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Vietnam Marine Protected Area Management Effectiveness Evaluation

FINAL REPORT

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Abbreviations

DARD:	Department of Agriculture and Rural Development
D-FISH:	Directorate of Fisheries
MARD:	Ministry of Agriculture and Rural Development
MEE:	Management Effectiveness Evaluation
MPA:	Marine Protected Area
NOAA:	National Oceanic and Atmospheric Administration
PC:	People's Committee
WHS:	World Heritage Site

CURRENT STATUS OF VIETNAM MPA NETWORK

Background and Objectives of Study

In line with the national MPA master plan for 2015, with a corresponding vision out to 2020, Vietnam has currently established eight MPAs with plans to establish eight more in the near future. There has been no management effectiveness evaluation (MEE) of the existing eight MPAs1 to set and understand how standards for MPA management are being met, and guide the planned MPA network expansion to include new sites. The present study is designed to fill this gap by: carrying out an initial rapid MEE of all eight sites and establishing a baseline; identifying major existing management challenges; and proposing an MEE standardized template that can be applied across all MPAs on a systematic basis.

Study Area and/or Scope of Work

The study covered eight existing MPAs, two National Parks and WHSs with a marine component (Bai Tu Long and Ha Long) (Figure 1). Detailed profiles of each site are presented in Annex 2 of this report.

Figure 1. Map of study sites

1 Cat Ba, Con Co, Cu Lao Cham, Nha Trang Bay, Nui Chua, Hon Cau, Con Dao, Phu Quoc

Methodology

In December 2014, a workshop was conducted with senior staff from 10 MPAs to introduce the concept of MEE. The training was delivered by NOAA's Anne Walton, an MPA MEE specialist based in Hawaii (http://www.iucn.org/about/union/secretariat/offices/asia/asia_where_work/vietnam/?18804/Assessing-MPA-management-effectiveness).

Based on the review and analysis of four different MEE models during the workshop, two questionnaires were designed, one for MPA staff and one for other stakeholders. The questionnaires were sent to the MPAs two weeks prior to the visit. The purpose of the questionnaires was two folds: 1) to establish a baseline capacity and management effectiveness status of each of ten MPA sites; and 2) to better understand common management approaches, issues and monitoring programs across the 10 sites in order to develop a standardized MEE program that is aligned and relevant to the MPA network as a whole.

All 10 sites were visited in March-April 2015. The visiting review team consisted of two IUCN staff and an officer from the Vietnam Directorate of Fisheries (D-FISH), all of whom have practical MPA management experience. The team spent two days in each of the ten MPA sites carrying out interviews and assessments.

During the interviews, two team members asked questions and the third was responsible for writing down the answers into a prepared template. The results from the questionnaires and interviews were then reviewed, edited, translated into English, and shared with Ms. Walton who reviewed and assessed them, using them as the basis for the development of specific evaluation criteria within the MEE program.

RESULTS

Management structure

Management Authority: MPAs in Vietnam are managed under a range of different legal authorities. Three are under provincial or city people's committees (PCs) (Cu Lao Cham, Nha Trang, Ha Long); three are under provincial DARD (Hon Cau, Phu Quoc, Con Co); and three are national parks with marine component under provincial PCs (Nui Chua, Con Dao and Bai Tu Long). Cat Ba is a national park with a marine component and is managed by Hai Phong DARD. MARD has no direct influence on MPA management (Table 1).

Surveillance and Enforcement: All the MPAs except Cat Ba carry out patrols but these MPAs have no authority to enforce the law. When violations do occur, the patrols are required to call in other agencies to actually enforce the law. The inevitable delays make law enforcement largely ineffective. Within the four national parks, law enforcement is somewhat more effective because they have Forest Protection staff with the authority to make arrests.

Financing

All MPA budgets come from local governments. The national parks also receive funding from central government for infrastructure. None of the MPAs have sufficient funding to carry out essential management activities. And the funds that are provided are often earmarked, greatly limiting flexibility.

Most MPA managers cite tourism as the most promising source of sustainable financing but only a few MPAs (e.g., Nha Trang, Ha Long, Cu Lao Cham, Con Dao) directly generate significant income from tourism. In Ha Long, the management board receives 18% of revenue from entrance fees, the rest goes to the Quang Ninh PC (Table 1).

Table 1. Tourism income of MPAs in 2014

MPA	Tourism income 2014 (US Dollars)	% used for MPA activities
Ha Long Bay	22,000,000	18%
Con Dao	220,000	100%
Cu Lao Cham	210,000	50%
Nha Trang Bay	140,000	100%
Cat Ba	90,000	100%
Nui Chua	70,000	100%
Phu Quoc	1,000	100%
Bai Tu Long	N/A	
Hon Cau	N/A	
Con Co	N/A	

Staff capacity

All MPAs lack staff with professional backgrounds in marine biology (Figure 2). Most MPA staff were trained as foresters. In Vietnam, there is still no undergraduate program in marine biology or marine resource management and policy, which has resulted in a huge competency gap. With the exception of Con Dao on biodiversity monitoring program for coral reef, sea grass bed and marine turtles, none of them have strong research, management, policy or monitoring programs.

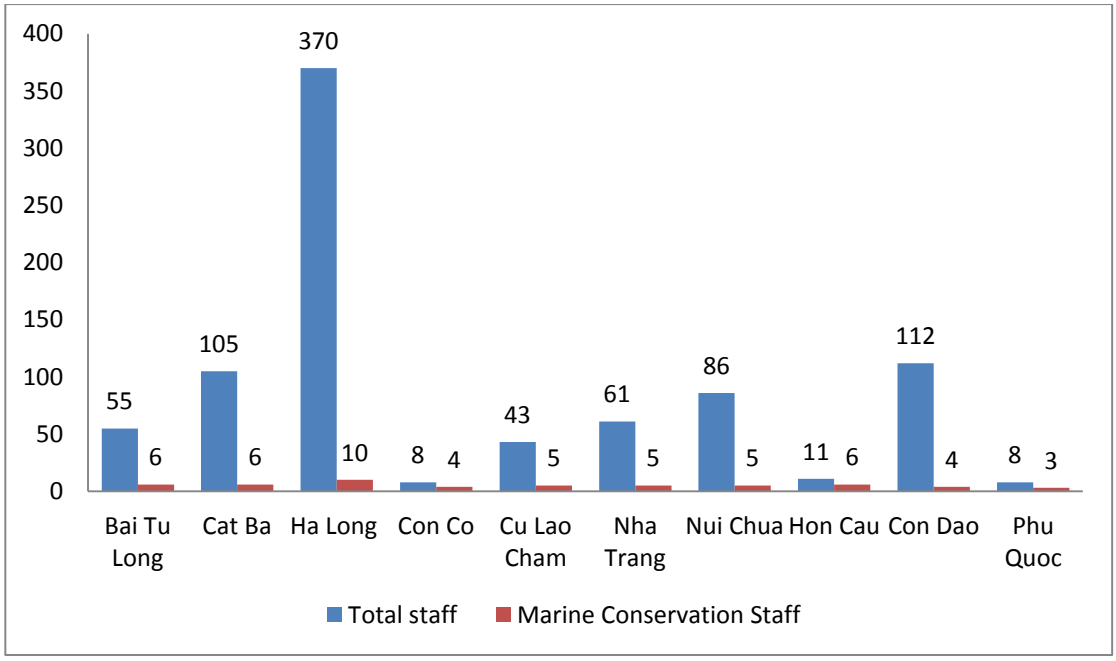


Figure 2. Vietnam MPA Staff Capacity

Facilities

Most MPAs lack proper facilities and infrastructure, especially boats and diving equipment, to carry out research or in some cases even the most basic field work (Figure 3). Together with inadequate funding, this leads to weak to non-existent law enforcement and monitoring in most MPAs.

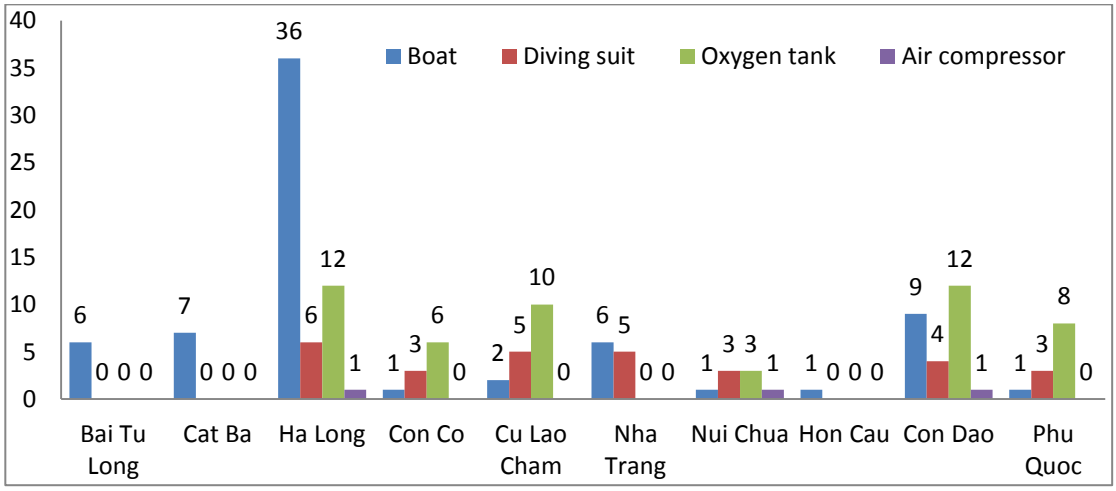


Figure 3. Number of diving equipments and Boats of each Vietnam MPA

Management planning

There is no requirement from MARD to develop such management plans. The only MPAs to have done so (Ha Long Bay, Cu Lao Cham, Nha Trang, Con Co) received external project support. There have been no MEE standards on which to base the development of management plans. There has therefore been no process of reflection; nor is there a direct link between the threats and opportunities and the planned activities for managing impacts on the natural resources.

ACHIEVEMENTS OF THE STUDY

This initial MEE is the first of its kind in Vietnam, as well as the first effort to generate consistent data about MPA management across all 10 MPAs. By involving D-FISH in the survey team, it has encouraged government to think about MPAs as a network rather than discrete, independent sites. In April, following the site visits, IUCN met with the MARD vice-minister in charge of D-FISH to review an MOU that D-FISH had drafted to ensure that the government benefits from the MEE results. The MOU also states that MEE will be included in a GEF MPA support project that D-FISH is preparing. The MOU was signed in May. The final MEE results were presented at a conference organized by D-FISH and IUCN in July 2nd, 2015.

LESSONS LEARNED

Standardizing evaluation

The major lesson learned is that MEE provides a consistent and structured approach to understanding and assessing management weaknesses and opportunities. To take full advantage of an MEE probably requires 3-4 days at each site on an annual basis in order to engage a wide range of stakeholders: local communities, tourists, provincial governments, etc. The present study was more limited and not intended as the definitive MEE but more as a proof of concept and establish a current management baseline.

Sustainable financing

There is a dependency on annual government funding, which is never adequate for managing the MPAs. As such, capacity development on sustainable financing should be required for all MPA managers to learn how to indentify innovative, alternative sources of income generation, campaign development and/or fundraising efforts.

Site promotion

Most MPAs have a program (e.g., turtle "head starting" in Con Dao, “plastics free campaign” in Cu Lao Cham, diving in Nha Trang Bay and Cu Lao Cham, WHS designation in Ha Long, Biosphere Reserve in Cat Ba) that could be leveraged to generate public interest and potentially greater private/public funding. But to do so, MPA leaders must become more dynamic and entrepreneurial about identifying the “niche” for their site and marketing their unique attractions, which in Vietnam is a challenge.

Staff competency

MPAs would benefit from staff competency standards. These would provide guidance on what level/kind of staffing is appropriate for a fully functional MPA; establish knowledge and skill requirements for each staff position; and provide a career tract with corresponding pay levels, skills and knowledge levels, and opportunities for capacity development to move up through the career ladder.

Management planning

Given that most MPAs do not have management plans, and most of those that do have not been fully implemented, this is a priority for all sites. Once a full MEE is completed, this

should provide standards and guidance for MPA management plan development (or possible revisions to a management plan for those sites that already have one). The management plan should not be developed by a consultant. Each site should conduct their own stakeholder-based process, which is as valuable as the plan itself.

Infrastructure support

Most of the sites evaluated showed a significant deficit in terms of investment in infrastructure. Sites without adequate infrastructure cannot effectively engage in law enforcement (e.g., boats), education and outreach (e.g., visitor centers, signage), and research and monitoring (e.g., equipment, boats, SCUBA gear).

Enforcement authority

In general, the MPAs are poorly protected. The MEE indicated that there are clear weaknesses in the enforcement chain, including lack of authority by the MPAs, and lack of presence on the water (most likely due to both staff and boat shortages). Necessary steps include raising the importance of the need for infrastructure support (and maintenance), increasing presence on the water, and improving interpretive enforcement (building a better public understanding of the regulations and zones).

RECOMMENDATIONS AND NEXT STEPS

Financing

The key recommendation is that Vietnam should not wait for the "perfect" financial and legal framework to be in place. This will probably never fully happen and would represent a huge missed opportunity. The challenge is to make better use of existing resources and to leverage existing relationships with local governments, businesses, universities, and other potential partners.

An easy "win" would be for MARD to issue a policy on tourism revenue sharing applicable to all MPAs.

Management Plans

MARD should require all MPAs to develop 5-year management plans that uses a standard template and responds explicitly to the results of a more detailed MEE to be carried out in each site. MEE should be repeated every few years.

Implement a Standardized MEE Program

With the support from NOAA expert, Ms. Anne Walton, the *Vietnam MPA Network Management Effectiveness Evaluation Program* was developed (Annex 3). The model was pretested and the results were presented at the conference in Ninh Thuan Province in July. The *Vietnam MPA Network Management Effectiveness Evaluation Program* for the first time establishes different levels and standards for measuring management effectiveness. This program will be available as an online system that can be used for internal self-evaluation, or by an external evaluation team. The evaluation program is intended to show progress in terms of MPA site capacity development on an annual basis; and results in

terms of how this capacity translates to actual natural resource protection (change in the status and trends of the resources) on a five-year cycle. The evaluation program is also intended to tell a story about what the Vietnam MPA network as a whole is achieving by understanding the status and trends of the natural resources across the entire coast of Vietnam.

There are four parts to the evaluation as following:

- PART 1: EVALUATING MANAGEMENT CONDITIONS

  Identifying Strengths and Weaknesses in Capacity Development

- PART 2: BUILDING A MODEL FOR RESULTS-BASED MANAGEMENT

  The Threat Reduction Management Plan Approach for Protection of Priority Target Resources

- PART 3: MONITORING FOR MANAGEMENT EFFECTIVENESS

  Estimating Acceptable Range of Variation

- PART 4: RATING THE MPAs STATUS AND TRENDS

  Determining of the Management Plan is Achieving the Anticipated Results

For the follow-up of this study, IUCN will:

1. Develop online system for the evaluation model

2. Conduct a training workshop for relevant MPA officers, government officers, researchers, scientists, etc. in the use of the online system

3. Propose official policy recommendation for D-FISH to integrate the model into management activities of all MPAs in Vietnam and require the regular use of the system for all MPAs on an annual basis to assess progress in their management effectiveness.

ANNEX 1

MPA MEE Conference Minutes

Conference:

"Marine Conservation for Sustainable Development of Fisheries in Vietnam"

Nui Chua National Park, Ninh Thuan Province

July 2nd, 2015

The conference was held at Nui Chua National Park, Ninh Thuan Province on July 2nd, 2015. It was chaired by MARD Deputy Minister Vu Van Tam, Vietnam IUCN Program Manager Jake Brunner and Ninh Thuan PC Chairman Luu Xuan Vinh.

Time	*Content*
08:00-08:15	**Registration**
08:15-08:25	**Welcome speech and introduction by D-FISH**
08:25-08:35	**Mr. Jake Brunner- IUCN Vietnam** Mr. Brunner quoted an article about destructive fishing and resource-use conflict in Ly Son island, a potential MPA site of Vietnam. These are common issues in all South East Asia nations. Improving the effectiveness of the MPA network would lead to food security, resource conservation and tourism development for Vietnam. Hence, marine conservation is very crucial to sustainable fisheries development. This conference was organized to be timed with the marking of the 5th year of implementing Decision 742/2010.
08:35-08:45	**Mr. Luu Xuan Vinh - Chairman of Ninh Thuan's People Commitee** Mr. Luu Xuan Vinh, on behalf of Ninh Thuan Province, the host of this conference, gave a warm welcome to all participants. He summarized the achievement and challenges of natural resource conservation in Ninh Thuan. He emphasized the importance of natural resource conservation in provincial economic development.
08:45-08:55	**Mr. Vu Van Tam - Vice Minister of MARD** Mr. Vu Van Tam reviewed the progress of the MPA network in Vietnam. The management of 8 of the established MPAs in Vietnam is diverse and unclear. A review and assessment of MPA management in Vietnam is needed in order to help the government manage these MPAs more effectively. MARD and IUCN organized this conference to gather all professional opinions from all experts to prepare for the 2015-2020 management planning period for MPAs.

Conference

08:55-09:05	**Overview of Vietnam MPA network and the future direction for stage 2016-2020 (Ms. Nguyen Thi Phuong Dung, D-FISH)**

Since the Decision 742/2010 was implemented, MARD have conducted site assessments and developed planning frameworks for 7 potential MPAs (Bach Long, Hon Me, Hai Van, Ly Son, Hon Cau, Phu Quy, Nam Yet. Before 2010, 5 MPAs were established under support of DANIDA including Con Co, Cu Lao Cham, Nha Trang Bay, Hon Cau and Phu Quoc. Besides, 3 MPAs lying in National Parks (Cat Ba, Nui Chua and Con Dao) have also been determined to be effectively managed. MPA management mechanisms and policies have been developed. Capacity building activities and international corporation were also conducted. However, stakeholder participation in MPA activities is still weak. There are many overlapping and inconsistencies in policies and responsibility of MPA management institutions. Financial resources and human resources for MPAs are inadequate. MPA management effectiveness assessment has not been conducted.

In the next planning period from 2016-2020, MARD will focus on:
- Completing the detailed plan of all MPAs, establishing and implementing the rest of MPAs according to 16 potential MPAs list.
- Improve MPA-related legal documents and policies
- Continue capacity building and awareness raising activities for all levels
- Accelerate international corporation

MARD identified some priority activities:

1. Develop detailed plans for Co To and Dao Tran
2. Enhance the role of MARD in MPA management
3. Adopt the national park network management governance structure for MPA network
4. Build up a sustainable financing mechanism for MPAs

09:05-09:25 **Management Effectiveness Evaluation (MEE) Model for Vietnam MPA Network (Mr. Jake Brunner-IUCN)**

Mr. Brunner emphasised 3 reasons for conducting MEE for the MPA network in Vietnam:

1. MPA is an effective tool for natural resources management and economic development
2. MPA management structure is complex and conservation approached is diverse.
3. Through MEE, opportunities for more effectiveness on MPA management would be identified.

IUCN has developed a 4-part MEE model with support from NOAA:

- Part 1: Evaluating management conditions: identifying strengths and weaknesses in capacity development
- Part 2: Building a model for results-based management: the threat reduction management plan approach for protection of priority target resources
- Part 3: Monitoring for management effectiveness: estimating acceptable range of variation
- Part 4: Rating the MPAs status and trends: determining of the

management plan is achieving the anticipated results

09:25-09:45 **Results of MPA MEE study in Vietnam (Ms. Bui Thi Thu Hien, Ms. Tran Minh Hang, IUCN)**

- The study covered eight existing MPAs and two National Parks and WHSs with marine components (Bai Tu Long and Ha Long) in order to identify major management challenges and propose an MEE standardized template that can be applied across all MPAs on a systematic basis.
- Methodology: two questionnaires were designed, one for MPA staff and one for stakeholders. The questionnaires were sent to the MPAs two weeks prior to the visit. All 10 sites were visited in March-April 2015.
- The results: out of total 93 possible points, Cu Lao Cham: 74; Con Dao: 69; Nha Trang: 62; Ha Long: 57; Cat Ba: 54; Nui Chua: 54; Hon Cau: 47; Phu Quoc: 47; Bai Tu Long: 45; Con Co: 39
- Suggestion: The key recommendation is that Vietnam should not wait for the "perfect" financial and legal framework to be in place. This will probably never fully happen and would represent a huge missed opportunity. The challenge is to make better use of existing resources and to leverage existing relationships with local governments, businesses, universities, and other potential partners. Sustainable financing is crucial to effective management. All MPA should conduct regular management assessment (every 5 years)

09:45-10:05 **Develop sustainable fisheries framework - An ecology approach (Dr. Vo Si Tuan)**

- A marine ecosystem approach is very important
- MPAs play a very important role in biodiversity conservation and fisheries management
- However, the contribution of the MPA network to fisheries is relatively low. Nursery areas were left out during the development of the MPA zoning plan
- Vietnam needs to enhance the link between biodiversity conservation and fisheries resources which would include an ecosystem-based management and sustainable exploitation approach.

