior visitors' experience in the park has a great influence on other visitors as well as the promotion of the park from the media, such as newspapers, booklets, magazines, television and radio. Thais and international visitors prefer to come to the park in summer (March to April) due to the calmness of the sea. In addition, during the summer time, there are a long holiday and school breaks in Thailand. Most of visitors come to the park by bus/on tour (50.6%) and private car (34%) and usually come with friends (41%) or family (36%). This suggests that park authorities should take care in preparing promotional campaigns for MKCMNP to ensure that the theme of sustainable tourism is emphasized.

Regarding the details of their trip, both Thais and international visitors were first time visitors to MKCMNP, although Thai visitors have usually been to MKCMNP more than once (Table 5.2). This is probably because the park is easily accessed, well promoted, features spectacular scenery and clear water which is suitable for a range of tourist activities compared to other areas, such as Pattaya and Bangsan. It can be inferred that the first experience of MKCMNP is one that impresses Thai visitors. The majority of visitors tended to stay in the park for minimum of three days and preferred to stay in resort and hut/bungalow accommodation, which belong to private sector operators and are located near beaches. The National Park accommodation provides campsites and only one National Park guest house located in Than Ma Yom sub-station which mainly are located a fair distance from the beaches. Less than 5% of visitors stayed in tents and National Park guest house. Eagles *et al.* (2002) stated that the government agencies are primarily responsible for provision of tourism services, although they usually have limitations which restrain efficient and effective performance. So private operators are able to provide better tourism services. This is also true with MKCMNP and that is the reason that private investors seem to seek the foreshore areas to construct more and more accommodation to serve visitors. The MNP manager pointed out that co-operation between government sectors and private sectors were a vital component to consider in a future management. This partnership should be most efficient way to tourism development at Ko Chang. Buckley and Sommer (2001:10) said that:

There are significant opportunities for mutual benefit between protected area management agencies and commercial tour operators, as long as partnership arrangements are constructed appropriately. Partnerships range from permitting of small-scale ecotours, where the tour operator gains a commercial opportunity and the park management agency gains greater control over some of its visitors; to long-term leases on areas of public land, where private companies develop and/or operate tourism facilities and contribute revenue to assist in the management of the remainder of the protected area estate.

Ko Chang was the target island for most visitors (96.9%) because Ko Chang is the main island of MKCMNP. Ko Wai, Ko Rang, Ko Kood, and Ko Maak were also locations people intended to visit. The sites which visitors intended to visit on Ko Chang were White Sand Beach, Kai Bae Beach, Than Ma Yom and Klong Plu waterfalls (Table 5.7, Table 5.8). All of these sites are located in the Outdoor Recreational Zone and

Conservation Zone detailed in the park administration and management (Chapter 3). MKCMNP have great value to the local, national and international communities for public enjoyment. The areas can enhance recreational and tourism activities both water-based and land-based. The activities which visitors most enjoyed while staying at the park, equate to the most popular activities. Swimming, snorkelling/SCUBA diving, walking and nature appreciation were found to be the most popular activities on the island. Thai residents and international visitors enjoyed swimming the most. The majority of Thai residents rated walking and nature appreciation as their second and third favourite, respectively. On the other hand, international visitors preferred snorkelling/SCUBA diving and sunbathing. This is probably because international visitors would like to experience a different type of marine ecosystem in Thailand and also the weather in Thailand is tropical climate with decent sunshine. Although visitors may have preferred water-based activities, land-based activities were also found to be extremely enjoyable. It is clear that coastal zone recreation, especially on the west coast are the leading tourist use of Mu Ko Chang. Coastal and marine resources are of critical significant to most recreational visitors experiences. Thus the park should be attentive to coastal tourism development, and security from risks associated with natural hazards such as storms and tsunamis is requisite for coastal tourism to be sustainable over the long term.

Some ecotourism activities or nature-based activities were combined with activities such as snorkelling/SCUBA diving, wilderness experience, elephant trekking, nature appreciation, kayaking and riding bicycle. This combination adds tourism value to the MKCMNP. However, most of Thai and international visitors were involved mainly in snorkelling/SCUBA diving and nature appreciation. The ecotourism activities should be promoted more in the park in order to conserve the environment and sustain the livelihood of local people. Nevertheless, for ecotourism activities to be sustainable, they must be managed appropriately and with special care. Unless properly managed, the impacts of ecotourism (for instance, damage to coral reefs) may be worse than those of tourism (Butler, 1993).

According to the visitor's comments, it is evident that they enjoy MNPs, as areas to relax where their quality of life can be enhanced. They afford the opportunity for aesthetic pleasure and most visitors seem to visit MKCMNP for this reason.

