

# REVIEW AND ANALYSIS OF THE MANAGEMENT EFFECTIVENESS OF ASEAN HERITAGE PARKS

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December 2012

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## ACRONYMS AND ABBREVIATIONS

ACB	ASEAN Centre for Biodiversity
AHP	ASEAN Heritage Park
AMS	ASEAN Member States
ASEAN	Association of South East Asian Nation
BN	Brunei Darussalam
BPAMP	Biodiversity and Protected Areas Management Project
CI	Conservation International
CPA	Community Protected Areas
CSR	Corporate Social Responsibility
DNP	Department of National Parks, Wildlife and Plant Conservation, Thailand
DPKY-FC	Dong Phrayayen Khao Yai - Forest Complex
EIA	Environmental Impact Assessment
FFI	Fauna Flora International
GEF	Global Environmental Facilities
GIS	Geographical Information System
GPS	Global Positioning System
Ha	Hectares
HQ	Headquarter
ID	Indonesia
IDR	Indonesian Rupiah
IUCN	International Union for Conservation of Nature
KH	Cambodia
LA	Laos
METT	Management Effectiveness Tracking Tools
MM	Myanmar
MoU	Memorandum of Understanding
MY	Malaysia
MYR	Malaysian Ringgit
MYCAT	Malaysian Conservation Alliance for Tigers
NGO	Non-Governmental Organization
NTFP	Non-Timber Forest Products
Perhilitan	Perlindungan Hidupan Liar dan Taman Negara (Wildlife Department and National Parks), Malaysia
PH	Philippines
PTTE	PTT Exploration and Production Public Company Limited
SG	Singapore
TCM	Traditional Chinese Medicine
TH	Thailand
THB	Thailand Baht
USD	United States Dollar
UTM	University Technology Mara, Malaysia
VN	Viet Nam
WCS	Wildlife Conservation Society
WWF	World Wide Fund for Nature

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## EXECUTIVE SUMMARY

Currently there are 30 ASEAN Heritage Parks (AHPs) spread in the 10 ASEAN Member States. The parks need to be managed effectively in order to function properly and to gain ecological and economic benefit from them. This study was conducted to review the management effectiveness of AHPs and having the following objectives: to identify challenges and opportunities in general faced by AHPs, to provide an up-dated condition and status of AHP management in ASEAN Member States, to provide in-depth situation in selected AHPs, to draw some important shared experiences and best practices, and to formulate a common regional strategic direction to respond to the challenges to the sustainable conservation and use of ecosystem and biodiversity.

The study was conducted through an intensive desk study of various reports (i.e. identifying threats and constraints), dissemination of questionnaires to all AHPs (of which 17 were returned) by using METT (Management Effectiveness Tracking Tools) approach, visit to 5 sampled AHPs (Virachey National Park – Cambodia, Kerinci Seblat National Park – Indonesia, Kinabalu National Park and Taman Negara Pahang – Malaysia, and Khao Yai National Park – Thailand), and analysis of results (i.e. identify opportunities, best management practice and lessons learned; formulating strategic directions).

The major threat to the AHPs (n=28) were the illegal consumptive use of natural resources (reported by 85.7% of the AHPs, including illegal logging, poaching, illegal wildlife trade, illegal fishing, and illegal extraction for other NTFPs), followed by problems and conflict related to land use and tenure (76.9%). As for constraints, human resources (number of staffs, expertise of staffs, including number of park rangers) were reported to be major constraints faced by the AHPs, followed by collaboration with other institutions, law enforcement and patrol, and budget availability.

To quantify the park management effectiveness, 6 elements were selected, namely context/status, planning, input, process/implementation, output, and outcome. Scores of management effectiveness of all elements varied from 55.6% up to 93.3% (n=17). Three parks were categorized as 'very good' in the management efficiency, namely Taman Negara Pahang (Malaysia, the best), followed by Kinabalu National Park (Sabah, Malaysia) and Khao Yai National Park (Thailand). Virachey National Park of Cambodia had a lowest score (category 'below average'). The rest of the AHPs were categorized 'good' and 'average'.

Analyzing each element, all AHPs in general did not have any issue in the context or status, meaning that almost all (except Iglit-Baco National Park of the Philippines) already had a firm gazette of the park. For the element of planning, the weakest score collectively was management plan, because many of the AHPs did not have a current management plan and still use the outdated document. As for the implementation, most AHPs were weak in the tourism sector and collaboration with local/indigenous people. Further, most AHPs also had not optimally provided economic benefit to the local people, resulting in a rather low support to the AHPs by the stakeholders. Analyzing the management effectiveness and the size of parks, it was discovered that there was no relationship between the two, bearing in mind that it could be subject to bias due to the different types of the parks.

Visit to the selected 5 AHPs revealed that each AHPs had their own unique situation and condition. Virachey National Park (Cambodia) experiencing a major constraint in budget, forcing the Park to manage the area minimally. Kerinci-Seblat National Park (Indonesia) has been struggling with various threats and illegal activities. Although sufficient budget has been allocated by the Central Government of Indonesia, most efforts were directed to combat the problems.

Kinabalu National Park and Taman Negara Pahang (both in Malaysia) were successful in managing their parks, receiving a high visitation of international and domestic tourists. Both Parks were able to self-financed all of the cost (operational and staff salary) while maintaining the integrity of the Park. The same situation also happened for Khao Yai National Park (Thailand). In all three later National Parks, the focus was to manage the tourists in order not to exceed carrying capacity of the Park.

Opportunities, best management practices, and lessons learned were identified through this study and can be used as a basis for a more efficient management of an AHP. Further, based on the facts revealed from AHPs, especially the 5 AHPs visited during the study, strategic theme and key directions were also formulated. The strategic themes include information exchange, partnership, law enforcement, land use system, capacity building, planning, ecotourism, local community/ indigenous people, and aquatic ecosystem.

As the Secretariat of AHPs, the ASEAN Centre for Biodiversity could play an important role in strengthen the AHP status and number, facilitating promotion and fundraising, facilitating trans-boundary park, monitoring, facilitate strengthening capacity building, sharing information and policy of international community, and formulating collective action plan.

## TABLE OF CONTENT

ACRONYMS AND ABBREVIATIONS .....	iii
EXECUTIVE SUMMARY .....	v
TABLE OF CONTENT .....	vii
LIST OF FIGURES.....	viii
LIST OF TABLES.....	viii
LIST OF ANNEXES .....	ix
ACKNOWLEDGEMENTS.....	x
I. INTRODUCTION .....	1
II. METHODS.....	3
A. Information Gathering .....	3
1. Desk Study.....	3
2. Development and Dissemination of Questionnaires .....	3
3. Field Visit.....	4
B. Analysis .....	5
C. Time and Duration .....	6
III. CHALLENGES OF ASEAN HERITAGE PARKS.....	7
A. The Nature of ASEAN Heritage Parks.....	7
B. Challenges of ASEAN Heritage Parks: Threat and Constraints.....	7
1. Threats to the ASEAN Heritage Parks .....	7
2. Constraints to the ASEAN Heritage Parks .....	8
IV. MANAGEMENT EFFECTIVENESS OF ASEAN HERITAGE PARKS: GENERAL RESULTS .....	11
A. Selection of METT as the Study Method.....	11
B. Overall Management Effectiveness .....	11
C. Effectiveness of Each Elements.....	13
D. Effectiveness of Each Indicator .....	18
E. Scores of Indicators for Each ASEAN Heritage Parks .....	19
F. Park Size and the Effectiveness of ASEAN Heritage Park Management .....	23
V. MANAGEMENT EFFECTIVENESS OF ASEAN HERITAGE PARKS: RESULTS OF VISIT TO SELECTED ASEAN HERITAGE PARKS .....	24
A. Cambodia: Virachey National Park .....	24
B. Indonesia: Kerinci-Seblat National Park.....	34
C. Malaysia: Kinabalu National Park .....	44
D. Malaysia: Taman Negara Pahang.....	55
E. Thailand: Khao Yai National Park.....	66
VI. OPPORTUNITIES, GOOD PRACTICES AND LESSONS LEARNED .....	77
A. Opportunities of ASEAN Heritage Parks .....	77
B. Good Management Practices.....	77
C. Lessons Learned.....	80
D. Study Limitation and Possibility of Bias .....	80
VII. REGIONAL STRATEGIC DIRECTION .....	82
A. Existing Action Plan .....	82
B. Knowledge of the ASEAN Heritage Parks toward the Action Plan.....	82
C. Strategic Themes and Directions for the ASEAN Heritage Parks .....	83
D. The roles of ASEAN Center for Biodiversity .....	86
VIII. CONCLUDING REMARKS.....	87
ANNEXES .....	89

## LIST OF FIGURES

Figure 1.	List of ASEAN Heritage Parks and their approximate geographic locations. ....	2
Figure 2.	Framework of analysis for the study of management effectiveness of ASEAN Heritage Parks.....	6
Figure 3.	Percentage of threats to ASEAN Heritage Parks (n=28). ....	8
Figure 4.	The number of ASEAN Heritage Parks (in %) experiencing constraints, listed based on elements (n=28). ....	9
Figure 5.	Score of the management effectiveness of ASEAN Heritage Park (n=17), presented in descending order. ....	12
Figure 6.	Scores for context, planning, and input elements for each sampled ASEAN Heritage Park (n=17).....	16
Figure 7.	Scores for process, output, and impact elements for each sampled ASEAN Heritage Park (n=17).....	17
Figure 8.	Divisions of radar plot showing elements of management effectiveness of an ASEAN Heritage Park, to assist in radar plots interpretation. ....	19
Figure 9.	Radar plots of indicator scores of the management effectiveness of ASEAN Heritage Parks in Cambodia, Indonesia, and Malaysia.....	20
Figure 10.	Radar plots of indicator scores of the management effectiveness of ASEAN Heritage Parks in Myanmar. ....	21
Figure 11.	Radar plots of indicator scores of the management effectiveness of ASEAN Heritage Parks in the Philippines, Singapore, and Thailand. ....	22
Figure 12.	Scatter plot of scores of management effectiveness against the size (in logarithmic scale) of ASEAN Heritage Parks (n=17). ....	23
Figure 13.	Map of Virachey National Park, Cambodia.....	25
Figure 14.	Documentation of Virachey National Park, Cambodia.....	33
Figure 15.	Map of Kerinci-Seblat National Park, Indonesia.....	35
Figure 16.	Documentation of Kerinci seblat National Park, Indonesia.....	38
Figure 17.	Map of Kinabalu National Park, Malaysia.....	45
Figure 18.	Documentation of Kinabalu National Park, Malaysia.....	54
Figure 19.	Map of Taman Negara (Pahang, Kelantan, and Terengganu), Malaysia. ....	56
Figure 20.	Documentation of Taman Negara Pahang, Malaysia.....	65
Figure 21.	Map of Khao Yai National Park, Thailand.....	67
Figure 22.	Documentation of Khao Yai National Park, Thailand.....	68

## LIST OF TABLES

Table 1.	Date of field visit to the selected ASEAN Heritage Parks. ....	4
Table 2.	Constraints of ASEAN Heritage Parks, listed based on occurrence, and METT elements and indicators. ....	10
Table 3.	Score and category of the management effectiveness of ASEAN Heritage Park. ....	13
Table 4.	Scores of each elements for sampled ASEAN Heritage Parks (n=17).....	15
Table 5.	Average highest and lowest scores of indicator for planning, input, process/ implementation, and output & impact. ....	18
Table 6.	Protected Areas in Cambodia.....	24
Table 7.	General information on Virachey National Park, Cambodia. ....	26
Table 8.	Scoring of the management effectiveness of Virachey National Park, Cambodia.....	28
Table 9.	Number and coverage of conservation areas in Indonesia.....	34
Table 10.	General information on Kerinci Seblat National Park, Indonesia. ....	36
Table 11.	Scoring of the management effectiveness of Kerinci Seblat National Park, Indonesia. ...	39

Table 12. Wildlife sanctuary and parks in Sabah. ....	44
Table 13. General information on Kinabalu National Park, Malaysia. ....	46
Table 14. Scoring of the management effectiveness of Kinabalu National Park, Malaysia. ....	49
Table 15. General information on Taman Negara Pahang, Malaysia. ....	57
Table 16. Scoring of the management effectiveness of Taman Negara Pahang, Malaysia. ....	59
Table 17. General information on Khao Yai National Park. ....	69
Table 18. Scoring of the management effectiveness of Khao Yai National Park, Thailand. ....	72
Table 19. Good management practices drawn from ASEAN Heritage Park visited. ....	78
Table 20. Goals and sub-goals of the Regional Action Plan for ASEAN Heritage Parks and other Protected Areas. ....	82
Table 21. Suggestion of management strategy for visited ASEAN Heritage Parks. ....	88

## LIST OF ANNEXES

Annex 1. List of ASEAN Heritage Parks. ....	90
Annex 2. List of threats to ASEAN Heritage Parks. ....	91
Annex 3. Questionnaire for Management Effectiveness of ASEAN Heritage Park. ....	92
Annex 4. Filled out questionnaires from ASEAN Heritage Parks' authorities. ....	100
Annex 5. Questionnaire main points of the effectiveness of ASEAN Heritage Park. ....	181
Annex 6. List of persons interviewed during field visits to five ASEAN Heritage Parks. ....	183
Annex 7. Main features of ASEAN Heritage Parks. ....	184
Annex 8. Scoring on questionnaire and the AHPs' effectiveness scores. ....	185
Annex 9. Radar plot on indicators used in effectiveness calculation. ....	188

## ACKNOWLEDGEMENTS

The study team is indebted to so many people for their support in many ways of this study. The team would like to thank The Biodiversity and Climate Change Project, which is a collaboration project between ASEAN Centre for Biodiversity (ACB) and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH for giving the trust and opportunity for the team to conduct the study.

The study team's sincere appreciation and thanks also go to ASEAN Centre for Biodiversity, especially to Demetrio L. Ignacio, Monina Uriarte, Clarissa C. Arida, Norman Emmanuel Ramirez and Rhia Galsim. Our thanks also extended to GIZ GmbH, especially to Dr. Berthold Seibert, Dr. Dicky Simorangkir, Ricarda Stuewe, and Victoria Agsunod for their full support in initiating communication and arranging permission to visit the selected national parks.

Thanks also go to focal points of each country in Ministerial and site levels that enable the team to conduct the field visits: Chou Sophark (Cambodia); Dr. Nandang Prihadi, Dr. Tonny Soehartono, Arief Tongkagie, Nandang Gumilar, Jhon Harkar, Najnuddin and David (Indonesia); Paul Basintal, Maipol Spait (Kinabalu, Malaysia); Lawrence A. K. Manila and Moh. Desa Puteh (Taman Negara Pahang, Malaysia), Muhammad Azizi Mustapa, Sivananthan Elagupillay, Zainuddin Shukor, Fakhrol Hatta, Abdul Kadir Abu Hashim (National Parks and Wildlife Conservation, Malaysia), Silvester Saimin (Sabah Parks, Malaysia), Kantinan Peawsa, Krissada Homsud, Nattapong Banterng and Saksan Tiangplub (Thailand). The study team has received support from the management of national parks that returned the filled-out questionnaires: Badiyah A. Said, Jefry Susyafrianto, Nico Sinaga (Indonesia), Win Naing Thaw (Myanmar), Eden Pito (Philippines) and James Gan (Singapore).

The team also acknowledges all field assistants such as drivers, translators and local guides: Noven Hon, Sitha Som (Cambodia), Mimi Murdiah, Ety Maryati, and Alim Putra Dira (Indonesia), Sari Suharyo, Arkom Naknawa, Patima Naknawa and Samchai Rattanapachak (Thailand) who had made the field visits going smoothly. We thank Rika Sri Wahyuni for producing maps. Additionally, the team would like to deliver sincere thanks to relevant stakeholders who give their insight and input in reviewing and developing the final report.

## I. INTRODUCTION

The ASEAN Heritage Parks (AHPs) are “protected areas of high conservation importance, preserving in total a complete spectrum of representative ecosystems of the ASEAN region”. The establishment of AHPs was started on 29 November 1984, when six ASEAN Member States, namely Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, and Thailand, signed the ASEAN Declaration of Heritage Parks and Reserves and created the first group of 11 AHPs. The basic criteria for the establishment of the AHPs are ecological completeness, representativeness, naturalness, high conservation importance, and legally gazette area. Since the first establishments of 11 AHPs in 1984, currently 30 protected areas have been declared as AHPs, spread throughout all ten ASEAN Member States (Figure 1; Annex 1).

All AHPs have been continuously managed by the respective ASEAN Member States within their legal and regulatory frameworks, as well as planning and management systems, which are aligned to AHP’s planning and management guidelines. During the last 30 years, however, there has been continuously evident that the management of many AHPs is still suboptimal. Reports about illegal activities and land conversion within AHP areas, as well as decrease in vegetation cover of AHPs -as shown by satellite images- make it necessary to identify and analyze the challenges in managing AHPs and finding options to address them for a better and effective protection and conservation of AHPs.

In order to reveal the condition of a certain protected area, various approaches have been developed, including evaluation of the effectiveness of the management of the protected area. Effectiveness evaluation is defined as “the assessment of how well a protected area is being managed – primarily the extent to which it is protecting values and achieving goals and objectives” (Hockings *et al.* 2006).

Several methodologies have been developed to evaluate the management effectiveness of protected areas. A widely used method, called Management Effectiveness Tracking Tools (METT), was applied for this study, with a slight modification to suit the condition in South East Asia. Visits to selected AHPs were also carried out to learn more about the management of AHPs and to draw lessons learned from them.

The review and analysis of the management effectiveness of AHPs was carried out with the following objectives:

- a. to identify challenges and opportunities in general faced by AHPs;
- b. to provide an up-dated condition and status of AHP management in ASEAN Member States;
- c. to provide in-depth situation in selected AHPs;
- d. to draw some important shared experiences and best practices; and
- e. to formulate a common regional strategic direction to respond to the challenges to the sustainable conservation and use of ecosystem and biodiversity, particularly in AHP.

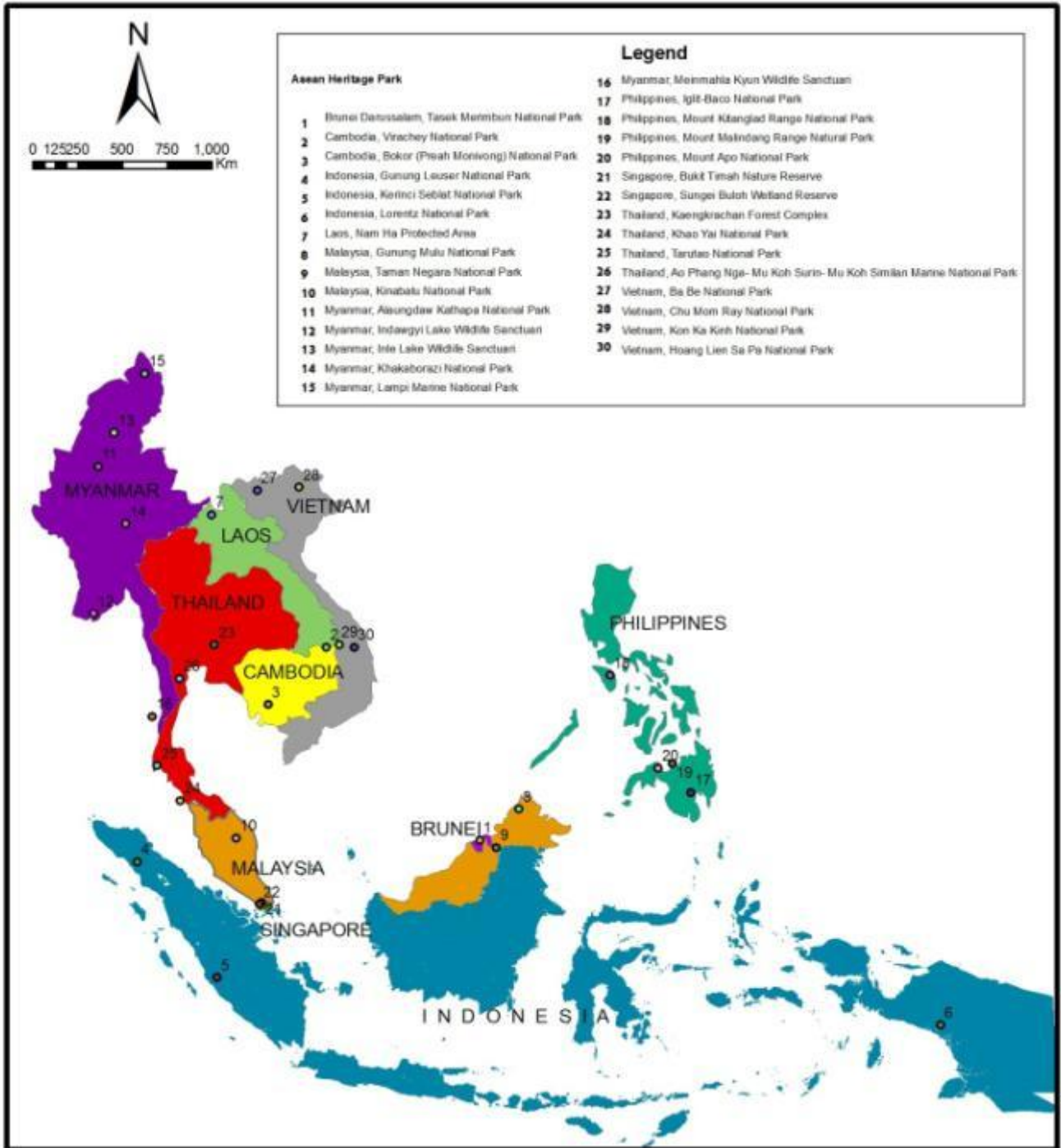


Figure 1. List of ASEAN Heritage Parks and their approximate geographic locations.

## II. METHODS

### A. INFORMATION GATHERING

#### 1. Desk Study

Desk study basically was conducted to formulate the method for assessing the threat and constraints of the AHPs, effectiveness of the protected area (AHPs), as well as to learn about the AHPs. Some sources of information are ASEAN Member States' reports to ACB, Annual Reports and management plans of selected AHPs, existing studies and initiatives in selected AHPs, and other information/reports posted in web.

Specifically, the desk study was carried out to:

- Study a particular method that has been widely used to evaluate the effectiveness of the management of a certain protected area, called METT<sup>1</sup> (Management Effectiveness Tracking Tool). METT was used for this study as an evaluation tool for management effectiveness of a protected areas, with some necessary adjustments on some indicators and scoring method;
- Collect information on challenges (i.e. threats and constraints) faced by all AHPs based on report during the bi-annual meetings of AHP managers;
- Gather basic information of the AHPs visited during this study.

In addition, various threats faced by AHPs were extracted from the Report of the Third AHP Conference<sup>2</sup>. The threats were categorized into 12 aspects as suggested by WWF & The World Bank (2007)<sup>3</sup>. The list of threats is presented in Annex 2.

#### 2. Development and Dissemination of Questionnaires

By using METT as the main guidance, a set of questionnaires were developed for this study (see Annex 3). The questionnaires basically consisted of six elements in the management of a national park, namely context, planning, input, process, output, and outcome, as suggested by Hockings *et al.* (2006). Each element was broken down into several indicators, giving a total of 45 indicators.

Indicators developed for this study is slightly differed than the original 30 indicators of METT, as some adjustments were necessarily made to suit with the condition of the ASEAN Member States. The differences were in the additional indicators under element of output. As many AHPs were experiencing illegal activities inside the park, indicators related to the success of the park in reducing or combating illegal activities and the success of the park in providing ecosystem service were added. The list of elements and indicators used in this study is presented in Annex 5.

Another indicator added to the questionnaires was whether the AHPs aware about the document (existence and content) of the Regional Action Plan for ASEAN Heritage Parks and Protected Areas, published by ACB. As this particular question is applied only to AMS, this question was excluded from the questionnaire and calculated separately.

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<sup>1</sup> Stolton, S.; M. Hockings, N. Dudley, K. MacKinnon, T. Whitten & F. Leverington. 2007. Management Effectiveness Tracking Tool: Reporting Progress at Protected Area Sites. WWF. Gland, Switzerland.

<sup>2</sup> Proceedings of the third ASEAN Heritage Park: Moving forward towards effectively managed ASEAN Heritage Parks. Bandar Seri Begawan, 23-25 June 2010. ASEAN Centre for Biodiversity, Ministry of Development Brunei Darussalam, ASEAN Secretariat & European Union.

<sup>3</sup> WWF & The World Bank. 2007. Management Effectiveness Tracking Tool Reporting Progress at Protected Area Sites: Second Edition. WWF International. Gland, Switzerland.

In order to quantify the results, each indicator was given a score of 4 (very good), 3 (good), 2 (fair), or 1 (poor). The scoring method is slightly differed than the original METT, as in the original METT the score varies from 3 (the best) to 0 (the worse). The zero number was not used in this study because an additional approach of radar plot was applied later on. In radar plot, the value of zero might create an overlapping line.

The METT questionnaires were sent to all 30 AHPs by emails through each of the contact persons, in early September to early November 2012. Of the 30 questionnaires, 17 (56.7%) were returned, included 5 AHPs visited during the study (see next Section). Scores of the returned questionnaires were analyzed. Radar plots of the scores were generated for each AHP to ease analysis. Further description on radar plot will be provided in the next Section.

### 3. Field Visit

Field visits to the selected AHPs were conducted to reveal the actual condition of the selected AHPs and to draw some lessons learned. Five AHPs were chosen, based on the representation of member states and the availability of the AHPs. The field visits to the selected AHPs were carried out from early September to late October 2012. Each visit lasted for 2 to 3 working days (4 to 5 days with the travelling time), depend on the location and situation of the AHP. List of AHPs visited and the dates of visit is presented in Table 1.

Table 1. Date of field visit to the selected ASEAN Heritage Parks.

No.	Name, Country	Date of Visit*	Remarks
1	Virachey National Park, KH	5-7 September 2012	Additional visit to one of the outpost was carried out
2	Bokor National Park, KH	8 September 2012	Short visit was conducted to the Park but without any interview to the Park Director due to conflicting time. Bokor National Park was excluded from the in-depth review
3	Kerinci-Seblat National Park, ID	19-21 September 2012	Visit was made to Bukit Tapan sub-unit, near the Park Headquarter
4	Khao Yai National Park, TH	1-3 October 2012	Visit to Protection Unit no.4 (Klong Pla Kang) was also carried out
5	Kinabalu National Park, MY	9 -11 October 2012	Additional visits to 3 sub-stations (Kundasang, Poring, Masilau) and interviews with Bundu Tuhan communities were carried out
6	Taman Negara Pahang, MY	23-24 October 2012	Additional visit to one of the guard post was carried out

\*effective working days, not including travel time to the location

The selection of 5 AHPs visited for this study was based on several reasons: (a) readiness of the AHPs to be reviewed, in term of timing agreed by the Study Team and AHP Managers, (b) category of AHPs: national parks were selected as this type of nature reserve has a complete function, and (c) results of consultation with ACB. The original plan was to include Tasek Merimbun National Park (Brunei Darussalam), Mulu National Park (Malaysia), and Bokor National Park (Cambodia). Due to the conflicting time, Tasek Merimbun was replaced by Taman Negara Pahang (Malaysia), Mulu was exchanged by the neighboring Malaysian national park of Kinabalu, while Bokor National Park was dropped from the list. In selecting the AHPs, no scoring was used.

During the field visit, interviews and discussions with the Park Director/Manager/ Superintendent were carried out. Additional interviews to other related stakeholders and resource persons were also performed, including to staff of the park, park visitors, tour guides and tour operators, local community, Government, NGOs, and private sectors. METT questionnaires were used as guidance during interview. List of resource persons interviewed during the study is presented in Annex 6.

It was also discovered that during the field visit there were 2 more indicators which might be useful to assess the management effectiveness of an AHP. The two indicators were related to context, namely geographic location, and border security and safety. Geographic location referred to how well the geographic position of a certain AHPs to withstand the possible threat, especially illegal activities. Border security and safety was related to the socio-political situation surrounding the park, including conflict among ethnic groups. The two indicators were invented during the field visit and, therefore, those two were not include in the questionnaires sent to other AHPs. For overall comparison, these indicators had to be excluded, considering that the other 12 AHPs who returning their questionnaires did not answer these questions.

## B. ANALYSIS

Data on threats, constraints, and METTs were collated and calculated as percentages. Bar charts were produced to assist the data reading and interpretation. The final score of management effectiveness of an AHP was calculated based on the ratio (in percentage) between the total score of the indicators and the maximum score of 180 (i.e 4 x 45). For example, if a certain AHP has the total scores of 130 (from 45 elements, score range 1-4 for each element), the effectiveness score would be 130/180 or 72.2%.

METT scorings of the 17 returned questionnaires were presented in radar plots. In the standard METT methodology, there is no further analysis regarding the score of management effectiveness of a park. In this study, radar plots were introduced to assist visual presentation and interpretation. A radar plot basically a plotting of scores in a circular pattern, instead of a horizontal line. After all indicators of each element (total 45 elements) for all 17 AHPs were scored (4 to 1), each score was plotted on the radar graph by using Microsoft Excel. The similar approach of utilizing radar plot for management purpose has been applied as a standard method for assessing the Non-Detriment Finding for plants and animals traded in international market under CITES scheme<sup>4</sup>.

There were 45 dots in radar plot, each correspond to a specific indicator. In order to ease the visual analysis for further management, the radar plots were divided into 6 parts, each parts correspond with elements of management effectiveness.

All above information were analyzed based on and framework of analysis shown in Figure 2. Opportunities, lessons learned, and best practices were drawn from the information gathered during the field visit. Additional information was obtained from three previous reports on ASEAN Heritage Park meetings<sup>5,6,7</sup>. Furthermore, common regional strategic direction was also formulated to give a further general guidance for the AHPs.

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<sup>4</sup> CITES. No date. Guidelines to assist the Parties in making non-detriment findings. [http://www.conabio.gob.mx/institucion/cooperacion\\_internacional/TallerNDF/Links-Documentos/IUCNChecklist/Part4.pdf](http://www.conabio.gob.mx/institucion/cooperacion_internacional/TallerNDF/Links-Documentos/IUCNChecklist/Part4.pdf).

<sup>5</sup> Report on Conference on ASEAN Heritage Parks. Khao Yai National Park, Thailand. 20-24 September 2004. ASEAN Regional Centre for Biodiversity Conservation, Department of Environment and Natural Resources of Thailand, ASEAN Secretariat & European Union.

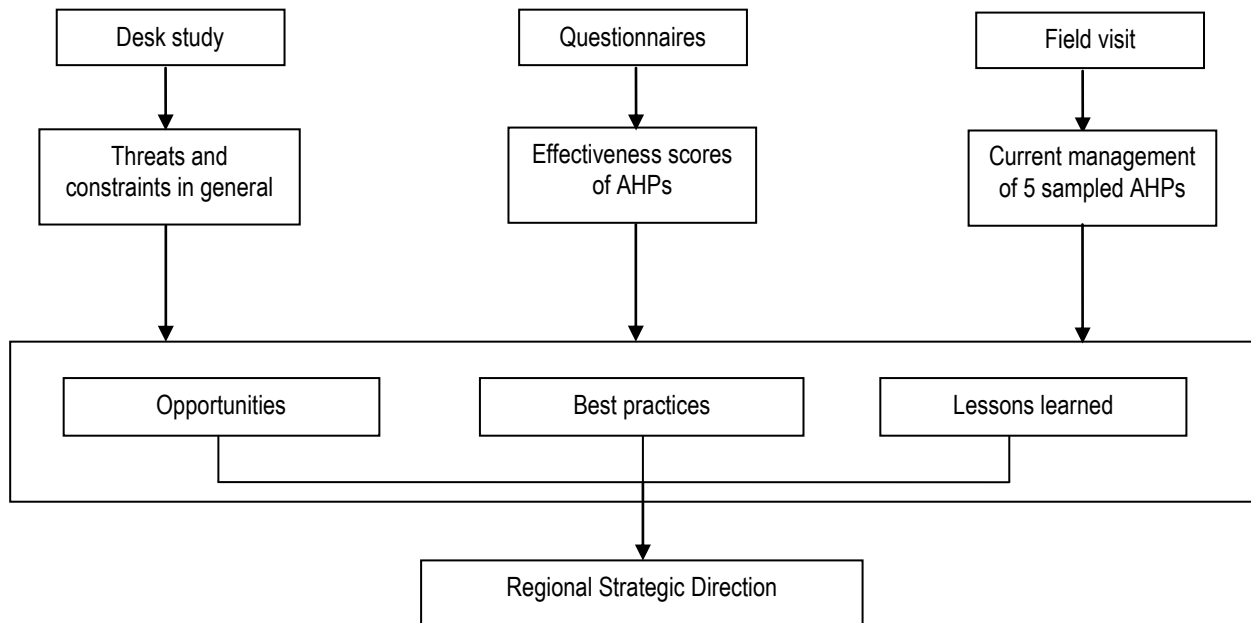


Figure 2. Framework of analysis for the study of management effectiveness of ASEAN Heritage Parks.

### C. TIME AND DURATION

The study was conducted for 13 weeks, from 13 August 2012 until 20 November 2012. Following the circulation of the draft report to the ASEAN Member States and ACB in late November 2012 for an input, the final report was produced in mid December 2012.

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<sup>6</sup> Proceedings of the Second ASEAN Heritage Parks Conference and Fourth Regional Conference for Protected Areas. Sabah, Malaysia 23-27 April 2007. ASEAN Centre for Biodiversity, BirdLife International, Haribon Foundation, and Sabah Parks.

<sup>7</sup> Proceedings of the third ASEAN Heritage Park: Moving forward towards effectively managed ASEAN Heritage Parks. Bandar Seri Begawan, 23-25 June 2010. ASEAN Centre for Biodiversity, Ministry of Development Brunei Darussalam, ASEAN Secretariat & European Union.

### III. CHALLENGES OF ASEAN HERITAGE PARKS

#### A. THE NATURE OF ASEAN HERITAGE PARKS

Within South East Asia region, 30 protected areas have been designated as ASEAN Heritage Parks (AHPs). The categories of the AHPs are varied. Most of them are national parks (21 AHPs; 70.0%), and the rest are wildlife sanctuaries (3 AHPs; 10.0%), nature reserves (2 AHPs; 6.7%), natural parks (2 AHPs; 6.7%), protected area (1 AHP; 3.3%), and forest complex (1 AHP; 3.3%). As for the main landscape types of the AHPs, most of the AHPs were located in the terrestrial area (21 AHPs; 70%), and the rest were in wetland area (5 AHPs; 16.7%) or in marine environment (4 AHPs; 13.3%). It is also interesting to know that many protected areas in the ASEAN are named mountain ('Gunung'). This is because most parts the AHP are indeed mountainous area.

In term of size, the size of AHPs varied highly as well. The majority of AHPs (17 AHPs; 56.7%) are small in size (250 – 100,000 ha). The remaining are very small sizes (<250 ha; 2 AHPs or 6.7%), medium (100,000 – 250,000 ha; 4 AHPs or 13.3%), large (250,000 - 1,000,000 ha; or 13.3%), or very large (more than 1,000,000 ha; 3 AHPs or 10%). The size of the AHPs surely is related to the size of the AMS. In small country like Singapore, the two AHPs of the country are correspondingly small. The smallest AHP is located in Singapore, covering 130 ha (i.e. Sungei Buloh). In contrast, big country such as Indonesia is able to set aside large national parks as protected areas. In fact, the largest AHP is Lorentz National Park in Indonesia's Papua Island, covering about 2.5 million ha.

#### B. CHALLENGES OF ASEAN HERITAGE PARKS: THREAT AND CONSTRAINTS

In this report, challenges of AHPs area grouped into two categories, namely threats and constraints. The definition of threats follow Cowan *et al.* (2010)<sup>8</sup>, namely 'forces of nature or the actions of other authorities within or adjoining the protected area which have detrimental effects on the integrity of the protected area'. Clearly, threats refer to external factors that may influence management effectiveness of the AHPs. Constraints, on the other hand, are internal factors that may hamper the management effectiveness of a protected area.

As mentioned in the previous Chapter, threats and constraints were collected and analyzed from AHP Reports, which was based on workshops held during the AHP bi-annual meetings. Thus, the threats and constraints were identified by each AHP Managers (or Park Director/ Superintendent). To ease the analysis and framework of thinking, threats and constraints listed by the Park Managers were categorized based on elements used in METT. The results presented in the following were based on threat and constraints of 28 AHPs, as 2 AHPs (i.e. Bukit Timah Nature Reserve – Singapore and Mount Malindang Range Natural Park – The Philippines) had not joined AHP when the last bi-annual meeting was held.

##### 1. Threats to the ASEAN Heritage Parks

Identification of threats to the AHPs is important to understand about the management policy and actions taken by an AHP. Many important threats to the AHPs were identified by the Park Directors/Managers/Superintendents. The biggest threat to the AHPs were the illegal consumptive use of natural resources (reported by 85.7% of the AHPs; Figure 3), including illegal logging, poaching, illegal wildlife trade, illegal fishing, and illegal extraction for other NTFPs. Of these lists, the illegal logging and poaching of various wildlife species still took a major portion of the illegal consumptive use.

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<sup>8</sup> Cowan, G.I.; N. Mpongoma, P Britton. 2010. Management effectiveness of South Africa's protected areas. Department of Environmental Affairs, Pretoria.

It seems that nearly all countries have problems with the illegal consumptive use of natural resources. Singapore probably is the only exception. Malaysia is also has been experiencing only a slight problem with the illegal activities. The rest of countries (AMS) are considerably undergo the illegal activities quite heavily.

Problems and conflict related to land use and tenure (76.9%) were also a major threat to the AHPs. Some problems related to land use were conflict of AHPs with the local community and/or indigenous people, or with other stakeholders that competing for the same land.

Conflict on land is not surprising in the ASEAN countries, as the local people surrounding the AHPs are densely populated and might triggers many conflicts. Some of the locations also have a conflicting land use, most likely with other sectors incompatible with the mission of protected areas, such as mining and plantation for oil palm or others.

Threats from farming and grazing as a result of agricultural expansion and intensification, including silviculture, mariculture and aquaculture were listed as major threat as well included in (39.3%). Based on the landscape category of the AHPs (see Annex 7), most AHPs are highlands and only 7 AHPs (3 wetlands and 4 marine protected areas) are dominated by aquatic ecosystem. Land encroachments, especially along the boundary of AHPs, were reported happened quite often.

Other potential threats were habitat degradation, specifically due to forest fire and euterophication of water bodies (32.1%) and habitat disturbance, including due to exceeding carrying capacity of visitors (32.1%). The rest of the threats were considered minor, although they still need to be monitored. It is worth to know that there was no threat to specific cultural and social in all AHPs.

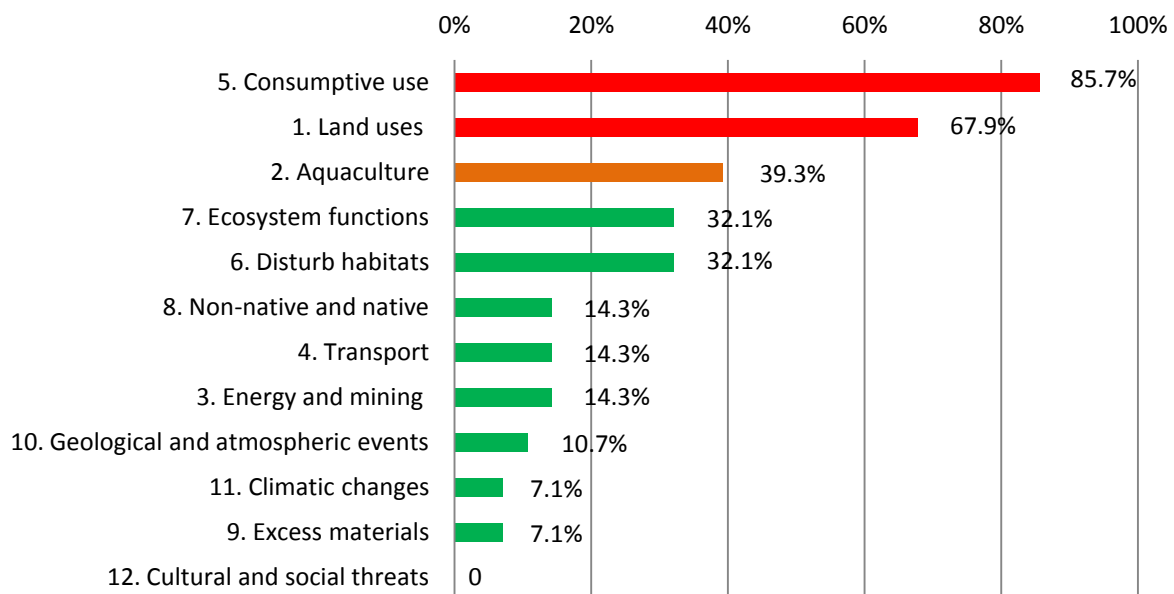


Figure 3. Percentage of threats to ASEAN Heritage Parks (n=28).

## 2. Constraints to the ASEAN Heritage Parks

Internal factors that acted as constraints to the management of AHPs were quite numerous, and - as mentioned previously - were listed based on elements. Of the six steps or elements of the management of protected area, the biggest constraints were from process/implementation (71.4% of the AHPs reported having constraints in process/implementation), followed by input (reported by 67.9% of 28 AHPs; Figure 4). About 14.3% of AHPs unfortunately still had some constraints in

context (primarily the legal status of the AHPs). Constraints in planning and output were considered minor, reported only by 10.7% dan 7.1% of AHPs, respectively.

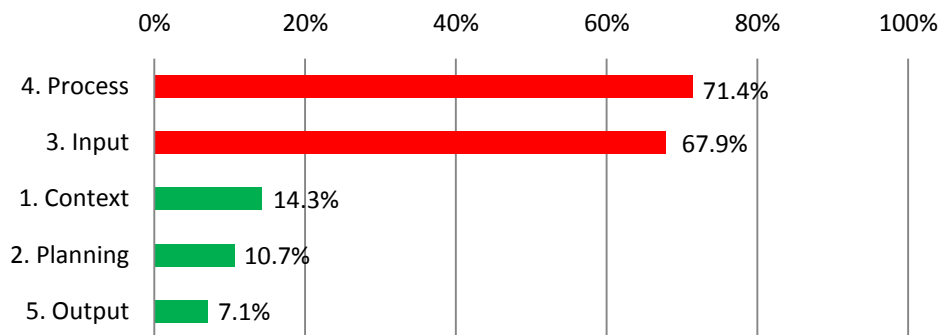


Figure 4. The number of ASEAN Heritage Parks (in %) experiencing constraints, listed based on elements (n=28). Numbers of the elements were corresponded to the management process. The sixth element (i.e. impact) was excluded because it was not mentioned by AHPs.

When the elements were broken down into indicators, it was clear that the human resources still outnumbered other indicators (Table 2). In fact, the human resources (number of staff, expertise of staffs, including number of park rangers) were reported to be the highest constraints faced by the AHPs (totaling 30.2%). Although many AHPs reported that some trainings have been conducted, apparently the trainings were still insufficient for the effective management of the AHPs.

The second highest constraints, was collaboration with other institutions (15.6%). This fact is important to know to understand how difficult it must be for an AHP to manage their area effectively. Without good collaboration with other institutions, especially institutions adjacent to the AHPs, it would be difficult to secure the boundary of the AHPs and maintain the wholeness of the AHPs.

Law enforcement and patrol combined were accounted for 12.4% of the constraints. These constraints were faced mostly by large AHPs and surrounding by densely populated local human population, resulting in high incidence of illegal activities by people from surrounding areas. It is understandable that in a big AHPs surrounded by people who largely depend on the biodiversity of the protected area, such as Kerinci-Seblat National Park of Indonesia (1.4 million ha), law enforcement indeed is crucial for the effective management of the AHPs.

Budget was also a major obstacle for AHP. Of the all constraints combined, the availability and sustainability of budget was accounted for 11.4%. With the exception of some AHPs having high visitation, almost all AHPs rely on Government's budget for the operational costs and staff salary. Many AHPs have been dedicated for protection of wildlife and landscape/seascape, which do not manage for commercial visitation. This type of AHP surely need Government budget.

Other significant constraint was accessibility (6.2%). Difficult access to the AHPs could hamper the ecotourism development, as well as patrolling. For some AHPs, reaching the border of the protected areas is quite difficult and might take several days on foot or by boat.

Table 2. Constraints of ASEAN Heritage Parks, listed based on occurrence, and METT elements and indicators.

Element	Percentage of Occurrence	Indicator	Percentage of Indicator
Input	67.9	Human resources: expertise	15.6
		Budget	11.4
		Human resources: number of staff	10.4
		Supporting facilities	5.2
		Human resources: park ranger	4.2
		Salary	2.1
		Infrastructure	2.1
		Access to information and technology	1.0
		<i>Percentage of elements (all indicators)</i>	52.1
Process	71.4	Collaboration with other institutions	15.6
		Law enforcement	6.2
		Patrol	6.2
		Research for management	4.2
		Implementation of management plan	2.1
		Data analysis and interpretation	1.0
		<i>Percentage of elements (all indicators)</i>	35.4
Context	14.3	Accessibility	6.2
		Size	1.0
		<i>Percentage of elements (all indicators)</i>	7.2
Planning	10.7	Management plan	3.1
		<i>Percentage of elements (all indicators)</i>	3.1
Output	7.1	Monitoring and evaluation	2.1
		<i>Percentage of elements (all indicators)</i>	2.1

## IV. MANAGEMENT EFFECTIVENESS OF ASEAN HERITAGE PARKS: GENERAL RESULTS

### A. SELECTION OF METT AS THE STUDY METHOD

Leverington *et al.* (2010)<sup>9</sup> compiled more than 8,000 assessments of protected area management effectiveness worldwide and developed a method for analyzing results across diverse assessment methodologies. Of the 14 commonly used method, the most widely used is RAPPAM (Rapid Assessment and Prioritization of Protected Area Management, 22.95%), followed by METT (21.14%).

RAPPAM method provides policy makers and protected area authorities with a relatively quick and easy method to identify major trends and issues that needs to be addressed for improving management effectiveness in any given system of protected areas. The RAPPAM methodology is designed for broad-level comparison among many protected areas that together make a protected area network or system. As a method to measures effectiveness across a group of protected areas in a region or country, RAPPAM has been used to assess over 1,600 protected areas in 49 countries across the world<sup>10</sup>.

METT, which aims to provide a quick and simple picture of effectiveness in individual protected area, has been applied more than 1,500 times across 1,150 reserves in 86 countries. The Global Environmental Facility (GEF) has made the METT mandatory for use in all projects in protected areas funded by GEF-3 grant, since 2001. METT ideally applied repeatedly to monitor the management improvement<sup>11 12</sup>. As this study assess individual protected area (i.e. AHPs), METT is more appropriate to use.

### B. OVERALL MANAGEMENT EFFECTIVENESS

As mentioned previously, the effectiveness of protected areas management was calculated by giving scores to the indicators of METT approach and transformed the scores into percentages. Of the 17 AHPs that filled out the questionnaires, the scores varied from the lowest of 55.6% up to the highest of 93.3%, while the average of the management effectiveness for the 17 sampled AHPs were 74.8%.

Figure 5 presents the scores of management effectiveness of the 17 AHPs, listed from the highest to the lowest scores. Scores for each AHP are presented in Annex 8. Taman Negara Pahang of Malaysia ranked the top, with a effectiveness score of 93.3% percent, followed by Kinabalu National Park (89.4%), which is also located in Malaysia. On the the third rank was Khao Yai National Park of Thailand with 74.8% of park management effectiveness.

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<sup>9</sup> Leverington, F.; K. L. Costa, H. Pavese, A. Lisle & M. Hockings. 2010. A global analysis of protected area management effectiveness. *Environmental Management - Online*. DOI 10.1007/s00267-010-9564-5.

<sup>10</sup> Erwin, J. 2003. *The Rapid Assessment and Prioritization of Protected Area Management (RAPPAM) Methodology*. WWF, Gland. Switzerland.

<sup>11</sup> Leverington, F.; M. Hockings, H. Pavese, K.L. Costa & J. Courrau. 2008. *Management effectiveness evaluation in protected areas: A global studies. Supplementary Report no. 1 – Overview of approaches and methodologies*. The University of Queensland - Gatton, TNC, WWF, IUCN-WCPA Australia.

<sup>12</sup> Cowan, G.G; N. Mpongoma & P. Britton. 2010. *Management effectiveness of South Africa's protected areas*. Department of Environmental Affairs, Pretoria.