10:05-10:20 **Introduction about Nui Chua National Park (Mr. Huynh Viet Kim)**

- Nui Chua National Park: 3 species of sea turtles, 350 species of hard coral, 216 species of fish, 80 crustacean species, 188 species of seaweed
- For conservation, Nui Chua National Park has conducted many activities such as awareness raising, sea turtle rescue, community-based conservation, livelihood enhancement, eco-tourism.
- However, destructive exploitation is still an issue.
- Suggestion: more investment in capacity building, staff welfare,

	facilities, etc.
10:20-10:35	**Tea break**
10:35-11:50	**Discussion: How to improve effectiveness of Vietnam MPA to contribute to sustainable fisheries?** **Ms. Nguyen Thi Trang Nhung (D-FISH):** Most of MPAs do not emphasize fisheries management in their activities. MPAs in Vietnam need to take into account all the the key life history phases of fisheries resources by protecting fishery nurseries and making use of fish refugia. **Mr. Jake Brunner (IUCN)**: Mr. Brunner recognized the importance of central government management of MPAs. Staff numbers and lack of high quality staff are among crucial issues of Vietnam MPAs. Vietnam may not need to increase MPA staff, but but does need to increase MPA staff competency. Some fishery refugia are seasonal. MPA core zones should be increased in size and managed more intelligently. Community-based approach should also be considered. **Mr. Nguyen Van Thang (CRES):** MPA management authority and legislation are overlapping. Human capacity and facility for MPA are very insufficient. Management effectiveness assessment for all MPAs is very urgently needed in order to identify the gap, issues and challenges to improve. **Mr. Nguyen Quang Hung (RIMF):** Vietnam MPAs have low performance due to insufficient financial and teachnical support. He suggested to enhance the corporation among all MPAs and research institutues as well as local community.
11:50-12:15	**Vice-Minister Vu Van Tam:** He summarized 5 important issues for marine conservation and sustainable fisheries in the next 5 years: 1. Establish and implement 8 more MPAs (according to the 16 MPA plan) 2. Review and improve MPA- related legislation 3. Propose feasible solutions for MPA management; choose 1 MPA site to be national demonstration site; and complete MPA management effectiveness evaluation framework for annually MPA evaluation 4. Invest more on awareness raising activities 5. Establish annual forum/conference about marine conservation and sustainable fisheries
12:30-13:30	**Lunch**
13:30-13:50	**Application of Marine Spatial Planning (MSP) to sustainable fisheries (Dr. Nguyen Chu Hoi)** • MSP can be used to solve resource-use conflicts

- MSP is necessary for sustainable fisheries.
- Difficulties applying MSP in Vietnam: no standard term; lack of MSP-related legislation; human resources; lack of technical support; weak corporation
- Suggestion: conduct more capacity building activities; using MSP in integrated coastal management for more effective MPA management

13:50-14:10 **Calculate sustainability index of ecosystem - A tool for MPA management (Ms. Do Thi Thu Huong - IMER)**

- Develop set of indicators to calculate the sustainable index for different ecosystem using DPSIR approach
- Indicators illustrate the status of ecosystem. This helps managers in making decision relating to conservation and development .

14:10-14:30 **Results of Project 47: establish MPA network for Vietnam (Mr. Nguyen Quang Hung - RIMF)**

- The project conducted baseline studies for many potential MPA sites. Northern region: 9 islands, Central region: 6 islands, Southern region: 2 islands, South Western region: 2 islands.
- The results showed that in the last 10 years (2005-2015), the cover percentage of coral within MPAs reduced about 36.3%; biodiversity was degraded in terms of number of species, number of individuals, density and structure)
- Suggestions: speed up the establishment of all potential MPAs; improve MPA management; enhance corporation; establish biodiversity monitoring for all MPAs; increase community and stakeholder involvement

14:30-15:00 **Marine conservation in Con Dao National Park (Mr. Tran Dinh Hue)**

- Con Dao National Park has been conducting many activities to enhance marine conservation: marine spatial planning; developing of management plan; regular enforcement activities; awareness raising for community; international and domestic corporation; eco-tourism; community involvement
- However, there are still many challenges such as destructive exploitation; overexploitation; marine pollution and climate change
- Suggestions: biodiversity assessment; adjust zoning; monitoring activities; facility investment, etc.

15:00-15:20 **Tea break**

15:20-17:00 **Discussion**

Mr. Nguyen Trung (Phu Quoc MPA): Legal documents for MPA should be reviewed and adjusted. Capacity building activities for staff and awareness raising are very important. Sustainable financing also affect the MPA management effectiveness.

	Dr. Vo Si Tuan (NIO): Need to diversify the management approach for MPA, emphasizing the role of central management authority. Government investment on marine area is too insufficient. The management of core zone need a corporation of all stakeholders. **Mr. Hung (Government Office)** Two prior actions (1). Review all related legal documents such as Law of Fisheries, Law of Biodiversity; (2). Awareness campaigns **Mr. Nguyen Van Vu (Cu Lao Cham MPA):** Need to have MPA compulsory activities **Ms. Nguyen Thu Trang (MCD):** Locally-managed marine protected areas are also important and need to be paid more attention
17:10-17:30	**Conclusions - Mr. Pham Anh Tuan (Deputy-Head of D-FISH)** **Mr. Pham concluded and closed the conferences with 5 key conclusions:** (1). Need to review MPA related legal documents (2). Integrate marine conservation into amended Law of Fisheries 2003, form working group to review marine conservation legislation (3). Promote awareness raising activities for community and decision-makers (4). Besides 16 planned MPAs, fisheries refugia and small locally managed protected areas should also be paid attention (5). Diversify conservation and ensure the harmonization from central to local management.

ANNEX 2

Profiles of Viet Nam MPAs

BAI TU LONG MARINE PROTECTED AREA

1. Background

Name of MPA : Bai Tu Long National Park

Under the jurisdiction of: Quang Ninh PPC

Year of Establishment: 2001

Population: 1,000 inhabitants (living within the core zone of NP)

City/province: Van Don- Quang Ninh Province

MPA Human Resources: 55 staff (5 people in Nature conservation Department)

Size of MPA: 157.83 km^2 with 96.58 km^2 of marine are

IUCN Category: II (National Park)

State funding: 5 billion VND/year spent on infrastructure

Other funding sources: 8 billion VND/year funded by Quang Ninh PPC in which 5 bil. VND spent on Staffing. Others: IUCN, SUF fund

Site entrance fee: None

Income generated from tourism: None

2. Bio-geographical Context

Geographical Location:
Bai Tu Long National Park is situated in the Gulf of Tonkin, with the exactly geographical position

between 20°55'05"-21°15'10" North, 107°30'10"- 107°46'20" East (figure 1). The park comprises of over 40 islands and rocks forming 3 groups : Ba Mun Group, Tra Ngo Group, and Sau Group.

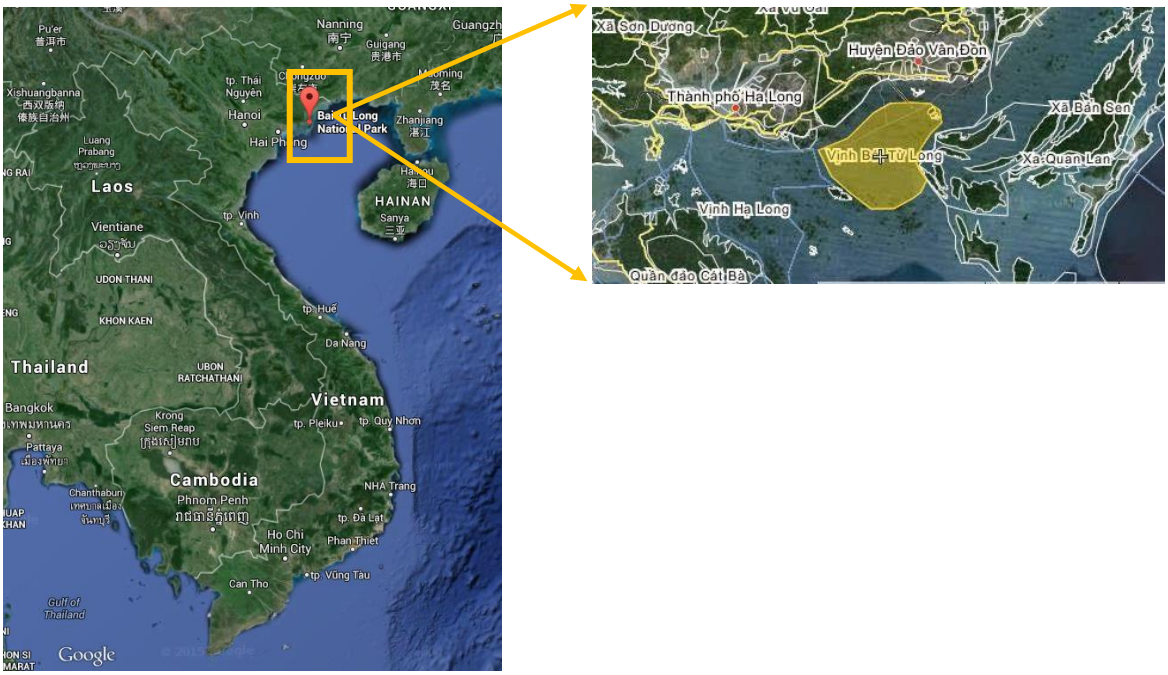


Figure 1. Location of Bai Tu Long National Park (GoogleMap, 2015)

Biodiversity: Biodiversity in the MPA is rich which encompasses 1200 marine species with 21 rare species in Vietnam's Red Book including 2 marine turtle species, 3 dolphin species, abalone, sea cucumber, sea urchin and giant clam etc.

Target resources:

- Coral reefs; seagrass-beds; mangroves and fishery resources
- Marine flora and fauna species

3. Socio-economic context

Socio-economic development at local level has exerted pressures on the conservation of natural resources of the National Park. In particular, unregulated fishing and aquaculture activities are still happening at the site. The increase in number of fishing boats operated in the National Park coupled with the rapid expansion of tourism sector depicted by the increased number of tourists (around 8,700 tourists per year) come to the Park are the forces challenging conservation efforts.

4. Primary threats to target resources

- Destructive fishing practices: trawling, driftnet fishing
- Aquaculture: *Grammistidae* fish, *Rachycentru canadum* fish, seafood like *Panopea generosa*, *Crassostrea*, clams, *Babylonia areolata* snail
- Inland-marine transport: national coal transport routine gives rise to oil spill issue
- The Development of Tourism and associated service sector is not well controlled
- Extreme weather conditions are the major threats to natural resources. E.g. in March 2013, hail event devastated 25 hectares of Mangrove forests

5. Management plan and effectiveness

Key stakeholders involved in management of the MPA: Department of Agriculture and Rural Development (DARD); Department of Science and Technology (DOST); Department of Natural Resources and Environment (DoNRE); Department of Finance (DoF); Department of Planning

And Investment (DPI); District PC of Van Don ; NGOs: VCF, IUCN, WWF, GEF etc. ; Local communities (IUCN, 2015).

Authority of MPA MB: Bai Tu Long NP Management Board was established and under the jurisdiction of Quang Ninh PPC. The MB is administered by PPC in terms of human resource, payroll and performance and technically advised by MARD. The Bai Tu Long NP MB has responsibilities to facilitate activities in conservation of terrestrial and marine natural resources, conducting scientific research and education etc. Bai Tu Long MB works in cooperation with Ha Long Bay Management Department and Cat Ba NP Management Board in conservation management (IUCN, 2015).

Planning documents used in daily management activities: Annual work plan (2001-2005) has been implemented so far. The new plan (2015-2020) is in preparation. A long term management plan was constructed in line with VCF project and was approved by relevant authorities, but has not been in place yet due to lack of financial resources (IUCN, 2015).

Programme areas prioritised in management plan: Education and communications; research and monitoring; Enforcement and Surveillance; Stakeholder engagement. All of these have their clearly articulated objectives (IUCN, 2015).

Management effectiveness assessment programme in place: Management effectiveness is currently evaluated through periodical reporting systems from the NP's technical departments (on monthly/quarterly/yearly basis) (the M&E toolkit is not yet available) (IUCN, 2015)

6. References

GOOGLEMAP. 2015. *Bai Tu Long National Park*, 200km.

IUCN 2015. Bai Tu Long National Park. *In:* IUCN (ed.) *Evaluation of Management Effectiveness of MPAs in Vietnam*

HA LONG BAY

1. Background

Name of MPA : Ha Long Bay World Natural Heritage Areas (HLB WNHA)

Under the jurisdiction of: PPC of Quang Ninh

Year of Establishment: 1995

Population: 229,238 inhabitants (from Ha Long, Cam Pha and Van Don)

City/province: Ha Long- Quang Ninh Province

MPA Human Resources: 370 staff

Size of MPA: 1,533 km^2

IUCN Category: I

State funding: None

Other funding sources: 80 billion VND (18% of income from tourism) was allocated to HLB MD by PPC in 2014

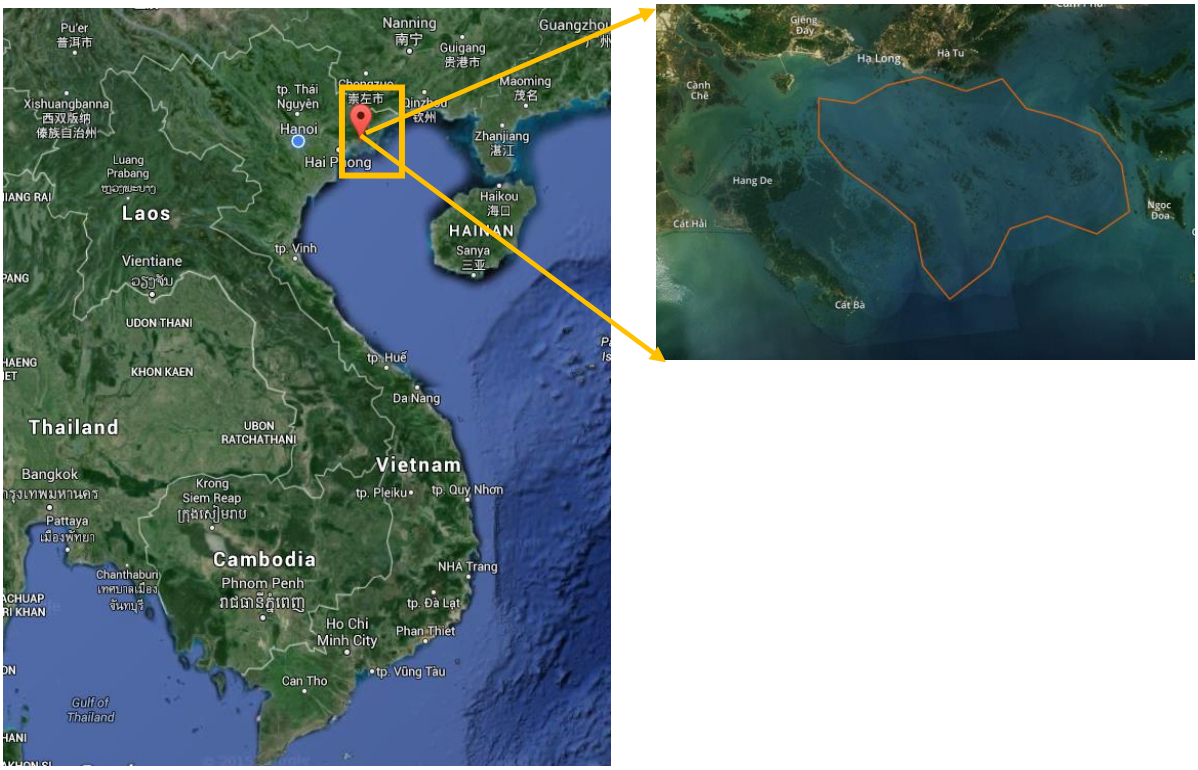
Site entrance fee: 170,000 VND/ticket.

Income generated from tourism: 450 billion VND (2014)

2. Bio-geographical context

Geographical Location:

Ha Long Bay, located in the Gulf of Tonkin in Quang Ninh Province in the North eastern Vietnam and 165km from Hanoi Capital (with the geographical coordinates of 20°43' – 21°09' N and 106°56' -107°37' E). The site comprises of 1600 islands and islets, most of which are undisturbed by humans forming a spectacular seascape of limestone pillars. It was inscribed on the World Heritage List in Dec 1994 for aesthetic value and in 2000 for geology and geomorphology value (figure 1)



Biodiversity: Ha Long Bay is a home to 2949 flora and fauna species including 435 terrestrial plant species, 28 saline-submerged species, 5 seagrass species, 234 coral species, 139 seaweed species, 278 phytoplankton species, 133 zooplankton species, 315 fish species, 545 bottom-dwelling mollusc species, 178 terrestrial mollusc animals … etc. of which there are many endangered species listed in Vietnam's Red Data Book. Remarkably, according to the Fauna & Flora International (FFI), **Ha Long Bay** is home to 14 endemic plants and 60 endemic animals.

Target resources:

- Coral reefs; seagrass-beds; intertidal; and fishery resources
- Cultural and historical value
- Intertidal
- Natural scenery

Zoning plan:

Core zone: must be protected in a pristine state, with the values of landscape, geology, environment and ecosystems remaining unchanged, the negative impact of human activity on the Heritage values must be minimized. (*core zone include zone number 1,2,3,4 in figure 2)*

Buffer zone: (a) the offshore water area: the requirements for conservation are the same as for core zone; (b) On the mainland: all buildings to be constructed must have a suitable architectural design, contributing to the beautiful scenery of Ha Long Bay. The development of socio-economic activities and national security must contribute to the protection of the Ha Long Bay's values as a cultural and geologic – geomorphologic landscape, environment and eco systems;

Transition zone: all of the socio-economic activities operating on the Bay have to strictly comply with the current Law and this Regulation and will implement the commitment not to cause negative impacts to the scenery and eco- environment of Ha Long Bay (figure 2)

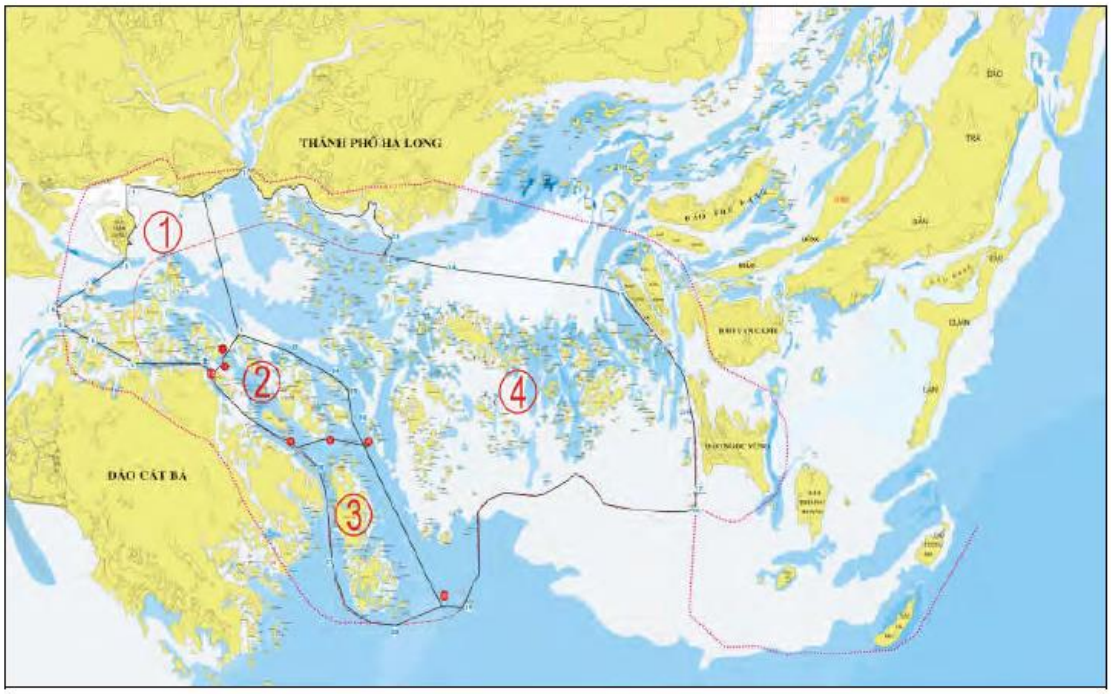


Figure 2. Zoning Map of Ha Long Bay (source: Ha Long Bay MPA MD)

3. Socio-economic context

There are 4 fishing villages (Cua Van, Cong Tai, Vong Vieng, Ba Hang Village) of 1600 people living in HLB WHA. These inhabitants make their income mostly from fishing and aquaculture activities (Thu et al., 2012). In the past decades, tourism has been a very rapidly growing sector in Ha Long Bay with 10 fold increase in the number of tourists during 1995 (236,000)- 2014 (2,387,215). Besides tourism, maritime transport and mining are also important sectors in local and national economy because Ha Long bay was an important port of trade routes between China, Japan and other Southeast Asian countries.

4. Primary threats to target resources

- Water pollution
- Sea level rise
- Pressures from economic especially tourism development
- Destructive fishing practices
- Aquaculture

5. Management plan and effectiveness

Key stakeholders involved in management of the MPA: Tourism sector, transportation sector, Fisheries sector, industries, local governments, police, border guards, Institute of Marine Education & Research, Research institute for Marine fisheries, Institute of Geology, NGOs: IUCN, MCD, FFI, Osaka University Japan (project). Stakeholders have a certain degree of participation in marine conservation. In particular, they work in coordination with MD in some activities, but their roles are not really active (IUCN, 2015)

Authority of MPA MB: HLB Management Department was established by Quang Ninh PPC in 1995 (Decision 2796 QD-UB). HLB MD is under the administration of Quang Ninh PPC and technically supervised by Ministry of Culture, Sport and Tourism and the National UNESCO Committee of Vietnam. The MD has responsibilities to manage and monitor, research and to raise awareness but has no mandate to impose sanctions on violations (IUCN, 2015)

Planning documents used in daily management activities: Strategic plan, management plan (2010-2015 issued by Quang Ninh PPC), Annual work plan (IUCN, 2015).

Management plan implementation: The management plan has been implemented since 2012. Prior to this 5 year management plan, the plan before was only on yearly basis (IUCN, 2015)

Management effectiveness assessment programme in place: The management effectiveness is usually assessed and reported in monthly, biannual and annual report (IUCN, 2015)

6. References

GOOGLEMAP. 2015. *Ha Long Bay* 200km. Google

HIEN, B. T. T. 2011. Ha Long Bay World Natural Heritage Area- governance analysis. *In:* JONES, P. J. S., QIU, W. & DE SANTO, E. (eds.) *Governing Marine Protected Areas: Getting the balance right- Technical report to Marine and Coastal Ecosystems Branch.* Nairobi: UNEP.

