



Evaluating the management effectiveness of Thailand's marine and coastal protected areas

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IUCN Thailand member organizations compose of 5 leading natural resource and environmental conservation organizations in the country. They are the Department of National Parks, Wildlife and Plant Conservation under the Ministry of Natural Resources and Environment, Thailand Environment Institute, Seub Nakhasathien Foundation, Asia-Pacific Regional Community Forestry Training Centre, and the Good Governance for Social Development and Environment Institute.

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Glossary

ABC	Asian Bureau for Conservation
AHP	ASEAN Heritage Park
ARCBC	ASEAN Regional Centre for Biodiversity Conservation
ASEAN	Association of South East Asian Nations
CATSPA	Catalyzing Sustainability of Thailand's Protected Area System
CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species
COBSEA	Coordinating Body of the Seas of East Asia
DENR	Department of Environment and Natural Resources, Philippines
DMCR	Department of Marine and Coastal Resources
DNP	Department of National Parks, Wildlife and Plant Conservation, Thailand
DRR	Disaster risk reduction
GDP	Gross domestic product
IUCN	International Union for Conservation of Nature
JOMPA	Joint Management of Protected Areas project
KNPS	Korea National Parks Service
LAC	Limits of Acceptable Change
MCPA	Marine and Coastal Protected Area
MEA	Management Effectiveness Assessment
MEE	Management Effectiveness Evaluation
MFF	Mangroves for the Future
MONRE	Ministry of Natural Resources and Environment, Thailand
MNP	Marine National Park
NEB	National Environment Board
NESB	National Economic and Social Development Board
NGO	Non Government Organisation
NP	National Park
ONEPP	Office of Natural Resources and Environmental Policy and Planning
PA	Protected Area
PAC	Protected Area Committee
PAME	Protected Area Management Evaluation
PCF	Provincial Conservation Forum
RFD	Royal Forest Department
TAT	Tourism Authority of Thailand
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Education, Scientific and Cultural Organisation
UNFCCC	United Nations Framework Convention on Climate Change
UP-MSI	University of the Philippines-Marine Science Institute
WCMC	World Conservation Monitoring Centre
WCPA	World Commission on Protected Areas
WWF	Worldwide Fund for Nature

Preface

Thailand's protected areas already form one of the largest systems in the world as a proportion of national territory, and the government plans to increase the protected area estate to 25 per cent over the next decade. The development progress over the past several decades has often occurred at the expense of its natural resource systems. Forests, seashores and wetlands have been damaged and various types of development infrastructure have replaced natural environments. Economic priorities took precedence over conservation. Protected areas are the last remaining bastions of Thailand's vital natural resource systems.

Thailand's protected area system was inaugurated in the 1960s following the enactment of the *Wild Animals Reservation and Protection Act* (1960) and the *National Parks Act* (1961). However, area gazettal only began in the 1980s, by which time the nation's forests had already begun to be substantially degraded and fragmented, primarily due to logging, agricultural expansion and settlement. Among the primary reasons for gazetting protected sites was the conservation of biological diversity and critical habitat. Contiguous forest areas were already downsized to the extent that gazetted sites tended to be mostly small and mid-sized. Wetlands areas and brackish and freshwater coastal sites tended to be underrepresented. There was less deliberate effort to ensure that specific bio-geographical zones and habitats were sufficiently represented in the system.

From 1989 onwards, the protected area system has been expanded rapidly as a result of the logging ban and other government conservation policies. Up to October 2002, the system was managed and supervised by the Royal Forest Department (RFD). Since 2002, protected areas have been managed by the Department of National Park, Wildlife and Plant Conservation (DNP). Both departments fall under the Ministry of Natural Resources and Environment (MONRE) as does the Department of Marine and Coastal Resources.

Awareness of the importance of protected areas in preserving the nation's ecological integrity has grown with rapid modernization. Increasingly, both the Royal Thai Government and the Thai people have recognized that the kingdom's protected area estate is a vital asset, both for conserving natural systems and species, and for sustaining national economic development potential and the livelihoods of millions of rural people.

Evaluating the management effectiveness of Thailand's Marine and Coastal Protected Areas is therefore a significant and timely initiative. In the past, conservation issues were viewed as being separate from economic development concerns. This is changing, however. Marine and coastal protected area conservation has now become a major consideration for economic planners and a range of government and private sector development organizations. Protected area conservation and national economic development concerns are substantially interlinked. The development of the marine and coastal protected area network has helped to crystallize the understanding of the multiple benefits that marine and coastal protected areas provide to a range of development sectors. It is now much better appreciated that these areas are essential for maintaining the capacity of critical ecosystems to support sustainable development and this realization has galvanized a multi-sectoral conservation and development constituency.

Adopting the recommendations emerging from the evaluating effectiveness of Thailand's Marine and Coastal Protected Areas will enable the development benefits of coastal and marine protected areas to be conserved and incorporated into the mainstream of Thailand's development planning process, to highlight the role of protected areas in creating sustainable livelihood and resilience.

1.0 Summary and conclusions

Marine and coastal protected area system *

Thailand's protected area system was established more than 50 years ago. The country has an impressive record in creating parks which now cover more than 20% of the country's land surface. More than 12% of marine and coastal areas are also reported as protected under the jurisdiction of a number of government agencies and Thailand has aspirations to increase marine and coastal protection to 30%. Nonetheless gaps remain in protection of all ecosystems, habitats and threatened species. There is a need to communicate more clearly what the overall vision is for Thailand's protected areas and how they will contribute to national biodiversity conservation and sustainable development strategies. A review of previous gap analyses is needed to clearly define a more comprehensive, adequate and representative protected area system including marine and coastal environments. Coverage figures quoted above also need to be verified against internationally recognised definitions for protected areas.

Thailand's efforts to create protected area complexes and enhance connectivity are to be applauded, however, the gains being made through these initiatives are being eroded by other threats to natural systems such as illegal fishing, encroachment, conversion and edge development impacts.

* This report uses the term Marine and Coastal Protected Areas (MCPAs) to indicate all protected areas with a marine and coastal component across multiple jurisdictions. In some cases findings and recommendations relate to the system in Thailand as a whole. However, the focus of this study has been on Marine National Parks (MNPs) managed by the Department of National Parks, Wildlife and Plant Conservation (DNP). Both terms (MCPAs and MNPs) are used within the report.

Legislation, governance, policy, business management and institutional responsibilities

As a subset of all of Thailand's MCPAs, all the MNPs evaluated in this study were created by and managed through the National Park Act, 1961. The National Park Act is antiquated and, in its current form, is a major impediment to Thailand and the DNP in moving toward more progressive and adaptive protected area management. DNP as an agency has a top heavy staffing structure that coupled with poor delegated authority and bureaucratic internal processes, greatly hampers effective decision-making. Efforts to foster joint management are commendable but not widely implemented in all MNPs. More work will be needed to engage local communities and other stakeholders in empowered site level management. Governance issues also relate to corruption (dishonesty among some officials) which is an issue that requires constant attention.

The key place of Thailand's MNPs in economic development, especially through tourism, augurs well for DNP to build strong partnerships with business. However, internal capacities need to be strengthened to allow a mutually supportive relationship with the business sector.

Staff structure and organisation

By international standards DNP is a relatively well-staffed agency but its effectiveness is reduced because of a rigid hierarchical structure with long accountability chains and poor delegation of authority to field-based managers. The appointment and staff rotation policy of the agency further reduces efficiency and effectiveness. Park Superintendents are appointed politically without regard for the

appropriateness of their experience or qualifications for marine management. While park rangers often have a good understanding of local conditions and a positive relationship with stakeholders, staff are rotated frequently and acquired knowledge and relationships are then often lost. Training at the field level is difficult to access and often not targeted to management needs.

Comprehensive reform of DNP organisational and accountability arrangements is required to modernise the agency and align its administrative processes to the contemporary management needs confronting it.

Natural values

The threats to natural values affecting the integrity of the Thai MNP system are widespread and their impacts on biodiversity are serious. Unregulated visitor and tourism use, coupled with pressure from local communities for use of MNP land, water and natural resources are a serious challenge to MNP managers, who are often insufficiently experienced, qualified or equipped to deal with these issues. However, where management has been applied in properly planned and resourced programs, natural resource condition has improved.

Many of the current shortcomings in management of natural resources in MNPs could be overcome by using a planned approach to addressing the key threats to the highest values. This will require a comprehensive assessment of the condition of each park's natural values, implementation of an adaptive management approach to protect, improve and restore natural values and the development of research and monitoring programmes to track and report on changes over time.

Fisheries

Fisheries management in Thailand is regulated through the Fisheries Department which is in a different Ministry to DNP. Fishing in Thailand's MNPs is something of an anomaly: despite the creation of protected areas in which fishing is prohibited, artisanal and commercial fishing continues and is expanding as marine biomass in and around the parks declines through fishing pressure. Management response to fishing is not formalised and this activity largely continues unabated, despite some MNP attempts to regulate artisanal fishing, because of the reliance that local communities have on fishing for sustenance and livelihoods. To overcome the inadequacies within the National Park Act a Cabinet Resolution of 2001 overrides the Act to permit artisanal fishing in the parks as long as it does not contravene the Fisheries Act. Management of commercial fishing is hampered by lack of training and equipment and, because of economic pressure and political influence, also continues within MNPs. As fish stocks outside of the MNPs decline further, pressure from this illegal use is likely to increase.

If fishing is to be brought under control, a concerted response is required across a broad range of management programmes. National Parks legislation and other statutes require harmonisation; the impacts and extent of fishing need to be assessed; local communities should be surveyed to determine the extent of their dependence on fishing in MNPs and alternative income sources explored; training and equipment should be provided to MNP staff to enable them to manage effectively; and research programmes targeted at providing information to assist the management of fishing should be designed and implemented. Zoning systems that provide for effectively enforced no take zones across much of the parks but with controlled artisanal fishing permitted in some locations should be investigated.

Tourism and visitor management

The iconic coastal and offshore features of Thailand's MNPs are a foundation asset for the nation's tourism economy. A shift from an exploitative culture to a more stewardship-like one is needed to ensure these assets remain in good condition.

Visitor pressures in most parks are causing damage despite DNP efforts to establish carrying capacities and monitor use. Policy and guidelines are not detailed enough nor are they being universally applied to protect key values.

Park use is very variable but overall fewer people are recorded as visiting Thailand's National Parks in recent years. This is probably a result of multiple factors such as declines due to externalities like the recent volatile political situation in Thailand coupled with inaccurate recording of visitor numbers. Any declining trend in overall use is concerning as it will inevitably lead to ignorance of park values and benefits and ultimately reduced levels of support for the protected area system. Park use should be stabilised to ensure healthy patronage and a supportive community. DNP's successful public education and awareness programmes should be expanded to reinforce the importance of the system.

Community and stakeholder engagement

DNP has established systems for community involvement at the site level but this activity receives relatively little staff time and budget and hence many issues with stakeholders and communities remain to be resolved. Successful resolution of major issues (principally over artisanal fishing and access to tourism sites) will likely be needed before the community engagement processes that DNP has initiated translate into significantly improved community relations. Policy and legislative review and increased attention from staff will be needed to address these issues consistently across the system. Although there is much room for improvement, the Protected Area Committee system provides an essentially positive mechanism for community engagement. Overall the MNPs were judged by the review team to be providing mostly positive benefits to both the local and broader communities.

Research and monitoring

Research and monitoring performance is variable across the MNP system, with heavy reliance on external researchers in those sites where most activity is taking place. Improvement in staff skills and training will be needed before internal capacity for marine based research and monitoring can be improved. A more structured process to consult with and involve universities and external researchers should be pursued to better manage and direct research and monitoring activities. The MNP Research Centres in Phuket (Northern Andaman), Trang (Southern Andaman) and Chumphon (Thai Gulf) have already made progress in building these relationships and providing a better research and monitoring service in support of DNP.

Ten Key Recommendations

Strengthen the foundations of the protected area system

1. **Review and reform the National Parks Act (1961)** to align it with contemporary protected area (PA) legislation, including its relationship to other statutes (especially the Fisheries Act) and incorporate marine protected area management, management planning, zoning, community consultation and management of tourism and commercial activities. The reform process would benefit from several IUCN guidelines in particular the IUCN Guidelines for Protected Area Legislation¹ and the IUCN Guidelines on Protected Management Area Categories².
2. **Adopt the Thai Protected Area Master Plan and complete the Thai protected area system** which sets the vision for the protected area system and articulates the values, benefits and potential outcomes of a properly resourced protected area system as a contributor to Thailand's conservation and development aspirations. The Master Plan should guide the completion by 2020 of the Thai MCPA network (of which MNPs are only a part) implementing the findings of the gap analyses conducted over the past decade to build a balanced and resilient system having regard to comprehensiveness, adequacy, representativeness and connectivity. By 2020 DNP should ensure that each unit has an effective and implemented management plan.

Address the threat of uncontrolled fishing

3. **Initiate an integrated programme to improve fisheries management within MNPs** addressing legal and institutional reform and harmonization; improved training of protected area staff, livelihood security; and strengthened monitoring of marine resources. Develop and implement zoning systems for MNPs which can accommodate no-take zones as well as multiple use zones thereby balancing sustainable marine use with conservation.

Coordinate protected area system management

4. **Reform DNP and interagency relationships** within the Thai Ministry of Natural Resources and Environment and other relevant Ministries to streamline management accountabilities and coordinate activities between agencies. Review delegations of authority to regional protected area offices and protected area managers to improve decision-making processes and enhance liaison with provincial, local and community governments and the business sector.

¹ Lausche, Barbara. (2011). *Guidelines for Protected Areas Legislation*. IUCN, Gland, Switzerland. xxvi + 370 pp.

² Dudley, N. (Ed) (2008). *Guidelines for Applying Protected Area Management Categories*. Gland, Switzerland: IUCN. x + 86pp

Increase management capacity

5. **Establish a sustainable financing base** for marine protected area management by segregating MNP budgets from terrestrial protected areas, diversifying revenue sources, establishing site-based incentives for revenue generation in each MNP and developing periodic (3 to 5 years) departmental corporate plans and annual business plans to inform government and provide leadership to managers about corporate direction, programs and strategies.
6. **Reform staff placement and training policies** to provide continuity in delivery of services and programs by qualified and experienced staff, particularly focusing on the rotation of MNP Superintendents and their staff and the provision of needs-based training in marine and coastal management, law enforcement, community engagement and tourism management. Consider establishing a core group of staff who are qualified and experienced in marine and coastal management who remain in the MNP system to provide ongoing expertise, guidance and on-the-job training to other staff. Aim to have at least 75% of MNP superintendents with a marine background by 2015 and for all MNPs to have at least one permanent professional staff member with relevant marine management experience and training.
7. **Develop an integrated programming, planning, research, monitoring and reporting system** to embed the principles of management effectiveness evaluation and adaptive management in the MNP system and which will complement other initiatives such as CATSPA and the PA Master Plan. Consider the preparation of a periodic (every 3 to 5 years) State of the Parks report based on a regular program of site-based management effectiveness assessment to track changes in MNP site condition and management improvement.

Engage stakeholders and communities

8. **Include local communities in MNP decision-making** by assessing and adopting different governance mechanisms which have been used or proposed for the Thai PA system. For example, through expanding the Andaman Seas Committee structure proposed as part of the planned World Heritage nomination or through replicating and formalizing the Provincial Conservation Forums currently operating in the Western Forest Complex. Use these forums and the existing Protected Area Committees to engage communities in management planning processes and resolve disputes about encroachments whilst providing land and livelihood security through values-based boundary rationalisation.
9. **Develop partnerships with the tourism industry** and Ministry of Tourism to protect and restore MNP natural values which provide the setting for tourist activities and services. Engage on an equal footing with the tourism sector in developing public-private partnerships and niche marketing strategies for the sustainable use of MNPs that yield an appropriate financial return to the system.

Enhance MNP resilience

10. **Address the key threats to the condition of biodiversity within MNPs** by undertaking a risk-based vulnerability assessment of climate change, extreme weather events, tsunamis and earthquakes. Use the assessment to guide planning and management to reduce the impact of damaging human-induced pressures that exacerbate the effects of natural disasters. Develop a disaster response plan to inform visitors about hazards and provide managers with the training and means to respond promptly and effectively to major incidents.

2.0 Background and context

2.1 Management Effectiveness Evaluation

One of the greatest collective land use decisions the world has seen has quietly taken place in the last 150 years, most of it in just the last 50 years. Almost every nation on earth has worked to create a system of protected areas (PAs) to protect natural and cultural values and secure a benefit for the common good. Globally there are now over 150,000 PAs within the UNEP-WCMC World Database on Protected Areas³ covering more than 12.7% of the earth's terrestrial area, an area the size of the South American continent. The growth in both numbers of PAs and area under protection has been unrelenting and exponential. Thailand has shared in this growth and has a long established system which is one of the larger protected area systems in Asia in terms of area under protection.

IUCN defines a protected area as:

“A clearly defined geographical space, recognised, dedicated and managed through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values”

Dudley, N. (ed). 2008. *Guidelines for Applying Protected Area Management Categories*. IUCN, Gland Switzerland

Despite the growth in coverage most PAs around the world are under threat from a wide range of biophysical, political, social and economic pressures that undermine their integrity. Building on the historical success of establishing this worldwide PA system it is understandable then, that attention is increasingly shifting toward the quality of management and the degree to which values are being retained and enhanced. As is detailed below, techniques to evaluate PA management effectiveness are continuing to evolve as managers and decision-makers try to adapt to a changing world.

2.2 Mangroves for the Future

Known as MFF, Mangroves for the Future was launched by former US President, Bill Clinton in Phuket in December 2006. MFF is a unique partnership-led initiative to promote investment in coastal ecosystems. The initiative is founded on a vision for a *healthier, more prosperous and secure future for all Indian Ocean coastal communities*.⁴ MFF encompasses the vast Greater Indian Ocean region (4m km²) and arose, in part, as a response to the devastating 2004 Asian Tsunami. Despite the name, the initiative aims to deal with all coastal ecosystems not just mangroves, and seeks to balance coastal development, livelihoods, environmental protection and sustainable resource use.

MFF has two main objectives:

1. to strengthen the environmental sustainability of coastal development; and
2. to promote the investment of funds and efforts in coastal ecosystem management.

After focusing initially on the countries worst-affected by the tsunami – India, Indonesia, Maldives, Seychelles, Sri Lanka and Thailand – MFF has now expanded to include Pakistan and Viet Nam (<http://www.mangrovesforthefuture.org/>). The MFF initiative is structured around 15 integrated programmes of work, one of which deals

³ Protected Planet website <http://www.protectedplanet.net/search>

⁴ IUCN. 2008. *Mangroves for the Future: investing in coastal ecosystems*. Brochure

with building national systems of MCPAs that contribute to a regional network of protection. This recognises that a fundamental indicator of the health of coastal systems is the degree of protection for biodiversity, geodiversity and other natural and cultural resources. Previous MFF work has analysed at a regional scale the extent of formal PA systems coverage when measured against major coastal ecosystems such as coral reefs, seagrasses, coastal forests, mangroves; key threatened species; and biodiversity prioritizing systems. The study found that on paper many systems are enjoying protection. However, beyond measures of the extent of protection and gaps is the question of how well these PA systems are conserving the values they were set up for?

2.3 Evaluating Management Effectiveness in Thailand's MCPAs

This project was developed in the context of the MFF Initiative, however, it has a more wide-ranging value to DNP and Thailand's protected area system. Understanding how well Thailand's MCPAs are being managed and the extent to which they are achieving their stated objectives is an essential element of any strategy aspiring to balance use and conservation in the coastal zone. The outcomes of this work will inform ongoing efforts to reform and improve the country's PA system in the context of Thailand's overall development. It will also contribute to the development of the Master Plan for Thailand's protected area system and to meeting Thailand's obligations under the Convention on Biological Diversity.

Thailand is the first country to undertake MEE in the context of MFF. The current project *Evaluating and Improving the Effectiveness of Thailand's MCPAs* has the objective to:

***Strengthen coastal and marine stewardship in Thailand's
marine and coastal protected areas as
a foundation for sustainable development***

The project area covers the coastline of southern Thailand including the marine areas of both the western Andaman Sea and the eastern Gulf of Thailand: two areas separated by a narrow land peninsula, but with distinctly different environmental parameters. 21 MNPs were originally chosen within the study area, but, this was expanded to 23 at the request of DNP. However, only 16 of these completed the site level surveys. See Appendix 1 for a full list of Thailand's MNPs⁵.

The project represents an excellent learning opportunity for the MFF Region and the project design looks to share this learning through MFF and other networks. It is hoped that the principles and methodology developed in Thailand can be adapted for use in other MFF countries.

An additional aspect of the project relates to the identification of MFF Showcase Sites. These are designed to respond to management issues pinpointed through the MEE process such that they might pilot response programmes and share this learning within Thailand and beyond. The project report will be an important synthesis of MEE findings. However, translating findings and recommendations into action is much more critical to achieving improved on the ground conservation outcomes.

Finally, the value of this process for Thailand lies in how it is embraced at the policy and institutional level. The project design aims to raise MEE awareness and capacity within DNP such that the agency adopts an adaptive management approach in its routine operations. It is hoped the specific methodology will continue to evolve

⁵ The English translation of Thai park names varies. This study has utilised the English spelling of the official DNP Guidebook on Thailand's National Parks - Department of National Parks, Wildlife and Plant Conservation 2010. *National Parks in Thailand*. National Parks Office, DNP 296pp

and that DNP will play a leadership role in promoting this approach across other agencies in Thailand with direct and/or indirect responsibility for MCPAs.

The project flowchart (see Appendix 2) illustrates the sequencing of the MEE process and how the proposed project outcomes are configured.

2.4 Related Projects/Other initiatives

This project is designed to be complementary to a number of other projects and initiatives currently or proposed to be undertaken within the Thai MCPA system. Projects and studies which are of most relevance to the MEE work include:

- *A Review of the Protected Area System of Thailand* (2001) prepared by Bugna, S. and Giacomo, R Biodiversity;
- *Thailand National Report on Protected Areas and Development* (2003) by the International Centre for Environmental Management. A system wide review of challenges and opportunities facing Thailand's PA system;
- *Joint Management of Protected Areas Project* (2004-2008) funded by the Danish International Development Agency, particularly in relation to recommendations to improve management effectiveness through participatory joint management approaches;
- *Green Coast Initiative* (2004-2008) led and managed by Wetlands International in partnership with various organizations (including IUCN), particularly in relation to lessons learned regarding improving PA management effectiveness in Hat Thai Mueang Marine National Park and Koh Phra Thong;
- *Gap Analysis of Protected Areas Coverage in ASEAN Countries* (2007) by Birdlife International. Regional gap analysis including Thailand;
- *MCPA Gap Analysis; Existing PA Coverage and Recommendations for Additional Protection. Report to MFF Secretariat.* (2008). Corcoran, E., Turner, D. and Shadie P. UNEP-WCMC, IUCN. Gap analysis for MCPAs in Thailand;
- *Andaman Sea Nature Reserves Management Plan* (2010) DNP prepared in conjunction with proposals to nominate 18 protected areas for inscription onto the World Heritage List;
- *Catalyzing Sustainability of Thailand's Protected Area System (CATSPA)* (2010). DNP. UNDP Project Document. Project aims to overcome barriers to sustainability of Thailand's protected area system, by looking into effective management and sustainable financing of protected areas; and
- *Literature Review, Preliminary PA Gap Analysis, and Framework for the Protected Area Master Plan.* (2011) Dearden P, & Noppawan, T.P. Report submitted as part of National Protected Area Master Plan for Thailand.

Where relevant this report has drawn upon these either earlier, current or planned projects/initiatives/studies in order to better inform findings and recommended responses.

3.0 Study limitations

The management effectiveness evaluation conducted within this project was constrained in a number of ways. These constraints may reduce the value of the findings and recommendations. These limitations arose through project design factors plus the inevitable need to adapt project implementation as circumstances changed. The following limitations are important to note:

1. The assessment was focussed on DNP, which although the key managing agency for MNPs is not the only responsible or influencing agency.
2. The project field mission was conducted earlier than planned for due to concerns about the overall project timeframe. The mission was held in August 2011 during the wet season and regrettably timed during a long weekend and the Ramadan period. This prevented the team from visiting many MNPs and limited the availability of DNP staff and stakeholders. It was not possible to access the offshore islands such as Similan and Surin National Parks.
3. The limited participation in the field mission by senior DNP staff and the lack of input from Mu Ko Lanta National Park at the workshop on 14th August, 2011 was also a constraint. Nonetheless the external evaluation team appreciated the opportunities to interact with staff and stakeholders at various meetings and workshops.
4. Input to the system level evaluation tool was from a varied group which provided a range of views. However, these need to be balanced against biases within the groups responding.
5. Within DNP there has been no review of survey results at Regional or Headquarter levels as is normal practice to remove sample biases and inconsistencies. There was no contact with DNP regional staff.
6. This evaluation focused on a relatively small sample size of MNPs, further reduced by the fact that a number of parks were not able to complete the site level evaluation tool. Regrettably a number of the parks which the field mission did have the chance to visit and familiarise themselves with failed to complete the survey tool.
7. Changes in project management staff both at IUCN and DNP have contributed to instability and delays. Language barriers imposed general limitations as the international team of advisors are all native English speakers without Thai language skills. This has manifested itself both in terms of written background documentation and communication challenges in meetings with DNP and stakeholders.
8. Finally it is important to note the DNP debrief session following the field mission on 17th August 2011 was very constructive and the participation from senior level DNP staff was excellent.

4.0 Introduction to Thailand's MCPAs

4.1 Thailand's nature and biodiversity

Situated on the Indo-Chinese Peninsula and extending south to the Malay Peninsula Thailand is located between 5 and 20° north of the equator. The country covers 514,000km² with a coastline of over 3,000kms. Thailand has a predominantly tropical monsoonal climate with a pronounced wet and dry season. In southern areas the narrow Thai peninsula is subject to strong maritime influences from the Andaman Sea to the west and the Gulf of Thailand to the east of the country. Much of the country is low-lying, however, about one-third of Thailand is found on the Khorat Plateau. The northern part of the country is more hilly, rising to 2,955m ASL at Doi Inthanon.

Thailand borders four countries: Myanmar, Lao PDR, Cambodia and Malaysia at its southern extremity. Administratively Thailand is divided into 77 provinces with eleven of these corresponding with MNPs in the study area: Satun, Phang-nga, Phuket, Trang, Krabi, Ranong, Prachuap Khiri Khan, Surat Thani, Chumphon, Rayong and Trat.

Thailand's biogeographical location results in a rich assemblage of flora and fauna. The country has over 1,700 globally threatened species including several Critically Endangered mammals, birds, reptiles, fish and plants⁶. Nine per cent of all species known to science are reported to be found within the country⁷. Thailand's marine life is equally rich and substantially different species assemblages occur in the waters either side of the narrow Southern Thailand Peninsula. About 35 species of mangroves and 12 species of seagrass have been reported with 5 species of turtles, and Dugongs also found in the area¹. The draft Master Plan of The Andaman Sea Nature Reserves prepared in conjunction with proposed World Heritage nomination notes the distinct values of the region:

*"The six distinct ecoregions that form the Andaman Bioregion of Thailand capture the most important ecological changes that occur in the eastern Indian Ocean. These include the natural confluence of two oceanic biotas, as the northern Andaman marine ecosystems combine with the Indonesian Through-flow; unique coastal dune and gallery forests that shelter the last remaining nesting grounds for endangered leatherback turtles on the mainland of Southeast Asia; hitherto unknown coral reefs and old-growth mangrove ecosystems that have largely disappeared from the rest of the region; the last remnant of the east Andaman dugong population; karst inselbergs and drowned karst landscape that provide fascinating insights into biological and geological history and a scarcely tapped well of endemic species; biotic transitions between equatorial and monsoonal rainforest and between Indo-Chinese, Indo-Himalayan and Sundaic flora and faunas."*⁸

Thailand has engaged strongly with the international community. It has embraced most international and regional environmental agreements including:

1. Coordinating Body of the Seas of East Asia (COBSEA): UNEP Regional Seas Programme (1981);
2. United Nations Convention on the Law of the Sea (UNCLOS) (1982);
3. CITES (1983);
4. ASEAN Heritage Parks (1984 – 5 parks and/or complexes are AHPs);
5. World Heritage Convention (1987 – 2 Natural and 3 Cultural Properties);

⁶ DNP 2010. *Catalyzing Sustainability of Thailand's Protected Area System (CATSPA)*. UNDP Project Document.

⁷ Bugna, Sahlee and Giacomo Rambaldi. 2001. *A Review of the Protected Area System of Thailand*. Biodiversity. July – September 2001

⁸ DNP. 2010. *Andaman Sea Nature Reserves Management Plan*. Draft in preparation for World Heritage Nomination.

6. UNFCCC (1995);
7. Ramsar Convention (1998 – 11 Ramsar sites); and
8. CBD (2003).

Chapter 2.0 notes various projects and studies which have been or are proposed to be undertaken on Thailand's protected area system. These documents provide a comprehensive overview of the country's nature and biodiversity resources along with descriptions of its protected area system.

4.2 Thailand's Protected Area System

Although conservation concepts in Thailand date back to the 13th Century, the country's contemporary efforts to protect nature and biodiversity date back to the early 1960s and correspond with the enactment of various key pieces of legislation. The Wildlife Protection and Preservation Act was enacted in 1960 (reformed in 1992 and 2003) and the principle law enabling national parks, the National Parks Act was enacted in 1961. Early design and management of the Thai PA system was strongly influenced by North American models. In the early 1960s IUCN worked with the Thai Government to recruit a US National Parks Service staff member, George Ruhle who helped design an initial system of parks, shaped management approaches and so promoted a 20th Century US philosophy within the Thai system, a heritage that persists to this day. The country's first national park, Khao Yai National Park, was established in 1962. Situated not far from the capital, Bangkok, Khao Yai is an iconic Thai park and was inscribed as a World Heritage site in 2005.

There are a number of conservation lands which are variously recognised as PAs in Thailand, although some would not meet the current IUCN definition of a protected area. Four types of protected area are commonly recognised as being central to the Thai system. These are established under three pieces of legislation:

1. National Park Act 1961
2. The Wildlife Protection and Preservation Act 1960,1992
3. National Forest Reserve Act 1964

and include:

1. National Parks (including Marine)
2. Forest Parks
3. Wildlife Sanctuaries
4. Non hunting Areas

The most recent analysis of the Thai PA system comes from the preparatory work being carried out under the CBD National Protected Area Master Plan for Thailand. The authors conclude that:

“In summary, by the end of 2010 Thailand had 354 units of 4 major protected area types designated covering 103,726.86km² or 20.22% of the country area. Another 32 units covering an area of 10,965.05km² or 2.14% of the country are pending approval to be protected areas. If the declaration process flows without any disruption, by 2015 at the latest, Thailand's 4 major protected areas should cover 22.36% of the country area”⁹.