6.1.2 The management of the park

Information for environmental conservation in the park can help visitors to develop awareness and appreciation, changing attitude or beliefs, enhancing understanding of the sites they are visiting and promoting lifestyle alternatives which reduce environmental impacts (Oram, 1999). In addition, visitor education and interpretation programs can help to reduce conflicts and promote symbiosis between tourism and conservation, and also can encourage a type of ecotourism that enhances ecological awareness. Ideally, certification programs or education should train guides in interpretation skills and how to behave to decrease negative impacts on the environment. Incentives encouraging marine tour staff to train as nature tourism guides should be provided by park officials or local people who are trained by the park officials. However, the high percentage of approximately 70% of international visitors had never been given information for marine conservation on Mu Ko Chang, compared to roughly 20% of Thai participants. Most Thais had obtained information on marine conservation from the media such as television and radio. The park manager stated that all staff in the headquarters and sub-stations provide tourism services and give information related to preserving marine environments. However, according to responses of visitors, it can be shown that less than 20% of visitors had obtained the information on marine conservation from the National Park offices and 66.7% of participants had never seen National Park officers on duty. Visitors thought the park should provide more visitors information centres and information signs (Figure 5.12). It is likely that the main sources of information are distributed in Trat town on the mainland. The National Park's information centres are located a fair distance away from the tourism popular sites. There are an insufficient number of staff to provide the services and access the entire area and they seem to lack the expertise to provide marine conservation information and interpretation programs to tourists. Additionally, with growing international visitors numbers, communication

remains in Thai language only. From these results, it appears that the communication approaches are not effective because visitors do not gain greater awareness of management approaches from the available park education and interpretation programs. The quality and attractiveness of the information centre could increase visitors' understanding of marine conservation and also park management. The manager said that another headquarters building on Kai Bae and is going to open soon which will enhance the capacity of park manager to establish exhibition centres as the main source and interpretation program on Ko Chang.

The objectives of park management are very important. Most visitor opinions corresponded with the objectives of the park management and they appear to realise and value these significant objectives and functions of the park. The survey results clearly demonstrate that both Thais and international visitors agreed that conserving the marine environment, maintaining scenic attractions, preventing illegal activities and controlling litter and pollution were very important in the park. Providing economic benefits for local communities, providing tourist services and facilities, and allowing public access were also considered important by visitors. Visitors thought that the park management was at least partly achieved on conserving marine environments, maintaining scenic attractions, providing economic benefits for local communities. The worst performing objectives were preventing illegal activities and controlling litter and pollution. This does not mean that existing tourism management strategies for MKCMNP are ineffective but that better regulation of private operators is required.

Infrastructure and facilities provides support for visitors as well as local people. For example transportation infrastructure such as car, ferry, boat and road can provide visitors with access to Mu Ko Chang. Visitors thought the public access was sufficient and satisfactions that tourist services and facilities, accommodation, restaurants, convenient stores, public telephones, roads and car parks, piers, boat facilities, diving facilities should be maintained at current level. This could indicate that visitors are currently satisfied with the management of services and facilities in Mu Ko Chang.

However, 10% of visitors stated that too much development was occurring at Ko Chang; for example, hotels and resorts were growing too rapidly and that construction could destroy the scenery and atmosphere. Most accommodation for tourism development is located outside the park and provided by the private sector without control from the park. The impacts of private land development on park values should be able to be integrated land use planning processes across the region, including the park. At present, no such planning processes are in operation.

Visitors thought the park should be provided with more rubbish bins, visitor information centres and information signs. Rubbish bins should be provided in areas surrounding the accommodation, campsites and in strategic locations across the Outdoor Recreation Zone. The park manager indicated that tourists must carry any garbage back with them when they leave. Educating visitors to develop awareness on this strategy could be a possible way to improve waste management, which supports sustainable tourism development in Mu Ko Chang, as well as avoiding destruction of the scenery and atmosphere of the area if the park provide a lots of rubbish bins. The existing information signs in the park mostly involve recreation and access directions. Along the nature trail and hiking trail area signage seems to be insufficient. Therefore, the managers should establish more information signs along the trail and these should be available in both Thai and English languages.

6.2 Sustainable Tourism Development

The objectives of establishing MNPs include protecting natural resources, providing environment research and study, and providing opportunities for outdoor recreation. They are also essential sites for sustainable ecotourism which contributes to the environment, economic and social welfare of local communities (Kenchington *et al.*, 2003).

There is no doubt that tourism is growing around the world, especially in developing countries including Thailand. This is especially true for MKCMNP where, in line with the growing number of tourists (DNP, 2005), the impacts on the economic, socio-culture and environment seem to be increasing. An integrated approach to tourism planning and management is required to achieve sustainable tourism (Chapter 2). Mu Ko Chang is taking action for planning sustainable tourism management with the aim of generating high-yield revenue tourism, with benefits for local communities, at the same time protecting the land and marine resources (DASTA, 2005). Butler (1993) states that the idea of sustainable tourism involves the development in such a way which it does not negatively impact the fundamental economic, socio-cultural and environmental dynamics of the destination over the long term. Moreover, tourism development in Ko Chang needs full public participation and local community involvement in order to achieve sustainable tourism. At present, tourism in Mu Ko Chang appears to meet sustainability criteria with regards to socio-cultural and economic factors. However, there are significant concerns regarding environmental sustainability.

6.2.1 Stakeholder participation and co-management

The information provided by this study is a contribution towards developing a sustainable tourism development planning process. The visitor survey obtained information from some stakeholders, including Thai visitors, international visitors and the MNP manager. However, important to implementing regulations in the park, several rounds of meetings and negotiation should seek input and consensus from other stakeholders, including: local government agencies (eg. Designated Area for Sustainable Tourism Administration, Tambon Administrative Organisations, Tourism Authority of Thailand); tourism association (eg. Ko Chang Local Tourism Association); environmental groups (eg. Ko Chang Conservation Association), representatives of local people from each village; tour operators; and members of Thai society who are interested in the fate of Ko Chang. However, participation of local people on Ko Chang is of critical importance in the creation of more sustainable tourism (Jaisa-ard, S., 2005. pers. comm., 11 May). To ensure sustainable tourism development, local people need to be educated and encouraged to participate in the plan because they play a vital role in

taking care of their own environment (Thavarasukha, 2002) and help to improve conflict resolution in the planning process.