IUCN 2015. Ha Long Bay *In:* IUCN (ed.) *Evaluation of Management Effectiveness of MPAs in Vietnam.*

THU, H. V. T., COTTRELL, A., VALENTINE, P. & WOODLEY, S. 2012. Perceived barriers to effective multilevel governance of human-natural systems: an analysis of Marine Protected Areas in Vietnam. *Journal of Political Ecology,* 19**,** 17-35.

CAT BA MARINE PROTECTED AREA

1. Background

Name of MPA : Cat Ba National Park

Under the jurisdiction of: Cat Ba National Park is under the jurisdiction of DARD

Year of Establishment: 2010 (MPA)

Population: 15,000 inhabitants

City/province: Cat Hai, Hai Phong City

MPA Human Resources: 105 staff (5-7 staff working in marine conservation department)

Size of MPA: 207km^2 with 109km^2 of marine area (Hoi, 2014)

IUCN Category: II (National Park)

State funding: 10 billion VND/year allocated to infrastructure

Other funding sources: Local budget of more than 11 billion VND

Site entrance fee:
National Park Entrance fee: 50,000 VND/ticket
Entrance fee to Lan Ha Bay: 30,000 VND/ticket

Income generated from tourism: Annual revenue of 2 billion VND including entrance ticket to NP and Sightseeing fee in Lan Ha Bay

2. Bio-geographical context

Geographical Location: Cat Ba MPA is centered in Cat Ba Archipelago which encompasses an island and 366 islets located 36km from the eastern Hai Phong City. The MPA is an extended component of Cat Ba National Park with geographical coordinates of 20°43'50 "-20°51'29" N and 106°58'20 "-107°10'50"E (figure 1).

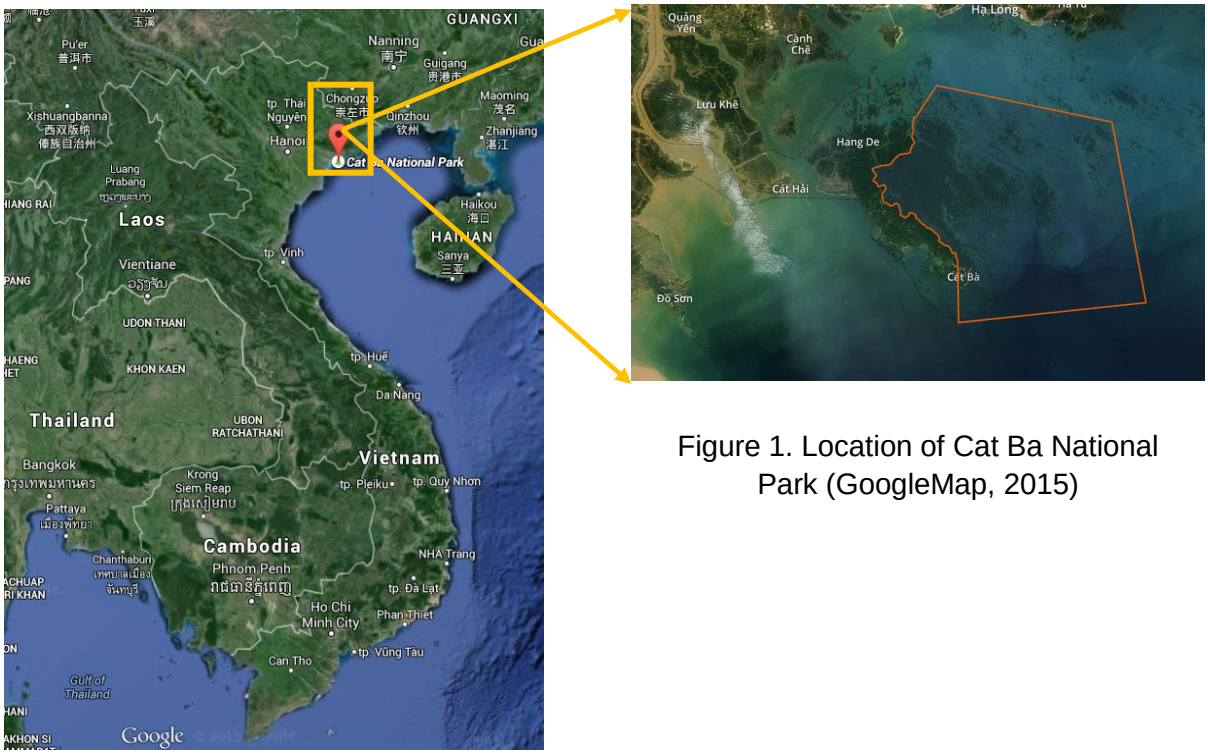


Figure 1. Location of Cat Ba National Park (GoogleMap, 2015)

Biodiversity: the waters of Cat Ba Archipelago host a wide range of natural habitats including many species of coral reefs, seagrass beds and mangrove forests. The coastal area of Cat Ba is also known as containing more diverse biological resources than those of other MPAs in Vietnam. Statistics show that there are 186 species phytoplankton, 43 species of seaweed, 147 species of coral reefs, 44 species of polychaete worms, 120 species of molluscs including squid, jellyfish, clams, snails, mussels etc,; 195 fish species living in Cat Ba, including many species of high economic value such astuna (Thunnus thynnus), fish moon (Mola mola), snapper (Lutjanus erythropterus) eel (Anguilla spp) etc. (D-Fish, 2013)

Cat Ba Archipelago Biosphere Reserve was designated by UNESCO in Dec 2004 due to its highly diverse ecosystems, landscape, cultural and socio-economic values. It has an area of 262.42km^2 of which 170.41km^2 of land area and 92km^2 of marine area. However, in the past 10 years, pressures from overfishing, pollution caused by aquaculture, and rapid growth of tourism have resulted in a serious decline in marine resources which has been a cornerstone for the establishment of Cat Ba MPA in 2010.

Target resources:

- Coral reefs;
- Dolphin
- Mangrove forests
- Marine Turtles

3. Socio-economic context

Cat Ba archipelago is a top tourist destination in Northern Vietnam i.e. tourism has been developed from one motel in 1994 into 107 hotels in 2009. In the past decade, the number of tourists has been increasing from 100,000 tourists a year to about 1,000,000 tourists in 2010 with 30% of them are foreigners. The rapid growth of tourism has created additional sources of employment and income at local and national level. As a result, there has been an increase in immigration from the continent to Cat Ba islands in the past 10 years. And, the tourism sector is gradually replacing traditional sectors such as agriculture and fishing. However, illegal exploitation of natural resources is still happening due to low living standards of local communities (Hietaranta, 2013)

4. Primary threats to target resources

- Over-fishing: the strict protection zones are well protected but destructive fishing still occurs in other zones (electrical pulse, high voltage) leading to the extinction of some rare species
- Marine pollution: due to the booming aquaculture production (Since 2010, aquaculture farming (snout, caged fish) has been strongly developed).
- Sedimentation caused by coastal development (in 2012 -2013, massive death of clams and snout)
- Tourism development: vessels, boats anchored in appropriate places. Absence of specific regulations on anchoring

5. Management plan and effectiveness

Key stakeholders involved in management of the MPA: Department of Agriculture and Rural Development (DARD); other departments and units; Municipal People's Committee; local authorities; Border guards; Police; Navy forces; court; local communities; tourists; private sector. All stakeholders have been actively participating in conservation, rescue, flood prevention and fire protection activities (IUCN, 2015).

Authority of MPA MB: A marine conservation division has not yet been established in accordance to Decree 117 even though The Proposal has been submitted several times but not

yet been adopted. Local Forest protection unit is assigned to take over generic management of marine conservation meanwhile the Scientific Division is in charge of marine species development and Tourism Division is mandated for communication, dissemination operation (IUCN, 2015)

Planning documents used in daily management activities: Annual work plan is used for daily management. There has not been any separate marine conservation plan. The plan for management of the marine component is covered in Cat Ba National Park Conservation and Management plan for 2014-2020 (IUCN, 2015).

Implementation of Management Plan: The management and development plant of Cat Ba NP 2015-2020 was only adopted in late 2014. The previously plan implemented include master plan 2006-2010 vision 2020 focusing on zoning of conservation hotspots (IUCN, 2015).

Management effectiveness assessment programme in place: The management effectiveness is usually assessed and reported in quarterly, biannual report to submit to DARD (IUCN, 2015).

6. References

D-FISH. 2013. *Cat Ba MPA- Biodiversity and Potential for tourism development* [Online]. D-Fish Available: http://www.fistenet.gov.vn/d-khai-thac-bao-ve/b-bao-ve-nguon-loi/khu-ba309o-to300n-bie309n-111a309o-ca301t-ba300-111a-da323ng-sinh-ho323c-va300-tie300m-nang-pha301t-trie309n-nga300nh-du-li323ch/ [Accessed 07/08/ 2015].

GOOGLEMAP. 2015. *Cat Ba National Park* 200km.

HIETARANTA, J. 2013. tourism development in Cat Ba Island in Northern Vietnam Turku University of Applied Sciences.

HOI, N. C. 2014. Application of spatial planning in establishing a system of marine protected areas for sustainable fisheries management in Vietnam. *Journal of The Marine Biological Association of India,* 56**,** 28-33.

IUCN 2015. Cat Ba Marine Protected Area. *In:* IUCN (ed.) *Evaluation of Management Effectiveness of MPAs in Vietnam* IUCN

CON CO MARINE PROTECTED AREA

1. Background

Name of MPA : Con Co MPA

Under the jurisdiction of: Sub-Department of Capture Fisheries and Fisheries Resources Protection

Year of Establishment: 2009

City/province: Dong Ha- Quang Tri Province

Population: 400 inhabitants

MPA Human Resources: 8 staff

Size of MPA: 45.32 km^2

IUCN Category: II

State funding: None

Other funding sources: Provincial government's fund of 400 mil. VND spent on staff salary and other essential activities

Site entrance fee: None

Income generated from tourism: None

2. Bio-geographical context

Geographical Location:

Con Co Island is a small and round island with an area of 3.5km^2 in the south of the Gulf of Tonkin. The intertidal area is characterised by narrow sandy beaches, scattered with rocky outcrops. The seabed comprises of a layer of basalt layer covered by coral reefs and soft sediments. The waters surrounding Con Co island are typically 15-20 m deep, although they reach depths of over 30 m in the east of the marine protected area (Birdlife, 2004) . Con Co MPA is centred on Con Co Island, which lies in the East Sea about 30km off the coast of Quang Tri Province. The MPA is located at 15°52' to 16°00'N and from 108°22' to 108°44'E in the Eastern part of Quang Nam Province (as shown in figure 1)

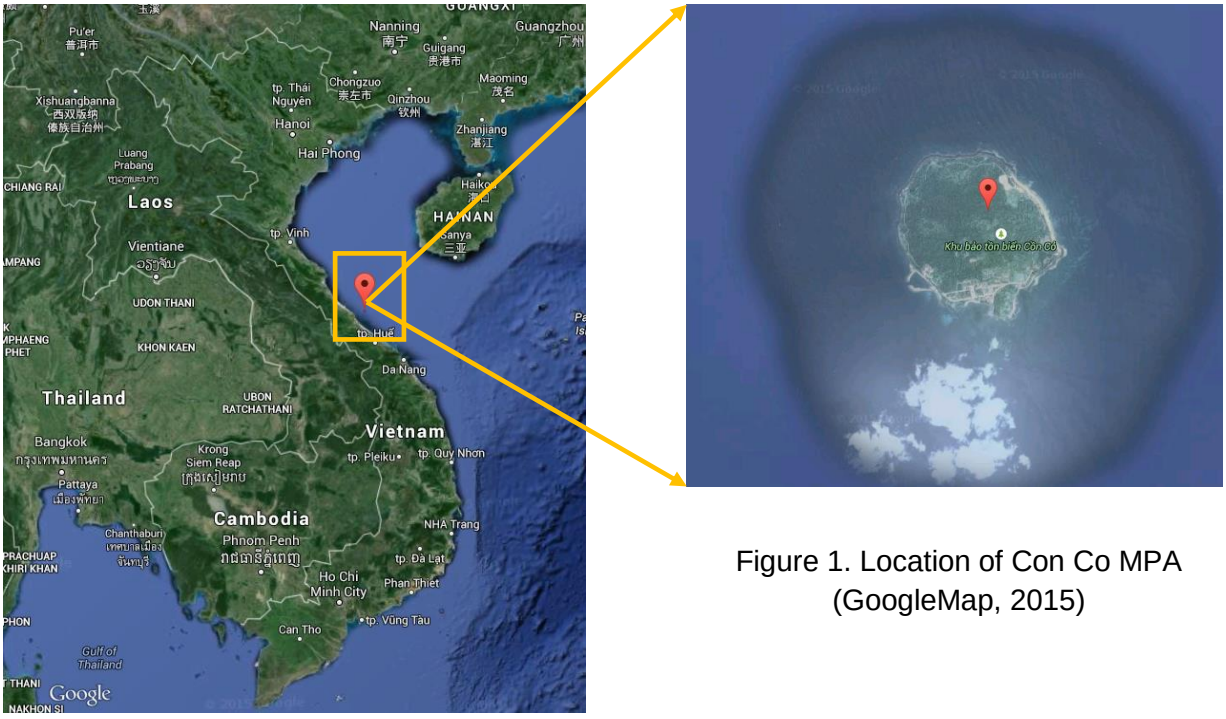


Figure 1. Location of Con Co MPA (GoogleMap, 2015)

Ecological characteristics: 57 species of seaweeds, 67 species of zooplanktons, 227 fish, 113 coral reef , 87 reef fish, 164 phytoplankton species. The MPA is still under establishment and opening for tourism in 2015 (FisteNet, 2015).

Target resources:

- Coral reef ecosystems including iconic species such as black corals, soft corals
- Sea-grass beds
- Lobster, Giant Clam, Sea Turtles, Groupers etc.

Zoning plan: as shown in figure 2
Core zone (strictly protected zone): 5.34km^2
Ecological rehabilitation zone : 14 km^2
Community development zone: 24km^2

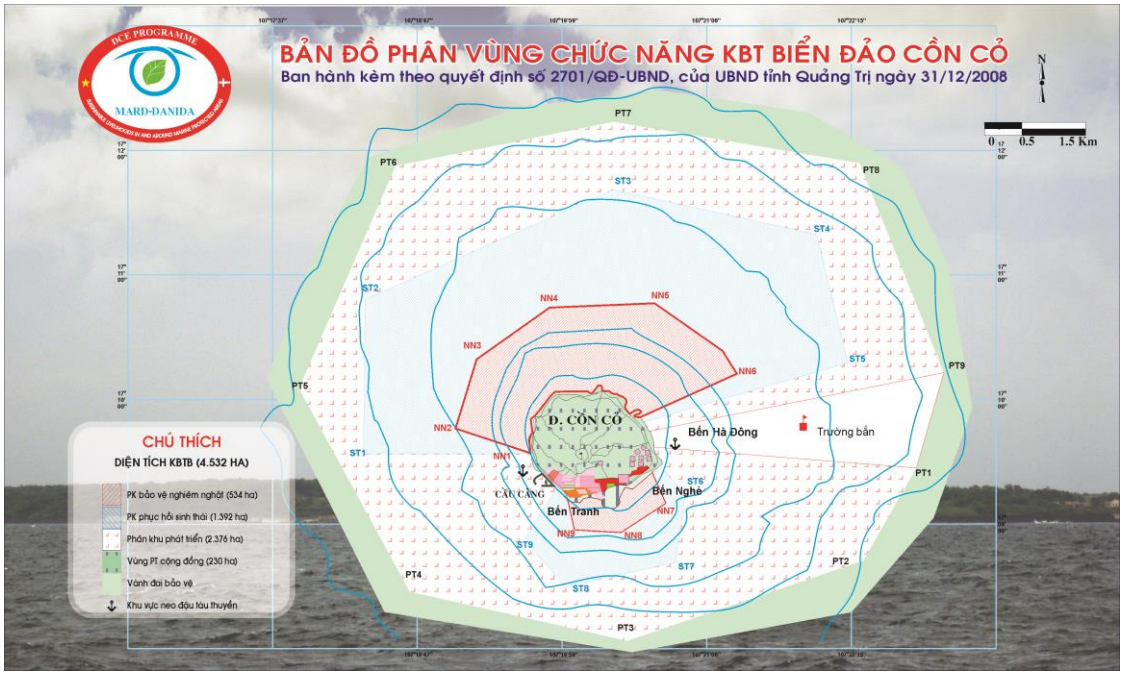


Figure 2. Zoning map of Con Co MPA

3. Socio-economic context

Before 2000, there were no residents living on the island but only army troops who were on military duty. In March 2002, 43 Youth Volunteers came to reside on the island. By 2004, the official Con Co district was established with the aim to make Con Co a tourists' island with the economic structure characterised by tourism - services - fisheries - forestry and agriculture. This was a landmark for civilisation. In 10 years of development (2004-2014), Con Co has built the infrastructure, economic and social development, protection and defense. Island has now a population of nearly 400 people. The island has had no criminal, no social evils, and no traffic accidents (laodong, 2015).

Con Co is famous for being a pivotal battle-fielded during the war against the Americans. Hence, this makes the island a great place to develop tourism. Hundreds of tourist groups come to Con Co annually, and the number of tourists is increasing every year. Current tourism activities on the island include scuba-diving, canoeing, fishing and marine sports. However,

these activities are being offered on a small scale basis by local residents who currently struggle with professional business due to insufficient infrastructure such as accommodation and power supply (Vietnamtourism, 2015).

4. Primary threats to target resources

- Unsustainable fishing activities including dynamite fishing and overexploitation of lobsters
- Pressures from economic development
- Climate change and natural disasters

5. Management plan and effectiveness

Key stakeholders involved in management of the MPA: Department of Agriculture and Rural Development, Sub-Department of Capture Fisheries and Fisheries Resources Protection, People's Committee of Con Co District, People's Committee of Coastal Communes, Border Guard, Local communities living in or surrounding the MPA (IUCN, 2015)

Authority of MPA MB: the MPA MB has mandates to direct the surveillance patrols in monitoring and recording violations of MPA regulations, to co-ordinate with domestic or international organisations to facilitate tourism and other service activities according to the management plan; to support international collaborations in scientific research to protect and develop the conservation values, and to collect and to manage the allocation of marine conservation fee in compliance with the PC of Quang Tri Province. The MPA MB shares jurisdiction with other stakeholders (IUCN, 2015).

Planning documents used in daily management activities: Management plan; Annual Work Plan (IUCN, 2015).

Programme areas prioritised in management plan: Education and communications; research and monitoring; Enforcement and Surveillance; Stakeholder engagement. All of these have their clearly articulated objectives (IUCN, 2015)

Management plan implementation: The management plan has been implemented during 2011-2015 (IUCN, 2015).

Management effectiveness assessment programme in place: There has been no MPA management effectiveness evaluation programme, the effectiveness is currently evaluated based on a number of management plan's activities accomplished(IUCN, 2015).

6. References

BIRDLIFE 2004. *Dao Con Co Proposed Marine Protected Area*, Birdlife.

FISTENET. 2015. *Con Co Marine Protected Area: Biodiversity and Conservation Measures* [Online]. Hanoi D-Fish. Available: http://www.fistenet.gov.vn/d-khai-thac-bao-ve/b-bao-ve-nguon-loi/khu-ba309o-to300n-bie309n-co300n-co309-111a-da323ng-sinh-ho323c-va300-ca301c-bie323n-pha301p-ba309o-to300n/ [Accessed 30/07/ 2015].

GOOGLEMAP. 2015. *Con Co Island MPA*. Google.

IUCN 2015. Con Co Marine Protected Area. *In:* IUCN (ed.) *Evaluation of Management Effectiveness of MPAs in Vietnam* IUCN

LAODONG. 2015. *Con Co Island* [Online]. Available: http://laodong.com.vn/lao-dong-cuoi-tuan/con-co-dao-tien-tieu-290956.bld [Accessed 31/07/ 2015].

VIETNAMTOURISM. 2015. *Con Co Island set to become national tourist hotspot* [Online]. Available: http://www.vietnamtourism.com/en/index.php/news/items/9371 [Accessed 31/07/ 2015].

CU LAO CHAM MARINE PROTECTED AREA

1. Background

Name of MPA : Cu Lao Cham MPA

Year of Establishment: 2005

City/province: Hoi An- Quang Nam Province

State funding: 4.2 billion VND over 3 years funded by MOST for coral reef protection; 15 billion VND/18 months invested in mangrove forest recovery project which is managed by MONRE with technical advice from MARD.

Site entrance fee: 40,000 VND/ticket.

Under the jurisdiction of: People's Committee of Hoi An City (since 2013)

Population: 3000 inhabitants (560 households)

MPA Human Resources: 41 staff (5 staff in Marine research dept.)