Institutionally most of Thailand's nationally significant PAs are managed by the DNP within MONRE. DNP has several divisions which manage different types of protected area. A range of other government and non-government agencies are

⁹ Dearden, P. and Noppawan P.T. (2011) *Literature Review, Preliminary PA Gap Analysis, and Framework for the Protected Area Master Plan*. Report submitted to IUCN, Bangkok.

recognised as stakeholders in the planning, establishment and management of protected areas. These are noted in Table 1 below¹⁰:

Table 1 *Stakeholders in planning, management and establishment of protected areas in Thailand*

Stakeholder	Roles & responsibilities
Ministry of Natural Resource and Environment (MONRE)	MONRE is mandated to conserve biodiversity resources and protect the environment, by setting standards, laws and providing annual budget support to line agencies. The National Environment Board (NEB) supported by MONRE, is the highest decision-making body for the environment, chaired by the Prime Minister.
Department of National Park, Wildlife and Plant Conservation (DNP)	DNP is the primary agency responsible for managing the PA system and for biodiversity conservation.
Office of Natural Resources and Environmental Policy and Planning (ONEPP)	As the Secretariat to NEB, ONEPP also sets policies and measures for conservation of natural resources and environment. ONEPP is the focal point for Thailand's MEA engagement, and it also houses an office that approves environmental impact assessment report.
National Economic and Social Development Board (NESDB)	NESDB is the highest authority for economic and social development planning in Thailand. A five-year economic and social development plan, presently 11th plan, is produced and monitored by NESDB.
Department of Coastal and Marine Resources (DMCR)	DCMR has the exclusive administrative authority over coastal zones and marine areas of the country and the related resource management issues. However they have no authority over MNPs managed by DNP
Provincial governments	The appointed governors (by the Ministry of Interior) have the highest authority at the provincial level. In principle, most of the line government agencies present at the provincial level report to the governor. But superintendents of Protected Areas do not report to the Governor, they report directly to DNP in Bangkok The Provincial Administrative Organization is headed by an elected Head that facilitates development of a province. Neither the Governor nor the PAO has any direct authority over MNPs
Local governments (Tambon)	Local governments at the lowest level are called Tambon Administrative Organization (TAO). The TAO are directly elected by local people, and thus have the administrative authority at the sub-district level, but no authority to decide what does or does not happen inside an MNP
Local communities	Village and sub-district heads report to the Ministry of Interior through the appointed District Head. Local communities normally also have their own "natural" leaders, who could speak, facilitate, cooperate and mediate conflicts on behalf of the larger members of the communities. These leaders are often appointed as members of PACs.
Royal Forest Department (RFD)	RFD is responsible for the management of public forests outside and often adjacent to PAs.
Non-government Organisations (NGOs)	NGOs and other civil organisations operate quite actively to assist communities, and in some cases in close collaboration with the DNP, on various aspects, such as livelihood improvement and water resources management. Relevant international NGOs as well as local NGOs will contribute public awareness and capacity development skills and guidance.
Provincial Conservation Forums (PCFs)	PCFs have been established within the Western Forest Complex PAs to be a forum for exchange of information and consultation regarding natural resources management. Not yet operationalized across all PAs in Thailand.
Local schools	Local schools enjoy free access to use of PA facilities and human resources as part of lessons in science and nature studies. A representative from local schools would often be appointed a member of the PAC. Student will often become involved in local activities, such as

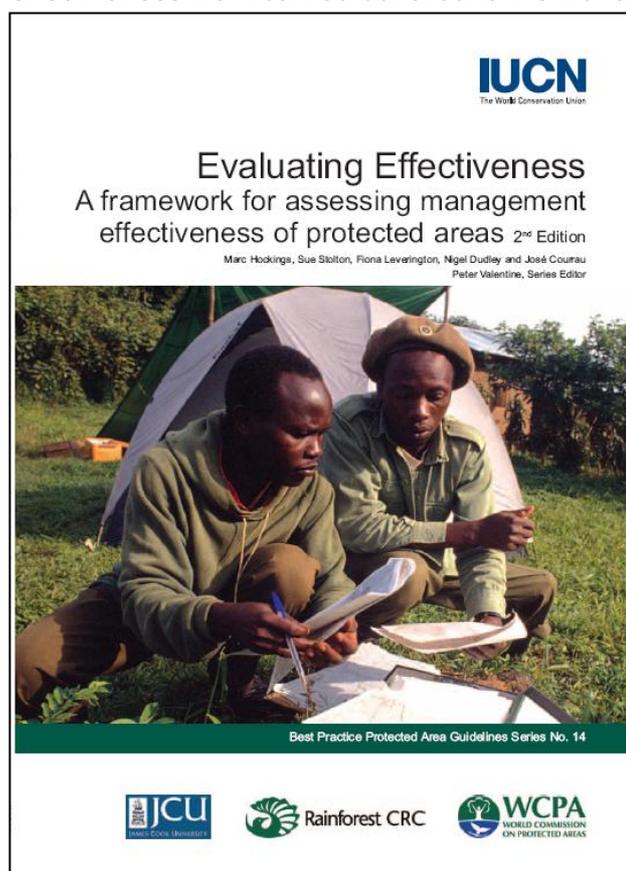
¹⁰ Adapted from: DNP. 2010. *Catalyzing Sustainability of Thailand's Protected Area System (CATSPA)*. UNDP Project Document.

	fund-raising, public campaigns, awareness raising and act as local tour guides.
Trade & tourism associations	Tourism organizations and tour companies have limited contact with DNP, except at the site level and especially when problems arise.
Protected Area Committees (PACs)	PACs have been mandated by the DNP Director General Order of 2005 to broaden participation of local stakeholders in conservation of a PAs. PACs are the most tangible form of local stakeholder participation in local activities, including playing a role in conflict resolution and fundraising.

5.0 Management effectiveness evaluation and assessment process

5.1 Protected Area Management Effectiveness

Management effectiveness evaluation is now a firmly established component of PA management. The development of methodologies for assessing management effectiveness has been led by IUCN's World Commission on Protected Areas (WCPA). A framework for assessment was published first in 2000¹¹ and revised in 2006¹². This Framework forms the basis for over 90 per cent of PA management effectiveness work carried out around the world.



The WCPA framework is not a single assessment methodology but provides technical guidance on the adaptive management cycle and the range of information that needs to be collected to make a balanced assessment.

The WCPA Framework proposes that assessments should consider the full range of elements in the management cycle including:

1. **context** (importance of the PA in terms of biodiversity and other values and threats and pressures);
2. **planning** (design of the PA and management and work planning);
3. **inputs** (the resources needed to run the PA effectively);
4. **process** (how management is conducted);
5. **outputs** (whether identified work targets are met);
6. **outcomes** (whether overall objectives are met in terms of conserving biodiversity and other associated values).

WCPA stresses the need to look beyond the quality of management itself to whether management is actually delivering the underlying values that the PA was set up to

¹¹ Hockings, M. with S. Stolton and N. Dudley (2000); *Evaluating Effectiveness: A framework for Assessing Management of Protected Areas*, IUCN and the University of Cardiff

¹² Hockings, M., S. Stolton, F. Leverington, N. Dudley and J. Courrau (2006.); *Evaluating Effectiveness, A framework for assessing management effectiveness of protected areas 2nd edition* IUCN Gland, Switzerland and , Cambridge, UK

conserve – such “outcome” assessments are inevitably more difficult to perform. The key elements in the WCPA framework are given in Table 2 below.

Table 2 WCPA framework for assessing management effectiveness

Elements of evaluation	Context	Planning	Input	Process	Output	Outcome
<i>Explanation</i>	<i>Where are we now?</i>	<i>Where do we want to be?</i>	<i>What do we need?</i>	<i>How do we go about it?</i>	<i>What were the results?</i>	<i>What did we achieve?</i>
What is being assessed	Importance, threats and policy environment	Protected area design and planning	Resources needed to carry out management	The way in which management is conducted	The quantity of the achievement	The quality of the achievement
Criteria that are assessed	Significance Threats Vulnerability	Legislation and policy Site and system design	Resources of agency Resources of site	Suitability of management processes	Results of management actions Services and products	Impacts; effects of management in relation to objectives
Focus of evaluation	Status	Appropriateness	Economy	Efficiency	Effectiveness	Effectiveness Appropriateness

This framework has since been used to develop various assessment “toolkits”, ranging from rapid site-level scorecards to detailed assessment systems that require research, stakeholder meetings and the development of monitoring systems. For simplicity, approaches to assessment can be divided into three broad types, any of which can involve assessments that range from simple to detailed studies:

1. **System-level assessments:** addressing the management of a PA system as a whole either by assessing management of each of the sites within the system: for example use of New South Wales’ *State of the Parks* system¹³ or a combination of assessments of all (or a selection) of sites combined with an evaluation of the system itself considering a range of institutional level issues: *for example* the evaluation of the Korean PA system.¹⁴
2. **Portfolio-wide assessments:** covering all PAs that are part of an organisation's portfolio, which may therefore be a subset to an overall "PA system", aiming to provide advice to managers of PA portfolios of large donors or intergovernmental organisations: *for example* the use of the WWF/World Bank Tracking Tool to measure progress on project portfolios¹⁵.
3. **Site-specific assessments** covering one or a cluster of contiguous PAs and aiming to provide guidance to protect areas managers: *for example* the *Enhancing our Heritage* project working with natural World Heritage sites¹⁶.

The current project adopted the methodology developed and applied in Korea and Colombia, combining system level assessment with site level assessments. In this case the evaluation was focussed on the management of the marine and coastal PAs in Thailand with the consideration of the system level issues primarily restricted to the management of marine national parks, although it necessarily addressed some

¹³ NSW National Parks and Wildlife Service (2005); *State of Parks Proforma and Guidelines*, NSW Department of Environment and Conservation; Hockings, M., C. Cook, R. W. Carter and R. James (2009), Accountability, reporting or management improvement? Development of a State of the Parks assessment system for New South Wales, Australia, *Environmental Management* **43**: 1013–1025

¹⁴ KNPS (2009) Korea’s Protected Areas: Evaluating the effectiveness of South Korea’s protected areas system, Main report. KNPS, Seoul.

¹⁵ Stolton, S., M. Hockings, N. Dudley, K. MacKinnon, T. Whitten and F. Leverington (2007 2nd edition); *Reporting Progress in Protected Areas: A site-level management effectiveness tracking tool*, World Bank-WWF Alliance, Washington DC and Gland

¹⁶ Hockings, M., S. Stolton, N. Dudley, R. James, V. Mathur, J. Courrau, J. Makombo and J. Parrish (2008); *Enhancing our Heritage Toolkit: Assessing Management Effectiveness of natural World Heritage sites*, UNESCO, Paris

generic aspects of management of the whole PA system in Thailand and the DNP overall.

5.2 Development of management effectiveness evaluation

Much of the early work on management effectiveness was driven by non-governmental organisations, including particularly WWF, The Nature Conservancy and Conservation International, along with a few governments principally in Latin America. Major donor organisations including particularly the World Bank quickly became involved, in an effort to track the effectiveness with which their budgets were being invested. UNESCO also recognised the importance of assessment as a means of improving management in its natural World Heritage sites and also as a way of addressing reporting requirements under the convention. Protected area management effectiveness received a boost when the Convention on Biological Diversity's (CBD) *Programme of Work on Protected Areas* made it an explicit target in 2004¹⁷, encouraging governments to use the WCPA framework in their reporting to the CBD (see box below, our emphasis¹⁸).

At the meeting of the Conference of the Parties to the CBD in Nagoya in 2010, the target for the assessment of management effectiveness of PAs was lifted from 30% for 2010 to 60% of protected areas by 2015. Even more significantly, Target 11 of the CBD Strategic Plan added the phrase “effectively and equitably managed” to the PA establishment target agreed to under the Convention. This emphasises that establishing PAs alone will not achieve conservation objectives and that attention needs to be paid to improving the management of existing sites in addition to ensuring good management of newly created sites. Partly as a result of the impetus provided by the CBD, an increasing number of governments have

developed or are developing assessment systems. Finland became one of the first governments to introduce a state-wide management effectiveness system, with a report published in 2005¹⁹, followed by a *State of the Parks* report in 2007²⁰. Management effectiveness assessments are now being developed by many other

Goal 4.2 - To evaluate and improve the effectiveness of protected areas management

Target: By 2010, frameworks for monitoring, evaluating and reporting protected areas management effectiveness at sites, national and regional systems, and transboundary protected area levels adopted and implemented by Parties.

Suggested activities of the Parties

4.2.1 Develop and adopt, by 2006, **appropriate methods, standards, criteria and indicators for evaluating the effectiveness of protected area management and governance, and set up a related database**, taking into account the IUCN-WCPA framework for evaluating management effectiveness, and other relevant methodologies, which should be adapted to local conditions.

4.2.2 **Implement management effectiveness evaluations of at least 30 per cent of each Party's protected areas by 2010** and of national protected area systems and, as appropriate, ecological networks.

4.2.3 Include information resulting from evaluation of protected areas management effectiveness in **national reports** under the Convention on Biological Diversity.

¹⁷ For discussion of the implications see Dudley, N., K. J. Mulongoy, S. Cohen, S. Stolton, C. V. Barber and S. B. Gidda (2005); *Towards Effective Protected Area Systems: An action guide to implement the Convention on Biological Diversity Programme of Work on Protected Areas*, CBD Technical Series number 18, Convention on Biological Diversity, Montreal

¹⁸ Chape, S., J. Harrison, M. Spalding and I. Lysenko (2005); Measuring the extent and effectiveness of protected areas as an indicator for meeting global biodiversity targets, *Phil. Trans. R. Soc. B* **360**, 443–455

¹⁹ **Gilligan, B. N. Dudley, A. Fernandez de Tejada and H. Toivonen (2005); Management Effectiveness Evaluation of Finland's Protected Areas**, Nature Protection Publications of Metsähallitus, A 147, Vantaa

²⁰ Heinonen, M. (2007); *State of the Parks – Finland: Finland's protected areas and their management for 2000-2005*, Nature Protection Publications of Metsähallitus, Vantaa

countries, including Australia, Germany, India, Scotland, Lithuania and Catalonia in Spain. The Korean National Park assessment and the recent work in Colombia, together with the methodology developed for the Outlook Report on the Great Barrier Reef Marine Park in Australia²¹ provided the model used in this current assessment. The work on management effectiveness evaluation in Thailand continues this international trend and represents an excellent start to meeting the country's obligations under the CBD.

5.3 Thailand marine and coastal protected area management effectiveness evaluation process

As highlighted earlier, the management effectiveness evaluation of the Thailand Marine Protected Area system was initiated under the Mangroves for the Future programme and so aims to ensure Thailand's marine and coastal PAs are effectively managed to protect critical biodiversity as a vital contribution to sustainable development in the coastal zone. The evaluation process consisted of two linked components; a system level and a site level assessment. Initial agreement was reached on five key points:

1. The assessment would be based around the IUCN-WCPA framework for management assessment;
2. The evaluation would be based on earlier examples from Korea and Colombia but the toolkits for carrying out the assessment would need to be substantially modified to match the Thai context and because this current exercise was to only consider marine PAs;
3. The process would involve a mixture of internal assessment by DNP staff and external evaluation by both Thai and foreign specialists, working as a team;
4. The assessment team would look at both the status of individual PA sites and also at the functioning and organisation of the marine PA system as a whole;
5. The external and internal teams would work together during a field trip in which a range of marine PAs were visited and stakeholder consultations occurred.

Assessment tools consisting of proformas specifying the assessment criteria and indicators for each criterion were developed based on existing templates used in the Korean National Park Evaluation Report. Criteria were adapted to make them relevant to the Thai marine PA system, initially by the assessment team consisting of IUCN regional staff, DNP project staff and the international WCPA PAME experts. The draft proformas were then translated into Thai and reviewed at a workshop with DNP MNP staff and external Thai experts and academics who were knowledgeable about the Thai MNP system. Based on this workshop the assessment tools were modified and finalised and subsequently approved by the Project Steering Committee.

System level methodology

The system level assessment is built around a questionnaire, which follows the WCPA management effectiveness framework, with a varying number of questions relating to each element of the framework:

1. Context – 7 questions
2. Planning – 8 questions
3. Inputs – 6 questions
4. Process – 15 questions
5. Outputs – 2 questions

²¹ Great Barrier Reef Marine Park Authority. (2009) Great Barrier Reef Outlook Report 2009, Great Barrier Reef Marine Park Authority, Townsville, Australia

6. Outcomes – 6 questions

Each question is assessed on a four point scale, rated against optimal conditions: 0-25 per cent, 26-50 per cent, 51-75 per cent and 76-100 per cent of the optimum situation for each question. In most cases the rating is also informed by choosing from four possible answers while in some cases it is decided by summing results from all site-level assessments. In total, the 44 questions provide an overview of PA system performance. Note that the output section, which would be amongst the most important in a site level assessment, is given less prominence at system level whereas the process of management is the most complex issue addressed. The system ratings were based on intensive staff and stakeholder interviews together with field visits and then aggregated and negotiated among the external team. The proforma with the completed assessment results is given in Appendix 3.

A field mission was conducted between 9th and 18th August, 2011. Meetings were held in Bangkok with senior DNP staff. Workshops were held with staff and stakeholders from Surin, Similan, Mu Ko Lanta, Mu Ko Chumphon and Mu Ko Ang-thong Marine National Parks. The final schedule for the field mission and the list of people interviewed is included as Appendix 4.

Site-level methodology

The site level assessment was based on an adaptation of the Korean management effectiveness assessment proforma, which was itself developed from the State of the Parks Assessment Proforma from New South Wales, Australia. The proforma was completed in a series of workshops conducted with staff from the marine PAs and external experts, central DNP staff and IUCN regional staff, together with representatives from the external review team. In most cases the assessment was not fully completed in the workshop but the completed proforma was subsequently finalised by park staff and sent to DNP and IUCN. Completed assessments were not received from five of the sites and so the analysis in Chapter 5 is based on the sixteen completed assessments. A list of workshop participants is given in Appendix 5. The evaluation sheet consists of four parts:

Part A: Description

Part B: Context information (plans, values, threats, stakeholders)

Part C: Resource allocation (staff and budget)

Part D: Management effectiveness

The assessment questionnaire in Part D consists of 35 questions covering natural and cultural resource management, communication, tourism and visitor management, consultation and engagement, resource protection and fisheries management, together with general aspects of PA management. The full proforma is provided in Appendix 6.

The approach of integrating both system and site level assessment provides a more comprehensive evaluation of strengths and weaknesses in management. The integration of site and system level assessment is more effective at pinpointing management issues which may stem from a combination of local factors and institutional and/or context influences.

The top and bottom two scoring categories have been grouped together to create two categories. A series of correlations between management activities and impacts of activities were conducted and reported where statistically significant relationships exist.

6.1 Overview

The parks that submitted completed assessments are:

Ao Phang-nga	Lam Nam Kra Buri	Sirinart
Than Bok Khorani	Mu Ko Lanta	Hat Noppharat - Mu Ko Phi
Hat Wanakon	Mu Ko Phetra	Phi
Khao Lampi - Hat	Khao Laem Ya - Mu Ko	Than Sadet - Ko Pha-ngan
Thai Mueang	Samet	Ao Manao - Khao Tanyong
Laem Son	Khao Lak – Lam Ru	
Mu Ko Similan	Mu Ko Surin	

The 16 surveyed parks all contain a component of both marine and terrestrial area. Most are designated as National Parks, although two parks are awaiting final gazettal. The median time since the parks were first gazetted is 22 years. There are five Ramsar sites, three ASEAN Heritage Parks and a World Heritage proposal is being considered for the marine parks in the Andaman Sea. The mean size of these parks is 178.3 km² (114375 rai). The mean marine component of a park is 160.5 km² (100312.5 rai). The total area included in the survey is 2674.5 km² (1,674,562.5 rai).

Most parks are conserving a mixture of biological, cultural and recreational values. The most common threats to these values include poaching, encroachment by neighbours for both agriculture and urban development, visitor impacts from inappropriate levels of use, incompatible landuse, climate change (in particular coral bleaching), littering and pollution, illegal fishing and storm impacts..

On average, parks receive 44,930 Thai visitors and 22,691 international visitors, with a total of 1,081,946 visitors to the selected parks per annum. The most visited park is Khao Laem Ya - Mu Ko Samet National Park with an estimated 300,000 visitors per year while the least visited is Mu Ko Lanta with approximately 15,000 visitors per year.

Most parks are surrounded by a mix of land-use types typically including agricultural production (orchards and rubber plantations being the most common) and urban development. There are on average 21, 649 neighbours surrounding a park. This is very variable and the median of 9, 485 neighbours, provides a better indication of true numbers. Seven of the parks also have residents within their boundaries, with an average of 1,397 (min 79; max 3000) people living within the park.

6.2 Resource allocation

Staff time

Parks typically employ a mixture of casual and full time staff. There are on average 25 full time staff (although only a small minority are civil servants) and 37 temporary staff per park. The site survey also provides a breakdown of time allocated to different activities. A summary graph is provided for time spent on each activity for managers and rangers to provide an indication of the allocation of resources (Figure 6.1). The most noticeable difference is that managers spend a higher proportion of their time on administration, whilst rangers spend more time on protection activities. Community outreach and engagement are allocated very little time by either managers or rangers. There is no apparent relationship between staffing levels and overall effectiveness with some of parks with the lowest level of staffing showing good effectiveness and some with above average staffing levels showing relatively poorer performance.

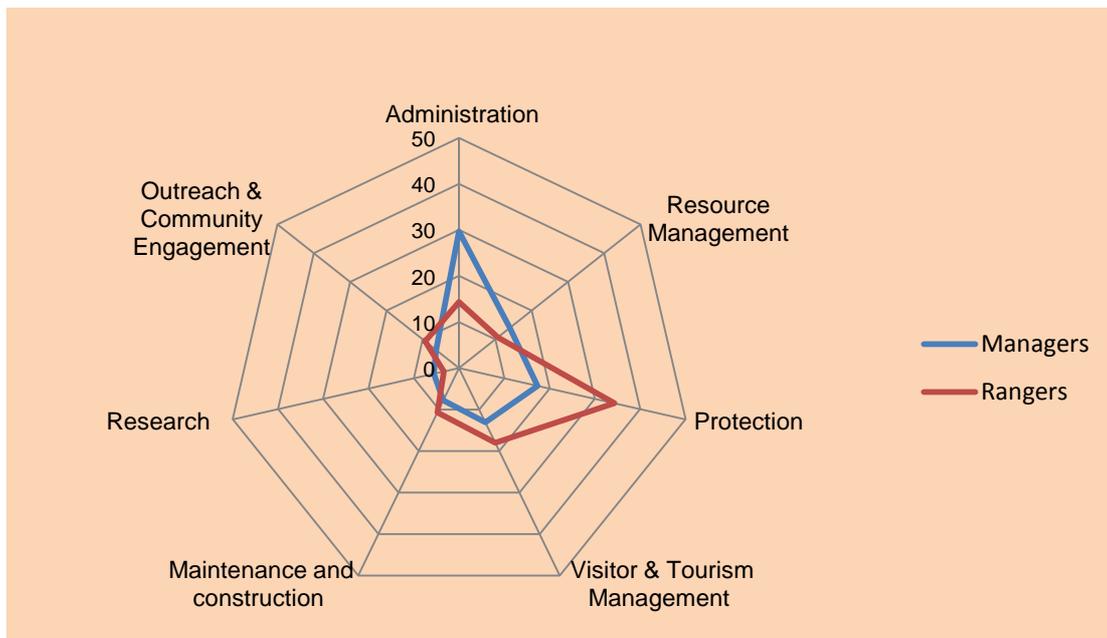


Figure 6.1 Time allocated by managers and rangers to different management activities expressed as a percentage

Budget

Analysis of key budget areas for total allocation of funds shows that administration accounts for the highest proportion (34%) of resources (Figure 6.2). The lowest levels of investment are in community engagement and research with 2% of the total allocated to these activities. Six of the 16 parks that completed the assessment indicated that they made no allocation of budget to either research or community engagement. The total mean budget allocated per park is ฿8,382,812. The total budget for all parks included in the survey is ฿125,742,184.

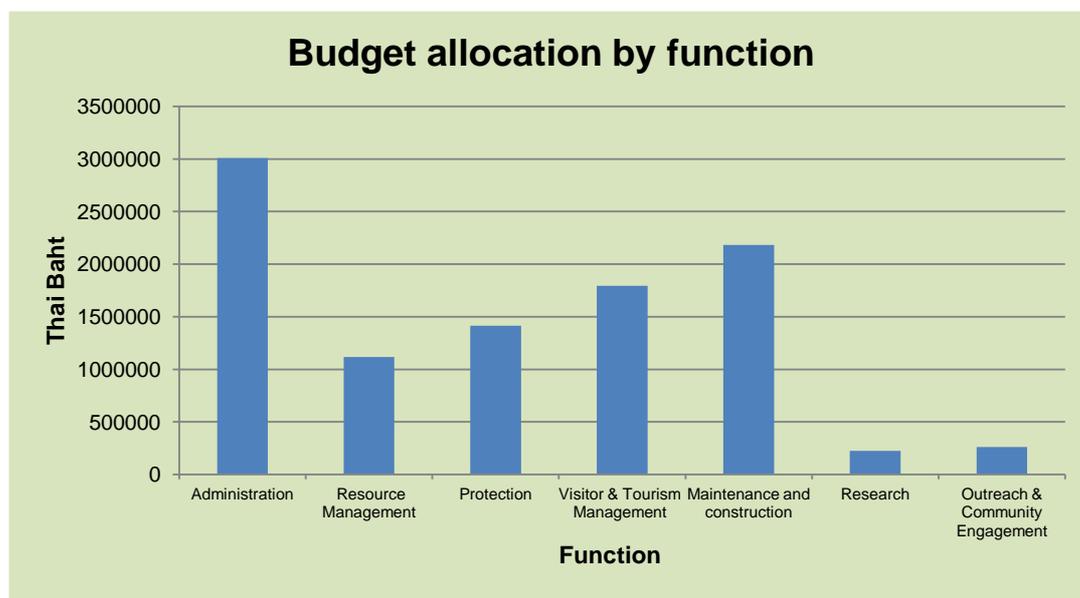


Figure 6.2 Average park level budget allocations by function

6.3 Over-arching management activities

In over 60% of parks, the major values recognised for the PA are used to guide management and in these parks this management approach is having a positive outcome on value condition and management (Figure 6.3). Management activities

have been identified and are mostly implemented across all parks. Work plans exist in all parks and are being implemented to some extent. In 67% of parks all targets within the works plans are being achieved while in the remaining 33% of parks, while some targets are achieved, most are not.

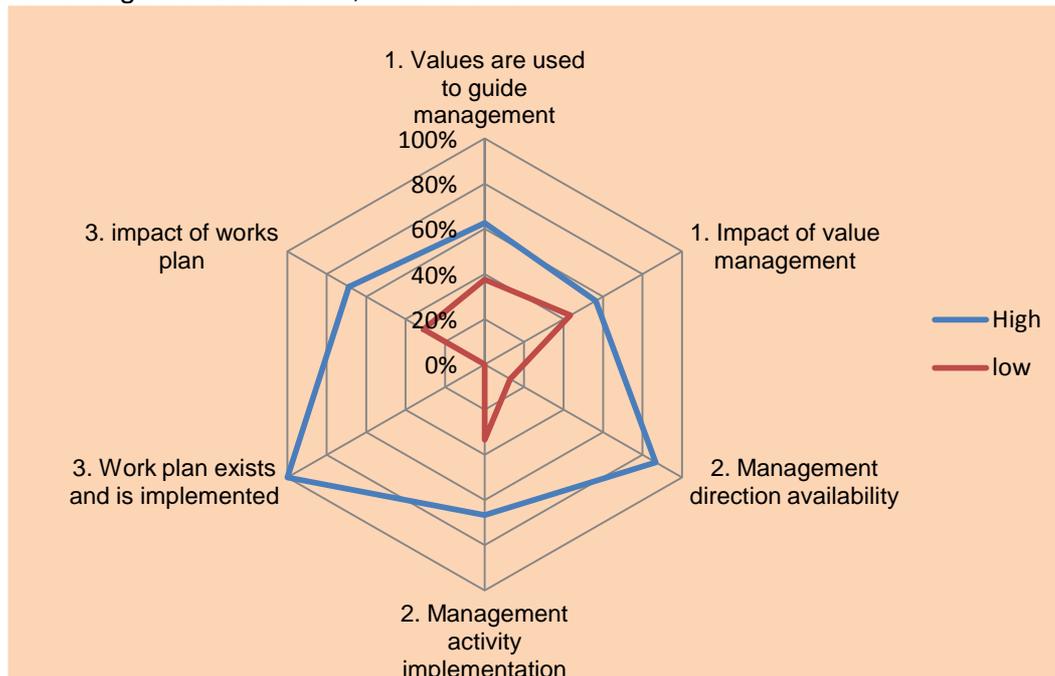


Figure 6.3 Management activity summary

6.4 Natural values management

There is sufficient information about natural resources in the majority of parks (Error! eference source not found.6.4). The condition of parks is variable with only half of parks reporting that the natural values are largely intact while the other half report values as degraded and at further risk. Fire management is not a major issue in the management of the terrestrial component of these parks.

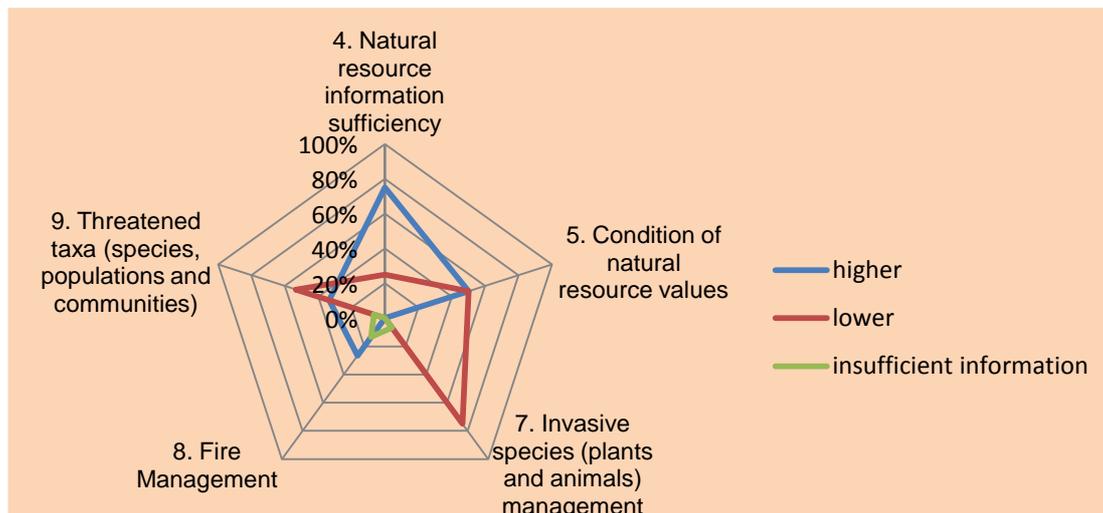


Figure 6.4 Management effectiveness scores as a percentage of park responses for natural values management questions

6.5 Invasive species management

The management of invasive species is generally limited or reactive in approach (75% of parks) however the impact overall of pests and weeds is considered to be limited with only 19% reporting major or significant impacts (Figure 6.5).