According to Rudd *et al.* (2003), co-management or the effective sharing of power and management responsibilities between government and local communities is an institutional model for MPAs. Some developing countries in Southeast Asia have demonstrated a capacity to develop effective co-management approaches. For instance, the important factors for establishing effective MPAs in the Philippines include: direct participation of communities in decision-making and management, community support for regulation, and advice from implementing organizations and government agencies (Pollnac *et al.*, 2001). Therefore, a co-management model is an effective way to achieve MPA management objectives. Planning and management at Mu Ko Chang should encourage co-management approach when implementing visitor education programs and management regulation. The public review process (Chapter 2) can function as a helpful first step by instilling a sense of ownership over the management plan among local communities, and to ensure that the plan is perceived as legitimate and fair by local people (Kelleher, 1999).

6.2.2 Impact of tourism management

To ensure sustainable tourism development, current impacts on economic, socio-culture and environmental values should be recognised in order to maximize the benefits from tourism while minimizing its negative impact.

Economic impact

Positive and negative economic impacts are occurring in the park. Tourism should function to provide employment opportunities, in ways desired by local community members themselves (Chapter 2). The major occupations of villagers on Ko Chang are in agriculture and fisheries as described in Chapter 3. They are selling their agricultural

in agriculture and fisheries as described in Chapter 3. They are selling their agricultural or fisheries products to visitors. Some villages such as Ban Salak Phet provide home-stay and guest houses for tourism, giving them a valuable source of income. In the case of activities such as snorkelling and SCUBA diving tours, the park manager indicated that the snorkelling and SCUBA diving tours were available at Bang Bao village (Figure 6.1), with most owners of boats being local members of fishing communities. Consequently, maintaining local ownership and management of tours could help to ensure that the economic benefits of tourism in the park end up in local pockets. It could also be argued that if local tour operators can run tours within the park in the future, this may provide strong incentives to tour operators themselves to make sure suitable conservation measures are taken. If the park is planned carefully, this could provide not only local economic, but also conservation benefits and enhance the long-term sustainability of local communities. Unfortunately, in the case of accommodation, most visitors preferred to stay in resorts, resulting in most of the income for accommodation services ending up with the private operators and investors who are generally from outside the island.



Figure 6.1: Bang Bao boats for taking visitors to snorkelling and SCUBA diving

(Photos by Nitjanate)

Socio-cultural impact

The results of the interview indicated that tourism in Mu Ko Chang brings both potential benefit and negative impacts to socio-cultural attributes of local communities. Tourism provides greater employment, for instance local people can make money or earn their income working as tour guides, waiters, drivers, SCUBA-diving trainers or selling local products (promoted by the slogan “One Tambon One Product”). Provision of services such as roads, sewers and electricity to support tourism also benefits the local community in terms of increasing living standards. In the peak season on Ko Chang (the time period of the survey), the number of tourists are increasing, as well as the demand for goods and services. From my experience at Ko Chang, site observation and some visitor comment, the cost of living is very high especially with respect to transport services, goods and accommodation compared with the non-peak seasons. The increase in infrastructure costs can lead to economic stress for the local communities.

Environmental impact

The main issue for tourism in MNPs is protection and conservation of nature and the marine environment (UNEP, 2003). From visitor comments and site observation, it appears that construction of tourist infrastructure and facilities on Ko Chang has had a negative impact on the environment and caused serious degradation of the natural resources that tourists most use. Garbage collection and wastewater treatment is often substandard, leading to the deterioration of foreshore environments.

In regard to ecological degradation, the comments of visitors indicate that the increasing tourism development, lack of awareness of diving boat operators and tourists themselves (for instance, unskilled diving), is leading to coral reef degradation in the park (park manager interview, site observation). Unsustainable use of land on Ko Chang for construction of tourism accommodation and the roads in the area surrounding Klong Prao Beach (Figure 3.13) causes mangrove forest degradation. Mangrove forests feature a rich biodiversity, and a nursery ground for commercially important fishes and prawns

that live in surrounding habitats. Therefore, clearing of mangrove forest must be prevented, through tighter regulation or monetary incentives.

Wastewater and garbage can be seen as a major problem in the parks. The main organic waste problem and garbage resulting from some resorts and communities is discussed in Chapter 3. It could be argued that visitor behaviour is the cause of the garbage problem, also that some resorts or households have failed to treat wastewater before discharging into the sea. These can cause problems to the marine ecosystem; for instance coral reefs, fishes and marine animals have been degraded by wastewater and garbage from resorts, households and tourists themselves (Samabuddhi, 2005a). Hence, the construction of wastewater treatment and sewage system or septic tank facilities is important. The MNP manager revealed that the government is planning to have a garbage disposal system constructed with a 56 million baht budget in the National Park area.