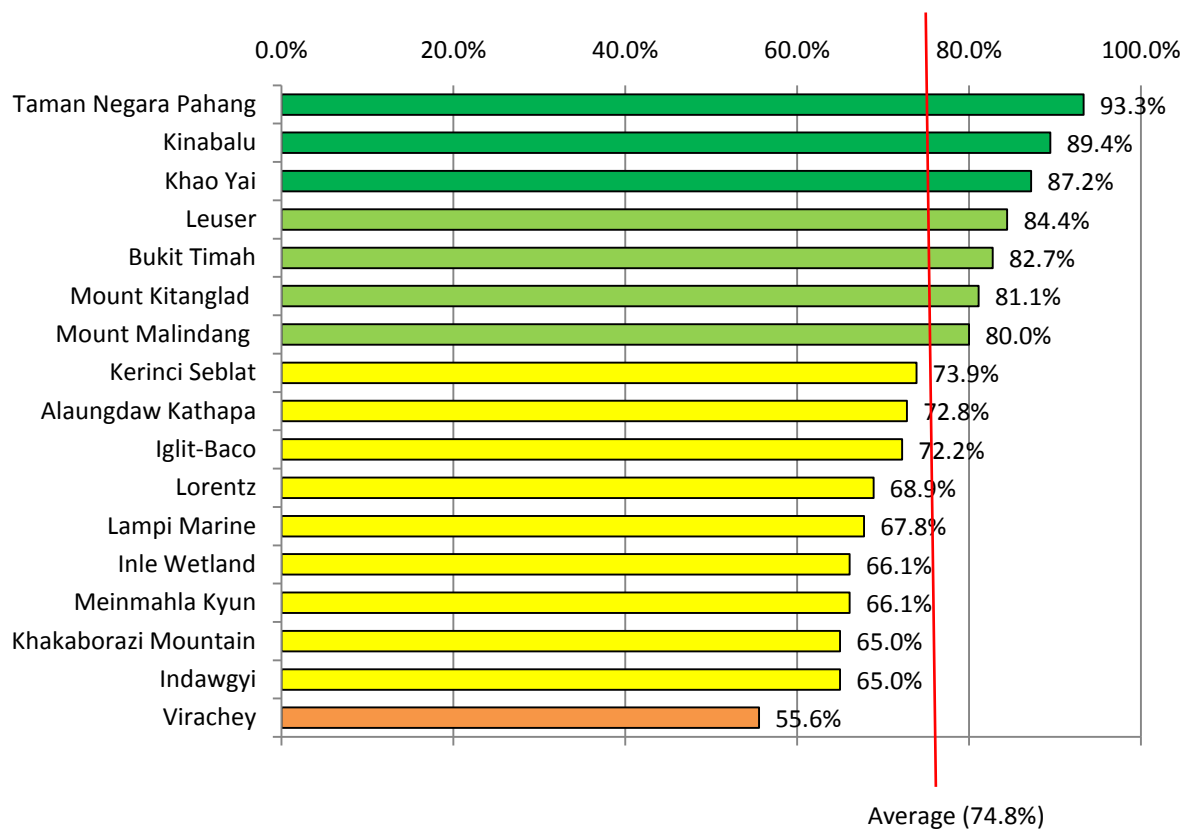


Figure 5. Score of the management effectiveness of ASEAN Heritage Park (n=17), presented in descending order.

Further categorization (see Table 3) shows that there were 3 AHPs having a category of ‘very good’, namely Taman Negara Pahang, Kinabalu, and Khao Yai. At the lower category (‘good’) were Gunung Leuser, Bukit Timah, Mount Kitanglad, and Mount Malindang. The score of these 7 AHPs had a score of above average. Another 9 AHPs (other than Virachey) were categorized as ‘average’, while Virachey unfortunately was categorized as ‘below average’.

Table 3. Score and category of the management effectiveness of ASEAN Heritage Park.

No.	Name of ASEAN Heritage Park	Country	Effectiveness Score (%)	Category*
1	Taman Negara Pahang	Malaysia	93.3	Very good
2	Kinabalu	Malaysia	89.4	Very good
3	Khao Yai National Park	Thailand	87.2	Very good
4	Gunung Leuser National Park	Indonesia	84.4	Good
5	Bukit Timah Nature Reserve	Singapore	82.7	Good
6	Mount Kitanglad Range Natural Park	Philippines	81.1	Good
7	Mount Malindang Range Natural Park	Philippines	80.0	Good
8	Kerinci-Seblat National Park	Indonesia	73.9	Average
9	Alaungdaw Kathapa National Park	Myanmar	72.8	Average
10	Iglit-Baco National Park	Philippines	72.2	Average
11	Lorentz National Park	Indonesia	68.9	Average
12	Lampi Marine National Park	Myanmar	67.8	Average
13	Inle Lake Wildlife Sanctuary	Myanmar	66.1	Average
14	Meinmahla Kyun Wildlife Sanctuary	Myanmar	66.1	Average
15	Khakaborazi National Park	Myanmar	65.0	Average
16	Indawgyi Lake Wildlife Sanctuary	Myanmar	65.0	Average
17	Virachey National Park	Cambodia	55.6	Below average
Statistical average			<b>74.8</b>	

Category: 100-85%: very good, <85-80%: good, <80-65: average, <65 below average

### C. EFFECTIVENESS OF EACH ELEMENTS

There are 6 elements that have been used to assess the effectiveness of the AHPs, as mentioned in previous parts of this report, namely context, planning, input, implementation, output, and impact. Each of the elements needs to be observed closely in order to identify the most crucial elements. List of scores obtained by each sampled AHPs is presented in Table 4. To assist further analysis, bar charts of elements were produced in the descending order of scores achieved by each sampled AHPs (Figures 6 and 7).

The first element, context, refers to the legal status of the protected area. Overall, the sampled AHPs (n=17) did not have any problems with the legal status. The average score for the element of context was very high, 98.5%. Only 1 AHP, namely Iglit-Baco National Park in the Philippines, reported that the national park protected areas had a slight situation with the legal status of the areas (score 75.0%). Although the legal status of the AHPs were secured, threat analysis (see Chapter 3) suggested that problems related to land use, conflict of land, as well as land encroachments have been going on in the field. Thus, it can be concluded that the legal status still cannot ensure that the protected area is free of problems related to land use.

As for planning, Khao Yai National Park of Thailand gained the perfect score of 100%. Mount Malindang, Leuser, Taman Negara Pahang and Kinabalu had a good plan for their protected area. (more than 90% of effectiveness score). The rest of the AHPs were still in a range of 66.7% and

above. The average of all was 82.0%, indicating that on average, the sampled AHPs have good planning. Indicators included in planning were management plan, zonation, maps, regulation, and park design.

The next element is input, referring to human resources, equipments, infrastructures, budget, and resource inventory. The input of the sampled AHPs highly varied, with scores ranging from 40.6% (Virachey National Park, KH) up to more than 90% (i.e. Taman Negara Pahang 96.8%, Kinabalu 92.2%). Most parks, as shown in the threat analysis, experiencing constraints on the human resources. Some AHPs, including Virachey National Park, also had a problem in providing sufficient budget for operational cost and staff salary. On the average, the sampled AHPs had a score of 71.1% for input.

Within process or implementation element, there were many indicators, including boundary demarcation, maintenance of equipments, education and awareness program, involvement of local and indigenous people, monitoring and evaluation, activities related to tourism and visitors, training, and collaboration with other institutions. The score of process/implementation reflects the day-to-day operational activities of a certain AHPs. Results of the study showed that in term of process/implementation, on the average AHPs had a relatively low score of 68.6%. The best AHP in term of the proses/implementation was Taman Negara Pahang with a score of 96.9%.

Taman Negara Pahang was also ranked the best in the output element, scoring 93.8%. Lorentz National Park also has the same highest score of 93.8%, but for a different reason. Lorentz National Park has been intact because of the very low population number of local people in Papua Island of Indonesia, whereas Taman Negara Pahang had a high output due to an excellent management of the Park. In contrast, Kerinci Seblat National Park (Indonesia) only scored 65.6% due to various pressures from its surrounding. Indicators included in the output were provision of wildlife habitat and environment service, as well as prevention of the AHPs from illegal extraction of natural resources, including timber and wildlife.

Impact of an AHP was assessed on how the AHP could provide economic benefit to local people and how the current condition was compared to the time when the AHP was gazette. Taman Negara Pahang gained the perforce score of 100%, followed by 4 other AHPs having the same score (87.5%): Kinabalu, Khao Yai, Bukit Timah, and Kitanglad. The lowest impact was given by 5 AHPs: Virachey, Kerinci Seblat, Indawgyi, Inle, and Iglit Baco, with scores of 62.5% for each of them.

Table 4. Scores of each elements for sampled ASEAN Heritage Parks (n=17).

Name, Country	Elements (%)						Overall (%)
	Context	Planning	Input	Process	Output	Impact	
Virachey , KH	100	83.3	36.1	40.6	68.7	62.5	55.6
Gunung Leuser , ID	100	94.4	88.9	84.4	68.7	75.0	84.4
Kerinci-Seblat, ID	100	77.8	77.8	73.4	65.6	62.5	73.9
Lorentz, ID	100	86.1	55.5	51.6	93.8	75.0	68.9
Kinabalu, MY	100	91.7	83.3	92.2	87.5	87.5	89.4
Taman Negara Pahang, MY	100	91.7	86.1	96.9	93.8	100	93.3
Alaungdaw Kathapa, MM	100	83.3	69.4	64.1	78.1	75.0	72.8
Meinmahla Kyun, MM	100	66.7	63.9	57.8	78.1	75.0	66.1
Indawgyi Lake, MM	100	72.2	63.9	54.7	75.0	62.5	65.0
Inle Lake, MM	100	66.7	61.1	60.9	78.1	62.5	66.1
Khakaborazi, MM	100	72.2	63.9	54.7	71.9	75.0	65.0
Lampi, MM	100	75.0	66.7	54.7	81.3	75.0	67.8
Iglit-Baco, PH	75.0	69.4	69.4	70.3	84.4	62.5	72.2
Mount Kitanglad, PH	100	83.3	75.0	82.8	78.1	87.5	81.1
Mount Malindang, PH	100	94.4	69.4	75.0	84.4	75.0	80.0
Bukit Timah, SG	100	86.1	86.1	75.0	85.7	87.5	82.7
Khao Yai, TH	100	100	91.7	78.1	84.4	87.5	87.2
Average	98.5	82.0	71.1	68.6	79.9	75.7	74.8

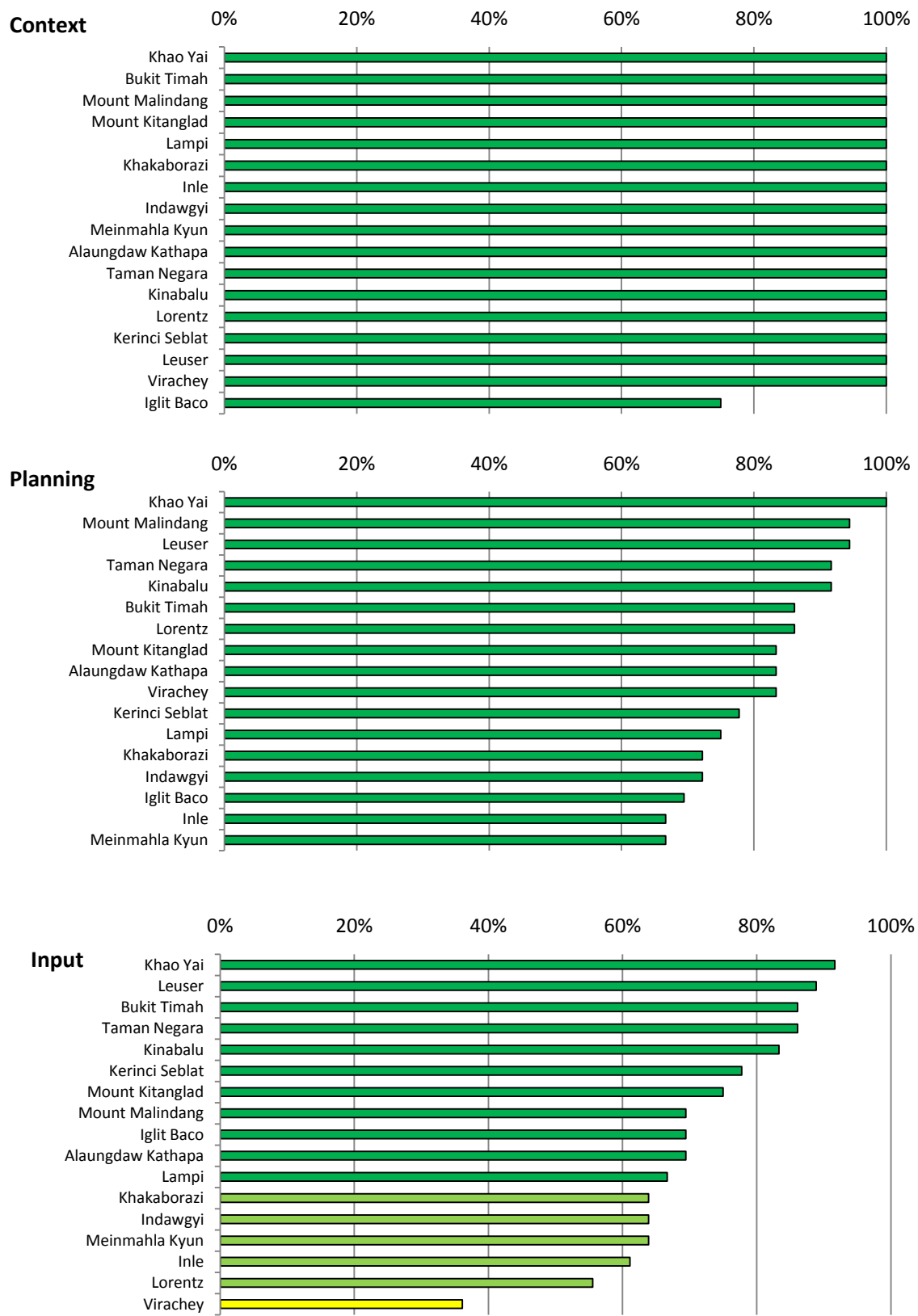


Figure 6. Scores for context, planning, and input elements for each sampled ASEAN Heritage Park (n=17).

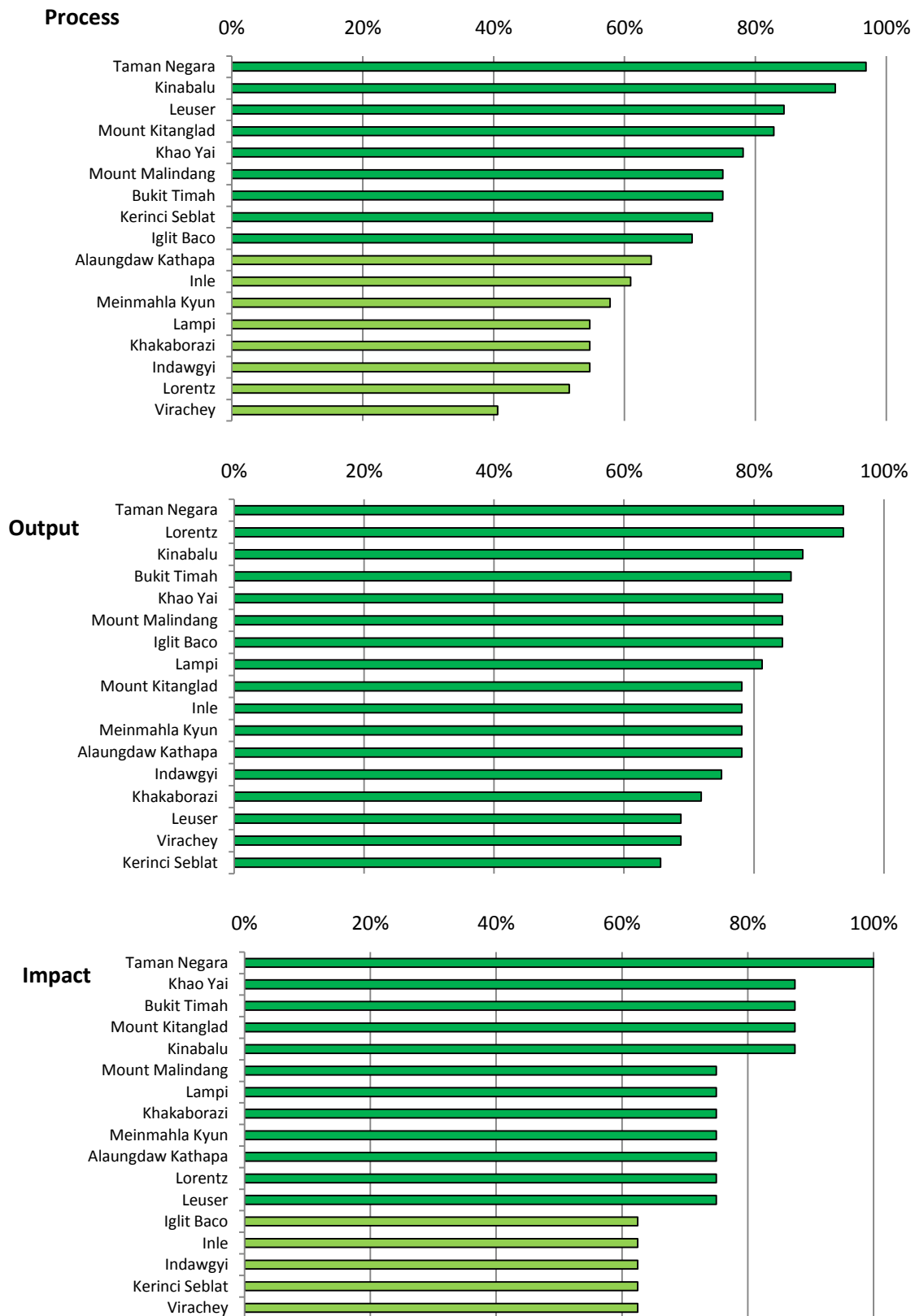


Figure 7. Scores for process, output, and impact elements for each sampled ASEAN Heritage Park (n=17).

#### D. EFFECTIVENESS OF EACH INDICATOR

Each indicator within every element was investigated further to unveil the specific weak and strong indicators, in order to provide direction for further management actions and necessary training (Table 5). Scores for management plan, zonation, and work plan were the lowest among planning element, while planning, maps, park design and objectives were scored high. As also noticed in the constraints analysis in the previous Chapter, staff quality was listed as the one of the lowest scored indicators, together with infrastructure and equipments.

For process element, there was a slight disagreement between the results of the samples AHPs (n=17) and the overall survey (n=28) in the indicator of collaboration with the park. Most of the AHP Director/Managers/Superintendent (n=28) stated that they have a minor problem in this area. However, sampled AHPs (n=17) showed that collaboration of other stakeholders with the park in fact was quite strong. Indicators within the process which need to be strengthened in the future are tourism operator and management related visitors (including the management of fees from the visitors), involvements of local people and indigenous people in the planning and management of the parks, and regular training for staffs.

As for the output, following the gazetement of the AHPs, the condition of the habitat and wildlife basically has been better. However, in some AHPs, the park still less able to provide economic benefit to the local people.

Table 5. Average highest and lowest scores of indicator for planning, input, process/ implementation, and output & impact.

Highest Indicators	Score (%)	Lowest Indicators	Score (%)
<b>Planning</b>			
Maps availability	95.6	Management plan	64.7
Park design	92.6	Park zonation	70.6
Park objectives	92.6	Work plan	75.0
<b>Input</b>			
Security of budget	83.8	Equipment	64.7
Other resources	82.4	Infrastructure	64.7
Resource inventory	73.5	Staff quality	66.2
<b>Process/Implementation</b>			
Boundary demarcation	82.4	Commercial tourism operators	50.0
Collaboration with the park	80.9	Fee collection and contribution	56.3
Maintenance of equipment	80.9	Indigenous people involvement	60.9
Management of budget	79.4	Local communities involvement	61.8
Education and awareness	76.5	Staff training	61.8
<b>Output &amp; Impact</b>			
Condition of values	80.9	Economic benefit	70.6

#### E. SCORES OF INDICATORS FOR EACH ASEAN HERITAGE PARKS

Scores of indicators for each AHP were presented in radar plot, in order to assist the data reading and data interpretation. To assist data reading, scores of each indicators are indicated by dots overlaid on colors, with outer color (dark green) being the highest (i.e. 4) score. Thus, dots closer to the center means lower scores.

In relation to the elements of management effectiveness being studied (i.e., context/status, planning, input, process/implementation, output, and impact), basically the radar plot can be divided into 6 parts. Fig. 8 presents a simple guidelines on how to interpret the radar plot.

The results of radar plots for each AHP are shown in Figure 9, 10 and 11. The radar plot completed with labels for each AHP are shown in Annex 9. From each radar plot, it can be analyzed quickly which element(s) need to be improved in the future. A large area of radar plot means that the AHPs have relatively high management effectiveness. In contrast, a small area implies that the AHPs still has a low management effectiveness and, therefore, need more improvement for better management in the future.

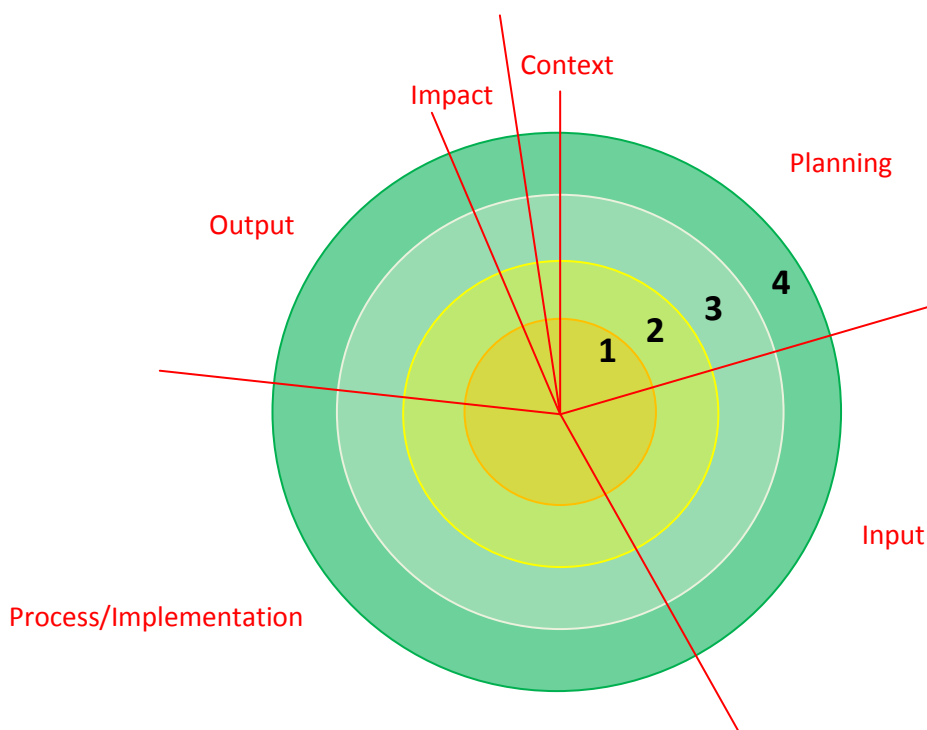
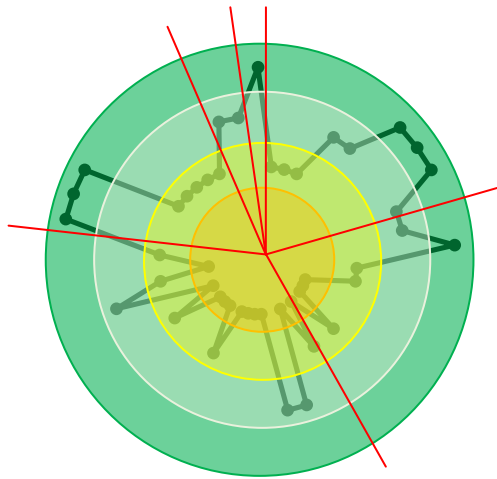
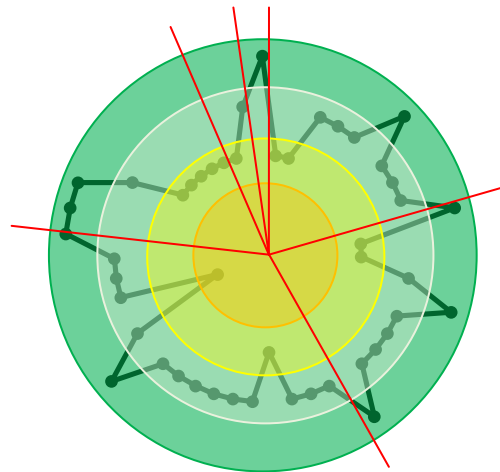


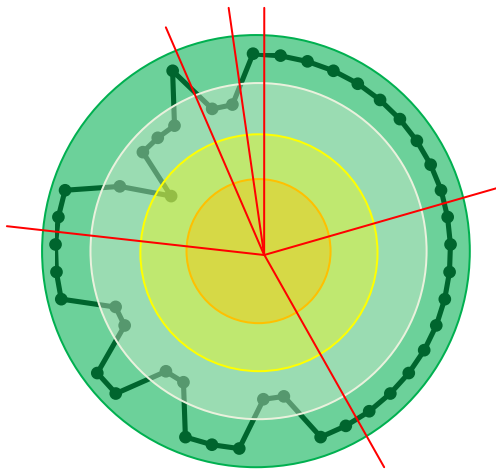
Figure 8. Divisions of radar plot showing elements of management effectiveness of an ASEAN Heritage Park, to assist in radar plots interpretation. Scores (1, 2, 3, 4) are plotted against colored circles.



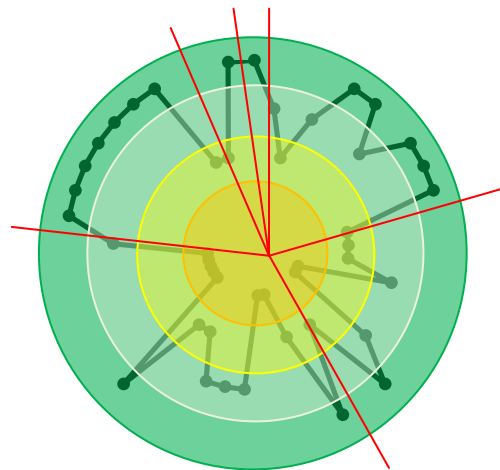
Virachey National Park (Cambodia)



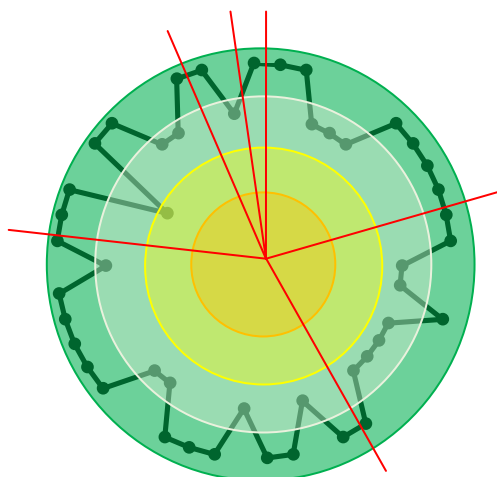
Kerinci Seblat National Park (Indonesia)



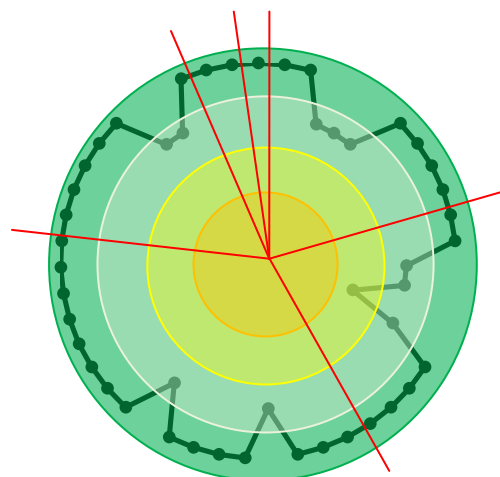
Leuser National Park (Indonesia)



Lorentz National Park (Indonesia)

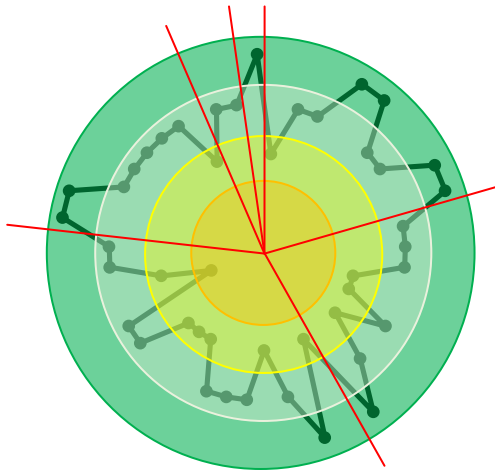


Kinabalu National Park (Malaysia)

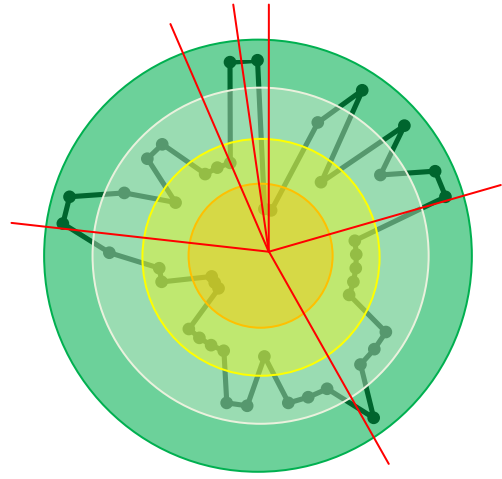


Taman Negara Pahang (Malaysia)

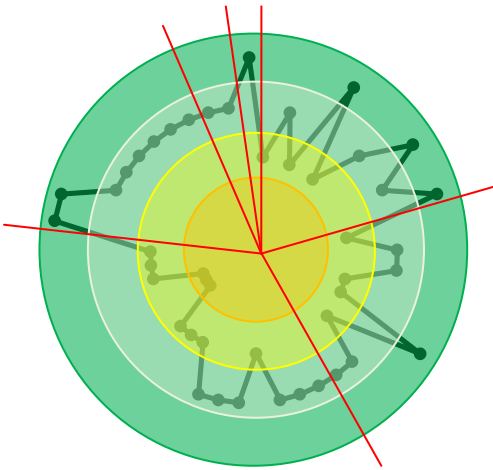
Figure 9. Radar plots of indicator scores of the management effectiveness of ASEAN Heritage Parks in Cambodia, Indonesia, and Malaysia.



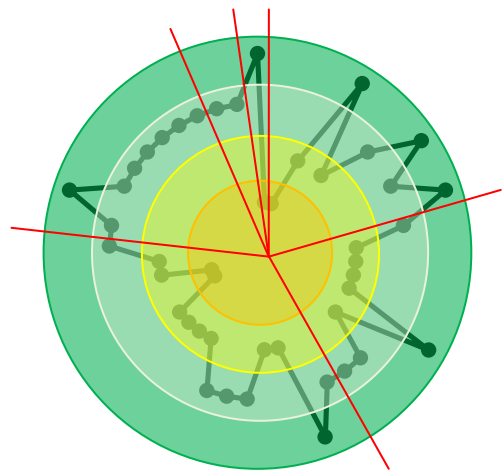
Alaungdaw Kathapa National Park (Myanmar)



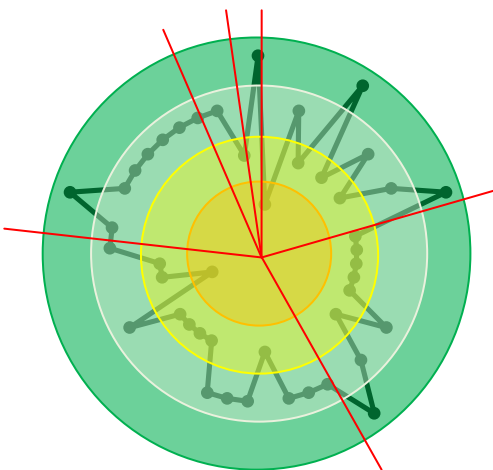
Khakaborazi Mountain National Park (Myanmar)



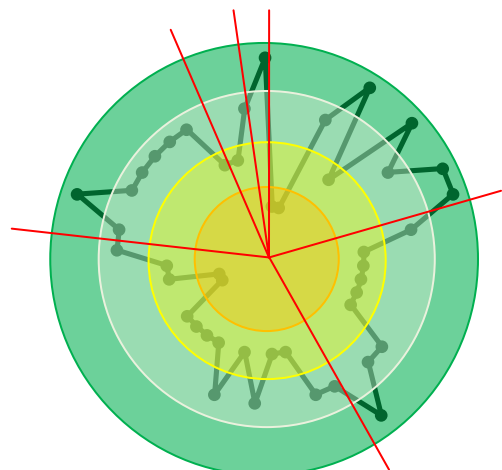
Lampi Marine National Park (Myanmar)



Meinmahla Kyun Wildlife Sanctuary (Myanmar)

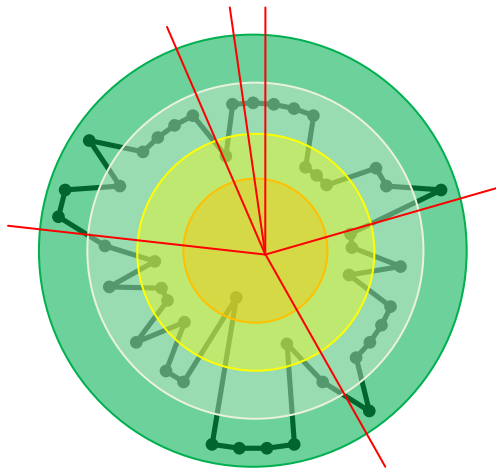


Inle Lake Wildlife Sanctuary (Myanmar)

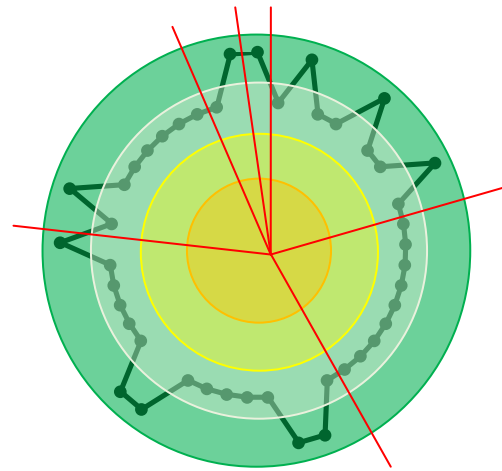


Indawgyi Lake Wildlife Sanctuary (Myanmar)

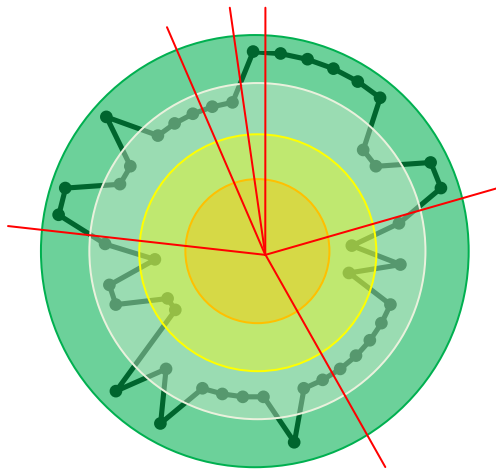
Figure 10. Radar plots of indicator scores of the management effectiveness of ASEAN Heritage Parks in Myanmar.



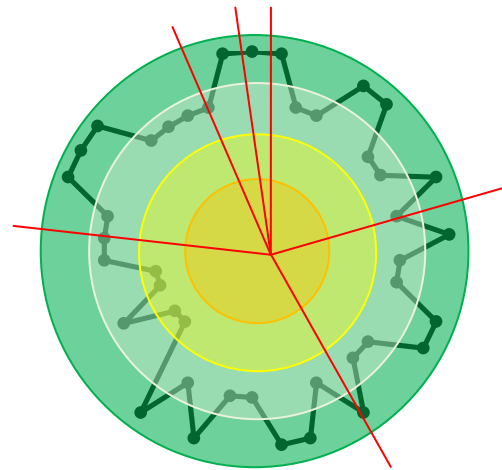
Iglit-Baco National Park (Philippines)



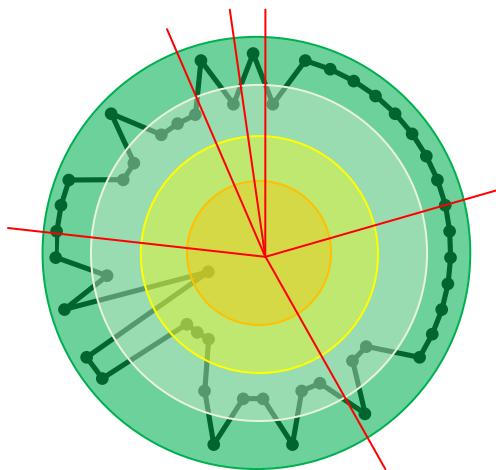
Mount Kitanglad Range Natural Park (Philippines)



Mount Malindang Range Natural Park (Philippines)



Bukit Timah Nature Reserve (Singapore)



Khao Yai National Park (Thailand)

Figure 11. Radar plots of indicator scores of the management effectiveness of ASEAN Heritage Parks in the Philippines, Singapore, and Thailand.

#### F. PARK SIZE AND THE EFFECTIVENESS OF ASEAN HERITAGE PARK MANAGEMENT

AHPs highly vary in size, ranging from 130 ha to more than 2.4 million ha. There might be a question whether the effectivity of park management related to the park size, i.e. smaller park size might have a more effective management (higher METT score) and vice versa. In order to test this, the METT effectivity scores for the 17 AHPs were plotted against the respective size of AHPs (in logarithmic scales), as depicted in Figure 12.

Scatterplot shows that apparently there was no relationship between the effectiveness scores and the size of AHPs. Therefore, the hypotheses that small AHPs have higher scores of management effectiveness and vice versa cannot be accepted.

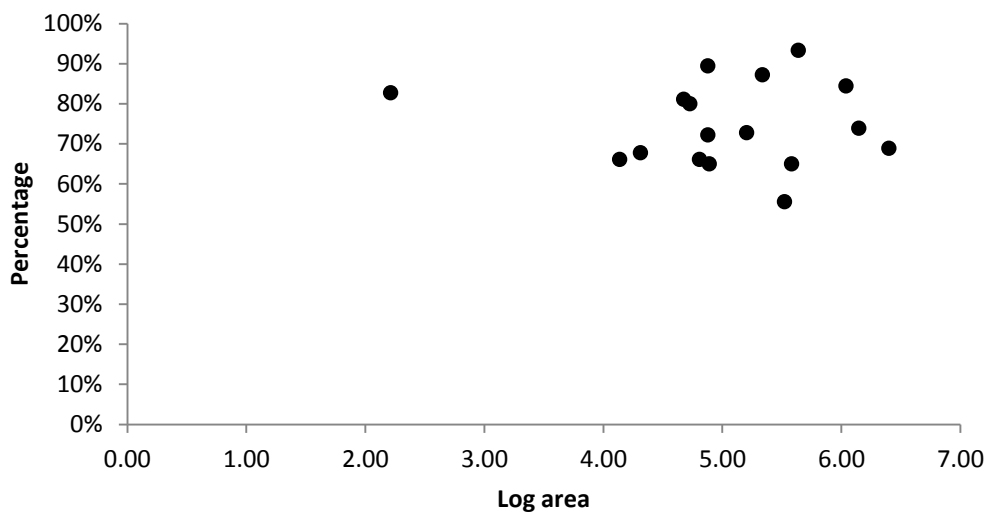


Figure 12. Scatter plot of scores of management effectiveness against the size (in logarithmic scale) of ASEAN Heritage Parks (n=17).

## V. MANAGEMENT EFFECTIVENESS OF ASEAN HERITAGE PARKS: RESULTS OF VISIT TO SELECTED ASEAN HERITAGE PARKS

### A. CAMBODIA: VIRACHEY NATIONAL PARK

Cambodia is located in Southeast Asia with area approximately 18,103,500 ha<sup>13</sup>. It has borders with Lao PDR and Thailand on the north and with Viet Nam on the east. Types of forest in Cambodia include evergreen, semi-evergreen, lowland evergreen and limestone forest<sup>14</sup>. About 3.1 million hectares or 18% of the country area has been recognized as protected areas under the authority of the Minister of Environment, while about 1.5 million hectares or 8% of the country areas (which is categorized as protected forests and fish sanctuaries) has been under the authority of the Ministry of Agriculture, Forestry and Fisheries<sup>15</sup>. Information about the protected areas in Cambodia is presented in Table 6.

Table 6. Protected Areas in Cambodia.

Type of Protected Areas	Number	Area (Ha)
National parks	7	742,250
Wildlife sanctuaries	10	1,891,271
Protected landscapes	3	97,000
Multiple-use areas	3	403,950
Protected forests	10	1,490,500
Fish sanctuaries	8	23,544
<b>Total</b>	<b>41</b>	<b>4,648,515</b>

Source: Adopted from ASEAN Center for Biodiversity (2010b)

The Government of Cambodia has ratified some multilateral environment agreements, namely World Heritage Convention in 1998, Convention on Biological Diversity in 1996, Convention on International Trade of Endangered Species in 1997, Convention on Wetlands of International Importance in 1998 and Man and Biosphere Programme in 1997<sup>8</sup>. However, all national parks are threatened by various illegal activities, including land encroachment, poaching, illegal logging, and land clearing for agricultural cultivation.

Virachey National Park is located at northeastern Cambodia, which extends over Ratanakiri and Stung Treng Provinces (Figure 13). The Park has 332,500 ha area which are dominated with relatively undisturb forest due to the physical characteristics of remoteness and rugged terrain<sup>16</sup>. Details information about the Park is presented in Table 7.

<sup>13</sup> Bugna, S. C., 2002. Special report: A Profile of the Protected Area System of Cambodia.

<sup>14</sup> ASEAN Center for Biodiversity, 2010a. ASEAN Biodiversity Outlook. Philippines. 208 pages.

<sup>15</sup> ASEAN Center for Biodiversity, 2010b. The ASEAN Heritage Parks: A Journey to the Natural Wonderr of Southeast Asia. Los baños, Laguna, Philippines. 310 pages

<sup>16</sup> GEF (Global Environment Facility), 1999. Project Brief: Biodiversity and Protected Area Management project.



Figure 13. Map of Virachey National Park, Cambodia

Table 7. General information on Virachey National Park, Cambodia<sup>1,2,3,4,5</sup>.

Country	Cambodia
Geographic location	14°19'32.51"N, 106°59'53.47"E
Altitude	Contains a range of mountains that reach over 1,400 m in altitude to the east, and over 1,500 m towards the Laos border
Area coverage	332,500 ha
Year of establishment	1 November 1993, through Royal Decree
Administrative location	The Park extends over three districts of two provinces, namely Taveng and Veun Sai Districts in Ratanakiri Province; and Siem Pang District in Stung Treng Province. It is bordered with Laos on the north and with Viet Nam on the east
Designation as AHP	2003
Management authority	Ministry of Environment
Description of sites	The Park is immense, and is the biggest park in Cambodia, located 45 km south of Banlung, the capital of Ratanakiri Province
Land tenure	State-owned (Royal Cambodian I) <sup>2</sup>
Climatic condition	21° – 34° C, 245 mm rainfall. The climate of the Park is monsoon with 2 seasons: dry and hot from November to May and rainy from May to October
Forest types	Evergreen rainforest, semi-evergreen lowland forest, montane forest, upland savannah, and mixed deciduous forest (dominate the Park's vegetation)
Main features	Spectacular mountain scenery, waterfall, volcanic lake, historic remnants and artifacts such as Khmer Rouge camps and section of Ho Chi Minh trail
Important fauna	Dhole <i>Cuon 26omprom</i> , Gaur <i>Bos gaurus</i> , Yellow-cheeked gibbon <i>Nomascus sabriellae</i> , Stump-tailed macaque <i>Macaca arctoides</i> , Asiatic black bear <i>Ursus thibetanus</i> , Malayan sunbear <i>Helarctos malayanus</i> <sup>3</sup> . Probable new country records include Horned tree lizard <i>Acanthosaura</i> sp., Keelback snake <i>Amphiesma</i> sp., Wolf snake <i>Lycodon</i> sp., Horned frog <i>Ophryophryne</i> sp., Bushfrog <i>Philautus</i> sp., Frog <i>Taylorana</i> sp. And probable species new to science include Slender-toed gecko <i>Cryptodactylus</i> sp., Water skink <i>Tropidophorus</i> sp. And Bushfrog <i>Leptolalax</i> sp.
Important flora	<ul style="list-style-type: none"> <li>• <i>Burretiodendrton hsienmu</i></li> <li>• Malva nuts</li> </ul>
Values of the area	<ul style="list-style-type: none"> <li>• It is an important watershed and catchment area with two major rivers, Sekong and Sesan Rivers that bound the Park on the west and on the south, respectively.</li> <li>• Biological values as habitat for enormous flora and fauna</li> <li>• Virachey has aesthetic and ecotourism values as the Park is located in remotely area with most of undisturbed forest</li> </ul>
Cultural value	The National Park is home to Tompuon, Kreung and Jarai minority groups. It is also home for Broa and Kavet communities whose former territory occupied areas of the present Park. The area plays important roles for these communities as place to gather food, medicine and materials for cultural practices associated with cultural ceremonies and rites. Some areas within the protected areas have cultural significance value for these communities.

Threats	Forest conversion to traditional agriculture by communities who live in the park's buffer zone, illegal logging, harvesting of NTFPs, wildlife hunting and trade, especially along the border area. The entire southern part of the buffer zone is granted to a forest concessionaire named Pheapimex, a Cambodian-Chinese joint venture.
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Sources:

<sup>1</sup> Sovann, K., nd. Park Wide Assessment Virachey National Park. Ratanakiri-Cambodia, <sup>2</sup> Page, K and Sophiak, C.n nd. Socio economic Information Report: Populations Living in and near Virachey National Park, Northeast Cambodia, <sup>3</sup> CI-Cambodia, 2007. Preliminary Report Virachey National Park Rapid Assessment Program 2007, <sup>4</sup> ASEAN Center for Biodiversity, 2010b. The ASEAN Hheritage Parks: A Journey to the Natural Wonder of Southeast Asia. Los baños, Laguna, Philippines. 310 pages, and <sup>5</sup> Anonymous, 2000. Project Inception and Progress report: Biodiversity and Protected Areas Management Project (June-October 2000)

Cambodia is a country with a long history of conflict. The country started to regain its political stability only recently, in 1990s. Because if the political situation, the development of protected areas were a bit behind, compare to other AHPs visited for this study.

Undoubtedly Virachey National Park has a rich biodiversity. Unfortunately, the country cannot afford to provide sufficient funding for the operational cost and staff salary. Funding generated from visitor fee was very limited and could not cover the minimum expenses. Access to the National Park was difficult and discouraging visitors. In addition, virtually there were no facilities in the Park, leaving the Park suitable only for the hard core or mainstream type of ecotourists. Cambodia actually received many foreign tourists, but the tourists mostly visit the famous Angkor Wat complex in Siem Reap Province, about 8 to 10 hours from Ban Lung (the nearest town of Virachey National Park, where Headquarter of the Park is located). Figure 14 shows the present situation in the Headquarter of Virachey National Park located in Ban Lung, as well as one of the outposts in Veun Sai.

The National Park also could not conduct regular patrol and appropriate law enforcement due to a very limited budget. At the time of the visit to the Park, the Park Director reported that the condition of the Park was still good. However, if the situation is still continued, there is a high possibility that the Park might loose its biodiversity due to various illegal activities.

When the World Bank project (Biodiversity and Protected Areas Management Project, BPAMP) commenced in Virachey National Park between 2000 and 2006, the Park was in its glorious period. Planning and its implementation were in placed. Law enforcement and regular patrol were conducted, while staff received various necessary trainings for the effective management of the Park. When the World Bank project was over, and the budget suddenly stopped, everything seemed collapsing, until now.

Some parts of the Park had been converted into other uses. The decision of the Park to convert a small part of the National Park along the east border into rubber plantations has raised many controversies among conservationists. According to the Park Director, the conversion was necessary to help the National Park in securing the border. By allowing a private sector to manage the rubber plantations, the private company also had an obligation to secure the border, specifically intruders from the neighboring country (Viet Nam). In the southern part of the Park, exploration of mining has been going on and also create another controvercy. Due to the complicated situation of the Virachey National Park, the management effectiveness is quite low, only 55.6% (Table 8).

Table 8. Scoring of the management effectiveness of Virachey National Park, Cambodia.