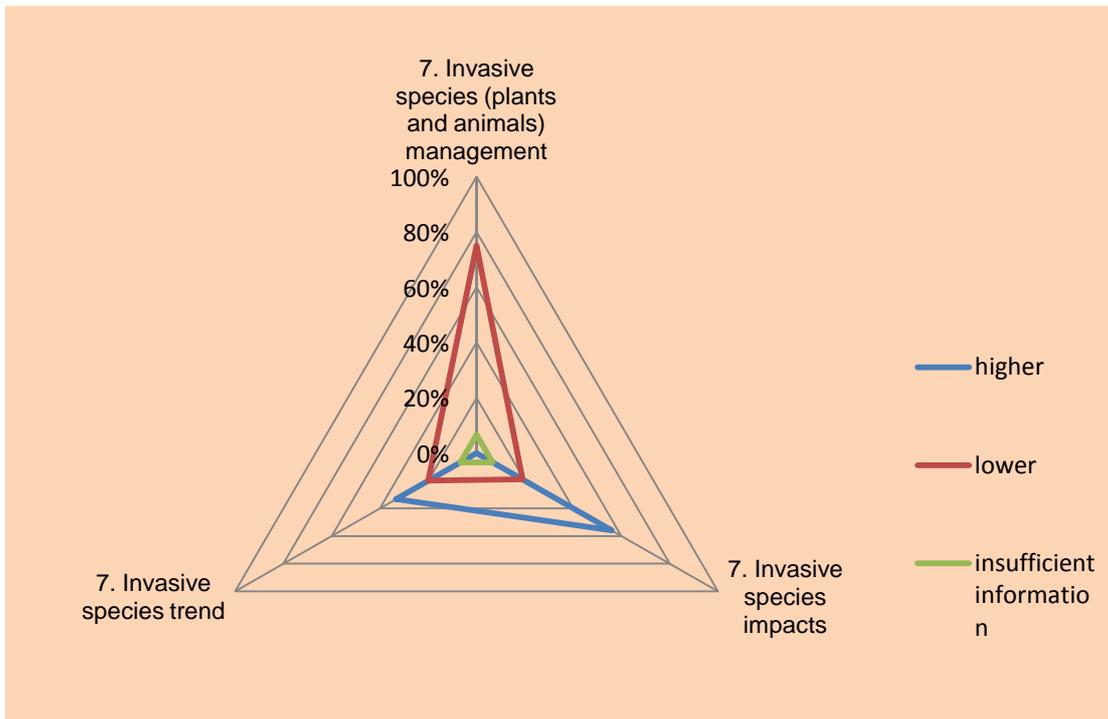


Figure 6.5 *Invasive species management responses as a percentage of all parks*

Threatened species management is an area where management effectiveness is generally poor (Figure 6.6). There is a low level of security for threatened species with populations considered under threat in 44% of park areas. In most (75%) of cases there is a match between the extent of implementation of threatened species programs and the security of threatened species populations in the park (i.e. good program implementation and good species security; poor program implementation and poor species security).

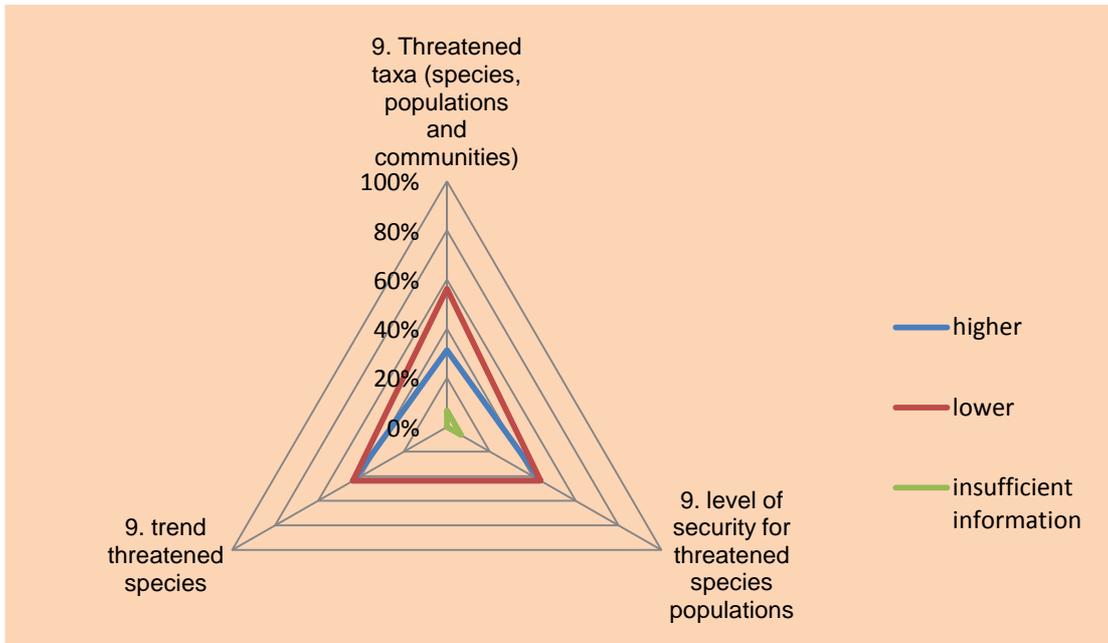


Figure 5.6 *Threatened species management responses as a percentage of all parks*

6.7 Park identification and interpretation

This is a management area where most parks are performing well (Figure 6.7). The values of parks are clearly identified in 75% of all parks, all parks have at least some awareness and interpretation programs and the interpretation and information needs of visitors are being substantially met in over 80% of parks. The lower performance in this area is for the actual impact of boundary management. Common threats recognised are PA encroachment by tourism development and for resource utilisation.

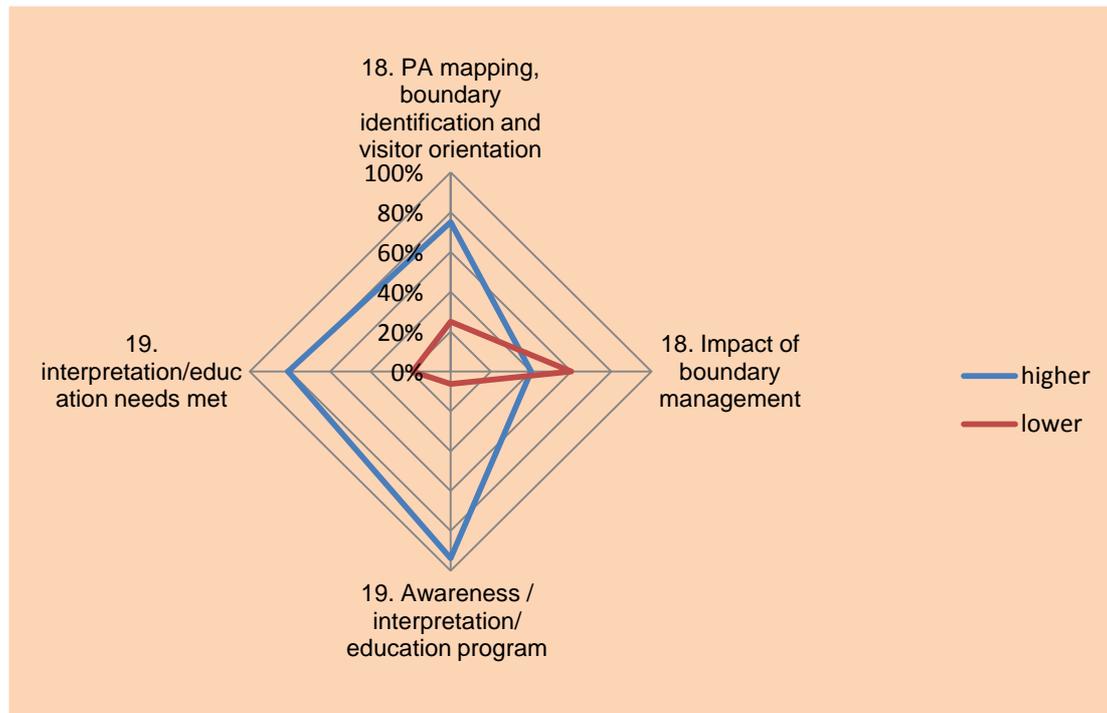


Figure 6.7 Park identification and interpretation responses as a percentage of all parks

6.8 Visitor management

Significant effort goes into visitor management and whilst responses of park staff in relation to visitor management were generally positive, 80% of parks reported significant levels of impact from visitor activities and 53% of parks reported impacts from visitor-related infrastructure (Figure 6.8). Knowledge of visitor characteristics and management of visitors (both visitor experiences and visitor safety) are very high and visitor activities are generally viewed as being in harmony with park values. The majority (80%) of parks report that visitor facilities are adequate. The significant level of visitor impacts reported is puzzling given the positive view of visitor management and warrant further investigation.



Figure 6.8 Visitor management responses as a percentage of all parks

6.9 Community consultation

The largely positive assessment of the extent of community engagement reflects a planned approach to consultation (Figure 6.9). Most parks report that the actions for implementation of the plan are however constrained in scope. There is a 95% correlation between local community engagement and the impact of the activities, reinforcing the benefits of consultation in achieving successful outcomes. A similar pattern is observed with 96% correlation for community engagement with stakeholders outside the park and the associated support by the community for park activities. A gap appears to exist for information about local communities to support engagement activities with 55% of parks reporting insufficient information for decision making.

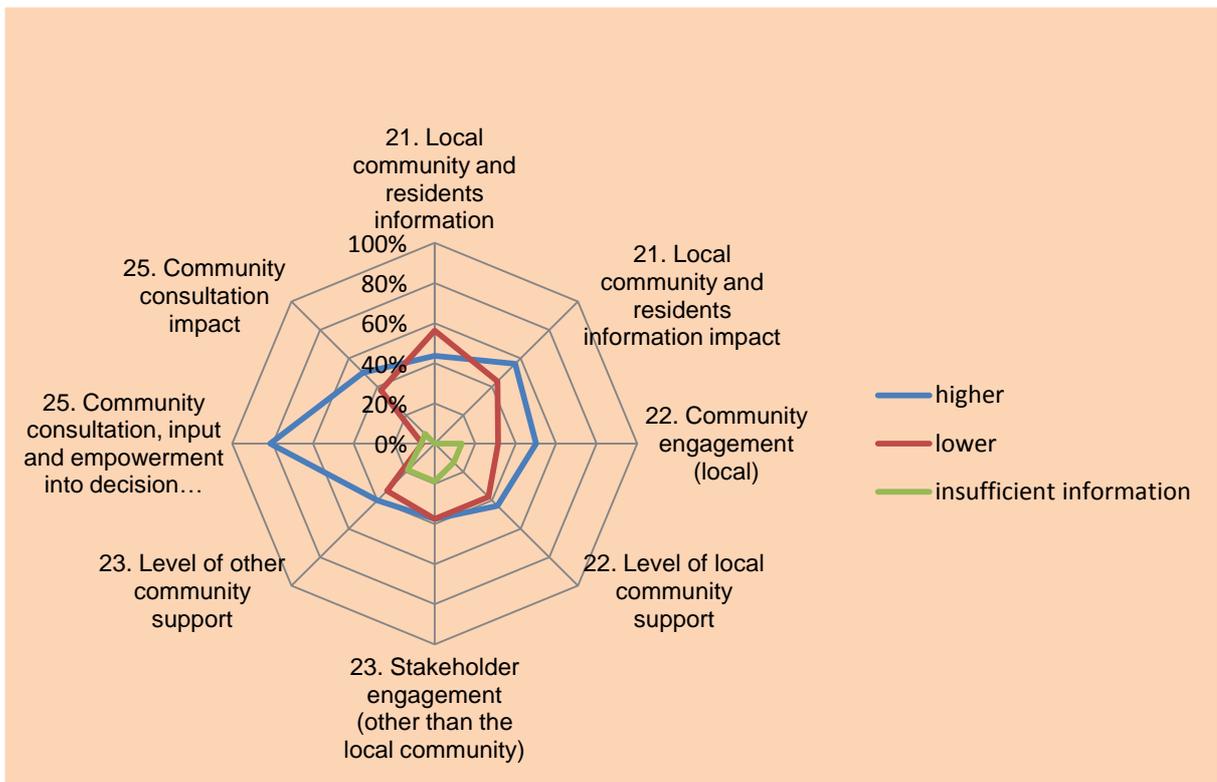


Figure 6.9 Community engagement responses as a percentage of all parks

6.10 Fisheries

In this management area parks report the lowest levels of management effectiveness. Significant impacts on PA values exist where commercial and community fishing are reported to be a threat (Figure 6.10). There is again a strong correlation between parks having a planned and implemented approach to management and the impact of fishing activities i.e. commercial fishing and impact correlated in 92% of occurrences, management of commercial tour operators and impacts correlated in 80% of cases. There is a weaker correlation of 63% between management and impact for community fishing activities suggesting that these programmes are not having the same success.

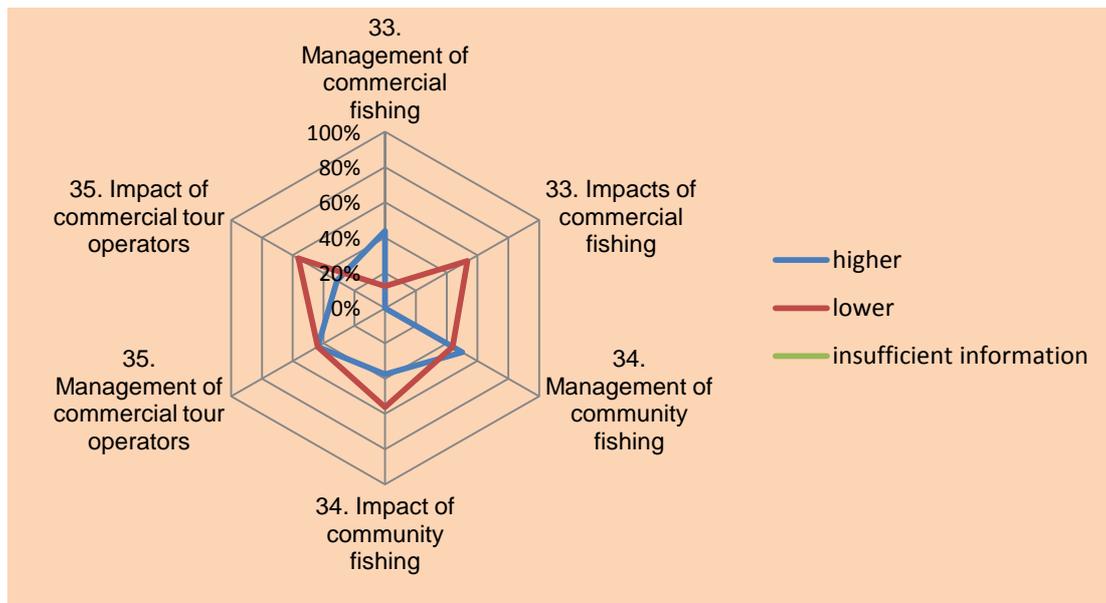


Figure 6.10 Fisheries management responses as a percentage of all parks

6.11 The relative performance of parks

Ao Phang-nga National Park has the highest overall staff assessment of management effectiveness (Figure 6.11) and scored the highest percentage of responses in the top two categories of management effectiveness. In contrast Khao Lak-Lam Ru has the lowest overall management effectiveness. This calculation included those parks that opted out because of insufficient information to answer (in this case scored as lower effectiveness as they lacked the data to understand the effectiveness of management of the issue). This was done to avoid skewing the overall responses to appear as if those parks who only answered a few questions were potentially performing better. The parks that reported insufficient information in more than 10% of responses included Ao Manao - Khao Tanyong National Park (17% of responses), Mu Ko Similan National Park (13%) and Mu Ko Lanta National Park (12%).

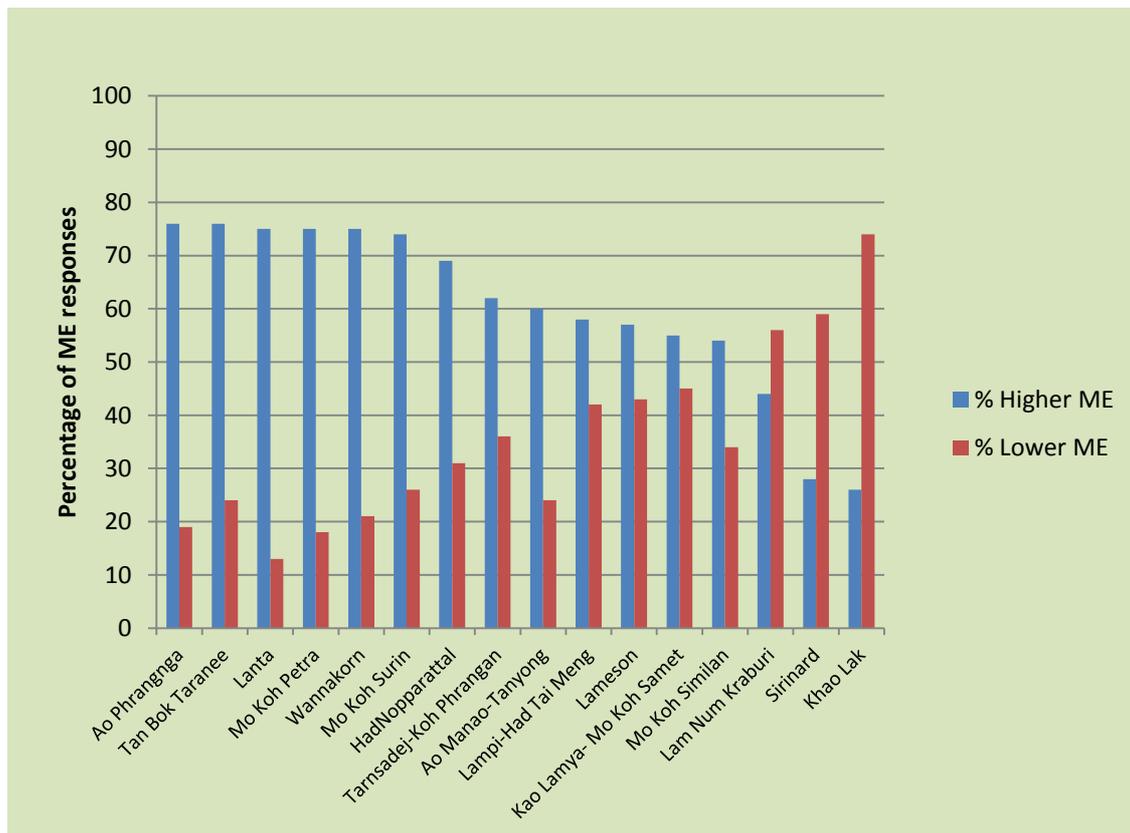


Figure 6.11 Park performance as a percentage of responses to questions

6.12 Park by park summary

This section highlights some key observations based on the translations of the site assessment forms into English. It will not review all the details of the site assessments which are available as electronic files in Thai as a supplement to this report.

Ao Phang-nga National Park

This park had the highest overall level of management effectiveness of the parks that completed assessments. Unusually for the parks, international visitors outnumber Thai nationals by more than two to one. The park lacks an approved management plan, which is surprising, given that it is both a Ramsar site and an ASEAN Heritage Park. Despite the lack of a formally approved management plan, a planned approach is taken to the management of most park activities and issues. Key threats are overuse in Khao Ta-Pu and Khao Phing Kan and pollution from surrounding land and sea use. Some illegal trawling and encroachment were reported and these are expected to worsen in the future. The park has 86 staff but a lower than average staffing level per unit area (.22 staff/km² compared to an average of .35 staff/km²; the lowest permanent staffing level of any park and the third lowest overall staff/km² ratio). It is one of only a few parks that reported significant use of monitoring and research data in the completion of the assessment to inform management.

Than Bok Khorani National Park

This park also scored positively in the site level assessment. The park has an approved plan which is being implemented, although it has now exceeded its nominated life span (2003-2009). There are a number of recently prepared subsidiary plans for tourism, natural resource management and community engagement. Coral bleaching and impacts of extreme weather events were listed as principal threats along with poaching and illegal fishing, and anchor damage. While concern was expressed about impacts from overuse, visitor numbers have declined

in recent years. Stakeholder relations are reported to be primarily positive. Permanent staff numbers are low (6 staff) but are supplemented by significant numbers of casual employees and volunteers (second lowest level of permanent staff/km² but the fifth highest overall staffing/km²). Natural resource conditions are reported to be positive with populations of most threatened taxa in the park improving and with little impact from invasive species. Information needed to support decision making is generally available but could be improved in relation to knowledge of local communities.

Mu Ko Lanta National Park

Mu Ko Lanta National Park has a management plan submitted but not yet approved and managers are generally taking a planned approach to management of key activities. The conservation values of the site are generally intact although subject to some moderate threats from illegal fishing, encroachment and visitor disturbance. Visitor numbers are low compared to many other MNPs in Thailand. Good ratings for management effectiveness have been achieved despite Mu Ko Lanta having amongst the lowest levels of permanent staffing per unit area of all the MNPs in Thailand (but the fourth highest overall staffing level per unit area because of significant numbers of contract staff). In common with other MNPs, research and community outreach and engagement are receiving relatively little staff time, with protection, maintenance and construction and administration absorbing most staff time. Lack of control of commercial and community-based fishing was highlighted as management issues of particular concern. Evaluation items relating to community and stakeholder engagement were not addressed because of a lack of adequate knowledge to make an assessment.

Mu Ko Phetra National Park

Mu Ko Phetra National Park has an approved master plan that is being actively implemented (well ahead of target). Coral bleaching, infrastructure development and visitor impacts (littering) are listed as the most significant threats to the park's values although major values are rated as being intact and not degraded. Most visitors are Thai nationals with very low levels of international visitation. A greater percentage of staff time overall is devoted to protection activities than most other MNPs, with 50% of all staff time devoted to this activity. The surrounding community was assessed as being broadly supportive of the park although poaching within the park is reported as significant.

Hat Wanakon National Park

Hat Wanakon National Park is in the top 30% of parks in terms of overall effectiveness. It has a moderate level of visitation by Thai nationals but very few international visitors. Its management plan was recently (August 2010) submitted for approval but has no subsidiary plans for more detailed aspects of park management. Coral bleaching and periodic wildfires are recognised threats and there is a concern that wildfires are becoming more prevalent. Illegal artisanal fishing is also a threat to the reserve and a point of contention between the park and community. The park has the highest level of permanent staffing per unit area of any park although a below average level of total staffing per unit area. Natural resource conditions are reported to be positive with populations of most threatened taxa in the park improving and with little impact from invasive species. Information needed to support decision making is generally available.

Mu Ko Surin National Park

Mu Ko Surin is a relatively remote marine national park in the Andaman Sea and is one of the marine ASEAN Heritage Parks. Thai nationals outnumber international visitors by about two to one. In common with a number of the offshore parks like Mu Ko Similan, visitation is not possible during the monsoon season and this limits overall visitor numbers. An indigenous population of Moken Sea Gypsies live within and harvest resources from the park. Extensive coral bleaching has been recorded

in the park and illegal fishing and visitor impacts were listed amongst the principal threats (although threat impact assessments were not completed in the management effectiveness evaluation). Staffing levels are above average for the system at 0.66 staff/km² with tourism and visitor management taking the majority of staff time. Time spent on administration is much lower than for most of the other MPAs; it is not clear if this is the result of a difference in how staff completing the assessment classified work or a real difference in the way management is conducted. The knowledge base for management is generally adequate and a planned approach to management is being undertaken. Nevertheless the evaluation reports a number of threats to resource values with degradation as a consequence of illegal fishing and harvesting and damage from tourist activities such as diving. Visitor impacts were noted as particularly significant on the western side of Stork Island. Park staff are seeking to balance resource protection with livelihood and rights issues in the management of the Moken Sea Gypsies but regard this as a difficult and constraining issue.

Hat Noppharat Thara – Mu Ko Phi Phi National Park

This park, located in the Andaman Sea southeast of Phuket contains the major tourist destination of Phi Phi Island. Like many other MPAs in Thailand, it has problems associated with lack of clarity over park boundaries and the relationship between the park and local communities at the time of park declaration. The park contains a globally significant shell cemetery that is subject to erosion and requires protective measures to prevent further damage. The park has an approved management plan that is being actively implemented. Visitor impacts and incompatible adjacent land use are listed as the principal threats. The park has the highest overall staffing level of any of the MPAs with 1.11 staff/ km² (more than three times the system average) but a much lower percentage of permanent staff than other parks. Tourism facilities are assessed as adequate and despite some concern over littering and other visitor impacts, tourism management is assessed as effective. Lack of control over illegal commercial fishing is regarded as a significant threat to park values.

Than Sadet – Ko Pha-ngan

Than Sadet – Ko Pha-ngan - Proposed park that is yet to be gazetted.

Ao Manao - Khao Tanyong National Park

Ao Manao - Khao Tanyong is a proposed National Park in the southeast of Thailand that has more than 50,000 Thai nationals visiting annually but a much lower level of international visitors. This small (22 km²) park has an approved master plan and a number of subsidiary plans submitted for approval. The park has the second highest level of permanent staff per unit area but with no contract or casual staff employed, it has the second lowest level of staffing per unit area overall. Resource information and resource conditions are assessed as being generally good but greater visitor information is desired and peak visitation periods create some problems in maintaining visitor management standards.

Khao Lampi - Hat Thai Mueang National Park

Khao Lampi - Hat Thai Mueang National Park on the Andaman Sea coast is a coastal park with mangrove and sandy bottom habitats. It contains an important leatherback turtle nesting beach and coastal forests in good condition. The park has relatively low but increasing levels of visitation, principally by Thai nationals. Illegal encroachment and incompatible adjacent land use are significant threats with the impacts of fishing nets and coastal developments (lights) on turtle nesting success being of particular concern. Staff levels are nearly three times the system average on a per unit area basis. Despite the relatively high levels of staffing, a number of areas of the evaluation were not assessed because of a lack of adequate information. While the park has a management plan that has been submitted for approval and a work plan, achievement of targets in the plans are problematic because of unclear policy and lack of resources and staff for implementation. Only

reactive maintenance of facilities is undertaken because of this lack of resources. Monitoring and research data indicate that leatherback turtle numbers nesting in the park are declining despite protection activities undertaken by park staff to prevent poaching of eggs and disturbance of nests by other animals. The assessment indicates a lack of detailed information and engagement with stakeholders and the local community and low levels of support from them for the park and its management.

Laem Son National Park

Laem Son National Park is located along 60km of coast in the northern Andaman Sea area of Thailand and is designated as a Ramsar Site. It has low to moderate levels of visitation by Thai nationals and almost no international visitation. Illegal commercial fishing, encroachment and deforestation are listed as the principal threats to the park. The park has a management plan submitted for approval in 2010 and although some progress is being made in implementing planned management, this is constrained by resource limitations. Encroachment on the park and conversion to palm and rubber plantation, overharvesting of non-timber forest products and illegal fishing are all degrading park values. While active programs of community and stakeholder engagement are being implemented and most stakeholders and community members are supportive of the park and its management, there is a section of the community that is not supportive and who undertake illegal activities in the park for economic gain.

Khao Laem Ya - Mu Ko Samet National Park

Khao Laem Ya - Mu Ko Samet National Park is located on the coast and islands in the northern Gulf of Thailand and owing to its proximity to Bangkok, ease of access and tourism developments on the islands, it is the most visited MNP in Thailand with approximately 200,000 Thai nationals and 100,000 international visitors each year. It has an approved management plan but this is lagging in implementation. The park has below average levels of staffing. Threats to the park's values mostly arise from the high levels of tourism use with pollution from urban settlements, visitor impacts and tourism impacts on local community culture listed as the main issues. Consequently major natural, socio-economic and cultural values of the park are considered as degraded and at risk. Only reactive engagement of key stakeholders and local communities is undertaken and significant elements of both groups are not supportive of the park and its management.

Mu Ko Similan National Park

Mu Ko Similan is another ASEAN Heritage Park located offshore in the Andaman Sea. Permanent staffing levels for Similan National Park are low but total staffing levels are average for the Thai MNPs. The park has significant visitation with international visitors outnumbering Thai nationals by two to one. Like Surin National Park, Similan is a significant marine tourism destination but management effectiveness is assessed as being significantly lower than Surin. Illegal fishing, poaching and impacts from tourism are assessed as key threats along with coral bleaching and erosion. The relatively poor overall management effectiveness profile for this park arises, in part, because a large number of assessment questions were not answered because of a lack of information or because the issue being assessed was not relevant to the park. The lack of any explanatory information in the relevant sections of the Evaluation Proforma has made analysis of the management strengths and weaknesses difficult.

Lam Nam Kra Buri National Park

Lam Nam Kra Buri National Park is one of only three MNPs in Thailand where the percentage of assessment items in the evaluation that were rated in the two lowest levels of performance outnumbered the items that were rated in the higher performance levels. This is a coastal park on the border with Myanmar and is principally visited by Thai nationals. Encroachment and poaching are listed as the

principal threats. The management plan for the park is under preparation but annual work programs are prepared and implemented fully. Community and stakeholder consultation is limited and levels of community and stakeholder support are low. Visitor management is one of the stronger aspects of the park but visitor facilities require expansion and upgrading.

Sirinat National Park

Sirinat National Park is located on the coast north of Phuket. Leatherback and Hawksbill turtles nest on the park's beaches but are threatened by impacts (lights) from adjacent tourism development. It has above average levels of staff, relatively high levels of visitation by Thai nationals but only low-moderate visitation by international visitors. Nearly two-thirds of the management effectiveness assessment indicators were rated at the lower levels of management effectiveness. The park has a management plan that was prepared in 2000. An annual plan is prepared and implemented but sufficiently address the management of the natural values of the park. Information on natural values needed to guide management is lacking and natural values are considered to be degraded and at risk in particular the Leatherback turtles. There is no tourism management plan and tourist impacts are significant and increasing. Conservation education activities are being conducted with the local community and are having a positive influence. Other aspects of stakeholder and community engagement are limited and sections of these groups are not supportive of the park and its management. Local community based fishing is impacting on park values.

Khao Lak – Lam Ru National Park

Khao Lak – Lam Ru National Park had almost three quarters of the management effectiveness indicators assessed as lower effectiveness. It is a coastal park in the Phang-nga Province and has a significant terrestrial component. The park receives moderate and approximately equal visitation by Thai nationals and international visitors. The park has a management plan prepared in 2002 that is being actively implemented. Threats of poaching and encroachment primarily affect the terrestrial component of the park and are degrading these park values. Khao Lak – Lam Ru was one of the few parks to report a significant problem with invasive species, impacting particularly on two threatened plant species in the park. Improved visitor infrastructure and information is needed. Efforts in community engagement are increasing although a section of the community and stakeholders remain unsupportive of the park and its management.