IUCN Category: I

Other funding sources: local funding sources and fund received from NGOs

Income generated from tourism: 4.4 billion VND (2014)

2. Bio-geographical context

Geographical Location:

Cu Lao Cham archipelago consists of 8 islands (namely Hon Lao, Hon Dai, Hon Mo, Hon Kho Me, Hon Kho Con, Hon Tai, Hon Ong island) lying 18km offshore from Hoi An ancient town. The archipelago is located at 15°52' to 16°00'N and from 108°22' to 108°44'E in the Eastern part of Quang Nam Province (as shown in figure 1)

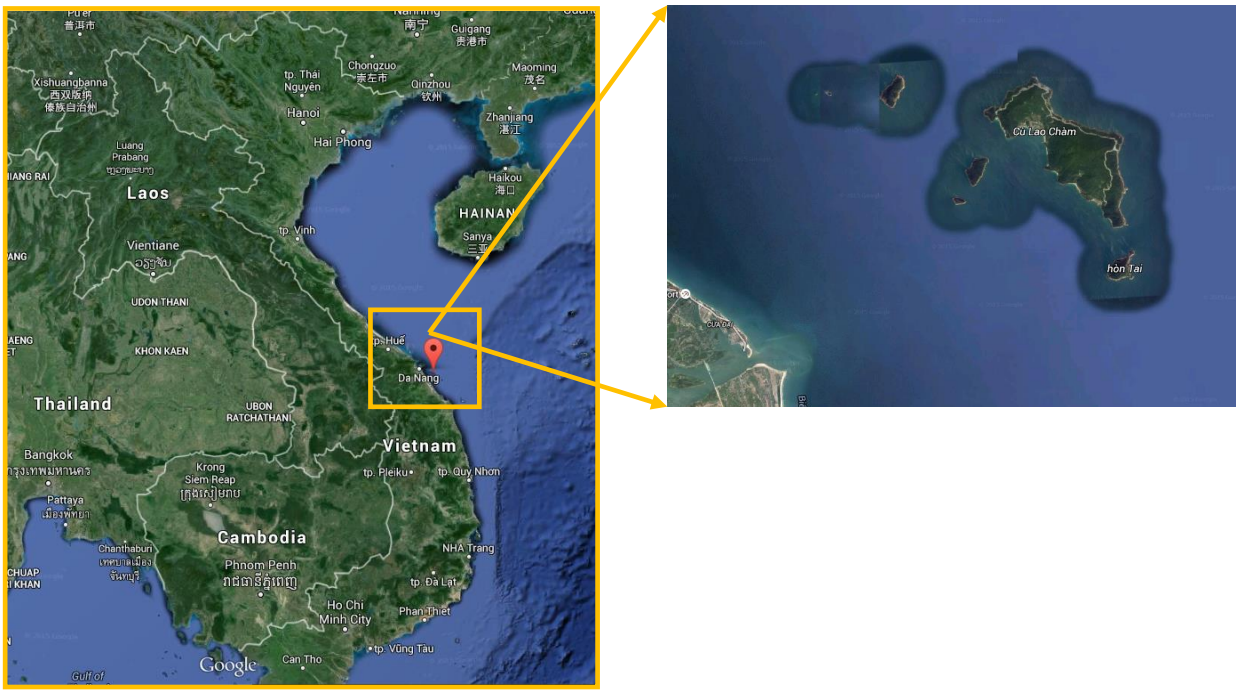


Figure 1. Location of Cu Lao Cham MPA (GoogleMap, 2015)

Cu Lao Cham MPA is comprised of both protected marine waters and island nature reserve. The terrestrial area covers 5.95km^2 of protected forest and 7.9km^2 of rehabilitation forests. The marine component covers 16.5km^2 of coral reef and 5km^2 of seagrass bed.

Species diversity: 277 coral species, 270 reef fish species, 76 seaweed species, 5 sea grass species, 4 lobster species, 97 molluscs, and 11 species of echinoderms (CulaochamMPA, 2014)

Target resources:

- Fringing reefs
- Seagrass bed
- Lobster
- Abalone
- Sea snail (*cellana*)
- Giant clam etc.
- Currently the MPA MB is proposing include mangrove forests and nesting grounds of turtles in the list of target resources

Zoning plan: The functional zones according to Decision 88/2005 are shown in figure 2 (Trinh, 2006):
Core zone (strictly protected zone) 1.26km^2 : all activities ranging from collecting of corals to diving, snorkeling, swing are permanently banned
Ecological rehabilitation zone-2.25km^2: certain activities such as construction, anchoring in coral reef areas; any kinds of resource harvesting
Tourism development zone 1.39km^2: focuses on developing tourism activities to generate income for local communities and controlled by the MPA MB (activities include scuba diving, sailing, research and education, coral reefs watching by glass bottom boats etc.)
Sustainable exploitation zone: allows fishing using suitable gears and aquaculture production for local communities' income generation
Community development zone(1.3km^2)
Buffer zone (120,02km^2)

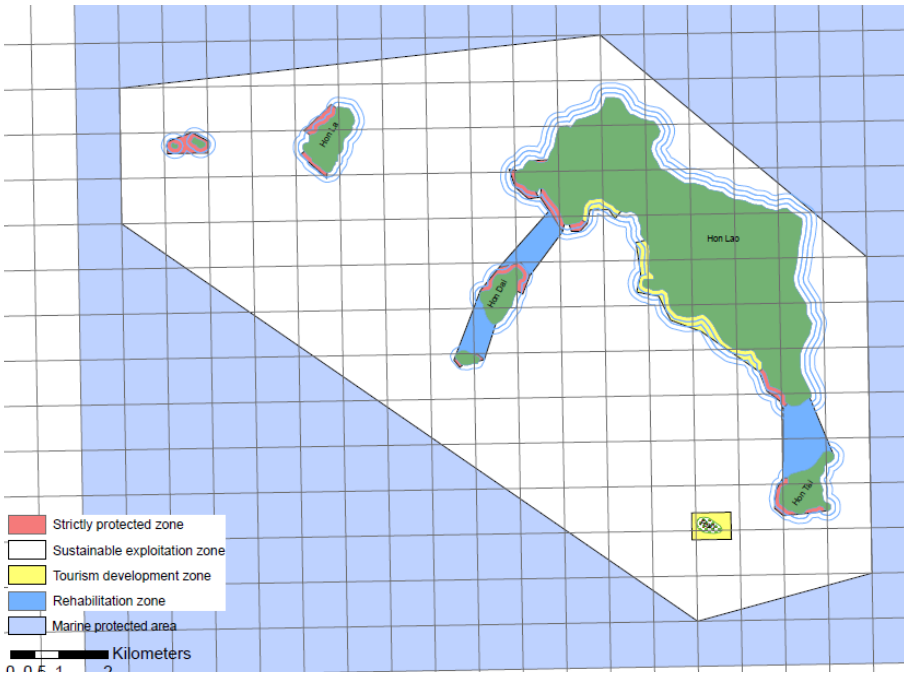


Figure 2. Cu Lao Cham MPA (Source: Cu Lao Cham MPA Management Board)

3. Socio-economic context

There are about 3000 inhabitants living within the MPA with about 85% of citizens are heavily dependent on fishing as their main source of income generation. The rest produce their income from agriculture, small businesses and services (Nhung TT, 2010). Tourism activities have boomed since 2009 when Cu Lao Cham was designated as UNESCO biosphere reserve. In 2014, the site hosted about 240,000 tourists, compared to only 167,000 tourists in 2013 (Hanoitimes, 2014),

4. Primary threats to target resources

- Overfishing
- Coral exploitation for lime production (before 1994)
- Harvesting of reef fish
- Natural disasters such as storm
- Pollution: oil spill
- Run-offs via Thu Bon River etc.
- Rapid tourism development since 2009

5. Management plan and effectiveness

Key stakeholders involved in management of the MPA: governments, local communities and private sector (IUCN, 2015)

Authority of MPA MB: MPA MB is basically a non-administrative technical unit which has no mandate to impose any sanction against violation, sometimes provides technical advice to Hoi An People's committee regarding the MPA issues. Cu Lao Cham MPA MB does share authority with local police and Border guards (IUCN, 2015)

Planning documents used in daily management activities: Management plan (2014-2018), annual work plan (IUCN, 2015)

Programme areas prioritised in management plan: Education and communications; research and monitoring; Enforcement and Surveillance; Stakeholder engagement. All of these have their clearly articulated objectives (IUCN, 2015)

Management plan implementation: The management plan has been implemented since 2009.

Management effectiveness assessment programme in place: The management effectiveness has been evaluated using indicators i.e. percent of activities laid out in the Management plan has been achieved. In addition, effectiveness sometimes can be assessed based on the coverage of reefs and the degree of community participation (IUCN, 2015)

6. References

CULAOCHAMMPA. 2014. *Building Resilience in Hoi An city, Vietnam through the Cham Islands Marine Protected Area* [Online]. Hoi An: CuLaoChamMPA. Available: http://www.culaochammpa.com.vn/index.php?option=com_content&view=article&id=490%3Axay-dng-kh-nng-thich-ng-cho-thanh-ph-hi-an-qung-nam-thong-qua-khu-bo-tn-bin-cu-lao-cham&catid=48%3Anghien-cu-&Itemid=69&lang=en [Accessed 29/07/ 2015].

GOOGLEMAP. 2015. *Cu Lao Cham MPA*, 200km. Google

HANOITIMES. 2014. *Cu Lao Cham receives massive tourists* [Online]. Hanoi: talkvietnam. Available: http://www.talkvietnam.com/2014/09/cu-lao-cham-receives-massive-tourists/ [Accessed 29/07/ 2015].

IUCN 2015. Cu Lao Cham MPA. *In:* IUCN (ed.) *Management Effectiveness Evaluation of MPAs In Vietnam- Surveyed Questionaires.* Hanoi, Vietnam IUCN

NHUNG TT, N. 2010. *Effectiveness evaluation of A Marine Protected Area in Vietnam - The Cu Lao Cham MPA Case Study* Master in Fisheries and Aquaculture Management and Economics Master, University of Tromso.

TRINH, C. M. 2006. Completion Report on the Cham Islands MPA Project's Activities (10/2003 – 9/2006). *In:* NAM, P. S. C. O. Q. (ed.) *Cham Islands MPA Management Board,.* Hoi An.

NHA TRANG BAY MARINE PROTECTED AREA

1. Background

Name of MPA : Nha Trang Bay MPA

Under the jurisdiction of: Nha Trang City People's committee (since 2013)

Year of Establishment: 2001

Population: 4700 inhabitants (4 villages)

City/province: Nha Trang – Khanh Hoa Province

MPA Human Resources: 97 staff (5 staff in Marine Conservation Dept)

Size of MPA: 160 km^2 including 122km^2 of marine area

IUCN Category: I

State funding: None

Other funding sources: local funding sources and fund received from NGOs

Site entrance fee: 22,000 VND/ticket (Hon Mun island) and 66,000 VND/diving in Hon Mun

Income generated from tourism: 3 billion VND annually obtained from site entrance and diving fee in Hon Mun island

2. Bio-geographical context

Geographical Location:

Nha Trang Bay MPA comprises of 9 islands (Hon Tre is the largest island, Hon Mun, Hon Tam, Hon Mot, Hon Mieu etc.). The surrounding waters with approximate coordinates 12°09'-12°17'N and 109°13'-109°23'E, and lies offshore from Nha Trang City, Khanh Hoa Province, along the coast of central southern Vietnam (Yen and Adrien, 2002) as shown in figure 1.

Figure 1. Location of Nha Trang Bay MPA (GoogleMap, 2015)

Biodiversity: Biodiversity in Nha Trang Bay MPA is comprised of 350 species of building reef building corals (accounted for 40% of the world's coral species), 220 species of demersal fish, 160 species of molluscs, 62 species of algae and sea-grass, and also shares significant affinities with the Indo-Pacific region (Tuan et al., 2005)

Target resources:

- Coral reefs
- Reef fish, molluscs, echinoderms, crustaceans,
- Seaweed, algae, mangrove forests

Zoning plan: The MPA consists of 3 zones: the core, buffer and transition zone. The total area of NTB is 160km^2 including 122km^2 marine area.

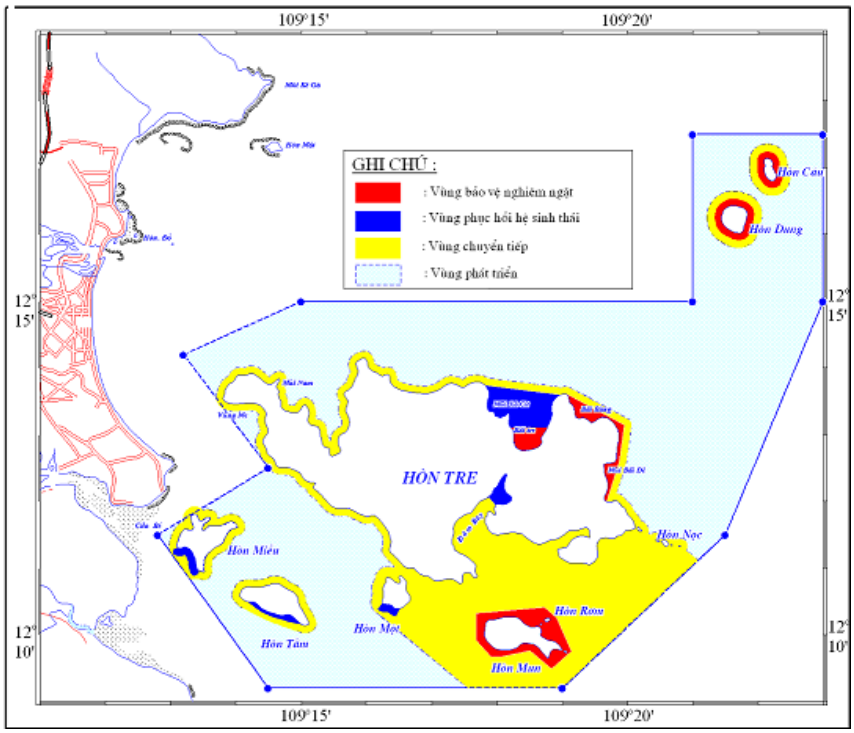


Figure 2. Zoning Map of Nha Trang Bay MPA

3. Socio-economic context

There are about 4,700 inhabitants living within NTB MPA and dispersed in 4 villages Bich Dam, Vung Ngan, Tri Nguyen and Hon Mot. 79% of these villagers depend on fishing as their primary source of income generation (Pham et al., 2005). However, the recently rapid development of tourism sector has led to the relocation of local villagers to other locations. NTB attracts about 600,000 tourists (including 60,000 foreign tourists) annually. Diving and snorkelling are main activities in NTB which are favoured by foreign tourists other than local tourists. Development in Tourism has also led to increases in other economic activities such as restaurants, hotels and resorts.

4. Primary threats to target resources

- Overfishing

- Illegal coral exploitation for tourism development
- Disturbances in bottom sediment due to harbour dredging and anchoring
- Water pollution in the Bay

5. Management plan and effectiveness

Key stakeholders involved in management of the MPA: Khanh Hoa Provincial People's Committee, Provincial departments and agencies such as department of traffic, border guards, waterway police; Nha Trang City People's Committee, departments and People's committee of communes, villages (IUCN, 2015).

Authority of MPA MB: MPA MB is basically a non-administrative technical unit which has no mandate to impose any sanction against violation. At the moment, the MPA MB has an authority to construct management regulation, to contribute to functional zoning of the MPA, and to carry out routine monitoring activities. The authority has been shared amongst MPA MB with fisheries inspector, Border guards, waterway polices etc. Nha Trang City People's Committee established a joint working unit to monitor and handle violations in Nha Trang Bay (IUCN, 2015)

Planning documents used in daily management activities: Management plan (5 year reviewing cycle), and Annual Work Plan (IUCN, 2015)

Programme areas prioritised in management plan: Education and communications; research and monitoring; Enforcement and Surveillance; Stakeholder engagement. All of these have their clearly articulated objectives (IUCN, 2015)

Management plan implementation: The management plan has been proposed but has not been ratified by the local government. (IUCN, 2015)

Management effectiveness assessment programme in place: The management effectiveness has been evaluated using indicators i.e. percent of activities laid out in the Management plan has been achieved; the quality of work on 6 month or yearly basis (IUCN, 2015)

6. References

GOOGLEMAP. 2015. *Nha Trang Bay MPA*, 100km

IUCN 2015. Nha Trang Bay MPA. *In:* IUCN (ed.) *Evaluation of management effectiveness of MPA in Vietnam- Surveyed questionaires* Hanoi, Vietnam IUCN

PHAM, N. K., TRAN, S. V. & CESAR, H. 2005. *Economic valuation of the Hon Mun Marine Protected Area: Lessons for other marine parks in Vietnam* [Online]. Research Gate. Available: http://www.prem-online.org/archive/8/doc/PREM%20WP%2005-13.pdf [Accessed 28/05/ 2015].

TUAN, V. S., DEVANTIER, L. M., LONG, N. V., TUYEN, H. T. & HOA, N. X. 2005. Marine and coastal habitats of Nha Trang Bay Marine Protected Area. *Reassessment 2002–2005.* Nha Trang, Vietnam Institute of Oceanography.

YEN, N. T. H. & ADRIEN, B. 2002. Socio-economic assessment of the potential implications of the establishment of the Hon Mun MPA, Nha Trang, Vietnam,. *Community Development Report 1.* Hon Mun Authorities.

NUI CHUA MARINE PROTECTED AREA

1. Background

Name of MPA : Nui Chua National Park

Under the jurisdiction of: DARD of Ninh Thuan Province

Year of Establishment: 2008

Population: 89,420 inhabitants

City/province: Ninh Hai- Ninh Thuan Province

MPA Human Resources: 5 staff working in MPA Management Department of NP management board

Size of MPA: 298.65km^2 with 73.52km^2 of marine area (Hoi, 2014)

IUCN Category: I

State funding: Central state funding allocated to infrastructure

Other funding sources: MPA operation cost is funded by local government

Site entrance fee: 10,000 VND/ticket

Income generated from tourism: 949,386,500 VND

2. Bio-geographical context

Geographical Location:

Nui Chua National Park has geographical coordinates of 11°35' - 11°48'N, 109°03' - 109°14'E (as shown in figure 1). The coastal waters of Nui Chua NP are characterised by a unique nature of deep water and exchange currents. In addition, the NP is also influenced by upwelling effects which gives coral reefs here a high degree of adaptability to sea level rise.

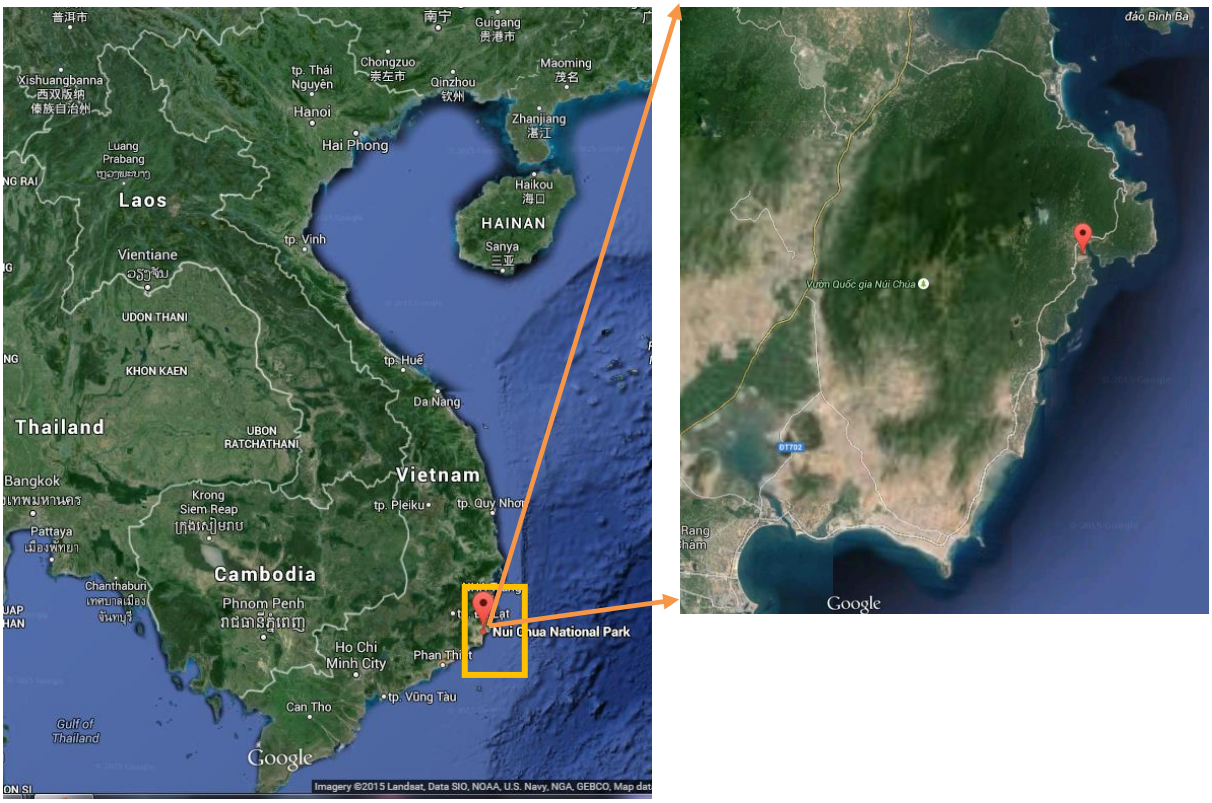


Figure 1. Location of Nui Chua National Park (GoogleMap, 2015)

Biodiversity: The coastal waters of Nui Chua NP are rich in marine resources with 334 species of coral; 260 species of reef fish, 115 species of molluscs; 24 species of crustaceans; 3 species of marine turtles and seagrass beds.

Target resources:

- Coral reef
- Seagrass bed
- Sea turtles
- Forest and marine landscapes
- Other species: Snail, giant clams etc.