Elements and Indicators	Current Situation	Score
<b>1. CONTEXT</b>		
1.1. Legal status	The Park was gazetted through Royal Decree on protected areas in November 1993 and the Law on Environmental Protection and Natural Resource Management in 1996.	4
1.2. Geographic location	The remoteness of the Park created some difficulties for Park management and tourist visit, although it also gain benefit of less illegal activities from the southern part (Cambodia).	2
1.3. Border security and safety	The Park borders with Lao PDR and Viet Nam; some of the part bordering with Lao and Vietnam is still in conflict. A few strays of Khmer Rouge soldiers might still hide in the remote areas of the Park. Malaria cases also still reported in some remote areas within the Park.	2
<b>2. PLANNING</b>		
2.1. Management plan	Management Plan has expired and not yet renewed. Currently the Park still use the Management Plan 2003-2007 (available in English and in Cambodian language), which developed through Biodiversity and Protected Areas Management Project (BPAMP) funded by GEF-World Bank in March 2000 – December 2006.	2
2.2. Park zonation	Temporary zonation has already established and mapped, but need to be re-checked and re-adjusted for an effective management. Park zonation has already mapped under BPAMP, but failed to be implemented due to lack of funding.	3
2.3. Work plan	The Park had a five-year and annual operation plan, for example the most recent plan was the Annual Operation Plan 2012. However, the five-year Management Plan for 2003-2007 had not been renewed and still being used as the basis for Annual Plan of 2012. Only two components activities (out of three components) have been conducted at the moment: 1) park management (mainly for basic activities) and ecotourism activities (concentrating on five community protected areas).	3
2.4. Map availability	Maps of the Park were available in an excellent quality, GIS-based. The Park Director has a skill in 280mpromis spatial data and producing maps.	4
2.5. Division of working area	The Park was divided into five working areas. In addition, there were nine outposts along the boundary of the Park, of which three outposts are boundaries with Cambodian soil, namely Veun Sai, Ta Veng (both are in Ratanakiri Province), and Siem Pang (in Steung Treng Province).	4
2.6. Planning for land/water use	Planning for land and water use by other sectors always considered the existence of the Park and its function. Coordination meetings often held in the province of Ratanakiri or in the central Government of Phnom Penh.	4

2.7. Park regulations	The Park has already set a regulation. A booklet contains the regulation was published and widely disseminated during the era of BPAMP. However, the regulation still needed some adjustments.	3
2.8. Park objectives	The objective of the Park was strengthened during the BPAMP. Limited budget for the Park management has impact on limited activities that can be conducted.	3
2.9. Park design	Size of the Park was sufficient for conservation purposes, although limited resources are available to support it. The Park also bordered with protected areas in adjacent country, i.e. Chu Mon Ray National Park in Vietnam and Dong Ampham National Biodiversity Conservation Area in Lao PDR, creating a larger tract of forest.	4
2.10. Alignment with Regional Action Plan	The Park Director did not aware on the existence of the Regional Action Plan because ACB probably made contact with the higher level (i.e. Ministry) and this communication has not conveyed to him.	1
<b>3. INPUT</b>		
3.1. Staff numbers	There were 62 permanent rangers in five outpost stations which is insufficient for the Park management. All of the rangers were on annual contract. The Park needs at least twice the current figures.	2
3.2. Staff quality	The existing capacity of staff needs to be upgraded. Senior and skillful staffs prefer to find better jobs because of low salary (ranging about USD 30-40/month). Thus, existing staff were mostly junior staffs that need to be trained with relevant program on capacity building for rangers.	2
3.3. Law enforcement	Although rangers were available, law enforcement was weak due to the absent of regular patrol. Rangers were unable to patrol the area because there was no funding for the operational cost.	1
3.4. Equipment	Equipment was virtually none. There was no vehicle (motorbike, car, boat), GPS, patrol equipments and communication tools/radio.	1
3.5. Infrastructures	Infrastructure within the park was poor. Road system was unavailable and it took approximately 2 days on foot and by boat from the nearest town of Ban Lung (the capital of Ratanakiri Province, where the Headquarter of the Park is located) to the nearest Park boundary.	1
3.6. Resource inventory	There were limited biodiversity surveys conducted in cooperation with international NGOs and survey on communities conducted by consultant which then used as basis for establishment of Community Protected Areas (CPAs). The last biodiversity survey (Rapid Assessment Program), was done in 1-15 October 2007 by Conservation International – Cambodia. The results of the survey have been widely used for the management of the Park, although some data might be outdated.	2
3.7. Current budget	Allocation of current budget was sufficient to cover salary of the rangers only. Thus, no patrol activities are existing at the moment. Operational cost to cover office and outpost maintenance was unavailable. Limited income was generated from ecotourism activities.	1

3.8. Budget sustainability	Current income was only from Government and ecotourism which provide insufficient funding to cover all basic activities of the Park.	2
3.9. Other resources	The possibility of having funding resources from other sources was almost none. Getting in-kind contribution from various sources was also extremely difficult.	1
<b>4. PROCESS/IMPLEMENTATION</b>		
4.1. Management of budget	The limited budget (mostly for the salary of the rangers) has been managed properly. The budget came from the central Government of Phnom Penh.	3
4.2. Boundary demarcation	The boundary of the Park has been mapped and marked clearly in the field. There were 49 field marks along the Park's boundary. There has been slight dispute in the demarcation in the Lao border.	3
4.3. Research	There were no survey and research work conducted in the Park. Although the Park has enormous potential of wildlife and habitat for scientific research, the accessibility of the area, coupled with poor infrastructures hampering the research effort. Students from the nearest universities also very seldom conducted research in the Park.	1
4.4. Resource management	Due to the very low budget, management of resources, including critical habitats, species, ecological processes and, cultural values, has not been conducted.	1
4.5. Maintenance of equipment	Equipment was extremely limited and there is no funding for 30ompromisin of the equipments. The BPAMP provided some important equipment, but they have worn out and/or broken already.	1
4.6. Education and awareness	At the time of visit there was no program related to education and awareness. During the BPAMP, education and awareness were conducted but now it stopped due to the absence of funding.	1
4.7. State and commercial neighbors	To some extent, there was some cooperation between Park manager and adjacent land and water users, although the cooperation was still considered less important.	2
4.8. Indigenous people involvement	Indigenous people were involved during the process of management plan formulation (2003-2007). The primary stakeholders within and close by the Park are ethnic Kreung, Kavet, Brou, Lao, and Lun. Due to the unavailable funding, the Park could not afford to involve the indigenous people.	1
4.9. Local communities involvement	Local communities were involved in process of management plan formulation (2003-2007) of the BPAMP. There was no available funding anymore to involve the local communities.	1
4.10. Monitoring and evaluation	There was no active monitoring and evaluation for the Park, although the reporting system was still in place. i.e., from the outpost to park Director, and from the Park Director to the central Government.	1
4.11. Visitor facilities	Visitor facilities are lacking. The Ecotourism Center in Ban Lung adjacent to the Park Headquarter office was in poor condition. Lodging facilities in the Park was absent. Visitors need to bring their own camp equipments or hire camping equipments from Park management before they start trekking/travelling into the Park. English speaking guides was available, although the number was limited.	2

4.12. Commercial tourism operators	There has been no cooperation between the Park management and commercial tour operators. Some tour operator in the nearest town (Ban Lung) existed, but mostly for other tourist destinations in the Ratanakiri Province.	1
4.13. Fee collection and contribution	Ecotourism Center applies USD 13/day/person as fee for visitors. The fee included entrance fee (USD 5), which was allocated for the Park management. The remaining was allocated for community, ecotourism ranger, and and community ranger.	3
4.14. Promotion and information dissemination	There were books and brochures produced during the BPAMP. However, the brochures need to be updated to adjust the current situation. AT the time of visiting, there was no activity on the information dissemination due to lack of funding.	2
4.15. Staff training	There was no training yet for existing staff. During the BPAMP project, the staffs received various basic training. Many of the trained staff, however, had been stopped working with the Park due to the low salary.	1
4.16. Collaboration with others	In the past there was some important collaboration, including with international NGOs (CI, WWF, FFI). Some of the data and information resulting from the collaborations have been used for the Park management. Lately there has been no formal collaboration with others.	2
<b>5. Output</b>		
5.1. Habitat for wildlife	The Park has enormous species o wildlife based on biodiversity survey in the past. Sometimes, rangers and visitors meet some of the wildlife in the Park. The sign of large mammals existence were also still can be found in many places within the Park.	4
5.2. Environmental service	There are small rivers in the Park. Water flows to areas surrounding the Park was still clear. Sekong, Sesan, and Srepok Rivers are important water sources for the downstream areas, before these rivers meet the larger Mekong River in the Krati (Krachey) town.	4
5.3. Prevention of catastrophic events	There have been no catastrophic events nearby the Park, possibly because the Park has an excellent function to prevent the catastrophic events.	4
5.4. Prevention of encroachment	There were still land encroachment in the Park, especially near the border (e.g., in parkmarker no.24 about 2-3 hectares has been encroached; between markers 7 and 12, about 40 hectares has been encroached).	2
5.5. Prevention of Illegal logging	There has been small scale of illegal logging in the Park, especially along the Viet Nam border. Lack of funding makes the Park manager difficult to combat the illegal loggers.	2
5.6. Prevention of poaching	Poaching has been going on in the Park, both for local consumption and for traded. Some traps, slings and other wildlife capture devices sometimes were found in the Park.	2
5.7. Prevention of Illegal extraction	Illegal extraction of other resources, including NTFPs, sometimes still happened in the Park, as there has been no active patrolling in the Park since the termination of BAMP.	2
5.8. Stakeholder support	Although most stakeholders give support of the existence of the Park, most local communities still relied on the Park resources and extract the resources illegally.	2

6. IMPACT/OUTCOME		
6.1. Economic benefit	Virachey National Park has been provided some economic benefits to local communities, although the benefit still considered low. The community who is involved in the ecotourism activity as guide and lodging provider get some benefit from ecotourism activities. The money was given annually to establish a project that decided by the community.	2
6.2. Condition of values	Compared to when it was first designated, the Park was slightly degraded. However, considering that the Park has enormous values for conservation of wildlife and ecosystem, the values of the Park is still considered very important for Cambodia.	3
Average*		2.2
<b>Percentage of management effectiveness*</b>		<b>55.6</b>

\*Note: Indicators 1.2., 1.3., and 2.10. were excluded from the calculation. See explanation in Method section.



Figure 14. Documentation of Virachey National Park, Cambodia: A. Headquarter of the Park in Ban Lung; B. Information Center, leaked when raining; C. Outpost in Veun Sai outpost; D. Information Center in Ban Lung; E. Park Director, Mr. Chou Sophark explained about organization of the Park; F. Interview in Veun Sai outpost.

## B. INDONESIA: KERINCI-SEBLAT NATIONAL PARK

Indonesia is located between the Indian and the Pacific Ocean, which has about 17,000 islands spread over 5,150 km from the country's west to east borders. The country has 186 million hectares of terrestrial area and 580 million hectares of marine area, which has enormous number of species. It is known as the second highest countries after Brazil in term of biodiversity richness<sup>17</sup>.

In general, forest ecosystems can be classified into tropical rainforest and monsoonal tropical forest. However, karst is also available in Java, Kalimantan and Sulawesi. The forest areas based on TGHK (Forest Land Use by Consensus) was about 120,35 million hectares in 2005, which was comprised of conservation forest, preserved forest, limited production forest, fixed production forest and conversable production forest<sup>12</sup>. Details on the forest categories are presented on Table 9.

Table 9. Number and coverage of conservation areas in Indonesia.

Type	Unit	Area (ha)
National parks	50	16,375,253
Nature reserves	249	4,928,929
Wildlife sanctuary	77	5,342,380
Recreation parks	124	1,041,345
Grand forest parks	21	347,427
Hunting parks	14	224,816
<b>Total</b>	<b>535</b>	<b>28,260,150</b>

Source: ASEAN Center for Biodiversity (2010b)

Some multilateral environment agreements that were ratified by the government are Convention on International Trade of Endangered Species in 1979, World Heritage Convention in 1989, Convention on Wetlands of International Importance/Ramsar in 1992, Convention on Biological Biodiversity in 1994 and Cartagena Protocol on Bio-Safety in 2005. The biodiversity is maintained by establishing conservation areas in form of national parks, wildlife sanctuaries, biosphere reserves, hunting parks, forest parks and ecotourism parks.

Conservation areas have increased between 1981 and 2007 from 7.628 million hectares to more than 28 million hectares, respectively<sup>12,18</sup>. Some of the national parks are internationally recognized, such as Gunung Leuser, Kerinci Seblat and Bukit Barisan Selatan that accumulate in 2,5-million hectare Sumatran Tropical Rainforest Heritage, which is also recognized as World Heritage Sites<sup>12</sup>.

Kerinci-Seblat National Park is located in Sumatra Island and extends over four provinces and covers almost 1.4 million hectares (Figure 15). The area is dominated by tropical mountain rainforest with steep slope. General information on the Park is available in Table 10.

<sup>17</sup> ASEAN Center for Biodiversity, 2010b. The ASEAN Hreritage Parks: A Journey to the Natural Wonder of Southeast Asia. Los baños, Laguna, Philippines.

<sup>18</sup> MoFor, 2007. 50 National Parks in Indonesia (*50 Taman Nasional di Indonesia*). MoFor. Bogor.

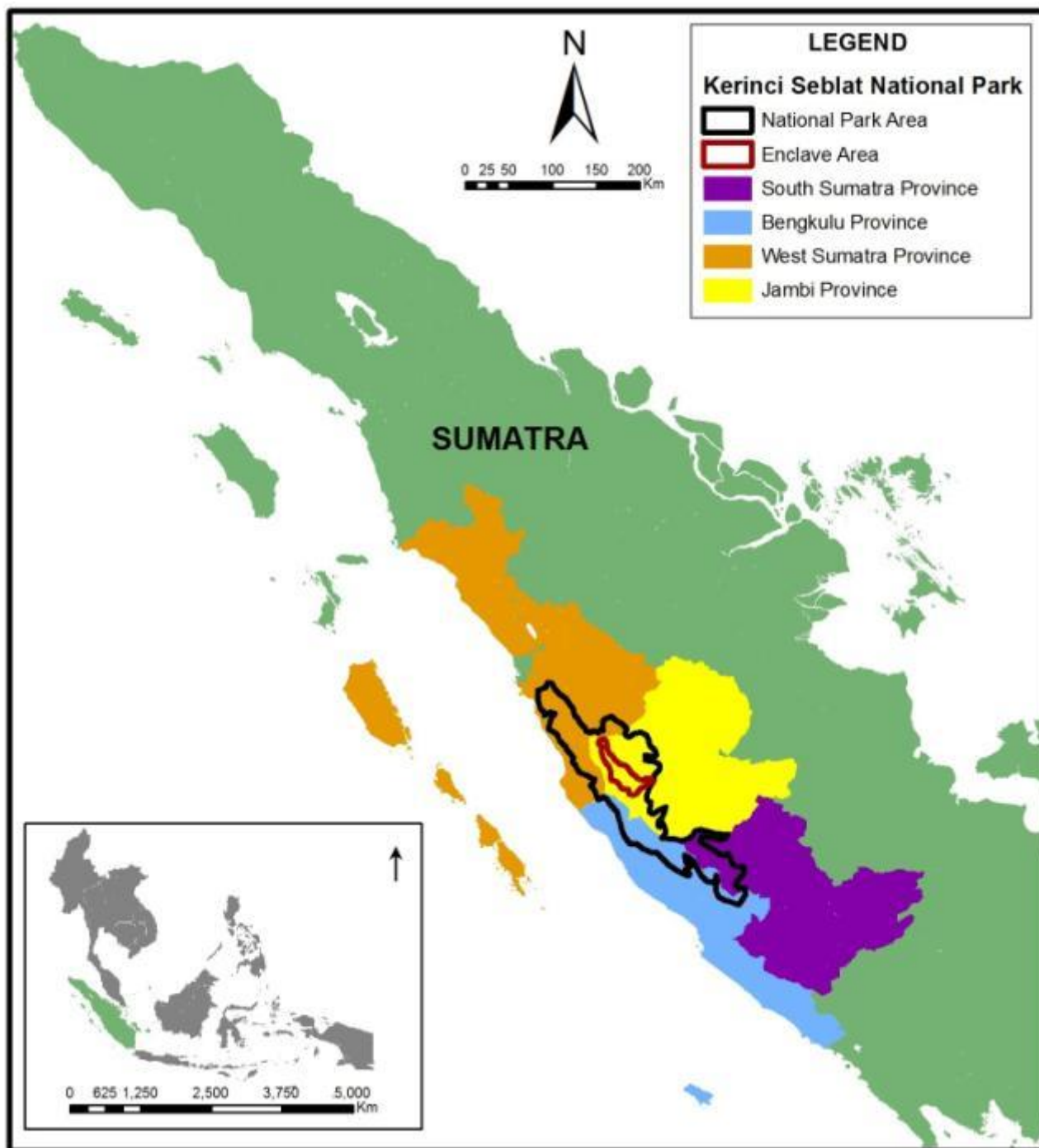


Figure 15. Map of Kerinci-Seblat National Park, Indonesia. The area inside the red line is an enclave.

Table 10. General information on Kerinci Seblat National Park, Indonesia.

Country	Indonesia
Geographic location	1°17'-3°36'S; 100°31'-102°44'E
Altitude	500 – 3.805 m asl
Area coverage	1,375,349 ha
Year of establishment	1999; through Minister of Forestry and Estate Decree No. 901/Kpts-V/1999
Administrative location	West-Central Sumatra, borders with 4 provinces (West Sumatra, South Sumatra, Jambi, and Bengkulu Province)
Designation as AHP	1984
Management authority	Directorate General Forest Protection and Nature Conservation, Ministry of Forestry
Description of sites	Kerinci-Seblat National Park is the largest national park in Sumatra, stretch about 350 km along Bukit Barisan mountain range
Land tenure	State owned (Government of Indonesia)
Climatic condition	Temperature is between 7°– 28°C; annual average rainfall is 3,000 mm
Forest types	Lowland tropical forest (50-600m), highland rain forest (600-1,500m), sub-montane vegetation (1,500-2,500m), shrub or fern (2,500-2,800m), and sub-alpine vegetation (above 2,300m)
Main features	<ul style="list-style-type: none"> <li>• About 4,000 plant species from Dipterocarpaceae family grow in the Park with rare and native species such as kerinci pine (<i>Pinus merkusii</i> strain Kerinci), pacat wood (<i>Harpulia arborea</i>), rafflesia (<i>Rafflesia arnoldi</i> dan <i>R. hasseltii</i>), and Amorphophallus (<i>Amorphophallus 36ompromi</i> and <i>A. decus-silvae</i>). In addition, the park is habitat for wide range of wildlife species such as 37 mammal species, 10 reptile species, 6 amphibian species, 8 primate species, and 139 bird species.</li> <li>• The Park also has several mountain lakes, notably Danau Gunung Tujuh (“Lake of Seven Mountains”), the highest caldera lake in Southeast Asia, with an altitude of almost 2,000 m</li> <li>• Other special and unique ecosystems in the Park are Ladeh Panjang peat swamp (at altitude 1,600 m), Rawa Bento fresh water swamp (at altitude 1,300 m), Napal Licin and Kasah natural cave, Letter W, where <i>Rafflesia arnoldi</i> and <i>Amorphophallus</i> sp. Exist, Grao Solar, Nguak and Kunyi with 15 m burst of hot water</li> </ul>
Important fauna	Sumatran rhinoceros <i>Dicerorhinus sumatrensis</i> , Sumatran Serow <i>Capricornis sumatrensis</i> , Sumatran tiger <i>Panthera tigris sumatrae</i> , Sumatran elephant <i>Elephas maximus</i> , Malayan sunbear <i>Helarctos malayanus</i> , Indian muncak <i>Muntiacus muntjak</i> , Sambar deer <i>Cervus unicolor</i> , Sumatran striped rabbit <i>Nesolagus netscheri</i> , Clouded leopard <i>Neofelis nebulosa</i>
Important flora	Kerinci Pine ( <i>Pinus merkusii</i> strain Kerinci), Pacat wood ( <i>Harpulia arborea</i> ) Bunga Rafflesia ( <i>Rafflesia arnoldi</i> and <i>R. Hasseltii</i> ), and Amorphophallus ( <i>Amorphophallus titanium</i> and <i>A. Decussilvae</i> )
Values of the area	<ul style="list-style-type: none"> <li>• Upper catchment of 23 large rivers in four provinces, including Sumatra’s longest river (Batanghari River) and largest River (Musi River)</li> <li>• The Park is known as a ‘Level 1 Tiger Conservation Landscape</li> <li>• Together with Gunung Leuser and Bukit Barisan Selatan National</li> </ul>

	Parks, Kerinci-Seblat is part of the 2.5 million-hectare Tropical Rainforest Heritage of Sumatra, which was declared a World Heritage Site in 2004
Cultural value	Traditional community of Kubu tribe
Threats	Land clearing and encroachment, cultivation, poaching, mining, illegal logging

Source:

<sup>1</sup> MoFor, nd. Taman Nasional Kerinci seblat. Available on [http://www.dephut.go.id/INFORMASI/TN%20INDO-ENGLISH/tn\\_kerinciseblat.htm](http://www.dephut.go.id/INFORMASI/TN%20INDO-ENGLISH/tn_kerinciseblat.htm) (Accessed 30 Juli 2012), <sup>2</sup> MoFor, 2007. 50 National Parks in Indonesia (50 *Taman Nasional di Indonesia*). MoFor. Bogor, and <sup>3</sup> Wong, W.M., nd. Sun bears: Distribution, population trends and conflict in Kerinci Seblat National Park, Sumatra.

Kerinci Seblat National Park (see also Figure 16 for the latest condition of the Park) probably can served as a good representation of a park which experiencing a heavy pressure from its surrounding, including from the inside (due to its existing enclave). When the Park was gazette in 1999, unavoidably there was a district inside the Park, the Kerinci District, and its capital of Sungai Penuh. Later on, the whole district of Kerinci was excluded from the Park by creating an enclave. The Park itself borders with 4 provinces, 13 districts, and 134 villages.

The unfortunate situation of the National Park later on created some difficulties in securing the boundaries. The Park itself is a home of many large and endangered mammals of Sumatra, including Sumatran tigers, Sumatran elephants, and the increasingly rare Sumatran rhinos. Meanwhile, the dense population of local community surrounding the Park was also posed a threat, as they need to expand their land for agriculture and the industrial crops. The wildlife of the Park has been subjected to poaching as well, either for daily consumption or for commercial illegal trade.

Conversion of the Park into timber estates, mining, settlements, and roads, also have been proposed by the local Government, local people, and private sectors. Further, spatial planning surrounding the Pak has been in dispute. A field office was burned and destroyed by local community several years ago when conflict once escalated.

Although budget and other necessary input for the National Park has been sufficient and sustained, a lot of their effort has been focused on law enforcement. Number of Park Rangers was relatively high (105 persons), but they still difficult to patrol the vast area of the Park. The very long Park's meandering borders (2,503 km) was also easily encroached by local people and companies who desperately need land for various purposes.

As for the tourism activities, efforts to increase tourist visitation is quite low, considering that the Park itself has a low number of visitor. Fee from visitors surely has been very low and the Park still fully relied on the funding from the Central Government, which has been available on an annual basis, in sufficient amount. Combining all indicators, the result of the management effectiveness is 73.9% (Table 11).

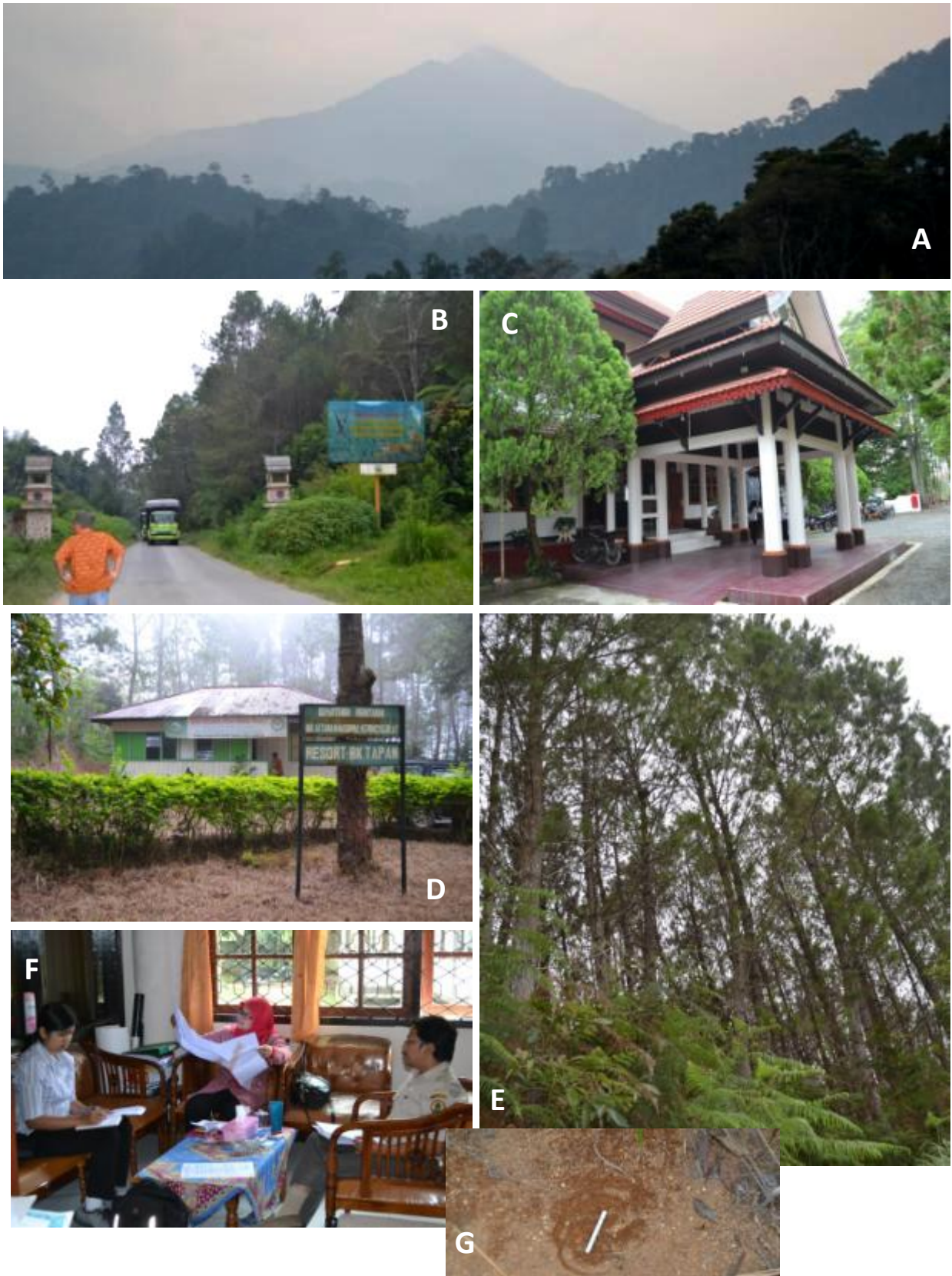


Figure 16. Documentation of Kerinci seblat National Park, Indonesia: A. Mount Kerinci; B. Border of Kerinci Seblat National Park; C. Kerinci Seblat National Park Headquarters; D. Bukit Tapan Sub-unit; E. Endemic strain of Pine; F. Interview with staff of Kerinci Seblat ational Park; G. Tiger's footprint.

Table 11. Scoring of the management effectiveness of Kerinci Seblat National Park, Indonesia.

Elements and Indicators	Current Situation	Score
<b>1. CONTEXT</b>		
1.1. Legal status	The Park was gazetted through Minister of Forestry and Estate Decree No. 901/Kpts-II/1999.	4
1.2. Geographic location	There is Kerinci District in the middle of the National Park's area (enclave) and there are 12 other districts bordered with the Park. The Park faces challenges for its management from development of areas which are located within and surrounding the Park.	2
1.3. Border security and safety	The Park borders with four provinces which have tried to enhance their area development by establishing roads through the Park. Some of the proposed road construction plans have been rejected while some others have not been rejected or approved by the Minister of Forestry.	2
<b>2. PLANNING</b>		
2.1. Management plan	There is a 25-year management plan of the Park (1995-2020). The activities are implemented partially due to insufficient fund allocation.	3
2.2. Park zonation	Park zonation existed on the map, but there is no clear boundary in the field. An ex timber concession's area about 14,000 ha in Merangin District had been added to the Park and, therefore, an update border is needed.	3
2.3. Work plan	Documents of Strategic Plan (2010-2014) and Annual Work Plan 2012 existed, as the guidance for management of Kerinci Seblat National Park. However, not all of the activities have been conducted due to insufficient funding allocation from the Government for some activity components.	3
2.4. Map availability	Maps of the Park were available in an excellent quality, GIS-based. The maps have been used for various management activities, including patrolling.	4
2.5. Division of working area	The Park was divided into 3 divisions, 4 sections and 14 resorts. More resorts will be needed to protect large area of the Park ( $\pm$ 1.4 million ha) if the area coverage of each resort becomes the main consideration in resort division.	3
2.6. Planning for land/water use	The National Park management has been invited several times to discuss about provincial and district spatial planning. It was clear from those discussions that the local Government institutions, especially from mining and estate sectors have high interests to enhance their sector development to the Park's area. The Park management succeeded in stopping plan of mining exploration in Merangin and paddy field establishment in Rawa Bento, both within the Park's area.	3

2.7. Park regulations	Management of national parks in Indonesia has several basic regulations and implemented nation-wide. However, some regulations could not be implemented on the ground, for example in regulation about nature tourism permit. The permit required several conditions and terms related to resources that could not be adopted by local community in Kerinci District who has interest to develop the nature tourism.	3
2.8. Park objectives	The management of the Park is conducted to reach the agreed objectives. However, not all activities could be implemented due to insufficient fund allocation.	4
2.9. Park design	The Park consists of different ecosystems due to large area which is ideal for conservation area. The shape of the Park is lies from the north manage to the south. However, the long border of the Park created some difficulties in securing and patrolling.	2
2.10. Alignment with Regional Action Plan	The Head of administration aware about the status of the Park as one of AHPs in Indonesia, but he did not aware on the Regional Action Plan and activities that being conducted under AHP program.	1
<b>3. INPUT</b>		
3.1. Staff numbers	There were 105 rangers which implied that every ranger has a responsibility over 13,000 ha of the Park area. Increasing the staff number is essential for better Park management. This has been proposed by the Park management in every annual meetings in the headquarter (Jakarta).	2
3.2. Staff quality	There were several regular trainings provided by Ecology Specialist (PEH, <i>Pengendali Ekosistem Hutan</i> ) and Extension Specialist on shooting and refreshment training for forest rangers. There are some other trainings provided by other institutions such as training on forest fire.	3
3.3. Law enforcement	The rangers work based on existing regulation and scope of National Park authorities such as arresting actors that committed to illegal activities within the Park area and investigating the illegal cases together with the police department.	4
3.4. Equipment	Equipments to support the Park management are considered sufficient. Some equipments were still in good condition, and some needed repair and maintenance.	3
3.5. Infrastructures	The Headquarter of the National Park was quite big and in good condition, located in Sungai Penuh. In addition, office buildings are available in three working areas (Bangko/Jambi, Padang, and Curup/Bengkulu and South Sumatera). Resort buildings are also available, but it was not sufficient to cover the overall park area. Roads and other infrastructures were in fair condition.	3
3.6. Resource inventory	Some information has been collected regularly based on working indicator that requires observation and assessment on some key species, such as Sumatran tiger, Sumatran elephant and <i>Rafflesia</i> .	3
3.7. Current budget	Current budget was sufficient for basic Park management, but fund allocation needs to be improved because some cost components have insufficient fund, while other components have more fund allocation than what was needed. The Park management always proposed for budget allocation improvement to the Government.	3

3.8. Budget sustainability	Current income was from the Central Government on an annual basis and the amount of income has been stable for many years.	4
3.9. Other resources	The Park has been collaborating with FFI and received funding for Sumatran Tiger Conservation in 2010. FFI was responsible for fundraising, while the Park was responsible for on ground activities.	3
<b>4. PROCESS/IMPLEMENTATION</b>		
4.1. Management of budget	The budget was adequate for salary and operational cost, but inadequate for infrastructure and equipment provision.	3
4.2. Boundary demarcation	The boundary of the Park has been mapped and marked clearly in the field. However, some markers were missing and need to be renewed.	3
4.3. Research	The National Park management has a task to conduct survey and monitor biodiversity in the Park according to existing regulation. Research was not considered as the task of Park management, although the Park involved in some research that took place in the Park.	2
4.4. Resource management	The focus of current management was based on the main indicator of the Park management. Thus, management was concentrated on survey and monitoring key species.	3
4.5. Maintenance of equipment	There was some budget allocated for maintenance of equipments and facilities. However, the budget needs to be increase to ensure the quality of equipments.	3
4.6. Education and awareness	There were some extension programs, environmental education in some schools, and exhibition about Kerinci- Seblat National Park in District or Provincial events.	3
4.7. State and commercial neighbors	The Park borders with palm plantations in Bengkulu and Jambi Provinces. The Park initiated discussion with the plantation managers since 2011. The Park has cooperation with community in Solok Selatan in term of maintenance of Park border by replanting along the border and also warning actors who do illegal activities within the Park area.	3
4.8. Indigenous people involvement	Indigenous people were involved indirectly in formulation of the National Park's working plan by inviting representative of the people. The people also involved in some of the park activities such as Sumatran Tiger Conservation and self-sustained enforcement officers ('PAM Swakarsa').	3
4.9. Local communities involvement	Local communities were involved indirectly in formulation of National Park's working plan by inviting representative of the people. The people also involved in some of the Park activities such as Sumatran Tiger Conservation and self-sustained enforcement officers ('PAM Swakarsa').	3
4.10. Monitoring and evaluation	There was an internal monitoring in the Park management itself and also monitoring and evaluation from Directorate of Biodiversity Conservation and Directorate General of Forest Protection and Nature Conservation – Ministry of Forestry of Indonesia.	4

4.11. Visitor facilities	Most visitors were local visitors which commonly spend one day only at the tourism destination within the Park. Sometimes, there were foreigner visitors, mostly were backpackers who did not care a lot about accommodation. The Park did not provide accommodation for the visitors, but the Park had trained 6 households who express their interests to provide their houses as accommodation for the visitors (home-stay). So far, the existing facilities were adequate for current level of visitation.	3
4.12. Commercial tourism operators	Most of the visitors arranged their trip by themselves. Currently there was no commercial tourism operator in the Park.	1
4.13. Fee collection and contribution	Fee for domestic visitors was IDR 2,500 (equals to 25 cents) while for foreigner visitors was IDR 20,000 (equals to USD 2). Fee are collected as PNBPN (Penerimaan Negara Bukan Pajak) or Non Tax National Revenue, which mean that the fee were collected by the Ministry of Finance that later on would be distributed to Ministry of Forestry for its annual program.	3
4.14. Promotion and information dissemination	There were leaflets and booklets about the Park. The communication products were provided freely in the office in Sungai Penuh and distributed in exhibitions. The Park had a website in the past, but it had not been maintained due to absence of budget allocation.	3
4.15. Staff training	There have been several trainings provided by the Ministry of Forestry and other institutions. However, there was still need an improvement on the trainings.	3
4.16. Collaboration with others	There were several collaborations between the Park and other institutions, for example with FFI since 2000, 'Akar' (local NGO) on patrol with community, 'Lembaga Tiga Beradik' on community forest. Plan to establish research station by Andalas University within the National Park was under discussion. There has been no collaboration with private sector so far.	4
<b>5. Output</b>		
5.1. Habitat for wildlife	The Park provided wide array of ecosystems for enormous number of animals and plants. The sign of Sumatran tiger, and Sumatran elephant were still can be found in the Park.	4
5.2. Environmental service	Water from the Park was clear and available all year long. The problem with water supply in Sungai Penuh (Headquarter of the Park) was more on capacity of water treatment and supply than the source of water.	4
5.3. Prevention of catastrophic events	There were some floods and also landslides, most probably due to the existence of forested area in the Park. However, the situation might get worse if the Park was not managed.	3
5.4. Prevention of encroachment	Land encroachment occurred in the Park, especially done by local community. Some efforts have been conducted such as regular patrol, giving warning for actors committed to small scale encroachment and if three warnings were not taken by the actors, they would be arrested. About 41,303 ha of the Park area need to be rehabilitated due to encroachment.	2

5.5. Prevention of Illegal logging	There have been some illegal logging activities in the Park. Regular patrol has been conducted. Joint patrol with the army force sometimes carried out if there was an indication of big scale illegal logging operation.	2
5.6. Prevention of poaching	Poaching has been going on in the Park, especially for trading purposes (i.e. for Sambar deers and Sumatran tigers). During the patrol, sometimes snares and other illegal poaching devices were found and confiscated.	2
5.7. Prevention of Illegal extraction	Commercial scale of mining in the Park had been stopped by the Park management. However, traditional mining was still continuing in the Park under condition that the mining was not getting larger in scale. There were extensions about the location of collecting NTFPs by local people. The extension program depend on Government's annual budget thus it was not conducted regularly.	2
5.8. Stakeholder support	Formally, the stakeholders support the National Park existence. However, there have been some efforts to push development into the Park area, such as establishment of new roads for better accessibility to other districts.	2
<b>6. IMPACT/OUTCOME</b>		
6.1. Economic benefit	The Park role in providing economic benefits to local community is considered still low, for example only six households are involved in tourism due to limited level of visitations. However, the Park contributes to the community through some projects related to community empowerment.	2
6.2. Condition of values	Compared to when it was first designated, the Park was slightly degraded in some parts. However, some endemic wildlife and plants still existed in the Park. The biodiversity has been better conserved due to the existence of the Park.	3
Average*		4.1
<b>Management effectiveness (%)</b>		<b>73.9</b>

\*Note: Indicators 1.2., 1.3., and 2.10. were excluded from the calculation. See explanation in Method section.

### C. MALAYSIA: KINABALU NATIONAL PARK

Kinabalu National Park is located in Sabah, Malaysia (Figure 17). Sabah is situated on the northern portion of the island of Borneo and one of the 13 member states of Malaysia. The State of Sabah is the second largest state in the country after Sarawak, which borders with it on its southwest. It also shares a border with the province of East Kalimantan of Indonesia in the south. The capital of Sabah is Kota Kinabalu, formerly known as Jesselton.

The western part of Sabah is generally mountainous. At the height of 4,095 m, Mount Kinabalu is the highest mountain in Malay Archipelago (excluding Indonesia's Papua and Papua New Guinea) and the tenth highest mountain in political South East Asia. The forest of Sabah is classified as tropical rainforest and host a diverse array of plant and animal species.

Sabah has a long history of setting aside important natural areas for conservation of its unique and rich flora and fauna. Under the Forest Enactment of 1968 (revision of 1984) there are seven classes of forest reserves, four of these may be regarded as protected areas. There are presently six parks 44omprom under the Parks Enactment of 1984 (Table 13). Of these, three are Terrestrial Parks (Mt. Kinabalu, Crocker Range and Tawau Hills) and three are Marine Parks (Turtle Island, Tunku Abdul Rahman and Pulau Tiga). The state parks contain important highland forest and marine ecosystems and facilitate tourism. Details about the Park are presented in Table 13.

Table 12. Wildlife sanctuary and parks in Sabah.

Types of Protected Area	Name	Size (ha)
Wildlife/bird/marine Sanctuary	Lower Kinabatangan	27,800
	Sipadan	12
	Kota Belud	12,200
	Mantanani Kecil	61
	Kota Kinabalu	24
	Lankayan Billean Tegapil Marine Conservation Area	30,000
Parks (including coral reef)	Kinabalu	75,370
	Tungku Abdul Rahman	4,020
	Turtle Islands	1,740
	Pulau Tiga	15,864
	Tawau Hills	27,927
	Crocker Range	139,919

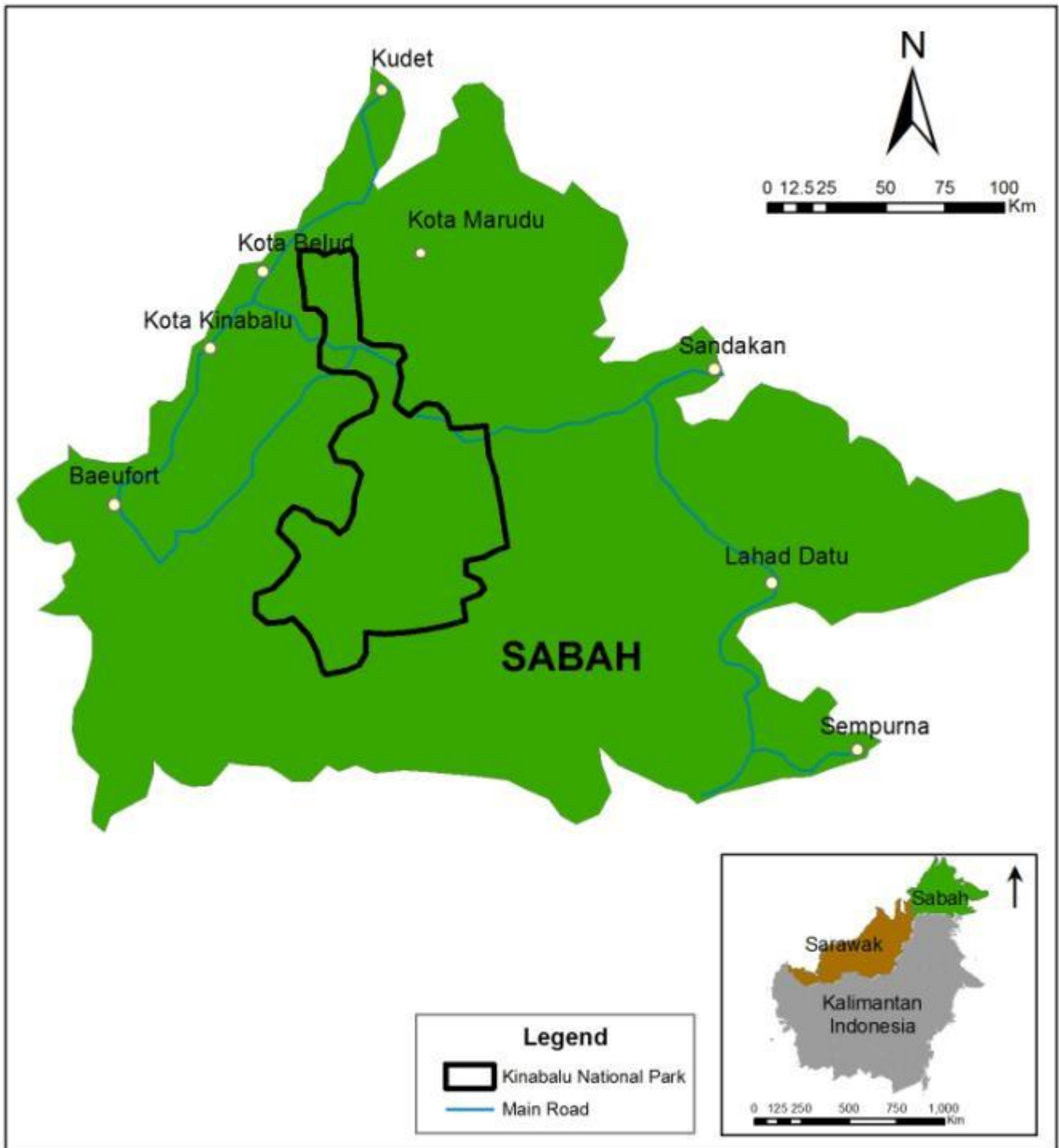


Figure 17. Map of Kinabalu National Park, Malaysia.

Table 13. General information on Kinabalu National Park, Malaysia<sup>1,2,3</sup>.

Country	Malaysia
Geographic location	6°00'25"-6°29'48"N; 116°21'30"-116°45'00"E
Altitude	Between 152 and 4,095.2 m asl
Area coverage	75,400 ha
Year of establishment	January 1964, under The Sabah National Parks Ordinance of 1962 after independence. Renewed on Parks Enactment 1984 (Sabah No. 6 of 1984)
Administrative location	The site is located in the Malaysian State of Sabah in Northern Borneo, 83 km west of Kota Kinabalu. It is situated on the Crocker Range on the western coast of Sabah within three districts: Ranau, Kota Belud, and Kota Marudu. The National Park is divided to 7 substation: Substesen Air panas Poring (Ranau), Substesen Kecil Mesilau (Kundasang), Substesen Kecil Sayap (Kota Belud), Substesen Kecil Serinsim (Kota Merudu), Substesen Kecil Monggis (Ranau), Substesen Nalapak (Kota Merudu) and Pos Kawalan Pendaki Burlinton (Pinar Laban)
Designation as AHP	1984
Management authority	The State Government. The Park is managed and administered by the Board of Trustees of Sabah Parks under the Ministry of Tourism, Culture and Environment
Description of sites	It is the first State Park of Sabah as well as Malaysia's first World Heritage Site designated by UNESCO in December 2000 for its "outstanding universal values". It has the highest highest mountain peaks in South east Asia, consisted at least 23 peaks, the highest is Low's peak (4095.2 m)
Land tenure	State owned (Government of Malaysia)
Climatic condition	<ul style="list-style-type: none"> <li>• Wet tropical climate with temperature, humidity and rainfall becoming temperate at height.</li> <li>• Driest month: February to May, wettest months: October to January</li> <li>• At Park Headquarters at 1,560m, the mean monthly temperature is approximately 20°C, with a daily fluctuations of 7-9°C. The mean annual rainfall at this location is 2,380mm (Kitayama <i>et al.</i>, 1999)</li> </ul>
Forest types	Lowland Dipterocarp Forest (400-1,200m), lower mountain forest (1,200-1,900m), upper mountain forest (1,900-2,700m), ultrabasic rock forest (2,700-3,000m), granite boulder forest (3,000-3,300m)
Main features	<ul style="list-style-type: none"> <li>• Main features is the magnificent mountain, the Kinabalu, which is the highest and only alpine peak of Malaysia</li> <li>• The summit of Kinabalu has seven main jagged peaks which rise out of a sloping plateau of polished and exfoliated slabs of granite, and another seven peaks above 3,800m. The north side of the summit is split between east and west peaks by the vast smooth-sided cleft of Low's Gully, which has almost vertical 1,000-1,800m sides and extends 16 km flanked for 3.2 km by a northeast-running spur to a narrow ridge 3,500m high</li> <li>• The gullied sides of the mountain are the source of some ten to twelve rivers, and waterfalls, the Cascade Waterfalls and Liwagu</li> </ul>

	<p>Falls being two of the largest</p> <ul style="list-style-type: none"> <li>• The area also includes caves, the Paka and Tumbling Bats caves, and near its foot at 550m are hot springs at Poring</li> </ul>
Important fauna	<ul style="list-style-type: none"> <li>• Mount Kinabalu is home to some 90 lowland mammal species, 22 montane mammal species, 21 bat species, 326 bird species, 62 toad and frog species and a large population of the 850 butterfly species that occur in Sabah. Out of the 29 bird species that are endemic to Borneo, at least 17 are confined to the mountains, notably Mount Kinabalu. These include subspecies of the Red breasted Tree-partridge, Crimson-headed Wood-partridge and Mountain Blackbird</li> </ul>
Flora	<ul style="list-style-type: none"> <li>• Kinabalu flora contains as many as 5,000–6,000 species, in over 1,000 genera and over 200 families, or more than half of all flowering plant families. The IUCN 2008 Red List gives 60 species critically endangered, 34 endangered and 107 vulnerable species for Sabah, primarily of the flora and commercially valuable trees</li> <li>• Kinabalu is home to 1,200 orchid species in 121 genera, including the rare slipper orchids. Carnivorous pitcher plants are among the park's most famous plants, most notable the endemic <i>Nepenthes burbidgeae</i> (EN), <i>N. rajah</i> (EN), <i>N. edwardsiana</i> (VU) and <i>N. villosa</i> (VU). The most famous of the pitcher plants endemic to Kinabalu National Park is <i>Nepenthes rajah</i>, a giant pitcher plant whose bell can hold more than three litres of water</li> <li>• Kinabalu National Park is also home to the world's largest flower, the Rafflesia, which blooms exceptionally rarely and then only for a matter of days</li> </ul>
Values of the area	<ul style="list-style-type: none"> <li>• The site contains one of the richest and most diverse floras in the world, with high levels of endemism. It is a Centre of Plant Diversity containing species from the Himalayas, China, Australia and Malaysia as well as pan-tropical flora and where most of Borneo's mammals, birds, amphibians and invertebrates, many threatened and vulnerable, are found</li> <li>• The Park lies within a Conservation International-designated Conservation Hotspot, a WWF Global 200 Eco-region, a WWF/IUCN Centre of Plant Diversity and a BirdLife-designated Endemic Bird Area</li> </ul>
Cultural value	<ul style="list-style-type: none"> <li>• Mount Kinabalu is still considered as sacred place by the local people living around the area. It is considered the identity of Bundu Tuhan community as well the Kiau villages. It is a place of <i>Aki nabal</i>, where the spirit of the dead living relatives reside before going to heaven. It is also believed that any incidents are related to the 47ompromi towards Mount Kinabalu or problems linked to the mountain. Fines (called as Segit) need to be paid to the condition of a good return, in form of slaughtered cattle</li> <li>• Beginning of 2010, in every December a local community Pilgrimage to the Mountain or Kakakapan Id Gayo Ngaran (Pilgrimage to the Mountain) is held. A monolop (asking permission to go up the mountain, from the spirits, not from Sabah Parks) were held in Timpohon Gate which is led by The <i>monolop</i> was led by the bobolian (medicine man/ shaman) who chanted his prayers and 7 white chickens were sacrificed.</li> </ul>

	With that, 97 people from the Bundu Tuhan and Kiau villages made the pilgrimage
Threats	<ul style="list-style-type: none"> <li>• Relatively low of threats 480mpromi there are stll some illegal harvest of agarwood, mostly from people outside the community.</li> </ul>

Sources:

<sup>1</sup> Beaman, J. & Beaman, R (1998). The Plants of Mount Kinabalu, Volume 3: Gymnosperms and Non- Orchid Monocotyledons. Natural History Publications (Borneo) Sdn. Bhd., Kota Kinabalu, Sabah Malaysia / Royal Botanic Gardens, Kew, England; <sup>2</sup> Kitayama, K. M. Lakim, and M. Zaini Wahab (1999). Climate profile of Mount Kinabalu during late 1995 – early 1998 with special reference to the 1998 drought. Sabah Parks Nature Journal. Vol. 2: 85-100; and <sup>3</sup> UNEP-WCMC. World Heritage sites: Kinabalu Park Sabah, Malaysia. [www.unep-wcmc.org/medialibrary/2011/06/.../Kinabalu%20Park.pdf](http://www.unep-wcmc.org/medialibrary/2011/06/.../Kinabalu%20Park.pdf)

As mentioned previously, standing tall at 4,095 m asl, Kinabalu Mountain is the highest mountain in South East Asia. Previous expedition and scientific research carried out mainly by British explorers and scientists have made a significant contribution to the management of Kinabalu National Park, specifically in planning.

Kinabalu National Park has been attracted tourism since a long time ago. Tourists visit Kinabalu National Park basically of two types: those who want climb the mountain, and those who want to have a light recreation around the Park. Management of the Park, therefore mainly has been directed to a specific objective to provide the best service for mount climbing, and managing the surrounding area of Kinabalu Mountain as touristic area.

The Kinabalu National Park is relatively close to the capital city of Kota Kinabalu, only about 2 hour-drive from the city, making the Park popular for short term visit, especially by foreigners. The park also has excellent lodging facilities provided by the Park and by others (private sectors, local communities) and situated close to other tourist destination nearby (Sandakan, Crocker Range, Kinabatangan).

Although the management plan is slightly out-dated, the development and maintenance of the Park has been well executed (Figure 18). Facilities for climbing up Kinabalu Mountain have been excellently provided by the Park, including setting up special track, providing well-trained guides from the nearby villages, and building facilities half way to the mountain, which in turn draw many tourists to conquer the top of the mountain. Fee collection and distribution also have been managed well, and have been used for further development of the Park, as well as for other parks in Sabah State.

The Park has some other additional visitor attraction, including the famous hot-spring, trekking at the foothill of the Mountain, combined with local culture. Local people have been part of the management activities of the Park, including as guides, lodging provider, tour operator, and assisting the Park in many activities e.g. cleaning up mountain track.