7.0 Thematic analysis

7.1 The marine and coastal protected area system

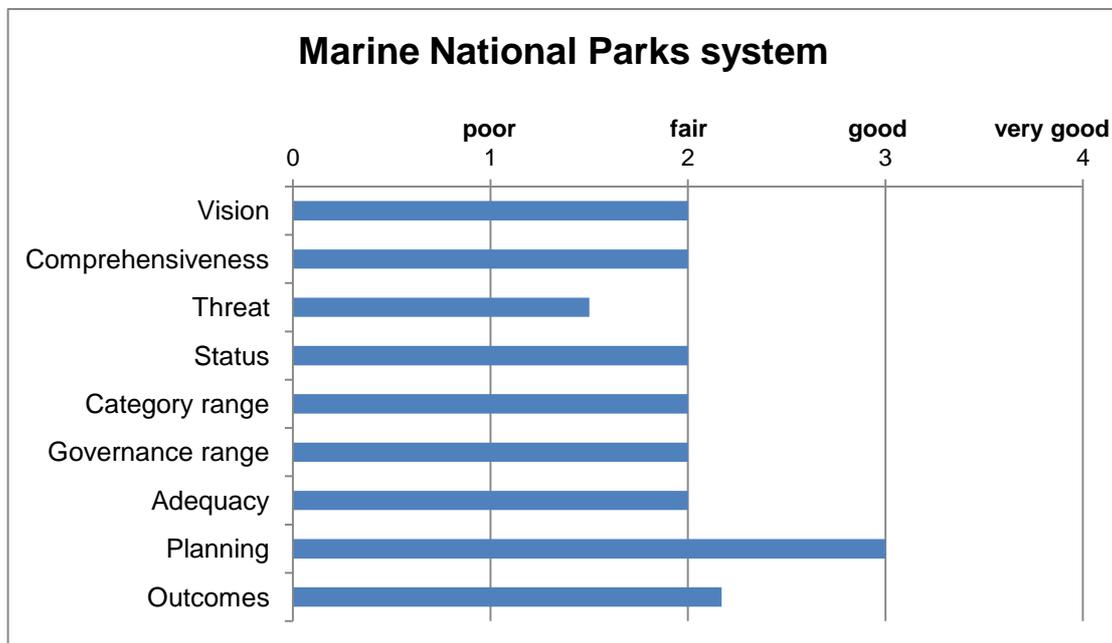
Overview

Thailand has made impressive efforts both to set aside MCPAs and to cluster these into complexes which will enhance the movement of species and allow ecosystems to function with more resilience to change. More work is needed to ensure this system is effectively managed and benefits are realised and equitably shared with local communities. The proposed Thai PA Master Plan will be a critical document to spell out how the country sees PAs contributing to national development, what the vision is for a more complete system and what enabling conditions and management emphases will be needed to achieve this.

The MNPs have solid legal protection, however, attention should be given to rationalising park boundaries so they are clearly demarcated on the ground and support ecological processes.

There is strong central support for MNP management planning, although there is no legal requirement to implement plans. Greater efforts are needed to engage park level staff and stakeholders in plan preparation. Park Superintendents should be more accountable for developing work plans in accordance with management plans and reporting management against these.

Indicators



Findings

Representativeness and balance

Thailand's overall PA is reported as covering an impressive 20.22% of its terrestrial area²², however, like most countries, the system inadequately conserves the full range of national ecosystems, key species and their habitats. Work undertaken

²² Dearden, P. and Noppawan P.T. (2011) *Literature Review, Preliminary PA Gap Analysis, and Framework for the Protected Area Master Plan*. Report submitted to IUCN, Bangkok.

through the Mangroves for the Future Initiative²³ assessed the adequacy of the Thai MCPA system (as a subset of the overall national system) against global datasets for coastal ecosystems, habitats and key species as well as globally accepted biodiversity prioritizing systems. In terms of coverage some 12.1% of the marine and coastal area of Thailand was assessed as protected in 2008 with aspirations to dramatically increase this area to 30% by 2012 under the 10th National Economic and Social Development Plan (2007-2011). These overall figures on levels of existing and proposed marine protection remain to be verified as there are many questions regarding the interpretation of protection and what IUCN would consider a PA under its definition as noted above²⁴. For example The Fisheries Law prohibits large scale commercial fishing within 3km of the entire 3,000km Thai coastline which is an extensive area, however, this measure alone would not constitute a PA under the IUCN definition. It will be important to clarify the extent of protection which complies with an IUCN definition of PA to allow an accurate assessment of the degree to which Thailand has met the CBD target of 10% of marine and coastal area protection by 2020. Notwithstanding the area coverage, the CBD target also calls for these areas to be ecologically representative, effectively and equitably managed, obligations which will require continued attention by Thailand. In terms of biological representation the MFF study also concluded that an area of some 2,032km² of mangrove, coral and seagrass ecosystems fall outside of existing MCPAs, in addition, they also coincide with globally recognised biodiversity priority areas (i.e. 67% of these ecosystems remain unprotected). Preliminary work carried out under the current Thailand PA Master Plan project highlighted that, whilst a number of gap analyses have been conducted (the principle one being that of Trisurat 2007²⁵), there remains a need to increase coverage in certain marine and coastal ecosystems. DMCR have also identified targets for the creation of several new MCPAs. It is hoped the Government of Thailand endorsed master planning exercise will catalyse the necessary comprehensive gap analysis to define how Thailand's overall PA system should look.

MONRE have promoted a six point vision for environment in Thailand and the broad purpose for National Parks is spelled out within the National Park Act 1961. Nonetheless Thailand has not yet articulated a clear vision for the role of its overall PA system including how the MCPA system can conserve natural and cultural values, support economic development and provide sustainable ecosystem services.

Thailand assigns IUCN PA Management Categories in a standard fashion to different types of PAs. There are 14 types of Thai PAs to which corresponding categories are assigned. Whilst this appears to show a balanced use of the full range of categories it is doubtful that many of these areas would meet the IUCN definition of a PA. DNP report that all National Parks in Thailand are categorized as II and this is how they are recorded in the World Database on Protected Areas maintained by UNEP-WCMC. All the MNPs in the study were considered as Category II, however, there is confusion over one park Khao Laem Ya - Mu Ko Samet being considered as Category V (WDPA confirms this is also registered as a Category II).

Design and connectivity

Thailand is to be commended for its initiatives to cluster PAs into a number of forest and marine complexes. The National Parks form a core of the MCPA system which includes many other types of conservation lands such as Wildlife Sanctuaries, Non Hunting Areas and Forest Parks. These create a mosaic of conservation landuse which can enhance ecosystem function and the movement of wildlife. Such an

²³ Corcoran, E., Turner, D. and Shadie P. (2008) *MCPA Gap Analysis: Existing PA Coverage and Recommendations for Additional Protection. Report to MFF Secretariat.* UNEP-WCMC, Cambridge, IUCN, Bangkok.

²⁴ IUCN definition of a protected area (2008): "A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values".

²⁵ Trisurat, Y. 2007. *Applying Gap Analysis and a Comparison Index to Evaluate Protected Areas in Thailand.* Environmental Management, Springer.

approach is also critical to buffer ecosystems and species against climate change impact. However, this system has developed in largely an ad hoc manner, with little scientific input or design and now requires thorough review in order to achieve its intended goals.

Individual MNP design is variable, however, in many parks the marine area is far greater than the terrestrial. On average the parks are 90% marine; 10% terrestrial. The limited protection of terrestrial areas greatly restricts the ability to protect the parks from land based threats such as pollution and coastal over-development. The average size of these parks is 178.3 km² (114, 375 rai), however, a number of the parks are relatively small thereby hampering their capacity to protect functioning ecosystems. For example Sirinat, Khao Lampi – Hat Thai Mueang and Hat Wanakon National Parks all have areas of less than 100km². Nesting these parks within larger conservation mosaics is again a positive measure.

Park boundaries have often been drawn as desktop exercises meaning they do not follow topographical features nor do they make sense regarding ecological functional units. This results in them being difficult to locate on the ground and communicate to local people. The traditional land rights of local communities are often undocumented thus making it difficult and time-consuming to reconcile these rights with park boundaries leading to many conflicts over land tenure and resource use.

Management planning

As noted above Thailand lacks a national level Master Plan to define a vision and specify the role of its national PA system. Centralized support to management planning was ranked as good and management plans (often called Master Plans at park level) have been prepared for all of the study area parks²⁶. Nevertheless many plans are either out of date or caught in a lengthy approval process. Further these plans have often been prepared by academics or consultants with limited engagement of local staff and stakeholders. The result is either limited ownership of the plan or complete ignorance of what the plans say. Although parks report on implementation against management plans there is no legal obligation to implement management plans. The evaluation found that park level management is not being directed by the management plan, more so by the personality and priorities of the prevailing Park Superintendent. Budgets are also not linked to management plan priorities. This combination of factors results in management direction determined by individuals rather than agency policy and shifts in management approach when staff changes. For example upon the death of the previous Superintendent of Laem Son National Park an initiative to develop 7 cooperative village plans has stalled.

Threats

Threats vary from park to park. At a generic level the top 3 threats to the MNP system were identified in order as 1) impact of fishing, 2) visitor and tourism impact and 3) poaching/encroachment. There is little scientific or systematic documentation of threats and their impacts²⁷ however, the assessment suggests that the cumulative impact of threats is adversely affecting the condition of natural values, with around half of the parks reporting degraded or at-risk values. At a system level the relatively small size of individual MNPs raises questions about their ability to sustain natural processes and associated flora and fauna. As noted above, conservation complexes can assist in this aspect, however the effectiveness of such initiatives has not been adequately assessed.

²⁶ 11 parks of the 16 parks have approved management plans and 5 have submitted plans awaiting approval

²⁷ Lunn, K.E., and Dearden, P. (2006). Monitoring small-scale marine fisheries: An example from the Ko Chang archipelago, Thailand. *Fisheries Research*, 77, 60-71

Responses

1. DNP should complete and fully endorse the in- progress Thailand PA Master Plan which can establish a vision for the country's PAs; which recognises and responds to the role that PAs can play in meeting Thailand's obligations under various multi-lateral environmental agreements especially the CBD and the specific PA obligations of Target 11 of the CBD's Strategic Plan 2012-2020; and which will identify and respond to gaps in ecological representation within the Thai PA system. The Master Plan can also draw together the various academic gap analyses and link these to a realistic strategy for expanding the MCPA system or finding alternative conservation mechanisms to formal PAs.
2. The formal adoption of a tailored MEE system to all of Thailand's PAs can provide a critical tool to help meet national obligations under the CBD's Strategic Plan 2012-2020 Target 11. This should be widely promoted to staff and stakeholders to illustrate Thailand's commitment to adaptive, transparent and performance driven management.
3. A comprehensive survey of boundaries should be undertaken to review design and to clearly define boundaries on the ground.
4. Management plans should be prepared and/or updated with an increasing role for local managers and the PAC in plan preparation. Priorities and work plans should be driven by the management plan to incentivise local managers and avoid personality driven management.
5. DNP should continue to lead on improved marine and coastal complexes to build stronger connectivity. Work should focus on strengthening coordination within DNP, between other agencies managing MCPAs and with land managers outside the existing MCPA system to enhance ecological connectivity (corridors, stepping stones and landscape mosaics).

7.2 Legislation, governance, policy, business management and institutional responsibilities

Overview

The National Park Act which governs all national parks is very restrictive - prohibiting residential occupation, hunting, fishing and grazing. It thus affords little flexibility in accommodating the needs of local people living within or adjacent to parks and is a key factor in what is seen by stakeholders as an overly regulatory culture within the DNP²⁸. This is particularly so in marine parks given the generally accepted premise that they need to accommodate sustainable natural resource use more so than land based parks. The inadequacies within the NP Act mean that local managers are faced with the dilemma of trying to cooperate with local people on issues which are technically illegal under the Act. It is however, understood that a 2011 Cabinet Resolution provides some leeway in accommodating small-scale artisanal fishing within the MNPs provided this does not contradict the Fisheries Act.

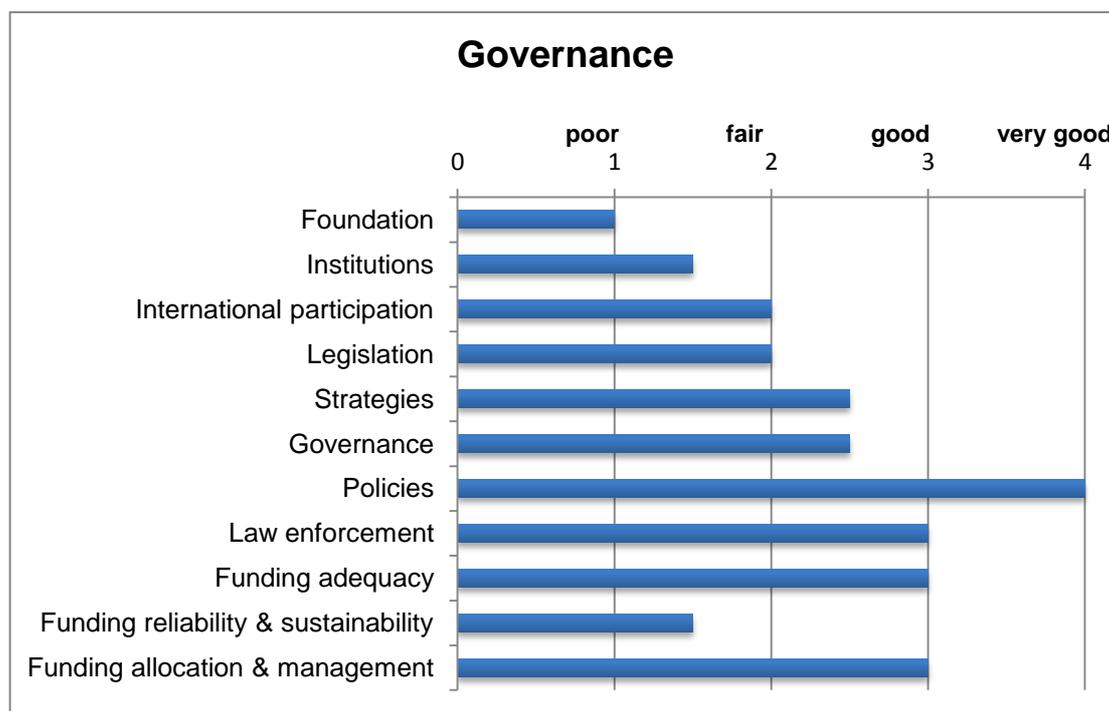
Consistent with national directions the MNP system would benefit from stronger efforts to diversify MNP governance and decentralise decision making. This should build on the success of PACs and co-management initiatives such as the JOMPA project to empower communities in joint decision making.

Multiple agencies share responsibility for MCPA planning, establishment and management. Increased efforts should be made to improve coordination, integration

²⁸ Dearden, P., Chettamart, S., Emphandu, D., and Tanakanjana, N. (1996). National parks and hilltribes in Northern Thailand: A case study of Doi Inthanon. *Society and Natural Resources*, 9, 125-141.

and harmonization through an expansion of initiatives successfully piloted elsewhere in Thailand.

Indicators



Findings

Legislation

The principle legislation under which most MNPs are established and managed is the 1961 National Park Act. This Act provides for the establishment of terrestrial and marine national parks and affords very strong legal protection but paradoxically offers little flexibility in management, restricting managers in their approach. The NP Act is now over 50 years old and has remained largely unchanged. It has an understandably terrestrial bias and is silent on many important issues for contemporary MCPA management. For example whilst the broad purpose of national parks is defined there is no indication of their role in national biodiversity conservation strategies; no specific provisions for marine systems; management plans are not a statutory requirement; there are no provisions relating to zoning and there is no recognition of a mandate for the DNP on cultural heritage. The Act even notes that the national park system is under the authority of the Ministry of Agriculture having never been amended to note that MONRE now play this role²⁹. Most significantly the NP Act is at odds with the new Thai Constitution (2007) which provides for reforms to ensure participatory approaches to natural resource management and a rights-based approach to conservation.

There are numerous other Acts and legal instruments which directly impact on MNPs. In many cases these are not harmonized with the NP Act. An example is that the NP Act prohibits fishing in MNPs whilst the Fisheries Act permits small scale fishing within 3 kms of the coastline. A 2001 Cabinet Resolution seeks to accommodate local fishing, however, local managers are faced with selectively applying the NP Act as they work to try and support sustainable small scale community based fishing at the same time as acting to curb large scale commercial fishing impacts³⁰.

²⁹ Section 5 National Park Act 1961

³⁰ Lunn, K.E., and Dearden, P. (2006). Fisher's needs in marine protected area zoning. *Coastal Management*, 34 (2), 183-198.

Governance

All MNPs in the study are managed by the national government. Whilst there are positive consultative mechanisms in place such as the Park Advisory Committees (PACs), a centralised and government based system of governance prevails. There is a need to consider a range of broader governance types to bring diversity to the system and engender stronger participatory management. A more flexible and robust MCPA system could be achieved with greater use of the full array of IUCN Categories and some diversity of governance types. For example developing co-managed or community managed MCPAs would empower local people and create over time a stronger sense of conservation stewardship³¹. Community programmes such as the Joint Management of Protected Areas (JOMPA) project have been successfully implemented in parks such as Laem Son National Park, however, once the project stops and key staff change the initiative is often not sustained.

Governance arrangements should also be reformed in line with the new Thai Constitution and Government Reform Act 2002 which signals a move away from centralised Government decision-making to a more decentralised system. MNPs need to be seen as critical components within Provincial development plans, however, for the most part they are not well integrated and have often borne the brunt of provincial development pressure with direct impacts. The implications of this issue with respect to structural arrangements are further addressed within the Chapter on Staff structure and organisation.

Policy

There is a well-developed system of centralised policy guidelines covering many aspects of site level management such as law enforcement, visitor facility design, education and interpretation, economic valuation and encroachment management. This is a positive however, most of these guidelines are prepared centrally and many are not being used due to lack of ownership and/or limited capacity at site level. Whilst site level guidance is relatively good there is a lack of system wide thematic strategies and accompanying policy.

A significant legal decision was taken in the 1998 Cabinet Resolution which sought to resolve the conflict over communities living within national parks. The resolution results in a process to register community interests prior to park establishment and allow for some formal recognition of sustainable resource use. The Resolution does not confer land or property rights. This policy decision has triggered a complex and time-consuming process to verify community rights. For example 5,000 residents live in Laem Son National Park, 90% of whom are fishers. Addressing the legal and practical aspects of this issue has dominated management effort in Laem Son, as is the case in many other MNPs.

Business management

A number of issues arise regarding the financial and business operations of DNP. The evaluation rated overall funding levels as 'good' meaning that funding is viewed as adequate to meet basic needs with some provision to address other desired planning, natural resource, cultural and visitor management activities for the MNP system. There are four main sources of funding for PAs in Thailand: government allocations; revenues generated at PA level; other user fees; and donor funded projects. Overall expenditure levels show the total DNP expenditure for the Thai PA system as 11,026.7m THB with 64.7% of this allocated to personnel costs³². DNP figures for park revenue over the 5 years reveal steady annual revenue averaging 461.2m THB with significant annual fluctuations from -11.12% to +21.18%³³. This

³¹ Hines, E., Adulyanukosol, K., Duffus, D., and Dearden, P. (2005). Community perspectives and conservation needs for dugongs (*Dugong dugon*) along the Andaman coast of Thailand. *Environmental Management*, 36, 1-12.

³² DNP 2010 expenditures as provided to IUCN. DNP Presentation, Nov 2011 – Pre Asia Parks Congress, Tokyo, Japan

³³ DNP park revenue figures (2006-2010) as provided to IUCN

equates to DNP raising 4.18% of its overall expenditures from park revenues. By current international standards this is a modest figure especially considering the size of the tourism market, importance of PA assets and potential for growth. The extent of revenue fluctuations is also significant making forward budget planning difficult for the agency. The high percentage cost of personnel is also a reflection of the very large staff of the agency leaving limited scope to fund infrastructure improvements and management activities.

Individual parks receive on average only about 25% of the overall DNP budget indicating that large expenditures are going into areas not necessarily related to the field level. Individual parks can retain up to 10% of revenue generated provided this is re-allocated to special projects and approval sought. Commonly parks request a fifth more than they traditionally receive and allocated budgets are not linked to management plans.

DNP's reliance on donor funded projects appears to be quite low in terms of overall budgets (an estimated average of 5-8%). However, strategic and progressive initiatives are often linked to donor funded projects such as JOMPA, CATSPA, Thai Protected Area Master Plan and this project. A reliance on donor funds for these types of initiatives may be hampering improvements and reforms as individual project initiatives are not financially sustainable beyond the life of the project and so not operationalized within DNP.

Most local staff lack business and entrepreneurial skills which limits their ability to diversify revenue opportunities and deal with business interests such as tourism on an equal footing. Business arrangements are also not always transparent. These concerns are reinforced through a PA Financial Sustainability Scorecard conducted in 2008 which showed that performance was only around one-third of optimal levels for three critical components: 1) financial legal, policy, institutional frameworks; 2) business planning; and 3) revenue generating tools³⁴. The CATSPA project with its focus on financial sustainability and entrepreneurial approaches is a response to these issues.

Institutional arrangements

All MCPAs in the study are national parks and managed by DNP. DNP also manage Wildlife Sanctuaries, Forest Parks and Non Hunting Areas under different pieces of legislation within the coastal zone. Within the purview of MONRE two other agencies have, or are proposed to have, responsibility for MCPAs: DMCR and areas declared under the National Environmental Quality Act (NEQA), ONEPP. In addition the other ministries charged with agriculture, fisheries and education also establish and run MCPAs³⁵.

DNP structural and institutional arrangements are dealt with in the Chapter on Staff structure and organisation.

Inter-agency relationships are variable. Outside of MONRE, a number of other government Ministries and their agencies can have significant impacts on MNPs. These include agencies whose mandates are seen as unsympathetic to DNPs such as the those dealing with roads, irrigation, lands and even tourism and agencies seen as allies to DNP such as those related to education and the military.

Corruption and ethics

Evaluating the extent and impact of corruption and unethical practices within the Thai MNP system is challenged by the inherent lack of transparency surrounding this issue. Only one of the system level indicators (22 Governance) explicitly refers to

³⁴ DNP 2010. *Catalyzing Sustainability of Thailand's Protected Area System (CATSPA)*. UNDP Project Document.

³⁵ The Department of Fisheries under the Ministry of Agriculture and Cooperatives also create MCPAs as sanctuaries for fish and other aquatic life (IUCN PA Management Category Ia) and The Department of Fine Art under the Ministry of Education also create underwater archaeological sites (IUCN Category V).

ethical administration, accountability and corruption. This was ranked overall as fair to good, however, it involves a number of variables. Assembling hard evidence to assess the levels and impact of corruption has proven to not be possible within the scope of this evaluation. Nevertheless allegations of corruption and investigations by Thailand's Anti-Corruption Commission suggest that corruption is a frequent occurrence and a serious issue in many parks and at all levels in the DNP. For example Phuket Wan Tourism News reported on 1st February 2012³⁶ a corruption probe into allegations involving faked admission tickets to Mu Ko Similan and Surin NPs. The corruption is reported as 'fairly widespread and simple to execute.' Apart from the ethical and financial implications such corruption can seriously undermine management. In this case visitor use statistics are distorted making the monitoring and enforcement of carrying capacities difficult.

Responses

1. Coordination could be improved between the multiple agencies with responsibility for MCPAs and more generally conservation at a Provincial scale. Provincial Conservation Forums (PCFs) have been successfully operating in the Western Forest Complex and should be extended at national level. In the coastal zone this type of arrangement would ensure regular meetings between representatives of PA managing agencies at different levels as well as other stakeholders. Efforts can be directed toward harmonizing management plans, work programming, threat management strategies and public awareness programs
2. A review of processes which have stemmed from the 1998 Cabinet Resolution should be undertaken to consider boundary compromises to accommodate community needs. Given that park boundaries were not based on ecological processes, it may be more expeditious and cost effective to negotiate revised boundaries with communities than spend time verifying traditional ownership claims. This should be done in conjunction with boundary rationalisation recommended in Chapter 6.1.
3. DNP should work to diversify MNP governance beyond Government centric models, for example through further empowering PACs beyond consultation to joint management decision management. Such a measure would be consistent with the new Thai Constitution and the Government Reform Act 2002.
4. DNP should continue to cooperate with Thailand's Anti-Corruption Commission and other relevant authorities such as the National Financial Auditing Office on case by case investigations into alleged corruption as well as initiating a systematic investigation into the extent and impact of corruption and measures to address it.
5. A major reform should be undertaken to review the allocation of budgets within DNP such that improved resources are deployed at the field level and linked to management planning priorities.
6. This evaluation strongly reinforces the value of the CATSPA project, which will focus on business management and improved financial sustainability for the Thai system. The results of this project should be incorporated within DNP's operations with improvements evident in future MEE cycles.

7.3 Staff structure and organisation

Overview

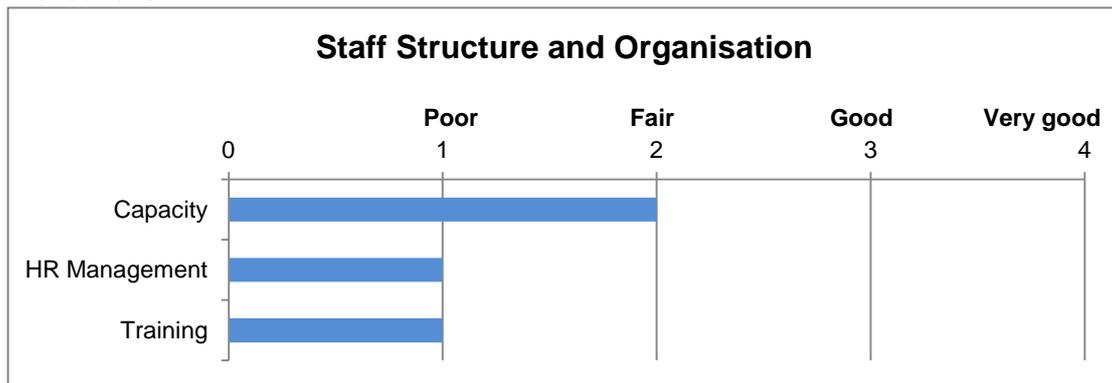
With 19,385 people employed³⁷, Thailand's DNP is probably one of the best-staffed PA management agencies in the world. However, a more detailed analysis of the organisation reveals substantial imbalances, inequities and inefficiencies which limit

³⁶ <http://phuketwan.com/tourism/corruption-probe-similans-surin-national-parks-north-phuket-15420/> (01/02/2012)

³⁷ DNP statistics provided by Radda – need reference

the ability of the agency to deliver its mandate. The organisational structure (see Appendix 7) is strongly hierarchical with long accountability chains and little delegation of authority, resulting in lengthy administrative delays in decision-making. Executives and senior managers are political appointees, so organisational stability and continuity of programs closely matches the prevailing political climate. The disposition of permanent staff is skewed toward the Bangkok headquarters and sixteen regional offices, leaving relatively few of these staff to undertake on-ground work. Succession planning and career path planning are not widely known or used and promotion is based on civil service examinations and regulation rather than appointment on merit. There is a low level of training biased towards senior managers, executives and Bangkok-based staff and this, combined with a paucity of formal qualifications in management and conservation results in a relatively poorly skilled workforce in MNPs.

Indicators



Findings

Organisationally, the National Parks Office within DNP has no direct accountability for management of PAs. Protected areas – including MNPs - are managed directly by 16 regional PA offices, requiring approvals for most decisions to travel up and down long decision chains via a Deputy Director General. Accountabilities between departments in the Ministry and between divisions and offices within DNP are blurred. It was reported by both representatives of the National Parks Office and individual MNPs that it was difficult to determine what value the regional PA offices added in coordination, decision-making and the provision of expertise or guidance to assist MNP managers. Regional PA offices were not represented at either site level or system level assessments conducted during this project.

Each MNP is classified A to C dependent on management complexity (A highest) and staff and resources are allocated according to a defined structure. Staff in each MNP are mostly temporary or short term contractors with few permanent government officers occupying the most senior positions. Site level evaluation reveals great variation in how each park is staffed. It is difficult for temporary or contract staff to access formal training, so the on-ground workforce is relatively poorly qualified to manage complex natural and social issues, although individual staff may be highly skilled in specific tasks such as boat handling and scuba. DNP has conducted an assessment of training needs but this has not extended to individual MNPs. Whilst the Recreation and Interpretation division of the National Parks Office has many training programs available, attendance is by application, not need. As a consequence lower level staff attend little training. In contrast training opportunities are more freely available higher up the chain of command.

Organisational policy requires that permanent staff be rotated every four years, although there are reportedly many exceptions to this policy. In the case of park Superintendents, transfers are more frequent, often linked to political change and

postings average about three years. This frequency of rotation means that few staff are sufficiently familiar with their MNP and its key management issues to provide continuity and consistency in program delivery and to develop effective relationships with local communities and stakeholders. Furthermore, the application of this inflexible rotational policy means that positions often remain vacant and program and project delivery is interrupted because of a lack of skilled replacements.

Permanent staff are allocated to PAs without regard to their particular qualifications or skills and staff allocated to terrestrial and marine parks are undifferentiated. This means that staff who acquire skills in marine management while posted to a MNP are rotated out of the system and their knowledge and expertise is lost. Thus, whilst the numbers of on-ground staff may be adequate, their effectiveness is hampered by transfer policies and lack of access to appropriate training in marine management.

It was reported that performance appraisal was conducted for individual staff, linked to annual work programs. However, no competency standards exist and there are no clear career paths or succession plans established for staff. The most senior officer in each MNP is the Superintendent, who is a political appointee. There is no clear job description for these key managers nor policies governing their promotion. Qualifications and experience in marine and coastal management are not required for appointment to a MNP role.

Because of the scarcity of permanent government officers at the site level, employment of local people in long term, senior MNP management roles is low, and local people occupy the majority of short term contract roles in each park. However, it was reported that most of these staff have defined terms of reference for their jobs.

It was reported that during the monsoon season, less than a quarter of staff in the offshore parks (e.g. Surin, Similan) remain on station. This reduced capacity means that illegal activity in offshore MNPs escalates, no ecological monitoring occurs during the closed season and continuity in program delivery is disrupted.

It was also noted that most, if not all of the senior management roles at the site level were occupied by men. In contrast, at least two of the senior roles in DNP in Bangkok had female incumbents. Furthermore recruitment for DNP is almost exclusively drawn from Kasetsart University resulting in limited diversity in training and/or experience. The social structure of Thai culture heavily reinforces static senior-junior relationships in the administrative hierarchy of DNP. Institutional reform is thus hampered.