Entrance fees for access to the National Park are a potential economic instrument to prevent tourist overuse of certain sites as well as ecological degradation. If the park is planned carefully, the fees can be used to generate revenue for conservation of natural and marine ecosystems and maintenance of facilities and amenities. However, in the current system, National Park revenues are sent directly to the Marine Park Division, Department of National Park, Wildlife and Plant Conservation (DNP) in Bangkok. This system provides inadequate incentives for the investment of local people in conservation and is likely to arouse doubts that collected funds are being used locally. It is advantageous if tourist fees are retained locally within the park, rather than go directly through DNP. Because of the nature of the current system, charging park entry fees to MKCMNP does not seem to be a good way to achieve conservation benefits. It is also recommended that most parks including MKCMNP do not charge a higher entrance fee for international visitors. Although they can afford to pay, if they are aware of the policy they may feel unwelcome or sense a degree of unfairness (site observation, visitor's comment).

6.3 Limitations of the Research

The short time to conduct my research (January 2005 to August 2005) restricted me because Mu Ko Chang is a group of over forty large and small islands. I had access only the big islands which included Ko Chang, Ko Rang, Ko Lao Ya, Ko Wai, Ko Maak and Ko Kood. The surveys focus mostly on Ko Chang because it is the main tourism centre, with roads connecting almost all the island with amenities of many types.

The research conduct at Mu Ko Chang targeted a fairly limited component of tourism (visitors and the park manager). Ideally, the research should obtain more information from local people, tour operators and government agencies. As is the case for most research, in retrospect some things could have been done differently to improve the study. The questionnaires could have been translated into other languages such as German and French. Increased sampling could have been conducted in southern and eastern sites of Ko Chang. This would have enabled more specific tests based on individual sites. There could have been interviews of more local park managers and it would have been useful to obtain better data on environment, social and economic impacts.

CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS

This chapter presents conclusions of the research program and recommendations for the future development of tourism in Mu Ko Chang Marine National Park.

7.1 Conclusions

The management of MPAs is directed by practical regulations to preserve marine heritage and biodiversity systems in order to guarantee the health of marine resources and to provide sustainable ecotourism which contributes to the economic and social welfare of human communities (Kelleher *et al.*, 1995). MPAs in Thailand, especially MNPs, have become more accessible and well-known to tourists because the islands where they are located have a richness of marine ecosystems, such as mangrove forests, coral reefs, seagrass beds, soft sediment communities and beaches, which feature a variety of flora and fauna species. The number of tourists going to Thailand has been growing significantly and this increases the pressure on the MNPs. Many development programs have been carried out in Mu Ko Chang to support visitors, including a variety of services and infrastructure, such as accommodation, guided boat tours, roads, and diving facilities. Management of tourism development of the parks is necessary to achieve long-term sustainability objectives. However, to date tourism management has been less than rigorous. Tourist infrastructure is usually linked to negative impacts on marine environments and serious ecological degradation (ICEM, 2003). MKCMNP is a good example of this situation.

The overview of the study area identifies the main issues related to tourism that make achievement of MKCMNP management objectives difficult. These include fishing, ecosystem degradation, land encroachment, garbage disposal and wastewater, and agency conflicts.

A visitor survey and key informant interview were designed, implemented, and analysed to obtain data on the experiences and perceptions of visitors, and opinions of the MNP manager in the MKCMNP, and also to identify the degree of correspondence or conflict between both the park management objectives, park manager and visitor experiences and perceptions for future tourism development. The results indicate that the interpretation and education of the National Park officers on matters of marine conservation is not particularly effective because visitors gain little awareness of management approaches from the park education and interpretation program. More visitor information centres and information signs should be provided in order to assist visitors in developing awareness and appreciation, changing attitudes or beliefs, understanding of the sites they are visiting and also promote lifestyle alternatives which reduce environmental impacts. Both Thais and international visitors appear to realise and value the objectives or functions of the park, which include: conserving marine environment, maintaining scenic attraction, preventing illegal activities, controlling litter and pollution, providing economic benefits for local communities, providing tourist services and facilities, and allowing public access. Most visitors thought that these objectives were nearly fully achieved on allowing public access and providing tourist services and facilities while at least partly achieved on conserving marine environments, maintaining scenic attractions, providing economic benefits for local communities. The worst performing objectives were preventing illegal activities and controlling litter and pollution. Most facilities and services on MKCMNP are adequate for visitors except rubbish bins, visitor information centres and information signs. The rapid growth of tourist numbers in the park, as well as increasing tourism infrastructure and facilities, and development of the private sector have caused circumstances to change and the existing management emphasis and capacity appears to be struggling to cope with these changes.

Mu Ko Chang has taken action to draft a tourism Master Plan. The stakeholder participation and co-management approach, and impacts of tourism on economic, socio-cultural and environmental, may provide useful information for the first stage of sustainable tourism development process. The recommendations for future tourism development are given in the next and final section.

7.2 Recommendations

Based on the discussion in Chapter six, the recommendations, formulated in order to achieve park objectives, are as follows.