Zoning plan: Nui Chua MPA consists of 5.68km^2 of strictly protected zone, 1km^2 of sea turtle protection zone, 0.84km^2 of seagrass protection zone, 62.99km^2 of exploitation zone; and 3.29km^2 of ecotourism zone (figure 2)

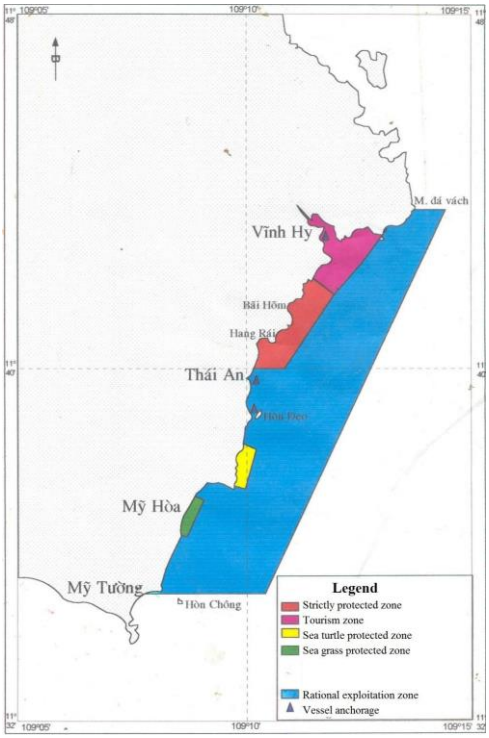


Figure 2. Zoning map of Nui Chua MPA (source: Nui Chua NP MB)

3. Socio-economic context

Nui Chua MPA is heavily influenced by people from 7 villages (Khanh Hoi, My Hiep, My Tan 1, My Tan 2, My Hoa, Thai An, Vinh Hy) are seriously dependant on marine resources. Especially Vinh Hy Village where most households have no or limited agriculture land, their lives mainly depend on fishing (265 fishing households) (Trung et al., 2008). The education level of local people is low with only 10% graduated from high school and higher level. Therefore, apart from fishing, people work as servicers and labourers for producing income (Nga, 2012). Tourism sector is also developing in Nui Chua National Park with 30,000 to 40,000 visitors come to Nui Chua annually (IUCN, 2015).

4. Primary threats to target resources

- Overexploitation of marine resources; destructive fishing practices using explosives, diving to collect snail at night (mostly carried out by outsiders)
- Agriculture runoffs (containing pesticides)
- Aquaculture production
- Invasive species such as crown of thorns starfish (*Acanthaster Planci*) migrated from Nha Trang
- Nuclear power plant
- Sewage pipes directly discharged into the sea

5. Management plan and effectiveness

Key stakeholders involved in management of the MPA: Department of Agriculture and Rural Development; Border Guard; Sub-Department of Capture Fisheries and Aquatic Resource Protection; Police; People's Committee of District, Communes; Forest rangers; Fisheries inspector; local communities; other departments in Nui Chua National Park (IUCN, 2015)

Authority of MPA MB: MPA MB is a specialised department of Nui Chua National Park which is under the jurisdiction of DARD. The MPA Management Unit has mandates to manage, protect and develop the MPA in accordance with MPA regulations. The NP MB shares its jurisdiction with other stakeholders (IUCN, 2015)

Planning documents used in daily management activities: Strategic plan and annual work plan. (IUCN, 2015)

Management plan implementation: A 5 year management plan for 2010-2015 was developed but was not ratified by local government due to high cost of implementation (IUCN, 2015).

Management effectiveness assessment programme in place: The management effectiveness is evaluated via routine meetings, monitoring programmes, annual reef checks, logbook, increases and decreases in number of violations (IUCN, 2015).

6. References

GOOGLEMAP. 2015. *Nui Chua National Park*, 5km Google

HOI, N. C. 2014. Application of spatial planning in establishing a system of marine protected areas for sustainable fisheries management in Vietnam. *Journal of The Marine Biological Association of India,* 56**,** 28-33.

IUCN 2015. Nui Chua National Park *In:* IUCN (ed.) *Evaluation of Management Effectiveness of MPAs in Vietnam*

NGA, V. T. T. 2012. *Evaluating the effectiveness of co-management in Nui Chua National Park Marine Protected Area Ninh Thuan Province, Vietnam.* Master of Science The Norwegian College of Fishery Science, Norway and Nha Trang University, Vietnam.

TRUNG, N. H., HA, N. T., XIEM, T. X., DIEP, P. V., TRINH, T. T., TRI, H. M., NGOC, N. T. B. & KHA, N. V. 2008. Assessment of natural, environmental and socio-economic conditions of villages around marine protected area of Nui Chua National Park. *Report of Sustainable Livelihood in and around marine protected areas Conponent.*

HON CAU MARINE PROTECTED AREA

1. Background

Name of MPA : Hon Cau MPA

Under the jurisdiction of: Department of Agriculture and Rural Development of Binh Thuan Province

Year of Establishment: 2011

Population: No residents in the MPA

City/province: Tuy Phong- Binh Thuan Province

MPA Human Resources: 11 staff

Size of MPA: 125 km^2 with the marine area of 123.9 km^2 (Hoi, 2014)

IUCN Category: II

State funding: None

Other funding sources: MPA operation fee is funded by local government; Funding from IUCN under Marine turtle conservation programme

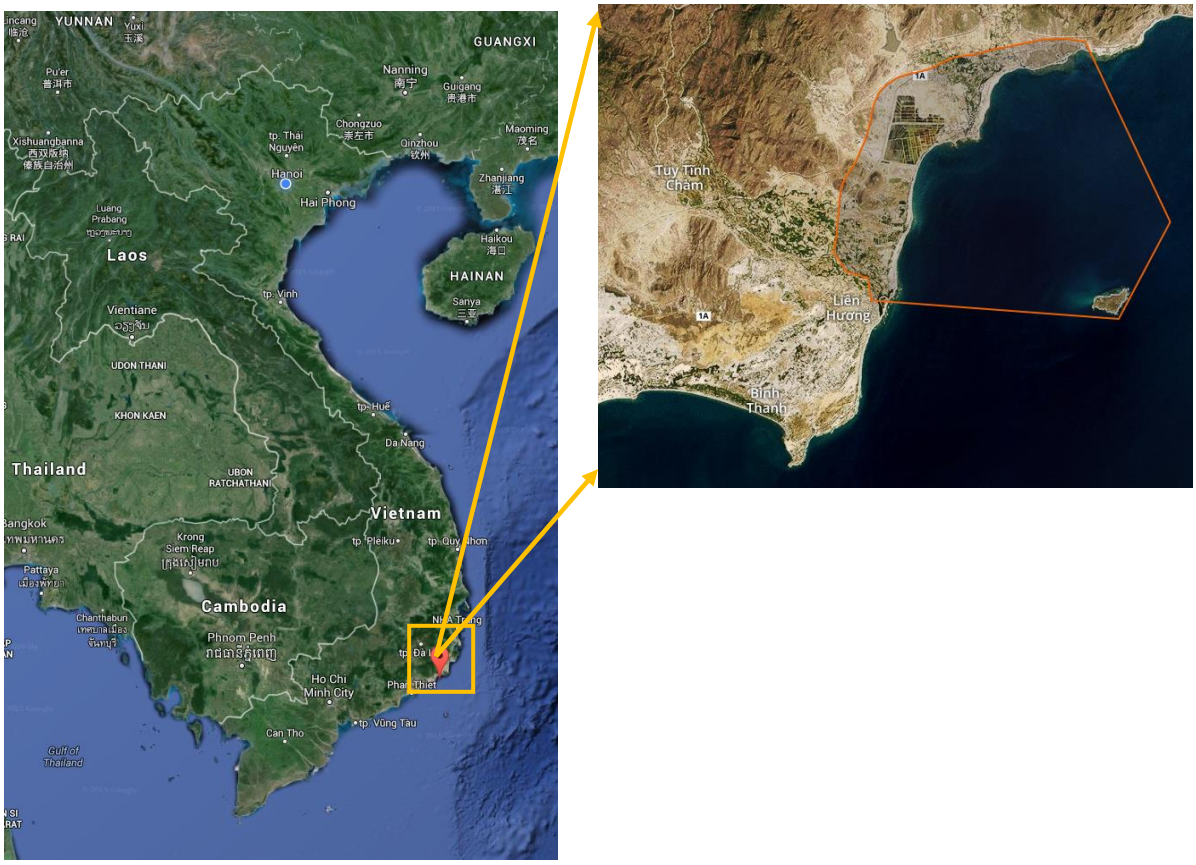
Site entrance fee: None

Income generated from tourism: None

2. Bio-geographical context

Geographical Location:

Hon Cau (also known as Cu Lao Cau) is a small and young island situated 9km away from the seashore in Tuy Phong district- Binh Thuan Province. The MPA is centred on this low and granite island, with the coordinates of 11°13' - 11°19'N, 108°44' - 108°51'E (Birdlife, 2004) (as shown in figure 1)



Biodiversity:
The biodiversity in Hon Cau is characterised by a complex of pristine coral reefs stretching over 2km with about 234 coral species. The waters surrounding Hon Cau are home to many rare marine species including hawksbill sea turtles, lobsters, reef fish etc. According to statistics, there are about 175 phytoplankton species, 163 seaweed species, 147 coral species, 80 mollusc species, 46 crustacean species, 26 echinoderm species and 211 fish species (Hoi et al., 1998).

Target resources:

- Marine turtles
- Coral reefs
- Seagrass beds
- Other Aquatic plants and animals

Zoning plan: the functional zones of Hon Cau MPA are shown in figure 2:
Core zone (strictly protected zone)-125km2
Ecological rehabilitation zone-8.80km^2
Development zone- 92.32km^2
Buffer zone-12.1 km^2

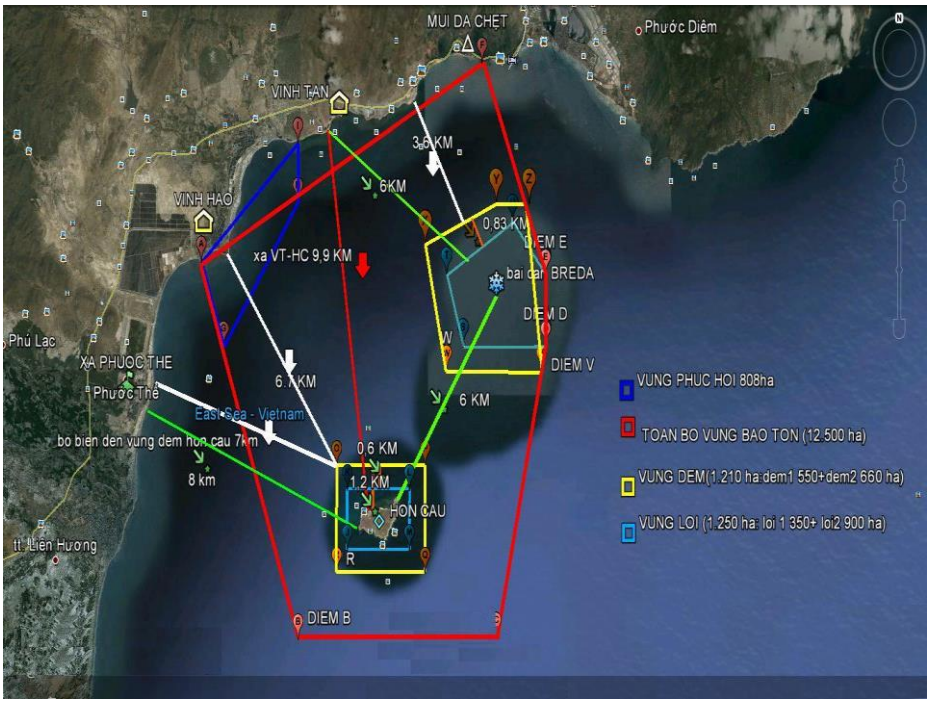


Figure 2. Zoning map of Hon Cau MPA (Source: Hon Cau MPA Management Board)

3. Socio-economic context

The waters surrounding Hon Cau island make up important fishing grounds for fishers from Binh Thuan and Ninh Thuan Province. Fishing activities in Hon Cau have been known as unsustainable due to the use of dynamite and trawlers which have negative impacts on coral reef ecosystems. It has been difficult for MPA staff to take control of these outsiders. Recently, Tourism in Hon Cau has not been officially promoted by the MPA MB. However according to statistics, annually there are about 1600 to 1800 visitors that come to Hon Cau by their own modes of transport (IUCN, 2015).

4. Primary threats to target resources

- Destructive fishing practices: diving fishing and using trawlers
- Impacts from Vinh Tan Thermal Power Plant
- Domestic waste from boats, and local communities living within or around the MPA
- Aquaculture activities

5. Management plan and effectiveness

Key stakeholders involved in management of the MPA: People's committee of Tuy Phong District; Fisheries department of Binh Thuan Province; Department of Agriculture and Rural Development; Military agency; local communities (IUCN, 2015)

Authority of MPA MB: Hon Cau MPA MB works in collaboration with industries and local communities to manage all activities in the MPA, but the MB has no mandate to impose sanctions and there is no mechanism for handling of violations; the MB also shares jurisdiction with military agencies, fisheries inspectors, and other related agencies (IUCN, 2015)

Planning documents used in daily management activities: 5 year management plan (2013-2018), annual work plan (IUCN, 2015)

Management plan implementation: The management plan has been implemented for 3 years (IUCN, 2015)

Management effectiveness assessment programme in place: The management effectiveness is usually assessed based on the progress of MPA activities (IUCN, 2015)

6. References

BIRDLIFE 2004. Hon Cau-Vinh Hao Proposed Marine Protected Area. *Sourcebook of Existing and Proposed Protected Areas in Vietnam.* Birdlife

GOOGLEMAP. 2015. *Hon Cau Marine Protected Area*, 200km. Google

HOI, N. C. 2014. Application of spatial planning in establishing a system of marine protected areas for sustainable fisheries management in Vietnam. *Journal of The Marine Biological Association of India,* 56**,** 28-33.

HOI, N. C., YET, N. H. & THANH, D. N. 1998. *Scientific basis for marine protected areas planning,* Hai Phong Hai Phong Institute of Oceanography.

IUCN 2015. Hon Cau Marine Protected Area *Evaluation of Management Effectiveness of MPAs in Vietnam* IUCN

CON DAO MARINE PROTECTED AREA

1. Background

Name of MPA : Con Dao National Park

Under the jurisdiction of: People's Committee of Ba Ria- Vung Tau Province

Year of Establishment: 2002

Population: 7000 inhabitants

City/province: Ba Ria-Vung Tau Province

MPA Human Resources: 112 staff (4 staff in marine and wetland conservation department)

Size of MPA: 294km^2 with 230km^2 of marine area

IUCN Category: I

State funding: 10 billion VND on regular activities; and 3.2 billion on Irregular activities including Sea Patrol (1.2 billion), and research, dissemination (2 billion)

Other funding sources: irregular via projects by WAR, IUCN, VCF, East Asia Wetland Conservation Fund

Site entrance fee: No

Income generated from Tourism: 4.5 billion VND

2. Bio-geographical context

Geographical Location: Con Dao archipelago is located in Southern Vietnam, 185km east from the mainland, centralised by Con Son Island (at 8^{o}34' to 8^{o}49'N and from 106^{o}31' to 106^{o}43'E) (as shown in figure 1)

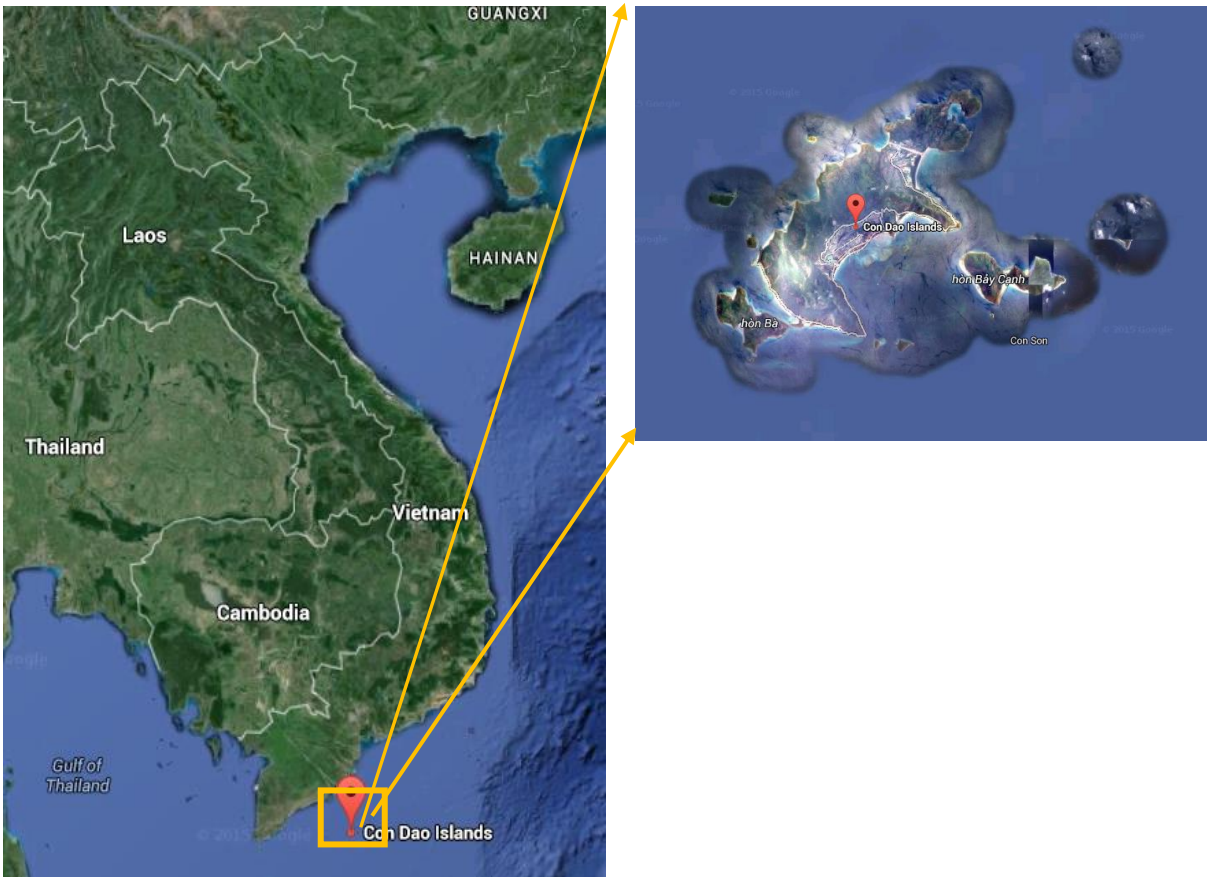


Figure 1. Location of Con Dao National Park (Map, 2015)

Target resources:

- Forest resources: 1,077 plant species, 160 animal species including 60 Red Listed species
- Marine resources: 1,700 marine species including 70 red listed species
- Forest ecosystems on lower mountain, on arid sand dunes, mangroves seagrass and coral reef ecosystems
- Some rare species in danger of extinction such as Dugong, sea turtles, dolphins, Nicoba Pigeon, etc.

Zoning plan: CDNP was selected as a pilot site for the National MSP- whereby the site was categories into 8 functional zones such as Strict protection zone; fisheries conservation zone; marine tourism zone; sustainable harvest zone; and anchorage zone (UNDP, 2001) (figure 2).

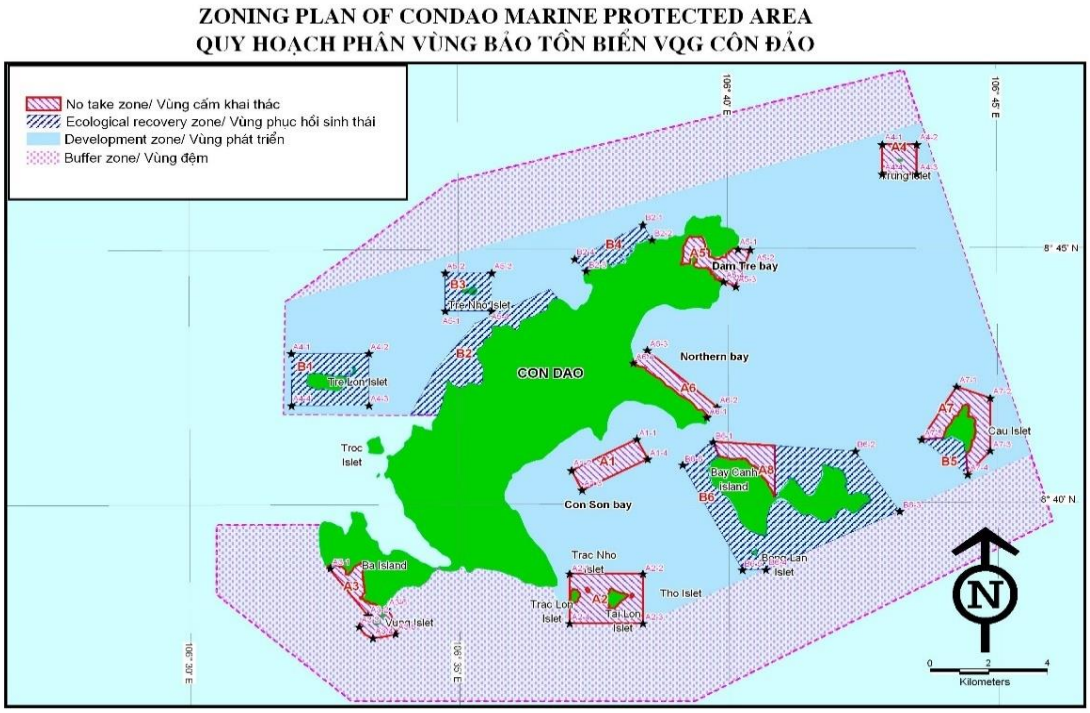


Figure 2. Con Dao National Park. Source: (VanDerMeeren and Nguyen, 2009)

3. Socio-economic context

The NP consists of 16 islands and islets. The largest and the only inhabited is Con Son Island with 5610 inhabitants, 1348 households on Con Son Island. Annual population growth rate of Con Dao is 6.36%, of this figure 5.27% contributed by migrants, and 1.09% is made up by the local annual growth rate. In 2011, the GDP growth rate of the site was 10%. In 2013, the economic structure of the site was 86.95% Services and tourism; 7.95% industry and construction; and 5.1% agriculture, forestry and fisheries (Vietnamnets, 2014).