Responses

1. Review the structure, reporting relationships and delegations in DNP to:
 - ensure that there are clear and direct lines of accountability between the National Parks Office, regional PA offices and individual MNPs;
 - ensure effective dissemination and application of policies and guidelines;
 - allocate appropriate delegations of authority to MNP managers;
 - facilitate establishment of effective relationships with provincial, local and community government and other key stakeholders;
 - review the relative staffing at headquarter, regional and site levels to provide the necessary capacity, in both numbers of staff and their skills, to effectively manage Thailand's marine PAs.
2. Review recruitment, assignment and rotation policies to:
 - ensure that qualified and experienced staff are allocated to MNP management roles;

- ensure that where possible, people are employed with local knowledge and expertise to effectively manage important issues such as community relationships, natural resources and tourism;
 - to ensure that Park Superintendents, as key decision-makers, have sufficient time to familiarise themselves with local issues, to build the necessary trust with stakeholders and to ensure follow-through on management directions;
 - ensure that work programs and key projects are resourced at appropriate levels and with staff that have the skills and experience to provide continuity and consistency in task implementation.
 - consider adopting a standard set of competencies for different classes of staff modelled on the ASEAN PA Competencies.
3. Conduct a training needs analysis to determine the qualifications, skills and expertise required for MNP staff at both the organisational and site level.
 4. Develop training programs (perhaps in partnership with Universities and other relevant institutions) to provide staff with the appropriate qualifications and skills for their jobs, having regard to both current and future needs.
 5. Develop positive anti-discrimination policies for gender, age and ethnic background at all levels in DNP which reflects the representation of these groups in the general population.

7.4 Natural resource management

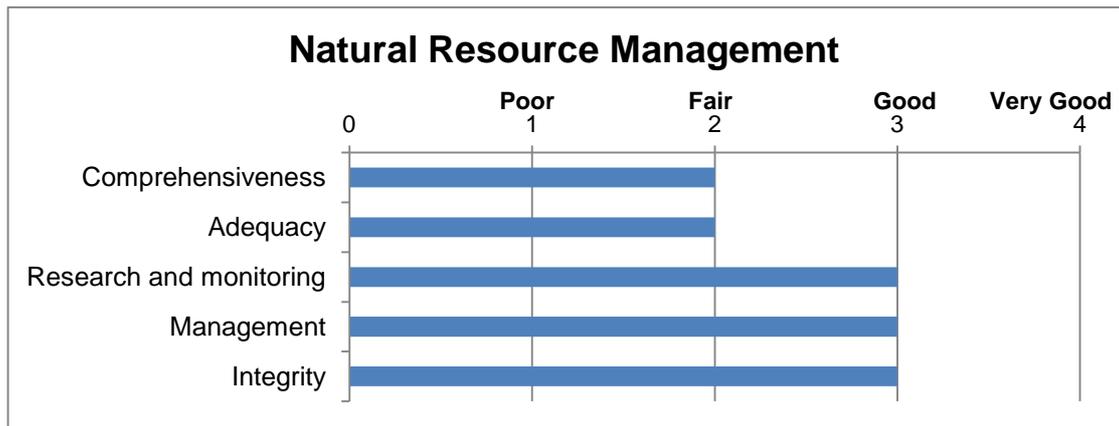
Overview

Although there are numerous policy statements and guidelines for the management of natural resources (see list from Laemson) their application in MNPs appears to be discretionary and not linked to systematized management and performance reporting programs and processes. This may be due to poor site level capacity and/or the inflexibility of the underlying statutory basis for management of natural resources in parks – the National Parks Act.

Where community consultation and a planned and implemented approach to managing the threats to natural values associated with tourism, park encroachment and fishing activities are happening there are reported positive benefits for management effectiveness outcomes, including improved condition of the natural resources in MNPs. There are high correlations between management activities and outcomes in these areas, indicating that sustained active management, where implemented, produces results.

Positive linkages have also been demonstrated between value-driven management and value condition. Two thirds of parks report that management is targeted to maintaining identified park values and in these parks value condition and management improves, highlighting a potential area to enhance management effectiveness outcomes in the parks where this is not already occurring.

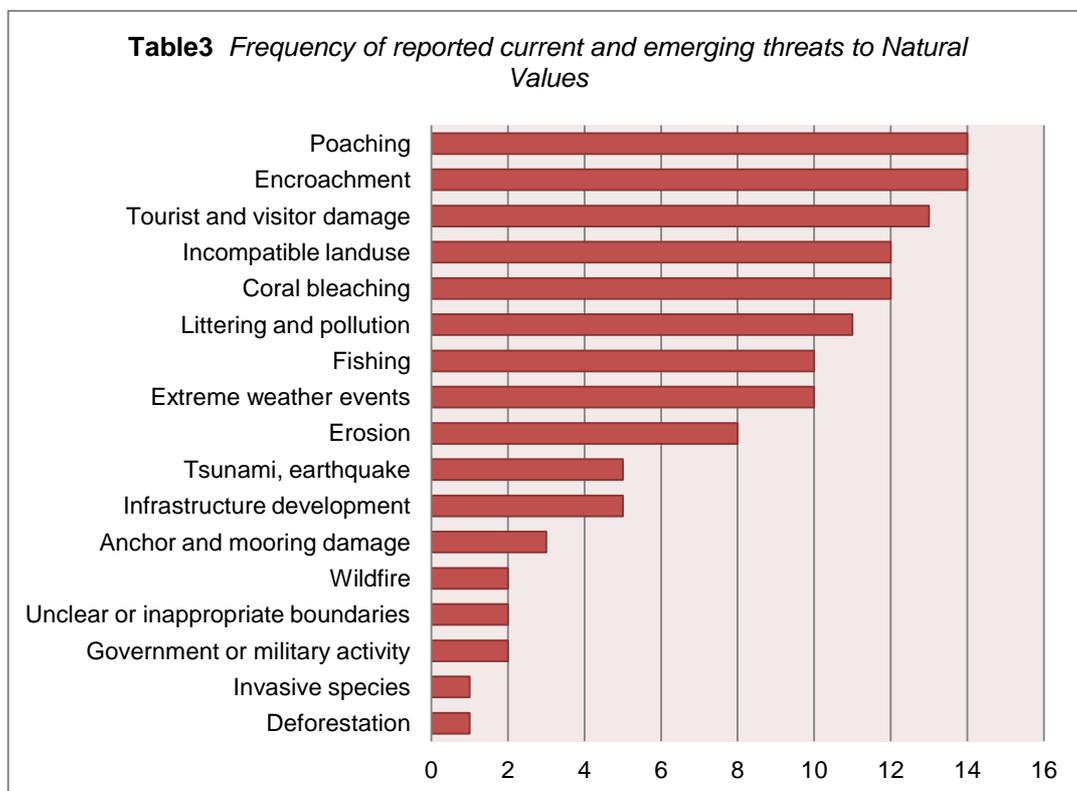
Indicators



Findings

The most frequently reported current and emerging threats to natural values in parks (see Table 3) are related to marine management issues, in particular poaching, tourism and visitor damage, incompatible landuse, fishing, and impacts associated with climate change such as coral bleaching and extreme weather.

Compare threats identified in this study to those in *UP-MSI, ABC, ARCBC, DENR, ASEAN, 2002. Marine Protected Areas in Southeast Asia. ASEAN Regional Centre for Biodiversity Conservation, Department of Environment and Natural Resources, Los Baños, Philippines.* which lists domestic pollution, development, tourism activities, destructive fishing and siltation from the sea as the top five threats to Thai MCPAs in terms of frequency and impact



Tourism impacts on natural values are related to inappropriate use levels and encroachment by tourist ventures into the park (including commercial tour operators). Long term impacts associated with tourism have the potential to permanently

degrade natural values. A high level of impact on PA values exists where commercial and community fishing are reported to be a threat.

The 2004 Tsunami had a major impact on Thai MNPs, particularly in the Andaman Sea and adjacent coast. Reported impacts on natural resources included over 780ha (10%) of coral reefs affected by land-sourced sedimentation, debris and garbage; 120ha (1.5%) of seagrass beds affected by siltation; 300ha of mangrove and 30% of beach forests impacted³⁸. Erosion from future tsunamis and extreme weather events is likely to be a major influence on the condition of natural values and contribute to changes in visitor and tourism use and associated impacts, including expansion of leisure and recreational activities into hitherto undamaged areas. Exacerbating the direct impacts on natural values is the impact on park management, which can have even more serious longer term effects.

There appears to be a distinct dichotomy between parks with high visitation levels and/or tourism use where Natural Values are significantly degraded compared with those with lower visitation and/or tourism use, where Natural Values are reported to be positive. Where reported, threatened species have a low level of security and management effectiveness outcomes are low. Similarly, invasive species management is limited or reactive although the impact overall of pests and weeds is considered to be limited.

Numerous gap analyses have been conducted in Southeast Asia, including Thailand to determine the extent of representation of ecosystems in the PA system.³⁹⁴⁰⁴¹⁴²⁴³⁴⁴

There appears to have been little response to these analyses to date, although Thailand has a policy of creating a network of terrestrial PAs and is moving to create a similar network in the marine realm. It is reported that further work to identify system inadequacies has been commissioned as part of this initiative, including a DMCR project to be completed in 2012. This is a positive initiative and is to be encouraged, provided adequate resources are allocated for management of the expanded system.

DNP MNPs conserve all Thai coastal and marine ecosystems but some are not large enough to ensure ecological integrity. Individual parks do not conserve entire catchments or ecological inputs (water quality and quantity, natural catchment

In *Protected Area Gap Analysis in the ASEAN Region*, ASEAN Centre for Biodiversity December 2010 it was stated that over 50 per cent of coral reefs in Thailand are found within marine protected areas. Seagrass beds within marine protected areas are estimated at 52.09 square kilometres or 34.7 per cent of the total area covered by seagrasses in the country. As for the mangroves, only seven per cent of the total area covered by mangroves is found within marine national parks. Several coastal and marine national parks were established specifically to protect the mangrove habitats that have been declining at an alarming rate. Of the three major marine ecosystems, Thailand fell short of its 20 per cent target in protecting mangroves.

Management gaps in the marine protected area system of Thailand include:

- Lack of enforcement to ensure that fishing activities, tourism development, and shrimp farms do not encroach into the marine national parks
- Need to pass a more specific law to guide the establishment and management of marine protected areas
- Lack of sustainable financing
- Lack of baseline data and system for habitat and biodiversity monitoring
- Need for greater involvement of NGOs and local communities in marine protected area management
- Lack of explicit policies or overall plans for the marine protected area
- Overlapping responsibilities of government agencies and departments at both national and local levels in the management of coastal and marine resources
- Need to establish transboundary marine protected areas

³⁸ MONRE. (2005) *Biodiversity & Coastal Disasters 2004. Thailand Tsunami Case Study*.

³⁹ UP-MSI, ABC, ARCBC, DENR, ASEAN, 2002. *Marine Protected Areas in Southeast Asia*. ASEAN Regional Centre for Biodiversity Conservation, Department of Environment and Natural Resources, Los Baños, Philippines.

1. ⁴⁰ Trisurat, Y. 2006. Applying gap analysis and a comparison index to assess protected areas in Thailand. *Environmental Management* 39: 235-245.

⁴¹ Birdlife International and IUCN – WCPA South-East Asia (2007) *Gap analysis of protected area coverage in the ASEAN countries*. Cambridge, U.K.: Birdlife International

⁴² *MCPA Gap Analysis; Existing PA Coverage and Recommendations for Additional Protection. Report to MFF Secretariat*. (2008). Corcoran, E., Turner, D. and Shadie P. UNEP-WCMC, IUCN. Gap analysis for MCPAs in Thailand

⁴³ ASEAN Centre for Biodiversity December, 2010. *Protected Area Gap Analysis in the ASEAN Region*.

⁴⁴ Ministry of Natural Resources and Environment, Thailand. 2010. *Marine Gap Analysis for Thailand*.

processes) and lifecycles of some key species, and are therefore subject to adverse environmental impacts. DNP MNPs are a subset of the total MCPAs in Thailand and PA clusters of different tenure conserve landscape scale features to some extent. However, a planned approach to ensure areas are connected at landscape scale whilst filling any under-represented ecosystem gaps would secure a more robust system. Zoning core and buffer areas and consequent application of appropriate management controls would add to the security of ecosystems of high conservation value.

DNP has three research centres which monitor natural resources in parks and the organization cooperates with institutions such as DMCR and Universities to undertake research programs. DMCR is a younger, smaller agency with a growing mandate for marine and coastal resource management. DNP should strengthen cooperation with DMCR to ensure that complementary skills are applied to managing natural values in the MNP system. Research and monitoring is also done at individual sites in MNPs. However, much of the research and monitoring work is conceived and undertaken by the research centres and other institutions with limited reference to park managers. With a more cooperative approach, research and monitoring effort could be directed towards acquisition of basic MNP natural values data and addressing the main risks to natural values. These include the following areas (noting some examples of research which have been undertaken but which require greater coordination):

- tourism and visitor impacts⁴⁵
- encroachment, incompatible land use and infrastructure development impacts⁴⁶
- socio-economic evaluation of community impacts on MNPs and the development of alternative income sources⁴⁷
- commercial fishing and poaching⁴⁸
- impacts of climate change especially coral bleaching⁴⁹
- conservation of threatened species⁵⁰
- Restoration of areas degraded by erosion, visitor use and invasive species⁵¹.

Responses

1. Review the extensive studies carried out to date on the comprehensiveness, adequacy and representativeness of the Thai MCPA system.

⁴⁵Dearden, P., M. Theberge and Yasué, M. (2010) Using underwater cameras to assess the effects of snorkeler or SCUBA diver presence on coral reef fish abundance, family richness and species composition. *Environmental Monitoring and Assessment* 163: 531-538; Roman, G., Dearden, P., and Rollins, R. (2007). Application of Zoning and "Limits of Acceptable Change" to Manage Snorkeling Tourism. *Environmental Management*.39: 819-830; Dearden, P, Bennett, M., & Rollins, R. (2007). Perceptions of diving impacts and implications for reef conservation. *Coastal Management*. 35: 305-317

⁴⁶ Yasue, M. and Dearden, P. 2008 Methods to measure and mitigate the impacts of tourism development on tropical beach-breeding shorebirds: the Malaysian plover in Thailand. *Tourism in Marine Environments* 5: 287-299

⁴⁷ Hines, E., Adulyanukosol, K., Duffus, D., and Dearden, P. (2005). Community perspectives and conservation needs for dugongs (*Dugong dugon*) along the Andaman coast of Thailand. *Environmental Management*, 36, 1-12.

⁴⁸Lunn, K.E., and Dearden, P. (2006). Monitoring small-scale marine fisheries: An example from the Ko Chang archipelago, Thailand. *Fisheries Research*, 77, 60-71

⁴⁹ Dearden P and P. Manopawitr (2010) Climate Change - Coral Reefs and Dive Tourism in Southeast Asia. In *Keys to the Disappearing Destinations: Climate Change and the Future Challenges for Coastal Tourism* edited by Andrew Jones and Mike Phillips. CABI, Wallingford. pp144-160

⁵⁰ Theberge, M., and Dearden, P. (2006). Detecting a decline in whale shark (*Rhincodon typus*) sightings in the Andaman Sea, Thailand, using ecotourist operator-collected data. *Oryx*, 40, 337-342

⁵¹Yasue, M., A. Patterson and Dearden, P. (2007). Are salt flats suitable supplementary nesting habitats for Malaysian plovers *Charadrius peronii* threatened by beach habitat loss in Thailand? *Bird Conservation International* 17: 211-223.

2. Develop and implement a planned approach to the acquisition of areas to complete the system.
3. Review the departmental accountabilities for management of the different components of the MCPA system within MONRE and rationalise arrangements to ensure the most efficient and effective management of the system having regard to:
 - the main threats to the natural values of Thailand's marine resources
 - system integrity at landscape scale
 - the allocation of resources (including funding, staff, expertise and system support).
4. Develop research, monitoring and reporting programs targeted at the key risks to MNP natural values to facilitate ongoing adaptive management of the system including management of major impacts such as fishing, poaching, tourism pressure, encroachment, adjacent land use and climate change. Consider preparation of a periodic State of the Parks report to track changes and system improvements over time.
5. Review post disaster response strategies to improve policy and guidelines in the event of future natural disasters such as extreme weather events and tsunamis. Develop a Disaster Risk Reduction manual and training programme to refine MNP DRR strategies for prevention, response and recovery.
6. Develop coordination mechanism with research institutes and universities for research and monitoring of natural resources and recommendation for management plan.

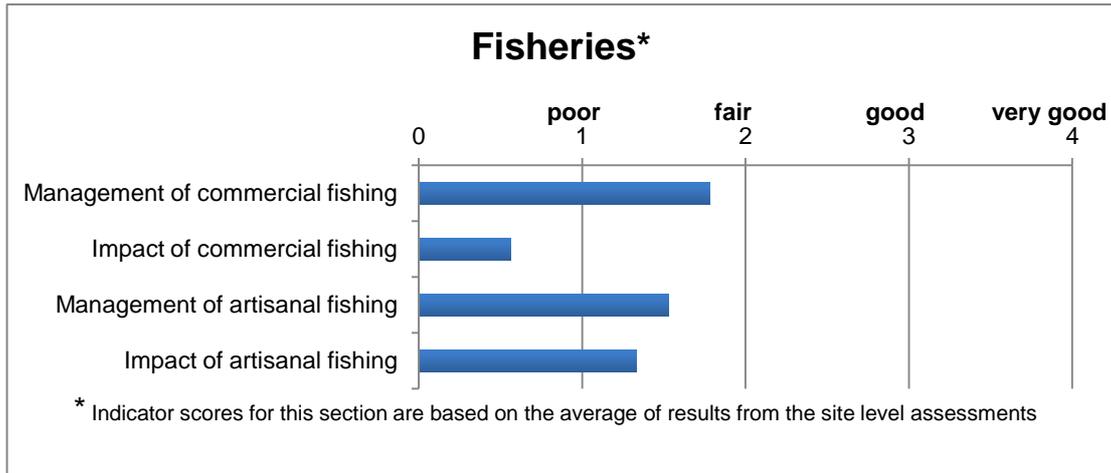
7.5 Fisheries management.

Overview

Fisheries management was identified as a critical issue for most parks across a broad range of attributes including current and potential threats, community awareness, law enforcement capacity, stakeholder relationships and the impact of MPAs on local communities. Fishing is prohibited in all MNPs under the National Parks Act. It should be noted that, although the Fisheries Act allows fishing within 3 km off the coast, the National Parks Act takes precedence over the Fisheries Act inside MNPs. Despite prohibition, artisanal and commercial fishing in MNPs is widespread, primarily because of a general lack of understanding or acceptance among fishers of the purpose and values of MNPs coupled with the fact that livelihoods depend on this resource. A Cabinet Resolution of 2001 seeks to overcome the shortcomings of the National Park Act by allowing artisanal fishing provided it is consistent with the Fisheries Act. However, in practice PA managers must not be involved in any formal agreements with communities.

Illegal fishing is viewed as the primary cause of a general decline in the biomass of marine biota, ironically expressed by fishers through declining catch levels, increased catch effort and expansion of fishing grounds. Parks report fisheries management among the lowest levels of management effectiveness. Parks properly managed as fisheries "no-take" zones could serve an extremely important function in fish stock management and recovery.

Indicators



Findings

There are significant impacts on PA values where commercial and community fishing are reported as a threat. However, there is a strong correlation between parks having a planned and implemented approach to management and the impact of fishing activities. There is a weaker correlation between management and impact for community fishing activities.

Despite the statutory prohibition of fishing in MNPs, many local communities are dependent on marine resources harvested from MNPs for sustenance and income. There is significant community pressure on MNP managers to continue to allow artisanal fishing. Managers respond by either avoiding confrontation with artisanal fishers or by negotiating unofficial agreements with local communities to encourage sustainable use of marine resources. Lack of knowledge, expertise and capacity often inhibits effective implementation of these agreements.

In Laem son National Park prior to the 2004 Tsunami, artisanal fishers were required to register their boats. Post-tsunami, boats were donated to communities and the number of boats engaged in artisanal fishing doubled. Registration was abandoned and, although park staff have the authority to enforce the Fisheries Act in the park, there are no restrictions on artisanal fishers in relation to catch levels, catch size or net mesh size and there are no programs for monitoring the impacts of fishing on biodiversity or biomass.

There is a high level of tolerance of illegal commercial fishing in MNPs and a general reluctance or inability of managers to effectively control this activity due to:

- Community opposition (sometimes violent)
- Lack of suitably trained and experienced staff
- Unclear or unidentified MNP boundaries
- Lack of suitable and properly serviced equipment including patrol vessels
- Economic pressure and political influence.

In addition to the depletion of fish stocks in parks, the use of inappropriate fishing methods and equipment (e.g. purse-seine nets, trawling boats) result in collateral damage to marine and coastal ecosystems and populations of non-target species including coral reefs, seagrass beds, dugongs and turtles. There is often competition between artisanal fishers and commercial fishers for the same resource. Thus, whilst fishing in MNPs is technically illegal, managers are often drawn into resolution of conflicts between artisanal and commercial fishers.

A number of MNPs (e.g. Laem Son, Surin, Tarutao, Had Chao Mai, Lanta) reported the illegal collection of coral and aquarium fish as having an adverse effect on natural values. However, in the absence of established research and monitoring programs, evidence is anecdotal and impacts remain unquantified.

Responses

1. Initiate a system-wide assessment of the extent, intensity, impact and risks of artisanal, commercial and recreational fishing and poaching on the marine resources and biodiversity of MNPs. This assessment should actively engage all stakeholders.
2. Conduct a comprehensive social and economic survey of local communities to determine the extent to which they are dependent on MNP resources for their livelihoods.
3. Utilise the results of the above studies to review the application of the National Parks Act, the Fisheries Act and other relevant MCPA statutory and regulatory instruments in relation to fishing, incorporating consideration of the conservation of natural values, sustainable use of renewable resources and the socio-economic needs of local communities and other stakeholders.
4. In accordance with statutory requirements, develop national policies for the sustainable management of marine resources in Thai MNPs.
5. For each MNP, develop strategies, plans and zoning systems in consultation with stakeholders to implement the policies to effectively manage marine resources, including development of alternative sustenance and income sources for local communities.
6. Provide managers with appropriate means to manage fishing in MNPs for the conservation of their natural values including:
 - preparation and dissemination of management guidelines;
 - establishment and identification of MNP boundaries;
 - training, equipping and authorisation of park staff;
 - engagement of stakeholders in the implementation of management plans;
 - monitoring of ecosystems and populations to enable adaptive management of marine resources;
 - restoration and maintenance of degraded sites;
 - public information, education and interpretation programs.

7.6 Tourism, visitor services and visitor management

Overview

Visitor and tourism management (and related maintenance and construction) accounts for a major part of the DNP budget. While the numbers of tourists visiting southern Thailand continues to increase, overall patronage of the Thai parks system is reportedly declining. This reduction in usage of the parks system needs to be validated as there are assertions of miss-counts and corruption allegations regarding entry ticket sales and accounting. If verified a drop in overall use is a concern: the relevance of the system depends on use and general community support. DNP should analyse and where possible respond to the causes of declining use to ensure a strong focus on responding to user demand.

The MNP system is a foundation tourism asset for Thailand. In contrast to sustainable stewardship the perception remains of a culture of finding Thailand's next unspoilt place, exploiting it and moving on to the next. DNP should position itself as an equal partner in tourism and continue to build strong relationships with the sector at all levels.

Greater efforts are needed to manage commercial tourism operators and to encourage more sophisticated public-private partnerships that recognise the relative and complementary strengths of both the tourism and conservation sectors.

Indicators



Findings

MNPs and Tourism in Thailand

Tourism contributes 550 billion THB per annum to the Thai economy (7% of GDP)⁵². International arrivals grew significantly from 1998 onwards (7.8m visitors in 1998 to 19.1m visitors in 2011⁵³ and despite various international and domestic set-backs such as SARS and political unrest, this growth continues. The MNP system includes many of Thailand's iconic tourism assets such as Phi Phi Island, James Bond Island, Floating Village and world renowned dive sites such as Surin & Similan National Parks. Despite the central role of these assets and the importance of effective management there is an impression that they are taken for granted by the tourism industry and DNP are viewed more as service providers than equal partners in the tourism business. At site level there seems to be uncertainty as to the exact niche that parks fill in the overall tourism sector. For example discussions in the Mu Ko Ang Thong National Park PAC highlighted increasing demand from the tourism sector to open up additional islands. Ang Thong's Superintendent, who comes from a terrestrial background and is new to the park, is struggling to define the tourism niche that the park provides whilst balancing diverse stakeholder views. He is challenged to do this in the absence of any central tourism strategy and without the support of qualified tourism staff.

DNP is working to develop stronger relationships with the Tourism Authority of Thailand (TAT) within the Ministry of Tourism and Sport, however, more work is needed to integrate the protection and management of MNPs with national tourism marketing/promotional strategies. The fragility of many MNPs which are under greatest visitor pressure is not being advocated strongly enough to TAT to ensure these vital assets are carefully nurtured and sustained. Conversely the relationship with TAT could be improved through engaging them more on general PA issues. For example TAT's representative on the Thai PA Master Plan working group should ensure a significant contribution to the development of the work as a major stakeholder.

In a similar vein there is a need to improve DNP's relationship with commercial tourism businesses. The DNP Director General has issued guidelines in 2007 which

⁵² Tourism Authority of Thailand (<http://www.tourismthailand.org/about-thailand/economy/>)

⁵³ <http://www.thaiwebsites.com/tourism.asp> figures derived from Office of Tourism Development

aim to regulate tourism entrepreneurs in marine parks⁵⁴. This focuses on tour boats and diving operators and provides a good framework for the sorts of issues that need to be managed. However, the implementation of these guidelines appears limited. At the site level DNP are failing to secure proper economic return from commercial operators and tourism income is not being reinvested in park facilityimprovement/management. Staff and stakeholders are of the view that commercial tour operators can obtain and renew a permit without difficulty and limited conditions are imposed on licences/leases. In Mu Ko Chumphon National Park dive operator concessions are available for 1,500THB p.a. with few conditions or standards applied. Green Fins is a regional certification program for diving established in 2004 through UNEP. Thailand was one of the first to subscribe to the programme, however, it is one of very few industry certification schemes seeking to regulate the conduct and impact of tourism activities in parks. The Bangkok Post reported in 2010 that despite interest from local tourism operators and community leaders there is little political will for environmental certification schemes at higher levels in government⁵⁵. As was evident in Surin and Similan National Parks monitoring programmes are failing to address the impact of intensive visitor pressure on reef systems so not informing tourism operator management.

Visitor Management & Infrastructure

National parks visitation across Thailand has reportedly dropped by approx. 37% in the last 10 years (from 16.85 m visits in 1999 to 10.64 m visits in 2010)⁵⁶. Trends need to be verified as pointed out above. If the fall is genuine it would be difficult to attribute to any one factor and more likely linked to impacts which have affected Thailand as a whole. Site level evaluation revealed falls in visitation reported in a number of parks (40% in Laem Son) due to total ban on the consumption of alcohol in parks following an incident in Khao Yai National Park involving the murder of a visitor.

Many of the MNPs receive high levels of use and are significant revenue earners for the DNP. Ao Phang-nga, Mu Ko Surin, Khao Laem Ya - Mu Ko Samet and Mu Ko Similan are within Thailand's top ten revenue earners. Mu Ko Samet is the most visited marine park in Thailand. On average the MNPs receive over 50% international visitors, a higher percentage of international visitors than the Thai system as a whole (12%).

Significant effort goes into visitor management and much is known about visitor behaviour, characteristics and demand. The introduction of carrying capacities and Limits of Acceptable Change (LAC) systems in 10 MNPs is a positive step, however, declining natural resource conditions in areas of high visitation continue to be reported and 80% of parks reported significant levels of visitor impact. There is a strong correlation between impact and management of commercial tour operators. There is still an overemphasis on managing visitor numbers at a coarse scale rather than finer scale impacts on selected values and park assets. Greater attention should be given the linking monitoring and research programmes to impacts using this information to more proactively manage visitation⁵⁷.

Education and interpretation

DNP have invested significantly in a range of good interpretive signage and facilities. The mangrove boardwalks, visitor and education centre in Mu Ko Chumphon National Park is a good example. The majority of parks believe that visitor facilities are adequate.

⁵⁴ DNP. 2007. *Control Measures for Tourism Entrepreneurs in Marine National Parks: SCUBA Diving & Related Activities in Marine National Parks*.

⁵⁶ DNP Presentation, Nov 2011 – Pre Asia Parks Congress, Tokyo, Japan

⁵⁷ Eg see Roman, G., Dearden, P., and Rollins, R. (2007). Application of Zoning and "Limits of Acceptable Change" to Manage Snorkeling Tourism. *Environmental Management*.39: 819-830;

Over 95% of the surveyed parks indicate well developed public awareness and interpretive programmes and the relationship with visitors in general is viewed as a positive. However, there are no visitor surveys or outcome indicators related to the impacts of interpretation programs.

Responses

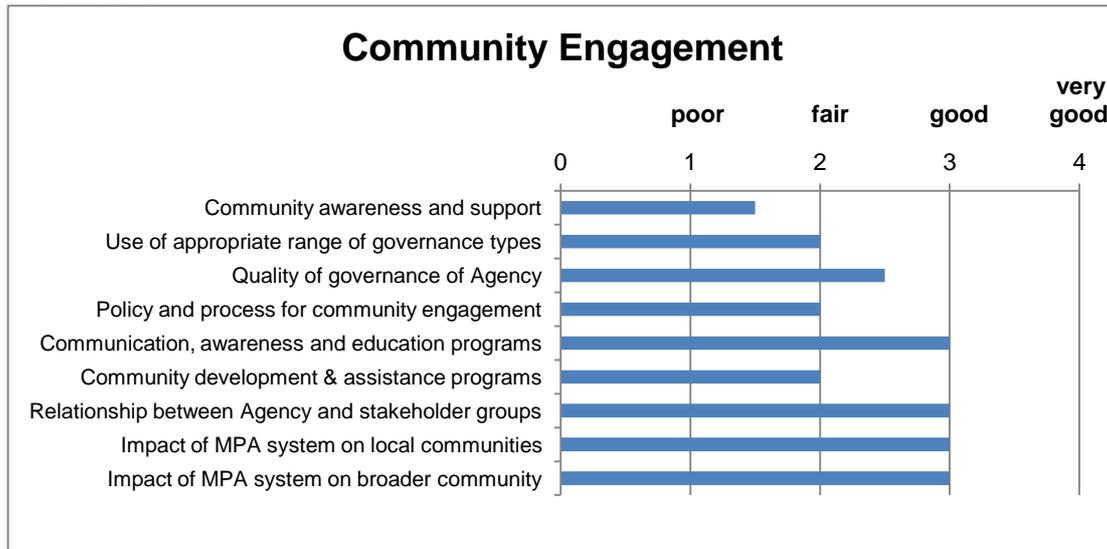
1. DNP should prepare a national tourism strategy for National Parks including MNPs. Such a strategy should be developed cooperatively with the TAT to define the niche that MNPs occupy; agree on mutual objectives; ensure protection of MNPs as sustainable tourism assets and identify mechanisms that can return tourism revenue to DNP for conservation. This strategy should engage with key tourism park staff and stakeholders to ensure that future management is in accordance with overall policy and direction.
2. Review system level concessions, licencing and leasing policy and practice to implement an improved system at site level. This needs to build on the existing guidelines and address licence conditions, accreditation, economic return, impact monitoring and research and adaptive management.
3. Review and plan for tourism/recreational opportunities at a Provincial scale to clarify the niche that MNPs should be seeking to fill. Consider expanding the LAC programme to all MNPs.
4. Verify if overall parks use is declining and investigate the causes to respond in a way that can reverse this trend. For example there may be alternative measures to address the problems of alcohol in parks (zoning and regulations).