7.2.1 Education

1. Park authorities should take care in preparing promotional campaigns for MKCMNP to ensure that the theme of sustainable tourism is emphasized.
2. Educational strategies should be applied to the promotion of the park. Such strategies include leaflets, posters, maps, pamphlets brochures, guide tours and visitor information centres. This information should be available in various languages. Although some of these strategies are available in the park, they are not regularly maintained.
3. Because some tourists are interested in nature appreciation, scenic attractions and marine tours, the park should provide a program for describing the benefits of the park, marine conservation, and how to reduce negative environmental impact through variation in behaviours. These activities could be done by the park officials or local people who were trained by the park officials. Education can help visitors to develop awareness, knowledge and to set values and sense of concern for the marine environment and help to reduce environmental impacts. In addition they would encourage a type of ecotourism that enhances ecological awareness.

4. The park should educate visitors to reduce waste management. The most useful strategy, in support of sustainable tourism development, is that tourists must carry any garbage back to the mainland with them when they leave.
5. The park should establish more information signs along the trail and these should be available in Thai and English languages.
6. In fact, the survival of MNP in the future depends heavily on the younger generation. In this regard, the park should create children groups for conservation training which can help them to develop awareness of marine conservation.

7.2.2 Planning

1. Planning and management at Mu Ko Chang should encourage a co-management approach, involving effective sharing of power and management responsibilities between government and local communities when implementing visitor education programs and management regulations. Stakeholder participation among government agencies, the private sector and local communities should be immediately improved in order to reduce the conflict between them. Ideally, local communities are the most important stakeholder to get involved in the management plan.
2. The park should also ensure a safe coastal environment, especially with reference to natural disasters such as storms and tsunamis. This is necessary for coastal tourism to be sustainable over the long term.
3. Ecotourism activities should be promoted more in the park in order to conserve the environment and sustain the livelihood of local people. Nevertheless, for ecotourism activities to be sustainable, they must be managed appropriately and with special care.
4. The park requires better regulation of private operators and integrated land use planning processes to deal with the impacts of private land development.

7.2.3 Local communities

1. Employment opportunities should be provided to local people in activities like training and supporting them as tourist guides. Local ownership and management of tours could help to ensure the economic benefits and conservation benefits of tourism in the park and enhance the long-term sustainability of local communities.
2. To ensure sustainable tourism development, local people should be educated on conserving marine ecosystems because some local people do not understand the marine ecosystem and the factors which can lead to coral reef degradation and also encouraged to participate in the management plan because they play an important role in taking care of their own environment. The strategies of the education program can be group discussion and slide presentation.

7.2.4 Resource Protection

1. Monitoring and controlling of the pollution sources, improving the understanding of impacts of pollution on resources and ecosystems and establishing litter clean up programs should be given urgent attention. Clean water programs are important to sustainable tourism.
2. To prevent habitat destruction and pollution, increased attention should be paid towards coastal tourism development and shrimp farms in the area.
3. All development construction, especially resorts and hotels close to foreshore on Mu Ko Chang should be required to conform with strict environment standards, so that excess sewage, sediments and other pollutants do not degrade marine ecosystems such as coral reefs.
4. The park should not establish more infrastructure and facilities (accommodation, restaurants, convenience stores, public telephones, roads and car parks, piers, boat facilities, diving facilities); but focus on maintaining existing infrastructure.

7.2.4 Finance

1. It is advisable for tourist fees to be retained locally within the park, rather than go directly to central government.
2. Entrance fees to National Parks should set at the same level for both Thai residents and international visitors.

Implementing all these recommendations would help maintain and enhance quality visitor experiences in the Mu Ko Chang Marine National Park, reduce the environmental impacts of tourism, and deliver increased benefits to local communities.

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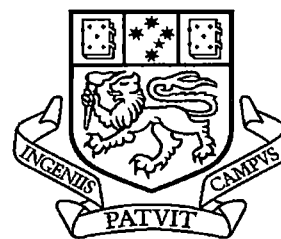
PERSONAL COMMUNICATIONS

Vijan, S., Chief of Department of Meteorology, Thailand, 2005, Conservation with the author, 11 May.

Jaisa-ard, S., Head Manager of Mu Ko Chang Marine National Park, Thailand, 2005, Conservation with the author, 25 March.

APPENDICES

**Appendix A: Information Sheet and Questionnaires for
Management of Mu Ko Chang Marine National Park for
Tourism.**



UNIVERSITY OF TASMANIA

School of Geography and Environmental Studies

February 2005

INFORMATION ON THE RESEARCH PROJECT:

Tourism management for the Mu Ko Chang Marine National Park

You are being invited to participate in this study as a visitor to the Mu Ko Chang Marine National Park. This Information Sheet gives you details of the research and persons to contact for further information and or any concerns you may have about the conduct of the research.

Background to the project

Tourism is often claimed to have the potential to yield sustainable economic benefits to local communities. Thailand's coastal and marine areas are becoming a critical component in the development of the national tourism industry. However, high levels of visitation to coastal and marine areas can also lead to marine environmental degradation, compromising the very values that make these environments attractive for tourists.

General purposes of the project

This project is being undertaken as part of the requirements of Nutcharat Nitjanate's Master of Environmental Management at the University of Tasmania. Its main focus is to explore the tourism management at Mu Ko Chang Marine National Park. This is being done in cooperation with Mu Ko Chang Marine National Park staff and the National Park, Marine National Park Division and The Department of National Park, Wildlife and Plant Conservation.