4. Primary threats to target resources

- Destructive fishing practices: trawlers, high pressure lamps etc.
- Harvesting of rare and high value species such as sea turtles, turtles' eggs sold to

tourists
- Marine pollution: oil spills
- Natural disasters: storms, ocean warming etc.
- Poaching, illegal fishing

5. Management plan and effectiveness

Key stakeholders involved in management of the MPA: local communities (fishermen, hotel owners etc.); tourism operators; tourists; border defences, fisheries resource protection groups; local authorities; research institutes; WWF; IUCN; Universities etc. (IUCN, 2015)

Authority of MPA MB: Con Dao NP MB has its authority in enforcing law and regulations on the conservation of forests and marine areas (e.g patrolling, imposing administrative sanctions); organising tourism activities while complying with the existing regulations (self-organising; joint venturing, associating; leasing of forest environment: giving consultation to PPC to make decisions on forest leases for tourism development but so far no enterprise has engaged in this business); conducting scientific research and adopting legal provisions to give some regulations on terrestrial and marine conservation (IUCN, 2015) .

Planning documents used in daily management activities: Strategic Plan (Con Dao NP development investment master plan for 2009-2020); Annual work plan (IUCN, 2015).

Management plan implementation: The management plan has been implemented along with the NP's development plan for 2009-2020 (IUCN, 2015)

Management effectiveness assessment programme in place: Evaluation of the management efficiency by calculating the restored resources (whether the coral coverage increased or not, number of clams/area or number of violations reduced or not, number of target groups accessed to communication/ propaganda) (IUCN, 2015)

6. References

IUCN 2015. Con Dao Marine Protected Area. *In:* IUCN (ed.) *Evaluation on Marine Protected Area (MPA) management effectiveness: Surveyed questionaires.* Hanoi, Vietnam IUCN

MAP, G. E. 2015 *Con Dao Islands*, 200km

UNDP 2001. Biodiversity Conservation and Sustainable Use of Marine Resources at Con Dao National Park New York UNDP, GEF

VANDERMEEREN, S. & NGUYEN, H. T. P. 2009. Final Evaluation of the UNDP / GEF Project: Coastal and Marine Biodiversity Conservation and Sustainable Use in the Con Dao islands region. *In:* UNDP/GEF (ed.). Vietnam

VIETNAMNETS. 2014. *Con Dao - A "Pearl" of the East Sea* [Online]. Hanoi: Vietnamnet Available: http://vietnam.vnanet.vn/english/con-dao-a-pearl-of-the-east-sea/103127.html [Accessed 22/04/ 2015].

PHU QUOC MARINE PROTECTED AREA

1. Background

Name of MPA : Phu Quoc MPA

Under the jurisdiction of: DARD of Kien Giang Province

Year of Establishment: 2007

Population: 100,000 inhabitants

City/province: Phu Quoc-Kien Giang Province

MPA Human Resources: 8 staff

Size of MPA: 336.57km^2 with 187km^2 of marine area (Hoi, 2014)

IUCN Category: II

State funding: None

Other funding sources: in 2015, funding from local government of 2 bil VND allocated to cover MPA activities such as remuneration, communication, patrolling, monitoring life vest installation, maintenance, procurement; other sources: WAR, WWF

Site entrance fee: 5,000 VND/ticket

Income generated from Tourism: 20 million VND achieved from entrance ticket (2014)

2. Bio-geographical context

Geographical Location:
Phu Quoc archipelago consisting of 14 islands lies in the Gulf of Thailand about 40km from the west of the Vietnamese mainland and is located at 9°53' - 10°28'N, 103°49' - 104°05'E (as shown in figure 1) (Birdlife, 2004).

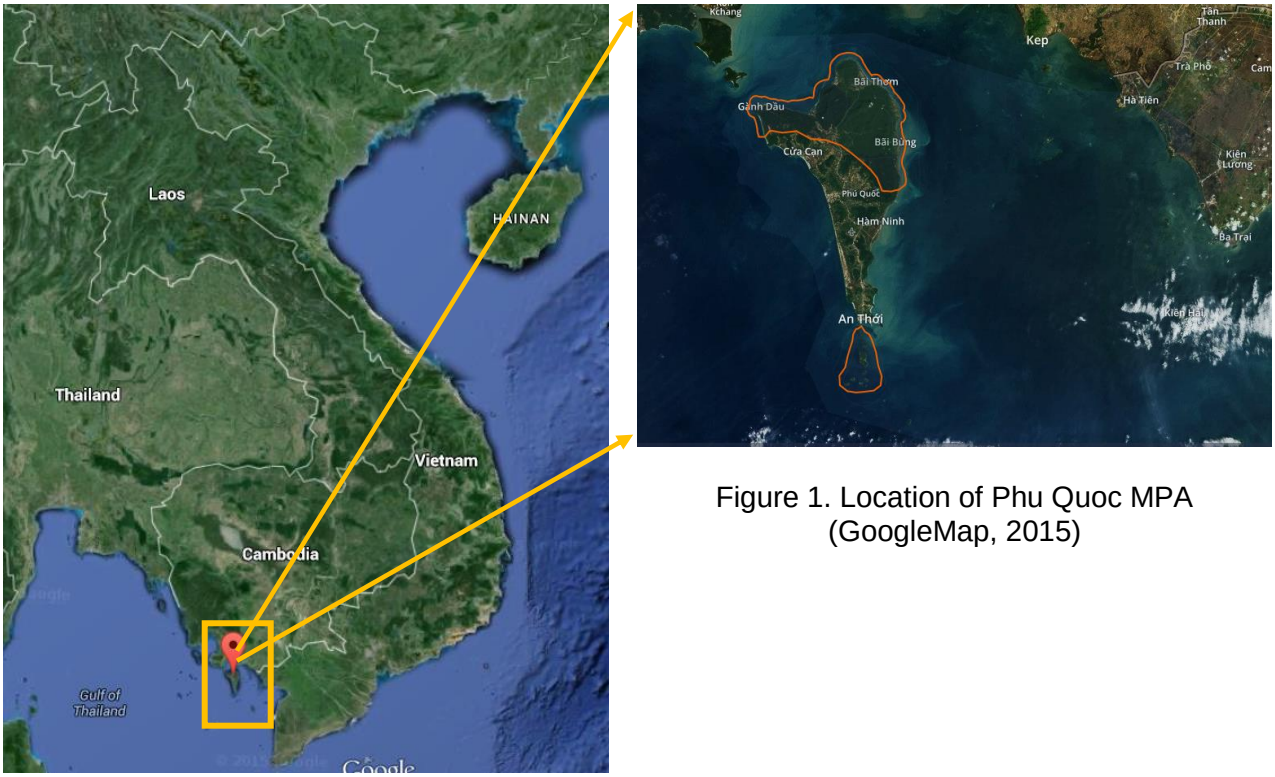


Figure 1. Location of Phu Quoc MPA (GoogleMap, 2015)

Biodiversity: Phu Quoc Sea is one of the richest fishing grounds within the nation with very high

value seafood groups such as shrimp, squid, crab, pearl oyster etc (152 marine fish species (of high economic value); 98 seaweed species; 132 mollusc species); especially is the homeland of dugongs (strictly protected species) with a very large range – 120km^2 of seagrass . In addition, the rich coastal ecosystem consists of 252 coral reef species including hard and soft corals mostly concentrated in the south of Phu Quoc Archipelago (D-Fish, 2013).

Target resources:

- Coral reef ecosystem
- Sea-grass bed
- Mangrove forests
- Endangered and rare species such as green turtle, leather back turtles, dolphin and dugong

Zoning plan: (MONRE, 2014) figure 2
Strictly protected area: 29.52km^2
Ecological rehabilitation area: 135.92km^2
Development zone: 103.18km^2

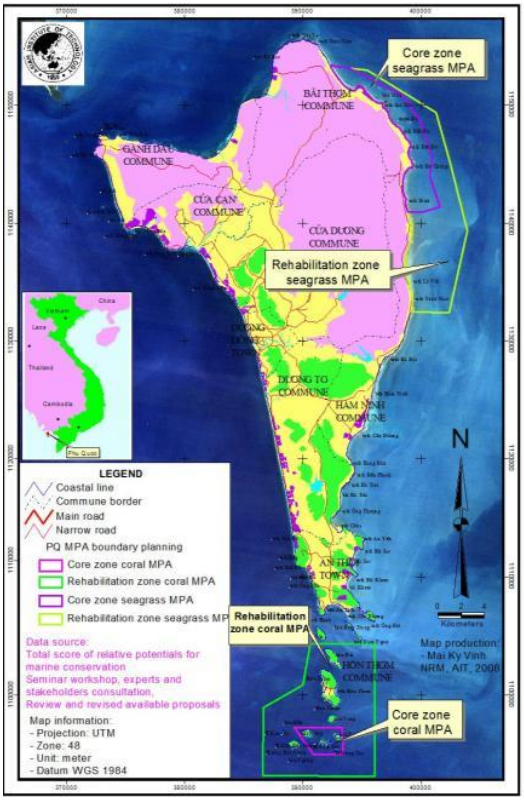


Figure 2. Zoning map of Phu Quoc MPA (Vinh, 2008)

3. Socio-economic context

The waters around the Phu Quoc archipelago are an important fishing ground, not only for the local population but also for fishing communities on mainland Vietnam and, even Thailand (Birdlife, 2004). In 2014, around 540,000 tourists came to Phu Quoc, including: 90,000 foreign visitors; 450,000 domestic visitors. Tourists coming to the beaches contribute 20% to the total visitors in Phu Quoc

4. Primary threats to target resources

- Destructive fishing practices
- Tourist boat anchored onto coral reefs
- Marine Pollution: oil spills
- Diving for collecting of snail and fish
- Trawling (regardless of limitations) in seagrass areas
- Snail farming in seagrass core zone

5. Management plan and effectiveness

Key stakeholders involved in management of the MPA: District Level: Border guard, economic section, Section on Natural Resources and Environment, NP's Protection Forest, local authorities of 3 communes: Ham Ninh, Bai Thom, Hon Thom within the MPA; Provincial level: DARD, DONRE, DOST, Inspection, sub-department of fisheries resources exploitation and protection; Institute of Oceanography Nha Trang; Research Institute for Marine Fisheries Hai Phong; NGO: WAR (IUCN, 2015)

Authority of MPA MB: The MPA MB was established by Kien Giang Province and under the Management of Department of Agriculture and Rural Development (DARD). The MB Co-ordinates with the border guard station in An Thoi, the inspection section of DARD to patrol, control, raise awareness of people living inside MPA and at the same time to motivate, educate them to release sea turtle back into their natural environment; but the MPA MB has no mandate to impose sanctions against any violations (IUCN, 2015).

Planning documents used in daily management activities: Management Plan (developed by MPA manager, staff, external consultant, community members, and other stakeholders) , Annual Work Plan (IUCN, 2015)

Management plan implementation: The 5-year plan (2010-2015) was completed. However, the next 5 year plan has not yet been prepared as the former Provincial Steering Committees is no longer in place (IUCN, 2015)

Management effectiveness assessment programme in place: There is no such programme in place, only an evaluation after 5 year of establishment (IUCN, 2015).

6. References

BIRDLIFE 2004. Phu Quoc Proposed Marine Protected Area. *In:* BIRDLIFE (ed.) *Sourcebook of Existing and Proposed Protected Areas in Vietnam.* Second ed.

D-FISH. 2013. *Biodiversity in Phu Quoc Marine Protected Area and Conservation projects* [Online]. Available: http://www.fistenet.gov.vn/d-khai-thac-bao-ve/b-bao-ve-nguon-loi/111a-da323ng-sinh-ho323c-khu-ba309o-to300n-bie309n-phu301-quo301c-va300-ca301c-du323-a301n-ba309o-to300n/ [Accessed 01/08/ 2015].

GOOGLEMAP. 2015. *Phu Quoc Marine Protected Area*.

HOI, N. C. 2014. Application of spatial planning in establishing a system of marine protected areas for sustainable fisheries management in Vietnam. *Journal of The Marine Biological Association of India,* 56**,** 28-33.

IUCN 2015. Phu Quoc Marine Protected Area. *In:* IUCN (ed.) *Evaluation of Management Effectiveness of MPAs in Vietnam* IUCN

MONRE. 2014. *To need measures to protect Phu Quoc Marine Protected Area* [Online]. Available: http://www.talkvietnam.com/2014/01/to-need-measures-to-protect-phu-quoc-marine-protected-area/ [Accessed 01/08/ 2015].

VINH, M. K. 2008. *GIS-Aided For Marine Conservation Planning: Case Study in Phu Quoc Island* [Online]. Available: http://www.ait.ac.th/research/annual-ait-masters-theses-competition/theses-competition-2008/vinh_nrm_defense_ok2.ppt [Accessed 01/08/ 2015].

ANNEX 3

Viet Nam MPA Network

Management Effectiveness Evaluation Program

Setting National Standards for Results-Based Management for the

16 Marine Protected Areas of Vietnam

Prepared by: Anne Walton

PART 1:

EVALUATING MANAGEMENT CONDITIONS

Identifying Strengths and Weaknesses in Capacity Development

PART 2:

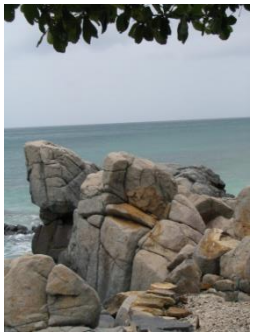
BUILDING A MODEL FOR RESULTS-BASED MANAGEMENT

The Threat Reduction Management Plan Approach for

PART 3:

MONITORING FOR MANAGEMENT EFFECTIVENESS

Estimating Acceptable Range of Variation



PART 4:

RATING THE MPAs STATUS AND TRENDS

Determining of the Management Plan is Achieving the Anticipated Results

Evaluation Program Overview

The Vietnam MPA network consists of 16 marine protected areas (MPAs) intending to protect representative coastal and marine habitats of Vietnam. Since their inception in 2000, only ten of these are considered functional in terms of having a management structure in place, each representing different levels of management capacity and effectiveness in terms of protecting their self-identified target resources.

The *Vietnam MPA Network Management Effectiveness Evaluation Program* for the first time establishes different levels and standards for measuring management effectiveness. This model was built through a series of workshops, surveys and engagements with Vietnam MPA managers and the Ministry of Agriculture and Rural Development (MARD), the evaluation program implementer.

The *Vietnam MPA Network Management Effectiveness Evaluation* Program is designed to be an online system that can be used for internal self-evaluation, or by an external evaluation team. The evaluation program is intended to show progress in terms of MPA site capacity development on an annual basis; and results in terms of how this capacity translates to actual natural resource protection (change in the status and trends of the resources) on a five-year cycle. The evaluation program is also intended to tell a story about what the Vietnam MPA network as a whole is achieving by understanding the status and trends of the natural resources across the entire coast of Vietnam.

There is an additional component that will be added to this evaluation program that is focused on staff competencies measures and standards. That piece will be developed within the next two years after first phase of this system is fully utilized and integrated into the management of MPAs in Vietnam.

There are four parts to the evaluation, and each part should be considered as a progression as follows:

PART 1: EVALUATING MANAGEMENT CONDITIONS

Identifying Strengths and Weaknesses in Capacity Development

This first component of the evaluation should be conducted on an annual basis and includes consideration of the basic operational, infrastructure, administration, management and political setting that supports and ensures both the successful implementation of a site management plan, as well as the realization of results in terms of improved or stabilized condition of the target resources the MPA has been given the responsibility of managing.

This part of the evaluation is applicable to all MPAs, whether newly established or a more mature site that has a solid 5-7 years or more of management under it's belt. Each year of participating in this evaluation should measure improvement towards meeting the standard of an effectively managed MPA. This evaluation is also a reference for both the "strengths" and "weaknesses" of an MPA, and should contribute to an understanding about why or why not the MPA is successfully managed.

PART 2: BUILDING A MODEL FOR RESULTS-BASED MANAGEMENT

The Threat Reduction Management Plan Approach for Protection of Priority Target Resources

This second component of the evaluation should be conducted on a five-year basis and applies to sites that: 1) have an existing management plan and want to ground-truth the soundness of the logic of the plan in terms of addressing threats to their target resources, 2) as guidance or standards for structuring a new management plan for sites that don't yet have one, or 3) for sites that are ready for a five-year review of their management plan and want to be sure their reviewed and revised plan meets these standards.

This part of the evaluation applies specifically to components of a management plan that are focused on reducing human threats to target resources. This component of the model needs to be completed and fully executed through the implementation of a functional management plan before a site can move forward with parts 3 and 4 of the evaluation.

PART 3: MONITORING FOR MANAGEMENT EFFECTIVENESS

Estimating Acceptable Range of Variation

The third component of the process is the selection of indicators of change. Part 3 of the evaluation is a process step that links the results-based management model developed in Part 2 (identification of target resources, threats, management actions and outcomes) and Part 4 (determination on whether results from the management plan are being achieved based on changing status and trends of the target resources). Part 3 not only identifies the indicator of change, but also specifically how different levels of change correlate with acceptable levels in terms of the condition of the target resources. This section would be completed on a five-year cycle, concurrently with Parts 2 and 4.

PART 4: RATING THE MPAs STATUS AND TRENDS

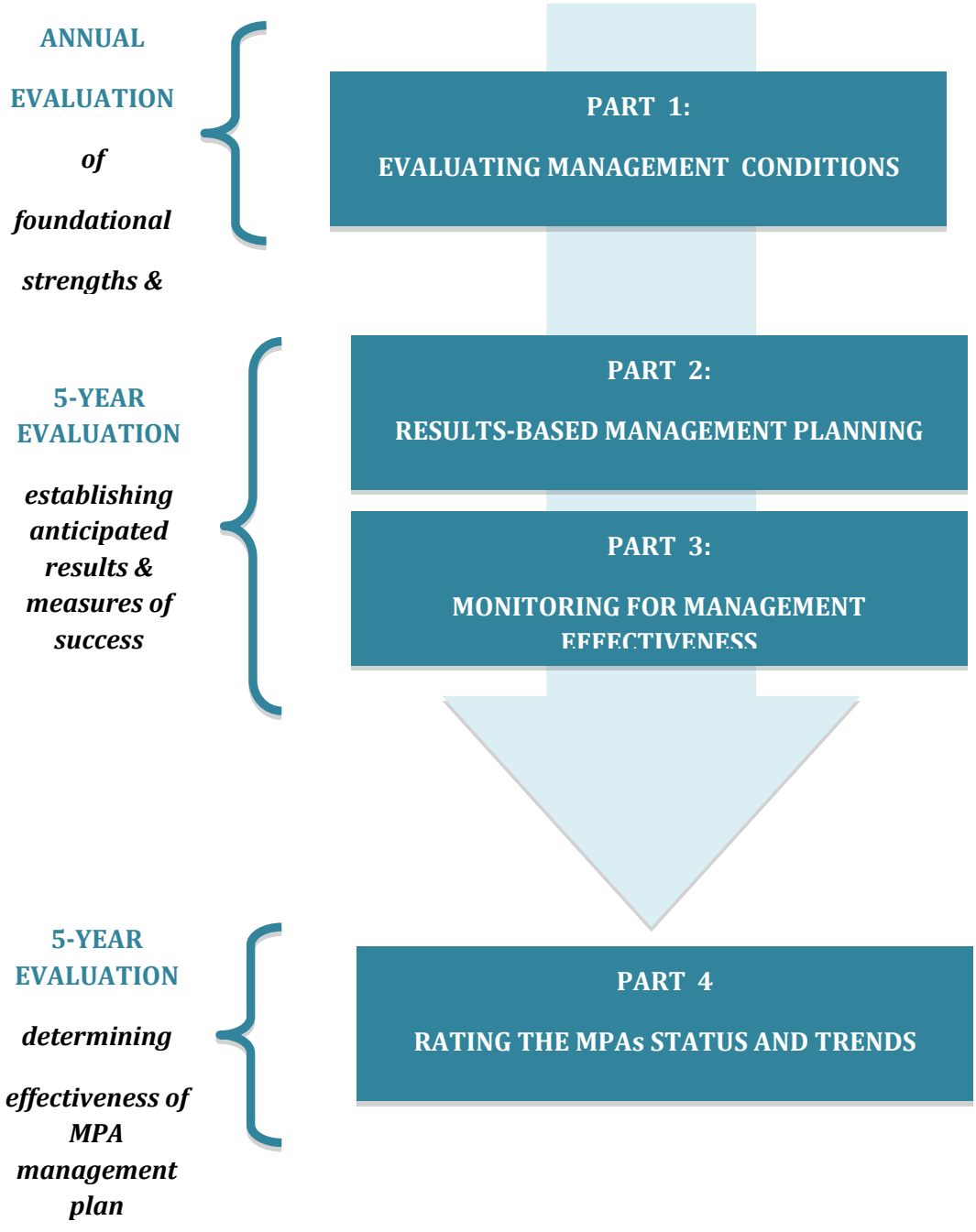
Determining of the Management Plan is Achieving the Anticipated Results

The final component of the process focuses on evaluating whether the results you anticipated when you developed your management framework (Part 2) were actually achieved or not. Depending on the results of the rating of status and trends, it will be clear whether your management strategies or actions are working, or whether you need to adapt your management approach.

If you are not getting results, it may also be worth back-tracking through the evaluation process steps to identify whether there is a flaw in: 1) your choice of indicator or design/ implementation of your monitoring program (Part 3); 2) the management plan logic that you laid out identifying specific management strategies or actions developed to address human use activities and their impacts would result in a change to the condition of the target resource (Part 2); or perhaps your site does not have adequate capacity to fully support successful implementation of your management plan (Part 1). As such, the outcome from each of the first 3 parts of the evaluation should be an indication of why or why not you are seeing specific results in regards to the status and trends of your target resources as revealed in part 4 of the evaluation.