7.7 Stakeholders and communities

Overview

The broad policies and processes for effective community engagement are in place but there is room for some improvement in translation of community involvement into a more effective contribution to management decision making. Successful resolution of major issues between local communities, stakeholders and the management agency (principally over artisanal fishing and access to tourism sites) will likely be needed before the community engagement processes that DNP has established will translate into significantly improved community relations. Overall the MPAs were judged to be providing a largely positive benefit to both the local and broader communities.

Indicators



Findings

Clearly the DNP has established processes for community and stakeholder engagement and consultation although these receive, on average, a very small proportion of staff time (5% managers; 10% rangers) and only 2% of budget. Most of the parks have a formal Park Advisory Committee (PAC) that meets at least twice per year. Many PACs have been set up but are yet to meet or only meet infrequently. Moreover, while the minutes of these meetings are publically available, they are not widely distributed and hence of limited use in informing community views and opinions. More parks failed to answer questions on community and stakeholder engagement on the basis that they lacked sufficient information to make a judgement than for any other part of the site evaluation. Lack of information of community livelihoods and the impact of park management on livelihoods was particularly seen as problematic. Effective use of the PAC meetings could help fill this information gap. While over 50% of the sites reported that they had effective programs of community engagement, this was not always translated into community support for the park. Most parks have active interpretation and education programs that are meeting the needs to visitors with good, centrally produced education and awareness material, although information outreach to local communities could be improved.

Tenure and rights issues were a common and pervasive issue across the parks visited during the evaluation and were raised by stakeholders and communities in all discussions. Building community support will depend on addressing some of the continuing issues over tenure and rights of local communities where parks have been established. In these cases reforms will need to account for the incorporation of traditional artisanal fishing areas or in some cases, villages themselves which exist within MNPs. There is a legal requirement that 5% of net park revenue is returned to local government but these funds do not generally find their way to local communities in and around the park. Specific recommendations in relation to legislation and governance models for the parks that will help address these rights and tenure conflicts are discussed in the Governance and Fisheries Management sections of this report.

Some parks such as Similan National Park report effective use of community consultation and engagement in planning and setting local regulations, however, it should be noted that local community issues are fewer at this remote park. Others reported limited influence of the PAC discussions and other community consultation on DNP decision making. At a local level, Park Superintendents could use the PACs to better leverage local government support for park management policies and plans.

Centrally, sector based consultation with stakeholders could be developed to better inform policy development for the MNP system as a whole.

Despite the continuing problems in relation to community and stakeholder relations, the overall impact of the parks and their management was seen to be positive. This is especially so in relation to the wider Thai community, for whom the marine PAs provide a significant tourism and local recreation resource.

Responses

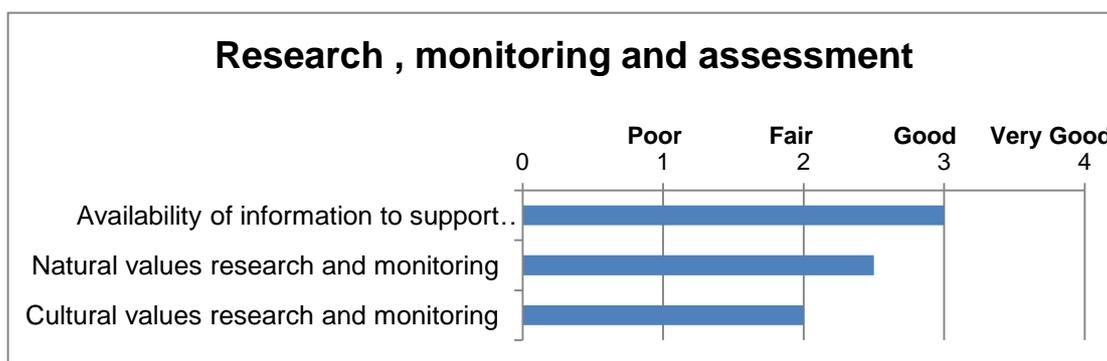
1. Establish a policy review project to document tenure and rights issues on a park by park basis and consider the need for any changes to system-wide policy on issue of resolution of rights. These policies need to balance the conservation of natural values with consideration of community rights and livelihood issues. Once established these policies need to be actively disseminated to staff and through the PACs with a timetable for incorporation into management programs and implementation established at the local level.
2. Increase staff time and budget allocation for community and stakeholder engagement activities, especially in line with the requirement to implement the new stakeholder and community engagement policies and programs.
3. Review the PACs selection process and mandates with twice a year meeting providing training and involve the PACs from plan preparation

7.8 Research and monitoring

Overview

Centrally the Department of National Parks has a well-developed information system although it was reported that its level of use by field staff to support planning and management has been constrained by the complexity of the system. Information availability is rated by most parks as only moderate with significant gaps in information needed to support decision making. Information availability is strongest in relation to historic heritage values and weakest in relation to knowledge of communities and residents of the parks. This is ironic as DNP lacks any formal mandate for historic heritage management. Research receives among the lowest budget and staff time allocations of all park management activities but despite this most parks report that they are undertaking some monitoring of key attributes.

Indicators



Findings

System level indicators for research and monitoring were stronger than the average site level assessments for overall availability of information and for natural values monitoring and research. This, in part, reflects the availability of centralised information and also the contribution of external research institutions and students to research and monitoring in the marine parks. Some parks such as Similan and Surin National Parks have a long history of research and monitoring from staff and

students at institutions such as Prince of Songkla and Kasetsart Universities. In addition the Phuket Marine Biological Center (PMBC) was identified as a key research and monitoring centre for the Andaman area with good databases on coral reef, seagrass, oceanography and marine endangered species. While research information is routinely provided to the National Parks staff, there are no well - established systems for ensuring information is made available to relevant staff and stored securely for long term use. Additionally, staff at the site level may lack the marine training to be able to interpret and use such information to support their management. Research and monitoring at the site level receive the lowest budget allocation (less than 1% of total budget across the 16 sites) and the least amount of staff time (less than 5% of total staff time) devoted to this activity. Despite this low allocation of effort, all parks reported at least some monitoring activity and the majority of parks had a planned, if sometime constrained, program of monitoring designed to support management decision making.

Responses

1. Establish a MNP Research and Monitoring Advisory Committee consisting of a representative from the PMBC and each of the Thai universities involved in marine research and management training and relevant staff from DNP to advise the Department on marine research and monitoring.
2. With advice from the above Advisory Committee, develop a system wide MNP monitoring plan to direct monitoring activities in each of the reserves, based on a consideration of key values, threats to values and information needed to support decision making.
3. Increase the staff and budget allocation to monitoring in the MNPs in line with the requirements needed to implement the monitoring plan.
4. Aim to have at least one staff member with marine biology training allocated to each MNP so that there is a source of expertise locally available to direct monitoring and interpret the results of research in a management context.
5. Implement the research results into practices and build capacity on marine ecosystem including training of the trainers, establish volunteer system to support research and monitoring programme.
6. Create marine parks networking within this region especially with Great Barrier Reef
7. Establish and conduct long term ecological research station by using the DNP monitoring on marine and coastal resources' guideline/manual
8. Create sister marine parks within the region including Australia

Appendices

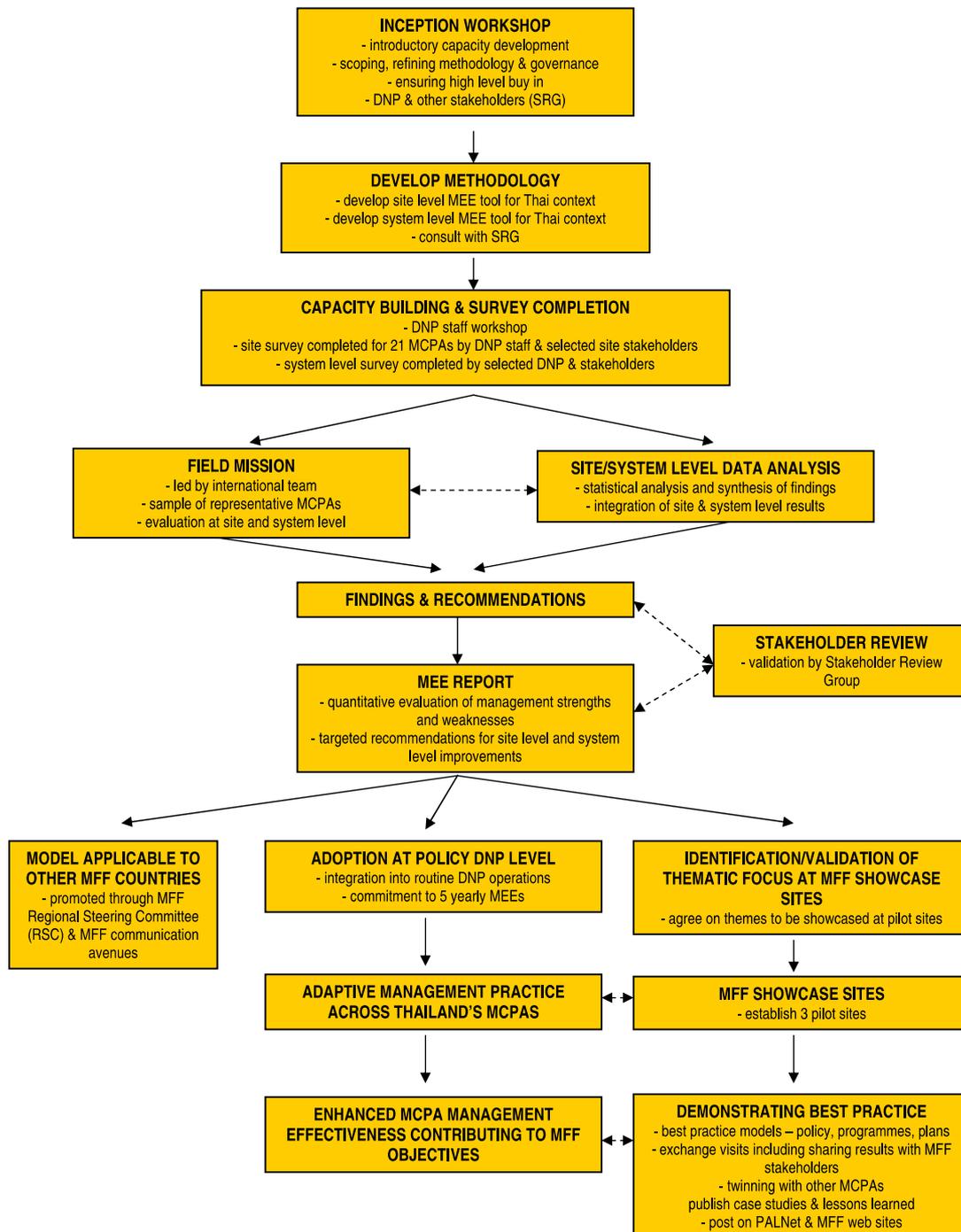
Appendix 1. Thailand's marine and coastal protected areas

Site Evaluation Completed	Included in overall study but site evaluation not completed
Ao Phang-nga National Park	Tarutao National Park
Than Bok Khorani National Park	Thale Ban National Park
Hat Wanakon National Park	Hat Chao Mai National Park
Khao Lampi - Hat Thai Mueang National Park	Khao Sam Roi Yot National Park
Laem Son National Park	Mu Ko Ang Thong National Park
Mu Ko Similan National Park	Mu Ko Chumphon National Park
Khao Laem Ya - Mu Ko Samet National Park	Mu Ko Chang National Park
Khao Lak – Lam Ru National Park	
Lam Nam Kra Buri National Park	
Mu Ko Lanta National Park	
Mu Ko Phetra National Park	
Mu Ko Surin National Park	
Sirinat National Park	
Hat Noppharat Thara – Mu Ko Phi Phi National Park	
Than Sadet – Ko Pha-ngan National Park	
Ao Manao – Khao Tanyong National Park	

The English translation of Thai park names varies. This study has utilised the English spelling of the official DNP Guidebook on Thailand's National Parks.

Appendix 2. Thai management effectiveness evaluation project flow chart

EVALUATING & IMPROVING THE MANAGEMENT EFFECTIVENESS OF THAILAND'S MARINE & COASTAL PROTECTED AREAS



Appendix 3. System level assessment results

INDICATORS	PERFORMANCE RATING				Score	EVIDENCE
	1 0-25%	2 26-50%	3 51-75%	4 76-100%		
CONTEXT						
<ul style="list-style-type: none"> Is there a clearly articulated vision for the on-going development and management of the Thailand PA system? (National Management plan for protected areas) 	No articulated vision. Identification of values is incomplete and general; hence of little value for reserve design and management	Limited vision articulated. Identification of values complete but there is insufficient detail for reserve design and management.	Clear national vision articulated. Identification of values is complete and there is sufficient detail on most values to guide reserve design and day to day management	National vision articulated with strong linkage to international commitments. Identification of values is complete and there is sufficient detail to guide reserve design, strategic and day-to-day management.	2	<ol style="list-style-type: none"> Thai PA Master Plan in preparation will define vision, management and enabling env. needs DMCR is proposing establishment of another system of MPAs – none exist until Marine and Coastal management Promotion Act, drafted in 2002 is adopted. Another PA system exists under the National Environmental Quality Act – 6 coastal areas are protected under this regime. Office of National Environmental Protection creates Environmental Protected areas for protection of environmental values and delegates management to provincial gov't OR it can restrict damaging activities in declared areas. Master Plan in prep will address this indicator for DNP managed protected areas but not DMCR or NEQA areas. National Biodiversity Strategic Action Plan has limited detail relating to DNP MNPs implementation of CBD although DNP MNPs are embraced by targets Office of National Environmental Protection is focal point for CBD has carriage of

						NBSAP, DNP is implementing agency for POWPA 16. Identification of values is incomplete
<ul style="list-style-type: none"> The most important areas containing the key biodiversity values for the country are contained within the protected area system 	The design of the PA system shows no evidence of a systematic approach and many key biodiversity values are unrepresented in the system	The design of the PA system shows limited evidence of a systematic approach and some key biodiversity values are unrepresented in the system	The design of the PA system is based on a systematic approach and most key biodiversity values are contained within the system or there are plans to add these areas in the immediate future	The design of the PA system is based on a systematic approach and all key biodiversity values are contained within the system	2	17. in process led by DMCR, work is being done by Tesco Consultants (Dr Suvalak), timeframe 1 yr to be completed 2012 18. gap analysis conducted in 2002 under ADB/UNEP funded project 19. 2007 regional gap analysis by ASEAN dealt with national level gaps in key ecosystem and habitat protection 20. separate 2007 study by Dr Yongyut Trisurat also dealt with national level gaps 21. UNEP/WCMC MFF gap analysis exists
<ul style="list-style-type: none"> What level of current and/or potential threat is the system and its marine and coastal protected areas facing? + data rolled up from the site level assessments Q4 and Q4-1 	High level of external and internal threat. No risk management program implemented.	High level of internal and/or external threat. Risk management program insufficient to implement management interventions.	Moderate level of internal and/or external threat. Risk management program implemented and controlling some threatening processes.	Low level of current and potential threat. Comprehensive and effective risk management program implemented.	1-2	22. Superintendents collect law enforcement information and forward monthly through regional office to Protection and Forest Fire Control Office (not DNP). 23. An example of inappropriate development in MNPs is Ramkamhang University establishing a campus in Thai Mueang NP contrary to DNP 24. Little dialogue between Tourism Dept and DNP about tourism development 25. Unsustainable fishing pressure 26. Visitor carrying capacity exceeded in many parks 27. Royal (Public) Property Dept seeks to take control of land in MPAs for tourism development 28. There is a history of conflicts between government agencies about developments in national parks. 29. Each incident is dealt with on a case by

						case basis.
<ul style="list-style-type: none"> What is the level of awareness and support of the community towards the marine and coastal protected area system as a whole? 	The community is not generally aware or supportive of the PA system	Awareness and support for the PA system is low or confined to small segments of the community	There is widespread awareness of the PA system and the community is broadly supportive of protected areas	There is evidence of high levels of community awareness and support of the PA system	1-2	<ul style="list-style-type: none"> 30. Community sees MNP system as a resource to be exploited for natural resources and income 31. High level of regulation and reactive management in DNP 32. DMCR is a younger agency and has a stronger culture of awareness-raising and evidence-based response to exploitation: strong research base. 33. No systematic national opinion surveys conducted.
<ul style="list-style-type: none"> To what extent do policies, legislation (other than PA legislation), and institutions in the area support protection and management of protected areas? 	General legislation and policies create significant difficulties for establishment or management of PAs	General legislation and policies create some difficulties for establishment and management of PAs but do not seriously undermine management	General legislation and policies are broadly supportive of establishment and management of PAs	General legislation and policies positively support establishment and management of PAs	1	<ul style="list-style-type: none"> 34. 1998 Cabinet decree to force resolution of encroachment issues. 35. National Economic and Social Plan encourages inter-sectoral cooperation but "silos" persist 36. Environmental assessment processes ignored or overridden by political or departmental expediencies and targets 37. Other agencies do not respect PA status; examples include: 38. Canal dredging in watersheds for flood mitigation has big impact on estuarine and coastal areas condition 39. Palm oil plantation and shrimp farm establishment (since abandoned) encouraged for biofuel production 40. Road widening proposal in Dong Phrayayen Khao Yai WH site 41. Even within MONRE, competing objectives

						<p>within departments is evident.</p> <p>42. MONRE is weak as a Ministry compared to economic portfolios (not in top 10)</p> <p>43. Institutions with contradictory mandates include:</p> <p>44. Ministry of Interior (controls local gov't)</p> <p>45. Ministry of Ag & Fisheries (Fisheries is the department within Ministry of Agriculture and Cooperatives)</p> <p>46. Ministry of Sport & Tourism</p> <p>47. Provincial authorities</p>
<ul style="list-style-type: none"> To what extent do institutional structures for PA management support effective and integrated management 	Institutional structures create significant difficulties for effective management of PAs	Institutional structures create some difficulties for effective management of PAs	Institutional structures are broadly supportive of effective management of PAs	Institutional structures positively support effective management of PAs	1-2	<p>48. Evaluation was not able to consult with regional protected area office staff</p> <p>49. Regional offices impede both system and site mgt (opinion shared by parks AND head office) because procedures are bureaucratic, slow, and do not add value and. have low awareness of value of PAs and other env. issues</p> <p>50. Multiple agencies create and manage PAs which has both positive and negative effects but does not result in a more effective PA system</p> <p>51. Decentralisation is encouraged by Constitution and funding to devolve decision making to provincial, district, sub-district and village levels but DNP controls and systems are centralized and autocratic and accountabilities are unclear</p>
<ul style="list-style-type: none"> To what extent do Thailand PA agencies participate in international and regional 	Thailand PA agencies have no involvement agreements related to PAs	Thailand PA agencies are involved in some relevant agreements	Thailand PA agencies are actively involved in most relevant agreements although the standards and provisions are not	Thailand PA agencies are actively involved in all relevant agreements and provide leadership	2	<p>52. est. 60% involvement in regional and global agreements</p> <p>53. awareness and engagement mainly exists at DNP HQ, managed by International Cooperation division</p>

agreements, alliances, partnerships and cooperative arrangements and meet standards for the management of affected PAs?			always able to be met in full	for some, and the standards and provisions are generally met in full		54. DNP is part of a cadre of agencies dealing with international PA agreements 55. DNP tends to implement agreements whereas other agencies deal with policy, negotiation and adoption.
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PLANNING

<ul style="list-style-type: none"> To what extent do protected areas have clear tenure and legal status (including physical and graphical demarcation of boundaries)? 	Tenure and legal status of many protected areas is incomplete or unclear and this creates significant problems for management	Tenure and legal status of the majority of protected areas is established but problems or uncertainties in tenure create problems in some areas	Most protected areas are established with clear tenure and legal status	All protected areas are established with clear tenure and legal status	2	56. Statutory basis for park tenure is strong and clearly established under NP Act and confirmed by royal decree (although NP Act is outdated) 57. As a result of 1998 Cabinet decree, efforts were made to identify terrestrial boundaries in company with local communities and stakeholders, but results are poorly documented and superseded by subsequent encroachments except where more recent surveys (last 10 yrs) were conducted using GPS 58. Marine boundaries are not identified other than on maps 59. Historically, boundaries were set through desk-top processes and not ground-truthed by physical survey.
<ul style="list-style-type: none"> Is there an appropriate range of category (IUCN) types? 	Reliance on inappropriate set of protected area categories is significantly constraining effectiveness of conservation management within the socio-economic,	Conservation management could be enhanced by use of a more appropriate variety of protected area categories within the socio-economic, legal and cultural context	An appropriate variety of protected area categories is used to meet conservation management needs within the socio-economic, legal and cultural context of the country	An appropriate variety of protected area categories is used to significantly enhance conservation management within the socio-economic, legal and cultural context of the	2	60. All PAs are assigned a category but there is no sound documented rationale for assignment of categories 61. Categories were assigned according to their title as national parks, rather than according to management objectives.

	legal and cultural context of the country	of the country		country		
<ul style="list-style-type: none"> Is there an appropriate range of governance types? 	Reliance on inappropriate set of protected area governance types is significantly constraining effectiveness of conservation management within the socio-economic, legal and cultural context of the country	Conservation management could be enhanced by use of a more appropriate variety of protected area governance types within the socio-economic, legal and cultural context of the country	An appropriate variety of protected area governance types is used to meet conservation management needs within the socio-economic, legal and cultural context of the country	An appropriate variety of protected area governance types is used to significantly enhance conservation management within the socio-economic, legal and cultural context of the country	2	<p>62. All MPAs are owned and managed by Government</p> <p>63. All study area MPAs are government owned/managed by DNP but other government agencies are working with communities on CCAs e.g. DMCR</p> <p>64. At the field level, DNP is engaging with communities to establish joint management arrangements despite the constraints of legislation.</p>
<ul style="list-style-type: none"> Is legislation adequate to manage and protect PAs? (referring to content including how current it is) 	PA legislation significantly constrains effective management of PAs	PA legislation enables effective management of PAs in most circumstances but there are some issues where legislation constrains management	PA legislation is predominantly adequate and appropriate to the needs of the country and enables effective management of PAs	PA legislation is entirely adequate and appropriate to the needs of the country and significantly enhances capacity to effectively manage PAs	2	<p>65. Legislation is old and has remained unreformed since adoption in 1961.</p> <p>66. Legislation is based on terrestrial areas and is difficult to adapt to the marine realm</p> <p>67. Primary statute (NP Act) is strong, although silent on key aspects of management (e.g. human use, zoning systems, financial mechanisms) although statutory regulations under the NP Act deal with these issues to some extent (e.g. boating regulations, diving, filming) Management measures (non-statutory guidelines) give guidance to managers.</p> <p>68. Cabinet decrees give direction to executive gov't (Ministers) on matters of public importance.</p> <p>69. The Director General also issues departmental decrees on key management issues</p>
<ul style="list-style-type: none"> How adequate is the PA system (considering system design (ecological 	There are significant deficiencies in system design (ecological representativeness,	The PAs in the system are mostly large enough, of appropriate design	Protected areas in the system are mostly large enough, of appropriate design	Protected areas in the system are excellent in terms of number, design and	2	<p>70. DNP MPAs conserve all Thai coastal and marine ecosystems but some are of insufficient area to ensure ecological</p>

<p>representativeness, adequacy and comprehensiveness), size, configuration and connectivity) to conserve the marine and coastal values of the country?</p>	<p>adequacy and comprehensiveness) of PAs so that major components of the natural values of Thailand cannot be effectively conserved in the PA system</p>	<p>and in the right locations to effectively conserve values for which they were established, but there are significant gaps in coverage of the full suite of natural values of Thailand</p>	<p>and in the right locations to effectively conserve the natural values of Thailand</p>	<p>location to effectively conserve the natural values of Thailand</p>		<p>integrity</p> <p>71. Individual parks do not conserve entire catchments and key ecological inputs (water quality and quantity, natural catchment processes) and lifecycles of some key species, and are therefore subject to adverse environmental impacts.</p> <p>72. Thailand has a policy of creating a network of terrestrial protected areas and is moving to create similar network in the marine realm – note this as positive initiative.</p> <p>73. DNP MPAs are a subset of the total MPAs in Thailand and these PA clusters of different tenure conserve landscape scale features to some extent.</p> <p>74. Zoning could be more positively employed to secure core areas. Zoning systems are written in management plans but are applicable to terrestrial areas only and are difficult to adapt to the marine realm.</p>
<ul style="list-style-type: none"> Do Thailand PA agencies develop and implement national strategies or frameworks for the management of system-wide issues or sectoral influences (e.g. Tourism, visitor management, revenue generation, disaster management, climate change, invasive species) 	<p>No strategies in place.</p>	<p>Strategies in place to address some issues but implementation are ineffective.</p>	<p>Strategies in place to address most issues but implementation could be improved.</p>	<p>Strategies in place for all identifiable issues. Implementation monitored for effectiveness and programs adjusted accordingly.</p>	<p>2-3</p>	<p>75. Strategies exist for most issues but opinion varies as to the extent that they are implemented.</p> <p>76. There is a Lack of harmonisation between strategies and lack of consideration for impacts on the park system.</p>

<ul style="list-style-type: none"> How adequate are systems and processes for management planning? 	<p>There is no systematic approach to management planning and planning processes are frequently deficient. Quality of plans is generally poor</p>	<p>Systems and processes for management planning are established but they fail to meet best practice standards in significant respects. Quality of plans is generally adequate.</p>	<p>Systems and processes for management planning substantially meet best practice standards for management planning (e.g. see IUCN Planning Guidelines). Quality of plans is generally good.</p>	<p>Systems and processes for management planning meet best practice standards for management planning (e.g. see IUCN Planning Guidelines). Quality of plans is generally excellent.</p>	<p>3</p>	<p>77. No statutory basis underpinning management plans 78. All (18) management plans for the Andaman MNPs and four of the five Gulf of Thailand MNP plans have been developed by academics following some accredited systems, but DNP sometimes has difficulty accepting some proposals and plans are often not disseminated to the field for implementation 79. All plans are reported as being available on the DNP website, although local communities and NGOs (and staff?) have not been made aware of this.</p>
<ul style="list-style-type: none"> Proportion of MCNP PAs with management plans. 	<p>No management plan (0 parks)</p>	<p>Management plan being drafted (0 Parks)</p>	<p>Management plan prepared and submitted for approval (5 parks)</p>	<p>Approved management plan (11 parks)</p>	<p>4</p>	<p>80. All parks that submitted assessments either had approved management plans (11 parks) or management plans in draft awaiting final approval (5 parks) 81. Relatively few parks had subsidiary plans for tourism, natural resource management or community relations although it is not clear if this is an actual gap or a problem in completion of the assessment. Some parks like Ao Manao – Khao Tanyong had a comprehensive range of subsidiary plans</p>
<p>Assessment based, in part, on data rolled up from the site level assessments Part B Q1 and Q2</p>						
<p>INPUTS</p>						
<ul style="list-style-type: none"> Is there adequate staff capacity in the management agency as a whole (including both on-ground and support staff?) 	<p>Staff numbers and/or skills are deficient in many PAs or areas of support operations</p>	<p>Staff numbers and/or skills are deficient in some PAs or areas of support operations</p>	<p>Staff numbers and/or skills are generally adequate in PAs and areas of support operations</p>	<p>Staff numbers and/or skills meet all operational needs in PAs and areas of support operations</p>	<p>2</p>	<p>82. Parks are classified (A, B, C) and each class has a defined structure 83. The number of permanent officers in each park is only a small percentage of the total (e.g. Laemson NP: 2 gov't officers, 10 permanent staff, 28 4 yr contract staff, 42 1 yr contract or</p>

Assessment to be based, in part, on data rolled up from the site level assessments Part C						<p>temporary staff).</p> <p>84. Government establishes the permanent staff complement but transfers and promotion of these officers often result in positions remaining vacant because of a lack of skilled replacements.</p> <p>85. Low skill base requires more unskilled staff to achieve the same level of operational effectiveness.</p> <p>86. Staff are rotated (by regulation) every 4 yrs but there are many exceptions</p> <p>87. Numbers are adequate but disposition and skills are inadequate</p>
<ul style="list-style-type: none"> How adequate is funding for the protected area system? 	Funding is not able to cover the minimal management needs for the PA system (minimal staffing, basic operational expenses)	Funding is just able to cover minimal management needs for the PA system (minimal staffing, basic operational expenses)	Funding is able to meet basic needs as well as at least some desirable planning, natural resource, cultural and visitor management activities for the PA system	Funding is able to meet basic needs as well as most desirable planning, natural resource, cultural and visitor management activities for the PA system	3	<p>88. 4 separate funding sources:</p> <p>89. base budget for staff and operations</p> <p>90. revenue from fees</p> <p>91. local and provincial gov't</p> <p>92. international project grants</p> <p>93. Up to 50% of earned revenue can be retained but reality is only 15% is guaranteed and the remaining 35% is based on project bids.</p> <p>94. Trend is budgets are declining (over the last 5 yrs budget has declined from 1b THB to 700-800m THB).</p>
<ul style="list-style-type: none"> How reliable and sustainable is this funding? 	Funding is unreliable, often variable and dependent largely on outside temporary (e.g. project based) sources.	Funding at a base level is generally stable (or increasing) but many activities and projects are dependent on less reliable funding sources	Funding is routine or otherwise secured through regular budget sources or through long-term agreements with donors.	Funding is routine or otherwise secured through regular budget sources and there is capacity to optimise external funding when available	1-2	<p>95. General funding appears to rise from 2006 to 2008 then steadily declines minimally thereafter</p> <p>96. Gross revenue at park level appears to fluctuate by up to 30%</p>
<ul style="list-style-type: none"> Is funding, allocated according to national priorities 	Funding is allocated <i>ad hoc</i> without regard to national priorities	Funding is allocated on an historical basis with	Funding is allocated according to national priorities but	Funding is allocated according to national priorities and	3	<p>97. Annual budget bids from MPAs are prioritized according to financial plans, government policy, DG directives, etc and submitted via DG to</p>

and performance against budget, managed effectively?	with no performance controls	no performance controls.	performance controls are weak.	performance controls are enforced.		Cabinet for funding. Cabinet may request cuts to budget sought but these are made according to planned priorities. 98. Audit controls on process are strong, but weak on management controls. Leakage is prevalent. 99. Budgeting is not linked to management plans.
<ul style="list-style-type: none"> How adequate is the infrastructure and equipment for the protected area system as a whole, including the requirements of both on-ground and support services. 	Infrastructure and equipment is not able to cover the minimal management needs for the PA system	Infrastructure and equipment is just able to cover minimal management needs for the PA system	Infrastructure and equipment is able to meet basic needs as well as at least some desirable natural resource, cultural and visitor management activities for the PA system	Infrastructure and equipment is able to meet basic needs as well as most desirable natural resource, cultural and visitor management activities for the PA system	2-3	<p>100. Infrastructure and equipment is not appropriate (ice machines on Similan and Surin)</p> <p>101. Level and type of infrastructure and visitor facilities may not be appropriate.</p> <p>102. Maintenance funds are not provided for major infrastructure projects</p> <p>103. Six of the sites rated facility and equipment maintenance at the highest level of performance while four parks only undertake maintenance on an ad hoc basis</p> <p>104.</p>
<ul style="list-style-type: none"> How much information is available to support management and decision-making at all levels of the management agency? 	Necessary information to support management and decision making is rarely available	Necessary information to support management and decision making is frequently not available	Necessary information to support management and decision making is mostly available but there are some impediments to availability or use	Necessary information to support management and decision making is mostly available and readily accessible to relevant staff	3	<p>105. Complex decision support system was built 5 years ago but nobody uses it</p> <p>106. Site rating of information availability by parks is generally low (4 point scale 1 = little or no information; 4= Sufficient information.</p> <p>107. Means Natural resource information 2.0 Visitor information 2.0 Historic resource information 3.8 Community/resident information 1.6</p>