Anticipated outcomes of the project

It is hoped that the study will enhance our understanding of the benefits and costs of marine park tourism in Thailand, as well as assist the development of tourism guidelines for marine park management. The result of this research should be available sometime after July 2005. If you would like a copy of the result of this research project please contact Nutcharat Nitjanate (ph. +61 3 6226 2839, +66 34 471706).

Confidentiality

The information provided to us is completely confidential, and we will ensure that no individual can be identified in any documents reporting the results of surveys. Any information obtained through the surveys will be retained and stored securely on the University premises for a period of five years after which it will be destroyed.

Details of the interview

You will be asked to fill out a questionnaire asking how you use the Mu Ko Chang Marine National Park area, what you value about the Mu Ko Chang Marine National Park, and if there are any problems that you think should be addressed. The questionnaire will take about 15 minutes. The researcher will give you time alone to complete the survey, and then return to collect it from you.

Consent

Participation in this study is entirely voluntary and you may withdraw at any time. Once you have filled out the questionnaire and returned it to the researcher, it will be assumed that you have given your consent to participate in the study.

Contact Persons

The research team consists of Dr Michael Lockwood (Chief Investigator), Senior Lecturer, Environmental Planning School of Geography and Environmental Studies and Nutcharat Nitjanate (Researcher), Master of Environmental Management candidate. If you have any queries regarding this letter or the project, please contact Michael Lockwood (ph. +61 3 6226 2434; Michael.Lockwood@utas.edu.au) or Nutcharat Nitjanate (ph. +61 3 6226 2839, +66 34 471706; nn3@postoffice.utas.edu.au).

Ethics Approval

This project has received approval from the Human Research Ethics Committee (Tasmania) Network. If you have any concerns about the conduct of the research or any concerns of an ethical nature, you may contact the Executive Officer of the Human Research Ethics Committee (Tasmania) Network, Amanda McAully on +61 3 6226 2763; Amanda.McAully@utas.edu.au.

Michael Lockwood
Chief Investigator

Nutcharat Nitjanate
Researcher

Tourism at Mu Ko Chang Marine National Park
A survey of your views

1. Your knowledge of the park

1.1 How did you find out about Mu Ko Chang Marine National Park?

- ☐ I am a local resident
- ☐ from friends/ relatives
- ☐ from the media
- ☐ from a travel agency
- ☐ from a government office
- ☐ other (please specify) _____

1.2 How many times have you been to Ko Chang Marine National Park?

- | | |
|--|----------------------------------|
| <input type="checkbox"/> Once | <input type="checkbox"/> Twice |
| <input type="checkbox"/> 3 times | <input type="checkbox"/> 4 times |
| <input type="checkbox"/> More than 4 times | |

1.3 If you have been to Ko Chang Marine National Park more than once, in what season do you usually come?

- | | | |
|---------------------------------------|---------------------------------|---------------------------------|
| <input type="checkbox"/> Rainy Season | <input type="checkbox"/> Summer | <input type="checkbox"/> Winter |
|---------------------------------------|---------------------------------|---------------------------------|

2. Transport and groups size

2.1 How did you come to Mu Ko Chang Marine National Park?

- | | |
|---|--------------------------------------|
| <input type="checkbox"/> By bus/on tour | <input type="checkbox"/> Private car |
| <input type="checkbox"/> Rented car | <input type="checkbox"/> Other _____ |

2.2 Did you come on this trip:

- | | |
|---|---|
| <input type="checkbox"/> Alone | <input type="checkbox"/> With Family |
| <input type="checkbox"/> With Friends | <input type="checkbox"/> With Both Friends and family |
| <input type="checkbox"/> With a Tour Agency | <input type="checkbox"/> Other _____ |

3. Details of this trip

3.1 How long do you intend to stay?

- | | |
|-------------------------------------|---|
| <input type="checkbox"/> One Day | <input type="checkbox"/> Two Days |
| <input type="checkbox"/> Three Days | <input type="checkbox"/> More than Three Days |

3.2 If you are staying in the area overnight, what type of accommodation do you have?

- | | |
|---|--------------------------------------|
| <input type="checkbox"/> Resort | <input type="checkbox"/> Tent |
| <input type="checkbox"/> National Park Guest house | <input type="checkbox"/> Hut |
| <input type="checkbox"/> Resident in nearby community | <input type="checkbox"/> Other _____ |

3.3 Which sites in the Park have you visited or do you intent to visit?

_____ Island

- | | |
|---------------------------------------|------------------------------------|
| <input type="checkbox"/> Ko Chang | <input type="checkbox"/> Ko Wai |
| <input type="checkbox"/> Ko Chang Noi | <input type="checkbox"/> Ko Khlum |
| <input type="checkbox"/> Ko Lao Ya | <input type="checkbox"/> Ko Mai Si |
| <input type="checkbox"/> Ko Rang | <input type="checkbox"/> Ko Ngam |
| <input type="checkbox"/> Ko Maak | <input type="checkbox"/> Ko Kood |

_____ Beaches

- | | |
|--|--|
| <input type="checkbox"/> White Sand Beach | <input type="checkbox"/> Klong Prao Beach |
| <input type="checkbox"/> Kai Bae Beach | <input type="checkbox"/> Long Beach |
| <input type="checkbox"/> Klong La Haan Beach | <input type="checkbox"/> Klong Yai Kee Beach |
| <input type="checkbox"/> Bang Bao Beach | <input type="checkbox"/> Klong Chao Beach |