Clearly the Park received a lot of support from the local people and other stakeholders, as it provided economic benefits to the surrounding community. Calculation of management effectiveness resulted in a high score of 89.4%, slightly lower than the best park of Taman Negara Pahang (Table 14).

Table 14. Scoring of the management effectiveness of Kinabalu National Park, Malaysia.

Elements and Indicators	Current Situation	Score
<b>1. CONTEXT</b>		
1.1. Legal status	The park has been formally gazette. The Park was gazette through Parks Enactment 1984 (Sabah No.6 of 1984).	4
1.2. Geographic location	National park has a good access from Kota Kinabalu. Almost all borders have good road in which there is plan to make accessible roads along all borders which increase 49ompromising49 for patrolling.	4
1.3. Border security and safety	The Park has no borders with other country and there is no problems regarding safety.	4
<b>2. PLANNING</b>		
2.1. Management plan	The Kinabalu National Park was still use the 1992 Management Plan. Currently Management Plan is being reviewed. The Park thinks that the Management Plan of 1992 is still adequate. Almost all plans have been implemented.	3
2.2. Park zonation	Zonation has already established and mapped, and sometimes re-checked and re-adjusted for effective management. Implementation of zonation has already been done. Zonation was existed but it was not fixed or under development.	3
2.3. Work plan	A regular work plan existed and many activities is implemented. Annual work plan were made by special Officer, usually in conjunction with budget planning for the next year.	3
2.4. Map availability	Maps of the Park were available in an excellent quality, GIS-based. Digital format of maps were made by Officers who have knowledge of GIS, but the Park has no special unit for mapping.	4
2.5. Division of working area	There Park was divided into six working areas (sub-stations): Poring Hotspring, Mesilau, Sayap, Serinsim, Monggis, Nawalan. In addition, there was one post for climbing: Pos Kawalan Pendaki Burlinton in Panar Laban.	4
2.6. Planning for land/water use	Planning for land and water use by other sectors were always considered the existence of the Park and its function. Coordination meetings often held in Kota Kinabalu.	4
2.7. Park regulations	The Park has already set a regulation. In 1971 the Park also has published Kinabalu National Park Regulations, 1971 (G.N.S. 27 of 1971). Park regulations have been widely informed to the community as well to the tourists.	4
2.8. Park objectives	The objective of the Park has been undertaken according to 49ompro objectives and managed to meet the objectives, mostly because there was sufficient funding availability.	4

2.9. Park design	The size of the Park was sufficient for conservation purposes, and the set up of the border was designed to exclude village in the nearby area top avoid social conflict.	4
2.10. Alignment with Regional Action Plan	The Park Director did not aware on the existence of the Regional Action Plan because ACB probably made contact with the higher level (i.e. Sabah park in Kota Kinabalu) and this communication has not conveyed to him.	1
<b>3. INPUT</b>		
3.1. Staff numbers	Kinabalu National Park had 236 staffs, which include research division and temporary staff. However the number of rangers is low, only 10 rangers. About 64 of staffs were temporary. Hiring permanent staff was a long process and need to be decided from Kota Kinabalu Headquarter, whereas hiring temporary staff are more flexible. Temporary staff had at least diploma degree. The Director thinks that staff number were still below the optimum level for critical management activities but comments that task was still can be done.	3
3.2. Staff quality	The existing capacity of staff was good, even the temporary staff at least hold a diploma degree. High level (senior) staff hold MSc. Degree. Senior staff was given opportunity to visit other national parks in other country to learn the management. Staffs were regularly trained by Sabah Parks in Kota Kinabalu but the Kinabalu National Park set the training theme according to their needs.	3
3.3. Law enforcement	Although the number of rangers was low, Kinabalu National Park has managed to enforce National Park rules. Every sub-station was headed by one ranger and several temporary staff.	4
3.4. Equipment	Available equipment including vehicles, tools for communication, GPS, binocular etc. However the Park management thinks that there was still some gaps that constraint management.	3
3.5. Infrastructures	Infrastructure within the Park were excellent, including access road/trails, guard post, office building, electricity, availability of drinking water and telephone lines. Almost all borders have good road in which there was a plan to make accessible roads along all borders which increase 50ompromising50 for patrolling.	3
3.6. Resource inventory	There were plenty of research within the National Park conducted by Research Division, in cooperation with international universities/research organizations, as well as local universities and NGOs. However, most surveys were carried out near access trail and there was less research carried out in the northern part of the Park. Research were mostly on biodiversity and less on social/cultural value. The results of the survey have been widely used for the management of the Park.	3
3.7. Current budget	Allocation of current budget was sufficient to cover salary of staff and 50ompromisin cost, including maintenance of office and patrol activity. The Kinabalu National Park generated high income from tourism. However, most of the revenue went back to Sabah Parks and distributed by Sabah Parks for operational cost of other national parks. The available budget (about MYR 2 million) was acceptable but additional budget could help improve to fully achieve effective management.	3

3.8. Budget sustainability	Current income is derived from Federal State (allocation for operational cost) and conservation fee from visitors which provide sufficient funding to cover all activities of the Park.	4
3.9. Other resources	The possibility of having funding resources from other sources was high, for instance from JICA, or commercial enterprises.	4
<b>4. PROCESS/IMPLEMENTATION</b>		
4.1. Management of budget	The budget management was mostly adequate but could be improved. The Park has been self sufficient in term of budget. The Park revenue alone has been around MYR 8 millions, whereas operational cost was only MYR 2 million. The income from Kinabalu National Park went back to Sabah Parks, who will distributed it to other national parks, i.e. Crocker Range and others.	3
4.2. Boundary demarcation	The boundary of the Park has been mapped and marked clearly in the field. The Kinabalu National Park also hired local people to clean and put signboard of the Park on the surrounding 10 km area bordering the local community. There were two advantages by doing this: 1) the local people have been aware of the Park border and, 2) the communities were happy because they get benefits from the Park. The communities also have been actively participate in 51ompromisi and inform the Park for any problems related to law.	4
4.3. Research	There were comprehensive, integrated program of survey and research work, which was relevant to management needs. Kinabalu National Park has a research program division, under the Sabah Parks but based on Kinabalu National Park. The Park also has been collaborating with universities in Malaysia as well as abroad. KNP research division also published Sabah Journal, but it has been dormant since the last publication in 2007. They are now in the process of re-published, including printing the back issue. Regular seminar is carried out in July (called July seminar).	4
4.4. Resource management	Many of the requirements for active management of critical habitats, species, ecological processes and, cultural values have been implemented but some key issues were not being addressed.	3
4.5. Maintenance of equipment	Kinabalu National Park always invested in good equipment, especially for the safety of the climber. Maintenance was not a problem as budget was available.	4
4.6. Education and awareness	Education and awareness program was conducted daily, including to school children. The Park had an interpretative unit in botanical garden which was also Park's income. The Park also had awareness program for surrounding community.	4
4.7. State and commercial neighbors	There has been some cooperation between Park Manager and adjacent land and water users. The Park did not allow application for mini hydro and dams and only allowed for gravity water pipe for community. For commercial 51ompromi, the Park charged the activities.	4
4.8. Indigenous people involvement	Every year Kinabalu National Park has ritual ceremony ('Manakap'). The Park also has an annual Program Kinabalu Community Date since 2010, on the 1 <sup>st</sup> and 2 <sup>nd</sup> December.	3

4.9. Local communities involvement	The local community did not have a direct input to management of the Park, but they could have indirect influence through meetings.	3
4.10. Monitoring and evaluation	There has been active monitoring and evaluation for the Park by the Headquarter and Sabah Parks.	4
4.11. Visitor facilities	Visitor facilities and service were excellent. Kinabalu National Park has been awarded from TripAdvisor website rating 4 out of 5 for excellence.	4
4.12. Commercial tourism operators	There has been good cooperation between the Park management and commercial tour operators. The Park has been well known area for tourism. Daily visitors were mainly local, whereas climbing visitors comprises of international and local tourists. The popularity of the Park was mostly because of tourism agency that had a permit from Malaysia Tourism. Climbing has been managed by Alam Sutera, a local private company. The agreement with Alam Sutera was for 30 years (since 1995), in which the private company managed the climbing activity and provided an annual revenue of MYR 2 million to the Park.	4
4.13. Fee collection and contribution	Fee were collected and made a substantial contribution to the Park and its environment.	4
4.14. Promotion and information dissemination	There were books and brochures of Kinabalu National Park. Brochures can also b taken when visitors arrive at the International Airport of Kota Kinabalu. Website has been updated regularly.	4
4.15. Staff training	There has been some training for existing staffs. Training was not only for staff but also for climbing guide. Training has been irregular but sufficient.	3
4.16. Collaboration with others	Kinabalu National Park had several formal collaboration with other stakeholders, all have been well implemented.	4
<b>5. Output</b>		
5.1. Habitat for wildlife	The Park harbors diverse animal and flora, some are endemics. The Park provides an excellent habitat and refuge for wildlife.	4
5.2. Environmental service	There are small rivers in the Park. Water flows to areas surrounding the park and used for water services.	4
5.3. Prevention of catastrophic events	The land surrounding Kinabalu National Park is not stable and moved about 5 cm each year. Landslide occurs regularly. The Park prevents only a few natural catastrophic events.	2
5.4. Prevention of encroachment	There was no land encroachment in the Park.	4
5.5. Prevention of Illegal logging	The Park has been free from illegal logging. Community also help in reporting for suspected illegal activity.	4
5.6. Prevention of poaching	Poaching has been going on in the Park, both mostly for own use. Efforts to overcome the problem has been going on.	3
5.7. Prevention of Illegal extraction	Illegal extraction of other resources, including NTFPs, sometimes still happened in the Park, for instance agarwood. There were active patrol, assisted also by local community.	3

5.8. Stakeholder support	The Park gained full support from all stakeholders. Kinabalu National Park is a semi-Government entity, under the board of trustees of Sabah Park. There were 10 members of the Board of Trustees. Chairman of Board of Trustees must be from 3 ex-officio: Permanent Secretary of Tourism of Sabah, Permanent Treasury of Sabah, and Permanent Secretary of Finance of Sabah. Other members can come from Government as well as NGO. One of them must be the Head of the National Park.	4
<b>6. IMPACT/OUTCOME</b>		
6.1. Economic benefit	Kinabalu National Park has been providing economic benefits to local communities, especially from tourism. Local community involved in the ecotourism activity as guides and lodging provider, as well as as well as related services (food, laundry, etc.).	4
6.2. Condition of values	Compared to when it was first designated, the Park has been slightly degraded although the most important values were still intact. Problem usually related to non-human impact such as climate change.	3
Average*		3.6
<b>Management effectiveness (%)</b>		<b>89.4</b>

\*Note: Indicators 1.2., 1.3., and 2.10. were excluded from the calculation. See explanation in Method section.



Figure 18. Documentation of Kinabalu National Park, Malaysia: A. Kinabalu Mountain; B. Headquarter of Kinabalu National Park; C. Poring Canopy Walk; D. Mesilau Nature Center; E. Botanical garden nursery.

#### D. MALAYSIA: TAMAN NEGARA PAHANG

Peninsular Malaysia is located at the southern end of the Malay Peninsula. To the east it is bounded by the South China Sea, to the west by the Straits of Melaka. It shares a common boundary with Thailand in the north and is separated from the island of Singapore in the south by the narrow Straits of Johor.

The topography of Peninsular Malaysia is dominated by a central mountainous spine extending south from Thailand which tapers to its end near Melaka. The mountains consist mainly of raised marine sediments with granitic intrusions, the former largely eroded away. Gunung (Mount) Tahan (2,187 m) is the highest mountain in Peninsular Malaysia<sup>19</sup>.

The current network of terrestrial protected areas in Peninsular Malaysia is estimated to total 10,414 km<sup>2</sup>, consisted of national parks, state parks, wildlife sanctuaries, wildlife reserves, conservation areas, bird sanctuaries and river terrapin reserves. In the heart of Malay Peninsula lays Taman Negara, the largest Malaysia's national park. Taman Negara is a Malay translation of 'national park'. Taman Negara actually consists of 3 national parks: Taman Negara Pahang (Pahang National Park, located in the State of Pahang), Taman Negara Kelantan, and Taman Negara Terengganu (Figure 19). All three formed an intact national park, managed separately by the three States. Information about the Taman Negara Pahang is shown in Table 15.

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<sup>19</sup> BirdLife International, nd. Malaysia.  
<http://www.birdlife.org/datazone/userfiles/file/IBAs/AsiaCntryPDFs/Malaysia.pdf>

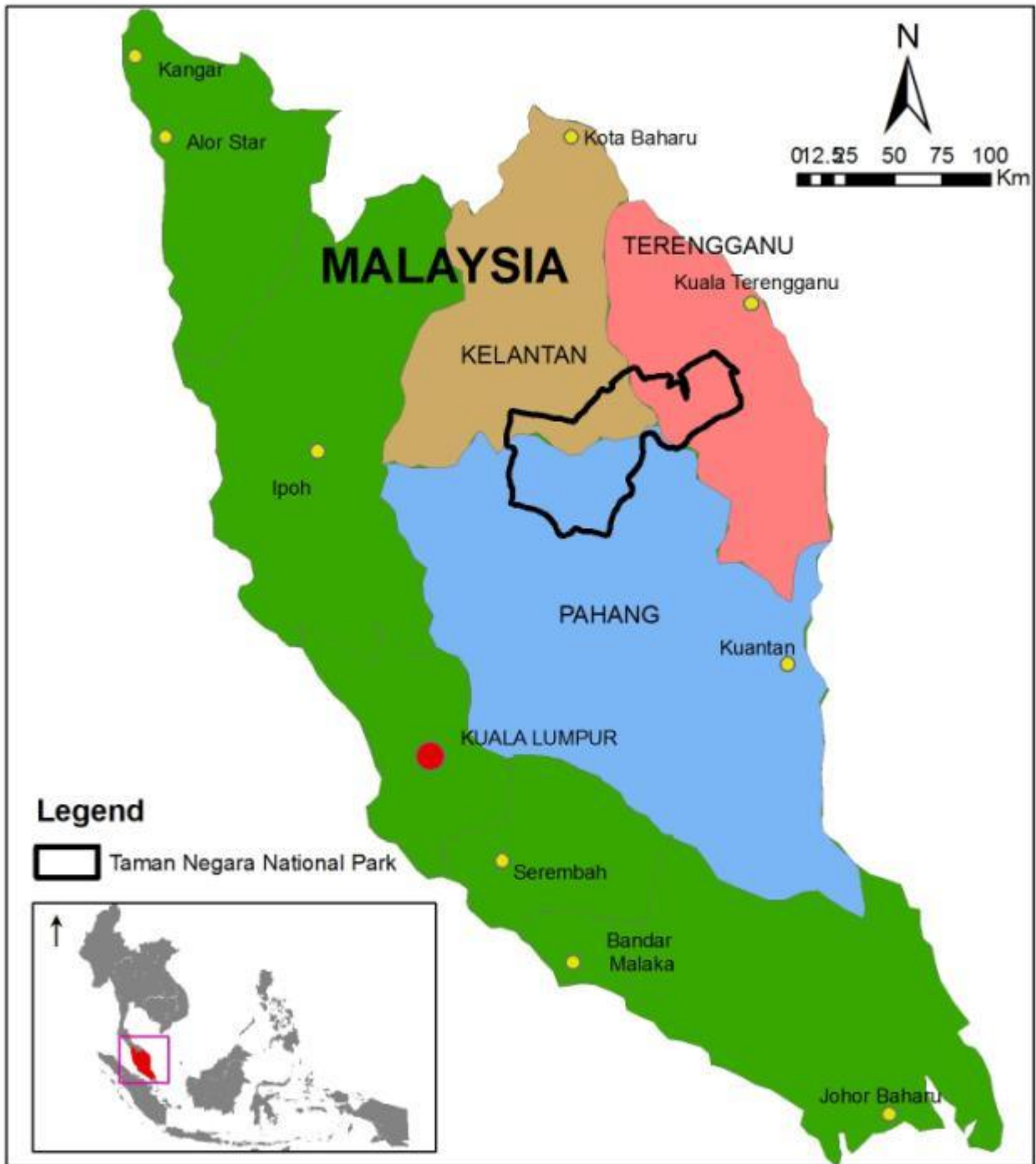


Figure 19. Map of Taman Negara (Pahang, Kelantan, and Terengganu), Malaysia.

Table 15. General information on Taman Negara Pahang, Malaysia<sup>1,2,3,4</sup>.

Country	Malaysia
Geographic location	1°20' - 6°45'N; 99°40' – 104°20'E
Altitude	Most of the area within the Park (57.6%) lies below 305 m asl. Several mountains (Gunung) are located within the Park: Gunung Tahan (2,187 m asl; the highest mountain in Peninsular Malaysia), Gunung Perlis (1,284 m asl), Gunung Gagau (1,377 m asl), Gunung Rabong (1,538 m asl) and Gunung Mandi Angin (1,460 m asl).
Area coverage	Total 434,351 ha Taman Negara Pahang, Taman Negara Kelantan, Taman Negara Terengganu); Taman Negara Pahang: 247,700 ha.
Year of establishment	Established in 1938 – 1939 as King George V National Park, the park was named Taman Negara after independent in 1957.
Administrative location	The Park is situated in three states: State of Pahang (247,700 ha; 57%), Kelantan (104,300 ha; 24%) and Terengganu (85,300 ha; 19%). The Headquarter of the Taman Negara Pahang is in Kuala Tahan.
Designation as AHP	1984
Management authority	Wildlife Department and National Parks
Description of sites	Located in the central regions of the Peninsula, the Park is estimated to be 130 million years old
Land tenure	State owned (Government of Malaysia)
Climatic condition	The Park experiences north-east and south-west monsoon. The highest rainfall (312 mm) occurs in October-November and lowest (50 mm) in March. Temperature ranges between 25-37°C and humidity high (>80%). On the mountain peaks and ranges, conditions are cool and sunny and cold on peaks at night.
Forest types	A wide range of habitats occurs in the Park, including lowland that consists of riverine vegetation as well as freshwater swamp, hill Dipterocarp forest, lower montane forest and upper montane forest, heath forest and riparian forest.
Main features	Several mountains are located within the national park namely Gunung Tahan (2,187 m asl), peninsula's highest, Gunung Perlis (1,284 m asl), Gunung Gagau (1,377 m asl), Gunung Rabong (1,538 m asl) and Gunung Mandi Angin (1,460 m asl).
Important fauna	This national park supports large mammals which include Asian elephants <i>Elephas maximus</i> , Malayan tapir <i>Tapirus indicus</i> , Gaur <i>Bos gaurus</i> , Tiger <i>Panthera tigris</i> , and Malayan sunbear <i>Helarctos malayanus</i> as well as small mammals such as bats, rodents, pangolin and tree shrews.
Flora	It may house more than 30% of 8000 species of flowering plants known in the Peninsula. Families such as Dipterocarpaceae, Moraceae, Orchidaceae, Fabaceae, Rubiaceae, Euphorbiaceae and Annonaceae are well represented in the National Park. Plant endemism is also high. Some 14 endemic tree species has been documented in the Park. The National Park is an important gene pool of major cultivated plants.
Values of the area	The National Park has one of the oldest and pristine vegetation in Malaysia and is reputed to be the oldest rainforests in the world. It is also one of the ten most endangered places in Malaysia.

Cultural value	Taman Negara is also home to several indigenous groups who live in the forest. Along with the local Malays who mostly live in Kuala Tahan, there are few aborigines group who stay in the rainforest. The most common, the Batek, still live a nomadic lifestyle and depend largely on forest produce. Although these people are shy and gentle natives, they have accepted visitors at their settlement and willing to share their customs and forest knowledge with the tourists. They can usually be found along some of the forest trails or by the river.
Threats	<ul style="list-style-type: none"> <li>• A proposal to build a hydro-electric dam in the Ulu Tembeling area within Taman Negara was proposed but shelved indefinitely, but it was, revived in the early 1980s. Due to strong pressure by the environmental organizations and Malaysian public, the project was later abandoned by the Malaysian Federal Government.</li> <li>• There has been a concern that the the carrying capacity of certain tourism sites within Taman Negara may have been exceeded during peak season.</li> </ul>

Sources:

<sup>1</sup> UNEP (2011), <sup>2</sup> <http://www.asean-tourism.com/heritage/malaysia.shtml>, <sup>3</sup> Anonymous (2002),

<sup>4</sup> Ibrahim, Y & M.S. Hassan (nd). Tourism management at Taman Negara (National Park), Pahang, Malaysia: Conflict and Synergy. [http://www.ritsumeai.ac.jp/acd/re/k-rsc/hss/book/pdf/vol03\\_09.pdf](http://www.ritsumeai.ac.jp/acd/re/k-rsc/hss/book/pdf/vol03_09.pdf)

Taman 58ompro Pahang gained its advantage due to its location and its rivers boundary. The number of local people surrounding the Park was relatively low and they did not rely on the Park for their natural resources. There has been no dispute on the land use surrounding the Park either, ensuring that the Park has been relatively free of encroachers and poachers. Illegal agarwood collectors from Thailand, however, have been disturbing lately.

Many visitors, including foreigners, visit the Park because of the pristine old tropical rainforest. In addition, the Park has excellent facilities: canopy trails, lodging facilities, wildlife hides and trails, trekking to Gunung Tahan, as well as programs and activities for visitors (i.e. popular boat rides along the main rivers). Although the Park is quite far from the capital city of Kuala Lumpur (6 to 7 hours driving), many visitors have been pouring to the Park, either arranged by themselves or by tour operators.

Tour operators and the local tour guide/interpreters had been contributed greatly to the success of tourism in the Park. There has been some concern that the carrying capacity of the Park may have been exceeded during the peak season in summer (June-August). To overcome this situation, the Park Management has been trying to create some new activities within the Park.

Overall, the Park has been well managed, both for the natural resources and for visitors. Monitoring of wildlife and touristic sites has been regularly conducted. Patrol lately has been intensified, as there has been some illegal collection of agarwood in the northern part of the Park.

Lodging facilities within the National Park were excellent, managed in partnership with a private sector. Lodgings and restaurants also provided by local people nearby, at Kuala Tahan town, just across the river. Local people have been involved in visitor management of the Park, in various ways. As the Park has been able to provide economic benefit to the local people, the Park received a full support from the local people and other stakeholders. Further, fees collected from visitors have been fairly distributed among National Park, State of Pahang, and others. In addition to visitor fee, the Park also received funding from Headquarter in Kuala Lumpur, and thus funding has not been an issue to the Park. All of those excellent park managements made the Taman Negara Pahang the best park among AHPs, with a score of 93.3% (Table 16).

Table 16. Scoring of the management effectiveness of Taman Negara Pahang, Malaysia.

Elements and Indicators	Current Situation	Score
<b>1. CONTEXT</b>		
1.1. Legal status	The Park actually consisted of 3 state-bordered parks of Pahang, Kelantan, and Terengganu. All 3 states have formally gazette the Park to form one national park, called Taman Negara. Each States has its own enactment and currently all the three states has its own legislation, namely Taman Negara Enactment (Pahang) No.2, 1939 [En.2 of 1938], Taman Negara Enactment (Kelantan) No.14, 1938 [En.14 of 1938] and Taman Negara Enactment (Terengganu) No.6, 1939 [En.6 of 1358]. Basically each states has its own autonomy to manage the Park and the Federal Government in Kuala Lumpur coordinated the general policy of the Park in the 3 states	4
1.2. Geographic location	Geographic location of the Park is excellent. The natural border of the Park at the east, south, and west are rivers, making the border check easier. To the north it borders with Taman Negara Kelantan and Taman Negara Terengganu.	4
1.3. Border security and safety	Borders were secure and safe. Most of the Park bordered with rivers, which provides a secure border. The northern part borders with other part of national park (Taman Negara Kelantan and Taman Negara Terengganu)	4
<b>2. PLANNING</b>		
2.1 Management plan	Management Plan for the Park exists, but has expired. Currently the Park still used the Management Plan of 2000-2010, as the Management Plan still able to provide a necessary guidance.	3
2.2 Park zonation	Formal zonation did not exist. However, the Park Manager recognized the imaginary zonation, including core zone, wilderness zone, intensive use zone, and traditional use zone. Zonation has been suggested in the Management Plan, but so far the formal zonation has not been set yet.	3
2.3 Work plan	There was no formal document of the Work Plan, but the Park had an excellent plan for the annual activities. Budget for implementing the plan was sufficient, derived from the fee of the Mutiara Resort (a resort located within the Park, near the entrance) which collected through a Trust Fund by State of Pahang.	3
2.4 Map availability	Maps were available in good quality. The maps have been used for many purposes, including for ecotourism activities, hiking trails, and routes for regular patrols.	4
2.5 Division of working area	The Park administratively is located at and managed by 3 States: Pahang, Kelantan, and Terengganu. Each States has its own autonomy in policy and management of the Park. The Taman Negara Pahang formally did not divide the area into smaller sections. However, for law enforcement, the Park divided the areas into 5 posts, namely Kuala Atok, Kuala Trenggan, Kuala Keniam, Kuala Kelapor, and Merapoh.	4

2.6 Planning for land/water use	Other institutions and organizations surrounding the Park were fully aware of the existence of the Taman Negara Pahang. Any development in the surrounding area was always considered the existence and the value of the Park.	4
2.7 Park regulations	The Park has a good regulation on many aspects. The Park's regulations were also acknowledged by the local people and other stakeholders. Regulations related to visitors and fee distributions were excellent.	4
2.8 Park objectives	The Park already set certain objectives, which understood by all staffs and local people. The Park objectives also were announced in the leaflets and sign boards.	4
2.9 Park design	Overall, the design of the Park was excellent. Although formal zonation did not exist, the Park had a good plan for management purposes.	4
2.10 Alignment with Regional Action Plan	The Park manager knew about the existence of Regional Action Plan. However, the activities of the Park was never been checked with the AHP Action Plan, although the Manager felt certain that the activity of the Park would be in line with the Action Plan.	2
<b>3. INPUT</b>		
3.1. Staff numbers	Park employed 118 persons (104 in Kuala Tahan and 14 in Sungai Relau, Merapoh). The Park Manager admitted that the number was not sufficient because some planned activities, including research and biodiversity monitoring, could not be fully conducted due to staff shortage.	3
3.2. Staff quality	The basic education and skill of the staff was insufficient for the effective management of the Park, and need to be improved in the future. Most of the Park staffs have a middle education and only few were graduated from university/college. To elevate the staff quality, various trainings were conducted quite often.	3
3.3. Law enforcement	Intensive patrols have been regularly conducted in the Park. There were 6 patrol teams consisted of 4 rangers each, carried out patrolling twice a month, with a patrol duration of 10 days for each rotation.	2
3.4. Equipment	Equipments were sufficient. The Park actually did not need many equipments for its daily management. Some important equipments were boats, GPS, communication system (walkie-talkie).	3
3.5. Infrastructures	The Park did not need a road system within its area. All transportation was made by boat on foot. Infrastructures for visitors were excellent. Electricity for the headquarter office and the Mutiara Resort were excellent.	4
3.6. Resource inventory	Biodiversity inventories are carried out 4 times a year, sometimes involving persons outside the Park. Survey of important wildlife species, including rhinos and tigers, conducted at least 6 times a year. Camera traps were placed in various sites of the Park to monitor the existence and the distribution of important wildlife.	4
3.7. Current budget	Salaries and operation costs were paid by Federal Government and available in a sustainable manner. This year (2012) the Government provides RM 1.3 million for the operational costs. So far, additional costs for maintenance and infrastructure development also continuously provided by request.	4

3.8. Budget sustainability	Budget from the Federal Government could be provided in a sustainable manner. In addition, the high number of visitors who visit the Park and stay at the Mutiara Resort also ensured that the additional funding could be sustainable. Sustainable funding collected through Trust Fund by the State of Pahang could be used for maintenance.	4
3.9. Other resources	Other resources might still possible to get. However, the Park did not need other resources as the funding has been sufficient.	4
<b>4. PROCESS/IMPLEMENTATION</b>		
4.1. Management of budget	Funding has been managed in a proper manner. Budget sources, allocation, and expenditure were clearly defined.	4
4.2. Boundary demarcation	Boundary demarcation was clear. Rivers are bordering most of the Park. Currently stone signs of the Park have been placed at about 200 km of the Park borders and the Park has a plan to finish the rest of 100 km border sign in the following years.	4
4.3. Research	A few research has been conducted, mostly by the Park staff. In the past, there were some research on Malayan tiger <i>Panthera tigris jacksoni</i> (collaboration with MYCAT, Malaysian Conservation Alliance for Tigers) and elephant. Research by university students mostly were related to ecotourism. The Park Manager planned to have more research activities in the future, especially related to important and endangered species in the Park.	3
4.4. Resource management	Management of important resources, especially related to ecotourism was well conducted. River tributaries, waterfall, habitat for wildlife (especially grazing area), and many other resources were well managed.	4
4.5. Maintenance of equipment	Equipments (boats, communication tools, GPS) were well maintained. The Park allocated a special funding for maintenance of equipments and facilities. The funding mainly came from the rent of the Mutiara Resort and available by request.	4
4.6. Education and awareness	Public awareness program was developed through the biodiversity education program for the school children surrounding the Park. A special awareness program for tiger was also conducted lately, in collaboration with MYCAT.	4
4.7. State and commercial neighbors	Some commercial companies in the neighborhood were lodging and hotels, oil palm plantation and timber concessionaries. All of them were fully aware of the existence and objective of the Taman Negara Pahang, and showed a full support.	4
4.8. Indigenous people involvement	Indigenous people, the Batek (approximately 200 people), were involved in the ecotourism activities. Their views were also heard and incorporated in the Management Plan during the period of formulating the plan. However, their roles are relatively small in the management of the Park.	3

4.9. Local communities involvement	Local people were active in the daily activities of ecotourism. Boat transfers of the visitors to the Park from Kuala Tahan were always operated by the local people. Local people also had some roles in the decision of the management of the Park.	4
4.10. Monitoring and evaluation	Monitoring and evaluation of the Park activities and staff performance were carried out by the Federal Government of Kuala Lumpur. Additional monitoring might be provided by the State of Pahang.	4
4.11. Visitor facilities	Number of visitors was 85,576 in 2010, of which 53.7% were foreigners. Lodging and ecotourism facilities are excellent. There is an international standard resort near the entrance of the Park, the Mutiara Taman Negara Resort, equipped with chalets (31 units), bungalows (2 units), restaurant, meeting room, dormitories (8 units), tourist information center, and many others. The famous canopy trail was just a walking distance (1.5km) from the entrance. There were also 5 hides (bumbun: Yong, Blau, Cegar Anjing, Tabing, and Kumbang) for wildlife watching in the Park. Road is unavailable in the Park, as most transportation are done by boat. Hiking trails to Mount Tahan and some other tourist destinations were also available.	4
4.12. Commercial tourism operators	There were many commercial tourism operators nearby (Kuala Tahan) and in the capital city of Kuala Lumpur. All tourism operators were registered by the Park Manager. Tour guides were available and experienced, and recruited from the local community. The guides are certified and professionals.	4
4.13. Fee collection and contribution	Fees were collected and clearly distributed. Entrance fees, fishing fees, and fees for bringing cameras were collected for the State of Pahang. Fees from canopy walkway, hides, and camping ground were for the Federal/Central, while land rent derived from Mutiara Resort were designated for the maintenance of the Park. The rent was collected through a Trust Fund managed by Pahang State. The fees made a significant contribution to the management of the Park.	4
4.14. Promotion and information dissemination	Promotion has been done by the Park (through web) and the Federal Government in Kuala Lumpur. Leaflets and booklets were provided by the Federal Government. In addition, many tour operators also promoted the Park through their own web and through leaflets distribution at the Kuala Lumpur International Airport. Foreigners who visited the Park often wrote their experiences in their blogs and increasing the popularity of the Park.	4
4.15. Staff training	Training for staff were frequently conducted, although the Park Manager felt that the staff need more training to improve their skill, capability, and knowledge. Law enforcement training was conducted intensively when visit was made to the Park, as the Park planned to have a integrated enforcement operation (code name Bamboo Operation) against illegal agarwood collectors.	4
4.16. Collaboration with others	The Park had signed a formal MoU with University Technology Mara (UTM), especially in research in recreation and ecotourism. In addition, the Wildlife Department and National Parks (Perhilitan) also already signed an MoU with 7 leading universities in Malaysia to conduct research in all national parks in Peninsular Malaysia, including Taman Negara Pahang.	4

5. Output		
5.1. Habitat for wildlife	Taman Negara Pahang was able to provide habitat for wildlife, especially endangered big mammals of Malay Peninsula such as Malayan tigers <i>Panthera tigris jacksoni</i> , Malayan elephant <i>Elephas maximus hirsutus</i> , and Gaur <i>Bos gaurus</i> . In fact, the Taman Negara Pahang is the largest forest track in Malay Peninsula, suitable for habitat for various wildlife species.	4
5.2. Environmental service	Water cycle, tourism, and carbon stock in the Park is excellent. Thus, the Park provided a good environmental service to the surrounding areas.	4
5.3. Prevention of catastrophic events	So far there has been no catastrophic event within the Park. Even during the long dry season, there has been no forest fire reposted happening in the Park.	4
5.4. Prevention of encroachment	Land encroachment was almost none. The number of local people surrounding the Park were relatively low. Indigenous people can be found in the Park and they were given the right to practice subsistence agriculture.	4
5.5. Prevention of Illegal logging	Illegal logging was almost never happened in the Park. Situation of the Park was not in favor for the illegal logging activities. There was no logging road inside the Park to take out the illegal logs, if any. The surrounding rivers were also shallow and rocky, unable for transporting logs.	4
5.6. Prevention of poaching	Currently Taman Negara Pahang experiencing a slight problem of wildlife poaching by people who illegally hunt or search for agarwood. Although the illegal hunting was mainly for daily consumption of the illegal hunter, the number of wildlife being hunted could be substantial. A special force of police and national park ranger has been formed to combat the illegal activities.	3
5.7. Prevention of Illegal extraction	Illegal collection for agarwood has been spotted in the Park. The agarwood collectors mostly were Siamese (Thai), arriving from the northern part of the Park. The high price of agarwood in the international market apparently has triggered the illegal hunt for the <i>Aquilaria malaccensis</i> trees. Enforcement was being made, along with the effort to combat illegal poaching.	3
5.8. Stakeholder support	Local community, local states, and local private sectors fully support the existence and the management of the Park. All stakeholders seems fully involved in the development of the Park and the ownership of the stakeholders toward the Park was very strong.	4

6. IMPACT/OUTCOME		
6.1. Economic benefit	The Park obviously provide economic benefit for the local people of Kuala Tahan, including as workers for the Park and for the resort, boat operators, tour guides, restaurant managers, and hotel owner/workers. Local people are also allowed to provide tour by boat. Further, many tour operators from the capital city of Kuala Lumpur gain benefit by offering tours to the Park, especially to foreigners.	4
6.2. Condition of values	Compare to the initial condition when the Park was gazette, the condition of the Taman Negara Pahang has been improved.	4
Average*		3.7
<b>Management effectiveness (%)</b>		<b>93.3</b>

\*Note: Indicators 1.2., 1.3., and 2.10. were excluded from the calculation. See explanation in Method section.

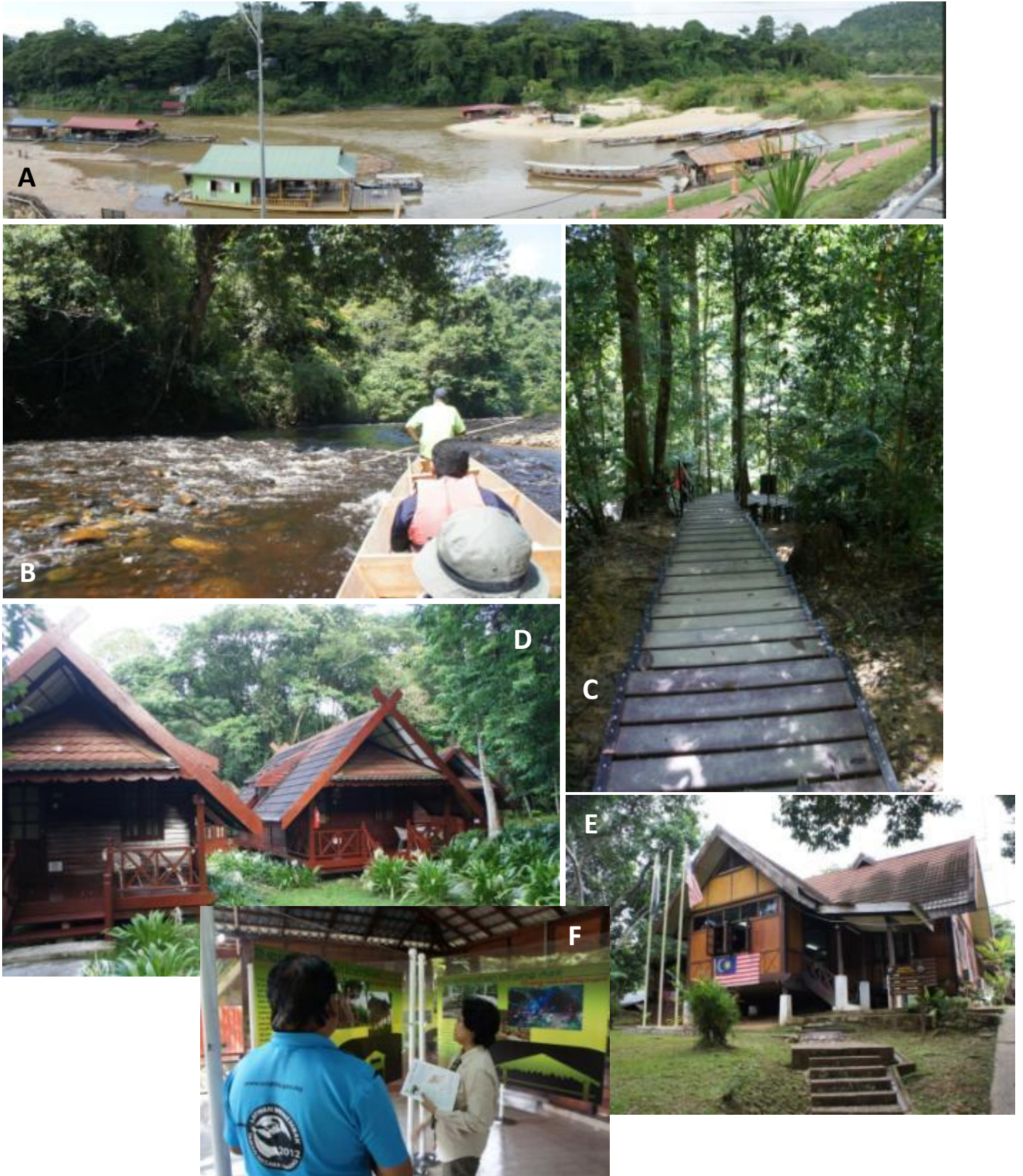


Figure 20. Documentation of Taman Negara Pahang, Malaysia: A. The entrance of Taman Negara Pahang at Kuala Tahan; B. Boat trip along Tahan River; C. Trail leading to canopy walk; D. Chalet lodging facilities; E. Ranger office; F. Posters at Information Center

## E. THAILAND: KHAO YAI NATIONAL PARK

Thailand shares its borders with Myanmar in the west, Lao PDR in the north and Cambodia in the east. The country has about 51 million hectares of terrestrial areas with 2,710-kilometer coastline. It is rich in biodiversity, with about 8 to 10% global biodiversity existing in its wide range of landscapes<sup>20</sup>. Forest types in Thailand are evergreen, lowland evergreen, dry evergreen, hill evergreen, hill pine, mixed deciduous, dry dipterocarp, montane, sub-alpine, limestone and mangroves<sup>21</sup>.

Thailand ratified some multilateral environmental agreements including Convention on International Trade of Endangered Species in 1983, World Heritage Convention in 1987, Convention on Wetlands of International Importance/Ramsar in 1998, Convention on Biological Biodiversity in 2003 and Cartagena Protocol on Bio-Safety in 2006<sup>14</sup>.

In order to protect its biodiversity, the country declared about 5,278,220 hectares of its territory as national parks. Due to these national parks' unique characteristics, two of Thailand's national parks are recognized as World Heritage Sites and four are decided as ASEAN Heritage Sites.

Khao Yai National Park extends some provinces, namely Nakhon Ratchasima, Saraburi, Nakhon Nayok and Prachinburi. The 216,800-hectare National Park is known as the oldest and the third largest national park in Thailand<sup>14</sup>. It is a popular destination for domestic and foreign tourists due to strategic location it has, which is about 200 km from Bangkok<sup>22</sup>. General information about the Park is presented in Table 17.

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<sup>20</sup> ASEAN Center for Biodiversity, 2010b. The ASEAN Heritage Parks: A Journey to the Natural Wonders of Southeast Asia. Los Baños, Laguna, Philippines. 310 pages

<sup>21</sup> Global Forest Resources Assessment Country Report, 2005 cited in ASEAN Center for Biodiversity, 2010a. ASEAN Biodiversity Outlook. Philippines. 208 pages.

<sup>22</sup> Panusittikoorn, P. and Prato, T., 2001. Protected Areas in Asia. Conservation of Protected Areas in Thailand: The Case of Khao Yai National Park. The George Wright Forum Volume 18, Number 2. UNEP, 2011. Dong Phrayayen-Khao Yai Forest Complex Thailand. Available on: [http://www.eoearth.org/article/Dong\\_Phayayan\\_Khao-Yai\\_Forest\\_Complex,\\_Thailand](http://www.eoearth.org/article/Dong_Phayayan_Khao-Yai_Forest_Complex,_Thailand) (Accessed 12 August 2012)

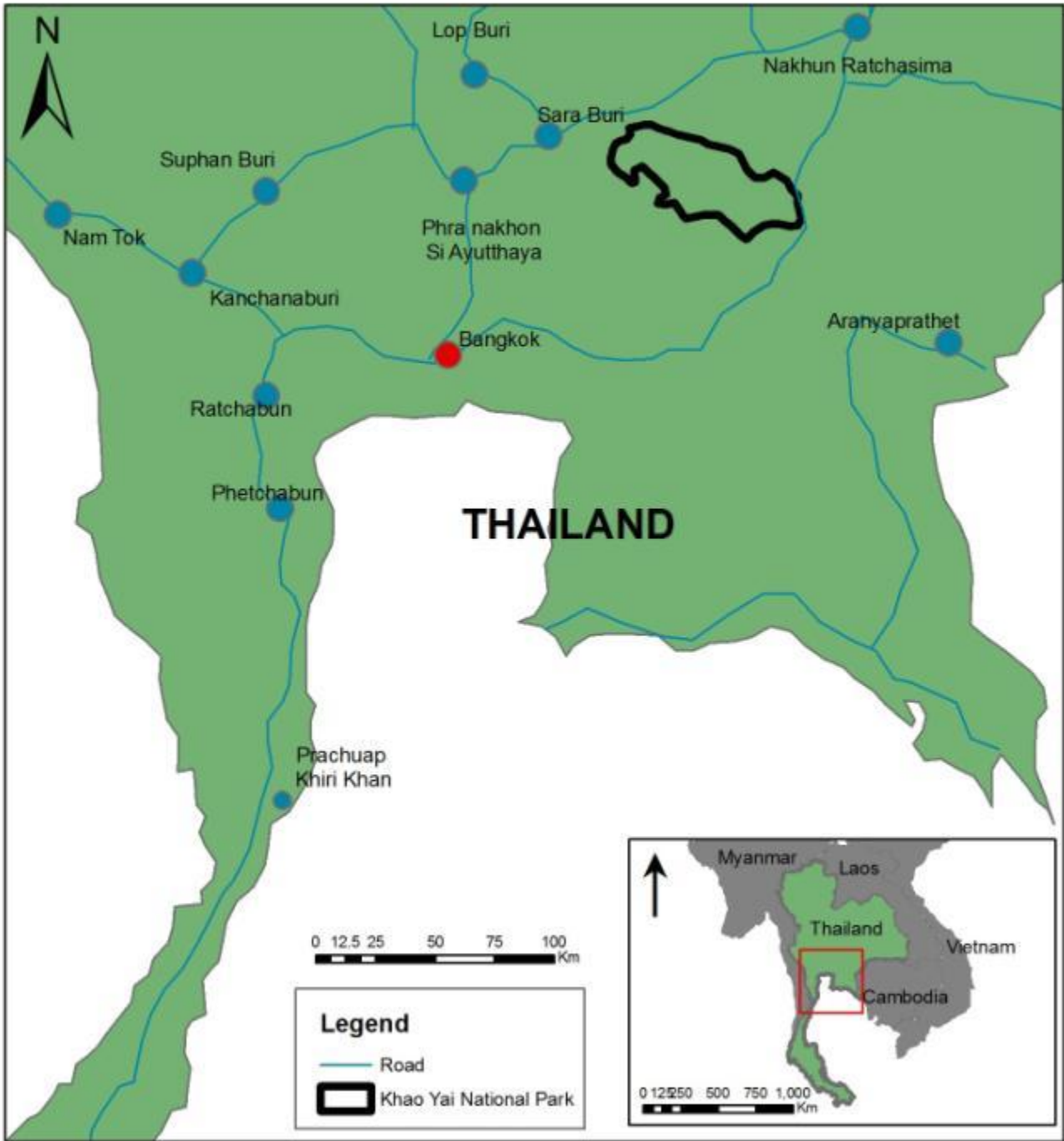


Figure 21. Map of Khao Yai National Park, Thailand.

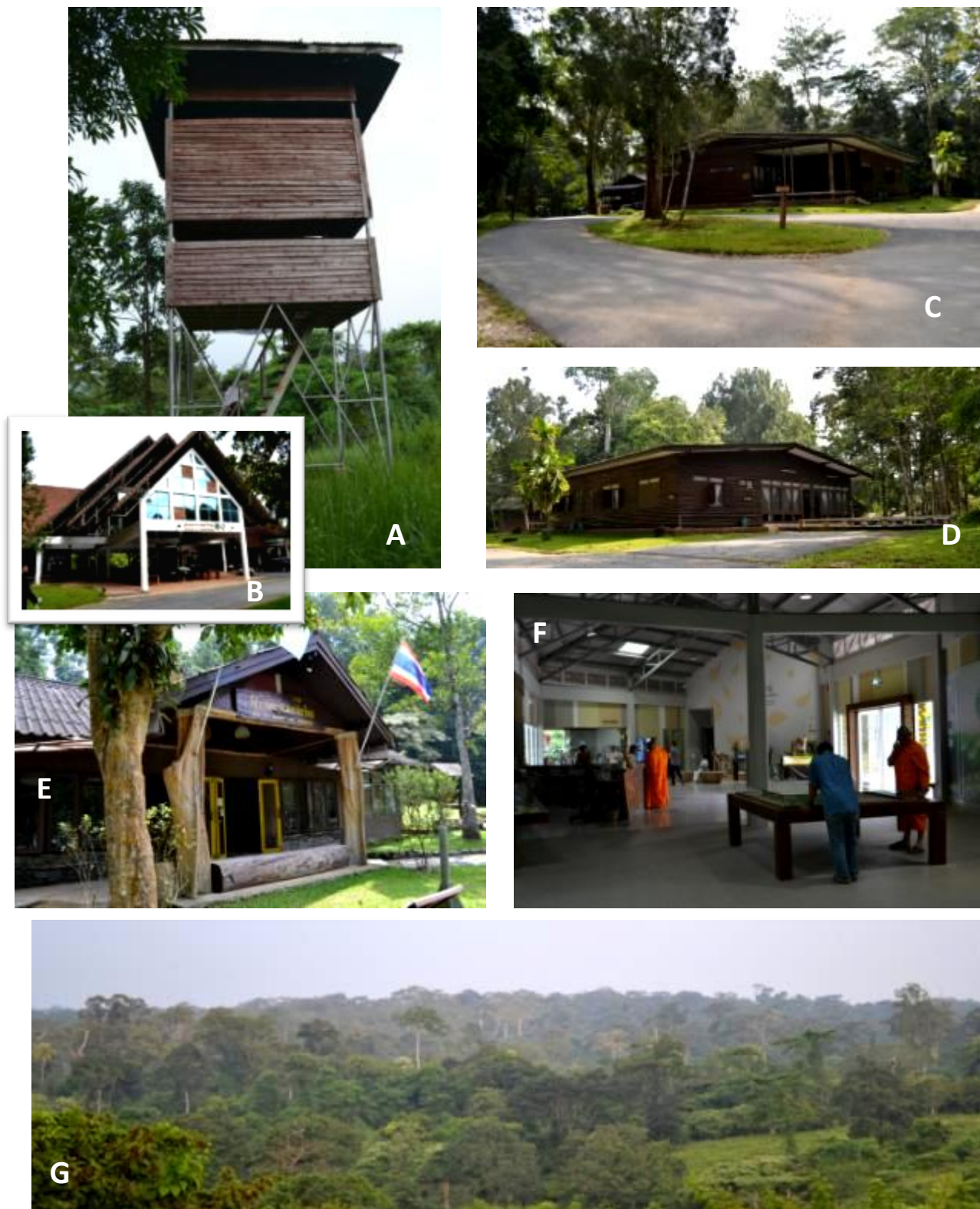


Figure 22. Documentation of Khao Yai National Park, Thailand: A. Observation tower to watch Gaur; B. Cafeteria in Khao Yai National Park; C&D. Accommodation in Khao Yai National Park; E. Headquarters; F. Visitor Center; G. Forest in Khao Yai National Park.