VIETNAM MPA NETWORK

Management Effectiveness 4-Part Evaluation Program Model



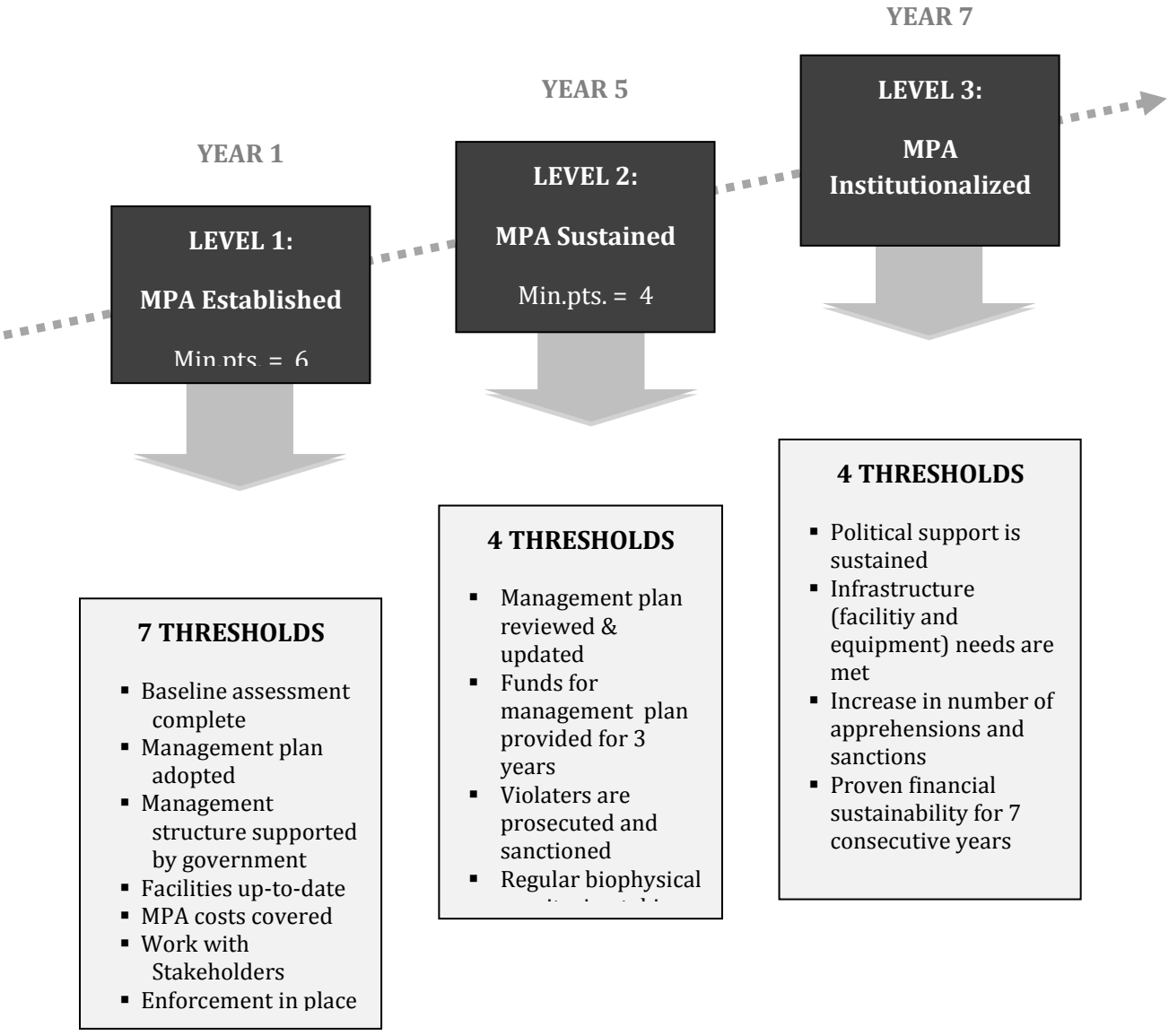
PART 1:

EVALUATING MANAGEMENT CONDITIONS

Identifying Strengths and Weaknesses in Capacity Development

(Modified from the Philippines Marine Protected Area Management Effectiveness Tool)

The *Vietnam MPA Network Evaluating Management Conditions* model can be used as a guide for improving MPA management capacity development at both the individual site level and across the MPA network by using the criteria and thresholds provided in this model. There are 3 basic levels of achievement as indicated below:



There are 3 ways to show results through the *Evaluating Management Conditions* model: 1) overall score, 2) management effectiveness level (1-3), and 3) thresholds achieved (in bold, with a score of 3 instead of just 1). However, note that an MPA can get an "excellent" rating in terms of level of effort put into MPA management but only get a Level 2 rating (MPA Management is Sustained) if not all of the thresholds for Level 3 are met. In any case, this evaluation should allow the MPA to identify specific areas and/or categories for improvement, and if used on an annual basis, show areas where improvement has taken place in comparison to the previous evaluation.	
1. Overall score	Measures level of effort devoted to MPA capacity development (including management structure, infrastructure, staffing, stakeholder engagement, political will, etc.) Higher scores mean greater effort put into MPA capacity development which can potentially increase MPA effectiveness
2. Thresholds Met	Incorporates significantly important activities called "thresholds" that MPA management bodies must meet to enable effective governance of an MPA The following factors must be met in order to achieve a given level of management: - Minimum number of years established - Minimum overall score - All "threshold" questions satisfied for the level and those before it
3. Capacity Development Priorities	There are key management activities that can be organized into the following categories: Establishment of MPA; MPA legitimized; MP developed; Legal, institutional and management framework functional; Operational effectiveness; Sustainable financing; and Enforcement By examining responses to questions in these categories, MPA management can determine where their areas of strengths and weakness are, and focus areas for improvement before the next evaluation

PART 1:

EVALUATING MANAGEMENT CONDITIONS

(to be completed on an annual basis)

Section 1. Management Effectiveness Review Team

A. Management Effectiveness Review Team

No.	Name	Organization	Position/Title	Connection	Contact Info
1					
2					
3					
4					
5					
6					
7					
8					

Section 2. MPA Background Information

A. Designation and Status

MPA Name:	
MPA Size (ha):	
Province:	
Town:	

B. Legal Basis

Year of legal establishment:		
Basis for legal establishment:	[ ] International decree:	
	[ ] Ministerial decree:	
	[ ] Provincial decree:	
	[ ] National Park:	
	[ ] City:	
	[ ] Other:	
Other legal entities with whom the MPA shares jurisdictional authority:		
Stated purpose and need for designation of this site (driver behind designation):		

C. Target Resources (Priority Assets Protected by MPA)

Habitats/Ecosystems	Percentage	Habitats/Ecosystems	Percentage
[ ] Mangrove		[ ] Rocky intertidal	
[ ] Estuary/delta		[ ] Sandy bottom	
[ ] Coral Reef		[ ] Soft bottom	
[ ] Seagrass bed		[ ] Open water	
[ ] Macro-algae		[ ] Deep sea	
[ ] Spawning grounds		[ ] Geologic features	
[ ] Beaches		[ ] Sand dunes	
[ ] Other:		[ ] Other:	
Top 3 priority habitats/ ecosystems of concern: 1. 2. 3.			

Species of Concern	Population Size	Species of Concern	Population Size
[ ] Sea turtles		[ ] dolphins	
[ ] Sea birds		[ ] Lobster	
[ ] Dugong		[ ] Giant clam	
[ ] Cetaceans		[ ] Commercial fish	
[ ] Pinnipeds		[ ] Other:	
[ ] Aquarium fish		[ ] Other:	
Top 3 species of concern: 1. 2. 3.			

D. Threats to Target Resources

Habits/ Ecosystems	Primary Threat(s)	Associated Stakeholder(s)
1.		
2.		
3.		
Species of Concern:	Threat(s)	Associated Stakeholder(s)
1.		
2.		
3.		

Section 3. Evaluating Management Conditions

LEVEL 1 – MPA IS ESTABLISHED (total = 50 items, 63 points)				
Evaluation Criteria/ Guiding Questions		Allowable Points	Actual Points	Remarks & Means of Verification
1.1 Establishment of MPA Based on Sound Practices (8/8) MPA established with the participation of the community based on an informed decision making process				
1.1.1	Purpose and need for MPA clearly established and articulated	0 or 1		

The need for the MPA is based on the need to protect species of concern, habitats of concern, high levels of biodiversity, cultural or socioeconomic value and/or to address specific issues or impacts				
1.1.2	Design of MPA based on setting and need	0 or 1		
The placement, size and location of MPA is based on addressing the purpose and need as indicated in criteria 1.1.1				
1.1.3	MPA concept explained to sand understood by stakeholders	0 or 1		
Affected stakeholders have been oriented to MPA concepts and benefits and accepted as having value				
1.1.4	MPA designation accepted and approved by the community or local government	0 or 1		
Public consultation and engagement in the site selection for the MPA was conducted in order to gain acceptance and support for the MPA				
1.1.5	MPA formally adopted by national government	0 or 1		
The national government has accepted and codified the MPA in law and agrees to support the management of the site by the designated management entity (i.e., management board and/or MPA manager)				
1.1.6	Baseline assessment (condition of MPA) is established	0 or 3		
Baseline survey includes biophysical, socioeconomic assessments and community profile.				
1.2 Management Plan Soundly Developed and Legitimized (8/8) A sound and implementable management plan has been developed and legally recognized so it can be implemented				
1.2.1	Management plan is drafted	0 or 1		
The management plan has been written and presented as documented guidance of what the MPA is to achieve over the life of the management plan (typically 5 years)				
1.2.2	Management plan is prepared in a consultative and participatory manner	0 or 1		
The management planning process included consultation with and/or input from community members and/or various other stakeholders				
1.2.3	Management plan has clearly articulated goals and objectives (SMART)	0 or 1		
The management plan has clearly stated expected outcomes (results) from the successful implementation of the plan				
1.2.4	Management plan has clearly identified priority target resources for protection and threats to those resources	0 or 1		
The management plan has identified the most important assets for protection by the management of the MPA				
1.2.5	Management plan has clearly identified program areas	0 or 1		
The management programs (education, monitoring, enforcement activities) have been laid out in the plan and serve as the basis for the annual work plan				
1.2.6	Management plan has been adopted by the government and legitimized	0 or 3		

The government fully supports the management as a guiding document for the activities to be conducted by the management of the MPA				
1.3 Legal, Institutional and Management Structure is Formed and Functional (12/12) MPA has a management body and staffing appropriate to the management needs of the site				
1.3.1	Management body or board is in place	0 or 1		
Management body or board is effectively working with MPA manager				
1.3.2	The function of the management body or board is clearly understood and practiced	0 or 1		
Management body or board is guiding and making informed decisions				
1.3.3	The management body or board works cooperatively with other jurisdictional authorities	0 or 1		
Management body or board engages in partnership activities with other ministries and departments at the local, provincial and/or national level				
1.3.4	The MPA has appropriate number of staff members to manage the site	0 or 1		
There is a staffing plan in place and staff to fill all required positions				
1.3.5	The staff have the appropriate skills and knowledge to effectively implement the management plan	0 or 1		
All staff positions are filled with appropriately knowledgeable and skilled staff				
1.3.5	There is a mechanism for including community and/or stakeholder participation in management of the MPA	0 or 1		
There are a range of activities from monitoring to enforcement to management bodies through which stakeholders can participate in management of the MPA				
1.3.6	The MPA has a strong mandate or legal authority	0 or 1		
The MPA has a clear and ample regulatory authority so that it can ne effective in managing the resources (through the use of regulations, zones, or other legal mechanisms or instruments				
1.3.7	The MPA has supportive policy or directive	0 or 1		
There is a strong enough policy and/or directives that the MPA manager is supported in addressing challenging resource management issues				
1.3.8	The MPA has inter-institutional agreements in place	0 or 1		
The MPA has partnership agreements in place with education, research and/or other institutions to work cooperatively				
1.3.9	The management structure for the MPA is supported and adopted by the government	0 or 3		
The management structure is legally recognized and is functional through the support of the government				
1.4 Operational Effectiveness (10/10) Infrastructure needs are adequately met so that they support implementation of the management plan				
1.4.1	Office space is adequate to house staff and support existing programs	0 or 1		
Basic facility needs are met in order to adequately house staff and programs				
1.4.2	There are education and outreach facilities in which to interact with communities and the general public	0 or 1		

There are basic classroom and/or meeting rooms to engage with the public				
1.4.3	There is a visitor center to educate visitors about the MPA	0 or 1		
Visitor center is adequate in size, strategically located, and up-to-date in regards to displays, signage and exhibits				
1.4.4	There is visitor infrastructure and facilities available.	0 or 1		
There is adequate access, modes of transportation, restroom and food facilities to provide basic comforts for visitors				
1.4.5	There are research and monitoring facilities and equipment	0 or 1		
Research facilities are adequate in size, equipment needs are met, and both are well maintained				
1.4.6	The office can support communications and internet technology	0 or 1		
Communications equipment and access to technology (computers, software, internet access) in adequate and maintained				
1.4.7	There are vessels and vessel support facilities	0 or 1		
There is a vessel or vessels that are adequate in meeting the research, enforcement or other needs of the MPA				
1.4.8	Facilities and equipment are well maintained and up-to-date contributing to effective management	0 or 3		
In general, the operational standards of the MPA are appropriate to support effective management				
1.5 Sustainable Financing (10/10) Adequate funding is in place to implement the activities in the management plan				
1.5.1	Annual central state budget allocated for infrastructure	0 or 1		
1.5.2	Annual provincial budget allocated for operations	0 or 1		
1.5.3	Funding is adequate for implementing the annual priorities in the management plan/ work plan	0 or 1		
1.5.4	Income is generated from tourism activities and at least a portion of those funds retained by the MPA	0 or 1		
1.5.6	The MPA has a sustainable funding strategy to raise funds for allocation short falls	0 or 1		
1.5.7	The MPA is able to secure funds from the private sector and/or other funding sources	0 or 1		
1.5.8	There is someone on staff, or someone who is associated with the MPA who has experience with grant writing	0 or 1		
1.5.9	Annual infrastructure, salaries, operational and			

	management plan implementation costs are covered	0 or 3		
1.6 Stakeholder Engagement (8/8) Stakeholders are supportive and actively engaged in the MPA				
1.6.1	Primary stakeholders associated with the MPA have been identified and characterized	0 or 1		
This includes sub-groups within local communities, ocean user groups, government stakeholders, universities and research institutions and border patrols				
1.6.3	Stakeholders' values and attitudes about the MPA and conservation are well understood	0 or 1		
Stakeholders' values and attitudes have been characterized and documented				
1.6.4	Stakeholders are actively engaged in implementation of the MPA's management plan	0 or 1		
Stakeholders have different levels of engagement in the implementation of the plan (e.g., monitoring, enforcement, etc.)				
1.6.5	Stakeholders are actively engaged in management decision-making	0 or 1		
There is a forum or structure for engaging stakeholders in providing input to the MPA manager on management issues				
1.6.6	There is a strong champion or champions for the MPA that publically advocates for the MPA	0 or 1		
An appropriate champion has been identified and utilized to garner support for the MPA				
1.6.7	There is a solid working relationship with local stakeholders and they are supportive of the MPA	0 or 3		
Stakeholders are actively engaged and have a strong sense of ownership of the MPA				
1.7 Enforcement (7/7) There is an evident enforcement presence in the MPA contributing to determent of violations				
1.7.1	An enforcement plan or equivalent is in place	0 or 1		
The MPA should have a clear and implementable enforcement plan				
1.7.2	MPA enforcement officers are trained in enforcement procedures and protocols	0 or 1		
Enforcement officers are trained in interacting with violators, gathering and documenting evidence, and making arrests				
1.7.3	MPA enforcement officers are trained in and familiar with the MPAs zones and regulations	0 or 1		
Enforcement officers understand the MPA's regulations and zones so that they can provide appropriate legal protection				
1.7.4	Patrolling and surveillance are conducted regularly	0 or 1		
Patrol boats have a regular and on-going presence on the water, and land as appropriate				
1.7.5	Violators are reported and apprehended as appropriate	0 or 3		
Patrol are actively identifying violators and making arrests				
TOTAL SCORE FOR LEVEL 1		63		

LEVEL 2 – MPA IS EFFECTIVELY SUSTAINED FOR 5 YEARS (total = 9 items, 17 points)				
Evaluation Criteria/ Guiding Questions		Allowable Points	Actual Points	Remarks & Means of Verification
2.1 Management Standards are Effectively Sustained for 5 Years (17/17)				
2.1.1	Management plan and ordinance reviewed add updated	0 or 3		
The management plan has been reviewed and updated in response to emerging needs and challenges				
2.1.2	Management body or board is able to direct management activities of the MPA and access technical support	0 or 1		
Management body is fully functioning and has shown capacity to access resources as needed to improve management				
2.1.3	Funds to implement management plan have been secured and accessed for at least the last three years	0 or 3		
Any gaps in government allocated budget have been filled by accessing additional internal or external funding sources				
2.1.4	Enforcement plan has been fully implemented and been operational for the past 5 years	0 or 1		
A plan for patrolling activities, violations, reporting and apprehension, and sanctioning of violators is in place				
2.1.5	Violators have been prosecuted and sanctioned	0 or 3		
There is a measureable increase in prosecutions and sanctions				
2.1.6	Education and Outreach Program enhanced, and revised as needed to be relevant	0 or 1		
Materials are regularly updated, reproduced and disseminated				
2.1.7	Participatory biophysical monitoring is conducted on a regular basis	0 or 3		
Biophysical monitoring is conducted at lease every 2 years and used to inform management				
2.1.8	Socioeconomic monitoring is conducted on a regular basis	0 or 1		
Socioeconomic monitoring is conducted at least every 2 years and includes population, income, livelihood activities, etc.				
2.1.9	Feedback system in place for monitoring	0 or 1		
A system is in place to is assess, respond to and communicate monitoring data results				
TOTAL SCORE FOR LEVEL 2		17		

LEVEL 3 – MPA IS EFFECTIVELY INSTITUTIONALIZED FOR 7 YEARS (total = 9 items, 17 points)				
Evaluation Criteria/ Guiding Questions		Allowable Points	Actual Points	Remarks & Means of Verification
3.1 Management Standards are Effectively Sustained for 7 Years (21/21))				
3.1.1	Political support from national and/or provincial government is sustained for sustained	0 or 3		

National and/or provincial government is providing institutional support (for budget, manpower or technical support)				
3.1.2	Management plan incorporated into or considered in broader development plans	0 or 1		
MPA management plan considerations and priorities incorporated into long-term provincial development or land use plans				
3.1.3	Coordination and collaboration with other government entities has been defined and formalized	0 or 1		
Coordination with other government bodies with shared jurisdictional authority in the MPA has been established,				
3.1.4	Biophysical and socioeconomic impact assessments have been conducted and results used to inform management	0 or 1		
Assessment of resource status and long-term trends, as well as benefits obtained from stakeholders from MPA				
3.1.5	Performance monitoring and evaluation linked to an incentive system	0 or 1		
Recognition/awards or opportunities regularly given to outstanding staff, community members, law enforcement officers				
3.1.6	Education and outreach program sustained for last 7 years at a level that reflects the current state of the MPA	0 or 1		
E&O program sustained at a level that stays relevant to the needs of the MPA over 7 consecutive years				
3.1.7	Infrastructure requirements are met and reflect the current needs of the MPA	0 or 3		
Facilities, staffing and equipment are up-to-date and maintained				
3.1.8	Steady increase in (trend) in apprehensions and prosecutions of violators	0 or 3		
The success of the enforcement program can also be measured by a decrease in violations				
3.1.9	MPA financially self-sustaining for the last 7 consecutive years	0 or 3		
Revenues obtained and/or generated (internally or externally) fully support all aspects of operation of MPA				
TOTAL SCORE FOR LEVEL 3		17		

PART 1:

EVALUATING MANAGEMENT CONDITIONS

SUMMARY RESULTS

MPA Level	Year Requirement Met	Total Score Available	Actual Total Score	No. of Threshold Questions Met (in bold)
LEVEL 1: MPA <u>Established</u> At least 1 year At least 42 cumulative score All level 1 thresholds met (7 total, each worth 3 points)	☐ MPA is at least 1 year old	63 points		
LEVEL 2: MPA <u>Sustained</u> At least 5 years At least 15 cumulative score All level 2 thresholds met (4 total, each worth 3 points)	☐ MPA is at least 5 years old	17 points		
LEVEL 3: MPA <u>Sustained</u> At least 7 years At least 5 cumulative score All level 3 thresholds met (4 total, each worth 3 points)	☐ MPA is at least 5 years old	17 points		
TOTAL CUMULATIVE SCORE		**97**		

TOTAL CUMULATIVE SCORE:
<42 points = fair
42-57 points = good
57-62 points – very good
62-97 points = excellent
If your MPA does not meet the basic Level 1 category, your MPA is still under the process of establishment. Basic activities should be conducted to fully “establish” the MPA and make it operational.

PART 2: BUILDING A MODEL FOR RESULTS-BASED MANAGEMENT PLANNING

The Threat Reduction Management Plan Approach for Protection of Priority Target Resources

The *Building a Model for Results-based Management Planning – The Threat Reduction Management Plan Approach for Protection of Priority Target Resources* component of the Vietnam MPA evaluation program is directed at two specific steps in the evaluation process: 1) establishing a standardized set of six priority target resources from across the MPA network that will be used to tell the story of MPA management progress at both the individual MPAs, as well as across the network as a whole, and 2) the development of a management model for clearly articulating the management strategies that will be used to address impacts to 3 of these target resources (selected from the list of 6 possible targets), how it is expected the selected management strategies will address the impacts on the target resource, and the anticipated results of the successful implementation of the management strategies.