_____ Waterfall

- | | |
|---------------------------------------|--------------------------------------|
| <input type="checkbox"/> Nang Yom | <input type="checkbox"/> Than Ma Yom |
| <input type="checkbox"/> Klong Non Si | <input type="checkbox"/> Klong Plu |
| <input type="checkbox"/> Klong Nung | <input type="checkbox"/> Khiriphet |
| <input type="checkbox"/> Klong Chao | |

_____ Other _____

3.4 What type of activities would you generally be involved in when visiting Mu Ko Chang Marine National Park?

- | | |
|---|---|
| <input type="checkbox"/> Swimming | <input type="checkbox"/> Education / Research |
| <input type="checkbox"/> Camping | <input type="checkbox"/> Wilderness experience |
| <input type="checkbox"/> Sunbaking | <input type="checkbox"/> Elephant jungle trekking |
| <input type="checkbox"/> SCUBA diving / snorkelling | <input type="checkbox"/> Nature appreciation |
| <input type="checkbox"/> Picnic | <input type="checkbox"/> Kayaking |
| <input type="checkbox"/> Walking | <input type="checkbox"/> Underwater photography |
| <input type="checkbox"/> Fishing | <input type="checkbox"/> Other _____ |

Which of these activities do you enjoy the most? _____

Please explain why _____

4. Park management

4.1 Have you been given information on marine conservation from any of the following sources?

- | | |
|---|--|
| <input type="checkbox"/> None | <input type="checkbox"/> National Park Officer |
| <input type="checkbox"/> Local Official | <input type="checkbox"/> Village Chief |
| <input type="checkbox"/> Television | <input type="checkbox"/> Radio |
| <input type="checkbox"/> School Teacher | <input type="checkbox"/> Newspaper |
| <input type="checkbox"/> Other _____ | |

4.2 Have you ever seen National Park Officers on duty?

- | | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

4.3 How important are the following park objectives? Please circle your answer.

Objective	Not Important	Slightly Important	Important	Very Important	Don't Know
Conserving marine environments	1	2	3	4	0
Maintaining scenic attraction	1	2	3	4	0
Allowing public access	1	2	3	4	0
Providing tourist services and facilities	1	2	3	4	0
Providing economic benefits for local communities	1	2	3	4	0
Controlling litter and pollution	1	2	3	4	0
Preventing illegal activities such as fishing	1	2	3	4	0

4.4 To what extent do you think current park management is achieving the following objectives? Please circle your answer.

Objective	Not Being Achieved	Partly Achieved	Fully Achieved	Don't Know
Conserving marine environments	1	2	3	0
Maintaining scenic attraction	1	2	3	0
Allowing public access	1	2	3	0
Providing tourist services and facilities	1	2	3	0
Providing economic benefits for local communities	1	2	3	0
Controlling litter and pollution	1	2	3	0
Preventing illegal activities such as fishing	1	2	3	0

4.5 What level and type of facilities do your think should be provided in Mu Ko Chang Marine National Park? Please circle your answer

Facility	Less than at present	Same as at present	More than at present
Accommodation	1	2	3
Restaurants or take-away food	1	2	3
Convenience stores	1	2	3
Public telephones	1	2	3
Rubbish bins	1	2	3
Visitor Information Centre	1	2	3
Roads and car parks	1	2	3
Information signs	1	2	3
Piers	1	2	3
Boating facilities	1	2	3
Diving facilities	1	2	3

5. Information about yourself

We need this information to assist us interpreting our results. Again, we assure you that your responses will remain completely confidential. Your name will not be associated with your answers in any way.

5.1 Are you: _____ Male _____ Female

5.2 What is your age? _____ Years

5.3 What is your occupation?

Government official

 Agriculture pursuit

Student

Unemployed

Private official

Trader

 Housekeeper

Other _____

5.4 Where do you live?

Local resident

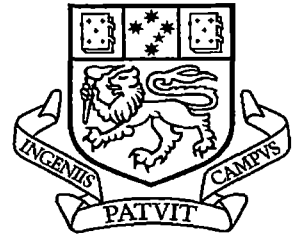
Thailand resident

International Visitor from _____

If you have any other comments on tourism at Mu Ko Chang Marine National Park, please write them down here:

Thank you very much for filling out this survey!

**Appendix B: Information Sheet, Consent Form and Questions
for tourism management of Mu Ko Chang Marine National
Park for National Park Officer Interviews**



UNIVERSITY OF TASMANIA

School of Geography and Environmental Studies

March 2005

INFORMATION ON THE RESEARCH PROJECT:

Tourism management for the Mu Ko Chang Marine National Park

You are being invited to participate in this study as a manager of the Mu Ko Chang Marine National Park. This project is being undertaken as part of the requirements of Nutcharat Nitjanate's Master of Environmental Management at the University of Tasmania.

This Information Sheet gives you the details of the research and persons to contact for further information and or any concerns you may have about the conduct of the research.

What this project is about

The main focus of this project is to explore the tourism management at Mu Ko Chang Marine National Park. This is being done in cooperation with Mu Ko Chang Marine National Park staff and the National Park, Marine National Park Division and The Department of National Park, Wildlife and Plant Conservation.