Table 17. General information on Khao Yai National Park

Country	Thailand
Geographic location	14°05' – 14°15'N; 101°05' – 101°50'E <sup>1</sup>
Altitude	The National Park is a mountainous area, part of the Phanom Dongrak Range with altitudes ranging from 250-1,400 m. Its high peaks include Khao Rom (1,351 m), Khao Laem (1,326 m) and Khao Khiao (1,292 m).
Area coverage	216,800 ha
Year of establishment	18 September 1962
Administrative location	The Park occupies parts of Saraburi Province, Nakhon Ratchasima Province and Prachin Buri Province in the east, Nakhon Ratchasima Province in the north, and Nakhon Nayok Province in the south. <sup>1</sup>
Designation as AHP	1984
Management authority	Royal Forest Department responsible for forests in Thailand since 1896, but starting in 2002 the Department of National Parks, Wildlife and Plant Conservation (DNP) was responsible for the protection or conservation forests
Description of sites	The north and the east part are smoothly sloping down, while the south and the west part are rising up
Land tenure	State owned (Royal Thai Government)
Climatic condition	<ul style="list-style-type: none"> <li>• Khao Yai National Park has three main climatic seasons. The summer season is observed during March-April, it is dry and often windy. The rainy season occurs during May-October and the cold season usually starts in November and finishes in February.</li> <li>• The average temperature is about 25.8°C; the average maximum temperature is 37.5°C in April and the average minimum temperature is 10.2°C in December. The average annual rainfall is 1090 mm, while the highest average monthly rainfall is 214 mm in September and the lowest monthly rainfall of about 5.6 mm in December</li> </ul>
Forest types	Dry evergreen forest, dry mixed deciduous forest, tropical rain forest, hill evergreen forest, and grassland and secondary forest
Main features	Major rivers of Lam Takhong and Nakhon Nayok running through it, over 20 waterfalls, marshes, and plenty of trekking routes. Due to its rich ecosystems and biological diversity, Khao Yai National Park was declared as a UNESCO Natural World Heritage Site in July 2005 together with Thap Lan National Park, Pang Sida National Park, Ta Phraya National Park and Dong Yai Wildlife Sanctuary as a Dong Phrayayen Khao Yai – Forest Complex (DPKY-FC).
Important fauna	The park is home to 67 species of mammals, many of which are endangered species, many of which are endangered species. Two species are considered endangered according to the data of the IUCN: the Asian elephant <i>Elephas maximus</i> and the tiger <i>Panthera tigris</i> . Other important wildlife species are Marbled wild cat <i>Pardofelis marmorata</i> , Serow <i>Capricornis sumatraensis</i> , Gaur <i>Bos frontalis</i> , Asiatic wild dog <i>Cuon 69omprom</i> , Asiatic black bear <i>Ursus thibetanus</i> , and Crowned gibbon <i>Hylobates pileatus</i> . Khao Yai also has one of Thailand's largest populations of hornbills, including the Great hornbill <i>Buceros bicornis</i> , Eared hornbill <i>Rhyticeros 69ompromis</i> , Indian pied

	hornbill <i>Anthracoceros albirostris</i> , and Brown hornbill <i>Anorrhinus tickelli</i> .
Important Flora	About 84% of Khao Yai is covered in evergreen or semi-evergreen forest, much of it tall good quality primary forest though there are some logged lowland areas. The Park contains over 2,000 plant species including the valuable incense and medicinal aloewood <i>Aquilaria crassna</i> . Other notable trees include <i>Adina cordifolia</i> , <i>Azelia xylocarpa</i> , <i>Anogeisus cuminata</i> , <i>Lagerstroemia calyculata</i> , <i>Pterocarpus macrocarpus</i> and <i>Pterocymbium javanicum</i> .
Values of the area	The area is the source of main rivers as follows: Prachin Buri River, Nakhon Nayok River, Bangpakong, Lam Ta Kong River, Praplerng River, Muag Lek Stream. All rivers are valuable for local agriculture and cattle, and have water all the year round.
Cultural value	Although there was no indigenous people living in the National Park, there area many temples, museums, and traditional villages surrounding the park and attracted various <i>cultural</i> visits.
Threats	Due to its rich biodiversity, Khao Yai is also a magnet for illegal collecting, logging, and poaching, as well as encroachment

Sources:

<sup>1</sup>.Khwaiphan and Boonkeerd (nd), <sup>2</sup> UNEP (2011), <sup>3</sup> <http://www.fao.org/forestry/10809-09f8870885bd8d85106e0a87cd906b784.pdf>, and

<sup>4</sup>. <http://www.reocities.com/TheTropics/Cabana/1654/nensima.htm>

Khao Yai National Park was established on 18 September 1962 and it was the first national park established in Thailand. Park protection, research and education, and recreation are objectives of establishment of national parks in Thailand, including Khao Yai National Park (Nattapong Banterng<sup>23</sup>, pers.comm, 1 October 2012).

The 216,800 hectare park is considered among the third biggest national parks in Thailand, which lies over four provinces namely Nakhon Ratchasima, Prachinburi, Nakhon Nayok and Saraburi. Over 80% of forest in the park is 70ompromisin as primary monsoon forest<sup>24</sup> providing homes and food for enormous numbers of biodiversity, including hornbills, tiger and elephant.

The Park has received annual funding approximately THB 10,000,000 (equals USD 325,170<sup>25</sup>) for operational cost and staff salary. About 15% of annual income from tourism activities in Khao Yai National Park is returned to the Park. High level of tourism activities in the Park has significantly contributed to management of national parks in Thailand due to system of which 85% of Khao Yai National Park's annual income has been shared to other national parks that cannot rise funding by themselves (Krissada Homsud<sup>26</sup>, pers.comm, 2012).

Khao Yai National Park offers many options for those who want draw themselves close to nature and its beauty such as hiking with various routes and difficulty levels, camping, bird watching, water rafting, wild animal watching, mountain bike activity and enjoying beautiful scenery of

<sup>23</sup> Technical Forestry Officer of Khao Yai National Park

<sup>24</sup> World Heritage and Department of National Park, Wildlife and Plant Conservation, nd. The World Heritage. Travel Guide (Prachinburi – Khao Yai National Park)

<sup>25</sup> with currency rate of THB 100 equals USD 3,25 from <http://in.coinmill.com/> (Accessed 18 November 2012)

<sup>26</sup> Manager of Khao Yai National Park

mountains and water falls. Those activities are arranged both for short and long staying period and equipped with high standard of accommodation, transportation, trails, equipment, visitor center, cafeteria and also capable guides. Distance between Bangkok and the Park that is relatively easy to reach and not so far has added the attractiveness of the park as one of the main tourism destinations in Thailand both for domestic and international tourists.

The Park is not only attract tourists, but also teachers, students and those who work in entertainment industries. Academicians in different levels have visited the park to teach their students about biodiversity, nature and the importance of Khao Yai National Park. Of course the interest of these groups about the topic does not come automatically. Active promotion about invaluable and richness of biodiversity within the park has built sense of proud and belonging on Khao Yai National park in most of Thai people.

Additionally, the park also has became one of favourite spots for photo shoots, commercial break and filming. In order to keep the nature of the park, any extension of accommodation and other facilities in the park has to request formal permission to and will be assessed by the Department of National Park, Wildlife and Plant Conservation. The extension will only be proceeding if the department agrees on the plan.

A study on carrying capacity in camping grounds, accommodation and trails of Khao Yai National Park was conducted by the department in 2007. However, the park management does not 71ompromi restrict the number of tourists because of tourists fluctuation in different seasons, for example there are seasons when tourists exceed the carrying capacity and there are seasons when the tourist is under the carrying capacity. The park management usually provides more facilities, such as mobile toilets and restaurants for exceeding tourists.

All of activities related to tourism in the park are under the park management, leaving space for private to establish more luxurious resorts outside of the park's boundaries. The current visitor center was built by PTT Exploration and Production Public Company Limited as part of their Corporate Social Responsibility (CSR) and finished at the end of 2011. The center has a complete information about the park and it is attractively designed for all level of audience.

Overall, Khao Yai National Park is considered excellent in the effectiveness of the Park manahement. Calculation of the METT resulted in score of 87.2%, placing the Park in the third rank of high effectiveness, after Taman Negara Pahang and Kinabalu National Park of Malaysia (Table 18).

Table 18. Scoring of the management effectiveness of Khao Yai National Park, Thailand.

Elements and Indicators	Current Situation	Score
<b>1. CONTEXT</b>		
1.1. Legal status	The Park was declared by royal proclamation in the Government Gazette (Book 79, section 89) on 18 September 1962.	4
1.2. Geographic location	The Park is near from Bangkok (about 160 km). This gives advantage in term of attracting many tourists to visit the area. However, the bigger number of tourist can be also seen affected the habitat and biodiversity in the Park.	3
1.3. Border security and safety	The border of the Park is secure and safe, although the Park lies in four provinces, namely Nakhon Ratchasima, Nakhon Nayok, Saraburi and Prachin Buri. This is because the existence of the Park was supported by strong law enforcement.	4
<b>2. PLANNING</b>		
2.1. Management plan	There was a Khao Yai Management Plan of 2550-2559 (2007-2016) and it has been implemented. The activities under Khao Yai National Park and other parks in Thailand can be divided into three main activities: (i) protection of national park, (ii) research on wildlife, plants and community, and (iii) recreation.	4
2.2. Park zonation	The Park has been divided into six zones: intensive use zone, outdoor recreation zone, primitive zone, recovery zone, strict nature reserve, and special use zone.	4
2.3. Work plan	The Management Plan of the Park contained a five year-management plan, which included activities that will conducted in yearly basis.	4
2.4. Map availability	Map of the Park were available in digital and GIS-based format. These maps were produced by 3 GIS staff in the Park. The maps were further used in Park promotion products.	4
2.5. Division of working area	The Park was divided into 21 protection units in Khao Yai Management Plan, that was formulated by Department of National Parks, Wildlife and Plant Conservation (DNP). There is discussion going on in DNP about adding two more protection units in Khao Yai National Park, but it has not decided yet.	4
2.6. Planning for land/water use	One of the requirement for land use changes was Environmental Impact Assessment (EIA) with some questionnaires need to be filled by stakeholders that were located surrounding the proposed area. The National Park Management has often being asked to fill out the questionnaire for the EIA. So far, the National Park opinions have been considered in the process of land use changes.	4

2.7. Park regulations	Park zonation indicates clear activities that can be conducted in every zone, with smallest proportion of the area is allocated for recreational purposes while biggest proportion of the area is allocated for wildlife and plant conservation (restricted area). The Park has been given a power and authority to ask community to leave the Park. Some cases of encroachment happened in the past and brought to the court with sentences up to 6 months (depend on the court decision) for the committed actors, or fined between THB 500 (Thailand Bhat) and THB 30,000.	4
2.8. Park objectives	The activities in Khao Yai National Park are formulated to achieve three objectives of Khao Yai National Park establishment.	4
2.9. Park design	The Park is the third largest national park in Thailand, following Kangkuajan National Park and Tablan National Park. The size is appropriate for the achievement of the Park's objectives.	4
2.10. Alignment with Regional Action Plan	The Park has its own management plan. Therefore, most of the Park's plan might be aligned with Regional Action Plan for ASEAN Heritage Parks and Protected Area.	2
<b>3. INPUT</b>		
3.1. Staff numbers	There were about 400 staffs employed in the Park and need to be increased up to 50 more staff for better management. Ten per cent are permanent staffs, who were employed by the DNP, while 90% are temporary staffs (e.g. secretary and rangers) who were employed by the Park management. Temporary staffs were employed based on negotiation which can be differentiated into annual or four year-contract. There were 200 rangers allocated in HQ and 21 sub-stations, which was less than what needed. Low salary for the rangers made it difficult to recruit more rangers. There were more retired rangers than the recruited one.	4
3.2. Staff quality	There were several regular courses provided for rangers and staff by the DNP as well as the third parties, such as WCS and WWF. WCS focused on patrolling, while WWF focused on research.	4
3.3. Law enforcement	The staff worked based on existing regulations and they have the power to do strong law enforcement for any prohibited activities in the Park.	4
3.4. Equipment	Equipment for management needs was sufficient for daily activities and most of them were in good conditions.	4
3.5. Infrastructures	Existing infrastructure was sufficient. Although communication between HQ and 21 protection units depends on handy talkie and mobile phone, the communication was good. Internet connection was still poor in the Park due to its reliance on satellite internet connection, thus it only influences external communication.	4

3.6. Resource inventory	There was a research division in the Khao Yai National Park, that has not covered all components of the Park. The division focused its research on key species of wildlife and plants. Some of the research were outdated and only for a certain period. Budget for research in all national park in Thailand was smaller than budget for area protection and recreational purposes.	3
3.7. Current budget	The budget was acceptable, but the Park needed an additional staff up to 50 persons and more maintenance budget on roads and landslide prevention to improve the management.	3
3.8. Budget sustainability	The budget has been given annually. In addition, about 15% of the Park entrance fees were given back to the Park on annual basis.	4
3.9. Other resources	There has been funding in form of in-kind that was given by international NGOs, namely WCS and WWF. The in-kind contribution includes series of training, tents, and hammock, which were donated to the Park in conjunction with the NGOs' projects. The Park submitted proposal to the NGOs based on their information.	3
<b>4. PROCESS/IMPLEMENTATION</b>		
4.1. Management of budget	The budget was adequate for existing condition, but improvement in budget would be better because more staff could be hired.	3
4.2. Boundary demarcation	The Park is the first national park in Thailand and it had been demarcated in the past. The communities know the border of the park, but some the community members still tried to encroach the area.	4
4.3. Research	There has been a considerable research, but they have not cover all component of biodiversity in the Park. More research need to be done in the Park.	3
4.4. Resource management	Active management has been applied in the Park, especially for three main purposes of Park establishment. Research needs to be strengthened, especially for non key species.	3
4.5. Maintenance of equipment	The equipment has been 74ompromisi adequately. Most of them were still working. There were 10 cars in the Park HQ 74om each of sub-station has one car and a motorbike.	4
4.6. Education and awareness	The Park had a team to conduct a program to teach about nature to schools (targeted schools were primary and junior high schools) every month. Currently, not so many schools have been covered due to low frequency of visitation. Besides that, visitors who interest to have long track in the Park should be accompanied by the rangers . The rangers will inform the visitors on what they see along the route.	3
4.7. State and commercial neighbors	The commercial neighbors fully acknowledged the existence of the Park. However, there has been no formal cooperation with the owner of resorts surrounding. The cooperation was only with police and hospital located near to the Park.	2
4.8. Indigenous people involvement	Communication existed between the Park and Chiefs of the surrounding villages, but no direct involvement of the community in Park management. They were involved indirectly by employed as the staff in the National Park.	2

4.9.	Local communities involvement	Communication exists between the park and chiefs of the surrounding villages, but no direct involvement of the community in Park management. They are involved indirectly by employed as the staff in the Park.	2
4.10.	Monitoring and evaluation	The DNP conduct evaluation once in six month, based on report from the headquarters and followed by ground truthing.	4
4.11.	Visitor facilities	Visitor facilities in the National Park included several accommodation, restaurants, trails and visitor center. They were adequate for visitors although some visitors have requested some additional facility, such as television.	4
4.12.	Commercial tourism operators	There were few commercial tourism operators. Most of the tourists came by themselves, while a few number tourists come with tour travels.	2
4.13.	Fee collection and contribution	The fees were collected by the DNP, with about 15% of the income was given back to the Park. The National Park had to write proposal to be able to access the 15% additional budget.	4
4.14.	Promotion and information dissemination	The promotion of the Park has been done quite intensively, through brochure and website. The web was in Thai language, but it would be available in English as well.	3
4.15.	Staff training	Various training has been regularly conducted by the DNP for staff and rangers (every year).	4
4.16.	Collaboration with others	The DNP has MoU with some international NGOs namely WCS and WWF. Besides that, the DNP had a collaboration with provincial Governments (on law enforcement), private sector, i.e. PTTEP (related to their CSR) and universities (related to research).	4
5. Output			
5.1.	Habitat for wildlife	The size and condition of the Park has provided suitable habitat for wildlife. The Park housed many important big mammals of Thailand.	4
5.2.	Environmental service	Water has been available in all year long for the surrounding area. Good quality of air was also has been provided by the forest of the Park.	4
5.3.	Prevention of catastrophic events	The Park has a few landslides and erosion in some places that happen mostly in heavy rainy days. Other than that, there has been no catastrophic event.	3
5.4.	Prevention of encroachment	The Park has been 75ompromi encroached (less than 1km <sup>2</sup> ) at Nakhon Nayok and Prachin Buri. The encroachment was considered low.	3
5.5.	Prevention of Illegal logging	There has been no indication of illegal logging in the Park.	4
5.6.	Prevention of poaching	There have been some evidences of traps to catch wild pigs, barking deer, birds and gibbon for consumptive use. Overall, the number of poaching was low.	3
5.7.	Prevention of Illegal extraction	Agarwood has attracted some people to extract it illegally due to the high price in the market which was about THB 1,000/kg	3

5.8. Stakeholder support	Some stakeholders have been supporting the Park existence and some has not. For example, in local community some of community members who get benefit from the Park would support the Park, but some who did not get the benefit, did not support the Park and they might did some illegal activities in the Park.	3
<b>6. IMPACT/OUTCOME</b>		
6.1. Economic benefit	The Park 76ompromis was a magnet for nature tourism that boosts development of private resorts surrounding Khao Yai. There were many types of accommodation in the Park that are managed by the Park. Local communities work in these resorts and in park accommodation. Additionally, some of them have been working for the Park as rangers, administration staff and guides.	4
6.2. Condition of values	There has been a slight better change in term of biodiversity, ecological and cultural values that has been degraded from the first Park establishment. However, some of the most important biodiversity still could be maintained and became the icon for the Park tourism.	3
Average*		3.5
<b>Management effectiveness (%)</b>		<b>87.2</b>

\*Note: Indicators 1.2., 1.3., and 2.10. were excluded from the calculation. See explanation in Method section.

## VI. OPPORTUNITIES, GOOD PRACTICES AND LESSONS LEARNED

### A. OPPORTUNITIES OF ASEAN HERITAGE PARKS

‘Opportunity’ refers to external factors that can be used to expand existing/identified benefits. It differs from ‘Strengths’ that commonly refers to internal factors. The opportunities that are identified in this study are:

- **Back-to-nature movement**  
Recently, there has been a global trend on green lifestyle and back-to-nature movement. AHPs with their nature beauty, biodiversity and pristine landscapes can provide excellent place for such kinds of movement. AHPs covers wide range of landscapes from mountain to low land and also from terrestrial to wetland and marine areas that suitable for all age and background.
- **Economic booming**  
Although there has been slight recession in some countries, especially European countries, some other countries experiencing economic booming which trigger the increase of global tourism. The later group of countries are targeted group for promotion of tourism in AHPs.
- **International assistance**  
Nowadays, international communities and governments are in favor of conservation and climate change. Thus, many of global conventions focus on preservation of biodiversity and natural landscape for the survival of human kind. Although limited in number, this kind of assistance provide sufficient money, expert, and access to funding sources and other information.

### B. GOOD MANAGEMENT PRACTICES

Field visits to 5 selected AHPs revealed that every AHP has its own way to manage its area, including practices that support activities in AHP. Some of selected practices that discovered by the Study Team which were considered as good management practices are presented in Table 19.

Table 19. Good management practices drawn from ASEAN Heritage Park visited.

Good Management Practices	Practiced by
<b>Area management</b>	
Regular monitoring of wildlife species could help designing new routes and trails for visitors	Taman Negara Pahang
Policy and management direction of a national park can be decided by a team or committee consisted of various stakeholders	Kinabalu National Park Taman Negara Pahang
<b>Visitor management</b>	
In parks where visitor number is high, various programs and activities need to be develop to evenly distribute visitors and to increase carrying capacity of the area	Kinabalu National Park Khao Yai National Park Taman Negara Pahang
Limit the number of trails within a national parks in order to be able to manage the movement of visitors	Kinabalu National Park Taman Negara Pahang
For difficult and rather dangerous trails, special escort by park staffs or local guides are necessary to ensure safety	Kinabalu National Park Khao Yai National Park Taman Negara Pahang
Endemic species and recently discovered/rediscovered species could attract special interest tourists	Kerinci-Seblat National Park
<b>Tour guides and tour operators</b>	
It would be better to use local tour guides or interpreter, and thus the tour guide from outside the national park have to hand over the guiding service to the local guides once the tourists arrived at the national park	Taman Negara Pahang Kinabalu National Park
Interpreters and tour guide need to be certified by a certain agency	Taman Negara Pahang
<b>Facilities in the field</b>	
In order to be able to observe wildlife by visitors, a special house served as hides or observation tower can be built near grazing areas or water sources	Taman Negara Pahang Khao Yai National Park
Muddy trails are equipped with permanent metal platform to comfort tourists	Taman Negara Pahang
When rivers is available and appropriate, boating is an excellent way to explore a national park	Taman Negara Pahang
Providing several entrance to the national park, with a prolong office hours, would be a great help for the visitors	Kinabalu National Park Khao Yai National Park
For long trails within a national park, the park need to built a lodging or resting facilities along the way for resting to ensure safety of the visitors, as well as for visitor monitoring	Kinabalu National Park Taman Negara Pahang
Good signage and map would attract more visitors, provide educational material, and prevent the visitors from getting lost	Kinabalu National Park Khao Yai National Park Taman Negara Pahang
<b>Facilities in the main office</b>	
Small museum in the visitor center may served as educational center for visitors, as well as to increase public awareness on the value of the park	Kinabalu National Park Khao Yai National Park
A good tourist information center will attract more tourists	Kinabalu National Park Khao Yai National Park Taman Negara Pahang

Souvenir shops could market products made by local people, and and the same time provide token of remembrance for visitors	Kinabalu National Park Khao Yai National Park Taman Negara Pahang
<b>Local people involvement</b>	
Local people can serve as excellent tour guides and interpreters	Kinabalu National Park Khao Yai National Park Taman Negara Pahang
Homestays owned by local people are good alternatives for lodging facilities, especially in remote areas	Kerinci Seblat National Park Kinabalu National Park Taman Negara Pahang
Ensure the hygiene of restaurants/l/canteen near national park managed by local people, especially for foreign tourists, by giving a certificate of hygiene	Taman Negara Pahang
Local culture can be a good tourists attraction	Taman Negara Pahang Kinabalu National Park
<b>Promotion</b>	
Web in cyberspace managed by the national park is a good way to promote a park and to disseminate information regarding the park	Kinabalu National Park Taman Negara Pahang
Tour operators could participate in promotion of national park by producing web on certain national park	Kinabalu National Park Taman Negara Pahang
Wide coverage of social media (personal web, blog, twitter, facebook) by tourists who already visit the park would encourage more visitors	Kinabalu National Park Taman Negara Pahang
International and national annual events could attract more tourists	Kinabalu National Park Taman Negara Pahang
<b>Environmental management</b>	
Organic farming practice by the local people surrounding the park, as well as low carbon energy would be appreciated by visitors	Kinabalu National Park
Organic wastes need to be managed and recycled for an environmental friendly park management	Khao Yai National Park Taman Negara Pahang
<b>Fee management</b>	
A fair and clear distribution of fees among various stakeholders would discourage conflicts	Kinabalu National Park Taman Negara Pahang Khao Yai National Park
<b>Harvest management by local people</b>	
A certain area for sustainable harvesting of NTFP by local people for daily subsistence could be designated within a national park	Virachey National Park
Setting aside breeding or spawnin areas would be good for wildlife or fish population to ensure sustainable harvest by the local people	Taman Negara Pahang

### C. LESSONS LEARNED

Some lessons are taken from existing management of AHPs, include:

- Planning is important for management, although it needs to be adjusted to reflect the existing conditions.
- Illegal extraction still occurring in many AHPs threatening invaluable resources in the park, thus special efforts are needed to combat this practice
- In areas with dense human population, conflict related to land sometimes is unavoidable
- Secure budget is important for an effective management of AHPs; Funding sources can be from government, visitor entrance fee, and from collaboration with other parties (including NGOs and private sectors)
- Special and unique skills and knowledge are required to manage a park; Formal education on conservation is limited, thus staff always need to be equipped with various and updated trainings.
- Management of national park is site specific; Thus, manager of the park needs to invent innovative ways to suit with the park conditions.
- Collaboration with various stakeholders is important for the effective management of the AHP.
- A park that receive high visitation can funding its activities, needing no subsidy from Government; Income from entrance fees and expenses that are spent by tourists can cover a park's annual expenses. Thus, national park managers need to think seriously to promote the potential ecotourism spots in their sites.
- Developing ecotourism in a park requires high and serious efforts and commitment; Ecotourism is a complex system that need efforts both from internal (the park) and external (government, tourism agents, accommodation owners, transportation owners and communities). Thus, maintaining a good relationship with other parties is needed for a succesful ecotourism.
- A park with so many identified illegal activities need to enforce law to prevent continues loss of biodiversity.
- Park that implement effective management will have good outcomes.

### D. STUDY LIMITATION AND POSSIBILITY OF BIAS

This study is surely experiencing some limitations and biases which might affect the results of the study. Although efforts have been done in minimizing the limitations and bias, some of them were unavoidable. The limitation of this study mainly referring to the relatively low number of returned questionnaires (17 out of 30 AHPs, or 56.7%) and the number of AHPs visited (5 out of 30 AHPs, or 16.7%). Therefore, although the conclusions could be drawn from the available data, they still need to be taken cautiously as it only representing half of the AHPs did not represent all AHPs. Specific ecosystem, such as marine and wetlands, did not have a representation for the METT results.

As for the possible biases, some known sources of biases are:

- Approach in obtaining METT scores: self assessment vs. Study Team assessment. METT approach of this study could be bias due to the method of obtaining the score. Of the 17 METT score results, 12 were obtained from self assessment of the AHPs, while 5 were from assessment of the Study Team. Scores by the external party (i.e. Study Team) could be differs than self-scoring approach.
- Misinterpretation of the answers provided  
Although the options of answers were provided, there might be some differences in the interpretation of the answers and creating some bias of the actual results. Furthermore, self assessment also might high personal subjectivity compared to Study Team's assessment. Since there is no mechanism to cross check the results, a certain degree of biases have to be accepted. As for METT assessment by the study team, the possibility could be minimized

through the standardization of the possible results. The assessment was done by 3 of 5 members of Study Team. Prior to the field visits, the team members met several times to discuss and to build the same perception of the scores based on possible results.

- Contents of the questionnaires

The questionnaires developed for METT basically is general and suitable for a multiple-used protected area such as national park, considering that many questions are referring management and facilities for visitors. Some nature reserves and wildlife sanctuary might not have many visitors and probably prohibit the development of facilities and thus scores for indicators related to visitor could be low, if the AHPs decided to answer them.

- Incomplete information

Biases of the threat and challenges could happened as well, as some AHPs did not provide information at all during the Second AHPs Meeting, which analysis was based upon. Thus, threats and challenges reported here could be underestimated. Besides, there was no information on the magnitude of threat and challenges, meaning that small and big threats were treated the same.

## VII. REGIONAL STRATEGIC DIRECTION

### A. EXISTING ACTION PLAN

In 2008 ACB published a document entitled 'The Regional Action Plan for ASEAN Heritage Parks and Other Protected Areas' (hereafter will be called 'Action Plan'). The content of this document was a result of a workshop that was conducted in April 2007. Included in the Action Plan was the activities that should be done by each AHP for the period of 2004 to 2013. Issues were indentified and the activities/actions points were formulated. The Action Plan contained 4 main goals and 10 sub-goals (Table 20). Based on this Action Plan, each AHP listed action plans accordingly.

Table 20. Goals and sub-goals of the Regional Action Plan for ASEAN Heritage Parks and Other Protected Areas<sup>27</sup>.

Main Goals	Sub-Goals
<u>GOAL 1:</u> Establish and strengthen national and regional systems of protected areas integrated into a global network as a contribution to globally agreed goals	Goal 1.1: Integrate protected areas into broader land and seascapes Goal 1.2: Establish and strengthen regional networks of protected areas Goal 1.3: Substantially improve site-based protected area planning and management
<u>GOAL 2:</u> Promote equity and benefit sharing in the protected area system	Goal 2.1: Enhance and secure involvement of indigenous and local communities and relevant stakeholders
<u>GOAL 3:</u> Build capacity among protected area managers, stakeholders and beneficiaries	Goal 3.1: Develop, apply and transfer appropriate technology for protected areas Goal 3.2: Promote financial sustainability Goal 3.3: Strengthen communication, education and public awareness
<u>GOAL 4:</u> Develop and implement minimum best standard and best practices for national and regional protected areas	Goal 4.1: Evaluate and improve the effectiveness of protected area management Goal 4.2: Assess and monitor protected area status and trends Goal 4.3: Ensure that scientific knowledge contributes to the establishment and management effectiveness of protected areas and protected area systems

Source: <sup>27</sup> ASEAN Centre for Biodiversity, BirdLife International, Haribon Foundation & Sabah Parks. 2008. Regional Action Plan for ASEAN Heritage Parks and Other Protected Areas. Philippines.

### B. KNOWLEDGE OF THE ASEAN HERITAGE PARKS TOWARD THE ACTION PLAN

Among the 46 questions of METT questionnaires, one question was related to the Action Plan. The question was whether the plan developed by the AHPs was formulated in such a way to match or in line with 'The Regional Action Plan for ASEAN Heritage Parks and Other Protected Areas' ('Action Plan') document. The average result of the scoring of that specific indicator was quite low, only 54.7% (n=16).

When the question was raised directly to the park Director/Manager/Superintendent during the visit to the park, none of the AHPs visited was aware about the existence of the Action Plan and its contents. The Action Plan could be already disseminated to all AHPs as soon as it was produced in

2008, but it was not used as a guideline by the AHPs. It is also possible that the persons who received the document were moved to other place and he/she did not pass it on to her/his successors.

This situation did not mean that the AHPs were operating without any plan. Each AHP has its own plan and the AHP implementing the plan accordingly. As a group of parks in ASEAN region, the collaborative action as listed in the Action Plan was not fully implemented.

Aware about this situation, ACB need to be made the Action Plan document widely available, once more. Further, regular communication with all Managers/Directors/Superintendent of the AHPs need to be carried out more intensively in the future. This is especially important for AMS that experiencing relatively fast changes in staffing. If there is a change of the person who is in charge with AHP, ACB as the Secretariat of AHPs should be notified by the ASEAN Member States.

### C. STRATEGIC THEMES AND DIRECTIONS FOR THE ASEAN HERITAGE PARKS

At the moment, there is a document entitled Regional Action Plan for ASEAN Heritage Park and Other Protected Areas. However, there is no clear indication on the period of the action plan except period for Program of Work on Protected Area during 2004 to 2013. Therefore, the Study Team assumes that the action plan will be valid until 2013 and it will be revisited and renewed for activities beyond 2013.

Based on the analysis on gathered data from distributed questionnaires and also field visits to 5 selected AHPs, the study team recommend some strategic themes and direction that can be used to develop Action Plan for the next phase.

#### **Finding 1:**

Percentage of management effectiveness of 17 sampled AHPs varied highly, ranging from 55.6% to 93.3%. AHPs can learn from each other in order to reach similar level of management effectiveness in the future, at the regional level of ASEAN.

#### *Strategic Theme 1: Information exchange*

Key Direction 1.1.: Strengthen information exchange and collaboration between/among AHPs

#### **Finding 2:**

Some AHPs geographically adjacent to one and another and could create a bigger size of protected area to decrease the possibility of species extinction, although they are located in different countries. Management of the protected area would be more effective if the management of the protected area is conducted collaboratively.

#### *Strategic Theme 2: Partnership*

Key Direction 2.1. : Strengthen partnership

Key Direction 2.2. : Establishment of trans-boundary protected area

An example of promising trans-boundary of the existing AHPs are Virachey National Park in Cambodia and Chu Mom Rai in Viet Nam

**Finding 3:**

The biggest threat to the AHPs was illegal extraction or consumptive use of various biological resources (including illegal logging, wildlife poaching, and illegal trade of wildlife and plant species, which reported has been happening at 58.7% of the AHPs.

*Strategic Theme 3: Law enforcement*

Key Direction 3.1.: Intensify patrol by park rangers

Key Direction 3.2.: Patrol with third parties such as community, police and army

Key Direction 3.3.: Proper prosecution for committed crime actors (sentences and fines)

**Finding 4:**

Land use and tenure conflict also happened quite often in AHPs, reported by 67.9% of the AHPs. The conflict might happen between the Pak Manager and local people who claimed the right of utilizing the park's land. Conflict might also occur between Park Manager and other sectors incompatible with park's mission, for instance mining, estate plantation, and settlements.

*Strategic Theme 4: Land use system*

Key Direction 4.1.: Refinement of land use system

Key Direction 4.2.: Redefine tenurial system

**Finding 5:**

Human resources of staffs working with the national park were quite low in quality. About 30.2% of the constraints of the national park management were related to the human resources, including expertise, number of staff, as well as skill and number of park rangers.

*Strategic Theme 5: Capacity building*

Key Direction 5.1. : Increase capacity building through: various trainings such as habitat and wildlife monitoring, wildlife ecology and conservation in general, law enforcement, visitor management, nature interpretation, search and rescue, GIS related trainings, social economic related trainings, and updating the latest international policies and concept related to protected area management

Key Direction 5.2. : Staff exchange and internship to other AHPs

Key Direction 5.3. : Comparative study to other AHPs and /or other protected areas in other regions

Key Direction 5.4. : Upgrading staff's quality through formal education

**Finding 6:**

In term of planning, the weakest scores of the sampled AHPs were management plan, park zonation, and work plan. Some parks have been using an outdated management plan, which probably need to be renewed to suit the latest situation.

*Strategic Theme 6: Planning*

Key Direction 6.1.: Renewing documents related to planning such as I plan, annual work plan, and development plan

Key Direction 6.2.: Strengthening management of the area including zoning system, management area for patrol

**Finding 7:**

For many AHPs, tourism has not been well practiced or failed to be implemented. The study has proven that AHPs which has a good number of tourists have been able to generate funding from tourist fee and related tourism activities.

*Strategic Theme 7: Ecotourism*

Key Direction 7.1.: Providing appropriate facility and infrastructure

Key Direction 7.2.: Develop interesting and vary ecotourism programs to cover wide arrays of tourist interests

Key Direction 7.3.: Refinement of guiding system and increasing quality of guides/interpreters

Key Direction 7.4.: Intensify promotion through various media

Key Direction 7.5.: Increase cooperation with tour operators and other parties who have link to tourism sectors such as hotel owners, transportation owners and local communities

**Finding 8:**

Involvement of indigineous and local communities was considered low amongst the indicators in process/implementation element.

*Strategic Theme 8: Local communities/indigenous people*

Key Direction 8.1.: Local community/indigenous people is involved in decision making process and management of national park, for example involve them as part/member of board of trustee

Key Direction 8.2.: Empowering local community/indigenous people in area protection and tourism activities

Key Direction 8.3.: Generating innovative new sources of income that will not 85ompromising the integrity of the park

**Finding 9:**

Aquatic ecosystem has been subjected to degradation due to aquaculture practiced by local people in the upper streams. There were also some reports (although reported by only 39.3%) that water pollution, eutrophication, and invasive alien species have been happening in the wetland system and in parks having water bodies.

*Strategic Theme 9: Aquatic ecosystem*

Key Direction 9.1.: Education and awareness on environmentally friendly aquaculture

Key Direction 9.2.: Regular monitoring and eradication of aquatic invasive species

**D. THE ROLES OF ASEAN CENTER FOR BIODIVERSITY**

As the Secretariat of the AHPs, ACB plays a significant role towards development and management effectiveness of AHPs in a regional context. Some identified roles include:

- Ensure all AHPs aware about their status as AHPs and related programs attach to the status; Results from data analysis shows that not all AHPs aware on ACB and its programs. Communication between ACB and AHPs need to be intensified in the future since the current approach is familiar to Ministerial level only. Additionally, there was a suggestion from some visited parks that AHP should be given a special logo such as World Heritage Site.
- Assisting promotion of ecotourism in a regional based (ASEAN) in international forums; As an organisation in regional level, ACB has widely known and larger networks than each of AHP. Thus, ACB can support promotion of ecotourism in AHPs in various international forums.
- Facilitate fundraising for AHPs that need resources to implement basic activities to protect their area; Some of AHPs struggle with insufficient budget from their government and has limited income from the ecotourism activities. These AHPs need to be supported by giving them information and access to funding sources.
- Facilitating the creation of trans-boundary national parks.
- Regular monitoring towards better effectiveness of AHPs; The current study can be used as baseline effectiveness for AHPs management that need to be monitored in the future. Monitoring the effectiveness is essential to assess element of park management that need more focus in order to always improve the performance of the park.
- Encourage AMS to list their protected areas as new additional AHPs.
- Facilitating capacity building including staff exchange, providing capable trainers and conducting trainings to overcome common weakness among the AHPs.
- Sharing information and policy adopted in international level to AHPs.
- Facilitating the formulation of Action Plan beyond 2013 based on existing situations that have been identified before and agreed by AMS.

## VIII. CONCLUDING REMARKS

- Two major threats to AHPs were (1) illegal consumptive use of natural resources, i.e. illegal logging, poaching, illegal wildlife trade, illegal fishing, and illegal extraction for other NTFPs, and (2) conflict related to land use and tenure
- Human resources (number of staffs, expertise of staffs, number of park rangers) were major constraints of AHPs, followed by collaboration with other institutions, law enforcement and patrol, and budget availability.
- Scores of management effectiveness AHPs varied from 55.6% to 93.3%. Three parks were categorized as 'very good' in the management efficiency (Taman Negara Pahang – Malaysia, Kinabalu National Park – Sabah, Malaysia, Khao Yai National Park – Thailand). Virachey National Park (Cambodia) had a lowest score. The rest of the AHPs were categorized 'good' and 'average'.
- Almost all (except Iglit-Baco National Park of the Philippines) already had a firm gazette of the park. For the element of planning, the weakest score collectively was management plan. As for the implementation, most AHPs were weak in the tourism sector and collaboration with local/indigenous people. Most AHPs also had not optimally provided economic benefit to the local people.
- There was no relationship between the two, bearing in mind that it could be subject to bias due to the different types of the parks.
- Each AHP had its own unique situation and condition. Virachey National Park (Cambodia) experiencing a major constraint in budget. Kerinci-Seblat National Park (Indonesia) has been struggling with various threats and illegal activities. Kinabalu National Park and Taman Negara Pahang (both in Malaysia) were successful in managing their park, receiving a high visitation of international and domestic tourists and were able to self-financed all of the cost (operational and staff salary) while maintaining the integrity of the Park. The same situation also happened for Khao Yai National Park (Thailand).
- Opportunities, best management practices, and lessons learned were identified through this study and can be used as a basis for a more efficient management of an AHP. Strategic theme and key directions were also formulated. The strategic themes include information exchange, partnership, law enforcement, land use system, capacity building, planning, ecotourism, local community/ indigenous people, and aquatic ecosystem.
- As the Secretariat of AHPs, the ASEAN Centre for Biodiversity could play an important role in strengthen the AHP status and number, facilitating promotion and fundraising, facilitating trans-boundary park, monitoring, facilitate strengthening capacity building, sharing information and policy of international community, and formulating collective Action Plan.
- Based on findings in 5 visited AHPs, management strategy is suggested as listed in Table 21.

Table 21. Suggestion of management strategy for visited ASEAN Heritage Parks.

No.	Name, Country	Strength	Weakness	Management Strategy
1	Virachey , KH	<ul style="list-style-type: none"> <li>• Important habitat for wildlife</li> <li>• Catchment area for most area of Cambodia</li> </ul>	<ul style="list-style-type: none"> <li>• Insufficient budget resulting in low in human resources and insufficient management action</li> </ul>	<ul style="list-style-type: none"> <li>• Securing budget</li> <li>• Collaboration with international NGOs/donor</li> <li>• Tourism development</li> </ul>
2	Kerinci-Seblat, ID	<ul style="list-style-type: none"> <li>• Large area</li> <li>• High biodiversity and endemism</li> </ul>	<ul style="list-style-type: none"> <li>• Many encroachment and illegal logging</li> <li>• Land use conflict (incl. large enclave)</li> </ul>	<ul style="list-style-type: none"> <li>• Securing area and border</li> <li>• Intensify patrol</li> <li>• Strengthen policy on conservation and land use</li> <li>• Tourism development</li> </ul>
3	Kinabalu, MY	<ul style="list-style-type: none"> <li>• Self-funded, clear and fair income distribution</li> <li>• Full support from local people</li> <li>• Tourism have been developed (program, facilities, guides, operator)</li> </ul>	<ul style="list-style-type: none"> <li>• Over carrying capacity during peak seasons (climbing to the Kinabalu Mountain)</li> <li>• Invasive alien species (plants)</li> </ul>	<ul style="list-style-type: none"> <li>• Visitor management (programs, route, facilities)</li> <li>• Eradication of invasive alien species</li> </ul>
4	Taman Negara Pahang, MY	<ul style="list-style-type: none"> <li>• Self-funded, clear and fair income distribution</li> <li>• Full support from local people</li> <li>• Tourism have been developed (program, facilities, guides, operator)</li> </ul>	<ul style="list-style-type: none"> <li>• Over carrying capacity during peak seasons</li> <li>• Outdated Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Management plan</li> <li>• Plan for area usage</li> </ul>
5	Khao Yai, TH	<ul style="list-style-type: none"> <li>• Self-funded, clear and fair income distribution</li> <li>• Tourism have been developed (program, facilities, guides, operator)</li> </ul>	<ul style="list-style-type: none"> <li>• Over carrying capacity during peak seasons</li> <li>• Less local people involvement</li> </ul>	<ul style="list-style-type: none"> <li>• Visitor management (programs, route, facilities)</li> <li>• Monitoring wildlife that might be affected by tourism</li> <li>• Increase local people involvement</li> </ul>

## ANNEXES

Annex 1. List of ASEAN Heritage Parks.

<b>ASEAN Member States</b>	<b>No.</b>	<b>ASEAN Heritage Park</b>	<b>Year of Designation</b>
Brunei Darussalam (BN)	1	Tasek Merimbun National Park	1984
Cambodia (KH)	2	Virachey National Park	2003
	3	Bokor (Preah Monivong) National Park	2003
Indonesia (ID)	4	Gunung Leuser National Park	1984
	5	Kerinci-Seblat National Park	1984
	6	Lorentz National Park*	1984
Laos (LA)	7	Nam Ha Protected Area	2005
Malaysia (MY)	8	Kinabalu National Park*	1984
	9	Gunung Mulu National Park*	1984
	10	Taman Negara (Pahang, Kelantan and Terengganu)	1984
Myanmar (MM)	11	Alaungdaw Kathapa National Park	2003
	12	Meinmahla Kyun Wildlife Sanctuary	2003
	13	Indawgyi Lake Wildlife Sanctuary	2003
	14	Inle Lake Wildlife Sanctuary	2003
	15	Khakaborazi National Park	2003
	16	Lampi Marine National Park	2003
Philippines (PH)	17	Mt. Apo National Park	1984
	18	Iglit-Baco National Park	1984
	19	Mount Kitanglad Range Natural Park	2009
	20	Mount Malindang Range Natural Park	2011
Singapore (SG)	21	Sungei Buloh Wetland Reserve	2003
	22	Bukit Timah Nature Reserve	2011
Thailand (TH)	23	Khao Yai National Park	1984
	24	Tarutao National Park	1984
	25	Ao Phang Gga – Mu Koh Surin – Mu Koh Similan Marine National Park	2003
	26	Kaengkrachan Forest Complex	2003
Viet Nam (VN)	27	Hoang Lien Sa Pa National Park	2003
	28	Ba Be National Park	2003
	29	Kon Ka Kinh National Park	2003
	30	Chu Mom Ray National Park	2003

\*also UNESCO's World Heritage Sites

Annex 2. List of threats to ASEAN Heritage Parks.

Threat	Examples
1. Human settlements or other non-agricultural land uses	Housing and settlement, commercial and industrial areas, tourism and recreation infrastructure, dispute on land tenure, land encroachment, land degradation in general
2. Farming and grazing	Non-timber crop cultivation, drug cultivation, wood and pulp plantations, livestock farming and grazing, marine and freshwater aquaculture
3. Production of non-biological resources	Oil and gas drilling, mining and quarrying, energy generation, including from hydropower dams
4. Long narrow transport corridors	Roads and railroads, utility and service lines, shipping lanes and canals, flight paths
5. Consumptive use of wild biological resources	Hunting, killing and collecting terrestrial animals; collection of TCM (Traditional Chinese Medicines), gathering terrestrial plants, logging and wood harvesting, fishing and harvesting aquatic resources
6. Human activities that alter, destroy or disturb habitats and species	Recreational activities and tourism; war, civil unrest and military exercises; habitat disturbance/ destruction
7. Other actions that convert or degrade habitat or change the way the ecosystem functions	Fire, dams, hydrological modification, increased fragmentation within protected area, isolation from other natural habitat, other edge effects, loss of keystone species, eutrophication of water bodies
8. Terrestrial and aquatic non-native and native plants, animals, pathogens/ microbes or genetic materials	Invasive non-native/alien plants (weeds), invasive non-native/alien animals, pathogens, introduced genetic material (e.g. genetically modified organisms), feral animals
9. Introduction of exotic and/or excess materials	Household sewage and urban waste water; industrial, mining and military effluents and discharges; agricultural and forestry effluents, garbage and solid waste, air-borne pollutants, excess energy, water pollution
10. Geological and atmospheric events	Volcanoes, earthquakes/tsunamis, avalanches/ landslides, erosion and siltation/ deposition, cyclones, hurricanes
11. Long-term climatic changes	Habitat shifting and alteration, droughts, temperature extremes, storms and flooding
12. Specific cultural and social	Loss of cultural links, traditional knowledge and/or management practices, natural deterioration of important cultural site values; destruction of cultural heritage buildings, gardens, sites.