PROCESS						
<ul style="list-style-type: none"> What is the quality of governance of the agency (considering ethical administration, legitimacy and voice, accountability, fairness in decision making, equitable benefit sharing and application of the rule of law, leadership) (ethical admin includes corruption) 	The agency lacks a clear sense of purpose, direction and strategy that takes account of key issues of effective governance	The policies, procedures and organisational norms of the agency relating to key issues of effective governance are frequently not known or understood by many staff or the agency fails to implement these policies and procedures	The PA agency has a clear set of policies, procedures and organisational norms relating to key issues of effective governance that are understood by the majority of staff and are generally implemented by the agency	The PA agency has a clear set of policies, procedures and organisational norms relating to key issues of effective governance that are well understood and effectively implemented by staff	2-3	<p>108. DNP policies are not well known or understood at lower levels in DNP</p> <p>109. Temporary staff are only aware of organizational policies as interpreted by permanent staff (e.g. Superintendent)</p> <p>110. All gov't depts. must have policies (by law), however interpretation to practitioners on the ground is not easy</p> <p>111. Understanding of MNP policies is limited across other sectors of DNP.</p> <p>112. There is no stakeholder participation in some policy development</p> <p>113. There is evidence of conflict between conservation and recreation within DNP</p>
<ul style="list-style-type: none"> How adequate are system-wide policies and guidelines for marine & coastal protected area management? 	There are no documented system-wide policies or guidelines for key aspects of MNP management	Documented system-wide policies or guidelines for many key aspects of MNP management are inadequate or not available	Documented system-wide policies or guidelines for most key aspects of MNP management are adequate	Documented system-wide policies or guidelines for key aspects of MNP management are of comprehensive and of high quality	4	<p>114. many policies exist but are ineffective in dealing with emerging threats (e.g. coral bleaching)</p> <p>115. strong central policy framework but poor site level capacity to interpret.</p>
<ul style="list-style-type: none"> How adequate is system-level and system-wide business planning, financial management and administrative support? 	Business planning, financial management and administrative support systems are missing or rudimentary	Basic financial management and administrative support systems exist but there is little or no attention to business planning	Some business planning is undertaken, financial management and administrative support systems are adequate for needs	Formal business plans are regularly prepared, financial management and administrative support systems are of high calibre	2	<p>116. Budget is allocated but it may be insufficient to implement business plan, hence some programs may not be capable of full implementation (e.g. infrastructure maintenance).</p> <p>117. Fee collection is not aligned to budget allocated to park (i.e. some parks collect more fees than are returned as their fair share)</p> <p>118. High use parks which generate high revenue do not receive an equitable level of funding</p>

<ul style="list-style-type: none"> How adequate are the system-wide processes for management, maintenance and safety checks of infrastructure and equipment? 	<p>There are no system-wide processes for management, maintenance and safety checks of infrastructure and equipment</p>	<p>System-wide processes for management, maintenance and safety checks of infrastructure and equipment only cover some components of the system</p>	<p>Policies for regular safety checks and management, maintenance of infrastructure and equipment are in place</p>	<p>Policies for regular safety checks and management, maintenance of infrastructure and equipment are in place and there are asset databases or audit processes in place to ensure that these are followed</p>	<p>2</p>	<p>119. Insufficient mooring buoys 120. Limited maintenance of rest rooms 121. Staff equipment such as patrol vessels are often in poor condition. 122. Inadequate training of staff in the maintenance of complex machinery/equipment 123.</p>
<ul style="list-style-type: none"> What is the standard of human resource management? Are staff effectively managed to achieve objectives (staff assigned correctly and effective staff management to achieve objectives and staff turn-over, performance review) 	<p>Human resource management systems lack adequate policies and procedures and clear and there are no effective systems for staff performance review and feedback, and to manage staff transfer or rotation</p>	<p>Basic human resource management systems are in place but policies are lacking or unclear and there is only limited systems for staff performance review and feedback, and to manage staff transfer or rotation</p>	<p>Human resource management systems are generally well developed, with clear policies and procedures for most aspects of staff recruitment and management. There are systems for staff performance review and feedback and to manage staff transfers and rotations</p>	<p>Human resource management systems are well developed, with clear policies and procedures. A system for staff performance review and feedback is used effectively to ensure staff growth and high level performance. Staff turnover is appropriate for the health of the agency</p>	<p>1</p>	<p>124. Rapidity of rotation and quality of superintendents varies in terms of competence in marine management. 125. Superintendents are politically appointed. 126. Less than a quarter of staff remain on park during monsoon 127. There is a difference between regulations governing permanent and temporary staff 128. Central office and regional offices have the majority of government officers 129. There are regulations for promotion, but no clear policies for being promoted to superintendent</p>

<ul style="list-style-type: none"> Is there an adequate system to assess capacity needs and provide training specific to the needs of MNPs? 	<p>Little or no training or capacity development is provided</p>	<p>Basic training needs are understood and training is provided to most staff to meet key requirements of their positions</p>	<p>Training and capacity needs are well understood and regular training is undertaken in line with this understanding</p>	<p>A training and capacity needs assessment has been completed within the past five years and a structured program to meet these needs is in place</p>	<p>1</p>	<p>130. central office has a lot of training programs available, but it is up to the individual to apply 131. a training needs assessment exists for DNP but not individual parks 132. most staff from lower levels would attend little training. Opportunities are more freely available at higher levels. 133. There is a training section in central office 134. No clear job description for Superintendents or managers but many contractors have TORs 135. Knowledge of marine and coastal resources is not required for appointment to MNP role. 136. Some university programs exist for terrestrial management but none for marine. 137. Most staff have no formal education in NP management, but some have extensive experience. 138. Staff below gov't officer lack knowledge and training.</p>
<ul style="list-style-type: none"> How adequate is agency-wide support and capacity for, and commitment to the application of legislation and law enforcement? 	<p>There are no law enforcement support systems at the agency level</p>	<p>Law enforcement support at agency level is weak so reported offences are frequently not able to be successfully prosecuted</p>	<p>Some law enforcement support is available at agency level but it is sometimes limited in capacity or commitment</p>	<p>Law enforcement support systems at the agency level are in place so that field law enforcement actions can be effectively concluded</p>	<p>3</p>	<p>139. Clear regulations, but level of enforcement depends on the individual officer's discretion 140. Strong processes and procedures exist but there is often a lack of consistent organizational support</p>
<ul style="list-style-type: none"> How adequate is the system-wide approach to management of 	<p>There are no clear policies or an overall plan for tourism and visitor management</p>	<p>There are some policies and a plan for tourism and visitor management</p>	<p>There are clear policies and an overall plan for tourism and visitor</p>	<p>There are clear policies and an overall plan for tourism and visitor</p>	<p>2</p>	<p>141. Introduction of carrying capacity and LAC policy across 10 MPAs is a positive policy but awareness, level of detail and implementation need to be improved.</p>

visitors and tourism?	that addresses key issues in tourism and visitor management in PAs	but it fails to address key issues in tourism and visitor management in PAs	management that addresses most key issues in tourism and visitor management in PAs	management that addresses key issues in tourism and visitor management in PAs		<p>142. Soil, water, social, waste indicators used to determine carrying capacity.</p> <p>143. More focus on numbers than impacts</p> <p>144. No criteria are applied to license tour operators – 1,500 baht p.a. (very low, commercial dive operator permit in Mu Ko Chumphon NP). No review for annual renewal.</p> <p>145. Stronger controls on operators still needed – standards, best practice and codes of conduct.</p> <p>146. DNP booking programmes to control numbers.</p> <p>147. A number of centrally issued policies and guidelines exist</p>
<ul style="list-style-type: none"> How adequate is system-wide community engagement and policy (e.g. advisory groups, volunteers), and what proportion of protected areas have appropriate levels of community involvement? 	There are no policies and processes for community engagement that set the context for effective engagement at both the system and site level and no effective mechanism for community/stakeholder input to the agency.	There are only limited policies and processes for community engagement that set the context for effective engagement at either the system or site level and only limited community/stakeholder input to the agency.	There are policies and processes for community engagement that set the context for effective engagement at either the system or site level. There are regular opportunities for community and stakeholder input to the agency	There are clear policies and processes for community engagement that set the context for effective engagement at both the system and site level. There is an operational system of advisory committees to provide community and stakeholder input to the agency	2	<p>148. Park Advisory Committees directed to be established in all MPAs (Similar an exception). PACs advise on management issues.</p> <p>149. PAC effectiveness varies from park to park due to personalities involved and frequency of meeting.</p> <p>150. PACs are elected based on sectoral interests.</p> <p>151. PACs produce publically available minutes but these are not well distributed.</p> <p>152. There is no central policy or programme on volunteers however, volunteer programmes in place (both locals and from outside area) in some parks but not all.</p>
<ul style="list-style-type: none"> How adequate is the system-wide communication, awareness and education program as it pertains to MNPs? 	There is no overall plan or structured program for communication, awareness and education in relation to PAs. No or very limited awareness	There is no overall plan or structured program for communication, awareness and education in relation to PAs. Awareness and	There is an overall plan and structured program for communication, awareness and education in relation to PAs. Awareness and education	There is an overall plan and structured program for communication, awareness and education in relation to PAs. Awareness and education	3	<p>153. Generally good levels of education and interpretive programmes across MPAs.</p> <p>154. There are good centrally produced education/awareness resources and staff within DNP.</p> <p>155. Problems with maintenance of interpretive facilities</p>

	and education materials are produced. Community awareness and understanding of MNPs is limited	education materials are produced but on an ad hoc or project basis only. No material targeted at marine and coastal issues. Community awareness and understanding of MNPs is limited.	materials are primarily distributed in response to requests. Community awareness and understanding of MNPs is adequate.	materials relevant to MNPs are proactively distributed to target audiences. Community awareness and understanding of MNPs is good.		<p>156. Problem with sometimes high turnover rates of Supts.</p> <p>157. Information outreach not sufficient.</p> <p>158. There is no explicit overall central plan but standards are set such as mandatory nature trails and visitor centres.</p> <p>159. Example given of limited information produced about coral bleaching – not responsive enough. That said efforts were made via web and through media announcements.</p> <p>160. DNP undertake media for TV/radio.</p>
<ul style="list-style-type: none"> How adequate is the system-wide program of appropriate community development assistance or compensation? 	Community development and assistance is not seen as a function of the PA agency.	Community development and assistance is seen as a function of the PA agency but there are only limited projects and no planned program to deliver such assistance.	There is an active and planned program of community development and assistance that is delivering tangible but limited benefits to communities adjacent to PAs.	There is an active and planned program of community development and assistance that is delivering tangible and significant benefits to communities adjacent to PAs.	2	<p>161. Legal requirement that 5% of net park revenue returned to Dept of Local Administration but this does not find its way to local communities in and around the park.</p>
<ul style="list-style-type: none"> Is there a system-wide program of marine & coastal research and monitoring of natural values with adequate support staff? 	There is no system-wide program of research and monitoring of natural values and there are no central office or regional staff to support PA site staff in this work	There is a general system-wide program of research and monitoring of natural values, however it is not specific to marine and coastal issues. There are inadequate central office or regional staff to support PA site staff in this work	There is a system-wide program of research and monitoring of natural values with limited relevance to marine & coastal issues. There are some central office or regional staff to support PA site staff in this work although the program/staff needs expansion to achieve adequate resource	There is a system-wide program of research and monitoring of natural values pertinent to marine & coastal issues. Clear objectives are set and there is sufficient central office or regional staff to support PA site staff in this work so that adequate information is	2-3	<p>162. DNP has 3 research centres monitoring resources</p> <p>163. DNP cooperates with institutions such as DMCR and Universities</p> <p>164. Research and monitoring is also done at individual sites level and within MNP complexes.</p> <p>165. Most monitoring has been done by external researchers based on individual interest (e.g. Surin and Similan received higher attention from researchers than others; some parks like Laem son or Sirinat had very few or no monitoring program.</p> <p>166. There is a need for work to be more</p>

			information levels	available.		targeted toward solving critical issues
<ul style="list-style-type: none"> What is the overall adequacy of system-wide natural resource management processes and activities? 	There are no policies, plans and programs for addressing system-wide, or emerging common natural resource management issues.	There are only limited policies, plans and programs for addressing system-wide, common or emerging natural resource management issues	There are clear policies, plans and programs for addressing the most significant system-wide, common or emerging natural resource management issues	There are clear policies, plans and programs for addressing all system-wide, common or emerging natural resource management issues. Specific policies exist for marine & coastal systems.	3	<p>167. NRM obligations are noted in the NP Act</p> <p>168. Various central policies exist on natural resource management (e.g. alien spp).</p>
<ul style="list-style-type: none"> Is there a system-wide program of research and monitoring of cultural values with adequate support staff? 	There is no system-wide program of research and monitoring of cultural values and there are no central office or regional staff to support PA site staff in this work	There is no system-wide program of research cultural values and there are inadequate central office or regional staff to support PA site staff in this work	There is a system-wide program of research and monitoring of cultural values; there are some central office or regional staff to support PA site staff in this work although the program/staff needs expansion to achieve adequate resource information levels	There is a system-wide program of research and monitoring of cultural values with clear objectives and there are sufficient central office or regional staff to support PA site staff in this work so that adequate information is available.	2	<p>169. Limited research & monitoring focus on cultural values</p> <p>170. NP Act is silent on protecting/managing cultural resources/values.</p> <p>171. Most research & monitoring is on site specific cultural values.</p> <p>172. Some examples of controlling the impact of cultural practices on natural values.</p> <p>173. Few cultural issues in marine – as compared to terrestrial – e.g. Hill Tribes, although Moken.</p>
<ul style="list-style-type: none"> What is the overall adequacy of system-wide cultural resource management? 	There are no policies, plans and programs for addressing system-wide, or emerging common cultural resource management issues.	There are only limited policies, plans and programs for addressing system-wide, common or emerging cultural resource management issues	There are clear policies, plans and programs for addressing the most significant system-wide, common or emerging cultural resource management issues	There are clear policies, plans and programs for addressing all system-wide, common or emerging cultural resource management issues	1	<p>174. See issues raised re indicator 35.</p> <p>175. Cultural issues not in DNP mandate and/or legal foundation under NP Act – challenges exist in managing Moken (sea gypsies) in offshore MNPs.</p>

OUTPUTS

<ul style="list-style-type: none"> To what extent has the agency-wide business plan for MNPs been achieved? 	There is no business plan for the agency	There is a business plan but achievement of targets in the plan are not assessed	Business plan targets have only been met in part	Business plan targets have been achieved in large measure or in full	3	<p>176. Each park submits bids for work they would like to do and this is forwarded through DNP to the Budget Bureau</p> <p>177. After receiving the budget an annual plan is prepared</p> <p>178. KPIs for funded projects and activities are included in the annual plan and reported on six monthly</p> <p>179. Achievement of KPIs is usually 50-70%</p> <p>180. KPIs are centred around consumption of inputs rather than production of outputs</p> <p>181. Annual reports are prepared for internal use and a public version is published</p> <p>182. MPAs are not differentiated in reports</p>
<ul style="list-style-type: none"> To what extent have outputs in key result areas for MNPs been achieved? 	Assessment based on data rolled up from the site level assessments (Part D Q 2, 3)			3	Most parks considered that they had clear and appropriate management directions available for key management issues but most parks reported that implementation of these directions was constrained. Two of the 16 parks with completed assessments reported that they lacked an annual work plan but the majority of parks indicated that they had an annual plan and generally met targets for implementation. This was one of the strongest indicators in the site evaluation	
OUTCOMES						
<ul style="list-style-type: none"> To what extent have the agencies stated vision and purpose for the MNP system been met? 	None of the goals envisioned for the MNP system have been achieved and monitoring and evaluation of achievements is non-existent.	Some of the goals envisioned for the MNP system have been achieved but monitoring and evaluation of achievements is poorly implemented.	Most of the goals envisioned for the MNP system have been achieved and a process to improve performance against unmet goals has been implemented.	All of the goals envisioned for the MNP system have been achieved as measured through a monitoring and evaluation process. New goals are set and monitored periodically.	Not rated	<p>183. "Vision" is general for all PAs, not differentiated for marine and coastal PAs.</p> <p>184. "Vision" is drawn from purpose stated in NP Act</p> <p>185. Master Plan will more explicitly define vision.</p> <p>186. Annual reports for DNP and NPO do not articulate vision or purpose.</p> <p>187. Commitments under international conventions are not operationalised through purpose or mission statements</p>
<ul style="list-style-type: none"> What is the 	Assessment based on data rolled up from the site level assessments (Part D Q 5, 6, 9)			1-2	Across the 16 MNPs that completed the site assessment the	

<p>overall estimation of natural integrity of protected areas in the system (trend and condition)?</p>	<p>condition of natural values assessments)</p>		<p>average condition score for natural values was 1.66 (1= important values are degraded and at risk without corrective action; 4= important natural values are not degraded)</p>
<ul style="list-style-type: none"> What is the overall estimation of the state of cultural heritage of protected areas in the system (trend and condition)? 	<p>Assessment based on data rolled up from the site level assessments (Part D Q 11)</p>	<p>1-2</p>	<p>Across the 8 MNPs that completed the site assessment and reported that they had cultural or historic values in the park, the average condition score for cultural/historic values was 1.75 (1= important cultural/historic values are degraded and at risk without corrective action; 4= important cultural/historic values are not degraded)</p> <p>188. No mandate for management of cultural resources in the Act or in practice</p> <p>189. Historical and cultural values should be differentiated (e.g. Management of traditional sea gypsy culture is separate from management of historic artefacts).</p> <p>190. Historic artefacts are the responsibility of Dept of Fine Arts but managed in PAs by DNP</p> <p>191. Condition of historic artefacts at site level are considered good, but only half reported that they had any.</p>
<ul style="list-style-type: none"> What is the overall estimation of the relationship between the managing agency and stakeholder groups? 	<p>Assessments based on data rolled up from site level assessments (Part D Q 22, 23,)</p>	<p>1-2</p>	<p>Across the 16 MNPs that completed the site assessment the average score for the level of community and stakeholder support was 1.44 (1= Little support for the protected area and its management; 4= broad support for the protected area and its management)</p> <p>192. Consultation and engagement occurs at local level, but little regionally or centrally, and then mostly negative.</p> <p>193. There is significant conflict with other gov't departments – Roads, Irrigation, Tourism, Education, Forestry, MCR, Fisheries. Relationships OK with Military.</p> <p>194. Relationships with NGOs OK</p>

						195. Dialogue appears open and robust at site level but there is no follow through organizationally.
<ul style="list-style-type: none"> What is the overall estimation of the impact of the protected area system on the local community? 	The protected area system is having a strongly negative impact on the well-being of the local community surrounding the PAs	The protected area system is having more negative than positive impacts on the well-being of the local community surrounding the PAs	The protected area system is having more positive than negative impact on the well-being of the local community surrounding the PAs	protected area system is having a strongly positive impact on the well-being of the local community surrounding the PAs	3	<p>196. Artisanal fishing (although technically illegal), and employment in tourism industry provides livelihoods for local people</p> <p>197. No policy exists for employing local people, but this is the practice at site level.</p> <p>198. Many instances of conflict at site level over access to land and resources.</p>
<ul style="list-style-type: none"> What is the overall estimation of the impact of the protected area system on the broader community? 	The protected area system is having a strongly negative impact on the well-being of the local community surrounding the PAs	The protected area system is having more negative than positive impacts on the well-being of the local community surrounding the PAs	The protected area system is having more positive than negative impact on the well-being of the local community surrounding the PAs	The protected area system is having a strongly positive impact on the well-being of the local community surrounding the PAs	3	<p>199. community at large visits PAs for enjoyment</p> <p>200. no national visitor satisfaction survey, but park surveys indicate high level of satisfaction (7-8 on 9 pt scale)</p> <p>201. survey conducted in Similan for management plan revealed less than 50% satisfaction, similarly a survey conducted in Surin revealed low awareness and low satisfaction)</p> <p>202. TAT invest in promoting beauty and values of MPAs</p> <p>203. Complaints logged at site level but not aggregated</p>

Appendix 4. Field mission schedule and people interviewed

System Evaluation Field trip 11-15 August 2011

11 August 2011: Laemson National Park

1	Sukrid Krataichan	Laem Son National Park
2	Sompoch Nimchareong	Laem Son National Park's Protected Area Committee
3	Sunkifflee manoch	Laem Son National Park's Protected Area Committee
4	Somchai Hasajak	Laem Son National Park's Protected Area Committee
	Saengthong Padtalong	Laem Son National Park's Protected Area Committee
5	Surawat Siriwong	Burapa University
6	Peter Shadie	IUCN-WCPA
7	Geoff Vincent	IUCN-WCPA
8	Peeranuch D.Kappella	DNP
9	Radda Larpnun	

13 August, 2011: Lampi-Tai Muang National Park

1	Tanu Nabniean	Andaman Resources Rehabilitation Organization (ARR)
2	Suchai Worachananan Suwaluck	Marine Science Faculty, Kasetsart university
3	Matumanusapan	Environment and resources Faculty, Mahidol University
4	Nakorn Amornwattapong	SAMPAN-WWF
5	Sarawat Siriwong	Burapa University
6	Wattana Ponprasert	Lampi-Hadtai Muang National Park
7	Peter Shadie	IUCN-WCPA
8	Geoff Vincent	IUCN-WCPA
9	Peeranuch D.Kappella	DNP
10	Radda Larpnun	
11	Waraporn Khanthasin	

14 August 2011: JW Marriott Khao Lak Hotel

1	Somkiat Soontornpitak	Andaman Rescue Center, DNP
2	Jirasak Saesom	Phannga Tourism Association
3	Jatuporn Changlek Nattaporn	MedSai Travel&tour
4	Chodmaneejitak	Khao Lak Scuba Adventure
5	Napatsanan Klongboon	Mo Ko Similan National Park
6	Seksan Mongkasing	Mo Ko Similan National Park
7	Prasard Maneesavad	Mo Ko Similan National Park
8	Panumard Samsrineiam	Mo Ko Similan National Park
9	Rangsit Suthikulanon	TV channel 5
10	Masinee Lahsorn	MCOT Phang-Nga
11	Prapa Promkeaw	Mo Ko Surin National Park
12	Kanokkorn Nuchnoy	Mo Ko Surin National Park
13	Atchara Papake	Sea Star tour
14	Boonchu Paeyai	Tablamu fishery association, Phang Nga

15	Yadpirun Srirman	Mo Ko Similan National Park
16	Wiraj Banlao	Mo Ko Surin National Park
17	Suthat Buomun	Mo Ko Surin National Park
18	Komsan Oylee	Thai Royal Navy
19	Kreeta Rakharn	Similan Prodiver
20	Korn Larpyingyong	Love Island
21	Polput Buoloiy	Sign Scuba
22	Surapong Chanin	Kuraburi Greenview
23	Sombat Soiymalee	Sabina Tour, Phang Nga
24	Tanu Nabniean	Andaman Resources Rehabilitation Organization (ARR)
25	Torpong Wongsateinchai	Thaitornado
26	Nakorn Amornwattapong	SAMPAN-WWF
27	Peter Shadie	IUCN-WCPA
28	Geoff Vincent	IUCN-WCPA
29	Peeranuch D.Kappella	DNP
30	Radda Larpnun	
31	Waraporn Khanthasin	

15 August, 2011: Mo Ko Chumporn National Park

1	Apichard Sengpradab	Mo Ko Chumporn National Park
2	Sukhum Sadakorn	Chumporn Kabana Resort
3	Nattapong Yodmuang	Chumporn Province's Natural Resources and Environment Office Marine National Parks management development study Office,
4	Chainarong Rengthong	Chumporn
5	Sithisak Nunchaoiy	Chumporn Province's Fishery Office
6	Suthep Numpraditch	Marine and Coastal resources Conservation Center no.3, Chumporn
7	Peter Shadie	IUCN-WCPA
8	Geoff Vincent	IUCN-WCPA
9	Marc Hockings	IUCN-WCPA
10	Peeranuch D.Kappella	DNP
11	Radda Larpnun	
12	Waraporn Khanthasin	

16 August, 2011: Samui District

1	Taweesak Inprom	Hua Nang District
2	Precha Wanachitikul	Mangroves resources Development Station no.14
3	Yanyong Srifah	Protected area committee
4	Likit Rengchai	Former head of village Moo.4
5	Wandee Rengsree	villager
6	Wanee Pan Suk	villager
7	Wanee Tuoychareon	villager
8	Yukol Pansukl	villager
9	Somkaiat Rengthong	Protected area committee
10	Supoj Prommard	villager
11	Suriya Rengsri	villager
12	Prachan Saiboh	villager
13	Santichai Kaewpetch	Surathani Province' Tourism and Sport Office

14	Nuannalemol Suthwiporn	Hiway travel& Isy Tour
15	Wittawat Petchrak	Marine Police
16	Taworn Tontakul	Mo Ko Angthong National Park
17	Pitak Chanchareong	Koh Samui District's Fishery
18	Pradit Paisuwan	Marine Department
19	Chamnong Saranpipat	Thai Radio, Samui
20	Rengsak Rengsri	Mo Ko Angthong National Park
21	Surapong Wiriyanon	Koh Samui Municipality
22	Paitana Yamban	Samui Agriculture
23	Worawit Srithongkul	Tarn Sadej-Koh PhaNgan National Park
24	Peingchan Kongdej	Grand Sea Discovery
25	Kanchanawadee Jaitae	Grand Sea Discovery
26	Prakin Mengtayao	Tarn Sadej-Koh PhaNgan National Park
27	Wuthikul Rumphanya	Samui Forest unit
28	Peter Shadie	IUCN-WCPA
29	Geoff Vincent	IUCN-WCPA
30	Marc Hockings	IUCN-WCPA
31	Peeranuch D.Kappella	DNP
32	Radda Larpnun	
33	Waraporn Khanthasin	

Appendix 5. Workshop participants

List of Participants
MFF MEE Field Workshops
1st workshop at Chumporn National Park
Date: 1st - 2nd Apr

Name	Designation & contacting detail
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Appendix 6. Site assessment proforma

Site Evaluation Tool

Guidelines and support material

Mangroves for the Future - Evaluating and Improving the Management Effectiveness of Thailand's Marine and Coastal Protected Area

April 2011

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Background

Around the world, protected area managers are seeking to monitor and evaluate the condition of, and pressures on, protected areas, and to ascertain how effectively these areas are being managed. This information is vital for us as park managers so that we can learn from past practices and inform future management.

Part A - Descriptors and Categorisations

Part A provides information that describes the protected areas (PA) (know as National Parks or Marine National Parks) physical attributes and categorisations for management. This helps provide the context in which the PA is managed.

Core Information

Please enter the following core information:

Protected Area Name

Please provide the official Royal Thai Government name of the Protected Area being assessed.

Management Authority

Please provide the name of the main management authority responsible for management of the site or area. If more than one authority is involved in management please provide only the main one and questions in other sections of the assessment will provide space to list other management authorities.

Year of Assessment

Provide the year the assessment was completed.

Date of Assessment

Provide the date the assessment was commenced and also when the file was completed. If the majority of the information was filled in during a workshop also note this date.

Principal Assessor

Please type the name and position title of the primary person providing information to complete the assessment. If the survey is being completed in a workshop environment then provide the name and position of the highest ranking manager present.

Assisting Assessor

Please type the names and position titles of all of the officers assisting in making the assessment. If the survey is being completed in a workshop environment then include everyone present. This will usually include the Area Manager. There is no need to enter the name of the Principal Assessor because this is already recorded at the top of the page.

All of the information fields found in Part A are identified below with a description for each provided.

1. Outline

1. PA Number (Thai)

This is the number issued by the Department of National Parks (DNP) on gazetting. It is the unique reference for each PA.

2. PA Number (WDPA)

This is the number provided by the World Database on Protected Areas and refers to the site to reference when updated or revised data is submitted by the management authority to UNEP-WCMC and WDPA.

3. PA classification

There are 10 categories of PA classification that are managed as part of the DNP National Park system. These includes: ASEAN Heritage Park, Forest Park, Non-Hunting Area, Wildlife Sanctuary, National Park (Coastal), National Park (Marine & Coastal), National Park (Marine), Proposed National Park (Coastal), Proposed National Park (Marine & Coastal) and Proposed National Park (Marine). Please select the PA type from the drop down list.

4. IUCN category

This is an international reserve classification system developed by the IUCN that enables international reporting on protected areas. Please select the reserve type from the drop down list. If the site has not been assigned an IUCN category 'not applicable' should be selected from the drop down list. If your reserve is new and does not yet have an IUCN category, 'not assigned' may be selected. Please select the reserve type from the drop down list.

5. Year initially gazetted

Official year of creation. This date should refer to the year when the site was officially recognised as a Protected Area / National Park. Where a PA has undergone a significant change in status (e.g. size or renumbering because of amalgamation of PAs), this category remains as the year the core PA area was established. Please input this information in the format YYYY.

6. Year of last change

The year when a PA has undergone a *significant change in status that causes a change in management*. Often this will be a significant increase in size or a change in the PA category. Note: this must be the same as or after the year of initial gazettal.

7. The number of changes to PA area

This is the number of times that parcels of land have been added to or removed from the gazetted area of the PA.

8. Details of change

Please describe the type and reason for the last change in PA status. This includes details of changes in area such as additional land being added to the PA.