Tourism is often claimed to have the potential to yield sustainable economic benefits to local communities. Thailand's coastal and marine areas are becoming a critical component in the development of the national tourism industry. However, high levels of visitation to coastal and marine areas can also lead to marine environmental degradation, compromising the very values that make these environments attractive for tourists.

It is hoped that the study will enhance our understanding of the benefits and costs of marine park tourism in Thailand, as well as assist the development of tourism guidelines for marine park management.

What your participation involves

Participation in this research will involve an interview comprising 11 questions about management of tourism, with a focus on Mu Ko Chang Marine National Park. The interview will take approximately 30-45 minutes. With your permission the interview will be tape-recorded. If you would rather the interview was not recorded please tell the interviewer and she will take written notes instead. If you wish, you will have the opportunity to review the notes or transcription of the tape recording. You can also ask the researcher to provide you with a copy of these documents.

Consent to participate

We have already contacted you by phone to see if you are willing to participate in the research, and have made an appointment for an interview at your office. Participation in this study is entirely voluntary, and is evidenced by signing a consent form. In any case, however, you may decline to answer any question, or withdraw at any time from the study. If you decide to withdraw, you may also ask for any information so far supplied to be returned to you.

Confidentiality and anonymity

The researchers will treat the information you provide to us as confidential. Also, they will ensure that you are not identifiable in any documents reporting the results of interviews. Although your comments may appear in the final report, to ensure anonymity they will not be linked with your name. If after the interview you have concerns about your comments, you are encouraged to contact the interviewer should you wish them edited or removed from the interview notes.

The information you supply via the interview process will be retained and stored securely on University of Tasmania premises for a period of five years, after which it will be destroyed.

Contact Persons

The research team consists of Dr Michael Lockwood (Chief Investigator), Senior Lecturer, Environmental Planning School of Geography and Environmental Studies and Nutcharat Nitjanate (Researcher), Master of Environmental Management candidate. If you have any queries regarding this letter or the project, please contact Michael Lockwood (ph. +61 3 6226 2434; Michael.Lockwood@utas.edu.au) or Nutcharat Nitjanate (ph. +61 3 6226 2839, +66 34 471706; nn3@postoffice.utas.edu.au).

The result of this research should be available sometime after July 2005. If you would like a copy of the result of this research project please contact Nutcharat Nitjanate (by phone or by email).

Ethics Approval and Contacts

This project has received approval from the Human Research Ethics Committee (Tasmania) Network. If you have any concerns about the conduct of the research or any concerns of an ethical nature, you may contact the Executive Officer of the Human Research Ethics Committee (Tasmania) Network, Amanda McAully on +61 3 6226 2763; Amanda.McAully@utas.edu.au.

Thank you for your interest in this project.

Michael Lockwood
Chief Investigator

Nutcharat Nitjanate
Researcher

Consent Form

Management of Marine National Parks for tourism value: a case study of Mu Ko Chang Marine National Park, Thailand

1. I have read and understood the 'Information Sheet' for this study.
2. The nature and possible effects of the study have been explained to me.
3. I understand that the study involves the following procedure: a face-to-face interview of about 30-45 minutes duration, to be tape-recorded for transcription. The questions will concern the tourism management at Mu Ko Chang Marine National Park, as well as your experience in this area.
4. I understand that there will be no risk above the everyday type by participating in this research, as any information I provide will be treated as confidential and my anonymity will be protected.
5. I understand that all research data will be securely stored on the University of Tasmania premises for a period of 5 years. The data will be destroyed after 5 years.
6. Any questions that I have asked have been answered to my satisfaction.
7. I agree the research data gathered for the study may be published provided that I cannot be identified as a participant.
8. I understand that my identity will be kept confidential and that any information I supply to the researcher(s) will be used only for the purposes of the research.
9. I agree to participate in this investigation and understand that I may withdraw at any time without any effect, and if I so wish, may request that any information I have supplied be withdrawn from the research.

Name of participant

.....

Signature of participant

.....Date.....

10. I have explained this project and the implications of participation in it to this volunteer and I believe that the consent is informed and that he/she understands the implications of participation.

Name of investigator

.....

Signature of investigator

.....Date.....

Questions for Key Informants
Tourism management in Mu Ko Chang Marine National Park

1. What role and responsibility do you have for tourism at Mu Ko Chang Marine National Park?
2. More generally, what roles have you had or currently have related to park management and ecotourism?
3. How many years experience have you had related to park management and ecotourism?
4. What do you think is meant by sustainable tourism?
5. Do you think tourism in the Mu Ko Chang Marine National Park is sustainable? Please explain the reasons for your answer.
6. What do you think is meant by ecotourism?
7. Are there any activities in Mu Ko Chang Marine National Park that you consider to be ecotourism? If, so which activities, and why?
8. Do you think that there are any problems in tourism management at Mu Ko Chang Marine National Park? If so, can you please:
 - describe these problems
 - indicate how they are being addressed
 - indicate how you think they should be addressed.
9. Does your organization provide tourists with information about:
 - the natural and cultural values of the Park?
 - how they can minimise the impacts and maximise the benefits of their visit?
10. What benefits, if any, do you think tourism in the Mu Ko Chang Marine National Park brings to:
 - a. the local community?
 - b. Thailand more generally?
 - c. visitors?
 - d. your organisation?
11. Do you have any other comments on the future development and management of tourism at Mu Ko Chang Marine National Park?