### Annex 3. Questionnaire for Management Effectiveness of ASEAN Heritage Park.

*The assessment covers 6 elements: context, planning, input, process/implementation, output, and impact/outcome. Please cross (x) the most appropriate answer. Thank you.*

#### CONTEXT

1. Legal status: Does the national park have legal status?
  - The national park has been formally gazette
  - The national park is in the process of being gazette but the process is still incomplete
  - There is agreement that the national park should be gazette but the process has not yet begun
  - The national park is not gazette

#### PLANNING

2. Management plan: Is there a management plan and is it being implemented?
  - A management plan exists and is being implemented
  - A management plan exists but it is only being partially implemented because of funding constraints or other problems
  - A management plan is being prepared or has been prepared but is not being implemented
  - There is no management plan for the national park
3. Park zonation: Is there a zonation system of the national park?
  - Zonation is a clear and fixed
  - Zonation is existed but it is not fixed or under development or under discussion
  - Zonation is unclear
  - No zonation at all
4. Regular work plan: Is there a regular work plan and is it being implemented?
  - A regular work plan exists and all activities are implemented
  - A regular work plan exists and many activities are implemented
  - A regular work plan exists but few of the activities are implemented
  - No regular work plan exists
5. Maps: Are maps available and in the most advance format?
  - Maps are available in digital format, GIS-based
  - Maps are available in digital format, but not GIS-based
  - Maps are available, but not in not digital format
  - Reliable maps are not available yet or being developed
6. Management or division of working area: Is the area divided into smaller working areas for more effective management?
  - National park is officially divided well for more effective management
  - Working areas are officially divided but not too well
  - Working areas are not officially divided
  - There is no division of the working areas
7. Planning for land and water use: Does land and water use planning recognize the national park and aid the achievement of objectives?
  - Adjacent land and water use planning fully takes into account the long term needs of the

- national park
  - Adjacent land and water use planning partially takes into account the long term needs of the national park
  - Adjacent land and water use planning does not takes into account the long term needs of the national park, but activities are not detrimental the area
  - Adjacent land and water use planning does not take into account the needs of the national park and activities/policies are detrimental to the survival of the area
  
- 8. National park regulations: Are appropriate regulations in place to control land use and activities?
  - Regulations for controlling inappropriate land use and activities in the national park exist and provide an excellent basis for management
  - Regulations for controlling land use and activities in the national park exist but there are some weaknesses or gaps
  - Some regulations for controlling land use and activities in the national park exist but these are major weaknesses
  - There is no regulation for controlling land use and activities in the national park
  
- 9. National park objectives: Is management undertaken according to agreed objectives?
  - The national park has agreed objectives and is managed to meet these objectives
  - The national park has agreed objectives, but is only partially managed according to these objectives
  - The national park has agreed objectives, but is not managed according to these objectives
  - No firm objectives have been agreed for the national park
  
- 10. National park design: Is the national park the right size and shape to protect species, habitats, ecological processes and water catchments of key conservation concern?
  - National park design helps achievement of objectives; it is appropriate for species and habitat conservation; and maintains ecological processes such as surface and groundwater flows at a catchment scale, natural disturbance patterns, etc.
  - National park design is not significantly constraining achievement of objectives, but could be improved
  - Inadequacies in national park design mean that achievement of major objectives is difficult but some mitigating actions are being taken (e.g. agreements with adjacent land owners for wildlife corridors or introduction of appropriate catchment management)
  - Inadequacies in national park design mean achieving the major objectives of the national park is very difficult
  
- 11. The alignment of national park's plan with "Regional Action Plan for ASEAN Heritage Parks and Protected Areas": Are both aligned or in agreement?
  - The national park's plan in fully aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - Most of the park's plan is aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - Some of the park's plan is aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - There is no plan to align park's plan with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas

## INPUT

12. Staff numbers: Are there enough people employed to manage the national park?
- Staff numbers are adequate for the management needs of the national park
  - Staff numbers are below optimum level for critical management activities
  - Staff numbers are inadequate for critical management activities
  - There are no staff
13. Staff training: Are staff adequately trained to fulfill management objectives?
- Staff training and skills are aligned with the management needs of the national park
  - Staff training and skills are adequate, but could be further improved to fully achieve the objectives of management
  - Staff training and skills are low relative to the needs of the national park
  - Staff lack the skills needed for national park management
14. Law enforcement: Can staff (i.e. those with responsibility for managing the site) enforce national park rules well enough?
- The staff have excellent capacity/resources to enforce national park legislation and regulations
  - The staff have acceptable capacity/resources to enforce national park legislation and regulations but some deficiencies remain
  - There are major deficiencies in staff capacity/resources to enforce national park legislation and regulations (e.g. lack of skills, no patrol budget, lack of institutional support)
  - The staff have no effective capacity/resources to enforce national park legislation and regulations
15. Equipment: Is equipment (including vehicles, tools for communication, GPS, binocular, etc.) sufficient for management needs?
- There are adequate equipment
  - There are equipment, but still some gaps that constrain management
  - There are some equipment but these are inadequate for most management needs
  - There are little or no equipment and facilities for management needs
16. Infrastructures: Is infrastructure (access road/trails, guard post, office buildings, electricity, drinking water, telephone lines, etc.) sufficient for management needs?
- There are adequate infrastructure
  - There are infrastructure, but still some gaps that constrain management
  - There are some infrastructure but these are inadequate for most management needs
  - There are little or no infrastructure for management needs
17. Resource inventory: Do you have enough information to manage the area?
- Information on the critical habitats, species, ecological processes and cultural values of the national park is sufficient to support all areas of planning and decision making
  - Information on the critical habitats, species, ecological processes and cultural values of the national park is sufficient for most key areas of planning and decision making
  - Information on the critical habitats, species, ecological processes and cultural values of the national park is not sufficient to support planning and decision making
  - There is little or no information available on the critical habitats, species and cultural values of the national park

18. Current budget: Is the current budget sufficient?
- The available budget is sufficient and meets the full management needs of the national park
  - The available budget is acceptable but could be further improved to fully achieve effective management
  - The available budget is inadequate for basic management needs and presents a serious constraint to the capacity to manage
  - There is no budget for management of the national park
19. Security of budget: Is the budget secure and sustainable?
- There is a secure and sustainable budget for the national park and its management needs
  - There is a reasonably secure and sustainable core budget for regular operation of the national park but many innovations and initiatives are reliant on outside funding
  - There is very little secure budget and the national park could not function adequately without outside funding
  - There is no secure budget for the national park and management is wholly reliant on outside or highly variable funding
20. Other resources (funding, human resources, equipments; including voluntary and in-kind input): Is it relatively easy to get funding from other resources (incl. from international NGOs, international donors, local donors, private sectors, etc.)?
- The possibility to get input from other resources is high
  - The possibility to get input from other resources is not so high
  - The possibility to get input from other resources is small, but still possible
  - There is no possibility and chance to get input from other resource(s) at all

#### PROCESS/IMPLEMENTATION

21. Management of budget: Is the budget managed to meet critical management needs?
- Budget management is excellent and meets management needs
  - Budget management is adequate but could be improved
  - Budget management is poor and constrains effectiveness
  - Budget management is very poor and significantly undermines effectiveness (e.g. late release of budget in financial year)
22. National park boundary demarcation: Is the boundary known and demarcated?
- The boundary of the national park is known by the management authority and local residents/neighboring land users and is appropriately demarcated
  - The boundary of the national park is known by both the management authority and local residents/neighboring land users but is not appropriately demarcated
  - The boundary of the national park is known by the management authority but is not known by local residents/neighboring land users
  - The boundary of the national park is not known by the management authority or local residents/neighboring land users
23. Research: Is there a program of management-orientated survey and research work?
- There is a comprehensive, integrated program of survey and research work, which is relevant to management needs
  - There is considerable survey and research work but it is not directed towards the needs of national park management
  - There is a small amount of survey and research work but it is not directed towards the needs of national park management

- There is no survey or research work taking place in the national park
24. Resource management: Is active resource management being undertaken?
- Requirements for active management of critical habitats, species, ecological processes and, cultural values are being substantially or fully implemented
  - Many of the requirements for active management of critical habitats, species, ecological processes and, cultural values are being implemented but some key issues are not being addressed
  - Very few of the requirements for active management of critical habitats, species, ecological processes and cultural values are being implemented
  - Active resource management is not being undertaken
25. Maintenance of equipment: Is equipment adequately maintained?
- Equipment and facilities are well maintained
  - There is basic maintenance of equipment and facilities
  - There is some ad hoc maintenance of equipment and facilities
  - There is little or no maintenance of equipment and facilities
26. Education and awareness: Is there a planned education program linked to the objectives and needs?
- There is an appropriate and fully implemented education and awareness program
  - There is an education and awareness program but it only partly meets needs and could be improved
  - There is a limited and ad hoc education and awareness program
  - There is no education and awareness program
27. State and commercial neighbors: Is there a cooperation with adjacent land and water users?
- There is regular contact between managers and neighboring official or corporate land and water users, and substantial co-operation on management
  - There is contact between managers and neighboring official or corporate land and water users, but only some co-operation
  - There is contact between managers and neighboring official or corporate land and water users but little or no cooperation
  - There is no contact between managers and neighboring official or corporate land and water users
28. Indigenous people: Do indigenous and traditional peoples resident or regularly using the national park have input to management decisions?
- Indigenous and traditional peoples directly participate in all relevant decisions relating to management, e.g. co-management
  - Indigenous and traditional peoples directly contribute to some relevant decisions relating to management but their involvement could be improved
  - Indigenous and traditional peoples have some input into discussions relating to management but no direct role in management
  - Indigenous and traditional peoples have no input into decisions relating to the management of the national park
29. Local communities: Do local communities resident or near the national park have input to management decisions?
- Local communities directly participate in all relevant decisions relating to management, e.g. co-management

- Local communities directly contribute to some relevant decisions relating to management but their involvement could be improved
  - Local communities have some input into discussions relating to management but no direct role in management
  - Local communities have no input into decisions relating to the management of the national park
30. Monitoring and evaluation: Are management activities monitored against performance?
- A good monitoring and evaluation system exists, is well implemented and used in adaptive management
  - There is an agreed and implemented monitoring and evaluation system but results do not feed back into management
  - There is some ad hoc monitoring and evaluation, but no overall strategy and/or no regular collection of results
  - There is no monitoring and evaluation in the national park
31. Visitor facilities: Are visitor facilities adequate?
- Visitor facilities and services are excellent for current levels of visitation
  - Visitor facilities and services are adequate for current levels of visitation but could be improved
  - Visitor facilities and services are inappropriate for current levels of visitation
  - There are no visitor facilities and services despite an identified need
32. Commercial tourism operators: Do commercial tour operators contribute to national park management?
- There is good co-operation between managers and tourism operators to enhance visitor experiences, and maintain national park values
  - There is limited co-operation between managers and tourism operators to enhance visitor experiences and maintain national park values
  - There is contact between managers and tourism operators but this is largely confined to administrative or regulatory matters
  - There is little or no contact between managers and tourism operators using the national park
33. Fees: If fees (i.e. entry fees or fines) are applied, do they help national park management?
- Fees are collected and make a substantial contribution to the national park and its environs
  - Fees are collected, and make some contribution to the national park and its environs
  - Fees are collected, but make no contribution to the national park or its environs
  - Although fees are theoretically applied, they are not collected
34. Promotion and information dissemination: Is there any effort to promote the national park via various media (incl. via web, radio, newspapers and magazines)?
- Promotion and information dissemination are conducted very intensive
  - Promotion and information dissemination are conducted quite intensive
  - Promotion and information dissemination are conducted, but not planned and not intensive
  - No effort on promotion and information dissemination

35. Staff training: Has the staffs received any training in the past 5 years?
- Staff training is regular, sufficient
  - Staff training is irregular, but sufficient
  - Staff is irregular, insufficient
  - No staff training
36. Collaboration with the park: Does the national park has collaboration with local/national /international NGOs, local Government, private sectors, universities, etc)?
- The park has several formal collaborations, all are well implemented
  - The park has several formal collaborations, some are not implemented
  - The park has a few or several collaboration, but informal
  - The park has no collaboration

#### OUTPUT

37. Provision of habitat for various wildlife species: Does the park able to provide a reliable and safe habitat for various wildlife species?
- The park provides an excellent habitat and refuge for wildlife
  - The park somehow provides a habitat and refuge for wildlife
  - The park provides not so good habitat and refuge for wildlife because hunting/poaching still exist
  - The park cannot provides a habitat and refuge for wildlife
38. Provision of environmental service: Does the park provide environmental service(s) such as water, good quality of air, etc.
- The park provides excellent environmental services all year long
  - The park provides excellent environmental services at least in one season
  - The park provides less environmental services, either all year long or partly
  - The park unable to provide environmental services
39. Prevention of natural catastrophic events: Does the park able to prevent natural catastrophic events (flood, erosion, landslides, forest fires)?
- The park fully prevents natural catastrophic events
  - The park prevents most natural catastrophic events
  - The park prevents only a few natural catastrophic events
  - The park is unable to prevent natural catastrophic events
40. Prevention of encroachment: Does the park able to prevent encroachment (from agriculture, mining, housing, industry, etc)?
- The park is free from encroachment
  - The park is slightly encroached, efforts to overcome the problem is on going
  - The park is slightly encroached, no efforts to overcome the problem due to various reasons
  - The park is heavily encroached, no efforts to overcome the problem due to various reasons
41. Prevention of Illegal logging: Does the park able to prevent illegal logging?
- The park is free from illegal logging
  - The park is slightly logged illegally, efforts to overcome the problem is on going
  - The park is substantially logged in illegal manner, no efforts to overcome the problem due to various reasons
  - The park is heavily logged illegally, no efforts to overcome the problem due to various reasons

42. Prevention of Illegal wildlife hunting: Does the park able to prevent illegal hunting (poaching) of various wildlife species?
- The park is free from illegal hunting
  - There is a few illegal hunting, efforts to overcome the problem is on going
  - The is substantial illegal hunting, no efforts to overcome the problem due to various reasons
  - The park is heavily hunted illegally, no efforts to overcome the problem due to various reasons
43. Prevention of Illegal extraction of other resources: Does the park able to prevent extraction of other resources (NTFP, sand mining, other inorganic materials)?
- The park is free from illegal extraction of other resources
  - There is a few illegal extraction of other resources, efforts to overcome the problem is on going
  - The is substantial illegal extraction of other resources, no efforts to overcome the problem due to various reasons
  - The other resources in the park is heavily extracted, no efforts to overcome the problem due to various reasons
44. Stakeholder support: Does the national park gain support from various stakeholders?
- The park gains a full support from all stakeholders
  - The park gains support from most stakeholders
  - The park gains support from only from a few stakeholder
  - No support given by the stakeholders to the national park

#### IMPACT/OUTCOME

45. Economic benefit: Is the national park providing economic benefits to local communities, e.g. income, employment, payment for environmental services?
- There is a major flow of economic benefits to local communities from activities associated with the national park
  - There is some flow of economic benefits to local communities
  - Potential economic benefits are recognized and plans to realize these are being developed
  - The national park does not deliver any economic benefits to local communities
46. Condition of values: What is the condition of the important values of the national park as compared to when it was first designated?
- Biodiversity, ecological and cultural values are predominantly intact
  - Some biodiversity, ecological and cultural values are being partially degraded but the most important values have not been significantly impacted
  - Some biodiversity, ecological or cultural values are being severely degraded
  - Many important biodiversity, ecological or cultural values are being severely degraded

Annex 4. Filled out questionnaires from ASEAN Heritage Parks' authorities

QUESTIONNAIRE FOR MANAGEMENT EFFECTIVENESS OF ASEAN HERITAGE PARK  
[ALAUNGDAW KATHAPA NATIONAL PARK, MYANMAR]

The assessment covers 6 elements: context, planning, input, process/implementation, output, and impact/outcome. Please cross (x) the most appropriate answer. Thank you.

CONTEXT

1. Legal status: Does the national park have legal status?
- The national park has been formally gazette
  - The national park is in the process of being gazette but the process is still incomplete
  - There is agreement that the national park should be gazette but the process has not yet begun
  - The national park is not gazette

PLANNING

2. Management plan: Is there a management plan and is it being implemented?
- A management plan exists and is being implemented
  - A management plan exists but it is only being partially implemented because of funding constraints or other problems
  - A management plan is being prepared or has been prepared but is not being implemented
  - There is no management plan for the national park
3. Park zonation: Is there a zonation system of the national park?
- Zonation is a clear and fixed
  - Zonation is existed but it is not fixed or under development or under discussion
  - Zonation is unclear
  - No zonation at all
4. Regular work plan: Is there a regular work plan and is it being implemented?
- A regular work plan exists and all activities are implemented
  - A regular work plan exists and many activities are implemented
  - A regular work plan exists but few of the activities are implemented
  - No regular work plan exists
5. Maps: Are maps available and in the most advance format?
- Maps are available in digital format, GIS-based
  - Maps are available in digital format, but not GIS-based
  - Maps are available, but not in not digital format
  - Reliable maps are not available yet or being developed
6. Management or division of working area: Is the area divided into smaller working areas for more effective management?
- National park is officially divided well for more effective management
  - Working areas are officially divided but not too well
  - Working areas are not officially divided
  - There is no division of the working areas

7. Planning for land and water use: Does land and water use planning recognize the national park and aid the achievement of objectives?
  - Adjacent land and water use planning fully takes into account the long term needs of the national park
  - Adjacent land and water use planning partially takes into account the long term needs of the national park
  - Adjacent land and water use planning does not take into account the long term needs of the national park, but activities are not detrimental to the area
  - Adjacent land and water use planning does not take into account the needs of the national park and activities/policies are detrimental to the survival of the area
  
8. National park regulations: Are appropriate regulations in place to control land use and activities?
  - Regulations for controlling inappropriate land use and activities in the national park exist and provide an excellent basis for management
  - Regulations for controlling land use and activities in the national park exist but there are some weaknesses or gaps
  - Some regulations for controlling land use and activities in the national park exist but these are major weaknesses
  - There is no regulation for controlling land use and activities in the national park
  
9. National park objectives: Is management undertaken according to agreed objectives?
  - The national park has agreed objectives and is managed to meet these objectives
  - The national park has agreed objectives, but is only partially managed according to these objectives
  - The national park has agreed objectives, but is not managed according to these objectives
  - No firm objectives have been agreed for the national park
  
10. National park design: Is the national park the right size and shape to protect species, habitats, ecological processes and water catchments of key conservation concern?
  - National park design helps achievement of objectives; it is appropriate for species and habitat conservation; and maintains ecological processes such as surface and groundwater flows at a catchment scale, natural disturbance patterns, etc.
  - National park design is not significantly constraining achievement of objectives, but could be improved
  - Inadequacies in national park design mean that achievement of major objectives is difficult but some mitigating actions are being taken (e.g. agreements with adjacent land owners for wildlife corridors or introduction of appropriate catchment management)
  - Inadequacies in national park design mean achieving the major objectives of the national park is very difficult
  
11. The alignment of national park's plan with "Regional Action Plan for ASEAN Heritage Parks and Protected Areas": Are both aligned or in agreement?
  - The national park's plan is fully aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - Most of the park's plan is aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - Some of the park's plan is aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - There is no plan to align park's plan with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas

## INPUT

12. Staff numbers: Are there enough people employed to manage the national park?
- Staff numbers are adequate for the management needs of the national park
  - Staff numbers are below optimum level for critical management activities
  - Staff numbers are inadequate for critical management activities
  - There are no staff
13. Staff training: Are staff adequately trained to fulfill management objectives?
- Staff training and skills are aligned with the management needs of the national park
  - Staff training and skills are adequate, but could be further improved to fully achieve the objectives of management
  - Staff training and skills are low relative to the needs of the national park
  - Staff lack the skills needed for national park management
14. Law enforcement: Can staff (i.e. those with responsibility for managing the site) enforce national park rules well enough?
- The staff have excellent capacity/resources to enforce national park legislation and regulations
  - The staff have acceptable capacity/resources to enforce national park legislation and regulations but some deficiencies remain
  - There are major deficiencies in staff capacity/resources to enforce national park legislation and regulations (e.g. lack of skills, no patrol budget, lack of institutional support)
  - The staff have no effective capacity/resources to enforce national park legislation and regulations
15. Equipment: Is equipment (including vehicles, tools for communication, GPS, binocular, etc.) sufficient for management needs?
- There are adequate equipment
  - There are equipment, but still some gaps that constrain management
  - There are some equipment but these are inadequate for most management needs
  - There are little or no equipment and facilities for management needs
16. Infrastructures: Is infrastructure (access road/trails, guard post, office buildings, electricity, drinking water, telephone lines, etc.) sufficient for management needs?
- There are adequate infrastructure
  - There are infrastructure, but still some gaps that constrain management
  - There are some infrastructure but these are inadequate for most management needs
  - There are little or no infrastructure for management needs
17. Resource inventory: Do you have enough information to manage the area?
- Information on the critical habitats, species, ecological processes and cultural values of the national park is sufficient to support all areas of planning and decision making
  - Information on the critical habitats, species, ecological processes and cultural values of the national park is sufficient for most key areas of planning and decision making
  - Information on the critical habitats, species, ecological processes and cultural values of the national park is not sufficient to support planning and decision making
  - There is little or no information available on the critical habitats, species and cultural values of the national park

18. Current budget: Is the current budget sufficient?
- The available budget is sufficient and meets the full management needs of the national park
  - The available budget is acceptable but could be further improved to fully achieve effective management
  - The available budget is inadequate for basic management needs and presents a serious constraint to the capacity to manage
  - There is no budget for management of the national park
19. Security of budget: Is the budget secure and sustainable?
- There is a secure and sustainable budget for the national park and its management needs
  - There is a reasonably secure and sustainable core budget for regular operation of the national park but many innovations and initiatives are reliant on outside funding
  - There is very little secure budget and the national park could not function adequately without outside funding
  - There is no secure budget for the national park and management is wholly reliant on outside or highly variable funding
20. Other resources (funding, human resources, equipments; including voluntary and in-kind input): Is it relatively easy to get funding from other resources (incl. from international NGOs, international donors, local donors, private sectors, etc.)?
- The possibility to get input from other resources is high
  - The possibility to get input from other resources is not so high
  - The possibility to get input from other resources is small, but still possible
  - There is no possibility and chance to get input from other resource(s) at all

#### PROCESS/IMPLEMENTATION

21. Management of budget: Is the budget managed to meet critical management needs?
- Budget management is excellent and meets management needs
  - Budget management is adequate but could be improved
  - Budget management is poor and constrains effectiveness
  - Budget management is very poor and significantly undermines effectiveness (e.g. late release of budget in financial year)
22. National park boundary demarcation: Is the boundary known and demarcated?
- The boundary of the national park is known by the management authority and local residents/neighboring land users and is appropriately demarcated
  - The boundary of the national park is known by both the management authority and local residents/neighboring land users but is not appropriately demarcated
  - The boundary of the national park is known by the management authority but is not known by local residents/neighboring land users
  - The boundary of the national park is not known by the management authority or local residents/neighboring land users
23. Research: Is there a program of management-orientated survey and research work?
- There is a comprehensive, integrated program of survey and research work, which is relevant to management needs
  - There is considerable survey and research work but it is not directed towards the needs of national park management
  - There is a small amount of survey and research work but it is not directed towards the needs

- of national park management
- There is no survey or research work taking place in the national park
24. Resource management: Is active resource management being undertaken?
- Requirements for active management of critical habitats, species, ecological processes and, cultural values are being substantially or fully implemented
- Many of the requirements for active management of critical habitats, species, ecological processes and, cultural values are being implemented but some key issues are not being addressed
- Very few of the requirements for active management of critical habitats, species, ecological processes and cultural values are being implemented
- Active resource management is not being undertaken
25. Maintenance of equipment: Is equipment adequately maintained?
- Equipment and facilities are well maintained
- There is basic maintenance of equipment and facilities
- There is some ad hoc maintenance of equipment and facilities
- There is little or no maintenance of equipment and facilities
26. Education and awareness: Is there a planned education program linked to the objectives and needs?
- There is an appropriate and fully implemented education and awareness program
- There is an education and awareness program but it only partly meets needs and could be improved
- There is a limited and ad hoc education and awareness program
- There is no education and awareness program
27. State and commercial neighbors: Is there a cooperation with adjacent land and water users?
- There is regular contact between managers and neighboring official or corporate land and water users, and substantial co-operation on management
- There is contact between managers and neighboring official or corporate land and water users, but only some co-operation
- There is contact between managers and neighboring official or corporate land and water users but little or no cooperation
- There is no contact between managers and neighboring official or corporate land and water users
28. Indigenous people: Do indigenous and traditional peoples resident or regularly using the national park have input to management decisions?
- Indigenous and traditional peoples directly participate in all relevant decisions relating to management, e.g. co-management
- Indigenous and traditional peoples directly contribute to some relevant decisions relating to management but their involvement could be improved
- Indigenous and traditional peoples have some input into discussions relating to management but no direct role in management
- Indigenous and traditional peoples have no input into decisions relating to the management of the national park
29. Local communities: Do local communities resident or near the national park have input to management decisions?
- Local communities directly participate in all relevant decisions relating to management, e.g.

- co-management
- Local communities directly contribute to some relevant decisions relating to management but their involvement could be improved
  - Local communities have some input into discussions relating to management but no direct role in management
  - Local communities have no input into decisions relating to the management of the national park
30. Monitoring and evaluation: Are management activities monitored against performance?
- A good monitoring and evaluation system exists, is well implemented and used in adaptive management
  - There is an agreed and implemented monitoring and evaluation system but results do not feed back into management
  - There is some ad hoc monitoring and evaluation, but no overall strategy and/or no regular collection of results
  - There is no monitoring and evaluation in the national park
31. Visitor facilities: Are visitor facilities adequate?
- Visitor facilities and services are excellent for current levels of visitation
  - Visitor facilities and services are adequate for current levels of visitation but could be improved
  - Visitor facilities and services are inappropriate for current levels of visitation
  - There are no visitor facilities and services despite an identified need
32. Commercial tourism operators: Do commercial tour operators contribute to national park management?
- There is good co-operation between managers and tourism operators to enhance visitor experiences, and maintain national park values
  - There is limited co-operation between managers and tourism operators to enhance visitor experiences and maintain national park values
  - There is contact between managers and tourism operators but this is largely confined to administrative or regulatory matters
  - There is little or no contact between managers and tourism operators using the national park
33. Fees: If fees (i.e. entry fees or fines) are applied, do they help national park management?
- Fees are collected and make a substantial contribution to the national park and its environs
  - Fees are collected, and make some contribution to the national park and its environs
  - Fees are collected, but make no contribution to the national park or its environs
  - Although fees are theoretically applied, they are not collected
34. Promotion and information dissemination: Is there any effort to promote the national park via various media (incl. via web, radio, newspapers and magazines)?
- Promotion and information dissemination are conducted very intensive
  - Promotion and information dissemination are conducted quite intensive
  - Promotion and information dissemination are conducted, but not planned and not intensive
  - No effort on promotion and information dissemination
35. Staff training: Has the staffs received any training in the past 5 years?
- Staff training is regular, sufficient
  - Staff training is irregular, but sufficient

- Staff is irregular, insufficient
  - No staff training
36. Collaboration with the park: Does the national park has collaboration with local/national /international NGOs, local Government, private sectors, universities, etc)?
- The park has several formal collaborations, all are well implemented
  - The park has several formal collaborations, some are not implemented
  - The park has a few or several collaboration, but informal
  - The park has no collaboration

#### OUTPUT

37. Provision of habitat for various wildlife species: Does the park able to provide a reliable and safe habitat for various wildlife species?
- The park provides an excellent habitat and refuge for wildlife
  - The park somehow provides a habitat and refuge for wildlife
  - The park provides not so good habitat and refuge for wildlife because hunting/poaching still exist
  - The park cannot provides a habitat and refuge for wildlife
38. Provision of environmental service: Does the park provide environmental service(s) such as water, good quality of air, etc.
- The park provides excellent environmental services all year long
  - The park provides excellent environmental services at least in one season
  - The park provides less environmental services, either all year long or partly
  - The park unable to provide environmental services
39. Prevention of natural catastrophic events: Does the park able to prevent natural catastrophic events (flood, erosion, landslides, forest fires)?
- The park fully prevents natural catastrophic events
  - The park prevents most natural catastrophic events
  - The park prevents only a few natural catastrophic events
  - The park is unable to prevent natural catastrophic events
40. Prevention of encroachment: Does the park able to prevent encroachment (from agriculture, mining, housing, industry, etc)?
- The park is free from encroachment
  - The park is slightly encroached, efforts to overcome the problem is on going
  - The park is slightly encroached, no efforts to overcome the problem due to various reasons
  - The park is heavily encroached, no efforts to overcome the problem due to various reasons
41. Prevention of Illegal logging: Does the park able to prevent illegal logging?
- The park is free from illegal logging
  - The park is slightly logged illegally, efforts to overcome the problem is on going
  - The park is substantially logged in illegal manner, no efforts to overcome the problem due to various reasons
  - The park is heavily logged illegally, no efforts to overcome the problem due to various reasons
42. Prevention of Illegal wildlife hunting: Does the park able to prevent illegal hunting (poaching) of various wildlife species?

- The park is free from illegal hunting
  - There is a few illegal hunting, efforts to overcome the problem is on going
  - The is substantial illegal hunting, no efforts to overcome the problem due to various reasons
  - The park is heavily hunted illegally, no efforts to overcome the problem due to various reasons
43. Prevention of Illegal extraction of other resources: Does the park able to prevent extraction of other resources (NTFP, sand mining, other inorganic materials)?
- The park is free from illegal extraction of other resources
  - There is a few illegal extraction of other resources, efforts to overcome the problem is on going
  - The is substantial illegal extraction of other resources, no efforts to overcome the problem due to various reasons
  - The other resources in the park is heavily extracted, no efforts to overcome the problem due to various reasons
44. Stakeholder support: Does the national park gain support from various stakeholders?
- The park gains a full support from all stakeholders
  - The park gains support from most stakeholders
  - The park gains support from only from a few stakeholder
  - No support given by the stakeholders to the national park

#### IMPACT/OUTCOME

45. Economic benefit: Is the national park providing economic benefits to local communities, e.g. income, employment, payment for environmental services?
- There is a major flow of economic benefits to local communities from activities associated with the national park
  - There is some flow of economic benefits to local communities
  - Potential economic benefits are recognized and plans to realize these are being developed
  - The national park does not deliver any economic benefits to local communities
46. Condition of values: What is the condition of the important values of the national park as compared to when it was first designated?
- Biodiversity, ecological and cultural values are predominantly intact
  - Some biodiversity, ecological and cultural values are being partially degraded but the most important values have not been significantly impacted
  - Some biodiversity, ecological or cultural values are being severely degraded
  - Many important biodiversity, ecological or cultural values are being severely degraded

QUESTIONNAIRE FOR MANAGEMENT EFFECTIVENESS OF ASEAN HERITAGE PARK  
[MEINMAHLA KYUN WILDLIFE SANCTUARY, MYANMAR]

*The assessment covers 6 elements: context, planning, input, process/implementation, output, and impact/outcome. Please cross (x) the most appropriate answer. Thank you.*

CONTEXT

1. Legal status: Does the national park have legal status?
- The national park has been formally gazette
  - The national park is in the process of being gazette but the process is still incomplete
  - There is agreement that the national park should be gazette but the process has not yet begun
  - The national park is not gazette

PLANNING

2. Management plan: Is there a management plan and is it being implemented?
- A management plan exists and is being implemented
  - A management plan exists but it is only being partially implemented because of funding constraints or other problems
  - A management plan is being prepared or has been prepared but is not being implemented
  - There is no management plan for the national park
3. Park zonation: Is there a zonation system of the national park?
- Zonation is a clear and fixed
  - Zonation is existed but it is not fixed or under development or under discussion
  - Zonation is unclear
  - No zonation at all
4. Regular work plan: Is there a regular work plan and is it being implemented?
- A regular work plan exists and all activities are implemented
  - A regular work plan exists and many activities are implemented
  - A regular work plan exists but few of the activities are implemented
  - No regular work plan exists
5. Maps: Are maps available and in the most advance format?
- Maps are available in digital format, GIS-based
  - Maps are available in digital format, but not GIS-based
  - Maps are available, but not in not digital format
  - Reliable maps are not available yet or being developed
6. Management or division of working area: Is the area divided into smaller working areas for more effective management?
- National park is officially divided well for more effective management
  - Working areas are officially divided but not too well
  - Working areas are not officially divided
  - There is no division of the working areas

7. Planning for land and water use: Does land and water use planning recognize the national park and aid the achievement of objectives?
- Adjacent land and water use planning fully takes into account the long term needs of the national park
  - Adjacent land and water use planning partially takes into account the long term needs of the national park
  - Adjacent land and water use planning does not take into account the long term needs of the national park, but activities are not detrimental to the area
  - Adjacent land and water use planning does not take into account the needs of the national park and activities/policies are detrimental to the survival of the area
8. National park regulations: Are appropriate regulations in place to control land use and activities?
- Regulations for controlling inappropriate land use and activities in the national park exist and provide an excellent basis for management
  - Regulations for controlling land use and activities in the national park exist but there are some weaknesses or gaps
  - Some regulations for controlling land use and activities in the national park exist but these are major weaknesses
  - There is no regulation for controlling land use and activities in the national park
9. National park objectives: Is management undertaken according to agreed objectives?
- The national park has agreed objectives and is managed to meet these objectives
  - The national park has agreed objectives, but is only partially managed according to these objectives
  - The national park has agreed objectives, but is not managed according to these objectives
  - No firm objectives have been agreed for the national park
10. National park design: Is the national park the right size and shape to protect species, habitats, ecological processes and water catchments of key conservation concern?
- National park design helps achievement of objectives; it is appropriate for species and habitat conservation; and maintains ecological processes such as surface and groundwater flows at a catchment scale, natural disturbance patterns, etc.
  - National park design is not significantly constraining achievement of objectives, but could be improved
  - Inadequacies in national park design mean that achievement of major objectives is difficult but some mitigating actions are being taken (e.g. agreements with adjacent land owners for wildlife corridors or introduction of appropriate catchment management)
  - Inadequacies in national park design mean achieving the major objectives of the national park is very difficult
11. The alignment of national park's plan with "Regional Action Plan for ASEAN Heritage Parks and Protected Areas": Are both aligned or in agreement?
- The national park's plan is fully aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - Most of the park's plan is aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - Some of the park's plan is aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas

- There is no plan to align park's plan with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas

#### INPUT

12. Staff numbers: Are there enough people employed to manage the national park?
- Staff numbers are adequate for the management needs of the national park
  - Staff numbers are below optimum level for critical management activities
  - Staff numbers are inadequate for critical management activities
  - There are no staff
13. Staff training: Are staff adequately trained to fulfill management objectives?
- Staff training and skills are aligned with the management needs of the national park
  - Staff training and skills are adequate, but could be further improved to fully achieve the objectives of management
  - Staff training and skills are low relative to the needs of the national park
  - Staff lack the skills needed for national park management
14. Law enforcement: Can staff (i.e. those with responsibility for managing the site) enforce national park rules well enough?
- The staff have excellent capacity/resources to enforce national park legislation and regulations
  - The staff have acceptable capacity/resources to enforce national park legislation and regulations but some deficiencies remain
  - There are major deficiencies in staff capacity/resources to enforce national park legislation and regulations (e.g. lack of skills, no patrol budget, lack of institutional support)
  - The staff have no effective capacity/resources to enforce national park legislation and regulations
15. Equipment: Is equipment (including vehicles, tools for communication, GPS, binocular, etc.) sufficient for management needs?
- There are adequate equipment
  - There are equipment, but still some gaps that constrain management
  - There are some equipment but these are inadequate for most management needs
  - There are little or no equipment and facilities for management needs
16. Infrastructures: Is infrastructure (access road/trails, guard post, office buildings, electricity, drinking water, telephone lines, etc.) sufficient for management needs?
- There are adequate infrastructure
  - There are infrastructure, but still some gaps that constrain management
  - There are some infrastructure but these are inadequate for most management needs
  - There are little or no infrastructure for management needs
17. Resource inventory: Do you have enough information to manage the area?
- Information on the critical habitats, species, ecological processes and cultural values of the national park is sufficient to support all areas of planning and decision making
  - Information on the critical habitats, species, ecological processes and cultural values of the national park is sufficient for most key areas of planning and decision making
  - Information on the critical habitats, species, ecological processes and cultural values of the national park is not sufficient to support planning and decision making

- There is little or no information available on the critical habitats, species and cultural values of the national park
18. Current budget: Is the current budget sufficient?
- The available budget is sufficient and meets the full management needs of the national park
  - The available budget is acceptable but could be further improved to fully achieve effective management
  - The available budget is inadequate for basic management needs and presents a serious constraint to the capacity to manage
  - There is no budget for management of the national park
19. Security of budget: Is the budget secure and sustainable?
- There is a secure and sustainable budget for the national park and its management needs
  - There is a reasonably secure and sustainable core budget for regular operation of the national park but many innovations and initiatives are reliant on outside funding
  - There is very little secure budget and the national park could not function adequately without outside funding
  - There is no secure budget for the national park and management is wholly reliant on outside or highly variable funding
20. Other resources (funding, human resources, equipments; including voluntary and in-kind input): Is it relatively easy to get funding from other resources (incl. from international NGOs, international donors, local donors, private sectors, etc.)?
- The possibility to get input from other resources is high
  - The possibility to get input from other resources is not so high
  - The possibility to get input from other resources is small, but still possible
  - There is no possibility and chance to get input from other resource(s) at all

#### PROCESS/IMPLEMENTATION

21. Management of budget: Is the budget managed to meet critical management needs?
- Budget management is excellent and meets management needs
  - Budget management is adequate but could be improved
  - Budget management is poor and constrains effectiveness
  - Budget management is very poor and significantly undermines effectiveness (e.g. late release of budget in financial year)
22. National park boundary demarcation: Is the boundary known and demarcated?
- The boundary of the national park is known by the management authority and local residents/neighboring land users and is appropriately demarcated
  - The boundary of the national park is known by both the management authority and local residents/neighboring land users but is not appropriately demarcated
  - The boundary of the national park is known by the management authority but is not known by local residents/neighboring land users
  - The boundary of the national park is not known by the management authority or local residents/neighboring land users
23. Research: Is there a program of management-orientated survey and research work?
- There is a comprehensive, integrated program of survey and research work, which is relevant to management needs

- There is considerable survey and research work but it is not directed towards the needs of national park management
  - There is a small amount of survey and research work but it is not directed towards the needs of national park management
  - There is no survey or research work taking place in the national park
24. Resource management: Is active resource management being undertaken?
- Requirements for active management of critical habitats, species, ecological processes and, cultural values are being substantially or fully implemented
  - Many of the requirements for active management of critical habitats, species, ecological processes and, cultural values are being implemented but some key issues are not being addressed
  - Very few of the requirements for active management of critical habitats, species, ecological processes and cultural values are being implemented
  - Active resource management is not being undertaken
25. Maintenance of equipment: Is equipment adequately maintained?
- Equipment and facilities are well maintained
  - There is basic maintenance of equipment and facilities
  - There is some ad hoc maintenance of equipment and facilities
  - There is little or no maintenance of equipment and facilities
26. Education and awareness: Is there a planned education program linked to the objectives and needs?
- There is an appropriate and fully implemented education and awareness program
  - There is an education and awareness program but it only partly meets needs and could be improved
  - There is a limited and ad hoc education and awareness program
  - There is no education and awareness program
27. State and commercial neighbors: Is there a cooperation with adjacent land and water users?
- There is regular contact between managers and neighboring official or corporate land and water users, and substantial co-operation on management
  - There is contact between managers and neighboring official or corporate land and water users, but only some co-operation
  - There is contact between managers and neighboring official or corporate land and water users but little or no cooperation
  - There is no contact between managers and neighboring official or corporate land and water users
28. Indigenous people: Do indigenous and traditional peoples resident or regularly using the national park have input to management decisions?
- Indigenous and traditional peoples directly participate in all relevant decisions relating to management, e.g. co-management
  - Indigenous and traditional peoples directly contribute to some relevant decisions relating to management but their involvement could be improved
  - Indigenous and traditional peoples have some input into discussions relating to management but no direct role in management
  - Indigenous and traditional peoples have no input into decisions relating to the management of the national park

29. Local communities: Do local communities resident or near the national park have input to management decisions?
- Local communities directly participate in all relevant decisions relating to management, e.g. co-management
  - Local communities directly contribute to some relevant decisions relating to management but their involvement could be improved
  - Local communities have some input into discussions relating to management but no direct role in management
  - Local communities have no input into decisions relating to the management of the national park
30. Monitoring and evaluation: Are management activities monitored against performance?
- A good monitoring and evaluation system exists, is well implemented and used in adaptive management
  - There is an agreed and implemented monitoring and evaluation system but results do not feed back into management
  - There is some ad hoc monitoring and evaluation, but no overall strategy and/or no regular collection of results
  - There is no monitoring and evaluation in the national park
31. Visitor facilities: Are visitor facilities adequate?
- Visitor facilities and services are excellent for current levels of visitation
  - Visitor facilities and services are adequate for current levels of visitation but could be improved
  - Visitor facilities and services are inappropriate for current levels of visitation
  - There are no visitor facilities and services despite an identified need
32. Commercial tourism operators: Do commercial tour operators contribute to national park management?
- There is good co-operation between managers and tourism operators to enhance visitor experiences, and maintain national park values
  - There is limited co-operation between managers and tourism operators to enhance visitor experiences and maintain national park values
  - There is contact between managers and tourism operators but this is largely confined to administrative or regulatory matters
  - There is little or no contact between managers and tourism operators using the national park
33. Fees: If fees (i.e. entry fees or fines) are applied, do they help national park management?
- Fees are collected and make a substantial contribution to the national park and its environs
  - Fees are collected, and make some contribution to the national park and its environs
  - Fees are collected, but make no contribution to the national park or its environs
  - Although fees are theoretically applied, they are not collected
34. Promotion and information dissemination: Is there any effort to promote the national park via various media (incl. via web, radio, newspapers and magazines)?
- Promotion and information dissemination are conducted very intensive
  - Promotion and information dissemination are conducted quite intensive
  - Promotion and information dissemination are conducted, but not planned and not intensive
  - No effort on promotion and information dissemination

35. Staff training: Has the staffs received any training in the past 5 years?
- Staff training is regular, sufficient
  - Staff training is irregular, but sufficient
  - Staff training is irregular, insufficient
  - No staff training
36. Collaboration with the park: Does the national park has collaboration with local/national /international NGOs, local Government, private sectors, universities, etc)?
- The park has several formal collaborations, all are well implemented
  - The park has several formal collaborations, some are not implemented
  - The park has a few or several collaboration, but informal
  - The park has no collaboration

#### OUTPUT

37. Provision of habitat for various wildlife species: Does the park able to provide a reliable and safe habitat for various wildlife species?
- The park provides an excellent habitat and refuge for wildlife
  - The park somehow provides a habitat and refuge for wildlife
  - The park provides not so good habitat and refuge for wildlife because hunting/poaching still exist
  - The park cannot provides a habitat and refuge for wildlife
38. Provision of environmental service: Does the park provide environmental service(s) such as water, good quality of air, etc.
- The park provides excellent environmental services all year long
  - The park provides excellent environmental services at least in one season
  - The park provides less environmental services, either all year long or partly
  - The park unable to provide environmental services
39. Prevention of natural catastrophic events: Does the park able to prevent natural catastrophic events (flood, erosion, landslides, forest fires)?
- The park fully prevents natural catastrophic events
  - The park prevents most natural catastrophic events
  - The park prevents only a few natural catastrophic events
  - The park is unable to prevent natural catastrophic events
40. Prevention of encroachment: Does the park able to prevent encroachment (from agriculture, mining, housing, industry, etc)?
- The park is free from encroachment
  - The park is slightly encroached, efforts to overcome the problem is on going
  - The park is slightly encroached, no efforts to overcome the problem due to various reasons
  - The park is heavily encroached, no efforts to overcome the problem due to various reasons
41. Prevention of Illegal logging: Does the park able to prevent illegal logging?
- The park is free from illegal logging
  - The park is slightly logged illegally, efforts to overcome the problem is on going
  - The park is substantially logged in illegal manner, no efforts to overcome the problem due to various reasons
  - The park is heavily logged illegally, no efforts to overcome the problem due to various reasons

42. Prevention of Illegal wildlife hunting: Does the park able to prevent illegal hunting (poaching) of various wildlife species?
- The park is free from illegal hunting
  - There is a few illegal hunting, efforts to overcome the problem is on going
  - The is substantial illegal hunting, no efforts to overcome the problem due to various reasons
  - The park is heavily hunted illegally, no efforts to overcome the problem due to various reasons
43. Prevention of Illegal extraction of other resources: Does the park able to prevent extraction of other resources (NTPF, sand mining, other inorganic materials)?
- The park is free from illegal extraction of other resources
  - There is a few illegal extraction of other resources, efforts to overcome the problem is on going
  - The is substantial illegal extraction of other resources, no efforts to overcome the problem due to various reasons
  - The other resources in the park is heavily extracted, no efforts to overcome the problem due to various reasons
44. Stakeholder support: Does the national park gain support from various stakeholders?
- The park gains a full support from all stakeholders
  - The park gains support from most stakeholders
  - The park gains support from only from a few stakeholder
  - No support given by the stakeholders to the national park

#### IMPACT/OUTCOME

45. Economic benefit: Is the national park providing economic benefits to local communities, e.g. income, employment, payment for environmental services?
- There is a major flow of economic benefits to local communities from activities associated with the national park
  - There is some flow of economic benefits to local communities
  - Potential economic benefits are recognized and plans to realize these are being developed
  - The national park does not deliver any economic benefits to local communities
46. Condition of values: What is the condition of the important values of the national park as compared to when it was first designated?
- Biodiversity, ecological and cultural values are predominantly intact
  - Some biodiversity, ecological and cultural values are being partially degraded but the most important values have not been significantly impacted
  - Some biodiversity, ecological or cultural values are being severely degraded
  - Many important biodiversity, ecological or cultural values are being severely degraded

QUESTIONNAIRE FOR MANAGEMENT EFFECTIVENESS OF ASEAN HERITAGE PARK  
[INDAWGYI WILDLIFE SANCTUARY]

*The assessment covers 6 elements: context, planning, input, process/implementation, output, and impact/outcome. Please cross (x) the most appropriate answer. Thank you.*

CONTEXT

1. Legal status: Does the national park have legal status?
- The national park has been formally gazette
  - The national park is in the process of being gazette but the process is still incomplete
  - There is agreement that the national park should be gazette but the process has not yet begun
  - The national park is not gazette

PLANNING

2. Management plan: Is there a management plan and is it being implemented?
- A management plan exists and is being implemented
  - A management plan exists but it is only being partially implemented because of funding constraints or other problems
  - A management plan is being prepared or has been prepared but is not being implemented
  - There is no management plan for the national park
3. Park zonation: Is there a zonation system of the national park?
- Zonation is a clear and fixed
  - Zonation is existed but it is not fixed or under development or under discussion
  - Zonation is unclear
  - No zonation at all
4. Regular work plan: Is there a regular work plan and is it being implemented?
- A regular work plan exists and all activities are implemented
  - A regular work plan exists and many activities are implemented
  - A regular work plan exists but few of the activities are implemented
  - No regular work plan exists
5. Maps: Are maps available and in the most advance format?
- Maps are available in digital format, GIS-based
  - Maps are available in digital format, but not GIS-based
  - Maps are available, but not in not digital format
  - Reliable maps are not available yet or being developed
6. Management or division of working area: Is the area divided into smaller working areas for more effective management?
- National park is officially divided well for more effective management
  - Working areas are officially divided but not too well
  - Working areas are not officially divided
  - There is no division of the working areas

7. Planning for land and water use: Does land and water use planning recognize the national park and aid the achievement of objectives?
- Adjacent land and water use planning fully takes into account the long term needs of the national park
  - Adjacent land and water use planning partially takes into account the long term needs of the national park
  - Adjacent land and water use planning does not takes into account the long term needs of the national park, but activities are not detrimental the area
  - Adjacent land and water use planning does not take into account the needs of the national park and activities/policies are detrimental to the survival of the area
8. National park regulations: Are appropriate regulations in place to control land use and activities?
- Regulations for controlling inappropriate land use and activities in the national park exist and provide an excellent basis for management
  - Regulations for controlling land use and activities in the national park exist but there are some weaknesses or gaps
  - Some regulations for controlling land use and activities in the national park exist but these are major weaknesses
  - There is no regulation for controlling land use and activities in the national park
9. National park objectives: Is management undertaken according to agreed objectives?
- The national park has agreed objectives and is managed to meet these objectives
  - The national park has agreed objectives, but is only partially managed according to these objectives
  - The national park has agreed objectives, but is not managed according to these objectives
  - No firm objectives have been agreed for the national park
10. National park design: Is the national park the right size and shape to protect species, habitats, ecological processes and water catchments of key conservation concern?
- National park design helps achievement of objectives; it is appropriate for species and habitat conservation; and maintains ecological processes such as surface and groundwater flows at a catchment scale, natural disturbance patterns, etc.
  - National park design is not significantly constraining achievement of objectives, but could be improved
  - Inadequacies in national park design mean that achievement of major objectives is difficult but some mitigating actions are being taken (e.g. agreements with adjacent land owners for wildlife corridors or introduction of appropriate catchment management)
  - Inadequacies in national park design mean achieving the major objectives of the national park is very difficult
11. The alignment of national park's plan with "Regional Action Plan for ASEAN Heritage Parks and Protected Areas": Are both aligned or in agreement?
- The national park's plan in fully aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - Most of the park's plan is aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - Some of the park's plan is aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas

- There is no plan to align park's plan with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas

#### INPUT

12. Staff numbers: Are there enough people employed to manage the national park?
- Staff numbers are adequate for the management needs of the national park
  - Staff numbers are below optimum level for critical management activities
  - Staff numbers are inadequate for critical management activities
  - There are no staff
13. Staff training: Are staff adequately trained to fulfill management objectives?
- Staff training and skills are aligned with the management needs of the national park
  - Staff training and skills are adequate, but could be further improved to fully achieve the objectives of management
  - Staff training and skills are low relative to the needs of the national park
  - Staff lack the skills needed for national park management
14. Law enforcement: Can staff (i.e. those with responsibility for managing the site) enforce national park rules well enough?
- The staff have excellent capacity/resources to enforce national park legislation and regulations
  - The staff have acceptable capacity/resources to enforce national park legislation and regulations but some deficiencies remain
  - There are major deficiencies in staff capacity/resources to enforce national park legislation and regulations (e.g. lack of skills, no patrol budget, lack of institutional support)
  - The staff have no effective capacity/resources to enforce national park legislation and regulations
15. Equipment: Is equipment (including vehicles, tools for communication, GPS, binocular, etc.) sufficient for management needs?
- There are adequate equipment
  - There are equipment, but still some gaps that constrain management
  - There are some equipment but these are inadequate for most management needs
  - There are little or no equipment and facilities for management needs
16. Infrastructures: Is infrastructure (access road/trails, guard post, office buildings, electricity, drinking water, telephone lines, etc.) sufficient for management needs?
- There are adequate infrastructure
  - There are infrastructure, but still some gaps that constrain management
  - There are some infrastructure but these are inadequate for most management needs
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17. Resource inventory: Do you have enough information to manage the area?
- Information on the critical habitats, species, ecological processes and cultural values of the national park is sufficient to support all areas of planning and decision making
  - Information on the critical habitats, species, ecological processes and cultural values of the national park is sufficient for most key areas of planning and decision making
  - Information on the critical habitats, species, ecological processes and cultural values of the national park is not sufficient to support planning and decision making

- There is little or no information available on the critical habitats, species and cultural values of the national park
18. Current budget: Is the current budget sufficient?
- The available budget is sufficient and meets the full management needs of the national park
  - The available budget is acceptable but could be further improved to fully achieve effective management
  - The available budget is inadequate for basic management needs and presents a serious constraint to the capacity to manage
  - There is no budget for management of the national park
19. Security of budget: Is the budget secure and sustainable?
- There is a secure and sustainable budget for the national park and its management needs
  - There is a reasonably secure and sustainable core budget for regular operation of the national park but many innovations and initiatives are reliant on outside funding
  - There is very little secure budget and the national park could not function adequately without outside funding
  - There is no secure budget for the national park and management is wholly reliant on outside or highly variable funding
20. Other resources (funding, human resources, equipments; including voluntary and in-kind input): Is it relatively easy to get funding from other resources (incl. from international NGOs, international donors, local donors, private sectors, etc.)?
- The possibility to get input from other resources is high
  - The possibility to get input from other resources is not so high
  - The possibility to get input from other resources is small, but still possible
  - There is no possibility and chance to get input from other resource(s) at all

#### PROCESS/IMPLEMENTATION

21. Management of budget: Is the budget managed to meet critical management needs?
- Budget management is excellent and meets management needs
  - Budget management is adequate but could be improved
  - Budget management is poor and constrains effectiveness
  - Budget management is very poor and significantly undermines effectiveness (e.g. late release of budget in financial year)
22. National park boundary demarcation: Is the boundary known and demarcated?
- The boundary of the national park is known by the management authority and local residents/neighboring land users and is appropriately demarcated
  - The boundary of the national park is known by both the management authority and local residents/neighboring land users but is not appropriately demarcated
  - The boundary of the national park is known by the management authority but is not known by local residents/neighboring land users
  - The boundary of the national park is not known by the management authority or local residents/neighboring land users
23. Research: Is there a program of management-orientated survey and research work?
- There is a comprehensive, integrated program of survey and research work, which is relevant to management needs
  - There is considerable survey and research work but it is not directed towards the needs of