STANDARDIZED TARGET RESOURCES:

Using an assessment of 10 MPAs in Vietnam conducted in the Spring on 2015, the following 6 target resources have been selected as the measures of success for both individual MPAs in Vietnam, as well as the network as a whole:

- **WATER: water quality**
- **HABITATS: seagrass beds, coral reefs, mangroves**
- **LIVING MARINE RESOURCES: sea turtles, reef fish**

This selection of the 6 standardized target resources was based on two factors: 1) an inventory of target resources identified by 10 MPAs in the Vietnam MPA network; 2) an inventory of existing monitoring programs for 10 of the MPAs in Vietnam (both inventories assembled from site interviews in Spring of 2015). The selection was ground-truthed at a workshop for MPA managers in the Summer of 2015. Additionally, the evaluation conducted in the Spring of 2015 will be used to establish the baseline condition for MPAs in Vietnam, for which any change in these target resources will be measured against.

SAMPLING OF MAJOR SOURCES OF HUMAN-INDUCED IMPACTS TO THE 6 TARGET RESOURCES:

WATER	HABITATS			LIVING MARINE RESOURCES	
Water Quality	Seagrass Beds	Coral Reefs	Mangroves	Sea Turtles	Reef Fish
Tourism development Marine pollution Mine exploration	Coastal development Trawling Water quality	Coral exploitation for lime Tourism (direct use impacts, i.e., diving)	Harvesting Water quality Tourism impacts	Harvesting of turtles Harvesting of eggs for tourists	Over-fishing Destructive fishing practices Illegal night diving by

Agricultural runoff Boat-based pollution Construction Aquaculture pollution Fresh water diversion	Snail exploitation	Harbor dredging Anchoring of tourism boats Water quality			outsiders Illegal trawling By-catch Poor enforcement

This list of human use impacts indicated in the table above was extracted from the survey and interviews of staff from 10 MPAs that was conducted in the Spring of 2015.

PART 2: BUILDING A MODEL FOR RESULTS-BASED MANAGEMENT PLANNING
The Threat Reduction Management Plan Approach for Protection of Priority Target Resources
(to be completed every 5 years)

SECTION 1: Please add the problem statement and the management objectives identified in your management plan in the A and B sections in the table below. In column C indicate any assumptions you have made about the direct threat and associated behavior, and possible ways about how to address it. Colum D pertains to how much information do you have about this issue as identified in the problem statement in column A, or do you really require additional information to fully understand the issue and impacts, and how to address them through your management plan.

SECTION 2: For each of the priority target resources that you select for developing management strategies, in column A answer "why" your target resource is being impacted. In column B state what kind of change you would like to see in the condition of this resource. In column C state whether your MPA has the legal or management authority to directly address the "why" in column A. If the answer is "yes", then state how you would address the "why". If the answer is "no", go to column D and state how you would like to have the appropriate management authority address the "why". In column F elaborate on specific types of management strategies that should be used by your MPA, or another authority, in addressing the "why". Finally, if these strategies are implemented, what incremental results (measureable milestones) would you expect to see over the short, mid and long term.

Note: *This management model should be completed for all 3 top priority target resources within your MPA. These 3 target resources will then be used as indicators of the health of each MPA (Part 3: Monitoring for Management Effectiveness). Finally, these 3 target resources will be assessed on a 5-year basis through the "State of the Vietnam MPA Network" report (Part 4: Assessing the MPA's Condition)*

Target Resource: *Seagrass beds*

SAMPLE SECTION 1:

A. Problem Statement (Description of direct impact on target resource, and the source of impact)	B. Identify the Most Relevant Management Objective(s) From Your Management Plan	C. To evaluate whether your management strategies will address the issue at the point of intervention, provide your assumptions or evidence that the actions listed will address the root cause even if the point of intervention is not the root cause and how much abatement is expected	D. How much information do you have? How well do you understand the drivers of the behavior? Provide evidence.
Direct Threat and Associated Activity *Poor water quality from upland pig farming waste runoff* *(increased nutrients cause epiphyte growth on blades & increases phytoplankton blooms reducing light penetration needed by seagrass)*	**Relevant Management Objective** *By 2020 seagrass beds in Apollo Island MPA have minimal epiphyte growth and light attenuation at the current seagrass beds is adequate for photosynthesis.*	**Assumptions** *1) Our root cause analysis led us to the need to bring the issue to the attention of the Dept of Agriculture. We have worked with them on issues related to the application of fertilizers and followed actions similar those presented. Eutrophication decreased after BMPs were implemented but still an issue, thus we think that additional strategies will reduce eutrophication even more. 2) During interactions with pig farmers, they indicated that since they are located in upland areas, they didn't see any connection between pig wastes and downstream water quality.*	**What is Understand** *1) We have observations of the pigs using areas that input to the MPA. There is literature indicating water quality issues that arise from pig wastes entering aquatic systems. 2) Further understanding of watershed hydrology clearly indicates stream water flow moving directly through pig farms is carrying wastes to the marine environment. 3) Water quality sampling in MPA indicates increased nutrient loads and phytoplankton blooms, particularly during rainy season.*

SAMPLE SECTION 2:

A. Three Whys - Points of Potential Intervention	B. Indentify what change you would like to achieve as the	C. Does Your MPA have authority to manage this	D. If yes, what strategies and actions could your MPA	E. If no, what strategies and actions could your MPA undertake to	F. Management strategies or actions intended to address the source of an impact on a target resource (think about how this might relate to the projected	G. What do you expect to be the short, mid and long term outcome (result of this activity)

This is a chain of factors (direct and indirect)	result of managing this impact on your target resource.	"why factor"? Describe	undertake & for which point of intervention	influence change & for which point of intervention	outcome(s) in column G.)	
Why (Factor) #1 *No control of pig waste*	**Change** *Conservation-friendly livestock practices that reduce nutrient release to watershed*	*No, Dept of Agriculture does.*	**Strategy**	**Strategy** *Improve livestock land use management and waste containment through use of* *BMPs that do not cost the farmers money to implement)*	**Management Actions** *1) Co-develop Best Management Practices (BMPs) with Dept of Agriculture* *2) Research other existing strategies and talk to Dept of Agriculture since they've worked with farmers* *3) Develop a plan with Dept of Agriculture on how to proceed* *4) Monitor turbidity, phytoplankton counts and epiphyte growth at seagrass beds In the MPA quantitative before and after implementing the plan*	**Projected Outcomes** **Short term** *By 2016 work cooperatively with the Dept. of Agriculture and pig farmers on developing BMPs.* **Mid term** *By 2018 a voluntary livestock land use program is in place and 75% of the pig farmers are following it.* **Long term** *By 2020 at least 50% improvement in water quality indicators of health.*
Why (Factor) #2 *Farmers not aware of issue*	**Change** *Pig farmers understand down stream impacts of pig farming and are committed to*	*MPA does not have legal authority over pig farming, but willing to work*	**Strategy**	**Strategy**	**Management Actions** *1) Co-develop messages that we feel will be effective with farmers* *2) Decide on the type of communication (e.g. brochures, notice boards, public*	**Projected Outcomes** **Short Term** *By 2016 the MPA and Dept of Agriculture have co-sponsored communication*

	making a contribution to improved water quality	*with farmers*			*meetings etc.)* *3) Develop the information materials to provide to farmers both in written form and verbally so they can understand the issue and impact* *4) Provide them to the farmers in a joint campaign with the Dept of Agriculture.*	*materials for pig farmers* **Mid Term** *By 2017 100% of the farmers have been provided with the information.* **Long Term** *By 2018 a voluntary livestock land use program is in place and 75% of the pig farmers are following it.*
Why (Factor) #3 *Dept of Agriculture does not realize pigs are causing water quality issue for MPA*	**Change** *Effective, ongoing communication and working relationship with Dept. of Agriculture*	*No, but we've worked with Dept of Agriculture on issues related to application of fertilizers*	**Strategy**	**Strategy** *Commit to a communications and partnership plan to maintain and improve the relationship with Dept of Agriculture with the MPA*	**Management Actions** *1) Determine who at the Dept of Agriculture will be the point of contact with the MPA* *2) Determine who at the MPA will be the point of contact with Dept of Agriculture* *3) Develop an MOU that includes working together on a joint livestock and water quality strategy, including BMPs for pig farms (and other livestock rearing operations).*	**Projected Outcomes** **Short Term** *By 2016, establish regular meetings between the MPA manager and Dept. of Agriculture (Relationship building)* **Mid Term** *By 2017 complete development of joint livestock and water quality strategy* **Long Term** *By 2019 start first stages of implementation of water quality strategy*

Target Resource #1:

SECTION 1.1:

A. Problem Statement (Description of direct impact on target resource, and the source of impact)	B. Identify the Most Relevant Management Objective(s) From Your Management Plan	C. To evaluate whether your management strategies will address the issue at the point of intervention, provide your assumptions or evidence that the actions listed will address the root cause even if the point of intervention is not the root cause and how much abatement is expected	D. How much information do you have? How well do you understand the drivers of the behavior? Provide evidence.
Direct Threat and Associated Activity	**Relevant Management Objective**	**Assumptions**	**What is Understand**

SECTION 1.2:

A. Three Whys - Points of Potential Intervention This is a chain of	B. Indentify what change you would like to achieve as the result of managing this impact on your	C. Does Your MPA have authority to manage this "why factor"? Describe	D. If yes, what strategies and actions could your MPA undertake & for which point of	E. If no, what strategies and actions could your MPA undertake to influence change & for which point of	F. Management strategies or actions intended to address the source of an impact on a target resource (think about how this might relate to the projected outcome(s) in column G.)	G. What do you expect to be the short, mid and long term outcome (result of this activity)

factors (direct and indirect)	target resource.		intervention	intervention		
Why (Factor) #1	**Change**		**Strategy**	**Strategy**	**Management Actions**	**Projected Outcomes** **Short term** **Mid term** **Long term**
Why (Factor) #2	**Change**		**Strategy**	**Strategy**	**Management Actions**	**Projected Outcomes** **Short Term** **Mid Term** **Long Term**
Why (Factor) #3	**Change**		**Strategy**	**Strategy**	**Management Actions**	**Projected Outcomes** **Short Term** **Mid Term** **Long Term**

Target Resource #2:

SECTION 2.1:

A. Problem Statement (Description of direct impact on target resource, and the source of impact)	B. Identify the Most Relevant Management Objective(s) From Your Management Plan	C. To evaluate whether your management strategies will address the issue at the point of intervention, provide your assumptions or evidence that the actions listed will address the root cause even if the point of intervention is not the root cause and how much abatement is expected	D. How much information do you have? How well do you understand the drivers of the behavior? Provide evidence.
Direct Threat and Associated Activity	**Relevant Management Objective**	**Assumptions**	**What is Understand**

SECTION 2.2:

A. Three Whys - Points of Potential	B. Indentify what change	C. Does Your MPA have	D. If yes, what strategies and	E. If no, what strategies and actions	F. Management strategies or actions intended to address the source of an	G. What do you expect to be the short, mid and long term outcome (result of

Intervention This is a chain of factors (direct and indirect)	you would like to achieve as the result of managing this impact on your target resource.	authority to manage this "why factor"? Describe	actions could your MPA undertake & for which point of intervention	could your MPA undertake to influence change & for which point of intervention	impact on a target resource (think about how this might relate to the projected outcome(s) in column G.)	this activity)
Why (Factor) #1	**Change**		**Strategy**	**Strategy**	**Management Actions**	**Projected Outcomes** **Short term** **Mid term** **Long term**
Why (Factor) #2	**Change**		**Strategy**	**Strategy**	**Management Actions**	**Projected Outcomes** **Short Term** **Mid Term**

						Long Term .
Why (Factor) #3	**Change**		**Strategy**	**Strategy**	**Management Actions**	**Projected Outcomes** **Short Term** **Mid Term** **Long Term**

Target Resource #3:

SECTION 3.1:

A. Problem Statement (Description of direct impact on target resource, and the source of impact)	B. Identify the Most Relevant Management Objective(s) From Your Management Plan	C. To evaluate whether your management strategies will address the issue at the point of intervention, provide your assumptions or evidence that the actions listed will address the root cause even if the point of intervention is not the root cause and how much abatement is expected	D. How much information do you have? How well do you understand the drivers of the behavior? Provide evidence.
Direct Threat and Associated Activity	**Relevant Management Objective**	**Assumption**	**What is Understand**

SECTION 3.2:

A. Three Whys - Points of Potential Intervention This is a chain of factors (direct and indirect)	B. Indentify what change you would like to achieve as the result of managing this impact on your target resource.	C. Does Your MPA have authority to manage this "why factor"? Describe	D. If yes, what strategies and actions could your MPA undertake & for which point of intervention	E. If no, what strategies and actions could your MPA undertake to influence change & for which point of intervention	F. Management strategies or actions intended to address the source of an impact on a target resource (think about how this might relate to the projected outcome(s) in column G.)	G. What do you expect to be the short, mid and long term outcome (result of this activity)
Why (Factor) #1	**Change**		**Strategy**	**Strategy**	**Management Actions**	**Projected Outcomes** **hort term** **Mid term** **Long term**
Why (Factor) #2	**Change**		**Strategy**	**Strategy**	**Management Actions**	**Projected Outcomes** **Short Term** **Mid Term** **Long Term**
Why (Factor) #3	**Change**		**Strategy**	**Strategy**	**Management Actions**	**Projected Outcomes** **Short Term** **Mid Term** **Long Term**

PART 3: MONITORING FOR MANAGEMENT EFFECTIVENESS

Estimating Acceptable Range of Variation

(*modified from Foundations of Success 2009*)

Please fill out the table below for each of your monitoring programs for each of your 3 target resources. This table will allow you to declare your indicator ratings, both the current condition of the target resource indicator, and the desired rating (what you hope to achieve as a result of the management actions or strategies identified in Part 3.). If you find you are not meeting the desired rating, you can come back to this table to make a determination if there is a design flaw in your estimating the acceptable range of variation for your target resource indicator.

Target Resource	Indicator	Indicator Ratings				Current Rating	Desired Rating	Best Available Knowledge
		Poor	Fair	Good	Very Good			
Seagrass	*turbidity*		*Secchi depth of <1.5m*	*Secchi depth of >1.5m*		*poor*	*good*	*Through a literature synthesis we ascertained that a Secchi depth of at least 1.5m would allow for light penetration sufficient for seagrass photosynthesis (MRC 1998)*

Poor: Restoration or recovery increasingly difficult; may result in extirpation of resource.

Fair: Outside acceptable range of variation; requires management intervention as identified in management plan.

Good: Indicator within acceptable range of variation; some management intervention required for maintenance as identified in management plan.

Very Good: Ecologically desirable status; requires little intervention for maintenance.

PART 3: MONITORING FOR MANAGEMENT EFFECTIVENESS

(to be completed every five years)

Target Resource	Indicator	Indicator Ratings				Current Rating	Desired Rating	Best Available Knowledge
		Poor	Fair	Good	Very Good			

PART 4:

RATING THE MPA's STATUS AND TRENDS

Determining if the Management Plan is Achieving the Anticipated Results

(extracted and modified from NOAA/National Marine Sanctuaries Condition Report Model)

By assuming a common management effectiveness framework is being followed by all 16 MPAs in the Vietnam MPA network, there are three standardized components of this rating system:

1. A series of questions have been developed as evaluation criteria to assess natural resource conditions and trends. The questions below are derived from both a generalized ecosystem framework model and from the from the 10 MPAs surveyed in the Spring on 2015. These questions are intended to be widely applicable across the Vietnam MPA network, with each site choosing from among these questions based on site-specific priority target resources and existing or intended monitoring programs. These questions are functionally a tool in which to measure progress against in regards to maintaining and improving natural resource qualities throughout the MPA network. Please note that a single question can be used to provide important information about more than one target resource (e.g., "Are the national water quality standards being met?", may answer questions about both water quality and condition of habitats).

2. The rating system consists of a range of colors indicating the condition of the target resource which includes a range from poor to very good (see color coding system below).

3. The rating system also consists of series of symbols, each representing a trend in the condition of the target resource.

Each MPA in the network will generate a similar report about the condition and trends of their natural resources every five years. As this evaluation process matures, other criteria and indicators may be added to this list to include socioeconomic and cultural priorities for MPAs in Vietnam.

This rating system is made up of three components:

COMPONENT 1: Questions About Target Resource

WATER QUALITY	
1	Are the national water quality standards being met and maintained?
2	Is the level and extent of eutrophication reduced or eliminated?
3	Is the level and extent of sedimentation reduced or eliminated?
4	Is there a reduction on marine-based sources of pollutants?
5	Is there a reduction in land-based sources of pollutants?
HABITATS	
6	What is the level of abundance and distribution of healthy coral reef habitats and how is it changing?
7	What is the species composition of the coral reef ecosystem and how is it

	changing?
8	What is the level of density and distribution of seagrass beds and how is it changing?
9	Is light penetration sufficient for seagrass photosynthesis?
10	What is the species composition of the seagrass bed and how is it changing?
11	What is the level of density and distribution of mangroves and how is it changing?
12	What is the composition of the mangroves and how is it changing?
13	What is the level of awareness and understanding of communities and stakeholders about the importance of habitats to supporting ecosystem services and how is that changing?
LIVING MARINE RESOURCES	
14	What is the level of effort for fishing (investment relative to catch size) and how is it changing?
15	What is the abundance and diversity of coral reef fishes and how is that changing?
16	Has the replenishment rate of target fish stocks been sustained or increased?
17	Is the health of the important life history habits essential for the survival for target fish species being sustained or improving?
18	Has the specific species of sea turtles population size been maintained or increased?
19	Has the reproductive success rate of a specific species of sea turtle been maintained or increased?
20	Is the health and availability of the important life history habitats essential for the survival of a specific species of turtle being sustained or improved?

RATING COMPONENT 2: Status of Target Resource

Color Code	Condition Level
	Very Good
	Good
	Fair
	Poor
	Undetermined

RATING COMPONENT 3: Trend of Target Resource

Symbol	Trend
▲	**Condition appears to be improving**
-	**Conditions do not appear to be changing**
▼	**Conditions appear to be declining**
?	**Undetermined trend**
NA	**Question not applicable**

PART 4:

RATING THE MPA's STATUS AND TRENDS

Determining if the Management Plan is Achieving the Anticipated Results

(to be completed on a five year basis)

Section 1. Rating the MPA's Status and Trends Review Team

A. Management Effectiveness Review Team

No.	Name	Organization	Position/Title	Connection	Contact Info
1					
2					
3					
4					
5					
6					
7					
8					

Sample Rating Table for Status and Trends

#	Questions	Rating	Basis for Judgment	Description of Findings	Management Response
WATER QUALITY					
1	**Is the level and extent of eutrophication reduced or eliminated?**	▲	Locations with chronic nutrient enrichment and extensive algal blooms are limited to embayments adjacent to upland pig farms, therefore it is believed that is the major contributing factor to eutrophication.	Nutrient loading from pig farms appears to be residual, and although the condition is still only "fair" based on feeder stream nutrient levels, they are improving. Nutrient levels are down to .10.2, as well as reduced spatial extent of the algal blooms.	Will continue stream monitoring on a monthly basis, particularly during rain events until there is a clear indication that improvement is continuing and/or there is another source of nutrient loading that needs to be addressed.

B. Rating Table for Status and Trends

#	Questions	Rating	Basis for Judgment	Description of Findings	Management Response
WATER QUALITY					
1					
2					
3					
4					
5					
other					
HABITATS					
6					
7					

8					
9					
10					
11					
12					
13					
other					
LIVING MARINE RESOURCES					
14					
15					
16					
17					
18					
19					
20					
other					

Mangroves for the Future
INVESTING IN COASTAL ECOSYSTEMS
www.mangrovesforthefuture.org

About Mangroves for the Future

Mangroves for the Future (MFF) is a unique partner-led initiative to promote investment in coastal ecosystem conservation for sustainable development. Co-chaired by IUCN and UNDP, MFF provides a platform for collaboration among the many different agencies, sectors and countries which are addressing challenges to coastal ecosystem and livelihood issues. The goal is to promote an integrated ocean-wide approach to coastal management and to building the resilience of ecosystem-dependent coastal communities.

MFF builds on a history of coastal management interventions before and after the 2004 Indian Ocean tsunami. It initially focused on the countries that were worst affected by the tsunami -- India, Indonesia, Maldives, Seychelles, Sri Lanka and Thailand. More recently it has expanded to include Bangladesh, Cambodia, Pakistan and Viet Nam.

Mangroves are the flagship of the initiative, but MFF is inclusive of all types of coastal ecosystem, such as coral reefs, estuaries, lagoons, sandy beaches, sea grasses and wetlands.

The MFF grants facility offers small, medium and large grants to support initiatives that provide practical, hands-on demonstrations of effective coastal management in action. Each country manages its own MFF programme through a National Coordinating Body which includes representation from government, NGOs and the private sector.

MFF addresses priorities for long-term sustainable coastal ecosystem management which include, among others: climate change adaptation and mitigation, disaster risk reduction, promotion of ecosystem health, development of sustainable livelihoods, and active engagement of the private sector in developing sustainable business practices. The emphasis is on generating knowledge, empowering local communities and advocating for policy solutions that will support best practice in integrated coastal management.

Moving forward, MFF will increasingly focus on building resilience of ecosystem-dependent coastal communities by promoting nature based solutions and by showcasing the climate change adaptation and mitigation benefits that can be achieved with healthy mangrove forests and other types of coastal vegetation.

MFF is funded by Sida, Norad and Danida.

Learn more at: www.mangrovesforthefuture.org