9. Describe any aspects of PA 'design' (shape, size and boundary integrity) that may impact on management

This question attempts to understand elements of the PA design or situation that may influence DNP's ability to effectively manage the PA's values. The type of information that could be included here is the shape of the PA (for example it is long and skinny or roughly round or squarish), the type of surrounding land use (for example whether the PA borders state forest, farmland or urban areas) and whether the PA has inholdings or communities that may influence its management (for example whether the PA has one large community or agricultural property within the PA or several small communities / inholdings). Include any other information about the design or situation of the PA that may be relevant to management.

10. In what way and to what extent does previous land/marine use of the protected and adjacent protected area impact on management?

This question attempts to understand any aspects of previous land use that may influence DNP's ability to effectively manage the PA values. The types of information that could be included here are: the PA was previously managed for forestry activities and contains many tracks that require rehabilitation, the PA was previously a fishing zone, or the PA has large cleared areas due to former grazing activities.

11. International agreements

A number of International Agreements such as UNESCO World Heritage, Ramsar, and ASEAN Heritage Park may be relevant to a PA. Select all applicable.

12. Total PA size (km²)

Please enter the current total area of the PA in km²

13. Marine size/area of the PA (km²)

Please enter the size (in km²) of the marine area of the entire PA.

14. MPA component

Please select type of marine component included in the Protected Area. You can select more than one of the options if they apply to the marine component of your PA

15. Habitat Type

Please select the habitat types found within the marine component of your PA. You may select more than one of the options as they apply to the habitats within the boundaries of the PA.

16. Type of corals

If coral reefs exist in your PA please select all applicable types of coral reefs that are found within the PA.

2. Management Planning – Management policy and framework

1. Objectives

Please select from the list provided in the worksheet all the objectives applicable for the management of your PA. (e.g. Protection of specific species and or habitats; Landscape/seascape protection; Research and Education; Sustainable Tourism; Sustainable resource extraction (including fishing); recreation). If the main objective is not included in this list please select other and provide details.

2. Described goals or objectives

Please provide any additional information to describe the objectives selected above. For example if the management objective focuses on protection of specific species or habitats provide details of the species.

3. Management plans

Please select the current type of management plan that is in place for your PA. For example; Site, Master, Management, Action and Quality Plan.

4. Management main body

Please provide the name of the main management body responsible for management actions in site or PA. If more than one authority is involved in management please provide only the main management body and list additional contributing management agencies / authorities/bodies below under question e.

5. Management assisting bodies

Please provide the name of additional management bodies or authorities that assist with the management actions in site or PA. There is no need to list the main management body as this is already included above. May include authorities such as DMCR, RFD.

3. Visitors to the PA and surrounding residents of the PA.

This section looks at providing an estimate of visitation and the number of residents both inside and adjacent to the PA so that human pressures can be examined. The specific visitor information we are seeking is the *person-visit day*. A *person visit day* is defined by the [ANZECC National Data Standards on Protected Areas \(1996\)](#) as being:

“when a person stays in a protected area for a day or part-day; each day the person stays counts as an additional person-visit day”.

Using this definition, if a visitor arrives in a PA and were to camp overnight, then two person-visit days would be counted for that person

1. Annual total number Thai visitors

Please enter the number of Thai nationals person-visit days occurring in your PA within 2010 and if available the average over the last 4 years.

2. Estimate annual total Thai visitors (only if no accurate data available)

If no accurate data is available please select the most appropriate bandwidth that reflects Thai nationals person-visit days occurring within your PA within 2010

3. Annual total number international visitors

Please enter the number of international (non-Thai nationals) person-visit days occurring in your PA within 2010 and if available the average over the last 4 years.

4. Estimate annual total international visitors number (only if no accurate data available)

If no accurate data is available please select the most appropriate bandwidth that reflects the number of international (non-Thai nationals) person-visit days occurring within your PA within 2010

5. Thai visitor number trend

Please select whether the number of Thai nationals person-visit days occurring in your PA within 2010 has increased, decreased or remained stable over the last 4 years.

6. International visitor number trend

Please select whether the number of international (non-Thai nationals) person-visit days occurring in your PA within 2010 has increased, decreased or remained stable over the last 4 years.

7. Number of residents in and surrounding the protected area

Please enter the number of residents in the PA and also the number that neighbour the PA. We are interested in direct neighbours, such as those that share a boundary with the PA or are within a 5km radius of the boundary of the PA.

8. Land use type of neighbouring protected area

Please enter how the majority of the land that neighbours the PA is used. We are interested in direct neighbours, such as those that share a boundary with the PA and within 5 km distance to the boundary of the PA

Part B – Management Planning

Part B of the survey includes basic management planning information for all of the PAs within a given area. This data provides a context for evaluation of management effectiveness.

1. Management Planning

Select whether there any management plans have been prepared or in preparation for the protected area. Move to Section 2 of Part B if no management plans apply.

1. Name of Plan

Provide the name of the plan.

2. Status

Current status of the plan of management (for example: approved; draft release for public comment; internal draft; in preparation; and other). Select the relevant option for this PA from the drop down list. See Table 1 for a description of the options presented in the drop down list.

Table 1: Descriptions of status for a management plan

Influence on management categories	Description of category
Approved	The plan has formally approved as a document for use within the protected area.
Submitted pending approval	Draft has been submitted and is pending approval from the management authority and cabinet.
In preparation	A draft has not yet been completed but work has begun.
Other	If none of the other categories apply select other and provide detail

3. Date (of submission)

Please enter the year in which the plan was submitted for approval.

4. Date (of approval)

Please enter the year in which the plan was approved for use within the protected area

5. Date (of implementation)

Please enter the year that management actions from the plan began to be implemented in the protected area.

6. Delays in Approval

Please enter the time delay in approval of the management plan and outline the reason/s.

7. Delays in implementation

Please enter the time delay in on ground implementation of the management plan objectives and outline the reason/s

8. Effect

Indicate how much the plan has effected or influenced the way in which management is carried out within the PA. Select the relevant option for this PA from the drop down list. See Table 2 for a description of the options and categories of influence presented in the drop down list. The categories of influence are described in below.

Table 2: Descriptions of effect / influence of the management plan on management

Value category	Description of category
Well ahead of target for implementation of plan	Actions and management programmes are been implemented and results, outputs and outcomes are being produced ahead of schedule
Roughly on target for implementation of plan	Actions and management programmes are been implemented and results, outputs and outcomes are being produced on schedule
Well behind target for implementation of plan	Actions and management programmes are been implemented and results, outputs and outcomes are not being produced on schedule or actions and management programmes have not been implemented
Unable to assess	If none of the other categories apply select this or if assessment and evaluation of the actions and management programmes has not yet occurred.

2. Other plans prepared or in preparation for the protected areas

Select whether other plans are prepared or in preparation for the protected area. Move to Section 3 of Part B if no management plans apply

1. Name of Plan

Provide the name of the plan being entered, other than the management plan included above if available.

2. Type of plan

Please select the type of plan (other than management plan) from the list below.

Table 3: Descriptions of types of management plans

Type of management plan	Description of category
Site Plan	
Master Plan	
Management Plan	
Action Plan	
Quality Control Plan	
Other	

b-1. Details

Please select the category that the main objective of the management plan fits in to. If the same plan has a number of different objectives please select all objectives in the rows below.

Table 4: Descriptions of category of main objective of the management plan

Category	Description of category
Resource research & Monitoring	
Invasive plants/animals disturbing ecology	
Threatened species management	

Fire management	
Other in resource conservation	
Visitor research	
Interpretation & education	
Safety & search / rescue of visitors	
Visitor facility	
others in visitor service	
Community engagement	
Endorsement/Permit & Law enforcement	
Cleaning service	
General facility	
Contract/assessment/human resources	
other administration	
Other	

3. Status

Please select the current status of the plan (approved; submitted pending approval; in preparation; and other) for this PA from the drop down list (**see Table 1 for a description of the options included**).

4. Year prepared

As for the Management Plan, enter the year in which the plan reached this stage. For approved plans insert the year it was finalised or last formally revised, for unapproved or draft plans insert the year it was submitted for approval. For plans that are in preparation, enter 2011

5. Effect / Impact of the plan on the site

Indicate how much the plan has influenced the way in which management towards that objective is carried out within the PA. The categories of influence are described in below in Table 5.

Table 5: Descriptions of influence on management

Influence on management categories	Description of category
Significant	The plan largely determines how management is conducted in relation to the topic of the plan.
Moderate	The plan has some influence on how management is conducted but there are other considerations that influence the management regime.
Minor/Nil	The plan has little or no influence on how management is conducted within the PA.

3. Principal PA values

Protected area values are what management is aiming to protect and as such, is one of the most important questions of this survey as it has links with other questions within the survey.

While most PAs have a wide range of values, this assessment is seeking the five most important PA values. Information on these values could be drawn from the Plan of Management (where a PoM has been prepared), from information prepared prior to gazettal or from research documents or other information sources. Values may be at varying scales or levels of resolution. For example, the PA may be significant for the conservation of one particular species while the same PA may be of value for a vegetation community or a significant archaeological site. For smaller PAs there may be fewer than five principal values that can be listed.

Please give appropriate consideration to these values and ensure that the values are more specific than ‘threatened fauna’, ‘historic sites’ or ‘scenic’ because this sets the context in which the management of the PA is interpreted. Whilst the detail is important, it is better to include as one value ‘the PA protects four endangered species and one endangered ecological community’, than to list the five as separate values (all biological).

Where PAs do not have a plan of management the values information may be difficult to determine. In these cases it is important to discuss this issue with a range of people who have knowledge of the PA. **Remember that the PA system includes values that are not just ecological in nature – they may have cultural values, recreational values, economic values and/or education and research values.** In Table 6 below, a description of the listed value categories is found. Please give consideration to all of the value categories on this list in completing this question.

Table 6: Description of PA value categories

Value category	Description
Natural / Ecological	This PA has significant flora and/or fauna species and/or ecological communities. The PA may provide important remnant habitat or an important corridor in the landscape.
Historical	This PA is significant to the local and/or wider community because it has non-indigenous heritage sites or objects that associate with the distant or recent past.
Cultural	This PA is significant to the local and/or wider community because it has indigenous cultural sites, cultural value and importance or objects that associate with cultural heritage.
Economic	This PA is a significant tourist destination, is a significant employer within the region, is an important nursery area for fish.
Recreation / Tourism	This PA is important to the local or wider community for recreation.
Research/education	This PA is an important resource for scientific or social research. This PA provides an important opportunity to educate the public about environmental and/or park management issues.
Landscape	This PA is significant for its scenic values and/or for the contribution it makes to the landscape (for example, protects an important coastal strip).
catchment	This PA contributes to an important catchment or watershed.
Geological	This PA has significant geological structures or formations such as karst, rare soil types, and fossils.
Other	This PA has values other than those described in the above categories. You will need to provide details of this value.

You are able to enter up to five values.

1. *Principal PA values*

List up to five of the most important values of the PA that management is seeking to maintain. **Please ensure that you have given appropriate attention to the detail of the PA value when you are entering it. Will somebody independent of your PA understand what you have inserted?**

2. Value category

Select the broad category that most applies to the value you have selected from the drop down list. If you selected 'other', you will need to provide additional details of the value.

3. Sources of information on values

Detail the information on which you have based your answer. Please give consideration to all of the value categories on this list in completing this question

4. Significance

Select the scale at which the value is significant from the drop down list. In Table 7 below, the descriptions of each level of significance category are listed.

Table 7: Description of the significance categories for PA values

Significance category	Description of category
International	The value is protected under an international agreement. For example, is it listed on: Ramsar Convention of Wetlands of International Importance (Ramsar), Convention on Migratory Shorebirds (CMS), CITES, is on the IUCN red list or is World heritage listed.
National	The value is protected under legislation or the PA contains a population of flora or fauna that is significant at the national or state level. The PA may make a significant contribution to national or state employment or be a major tourist destination for Thai visitors.
Regional/Local	The PA contains a population of flora or fauna that is significant at the regional or local level. The PA may make a significant contribution to regional or local employment or it may be a tourist destination for regional visitors.

5. Has there been an appropriate inventory and assessment of values

Please select whether the values of the protected area have been formally and independently listed and assessed, either comprehensively, partially or the process has been inadequate (or not undertaken)

Table 8: Description of the type of inventory and assessment of values

Category	Description of category
Comprehensive	A detailed and complete inventory of the values of the PA has been conducted, completed and reviewed.
Partial	An incomplete inventory is available of the values of the PA
Inadequate	An inventory is available but is lacking in most of the information.

Coordinator review

Please do not insert any information in this section as it only applies to the reviewer. Only information detailing any changes made to the information above, by the reviewer should be included here.

4.a Current threats

This question assesses current threats, which are described as being any process that currently negatively affects PA values. The assumption is that you will include current threats to principal PA values you have identified above.

You are able to enter up to five threats.

1. Major Threats

Threats to PA values have been categorised as listed in Table 9. Select the category that best fits the particular threat that you have identified. If none of the listed categories of threat apply, select the other option and write in the best description of the threat.

Table 9: Description of PA threat categories

Threat category	Description of category
Damaging storm	Weather conditions that create damage to the natural values of the PA but are not attributed to climate change.
Predation/herbivory of critically endangered spp.	The collection/capture and removal of critically endangered plants and animal species
Predation of coral	Refers to the damage to the reef system from an explosion in coral predators (e.g. <i>Drupella</i> , Crown of Thorn Starfish)
Coral bleaching, disease	Refers to the whitening of corals caused by a stress event or disease.
Dieback of seagrass, mangroves, forest	This refers to the damage caused by biological means such as pests, insects and disease to seagrass, mangroves and forests
Climate change	Climate change is likely to marginalise suitable habitat for species within the PA or result in changed fire regimes that may be incompatible with existing vegetation communities. This may be of particular concern to alpine PAs.
Coastal development – inappropriate	This refers to infrastructure that has been developed on the coasts of the PA. For example, the main highway in the area runs through the PA. If the threat relates to off- park infrastructure consider selecting adjacent land use is inappropriate or visitor impacts are occurring from inappropriate visitor levels.
Boat traffic (pollution & strikes)	This refers to the damage caused by the presence and movement of boats. For example dumping of petrochemicals from boats and damage of reef by boats
Anchoring/mooring issues	This refers to seafloor or reef damage that occurs with overweighting mooring buoys and direct anchoring.
ship grounding (boat hull strikes on reef/ seagrass + propeller damage (gouging); vehicle damage (track erosion/ breakage)	This refers to the damage caused by the movement of boats. It specifically refers to damage to the environment through grounding of boats as well as other physical damage caused by propellers. It also refers to other physical damage from vehicles other than boats.
Visitor damage	While the numbers of visitors to the PA might be sustainable, the behaviour of a small number of visitors is impacting on PA values accidental breakage, trampling, souvenir collection, chemicals (e.g. Sunscreen), standing on reef, disturbance of fauna,
Visitor impacts (inappropriate use levels)	The number of visitors using the PA is unsustainable and PA values are suffering from over use. For example, erosion is occurring on walking tracks, 4WD tracks and camping grounds, litter is becoming a big issue and/or vegetation is being cleared around camping grounds for use as firewood.
Poaching/illegal harvesting	This refers to the theft of native flora or fauna species from the PA where it might be threatening local populations. If reef rock or other habitat is being illegally removed categorise this in 'Other' and specify.
Inappropriate fishing practices	This refers to the damage caused by explosives, poison, traps, purse seines, trawls, push nets to the marine component of the PA
Resource over harvesting (commercial use)	Commercial harvesting arrangements within the PA are suffering from permit conditions being breached and resources being subjected to excessive pressure from harvesting.
Resource over harvesting (non-commercial)	Non-commercial, legal harvesting within the PA is putting too much pressure on resources.

Habitat/Species isolation	The location of this PA is such that species or populations are effectively isolated from other areas of habitat making them vulnerable to processes such as global warming or local extinction.
Feral animals & invasive plants/ plagues	Pest animals are having a negative impact on PA values.
Adjacent land use incompatible	The types of activities carried out on the land that adjoins the PA are having a negative impact on PA values. For example, an industrial factory is releasing nutrients upstream of the PA creating algal blooms within the PA and promoting aquatic weeds.
Agricultural/aquaculture encroachment	The land around the PA is used for agriculture or the marine component is used for aquaculture and this is putting increasing pressure on the PA from, for example, weeds and agricultural chemicals and aquaculture nutrient inputs.
Wildfires	This refers to the damage caused by both natural and deliberate large-scale wildfires
Other, please specify	If none of the above categories adequately describe the threat please select other and provide a brief description.

2. Specific details of threat

Describe the specific details of the threat chosen in the previous field in the space provided.

3. Negative Impact

Select the likely impact of this threat from the drop down list. The categories are defined in Table 10.

Table 10: Description of the level of impact categories

Impact of the threat	Description of category
Severe	The threat will lead to loss of PA value(s) in the foreseeable future if it continues to operate at current levels
High	The threat will lead to a significant reduction of PA values(s) if it continues to operate at current levels.
Moderate	The threat is having a detectable impact on PA values(s) but damage is not considered significant.
Mild	The threat is having minor or barely detectable impact on PA value(s).

4. Extent

Select the likely extent of this threat from the drop down list. The categories are defined in Table 11.

Table 11: Description of the extent categories

Extent of the threat	Description of category
Throughout	The impact is occurring in 50% or more of PA area/cultural place/site/object.
Widespread	The impact is occurring in more than 15% but less than 50% of PA area/cultural place/site/object.
Scattered	The impact is occurring in between 5 and 15% of PA area/cultural place/site/object.
Localised	The impact is occurring is less than 5% of PA area/cultural place/site/object.

5. Sources of information on threats

Select the information on which you have based your answer. Please give consideration to all of the value categories on this list in completing this question

6. Confidence

This field is intended to determine the level of confidence you have in the assessment of the severity and extent of the threat. The categories are defined in Table 12.

Table 12: Description of the confidence categories for PA values

Confidence	Description of category
High	Comprehensive, credible, recent, PA wide information - preferably documented.
Moderate	Some inadequacies in coverage, currency or credibility of data, information may not be fully documented.
Low	Limited or out of date documentation, unreliable information, incomplete coverage of PA, or other inadequacies in the information base.

4.b Emerging threats

This question assesses emerging threats, which are defined as any process that may not yet be having a large negative impact on PA values but have only recently been recognised as a potential problem within the PA. You are able to enter up to five threats.

1. Emerging threats

For comparability, threats should be selected from the list provided. Select the category that best fits the particular threat that you have identified from Table 9 above.

2. Specific details of threat

Describe the specific details of the threat in this field.

3. Potential negative impact

Select the likely impact of this threat from the drop down list. The categories are defined in Table 13 below.

Table 13: Description of the level of potential impact categories

Potential impact of the threat	Description of category
Severe	The threat is likely to lead to a loss of PA value(s) in the foreseeable future if it continues to operate at current levels.
High	The threat is likely to lead to significant reduction of PA values(s) if it continues to operate at current levels.
Moderate	The threat is likely to have a detectable impact on PA values(s) but damage is not likely to be considered significant.
Mild	The threat is likely to have a minor or barely detectable impact on PA value(s).

4. Potential extent

Select the likely extent of this threat, if it is not managed, from the drop down list. The categories are defined in Table 14. For cultural heritage places/sites/objects, classify the extent the impact is likely to have on the place/site/object itself.

Table 14: Description of the potential extent categories

Potential extent of the threat	Description of category
Throughout	The threat is likely to impact 50% or more of PA area/cultural heritage place/site/object.
Widespread	The threat is likely to impact more than 15% but less than 50% of PA area/cultural heritage place/site/object.
Scattered	The threat is likely to impact between 5 and 15% of PA area/cultural heritage place/site/object.
Localised	The threat is likely to impact less than 5% of PA area/cultural heritage place/site/object.

5. Comment on why/how the potential threat has been recognised

Please provide some information about how or why the threat was recognised. For example a recent flora survey might have detected a new invasive weed or the local landholder might have decided to commence aerial herbicide spraying that could impact on the PA through spray drift.

Coordinator review

Please do not insert any information in this section as it only applies to the reviewer

4. Stakeholders

Stakeholders are usually groups of people with a particular interest in the PA. In this question we are interested in the five key groups that influence or are influenced by the PA and its management. A useful indicator of a key stakeholder is any group that regularly contacts PA managers about day-to-day management issues. However, relevant stakeholders may not currently express their stake in PA management, so this should be used as a guide only. Some key stakeholders may be regularly involved in day-to-day management issues (e.g. a local environment protection group that assists in weed management on the PA) or they may have strong affiliations with the PA.

You are able to enter up to five stakeholders.

1. Primary stakeholders

Select the category of primary stakeholders from the drop down list. A description of each of the categories is provided in Table 15.

Table 15: Description of stakeholder categories

Primary stakeholder category	Description of the category
Local community	People within the community who are interested in the PA but are not direct neighbours.
Religious groups	Religious groups and their leaders who are interested in the PA.
Conservation groups - local/regional	Conservation groups that are run at a local or regional level 'friends' groups.
Conservation groups - state/national	Conservation groups that are run at a state or national level
Local government	Local government organisations such as shire councils and progress associations.
Government organisations	Government department such as DMCR or the Department of Royal Forest.
Research institution	Institutions that undertake research within or adjacent to the PA.
Businesses - external to PA	Businesses that are not based within the PA but have an interest in the PA such as some tourist operators.
Businesses – residents in PA	Residents that own and run businesses within the protected area.
Businesses - neighbours	Residents that own and run businesses directly neighbouring the protected area.
Mass media	Includes major local/regional/national newspapers and radio
Other	If none of the above categories describe the group please select other and specify the group.

The same stakeholder may be listed more than once where they are involved with different key management issues for that PA. For example, there may be substantial agreement with the PA neighbours on fire management but a diverse range of views with PA neighbours on feral animal control. Try not to clump stakeholder groups according to issues as this makes relationships difficult to tease out.

2. Issue category

Please select the issue that DNP interacts with the stakeholder about. These categories broadly come from the management items assessed in Part D of the survey. Each issue is described in Table 16. If the issue category does not appropriately describe the issue, use 'other'. In many cases, issues will tend to be recognised by disagreement; it is important to also identify issues where cordial and co-operative management arrangements exist and contribute significantly to PA management. The same issue may be listed separately for different stakeholders. For example both neighbours and the local government authority may be involved in the issue of fire management.

Table 16: Description of issue categories

Issue category	Description of category
Private property management and law enforcement	The management and enforcement of activities on privately owned land within and adjacent to the PA. For example, the capacity of PA management to respond to illegal boundary clearing or dumping of domestic waste in the PA may be of concern for some neighbours and conservation organisations
Management – cultural heritage (Non-indigenous: historic)	The National Trust or a local historical society may have a specific interest in a PA and contributes significantly to management.
Conservation and management in natural resources	Stakeholders may disagree on an initiative or action for the conservation or preservation of PA resources. Alternatively it may occur that the stakeholders also initiate, manage, and promote such initiatives and actions.
Management facility	Co-operative arrangements might exist with local government to service picnic areas in remote PAs
Consultation and involvement	Stakeholders may disagree with the level of consultation or involvement in management planning and implementation
Education and research	A regular program of activities may be conducted by a University or a concessionaire.
Exploitation pressure	Stakeholders may be removing natural resources from the PA or alternatively implementing actions to minimise exploitation
Work programming	Stakeholders may disagree with the level of management being applied to a particular management issue, such as fencing. Alternatively, timing or other operational aspects may be of concern.
Access to the PA	Tensions may arise about access to the PA for recreational activities or for organisations that have infrastructure within the PA.
Other	If none of the above categories describe the group please select other and specify the group.

3. Issue

Briefly, give specifics of the issue e.g. boundary incursions, level of tourist operator infrastructure development; joint management. The same issue may be listed separately for different stakeholders.

4. Relationship

Select the overall relationship between DNP and the stakeholder group in regard to the identified issue. For example, there may be cooperative management between most neighbours and DNP for fire management of the PA but Substantial disagreement on issues related to access to the Protected Area.

Coordinator review

Please do not insert any information in this section as it only applies to the reviewer

Part C - Personnel

The two inputs to management that are examined are staff and volunteer time. Note that the figures do not have to be precise but please endeavour to provide the best information you can. If you have poor records or your information is not very precise, please provide your best estimate.

1. Personnel classification

1. Permanent

Enter the number of total number of permanent staff currently employed by DNP and working in the PA and the number of which are employed fulltime

2. Casual OR Contractors

Enter the number of casual employees and contractors hired. For both of these groups enter the total number of days worked. Casual employees include those on contract with DNP but not permanent government staff.

3. Volunteer

This is an indication in person-days of the contribution that volunteers make to the management of a PA. Please remember to include the time spent managing volunteers should be listed as staff time, not volunteer time. Enter the number of volunteers, both student/internship based and international visitors that worked in or for the PA. Enter the total number of hours that each of these volunteers groups have worked.

2. Personnel input for PA management

Determine how all personnel input will be provided and choose from personnel input in number of people or the proportion of time input.

Permanent, Contract and Casual staff input

Actual personnel input into PA management is spread across the Service Themes – Administration, Enforcement, Tourism, Maintenance and Research. Area Managers should consider how personnel split their time for each of these themes within the Area. The number of days can be entered for each person with the total calculated at the bottom of the table.

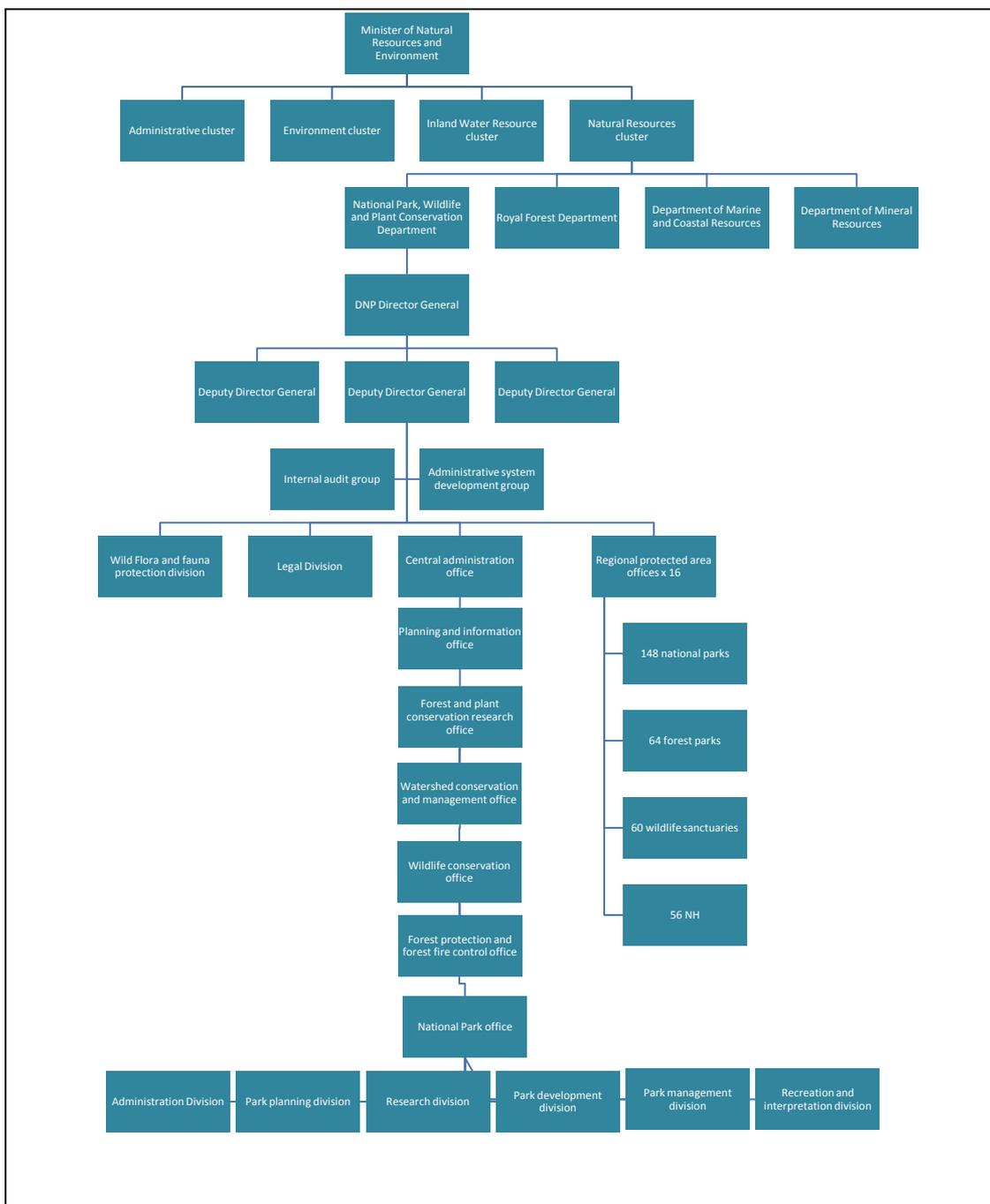
3. Personnel input volunteer

Determine the total number of days per year that local students/internship and international volunteers contribute to all of the service theme areas. The number of days can be entered for each person with the total calculated at the bottom of the table.

4. Budget input

Determine how much is spent of each of the Service Themes minus any labor/personnel cost for each of Service Themes from both DNP funding and in kind contributions or donations.

Appendix 8. MONRE organizational chart



Mangroves for the Future (MFF) is a partnership-based initiative promoting investments in coastal ecosystems that support sustainable development. MFF provides a collaborative platform for the many countries, sectors and agencies tackling the challenges to coastal ecosystem conservation and livelihood sustainability and is helping them to work towards a common goal.

MFF builds on a history of coastal management efforts before and after the 2004 Indian Ocean tsunami, especially the call to sustain the momentum and partnerships generated by the immediate post-tsunami response. After focusing initially on the countries worst-affected by the tsunami – India, Indonesia, Maldives, Seychelles, Sri Lanka and Thailand – MFF has now expanded to include Pakistan and Viet Nam. MFF will also continue to reach out to other countries in the region facing similar challenges, with the overall aim of promoting an integrated, ocean-wide approach to coastal area management.

MFF seeks to achieve demonstrable results through regional cooperation, national programme support, private sector engagement and community action. This is being realized through concerted actions and projects to generate and share knowledge more effectively, empower institutions and communities, and enhance the governance of coastal ecosystems.

Although MFF has chosen mangroves as its flagship ecosystem, the initiative embraces all coastal ecosystems, including coral reefs, estuaries, lagoons, wetlands, beaches and seagrass beds. Its management strategy is based on specific national and regional needs for long-term sustainable management of coastal ecosystems. These priorities, as well as newly emerging issues, are reviewed regularly by the MFF Regional Steering Committee to ensure that MFF continues to be a highly relevant and responsive initiative.

Learn more at: www.mangrovesforthefuture.org



Mangroves for the Future
INVESTING IN COASTAL ECOSYSTEMS
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Strengthen coastal and marine stewardship in Thailand's marine and coastal protected areas as a foundation for sustainable development



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