- national park management
- There is a small amount of survey and research work but it is not directed towards the needs of national park management
  - There is no survey or research work taking place in the national park
24. Resource management: Is active resource management being undertaken?
- Requirements for active management of critical habitats, species, ecological processes and, cultural values are being substantially or fully implemented
  - Many of the requirements for active management of critical habitats, species, ecological processes and, cultural values are being implemented but some key issues are not being addressed
  - Very few of the requirements for active management of critical habitats, species, ecological processes and cultural values are being implemented
  - Active resource management is not being undertaken
25. Maintenance of equipment: Is equipment adequately maintained?
- Equipment and facilities are well maintained
  - There is basic maintenance of equipment and facilities
  - There is some ad hoc maintenance of equipment and facilities
  - There is little or no maintenance of equipment and facilities
26. Education and awareness: Is there a planned education program linked to the objectives and needs?
- There is an appropriate and fully implemented education and awareness program
  - There is an education and awareness program but it only partly meets needs and could be improved
  - There is a limited and ad hoc education and awareness program
  - There is no education and awareness program
27. State and commercial neighbors: Is there a cooperation with adjacent land and water users?
- There is regular contact between managers and neighboring official or corporate land and water users, and substantial co-operation on management
  - There is contact between managers and neighboring official or corporate land and water users, but only some co-operation
  - There is contact between managers and neighboring official or corporate land and water users but little or no cooperation
  - There is no contact between managers and neighboring official or corporate land and water users
28. Indigenous people: Do indigenous and traditional peoples resident or regularly using the national park have input to management decisions?
- Indigenous and traditional peoples directly participate in all relevant decisions relating to management, e.g. co-management
  - Indigenous and traditional peoples directly contribute to some relevant decisions relating to management but their involvement could be improved
  - Indigenous and traditional peoples have some input into discussions relating to management but no direct role in management
  - Indigenous and traditional peoples have no input into decisions relating to the management of the national park

29. Local communities: Do local communities resident or near the national park have input to management decisions?
- Local communities directly participate in all relevant decisions relating to management, e.g. co-management
  - Local communities directly contribute to some relevant decisions relating to management but their involvement could be improved
  - Local communities have some input into discussions relating to management but no direct role in management
  - Local communities have no input into decisions relating to the management of the national park
30. Monitoring and evaluation: Are management activities monitored against performance?
- A good monitoring and evaluation system exists, is well implemented and used in adaptive management
  - There is an agreed and implemented monitoring and evaluation system but results do not feed back into management
  - There is some ad hoc monitoring and evaluation, but no overall strategy and/or no regular collection of results
  - There is no monitoring and evaluation in the national park
31. Visitor facilities: Are visitor facilities adequate?
- Visitor facilities and services are excellent for current levels of visitation
  - Visitor facilities and services are adequate for current levels of visitation but could be improved
  - Visitor facilities and services are inappropriate for current levels of visitation
  - There are no visitor facilities and services despite an identified need
32. Commercial tourism operators: Do commercial tour operators contribute to national park management?
- There is good co-operation between managers and tourism operators to enhance visitor experiences, and maintain national park values
  - There is limited co-operation between managers and tourism operators to enhance visitor experiences and maintain national park values
  - There is contact between managers and tourism operators but this is largely confined to administrative or regulatory matters
  - There is little or no contact between managers and tourism operators using the national park
33. Fees: If fees (i.e. entry fees or fines) are applied, do they help national park management?
- Fees are collected and make a substantial contribution to the national park and its environs
  - Fees are collected, and make some contribution to the national park and its environs
  - Fees are collected, but make no contribution to the national park or its environs
  - Although fees are theoretically applied, they are not collected
34. Promotion and information dissemination: Is there any effort to promote the national park via various media (incl. via web, radio, newspapers and magazines)?
- Promotion and information dissemination are conducted very intensive
  - Promotion and information dissemination are conducted quite intensive
  - Promotion and information dissemination are conducted, but not planned and not intensive
  - No effort on promotion and information dissemination

35. Staff training: Has the staffs received any training in the past 5 years?
- Staff training is regular, sufficient
  - Staff training is irregular, but sufficient
  - Staff training is irregular, insufficient
  - No staff training
36. Collaboration with the park: Does the national park has collaboration with local/national /international NGOs, local Government, private sectors, universities, etc)?
- The park has several formal collaborations, all are well implemented
  - The park has several formal collaborations, some are not implemented
  - The park has a few or several collaboration, but informal
  - The park has no collaboration

#### OUTPUT

37. Provision of habitat for various wildlife species: Does the park able to provide a reliable and safe habitat for various wildlife species?
- The park provides an excellent habitat and refuge for wildlife
  - The park somehow provides a habitat and refuge for wildlife
  - The park provides not so good habitat and refuge for wildlife because hunting/poaching still exist
  - The park cannot provides a habitat and refuge for wildlife
38. Provision of environmental service: Does the park provide environmental service(s) such as water, good quality of air, etc.
- The park provides excellent environmental services all year long
  - The park provides excellent environmental services at least in one season
  - The park provides less environmental services, either all year long or partly
  - The park unable to provide environmental services
39. Prevention of natural catastrophic events: Does the park able to prevent natural catastrophic events (flood, erosion, landslides, forest fires)?
- The park fully prevents natural catastrophic events
  - The park prevents most natural catastrophic events
  - The park prevents only a few natural catastrophic events
  - The park is unable to prevent natural catastrophic events
40. Prevention of encroachment: Does the park able to prevent encroachment (from agriculture, mining, housing, industry, etc)?
- The park is free from encroachment
  - The park is slightly encroached, efforts to overcome the problem is on going
  - The park is slightly encroached, no efforts to overcome the problem due to various reasons
  - The park is heavily encroached, no efforts to overcome the problem due to various reasons
41. Prevention of Illegal logging: Does the park able to prevent illegal logging?
- The park is free from illegal logging
  - The park is slightly logged illegally, efforts to overcome the problem is on going
  - The park is substantially logged in illegal manner, no efforts to overcome the problem due to various reasons
  - The park is heavily logged illegally, no efforts to overcome the problem due to various reasons

42. Prevention of Illegal wildlife hunting: Does the park able to prevent illegal hunting (poaching) of various wildlife species?
- The park is free from illegal hunting
  - There is a few illegal hunting, efforts to overcome the problem is on going
  - The is substantial illegal hunting, no efforts to overcome the problem due to various reasons
  - The park is heavily hunted illegally, no efforts to overcome the problem due to various reasons
43. Prevention of Illegal extraction of other resources: Does the park able to prevent extraction of other resources (NTPF, sand mining, other inorganic materials)?
- The park is free from illegal extraction of other resources
  - There is a few illegal extraction of other resources, efforts to overcome the problem is on going
  - The is substantial illegal extraction of other resources, no efforts to overcome the problem due to various reasons
  - The other resources in the park is heavily extracted, no efforts to overcome the problem due to various reasons
44. Stakeholder support: Does the national park gain support from various stakeholders?
- The park gains a full support from all stakeholders
  - The park gains support from most stakeholders
  - The park gains support from only from a few stakeholder
  - No support given by the stakeholders to the national park

#### IMPACT/OUTCOME

45. Economic benefit: Is the national park providing economic benefits to local communities, e.g. income, employment, payment for environmental services?
- There is a major flow of economic benefits to local communities from activities associated with the national park
  - There is some flow of economic benefits to local communities
  - Potential economic benefits are recognized and plans to realize these are being developed
  - The national park does not deliver any economic benefits to local communities
46. Condition of values: What is the condition of the important values of the national park as compared to when it was first designated?
- Biodiversity, ecological and cultural values are predominantly intact
  - Some biodiversity, ecological and cultural values are being partially degraded but the most important values have not been significantly impacted
  - Some biodiversity, ecological or cultural values are being severely degraded
  - Many important biodiversity, ecological or cultural values are being severely degraded

QUESTIONNAIRE FOR MANAGEMENT EFFECTIVENESS OF ASEAN HERITAGE PARK  
[INLE WETLAND WILDLIFE SANCTUARY, MYANMAR]

*The assessment covers 6 elements: context, planning, input, process/implementation, output, and impact/outcome. Please cross (x) the most appropriate answer. Thank you.*

CONTEXT

1. Legal status: Does the national park have legal status?
- The national park has been formally gazette
  - The national park is in the process of being gazette but the process is still incomplete
  - There is agreement that the national park should be gazette but the process has not yet begun
  - The national park is not gazette

PLANNING

2. Management plan: Is there a management plan and is it being implemented?
- A management plan exists and is being implemented
  - A management plan exists but it is only being partially implemented because of funding constraints or other problems
  - A management plan is being prepared or has been prepared but is not being implemented
  - There is no management plan for the national park
3. Park zonation: Is there a zonation system of the national park?
- Zonation is a clear and fixed
  - Zonation is existed but it is not fixed or under development or under discussion
  - Zonation is unclear
  - No zonation at all
4. Regular work plan: Is there a regular work plan and is it being implemented?
- A regular work plan exists and all activities are implemented
  - A regular work plan exists and many activities are implemented
  - A regular work plan exists but few of the activities are implemented
  - No regular work plan exists
5. Maps: Are maps available and in the most advance format?
- Maps are available in digital format, GIS-based
  - Maps are available in digital format, but not GIS-based
  - Maps are available, but not in not digital format
  - Reliable maps are not available yet or being developed
6. Management or division of working area: Is the area divided into smaller working areas for more effective management?
- National park is officially divided well for more effective management
  - Working areas are officially divided but not too well
  - Working areas are not officially divided
  - There is no division of the working areas

7. Planning for land and water use: Does land and water use planning recognize the national park and aid the achievement of objectives?
- Adjacent land and water use planning fully takes into account the long term needs of the national park
  - Adjacent land and water use planning partially takes into account the long term needs of the national park
  - Adjacent land and water use planning does not takes into account the long term needs of the national park, but activities are not detrimental the area
  - Adjacent land and water use planning does not take into account the needs of the national park and activities/policies are detrimental to the survival of the area
8. National park regulations: Are appropriate regulations in place to control land use and activities?
- Regulations for controlling inappropriate land use and activities in the national park exist and provide an excellent basis for management
  - Regulations for controlling land use and activities in the national park exist but there are some weaknesses or gaps
  - Some regulations for controlling land use and activities in the national park exist but these are major weaknesses
  - There is no regulation for controlling land use and activities in the national park
9. National park objectives: Is management undertaken according to agreed objectives?
- The national park has agreed objectives and is managed to meet these objectives
  - The national park has agreed objectives, but is only partially managed according to these objectives
  - The national park has agreed objectives, but is not managed according to these objectives
  - No firm objectives have been agreed for the national park
10. National park design: Is the national park the right size and shape to protect species, habitats, ecological processes and water catchments of key conservation concern?
- National park design helps achievement of objectives; it is appropriate for species and habitat conservation; and maintains ecological processes such as surface and groundwater flows at a catchment scale, natural disturbance patterns, etc.
  - National park design is not significantly constraining achievement of objectives, but could be improved
  - Inadequacies in national park design mean that achievement of major objectives is difficult but some mitigating actions are being taken (e.g. agreements with adjacent land owners for wildlife corridors or introduction of appropriate catchment management)
  - Inadequacies in national park design mean achieving the major objectives of the national park is very difficult
11. The alignment of national park's plan with "Regional Action Plan for ASEAN Heritage Parks and Protected Areas": Are both aligned or in agreement?
- The national park's plan in fully aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - Most of the park's plan is aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - Some of the park's plan is aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas

- There is no plan to align park's plan with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas

#### INPUT

12. Staff numbers: Are there enough people employed to manage the national park?
- Staff numbers are adequate for the management needs of the national park
  - Staff numbers are below optimum level for critical management activities
  - Staff numbers are inadequate for critical management activities
  - There are no staff
13. Staff training: Are staff adequately trained to fulfill management objectives?
- Staff training and skills are aligned with the management needs of the national park
  - Staff training and skills are adequate, but could be further improved to fully achieve the objectives of management
  - Staff training and skills are low relative to the needs of the national park
  - Staff lack the skills needed for national park management
14. Law enforcement: Can staff (i.e. those with responsibility for managing the site) enforce national park rules well enough?
- The staff have excellent capacity/resources to enforce national park legislation and regulations
  - The staff have acceptable capacity/resources to enforce national park legislation and regulations but some deficiencies remain
  - There are major deficiencies in staff capacity/resources to enforce national park legislation and regulations (e.g. lack of skills, no patrol budget, lack of institutional support)
  - The staff have no effective capacity/resources to enforce national park legislation and regulations
15. Equipment: Is equipment (including vehicles, tools for communication, GPS, binocular, etc.) sufficient for management needs?
- There are adequate equipment
  - There are equipment, but still some gaps that constrain management
  - There are some equipment but these are inadequate for most management needs
  - There are little or no equipment and facilities for management needs
16. Infrastructures: Is infrastructure (access road/trails, guard post, office buildings, electricity, drinking water, telephone lines, etc.) sufficient for management needs?
- There are adequate infrastructure
  - There are infrastructure, but still some gaps that constrain management
  - There are some infrastructure but these are inadequate for most management needs
  - There are little or no infrastructure for management needs
17. Resource inventory: Do you have enough information to manage the area?
- Information on the critical habitats, species, ecological processes and cultural values of the national park is sufficient to support all areas of planning and decision making
  - Information on the critical habitats, species, ecological processes and cultural values of the national park is sufficient for most key areas of planning and decision making
  - Information on the critical habitats, species, ecological processes and cultural values of the national park is not sufficient to support planning and decision making

- There is little or no information available on the critical habitats, species and cultural values of the national park
18. Current budget: Is the current budget sufficient?
- The available budget is sufficient and meets the full management needs of the national park
  - The available budget is acceptable but could be further improved to fully achieve effective management
  - The available budget is inadequate for basic management needs and presents a serious constraint to the capacity to manage
  - There is no budget for management of the national park
19. Security of budget: Is the budget secure and sustainable?
- There is a secure and sustainable budget for the national park and its management needs
  - There is a reasonably secure and sustainable core budget for regular operation of the national park but many innovations and initiatives are reliant on outside funding
  - There is very little secure budget and the national park could not function adequately without outside funding
  - There is no secure budget for the national park and management is wholly reliant on outside or highly variable funding
20. Other resources (funding, human resources, equipments; including voluntary and in-kind input): Is it relatively easy to get funding from other resources (incl. from international NGOs, international donors, local donors, private sectors, etc.)?
- The possibility to get input from other resources is high
  - The possibility to get input from other resources is not so high
  - The possibility to get input from other resources is small, but still possible
  - There is no possibility and chance to get input from other resource(s) at all

#### PROCESS/IMPLEMENTATION

21. Management of budget: Is the budget managed to meet critical management needs?
- Budget management is excellent and meets management needs
  - Budget management is adequate but could be improved
  - Budget management is poor and constrains effectiveness
  - Budget management is very poor and significantly undermines effectiveness (e.g. late release of budget in financial year)
22. National park boundary demarcation: Is the boundary known and demarcated?
- The boundary of the national park is known by the management authority and local residents/neighboring land users and is appropriately demarcated
  - The boundary of the national park is known by both the management authority and local residents/neighboring land users but is not appropriately demarcated
  - The boundary of the national park is known by the management authority but is not known by local residents/neighboring land users
  - The boundary of the national park is not known by the management authority or local residents/neighboring land users
23. Research: Is there a program of management-orientated survey and research work?
- There is a comprehensive, integrated program of survey and research work, which is relevant to management needs
  - There is considerable survey and research work but it is not directed towards the needs of

- national park management
- There is a small amount of survey and research work but it is not directed towards the needs of national park management
  - There is no survey or research work taking place in the national park
24. Resource management: Is active resource management being undertaken?
- Requirements for active management of critical habitats, species, ecological processes and, cultural values are being substantially or fully implemented
  - Many of the requirements for active management of critical habitats, species, ecological processes and, cultural values are being implemented but some key issues are not being addressed
  - Very few of the requirements for active management of critical habitats, species, ecological processes and cultural values are being implemented
  - Active resource management is not being undertaken
25. Maintenance of equipment: Is equipment adequately maintained?
- Equipment and facilities are well maintained
  - There is basic maintenance of equipment and facilities
  - There is some ad hoc maintenance of equipment and facilities
  - There is little or no maintenance of equipment and facilities
26. Education and awareness: Is there a planned education program linked to the objectives and needs?
- There is an appropriate and fully implemented education and awareness program
  - There is an education and awareness program but it only partly meets needs and could be improved
  - There is a limited and ad hoc education and awareness program
  - There is no education and awareness program
27. State and commercial neighbors: Is there a cooperation with adjacent land and water users?
- There is regular contact between managers and neighboring official or corporate land and water users, and substantial co-operation on management
  - There is contact between managers and neighboring official or corporate land and water users, but only some co-operation
  - There is contact between managers and neighboring official or corporate land and water users but little or no cooperation
  - There is no contact between managers and neighboring official or corporate land and water users
28. Indigenous people: Do indigenous and traditional peoples resident or regularly using the national park have input to management decisions?
- Indigenous and traditional peoples directly participate in all relevant decisions relating to management, e.g. co-management
  - Indigenous and traditional peoples directly contribute to some relevant decisions relating to management but their involvement could be improved
  - Indigenous and traditional peoples have some input into discussions relating to management but no direct role in management
  - Indigenous and traditional peoples have no input into decisions relating to the management of the national park

29. Local communities: Do local communities resident or near the national park have input to management decisions?
- Local communities directly participate in all relevant decisions relating to management, e.g. co-management
  - Local communities directly contribute to some relevant decisions relating to management but their involvement could be improved
  - Local communities have some input into discussions relating to management but no direct role in management
  - Local communities have no input into decisions relating to the management of the national park
30. Monitoring and evaluation: Are management activities monitored against performance?
- A good monitoring and evaluation system exists, is well implemented and used in adaptive management
  - There is an agreed and implemented monitoring and evaluation system but results do not feed back into management
  - There is some ad hoc monitoring and evaluation, but no overall strategy and/or no regular collection of results
  - There is no monitoring and evaluation in the national park
31. Visitor facilities: Are visitor facilities adequate?
- Visitor facilities and services are excellent for current levels of visitation
  - Visitor facilities and services are adequate for current levels of visitation but could be improved
  - Visitor facilities and services are inappropriate for current levels of visitation
  - There are no visitor facilities and services despite an identified need
32. Commercial tourism operators: Do commercial tour operators contribute to national park management?
- There is good co-operation between managers and tourism operators to enhance visitor experiences, and maintain national park values
  - There is limited co-operation between managers and tourism operators to enhance visitor experiences and maintain national park values
  - There is contact between managers and tourism operators but this is largely confined to administrative or regulatory matters
  - There is little or no contact between managers and tourism operators using the national park
33. Fees: If fees (i.e. entry fees or fines) are applied, do they help national park management?
- Fees are collected and make a substantial contribution to the national park and its environs
  - Fees are collected, and make some contribution to the national park and its environs
  - Fees are collected, but make no contribution to the national park or its environs
  - Although fees are theoretically applied, they are not collected
34. Promotion and information dissemination: Is there any effort to promote the national park via various media (incl. via web, radio, newspapers and magazines)?
- Promotion and information dissemination are conducted very intensive
  - Promotion and information dissemination are conducted quite intensive
  - Promotion and information dissemination are conducted, but not planned and not intensive
  - No effort on promotion and information dissemination

35. Staff training: Has the staffs received any training in the past 5 years?
- Staff training is regular, sufficient
  - Staff training is irregular, but sufficient
  - Staff training is irregular, insufficient
  - No staff training
36. Collaboration with the park: Does the national park has collaboration with local/national /international NGOs, local Government, private sectors, universities, etc)?
- The park has several formal collaborations, all are well implemented
  - The park has several formal collaborations, some are not implemented
  - The park has a few or several collaboration, but informal
  - The park has no collaboration

#### OUTPUT

37. Provision of habitat for various wildlife species: Does the park able to provide a reliable and safe habitat for various wildlife species?
- The park provides an excellent habitat and refuge for wildlife
  - The park somehow provides a habitat and refuge for wildlife
  - The park provides not so good habitat and refuge for wildlife because hunting/poaching still exist
  - The park cannot provides a habitat and refuge for wildlife
38. Provision of environmental service: Does the park provide environmental service(s) such as water, good quality of air, etc.
- The park provides excellent environmental services all year long
  - The park provides excellent environmental services at least in one season
  - The park provides less environmental services, either all year long or partly
  - The park unable to provide environmental services
39. Prevention of natural catastrophic events: Does the park able to prevent natural catastrophic events (flood, erosion, landslides, forest fires)?
- The park fully prevents natural catastrophic events
  - The park prevents most natural catastrophic events
  - The park prevents only a few natural catastrophic events
  - The park is unable to prevent natural catastrophic events
40. Prevention of encroachment: Does the park able to prevent encroachment (from agriculture, mining, housing, industry, etc)?
- The park is free from encroachment
  - The park is slightly encroached, efforts to overcome the problem is on going
  - The park is slightly encroached, no efforts to overcome the problem due to various reasons
  - The park is heavily encroached, no efforts to overcome the problem due to various reasons
41. Prevention of Illegal logging: Does the park able to prevent illegal logging?
- The park is free from illegal logging
  - The park is slightly logged illegally, efforts to overcome the problem is on going
  - The park is substantially logged in illegal manner, no efforts to overcome the problem due to various reasons
  - The park is heavily logged illegally, no efforts to overcome the problem due to various reasons

42. Prevention of Illegal wildlife hunting: Does the park able to prevent illegal hunting (poaching) of various wildlife species?
- The park is free from illegal hunting
  - There is a few illegal hunting, efforts to overcome the problem is on going
  - The is substantial illegal hunting, no efforts to overcome the problem due to various reasons
  - The park is heavily hunted illegally, no efforts to overcome the problem due to various reasons
43. Prevention of Illegal extraction of other resources: Does the park able to prevent extraction of other resources (NTPF, sand mining, other inorganic materials)?
- The park is free from illegal extraction of other resources
  - There is a few illegal extraction of other resources, efforts to overcome the problem is on going
  - The is substantial illegal extraction of other resources, no efforts to overcome the problem due to various reasons
  - The other resources in the park is heavily extracted, no efforts to overcome the problem due to various reasons
44. Stakeholder support: Does the national park gain support from various stakeholders?
- The park gains a full support from all stakeholders
  - The park gains support from most stakeholders
  - The park gains support from only from a few stakeholder
  - No support given by the stakeholders to the national park

#### IMPACT/OUTCOME

45. Economic benefit: Is the national park providing economic benefits to local communities, e.g. income, employment, payment for environmental services?
- There is a major flow of economic benefits to local communities from activities associated with the national park
  - There is some flow of economic benefits to local communities
  - Potential economic benefits are recognized and plans to realize these are being developed
  - The national park does not deliver any economic benefits to local communities
46. Condition of values: What is the condition of the important values of the national park as compared to when it was first designated?
- Biodiversity, ecological and cultural values are predominantly intact
  - Some biodiversity, ecological and cultural values are being partially degraded but the most important values have not been significantly impacted
  - Some biodiversity, ecological or cultural values are being severely degraded
  - Many important biodiversity, ecological or cultural values are being severely degraded

QUESTIONNAIRE FOR MANAGEMENT EFFECTIVENESS OF ASEAN HERITAGE PARK  
[KHAKABORAZI MOUNTAIN NATIONAL PARK, MYANMAR]

*The assessment covers 6 elements: context, planning, input, process/implementation, output, and impact/outcome. Please cross (x) the most appropriate answer. Thank you.*

CONTEXT

1. Legal status: Does the national park have legal status?
- The national park has been formally gazette
  - The national park is in the process of being gazette but the process is still incomplete
  - There is agreement that the national park should be gazette but the process has not yet begun
  - The national park is not gazette

PLANNING

2. Management plan: Is there a management plan and is it being implemented?
- A management plan exists and is being implemented
  - A management plan exists but it is only being partially implemented because of funding constraints or other problems
  - A management plan is being prepared or has been prepared but is not being implemented
  - There is no management plan for the national park
3. Park zonation: Is there a zonation system of the national park?
- Zonation is a clear and fixed
  - Zonation is existed but it is not fixed or under development or under discussion
  - Zonation is unclear
  - No zonation at all
4. Regular work plan: Is there a regular work plan and is it being implemented?
- A regular work plan exists and all activities are implemented
  - A regular work plan exists and many activities are implemented
  - A regular work plan exists but few of the activities are implemented
  - No regular work plan exists
5. Maps: Are maps available and in the most advance format?
- Maps are available in digital format, GIS-based
  - Maps are available in digital format, but not GIS-based
  - Maps are available, but not in not digital format
  - Reliable maps are not available yet or being developed
6. Management or division of working area: Is the area divided into smaller working areas for more effective management?
- National park is officially divided well for more effective management
  - Working areas are officially divided but not too well
  - Working areas are not officially divided
  - There is no division of the working areas

7. Planning for land and water use: Does land and water use planning recognize the national park and aid the achievement of objectives?
- Adjacent land and water use planning fully takes into account the long term needs of the national park
  - Adjacent land and water use planning partially takes into account the long term needs of the national park
  - Adjacent land and water use planning does not takes into account the long term needs of the national park, but activities are not detrimental the area
  - Adjacent land and water use planning does not take into account the needs of the national park and activities/policies are detrimental to the survival of the area
8. National park regulations: Are appropriate regulations in place to control land use and activities?
- Regulations for controlling inappropriate land use and activities in the national park exist and provide an excellent basis for management
  - Regulations for controlling land use and activities in the national park exist but there are some weaknesses or gaps
  - Some regulations for controlling land use and activities in the national park exist but these are major weaknesses
  - There is no regulation for controlling land use and activities in the national park
9. National park objectives: Is management undertaken according to agreed objectives?
- The national park has agreed objectives and is managed to meet these objectives
  - The national park has agreed objectives, but is only partially managed according to these objectives
  - The national park has agreed objectives, but is not managed according to these objectives
  - No firm objectives have been agreed for the national park
10. National park design: Is the national park the right size and shape to protect species, habitats, ecological processes and water catchments of key conservation concern?
- National park design helps achievement of objectives; it is appropriate for species and habitat conservation; and maintains ecological processes such as surface and groundwater flows at a catchment scale, natural disturbance patterns, etc.
  - National park design is not significantly constraining achievement of objectives, but could be improved
  - Inadequacies in national park design mean that achievement of major objectives is difficult but some mitigating actions are being taken (e.g. agreements with adjacent land owners for wildlife corridors or introduction of appropriate catchment management)
  - Inadequacies in national park design mean achieving the major objectives of the national park is very difficult
11. The alignment of national park's plan with "Regional Action Plan for ASEAN Heritage Parks and Protected Areas": Are both aligned or in agreement?
- The national park's plan in fully aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - Most of the park's plan is aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - Some of the park's plan is aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas

- There is no plan to align park's plan with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas

#### INPUT

12. Staff numbers: Are there enough people employed to manage the national park?
- Staff numbers are adequate for the management needs of the national park
  - Staff numbers are below optimum level for critical management activities
  - Staff numbers are inadequate for critical management activities
  - There are no staff
13. Staff training: Are staff adequately trained to fulfill management objectives?
- Staff training and skills are aligned with the management needs of the national park
  - Staff training and skills are adequate, but could be further improved to fully achieve the objectives of management
  - Staff training and skills are low relative to the needs of the national park
  - Staff lack the skills needed for national park management
14. Law enforcement: Can staff (i.e. those with responsibility for managing the site) enforce national park rules well enough?
- The staff have excellent capacity/resources to enforce national park legislation and regulations
  - The staff have acceptable capacity/resources to enforce national park legislation and regulations but some deficiencies remain
  - There are major deficiencies in staff capacity/resources to enforce national park legislation and regulations (e.g. lack of skills, no patrol budget, lack of institutional support)
  - The staff have no effective capacity/resources to enforce national park legislation and regulations
15. Equipment: Is equipment (including vehicles, tools for communication, GPS, binocular, etc.) sufficient for management needs?
- There are adequate equipment
  - There are equipment, but still some gaps that constrain management
  - There are some equipment but these are inadequate for most management needs
  - There are little or no equipment and facilities for management needs
16. Infrastructures: Is infrastructure (access road/trails, guard post, office buildings, electricity, drinking water, telephone lines, etc.) sufficient for management needs?
- There are adequate infrastructure
  - There are infrastructure, but still some gaps that constrain management
  - There are some infrastructure but these are inadequate for most management needs
  - There are little or no infrastructure for management needs
17. Resource inventory: Do you have enough information to manage the area?
- Information on the critical habitats, species, ecological processes and cultural values of the national park is sufficient to support all areas of planning and decision making
  - Information on the critical habitats, species, ecological processes and cultural values of the national park is sufficient for most key areas of planning and decision making
  - Information on the critical habitats, species, ecological processes and cultural values of the national park is not sufficient to support planning and decision making

- There is little or no information available on the critical habitats, species and cultural values of the national park
18. Current budget: Is the current budget sufficient?
- The available budget is sufficient and meets the full management needs of the national park
  - The available budget is acceptable but could be further improved to fully achieve effective management
  - The available budget is inadequate for basic management needs and presents a serious constraint to the capacity to manage
  - There is no budget for management of the national park
19. Security of budget: Is the budget secure and sustainable?
- There is a secure and sustainable budget for the national park and its management needs
  - There is a reasonably secure and sustainable core budget for regular operation of the national park but many innovations and initiatives are reliant on outside funding
  - There is very little secure budget and the national park could not function adequately without outside funding
  - There is no secure budget for the national park and management is wholly reliant on outside or highly variable funding
20. Other resources (funding, human resources, equipments; including voluntary and in-kind input): Is it relatively easy to get funding from other resources (incl. from international NGOs, international donors, local donors, private sectors, etc.)?
- The possibility to get input from other resources is high
  - The possibility to get input from other resources is not so high
  - The possibility to get input from other resources is small, but still possible
  - There is no possibility and chance to get input from other resource(s) at all

#### PROCESS/IMPLEMENTATION

21. Management of budget: Is the budget managed to meet critical management needs?
- Budget management is excellent and meets management needs
  - Budget management is adequate but could be improved
  - Budget management is poor and constrains effectiveness
  - Budget management is very poor and significantly undermines effectiveness (e.g. late release of budget in financial year)
22. National park boundary demarcation: Is the boundary known and demarcated?
- The boundary of the national park is known by the management authority and local residents/neighboring land users and is appropriately demarcated
  - The boundary of the national park is known by both the management authority and local residents/neighboring land users but is not appropriately demarcated
  - The boundary of the national park is known by the management authority but is not known by local residents/neighboring land users
  - The boundary of the national park is not known by the management authority or local residents/neighboring land users
23. Research: Is there a program of management-orientated survey and research work?
- There is a comprehensive, integrated program of survey and research work, which is relevant to management needs
  - There is considerable survey and research work but it is not directed towards the needs of

- national park management
- There is a small amount of survey and research work but it is not directed towards the needs of national park management
  - There is no survey or research work taking place in the national park
24. Resource management: Is active resource management being undertaken?
- Requirements for active management of critical habitats, species, ecological processes and, cultural values are being substantially or fully implemented
  - Many of the requirements for active management of critical habitats, species, ecological processes and, cultural values are being implemented but some key issues are not being addressed
  - Very few of the requirements for active management of critical habitats, species, ecological processes and cultural values are being implemented
  - Active resource management is not being undertaken
25. Maintenance of equipment: Is equipment adequately maintained?
- Equipment and facilities are well maintained
  - There is basic maintenance of equipment and facilities
  - There is some ad hoc maintenance of equipment and facilities
  - There is little or no maintenance of equipment and facilities
26. Education and awareness: Is there a planned education program linked to the objectives and needs?
- There is an appropriate and fully implemented education and awareness program
  - There is an education and awareness program but it only partly meets needs and could be improved
  - There is a limited and ad hoc education and awareness program
  - There is no education and awareness program
27. State and commercial neighbors: Is there a cooperation with adjacent land and water users?
- There is regular contact between managers and neighboring official or corporate land and water users, and substantial co-operation on management
  - There is contact between managers and neighboring official or corporate land and water users, but only some co-operation
  - There is contact between managers and neighboring official or corporate land and water users but little or no cooperation
  - There is no contact between managers and neighboring official or corporate land and water users
28. Indigenous people: Do indigenous and traditional peoples resident or regularly using the national park have input to management decisions?
- Indigenous and traditional peoples directly participate in all relevant decisions relating to management, e.g. co-management
  - Indigenous and traditional peoples directly contribute to some relevant decisions relating to management but their involvement could be improved
  - Indigenous and traditional peoples have some input into discussions relating to management but no direct role in management
  - Indigenous and traditional peoples have no input into decisions relating to the management of the national park

29. Local communities: Do local communities resident or near the national park have input to management decisions?
- Local communities directly participate in all relevant decisions relating to management, e.g. co-management
  - Local communities directly contribute to some relevant decisions relating to management but their involvement could be improved
  - Local communities have some input into discussions relating to management but no direct role in management
  - Local communities have no input into decisions relating to the management of the national park
30. Monitoring and evaluation: Are management activities monitored against performance?
- A good monitoring and evaluation system exists, is well implemented and used in adaptive management
  - There is an agreed and implemented monitoring and evaluation system but results do not feed back into management
  - There is some ad hoc monitoring and evaluation, but no overall strategy and/or no regular collection of results
  - There is no monitoring and evaluation in the national park
31. Visitor facilities: Are visitor facilities adequate?
- Visitor facilities and services are excellent for current levels of visitation
  - Visitor facilities and services are adequate for current levels of visitation but could be improved
  - Visitor facilities and services are inappropriate for current levels of visitation
  - There are no visitor facilities and services despite an identified need
32. Commercial tourism operators: Do commercial tour operators contribute to national park management?
- There is good co-operation between managers and tourism operators to enhance visitor experiences, and maintain national park values
  - There is limited co-operation between managers and tourism operators to enhance visitor experiences and maintain national park values
  - There is contact between managers and tourism operators but this is largely confined to administrative or regulatory matters
  - There is little or no contact between managers and tourism operators using the national park
33. Fees: If fees (i.e. entry fees or fines) are applied, do they help national park management?
- Fees are collected and make a substantial contribution to the national park and its environs
  - Fees are collected, and make some contribution to the national park and its environs
  - Fees are collected, but make no contribution to the national park or its environs
  - Although fees are theoretically applied, they are not collected
34. Promotion and information dissemination: Is there any effort to promote the national park via various media (incl. via web, radio, newspapers and magazines)?
- Promotion and information dissemination are conducted very intensive
  - Promotion and information dissemination are conducted quite intensive
  - Promotion and information dissemination are conducted, but not planned and not intensive
  - No effort on promotion and information dissemination

35. Staff training: Has the staffs received any training in the past 5 years?
- Staff training is regular, sufficient
  - Staff training is irregular, but sufficient
  - Staff training is irregular, insufficient
  - No staff training
36. Collaboration with the park: Does the national park has collaboration with local/national /international NGOs, local Government, private sectors, universities, etc)?
- The park has several formal collaborations, all are well implemented
  - The park has several formal collaborations, some are not implemented
  - The park has a few or several collaboration, but informal
  - The park has no collaboration

#### OUTPUT

37. Provision of habitat for various wildlife species: Does the park able to provide a reliable and safe habitat for various wildlife species?
- The park provides an excellent habitat and refuge for wildlife
  - The park somehow provides a habitat and refuge for wildlife
  - The park provides not so good habitat and refuge for wildlife because hunting/poaching still exist
  - The park cannot provides a habitat and refuge for wildlife
38. Provision of environmental service: Does the park provide environmental service(s) such as water, good quality of air, etc.
- The park provides excellent environmental services all year long
  - The park provides excellent environmental services at least in one season
  - The park provides less environmental services, either all year long or partly
  - The park unable to provide environmental services
39. Prevention of natural catastrophic events: Does the park able to prevent natural catastrophic events (flood, erosion, landslides, forest fires)?
- The park fully prevents natural catastrophic events
  - The park prevents most natural catastrophic events
  - The park prevents only a few natural catastrophic events
  - The park is unable to prevent natural catastrophic events
40. Prevention of encroachment: Does the park able to prevent encroachment (from agriculture, mining, housing, industry, etc)?
- The park is free from encroachment
  - The park is slightly encroached, efforts to overcome the problem is on going
  - The park is slightly encroached, no efforts to overcome the problem due to various reasons
  - The park is heavily encroached, no efforts to overcome the problem due to various reasons
41. Prevention of Illegal logging: Does the park able to prevent illegal logging?
- The park is free from illegal logging
  - The park is slightly logged illegally, efforts to overcome the problem is on going
  - The park is substantially logged in illegal manner, no efforts to overcome the problem due to various reasons
  - The park is heavily logged illegally, no efforts to overcome the problem due to various reasons

42. Prevention of Illegal wildlife hunting: Does the park able to prevent illegal hunting (poaching) of various wildlife species?
- The park is free from illegal hunting
  - There is a few illegal hunting, efforts to overcome the problem is on going
  - The is substantial illegal hunting, no efforts to overcome the problem due to various reasons
  - The park is heavily hunted illegally, no efforts to overcome the problem due to various reasons
43. Prevention of Illegal extraction of other resources: Does the park able to prevent extraction of other resources (NTFP, sand mining, other inorganic materials)?
- The park is free from illegal extraction of other resources
  - There is a few illegal extraction of other resources, efforts to overcome the problem is on going
  - The is substantial illegal extraction of other resources, no efforts to overcome the problem due to various reasons
  - The other resources in the park is heavily extracted, no efforts to overcome the problem due to various reasons
44. Stakeholder support: Does the national park gain support from various stakeholders?
- The park gains a full support from all stakeholders
  - The park gains support from most stakeholders
  - The park gains support from only from a few stakeholder
  - No support given by the stakeholders to the national park

#### IMPACT/OUTCOME

45. Economic benefit: Is the national park providing economic benefits to local communities, e.g. income, employment, payment for environmental services?
- There is a major flow of economic benefits to local communities from activities associated with the national park
  - There is some flow of economic benefits to local communities
  - Potential economic benefits are recognized and plans to realize these are being developed
  - The national park does not deliver any economic benefits to local communities
46. Condition of values: What is the condition of the important values of the national park as compared to when it was first designated?
- Biodiversity, ecological and cultural values are predominantly intact
  - Some biodiversity, ecological and cultural values are being partially degraded but the most important values have not been significantly impacted
  - Some biodiversity, ecological or cultural values are being severely degraded
  - Many important biodiversity, ecological or cultural values are being severely degraded

QUESTIONNAIRE FOR MANAGEMENT EFFECTIVENESS OF ASEAN HERITAGE PARK  
[LAMPI MARINE NATIONAL PARK, MYANMAR]

*The assessment covers 6 elements: context, planning, input, process/implementation, output, and impact/outcome. Please cross (x) the most appropriate answer. Thank you.*

CONTEXT

1. Legal status: Does the national park have legal status?
- The national park has been formally gazette
  - The national park is in the process of being gazette but the process is still incomplete
  - There is agreement that the national park should be gazette but the process has not yet begun
  - The national park is not gazette

PLANNING

2. Management plan: Is there a management plan and is it being implemented?
- A management plan exists and is being implemented
  - A management plan exists but it is only being partially implemented because of funding constraints or other problems
  - A management plan is being prepared or has been prepared but is not being implemented
  - There is no management plan for the national park
3. Park zonation: Is there a zonation system of the national park?
- Zonation is a clear and fixed
  - Zonation is existed but it is not fixed or under development or under discussion
  - Zonation is unclear
  - No zonation at all
4. Regular work plan: Is there a regular work plan and is it being implemented?
- A regular work plan exists and all activities are implemented
  - A regular work plan exists and many activities are implemented
  - A regular work plan exists but few of the activities are implemented
  - No regular work plan exists
5. Maps: Are maps available and in the most advance format?
- Maps are available in digital format, GIS-based
  - Maps are available in digital format, but not GIS-based
  - Maps are available, but not in not digital format
  - Reliable maps are not available yet or being developed
6. Management or division of working area: Is the area divided into smaller working areas for more effective management?
- National park is officially divided well for more effective management
  - Working areas are officially divided but not too well
  - Working areas are not officially divided
  - There is no division of the working areas

7. Planning for land and water use: Does land and water use planning recognize the national park and aid the achievement of objectives?
- Adjacent land and water use planning fully takes into account the long term needs of the national park
  - Adjacent land and water use planning partially takes into account the long term needs of the national park
  - Adjacent land and water use planning does not takes into account the long term needs of the national park, but activities are not detrimental the area
  - Adjacent land and water use planning does not take into account the needs of the national park and activities/policies are detrimental to the survival of the area
8. National park regulations: Are appropriate regulations in place to control land use and activities?
- Regulations for controlling inappropriate land use and activities in the national park exist and provide an excellent basis for management
  - Regulations for controlling land use and activities in the national park exist but there are some weaknesses or gaps
  - Some regulations for controlling land use and activities in the national park exist but these are major weaknesses
  - There is no regulation for controlling land use and activities in the national park
9. National park objectives: Is management undertaken according to agreed objectives?
- The national park has agreed objectives and is managed to meet these objectives
  - The national park has agreed objectives, but is only partially managed according to these objectives
  - The national park has agreed objectives, but is not managed according to these objectives
  - No firm objectives have been agreed for the national park
10. National park design: Is the national park the right size and shape to protect species, habitats, ecological processes and water catchments of key conservation concern?
- National park design helps achievement of objectives; it is appropriate for species and habitat conservation; and maintains ecological processes such as surface and groundwater flows at a catchment scale, natural disturbance patterns, etc.
  - National park design is not significantly constraining achievement of objectives, but could be improved
  - Inadequacies in national park design mean that achievement of major objectives is difficult but some mitigating actions are being taken (e.g. agreements with adjacent land owners for wildlife corridors or introduction of appropriate catchment management)
  - Inadequacies in national park design mean achieving the major objectives of the national park is very difficult
11. The alignment of national park's plan with "Regional Action Plan for ASEAN Heritage Parks and Protected Areas": Are both aligned or in agreement?
- The national park's plan in fully aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - Most of the park's plan is aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - Some of the park's plan is aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas

- There is no plan to align park's plan with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas

#### INPUT

12. Staff numbers: Are there enough people employed to manage the national park?
- Staff numbers are adequate for the management needs of the national park
  - Staff numbers are below optimum level for critical management activities
  - Staff numbers are inadequate for critical management activities
  - There are no staff
13. Staff training: Are staff adequately trained to fulfill management objectives?
- Staff training and skills are aligned with the management needs of the national park
  - Staff training and skills are adequate, but could be further improved to fully achieve the objectives of management
  - Staff training and skills are low relative to the needs of the national park
  - Staff lack the skills needed for national park management
14. Law enforcement: Can staff (i.e. those with responsibility for managing the site) enforce national park rules well enough?
- The staff have excellent capacity/resources to enforce national park legislation and regulations
  - The staff have acceptable capacity/resources to enforce national park legislation and regulations but some deficiencies remain
  - There are major deficiencies in staff capacity/resources to enforce national park legislation and regulations (e.g. lack of skills, no patrol budget, lack of institutional support)
  - The staff have no effective capacity/resources to enforce national park legislation and regulations
15. Equipment: Is equipment (including vehicles, tools for communication, GPS, binocular, etc.) sufficient for management needs?
- There are adequate equipment
  - There are equipment, but still some gaps that constrain management
  - There are some equipment but these are inadequate for most management needs
  - There are little or no equipment and facilities for management needs
16. Infrastructures: Is infrastructure (access road/trails, guard post, office buildings, electricity, drinking water, telephone lines, etc.) sufficient for management needs?
- There are adequate infrastructure
  - There are infrastructure, but still some gaps that constrain management
  - There are some infrastructure but these are inadequate for most management needs
  - There are little or no infrastructure for management needs
17. Resource inventory: Do you have enough information to manage the area?
- Information on the critical habitats, species, ecological processes and cultural values of the national park is sufficient to support all areas of planning and decision making
  - Information on the critical habitats, species, ecological processes and cultural values of the national park is sufficient for most key areas of planning and decision making
  - Information on the critical habitats, species, ecological processes and cultural values of the national park is not sufficient to support planning and decision making

- There is little or no information available on the critical habitats, species and cultural values of the national park
18. Current budget: Is the current budget sufficient?
- The available budget is sufficient and meets the full management needs of the national park
  - The available budget is acceptable but could be further improved to fully achieve effective management
  - The available budget is inadequate for basic management needs and presents a serious constraint to the capacity to manage
  - There is no budget for management of the national park
19. Security of budget: Is the budget secure and sustainable?
- There is a secure and sustainable budget for the national park and its management needs
  - There is a reasonably secure and sustainable core budget for regular operation of the national park but many innovations and initiatives are reliant on outside funding
  - There is very little secure budget and the national park could not function adequately without outside funding
  - There is no secure budget for the national park and management is wholly reliant on outside or highly variable funding
20. Other resources (funding, human resources, equipments; including voluntary and in-kind input): Is it relatively easy to get funding from other resources (incl. from international NGOs, international donors, local donors, private sectors, etc.)?
- The possibility to get input from other resources is high
  - The possibility to get input from other resources is not so high
  - The possibility to get input from other resources is small, but still possible
  - There is no possibility and chance to get input from other resource(s) at all

#### PROCESS/IMPLEMENTATION

21. Management of budget: Is the budget managed to meet critical management needs?
- Budget management is excellent and meets management needs
  - Budget management is adequate but could be improved
  - Budget management is poor and constrains effectiveness
  - Budget management is very poor and significantly undermines effectiveness (e.g. late release of budget in financial year)
22. National park boundary demarcation: Is the boundary known and demarcated?
- The boundary of the national park is known by the management authority and local residents/neighboring land users and is appropriately demarcated
  - The boundary of the national park is known by both the management authority and local residents/neighboring land users but is not appropriately demarcated
  - The boundary of the national park is known by the management authority but is not known by local residents/neighboring land users
  - The boundary of the national park is not known by the management authority or local residents/neighboring land users
23. Research: Is there a program of management-orientated survey and research work?
- There is a comprehensive, integrated program of survey and research work, which is relevant to management needs
  - There is considerable survey and research work but it is not directed towards the needs of

- national park management
- There is a small amount of survey and research work but it is not directed towards the needs of national park management
  - There is no survey or research work taking place in the national park
24. Resource management: Is active resource management being undertaken?
- Requirements for active management of critical habitats, species, ecological processes and, cultural values are being substantially or fully implemented
  - Many of the requirements for active management of critical habitats, species, ecological processes and, cultural values are being implemented but some key issues are not being addressed
  - Very few of the requirements for active management of critical habitats, species, ecological processes and cultural values are being implemented
  - Active resource management is not being undertaken
25. Maintenance of equipment: Is equipment adequately maintained?
- Equipment and facilities are well maintained
  - There is basic maintenance of equipment and facilities
  - There is some ad hoc maintenance of equipment and facilities
  - There is little or no maintenance of equipment and facilities
26. Education and awareness: Is there a planned education program linked to the objectives and needs?
- There is an appropriate and fully implemented education and awareness program
  - There is an education and awareness program but it only partly meets needs and could be improved
  - There is a limited and ad hoc education and awareness program
  - There is no education and awareness program
27. State and commercial neighbors: Is there a cooperation with adjacent land and water users?
- There is regular contact between managers and neighboring official or corporate land and water users, and substantial co-operation on management
  - There is contact between managers and neighboring official or corporate land and water users, but only some co-operation
  - There is contact between managers and neighboring official or corporate land and water users but little or no cooperation
  - There is no contact between managers and neighboring official or corporate land and water users
28. Indigenous people: Do indigenous and traditional peoples resident or regularly using the national park have input to management decisions?
- Indigenous and traditional peoples directly participate in all relevant decisions relating to management, e.g. co-management
  - Indigenous and traditional peoples directly contribute to some relevant decisions relating to management but their involvement could be improved
  - Indigenous and traditional peoples have some input into discussions relating to management but no direct role in management
  - Indigenous and traditional peoples have no input into decisions relating to the management of the national park

29. Local communities: Do local communities resident or near the national park have input to management decisions?
- Local communities directly participate in all relevant decisions relating to management, e.g. co-management
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  - Local communities have some input into discussions relating to management but no direct role in management
  - Local communities have no input into decisions relating to the management of the national park
30. Monitoring and evaluation: Are management activities monitored against performance?
- A good monitoring and evaluation system exists, is well implemented and used in adaptive management
  - There is an agreed and implemented monitoring and evaluation system but results do not feed back into management
  - There is some ad hoc monitoring and evaluation, but no overall strategy and/or no regular collection of results
  - There is no monitoring and evaluation in the national park
31. Visitor facilities: Are visitor facilities adequate?
- Visitor facilities and services are excellent for current levels of visitation
  - Visitor facilities and services are adequate for current levels of visitation but could be improved
  - Visitor facilities and services are inappropriate for current levels of visitation
  - There are no visitor facilities and services despite an identified need
32. Commercial tourism operators: Do commercial tour operators contribute to national park management?
- There is good co-operation between managers and tourism operators to enhance visitor experiences, and maintain national park values
  - There is limited co-operation between managers and tourism operators to enhance visitor experiences and maintain national park values
  - There is contact between managers and tourism operators but this is largely confined to administrative or regulatory matters
  - There is little or no contact between managers and tourism operators using the national park
33. Fees: If fees (i.e. entry fees or fines) are applied, do they help national park management?
- Fees are collected and make a substantial contribution to the national park and its environs
  - Fees are collected, and make some contribution to the national park and its environs
  - Fees are collected, but make no contribution to the national park or its environs
  - Although fees are theoretically applied, they are not collected
34. Promotion and information dissemination: Is there any effort to promote the national park via various media (incl. via web, radio, newspapers and magazines)?
- Promotion and information dissemination are conducted very intensive
  - Promotion and information dissemination are conducted quite intensive
  - Promotion and information dissemination are conducted, but not planned and not intensive
  - No effort on promotion and information dissemination

35. Staff training: Has the staffs received any training in the past 5 years?
- Staff training is regular, sufficient
  - Staff training is irregular, but sufficient
  - Staff is irregular, insufficient
  - No staff training
36. Collaboration with the park: Does the national park has collaboration with local/national /international NGOs, local Government, private sectors, universities, etc)?
- The park has several formal collaborations, all are well implemented
  - The park has several formal collaborations, some are not implemented
  - The park has a few or several collaboration, but informal
  - The park has no collaboration

#### OUTPUT

37. Provision of habitat for various wildlife species: Does the park able to provide a reliable and safe habitat for various wildlife species?
- The park provides an excellent habitat and refuge for wildlife
  - The park somehow provides a habitat and refuge for wildlife
  - The park provides not so good habitat and refuge for wildlife because hunting/poaching still exist
  - The park cannot provides a habitat and refuge for wildlife
38. Provision of environmental service: Does the park provide environmental service(s) such as water, good quality of air, etc.
- The park provides excellent environmental services all year long
  - The park provides excellent environmental services at least in one season
  - The park provides less environmental services, either all year long or partly
  - The park unable to provide environmental services
39. Prevention of natural catastrophic events: Does the park able to prevent natural catastrophic events (flood, erosion, landslides, forest fires)?
- The park fully prevents natural catastrophic events
  - The park prevents most natural catastrophic events
  - The park prevents only a few natural catastrophic events
  - The park is unable to prevent natural catastrophic events
40. Prevention of encroachment: Does the park able to prevent encroachment (from agriculture, mining, housing, industry, etc)?
- The park is free from encroachment
  - The park is slightly encroached, efforts to overcome the problem is on going
  - The park is slightly encroached, no efforts to overcome the problem due to various reasons
  - The park is heavily encroached, no efforts to overcome the problem due to various reasons
41. Prevention of Illegal logging: Does the park able to prevent illegal logging?
- The park is free from illegal logging
  - The park is slightly logged illegally, efforts to overcome the problem is on going
  - The park is substantially logged in illegal manner, no efforts to overcome the problem due to various reasons
  - The park is heavily logged illegally, no efforts to overcome the problem due to various reasons

42. Prevention of Illegal wildlife hunting: Does the park able to prevent illegal hunting (poaching) of various wildlife species?
- The park is free from illegal hunting
  - There is a few illegal hunting, efforts to overcome the problem is on going
  - The is substantial illegal hunting, no efforts to overcome the problem due to various reasons
  - The park is heavily hunted illegally, no efforts to overcome the problem due to various reasons
43. Prevention of Illegal extraction of other resources: Does the park able to prevent extraction of other resources (NTPF, sand mining, other inorganic materials)?
- The park is free from illegal extraction of other resources
  - There is a few illegal extraction of other resources, efforts to overcome the problem is on going
  - The is substantial illegal extraction of other resources, no efforts to overcome the problem due to various reasons
  - The other resources in the park is heavily extracted, no efforts to overcome the problem due to various reasons
44. Stakeholder support: Does the national park gain support from various stakeholders?
- The park gains a full support from all stakeholders
  - The park gains support from most stakeholders
  - The park gains support from only from a few stakeholder
  - No support given by the stakeholders to the national park

#### IMPACT/OUTCOME

45. Economic benefit: Is the national park providing economic benefits to local communities, e.g. income, employment, payment for environmental services?
- There is a major flow of economic benefits to local communities from activities associated with the national park
  - There is some flow of economic benefits to local communities
  - Potential economic benefits are recognized and plans to realize these are being developed
  - The national park does not deliver any economic benefits to local communities
46. Condition of values: What is the condition of the important values of the national park as compared to when it was first designated?
- Biodiversity, ecological and cultural values are predominantly intact
  - Some biodiversity, ecological and cultural values are being partially degraded but the most important values have not been significantly impacted
  - Some biodiversity, ecological or cultural values are being severely degraded
  - Many important biodiversity, ecological or cultural values are being severely degraded

QUESTIONNAIRE FOR MANAGEMENT EFFECTIVENESS OF ASEAN HERITAGE PARK  
IGLIT-BACO NATIONAL PARK, PHILIPPINES

*The assessment covers 6 elements: context, planning, input, process/implementation, output, and impact/outcome. Please cross (x) the most appropriate answer. Thank you.*

CONTEXT

1. Legal status: Does the national park have legal status?
- The national park has been formally gazette
  - The national park is in the process of being gazette but the process is still incomplete
  - There is agreement that the national park should be gazette but the process has not yet begun
  - The national park is not gazette

PLANNING

2. Management plan: Is there a management plan and is it being implemented?
- A management plan exists and is being implemented
  - A management plan exists but it is only being partially implemented because of funding constraints or other problems
  - A management plan is being prepared or has been prepared but is not being implemented
  - There is no management plan for the national park
3. Park zonation: Is there a zonation system of the national park?
- Zonation is a clear and fixed
  - Zonation is existed but it is not fixed or under development or under discussion
  - Zonation is unclear
  - No zonation at all
4. Regular work plan: Is there a regular work plan and is it being implemented?
- A regular work plan exists and all activities are implemented
  - A regular work plan exists and many activities are implemented
  - A regular work plan exists but few of the activities are implemented
  - No regular work plan exists
5. Maps: Are maps available and in the most advance format?
- Maps are available in digital format, GIS-based
  - Maps are available in digital format, but not GIS-based
  - Maps are available, but not in not digital format
  - Reliable maps are not available yet or being developed
6. Management or division of working area: Is the area divided into smaller working areas for more effective management?
- National park is officially divided well for more effective management
  - Working areas are officially divided but not too well
  - Working areas are not officially divided
  - There is no division of the working areas

7. Planning for land and water use: Does land and water use planning recognize the national park and aid the achievement of objectives?
- Adjacent land and water use planning fully takes into account the long term needs of the national park
  - Adjacent land and water use planning partially takes into account the long term needs of the national park
  - Adjacent land and water use planning does not take into account the long term needs of the national park, but activities are not detrimental to the area
  - Adjacent land and water use planning does not take into account the needs of the national park and activities/policies are detrimental to the survival of the area
8. National park regulations: Are appropriate regulations in place to control land use and activities?
- Regulations for controlling inappropriate land use and activities in the national park exist and provide an excellent basis for management
  - Regulations for controlling land use and activities in the national park exist but there are some weaknesses or gaps
  - Some regulations for controlling land use and activities in the national park exist but these are major weaknesses
  - There is no regulation for controlling land use and activities in the national park
9. National park objectives: Is management undertaken according to agreed objectives?
- The national park has agreed objectives and is managed to meet these objectives
  - The national park has agreed objectives, but is only partially managed according to these objectives
  - The national park has agreed objectives, but is not managed according to these objectives
  - No firm objectives have been agreed for the national park
10. National park design: Is the national park the right size and shape to protect species, habitats, ecological processes and water catchments of key conservation concern?
- National park design helps achievement of objectives; it is appropriate for species and habitat conservation; and maintains ecological processes such as surface and groundwater flows at a catchment scale, natural disturbance patterns, etc.
  - National park design is not significantly constraining achievement of objectives, but could be improved
  - Inadequacies in national park design mean that achievement of major objectives is difficult but some mitigating actions are being taken (e.g. agreements with adjacent land owners for wildlife corridors or introduction of appropriate catchment management)
  - Inadequacies in national park design mean achieving the major objectives of the national park is very difficult
11. The alignment of national park's plan with "Regional Action Plan for ASEAN Heritage Parks and Protected Areas": Are both aligned or in agreement?
- The national park's plan is fully aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - Most of the park's plan is aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - Some of the park's plan is aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - There is no plan to align park's plan with the Regional Action Plan for ASEAN Heritage Parks

and Protected Areas

INPUT

12. Staff numbers: Are there enough people employed to manage the national park?
- Staff numbers are adequate for the management needs of the national park
  - Staff numbers are below optimum level for critical management activities
  - Staff numbers are inadequate for critical management activities
  - There are no staff
13. Staff training: Are staff adequately trained to fulfill management objectives?
- Staff training and skills are aligned with the management needs of the national park
  - Staff training and skills are adequate, but could be further improved to fully achieve the objectives of management
  - Staff training and skills are low relative to the needs of the national park
  - Staff lack the skills needed for national park management
14. Law enforcement: Can staff (i.e. those with responsibility for managing the site) enforce national park rules well enough?
- The staff have excellent capacity/resources to enforce national park legislation and regulations
  - The staff have acceptable capacity/resources to enforce national park legislation and regulations but some deficiencies remain
  - There are major deficiencies in staff capacity/resources to enforce national park legislation and regulations (e.g. lack of skills, no patrol budget, lack of institutional support)
  - The staff have no effective capacity/resources to enforce national park legislation and regulations
15. Equipment: Is equipment (including vehicles, tools for communication, GPS, binocular, etc.) sufficient for management needs?
- There are adequate equipment
  - There are equipment, but still some gaps that constrain management
  - There are some equipment but these are inadequate for most management needs
  - There are little or no equipment and facilities for management needs
16. Infrastructures: Is infrastructure (access road/trails, guard post, office buildings, electricity, drinking water, telephone lines, etc.) sufficient for management needs?
- There are adequate infrastructure
  - There are infrastructure, but still some gaps that constrain management
  - There are some infrastructure but these are inadequate for most management needs
  - There are little or no infrastructure for management needs
17. Resource inventory: Do you have enough information to manage the area?
- Information on the critical habitats, species, ecological processes and cultural values of the national park is sufficient to support all areas of planning and decision making
  - Information on the critical habitats, species, ecological processes and cultural values of the national park is sufficient for most key areas of planning and decision making
  - Information on the critical habitats, species, ecological processes and cultural values of the national park is not sufficient to support planning and decision making
  - There is little or no information available on the critical habitats, species and cultural values of the national park

18. Current budget: Is the current budget sufficient?
- The available budget is sufficient and meets the full management needs of the national park
  - The available budget is acceptable but could be further improved to fully achieve effective management
  - The available budget is inadequate for basic management needs and presents a serious constraint to the capacity to manage
  - There is no budget for management of the national park
19. Security of budget: Is the budget secure and sustainable?
- There is a secure and sustainable budget for the national park and its management needs
  - There is a reasonably secure and sustainable core budget for regular operation of the national park but many innovations and initiatives are reliant on outside funding
  - There is very little secure budget and the national park could not function adequately without outside funding
  - There is no secure budget for the national park and management is wholly reliant on outside or highly variable funding
20. Other resources (funding, human resources, equipments; including voluntary and in-kind input): Is it relatively easy to get funding from other resources (incl. from international NGOs, international donors, local donors, private sectors, etc.)?
- The possibility to get input from other resources is high
  - The possibility to get input from other resources is not so high
  - The possibility to get input from other resources is small, but still possible
  - There is no possibility and chance to get input from other resource(s) at all

#### PROCESS/IMPLEMENTATION

21. Management of budget: Is the budget managed to meet critical management needs?
- Budget management is excellent and meets management needs
  - Budget management is adequate but could be improved
  - Budget management is poor and constrains effectiveness
  - Budget management is very poor and significantly undermines effectiveness (e.g. late release of budget in financial year)
22. National park boundary demarcation: Is the boundary known and demarcated?
- The boundary of the national park is known by the management authority and local residents/neighboring land users and is appropriately demarcated
  - The boundary of the national park is known by both the management authority and local residents/neighboring land users but is not appropriately demarcated
  - The boundary of the national park is known by the management authority but is not known by local residents/neighboring land users
  - The boundary of the national park is not known by the management authority or local residents/neighboring land users
23. Research: Is there a program of management-orientated survey and research work?
- There is a comprehensive, integrated program of survey and research work, which is relevant to management needs
  - There is considerable survey and research work but it is not directed towards the needs of national park management
  - There is a small amount of survey and research work but it is not directed towards the needs

- of national park management
  - There is no survey or research work taking place in the national park
24. Resource management: Is active resource management being undertaken?
- Requirements for active management of critical habitats, species, ecological processes and, cultural values are being substantially or fully implemented
  - Many of the requirements for active management of critical habitats, species, ecological processes and, cultural values are being implemented but some key issues are not being addressed
  - Very few of the requirements for active management of critical habitats, species, ecological processes and cultural values are being implemented
  - Active resource management is not being undertaken
25. Maintenance of equipment: Is equipment adequately maintained?
- Equipment and facilities are well maintained
  - There is basic maintenance of equipment and facilities
  - There is some ad hoc maintenance of equipment and facilities
  - There is little or no maintenance of equipment and facilities
26. Education and awareness: Is there a planned education program linked to the objectives and needs?
- There is an appropriate and fully implemented education and awareness program
  - There is an education and awareness program but it only partly meets needs and could be improved
  - There is a limited and ad hoc education and awareness program
  - There is no education and awareness program
27. State and commercial neighbors: Is there a cooperation with adjacent land and water users?
- There is regular contact between managers and neighboring official or corporate land and water users, and substantial co-operation on management
  - There is contact between managers and neighboring official or corporate land and water users, but only some co-operation
  - There is contact between managers and neighboring official or corporate land and water users but little or no cooperation
  - There is no contact between managers and neighboring official or corporate land and water users
28. Indigenous people: Do indigenous and traditional peoples resident or regularly using the national park have input to management decisions?
- Indigenous and traditional peoples directly participate in all relevant decisions relating to management, e.g. co-management
  - Indigenous and traditional peoples directly contribute to some relevant decisions relating to management but their involvement could be improved
  - Indigenous and traditional peoples have some input into discussions relating to management but no direct role in management
  - Indigenous and traditional peoples have no input into decisions relating to the management of the national park
29. Local communities: Do local communities resident or near the national park have input to management decisions?
- Local communities directly participate in all relevant decisions relating to management, e.g.

- co-management
- Local communities directly contribute to some relevant decisions relating to management but their involvement could be improved
  - Local communities have some input into discussions relating to management but no direct role in management
  - Local communities have no input into decisions relating to the management of the national park
30. Monitoring and evaluation: Are management activities monitored against performance?
- A good monitoring and evaluation system exists, is well implemented and used in adaptive management
  - There is an agreed and implemented monitoring and evaluation system but results do not feed back into management
  - There is some ad hoc monitoring and evaluation, but no overall strategy and/or no regular collection of results
  - There is no monitoring and evaluation in the national park
31. Visitor facilities: Are visitor facilities adequate?
- Visitor facilities and services are excellent for current levels of visitation
  - Visitor facilities and services are adequate for current levels of visitation but could be improved
  - Visitor facilities and services are inappropriate for current levels of visitation
  - There are no visitor facilities and services despite an identified need
32. Commercial tourism operators: Do commercial tour operators contribute to national park management?
- There is good co-operation between managers and tourism operators to enhance visitor experiences, and maintain national park values
  - There is limited co-operation between managers and tourism operators to enhance visitor experiences and maintain national park values
  - There is contact between managers and tourism operators but this is largely confined to administrative or regulatory matters
  - There is little or no contact between managers and tourism operators using the national park
33. Fees: If fees (i.e. entry fees or fines) are applied, do they help national park management?
- Fees are collected and make a substantial contribution to the national park and its environs
  - Fees are collected, and make some contribution to the national park and its environs
  - Fees are collected, but make no contribution to the national park or its environs
  - Although fees are theoretically applied, they are not collected
34. Promotion and information dissemination: Is there any effort to promote the national park via various media (incl. via web, radio, newspapers and magazines)?
- Promotion and information dissemination are conducted very intensive
  - Promotion and information dissemination are conducted quite intensive
  - Promotion and information dissemination are conducted, but not planned and not intensive
  - No effort on promotion and information dissemination
35. Staff training: Has the staffs received any training in the past 5 years?
- Staff training is regular, sufficient
  - Staff training is irregular, but sufficient

- Staff is irregular, insufficient
- No staff training

36. Collaboration with the park: Does the national park has collaboration with local/national /international NGOs, local Government, private sectors, universities, etc)?
- The park has several formal collaborations, all are well implemented
  - The park has several formal collaborations, some are not implemented
  - The park has a few or several collaboration, but informal
  - The park has no collaboration

#### OUTPUT

37. Provision of habitat for various wildlife species: Does the park able to provide a reliable and safe habitat for various wildlife species?
- The park provides an excellent habitat and refuge for wildlife
  - The park somehow provides a habitat and refuge for wildlife
  - The park provides not so good habitat and refuge for wildlife because hunting/poaching still exist
  - The park cannot provides a habitat and refuge for wildlife
38. Provision of environmental service: Does the park provide environmental service(s) such as water, good quality of air, etc.
- The park provides excellent environmental services all year long
  - The park provides excellent environmental services at least in one season
  - The park provides less environmental services, either all year long or partly
  - The park unable to provide environmental services
39. Prevention of natural catastrophic events: Does the park able to prevent natural catastrophic events (flood, erosion, landslides, forest fires)?
- The park fully prevents natural catastrophic events
  - The park prevents most natural catastrophic events
  - The park prevents only a few natural catastrophic events
  - The park is unable to prevent natural catastrophic events
40. Prevention of encroachment: Does the park able to prevent encroachment (from agriculture, mining, housing, industry, etc)?
- The park is free from encroachment
  - The park is slightly encroached, efforts to overcome the problem is on going
  - The park is slightly encroached, no efforts to overcome the problem due to various reasons
  - The park is heavily encroached, no efforts to overcome the problem due to various reasons
41. Prevention of Illegal logging: Does the park able to prevent illegal logging?
- The park is free from illegal logging
  - The park is slightly logged illegally, efforts to overcome the problem is on going
  - The park is substantially logged in illegal manner, no efforts to overcome the problem due to various reasons
  - The park is heavily logged illegally, no efforts to overcome the problem due to various reasons
42. Prevention of Illegal wildlife hunting: Does the park able to prevent illegal hunting (poaching) of various wildlife species?

- The park is free from illegal hunting
  - There is a few illegal hunting, efforts to overcome the problem is on going
  - The is substantial illegal hunting, no efforts to overcome the problem due to various reasons
  - The park is heavily hunted illegally, no efforts to overcome the problem due to various reasons
43. Prevention of Illegal extraction of other resources: Does the park able to prevent extraction of other resources (NTFP, sand mining, other inorganic materials)?
- The park is free from illegal extraction of other resources
  - There is a few illegal extraction of other resources, efforts to overcome the problem is on going
  - The is substantial illegal extraction of other resources, no efforts to overcome the problem due to various reasons
  - The other resources in the park is heavily extracted, no efforts to overcome the problem due to various reasons
44. Stakeholder support: Does the national park gain support from various stakeholders?
- The park gains a full support from all stakeholders
  - The park gains support from most stakeholders
  - The park gains support from only from a few stakeholder
  - No support given by the stakeholders to the national park

#### IMPACT/OUTCOME

45. Economic benefit: Is the national park providing economic benefits to local communities, e.g. income, employment, payment for environmental services?
- There is a major flow of economic benefits to local communities from activities associated with the national park
  - There is some flow of economic benefits to local communities
  - Potential economic benefits are recognized and plans to realize these are being developed
  - The national park does not deliver any economic benefits to local communities
46. Condition of values: What is the condition of the important values of the national park as compared to when it was first designated?
- Biodiversity, ecological and cultural values are predominantly intact
  - Some biodiversity, ecological and cultural values are being partially degraded but the most important values have not been significantly impacted
  - Some biodiversity, ecological or cultural values are being severely degraded
  - Many important biodiversity, ecological or cultural values are being severely degraded

QUESTIONNAIRE FOR MANAGEMENT EFFECTIVENESS OF ASEAN HERITAGE PARK  
MOUNT KITANGLAD RANGE NATURAL PARK

*The assessment covers 6 elements: context, planning, input, process/implementation, output, and impact/outcome. Please cross (x) the most appropriate answer. Thank you.*

CONTEXT

1. Legal status: Does the national park have legal status?
- The national park has been formally gazette
  - The national park is in the process of being gazette but the process is still incomplete
  - There is agreement that the national park should be gazette but the process has not yet begun
  - The national park is not gazette

PLANNING

2. Management plan: Is there a management plan and is it being implemented?
- A management plan exists and is being implemented
  - A management plan exists but it is only being partially implemented because of funding constraints or other problems
  - A management plan is being prepared or has been prepared but is not being implemented
  - There is no management plan for the national park
3. Park zonation: Is there a zonation system of the national park?
- Zonation is a clear and fixed
  - Zonation is existed but it is not fixed or under development or under discussion
  - Zonation is unclear
  - No zonation at all
4. Regular work plan: Is there a regular work plan and is it being implemented?
- A regular work plan exists and all activities are implemented
  - A regular work plan exists and many activities are implemented
  - A regular work plan exists but few of the activities are implemented
  - No regular work plan exists
5. Maps: Are maps available and in the most advance format?
- Maps are available in digital format, GIS-based
  - Maps are available in digital format, but not GIS-based
  - Maps are available, but not in not digital format
  - Reliable maps are not available yet or being developed
6. Management or division of working area: Is the area divided into smaller working areas for more effective management?
- National park is officially divided well for more effective management
  - Working areas are officially divided but not too well
  - Working areas are not officially divided
  - There is no division of the working areas

7. Planning for land and water use: Does land and water use planning recognize the national park and aid the achievement of objectives?
  - Adjacent land and water use planning fully takes into account the long term needs of the national park
  - Adjacent land and water use planning partially takes into account the long term needs of the national park
  - Adjacent land and water use planning does not takes into account the long term needs of the national park, but activities are not detrimental the area
  - Adjacent land and water use planning does not take into account the needs of the national park and activities/policies are detrimental to the survival of the area
  
8. National park regulations: Are appropriate regulations in place to control land use and activities?
  - Regulations for controlling inappropriate land use and activities in the national park exist and provide an excellent basis for management
  - Regulations for controlling land use and activities in the national park exist but there are some weaknesses or gaps
  - Some regulations for controlling land use and activities in the national park exist but these are major weaknesses
  - There is no regulation for controlling land use and activities in the national park
  
9. National park objectives: Is management undertaken according to agreed objectives?
  - The national park has agreed objectives and is managed to meet these objectives
  - The national park has agreed objectives, but is only partially managed according to these objectives
  - The national park has agreed objectives, but is not managed according to these objectives
  - No firm objectives have been agreed for the national park
  
10. National park design: Is the national park the right size and shape to protect species, habitats, ecological processes and water catchments of key conservation concern?
  - National park design helps achievement of objectives; it is appropriate for species and habitat conservation; and maintains ecological processes such as surface and groundwater flows at a catchment scale, natural disturbance patterns, etc.
  - National park design is not significantly constraining achievement of objectives, but could be improved
  - Inadequacies in national park design mean that achievement of major objectives is difficult but some mitigating actions are being taken (e.g. agreements with adjacent land owners for wildlife corridors or introduction of appropriate catchment management)
  - Inadequacies in national park design mean achieving the major objectives of the national park is very difficult
  
11. The alignment of national park's plan with "Regional Action Plan for ASEAN Heritage Parks and Protected Areas": Are both aligned or in agreement?
  - The national park's plan in fully aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - Most of the park's plan is aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - Some of the park's plan is aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas

- There is no plan to align park's plan with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas

#### INPUT

12. Staff numbers: Are there enough people employed to manage the national park?
- Staff numbers are adequate for the management needs of the national park
  - Staff numbers are below optimum level for critical management activities
  - Staff numbers are inadequate for critical management activities
  - There are no staff
13. Staff training: Are staff adequately trained to fulfill management objectives?
- Staff training and skills are aligned with the management needs of the national park
  - Staff training and skills are adequate, but could be further improved to fully achieve the objectives of management
  - Staff training and skills are low relative to the needs of the national park
  - Staff lack the skills needed for national park management
14. Law enforcement: Can staff (i.e. those with responsibility for managing the site) enforce national park rules well enough?
- The staff have excellent capacity/resources to enforce national park legislation and regulations
  - The staff have acceptable capacity/resources to enforce national park legislation and regulations but some deficiencies remain
  - There are major deficiencies in staff capacity/resources to enforce national park legislation and regulations (e.g. lack of skills, no patrol budget, lack of institutional support)
  - The staff have no effective capacity/resources to enforce national park legislation and regulations
15. Equipment: Is equipment (including vehicles, tools for communication, GPS, binocular, etc.) sufficient for management needs?
- There are adequate equipment
  - There are equipment, but still some gaps that constrain management
  - There are some equipment but these are inadequate for most management needs
  - There are little or no equipment and facilities for management needs
16. Infrastructures: Is infrastructure (access road/trails, guard post, office buildings, electricity, drinking water, telephone lines, etc.) sufficient for management needs?
- There are adequate infrastructure
  - There are infrastructure, but still some gaps that constrain management
  - There are some infrastructure but these are inadequate for most management needs
  - There are little or no infrastructure for management needs
17. Resource inventory: Do you have enough information to manage the area?
- Information on the critical habitats, species, ecological processes and cultural values of the national park is sufficient to support all areas of planning and decision making
  - Information on the critical habitats, species, ecological processes and cultural values of the national park is sufficient for most key areas of planning and decision making
  - Information on the critical habitats, species, ecological processes and cultural values of the national park is not sufficient to support planning and decision making

- There is little or no information available on the critical habitats, species and cultural values of the national park
18. Current budget: Is the current budget sufficient?
- The available budget is sufficient and meets the full management needs of the national park
  - The available budget is acceptable but could be further improved to fully achieve effective management
  - The available budget is inadequate for basic management needs and presents a serious constraint to the capacity to manage
  - There is no budget for management of the national park
19. Security of budget: Is the budget secure and sustainable?
- There is a secure and sustainable budget for the national park and its management needs
  - There is a reasonably secure and sustainable core budget for regular operation of the national park but many innovations and initiatives are reliant on outside funding
  - There is very little secure budget and the national park could not function adequately without outside funding
  - There is no secure budget for the national park and management is wholly reliant on outside or highly variable funding
20. Other resources (funding, human resources, equipments; including voluntary and in-kind input): Is it relatively easy to get funding from other resources (incl. from international NGOs, international donors, local donors, private sectors, etc.)?
- The possibility to get input from other resources is high
  - The possibility to get input from other resources is not so high
  - The possibility to get input from other resources is small, but still possible
  - There is no possibility and chance to get input from other resource(s) at all

#### PROCESS/IMPLEMENTATION

21. Management of budget: Is the budget managed to meet critical management needs?
- Budget management is excellent and meets management needs
  - Budget management is adequate but could be improved
  - Budget management is poor and constrains effectiveness
  - Budget management is very poor and significantly undermines effectiveness (e.g. late release of budget in financial year)
22. National park boundary demarcation: Is the boundary known and demarcated?
- The boundary of the national park is known by the management authority and local residents/neighboring land users and is appropriately demarcated
  - The boundary of the national park is known by both the management authority and local residents/neighboring land users but is not appropriately demarcated
  - The boundary of the national park is known by the management authority but is not known by local residents/neighboring land users
  - The boundary of the national park is not known by the management authority or local residents/neighboring land users
23. Research: Is there a program of management-orientated survey and research work?
- There is a comprehensive, integrated program of survey and research work, which is relevant to management needs
  - There is considerable survey and research work but it is not directed towards the needs of

- national park management
  - There is a small amount of survey and research work but it is not directed towards the needs of national park management
  - There is no survey or research work taking place in the national park
  
- 24. Resource management: Is active resource management being undertaken?
  - Requirements for active management of critical habitats, species, ecological processes and, cultural values are being substantially or fully implemented
  - Many of the requirements for active management of critical habitats, species, ecological processes and, cultural values are being implemented but some key issues are not being addressed
  - Very few of the requirements for active management of critical habitats, species, ecological processes and cultural values are being implemented
  - Active resource management is not being undertaken
  
- 25. Maintenance of equipment: Is equipment adequately maintained?
  - Equipment and facilities are well maintained
  - There is basic maintenance of equipment and facilities
  - There is some ad hoc maintenance of equipment and facilities
  - There is little or no maintenance of equipment and facilities
  
- 26. Education and awareness: Is there a planned education program linked to the objectives and needs?
  - There is an appropriate and fully implemented education and awareness program
  - There is an education and awareness program but it only partly meets needs and could be improved
  - There is a limited and ad hoc education and awareness program
  - There is no education and awareness program
  
- 27. State and commercial neighbors: Is there a cooperation with adjacent land and water users?
  - There is regular contact between managers and neighboring official or corporate land and water users, and substantial co-operation on management
  - There is contact between managers and neighboring official or corporate land and water users, but only some co-operation
  - There is contact between managers and neighboring official or corporate land and water users but little or no cooperation
  - There is no contact between managers and neighboring official or corporate land and water users
  
- 28. Indigenous people: Do indigenous and traditional peoples resident or regularly using the national park have input to management decisions?
  - Indigenous and traditional peoples directly participate in all relevant decisions relating to management, e.g. co-management
  - Indigenous and traditional peoples directly contribute to some relevant decisions relating to management but their involvement could be improved
  - Indigenous and traditional peoples have some input into discussions relating to management but no direct role in management
  - Indigenous and traditional peoples have no input into decisions relating to the management of the national park

29. Local communities: Do local communities resident or near the national park have input to management decisions?
- Local communities directly participate in all relevant decisions relating to management, e.g. co-management
  - Local communities directly contribute to some relevant decisions relating to management but their involvement could be improved
  - Local communities have some input into discussions relating to management but no direct role in management
  - Local communities have no input into decisions relating to the management of the national park
30. Monitoring and evaluation: Are management activities monitored against performance?
- A good monitoring and evaluation system exists, is well implemented and used in adaptive management
  - There is an agreed and implemented monitoring and evaluation system but results do not feed back into management
  - There is some ad hoc monitoring and evaluation, but no overall strategy and/or no regular collection of results
  - There is no monitoring and evaluation in the national park
31. Visitor facilities: Are visitor facilities adequate?
- Visitor facilities and services are excellent for current levels of visitation
  - Visitor facilities and services are adequate for current levels of visitation but could be improved
  - Visitor facilities and services are inappropriate for current levels of visitation
  - There are no visitor facilities and services despite an identified need
32. Commercial tourism operators: Do commercial tour operators contribute to national park management?
- There is good co-operation between managers and tourism operators to enhance visitor experiences, and maintain national park values
  - There is limited co-operation between managers and tourism operators to enhance visitor experiences and maintain national park values
  - There is contact between managers and tourism operators but this is largely confined to administrative or regulatory matters
  - There is little or no contact between managers and tourism operators using the national park
33. Fees: If fees (i.e. entry fees or fines) are applied, do they help national park management?
- Fees are collected and make a substantial contribution to the national park and its environs
  - Fees are collected, and make some contribution to the national park and its environs
  - Fees are collected, but make no contribution to the national park or its environs
  - Although fees are theoretically applied, they are not collected
34. Promotion and information dissemination: Is there any effort to promote the national park via various media (incl. via web, radio, newspapers and magazines)?
- Promotion and information dissemination are conducted very intensive
  - Promotion and information dissemination are conducted quite intensive
  - Promotion and information dissemination are conducted, but not planned and not intensive
  - No effort on promotion and information dissemination

35. Staff training: Has the staffs received any training in the past 5 years?
- Staff training is regular, sufficient
  - Staff training is irregular, but sufficient
  - Staff is irregular, insufficient
  - No staff training
36. Collaboration with the park: Does the national park has collaboration with local/national /international NGOs, local Government, private sectors, universities, etc)?
- The park has several formal collaborations, all are well implemented
  - The park has several formal collaborations, some are not implemented
  - The park has a few or several collaboration, but informal
  - The park has no collaboration

#### OUTPUT

37. Provision of habitat for various wildlife species: Does the park able to provide a reliable and safe habitat for various wildlife species?
- The park provides an excellent habitat and refuge for wildlife
  - The park somehow provides a habitat and refuge for wildlife
  - The park provides not so good habitat and refuge for wildlife because hunting/poaching still exist
  - The park cannot provides a habitat and refuge for wildlife
38. Provision of environmental service: Does the park provide environmental service(s) such as water, good quality of air, etc.
- The park provides excellent environmental services all year long
  - The park provides excellent environmental services at least in one season
  - The park provides less environmental services, either all year long or partly
  - The park unable to provide environmental services
39. Prevention of natural catastrophic events: Does the park able to prevent natural catastrophic events (flood, erosion, landslides, forest fires)?
- The park fully prevents natural catastrophic events
  - The park prevents most natural catastrophic events
  - The park prevents only a few natural catastrophic events
  - The park is unable to prevent natural catastrophic events
40. Prevention of encroachment: Does the park able to prevent encroachment (from agriculture, mining, housing, industry, etc)?
- The park is free from encroachment
  - The park is slightly encroached, efforts to overcome the problem is on going
  - The park is slightly encroached, no efforts to overcome the problem due to various reasons
  - The park is heavily encroached, no efforts to overcome the problem due to various reasons
41. Prevention of Illegal logging: Does the park able to prevent illegal logging?
- The park is free from illegal logging
  - The park is slightly logged illegally, efforts to overcome the problem is on going
  - The park is substantially logged in illegal manner, no efforts to overcome the problem due to various reasons
  - The park is heavily logged illegally, no efforts to overcome the problem due to various reasons

42. Prevention of Illegal wildlife hunting: Does the park able to prevent illegal hunting (poaching) of various wildlife species?
- The park is free from illegal hunting
  - There is a few illegal hunting, efforts to overcome the problem is on going
  - The is substantial illegal hunting, no efforts to overcome the problem due to various reasons
  - The park is heavily hunted illegally, no efforts to overcome the problem due to various reasons
43. Prevention of Illegal extraction of other resources: Does the park able to prevent extraction of other resources (NTFP, sand mining, other inorganic materials)?
- The park is free from illegal extraction of other resources
  - There is a few illegal extraction of other resources, efforts to overcome the problem is on going
  - The is substantial illegal extraction of other resources, no efforts to overcome the problem due to various reasons
  - The other resources in the park is heavily extracted, no efforts to overcome the problem due to various reasons
44. Stakeholder support: Does the national park gain support from various stakeholders?
- The park gains a full support from all stakeholders
  - The park gains support from most stakeholders
  - The park gains support from only from a few stakeholder
  - No support given by the stakeholders to the national park

#### IMPACT/OUTCOME

45. Economic benefit: Is the national park providing economic benefits to local communities, e.g. income, employment, payment for environmental services?
- There is a major flow of economic benefits to local communities from activities associated with the national park
  - There is some flow of economic benefits to local communities
  - Potential economic benefits are recognized and plans to realize these are being developed
  - The national park does not deliver any economic benefits to local communities
46. Condition of values: What is the condition of the important values of the national park as compared to when it was first designated?
- Biodiversity, ecological and cultural values are predominantly intact
  - Some biodiversity, ecological and cultural values are being partially degraded but the most important values have not been significantly impacted
  - Some biodiversity, ecological or cultural values are being severely degraded
  - Many important biodiversity, ecological or cultural values are being severely degraded

QUESTIONNAIRE FOR MANAGEMENT EFFECTIVENESS OF ASEAN HERITAGE PARK  
MALINDANG PARK, THE PHILIPPINES

*The assessment covers 6 elements: context, planning, input, process/implementation, output, and impact/outcome. Please cross (x) the most appropriate answer. Thank you.*

CONTEXT

1. Legal status: Does the national park have legal status?
- The national park has been formally gazette
  - The national park is in the process of being gazette but the process is still incomplete
  - There is agreement that the national park should be gazette but the process has not yet begun
  - The national park is not gazette

PLANNING

2. Management plan: Is there a management plan and is it being implemented?
- A management plan exists and is being implemented
  - A management plan exists but it is only being partially implemented because of funding constraints or other problems
  - A management plan is being prepared or has been prepared but is not being implemented
  - There is no management plan for the national park
3. Park zonation: Is there a zonation system of the national park?
- Zonation is a clear and fixed
  - Zonation is existed but it is not fixed or under development or under discussion
  - Zonation is unclear
  - No zonation at all
4. Regular work plan: Is there a regular work plan and is it being implemented?
- A regular work plan exists and all activities are implemented
  - A regular work plan exists and many activities are implemented
  - A regular work plan exists but few of the activities are implemented
  - No regular work plan exists
5. Maps: Are maps available and in the most advance format?
- Maps are available in digital format, GIS-based
  - Maps are available in digital format, but not GIS-based
  - Maps are available, but not in not digital format
  - Reliable maps are not available yet or being developed
6. Management or division of working area: Is the area divided into smaller working areas for more effective management?
- National park is officially divided well for more effective management
  - Working areas are officially divided but not too well
  - Working areas are not officially divided
  - There is no division of the working areas

7. Planning for land and water use: Does land and water use planning recognize the national park and aid the achievement of objectives?
- Adjacent land and water use planning fully takes into account the long term needs of the national park
  - Adjacent land and water use planning partially takes into account the long term needs of the national park
  - Adjacent land and water use planning does not takes into account the long term needs of the national park, but activities are not detrimental the area
  - Adjacent land and water use planning does not take into account the needs of the national park and activities/policies are detrimental to the survival of the area
8. National park regulations: Are appropriate regulations in place to control land use and activities?
- Regulations for controlling inappropriate land use and activities in the national park exist and provide an excellent basis for management
  - Regulations for controlling land use and activities in the national park exist but there are some weaknesses or gaps
  - Some regulations for controlling land use and activities in the national park exist but these are major weaknesses
  - There is no regulation for controlling land use and activities in the national park
9. National park objectives: Is management undertaken according to agreed objectives?
- The national park has agreed objectives and is managed to meet these objectives
  - The national park has agreed objectives, but is only partially managed according to these objectives
  - The national park has agreed objectives, but is not managed according to these objectives
  - No firm objectives have been agreed for the national park
10. National park design: Is the national park the right size and shape to protect species, habitats, ecological processes and water catchments of key conservation concern?
- National park design helps achievement of objectives; it is appropriate for species and habitat conservation; and maintains ecological processes such as surface and groundwater flows at a catchment scale, natural disturbance patterns, etc.
  - National park design is not significantly constraining achievement of objectives, but could be improved
  - Inadequacies in national park design mean that achievement of major objectives is difficult but some mitigating actions are being taken (e.g. agreements with adjacent land owners for wildlife corridors or introduction of appropriate catchment management)
  - Inadequacies in national park design mean achieving the major objectives of the national park is very difficult
11. The alignment of national park's plan with "Regional Action Plan for ASEAN Heritage Parks and Protected Areas": Are both aligned or in agreement?
- The national park's plan in fully aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - Most of the park's plan is aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - Some of the park's plan is aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - There is no plan to align park's plan with the Regional Action Plan for ASEAN Heritage Parks

## and Protected Areas

### INPUT

12. Staff numbers: Are there enough people employed to manage the national park?
- Staff numbers are adequate for the management needs of the national park
  - Staff numbers are below optimum level for critical management activities
  - Staff numbers are inadequate for critical management activities
  - There are no staff
13. Staff training: Are staff adequately trained to fulfill management objectives?
- Staff training and skills are aligned with the management needs of the national park
  - Staff training and skills are adequate, but could be further improved to fully achieve the objectives of management
  - Staff training and skills are low relative to the needs of the national park
  - Staff lack the skills needed for national park management
14. Law enforcement: Can staff (i.e. those with responsibility for managing the site) enforce national park rules well enough?
- The staff have excellent capacity/resources to enforce national park legislation and regulations
  - The staff have acceptable capacity/resources to enforce national park legislation and regulations but some deficiencies remain
  - There are major deficiencies in staff capacity/resources to enforce national park legislation and regulations (e.g. lack of skills, no patrol budget, lack of institutional support)
  - The staff have no effective capacity/resources to enforce national park legislation and regulations
15. Equipment: Is equipment (including vehicles, tools for communication, GPS, binocular, etc.) sufficient for management needs?
- There are adequate equipment
  - There are equipment, but still some gaps that constrain management
  - There are some equipment but these are inadequate for most management needs
  - There are little or no equipment and facilities for management needs
16. Infrastructures: Is infrastructure (access road/trails, guard post, office buildings, electricity, drinking water, telephone lines, etc.) sufficient for management needs?
- There are adequate infrastructure
  - There are infrastructure, but still some gaps that constrain management
  - There are some infrastructure but these are inadequate for most management needs
  - There are little or no infrastructure for management needs
17. Resource inventory: Do you have enough information to manage the area?
- Information on the critical habitats, species, ecological processes and cultural values of the national park is sufficient to support all areas of planning and decision making
  - Information on the critical habitats, species, ecological processes and cultural values of the national park is sufficient for most key areas of planning and decision making
  - Information on the critical habitats, species, ecological processes and cultural values of the national park is not sufficient to support planning and decision making
  - There is little or no information available on the critical habitats, species and cultural values of the national park

18. Current budget: Is the current budget sufficient?
- The available budget is sufficient and meets the full management needs of the national park
  - X The available budget is acceptable but could be further improved to fully achieve effective management
  - The available budget is inadequate for basic management needs and presents a serious constraint to the capacity to manage
  - There is no budget for management of the national park
19. Security of budget: Is the budget secure and sustainable?
- There is a secure and sustainable budget for the national park and its management needs
  - X There is a reasonably secure and sustainable core budget for regular operation of the national park but many innovations and initiatives are reliant on outside funding
  - There is very little secure budget and the national park could not function adequately without outside funding
  - There is no secure budget for the national park and management is wholly reliant on outside or highly variable funding
20. Other resources (funding, human resources, equipments; including voluntary and in-kind input): Is it relatively easy to get funding from other resources (incl. from international NGOs, international donors, local donors, private sectors, etc.)?
- The possibility to get input from other resources is high
  - X The possibility to get input from other resources is not so high
  - The possibility to get input from other resources is small, but still possible
  - There is no possibility and chance to get input from other resource(s) at all

#### PROCESS/IMPLEMENTATION

21. Management of budget: Is the budget managed to meet critical management needs?
- Budget management is excellent and meets management needs
  - X Budget management is adequate but could be improved
  - Budget management is poor and constrains effectiveness
  - Budget management is very poor and significantly undermines effectiveness (e.g. late release of budget in financial year)
22. National park boundary demarcation: Is the boundary known and demarcated?
- The boundary of the national park is known by the management authority and local residents/neighboring land users and is appropriately demarcated
  - X The boundary of the national park is known by both the management authority and local residents/neighboring land users but is not appropriately demarcated
  - The boundary of the national park is known by the management authority but is not known by local residents/neighboring land users
  - The boundary of the national park is not known by the management authority or local residents/neighboring land users
23. Research: Is there a program of management-orientated survey and research work?
- X There is a comprehensive, integrated program of survey and research work, which is relevant to management needs
  - There is considerable survey and research work but it is not directed towards the needs of national park management
  - There is a small amount of survey and research work but it is not directed towards the needs

- of national park management
- There is no survey or research work taking place in the national park
24. Resource management: Is active resource management being undertaken?
- Requirements for active management of critical habitats, species, ecological processes and, cultural values are being substantially or fully implemented
- X Many of the requirements for active management of critical habitats, species, ecological processes and, cultural values are being implemented but some key issues are not being addressed
- Very few of the requirements for active management of critical habitats, species, ecological processes and cultural values are being implemented
- Active resource management is not being undertaken
25. Maintenance of equipment: Is equipment adequately maintained?
- Equipment and facilities are well maintained
- X There is basic maintenance of equipment and facilities
- There is some ad hoc maintenance of equipment and facilities
- There is little or no maintenance of equipment and facilities
26. Education and awareness: Is there a planned education program linked to the objectives and needs?
- There is an appropriate and fully implemented education and awareness program
- X There is an education and awareness program but it only partly meets needs and could be improved
- There is a limited and ad hoc education and awareness program
- There is no education and awareness program
27. State and commercial neighbors: Is there a cooperation with adjacent land and water users?
- There is regular contact between managers and neighboring official or corporate land and water users, and substantial co-operation on management
- X There is contact between managers and neighboring official or corporate land and water users, but only some co-operation
- There is contact between managers and neighboring official or corporate land and water users but little or no cooperation
- There is no contact between managers and neighboring official or corporate land and water users
28. Indigenous people: Do indigenous and traditional peoples resident or regularly using the national park have input to management decisions?
- X Indigenous and traditional peoples directly participate in all relevant decisions relating to management, e.g. co-management
- Indigenous and traditional peoples directly contribute to some relevant decisions relating to management but their involvement could be improved
- Indigenous and traditional peoples have some input into discussions relating to management but no direct role in management
- Indigenous and traditional peoples have no input into decisions relating to the management of the national park
29. Local communities: Do local communities resident or near the national park have input to management decisions?
- Local communities directly participate in all relevant decisions relating to management, e.g.

- co-management
- Local communities directly contribute to some relevant decisions relating to management but their involvement could be improved
- Local communities have some input into discussions relating to management but no direct role in management
- Local communities have no input into decisions relating to the management of the national park
30. Monitoring and evaluation: Are management activities monitored against performance?
- A good monitoring and evaluation system exists, is well implemented and used in adaptive management
- There is an agreed and implemented monitoring and evaluation system but results do not feed back into management
- There is some ad hoc monitoring and evaluation, but no overall strategy and/or no regular collection of results
- There is no monitoring and evaluation in the national park
31. Visitor facilities: Are visitor facilities adequate?
- Visitor facilities and services are excellent for current levels of visitation
- Visitor facilities and services are adequate for current levels of visitation but could be improved
- Visitor facilities and services are inappropriate for current levels of visitation
- There are no visitor facilities and services despite an identified need
32. Commercial tourism operators: Do commercial tour operators contribute to national park management?
- There is good co-operation between managers and tourism operators to enhance visitor experiences, and maintain national park values
- There is limited co-operation between managers and tourism operators to enhance visitor experiences and maintain national park values
- There is contact between managers and tourism operators but this is largely confined to administrative or regulatory matters
- There is little or no contact between managers and tourism operators using the national park
33. Fees: If fees (i.e. entry fees or fines) are applied, do they help national park management?
- Fees are collected and make a substantial contribution to the national park and its environs
- Fees are collected, and make some contribution to the national park and its environs
- Fees are collected, but make no contribution to the national park or its environs
- Although fees are theoretically applied, they are not collected
34. Promotion and information dissemination: Is there any effort to promote the national park via various media (incl. via web, radio, newspapers and magazines)?
- Promotion and information dissemination are conducted very intensive
- Promotion and information dissemination are conducted quite intensive
- Promotion and information dissemination are conducted, but not planned and not intensive
- No effort on promotion and information dissemination
35. Staff training: Has the staffs received any training in the past 5 years?
- Staff training is regular, sufficient
- Staff training is irregular, but sufficient

- Staff is irregular, insufficient
- No staff training

36. Collaboration with the park: Does the national park has collaboration with local/national /international NGOs, local Government, private sectors, universities, etc)?
- The park has several formal collaborations, all are well implemented
  - The park has several formal collaborations, some are not implemented
  - The park has a few or several collaboration, but informal
  - The park has no collaboration

#### OUTPUT

37. Provision of habitat for various wildlife species: Does the park able to provide a reliable and safe habitat for various wildlife species?
- The park provides an excellent habitat and refuge for wildlife
  - The park somehow provides a habitat and refuge for wildlife
  - The park provides not so good habitat and refuge for wildlife because hunting/poaching still exist
  - The park cannot provides a habitat and refuge for wildlife
38. Provision of environmental service: Does the park provide environmental service(s) such as water, good quality of air, etc.
- The park provides excellent environmental services all year long
  - The park provides excellent environmental services at least in one season
  - The park provides less environmental services, either all year long or partly
  - The park unable to provide environmental services
39. Prevention of natural catastrophic events: Does the park able to prevent natural catastrophic events (flood, erosion, landslides, forest fires)?
- The park fully prevents natural catastrophic events
  - The park prevents most natural catastrophic events
  - The park prevents only a few natural catastrophic events
  - The park is unable to prevent natural catastrophic events
40. Prevention of encroachment: Does the park able to prevent encroachment (from agriculture, mining, housing, industry, etc)?
- The park is free from encroachment
  - The park is slightly encroached, efforts to overcome the problem is on going
  - The park is slightly encroached, no efforts to overcome the problem due to various reasons
  - The park is heavily encroached, no efforts to overcome the problem due to various reasons
41. Prevention of Illegal logging: Does the park able to prevent illegal logging?
- The park is free from illegal logging
  - The park is slightly logged illegally, efforts to overcome the problem is on going
  - The park is substantially logged in illegal manner, no efforts to overcome the problem due to various reasons
  - The park is heavily logged illegally, no efforts to overcome the problem due to various reasons

42. Prevention of Illegal wildlife hunting: Does the park able to prevent illegal hunting (poaching) of various wildlife species?
- The park is free from illegal hunting
  - X There is a few illegal hunting, efforts to overcome the problem is on going
  - The is substantial illegal hunting, no efforts to overcome the problem due to various reasons
  - The park is heavily hunted illegally, no efforts to overcome the problem due to various reasons
43. Prevention of Illegal extraction of other resources: Does the park able to prevent extraction of other resources (NTFP, sand mining, other inorganic materials)?
- The park is free from illegal extraction of other resources
  - X There is a few illegal extraction of other resources, efforts to overcome the problem is on going
  - The is substantial illegal extraction of other resources, no efforts to overcome the problem due to various reasons
  - The other resources in the park is heavily extracted, no efforts to overcome the problem due to various reasons
44. Stakeholder support: Does the national park gain support from various stakeholders?
- The park gains a full support from all stakeholders
  - X The park gains support from most stakeholders
  - The park gains support from only from a few stakeholder
  - No support given by the stakeholders to the national park

#### IMPACT/OUTCOME

45. Economic benefit: Is the national park providing economic benefits to local communities, e.g. income, employment, payment for environmental services?
- There is a major flow of economic benefits to local communities from activities associated with the national park
  - X There is some flow of economic benefits to local communities
  - Potential economic benefits are recognized and plans to realize these are being developed
  - The national park does not deliver any economic benefits to local communities
46. Condition of values: What is the condition of the important values of the national park as compared to when it was first designated?
- Biodiversity, ecological and cultural values are predominantly intact
  - X Some biodiversity, ecological and cultural values are being partially degraded but the most important values have not been significantly impacted
  - Some biodiversity, ecological or cultural values are being severely degraded
  - Many important biodiversity, ecological or cultural values are being severely degraded

QUESTIONNAIRE FOR MANAGEMENT EFFECTIVENESS OF ASEAN HERITAGE PARK  
BUKIT TIMAH NATURE RESERVE, SINGAPORE

*The assessment covers 6 elements: context, planning, input, process/implementation, output, and impact/outcome. Please cross (x) the most appropriate answer. Thank you.*

CONTEXT

1. Legal status: Does the national park have legal status?
- The national park has been formally gazette
  - The national park is in the process of being gazette but the process is still incomplete
  - There is agreement that the national park should be gazette but the process has not yet begun
  - The national park is not gazette

PLANNING

2. Management plan: Is there a management plan and is it being implemented?
- A management plan exists and is being implemented
  - A management plan exists but it is only being partially implemented because of funding constraints or other problems
  - A management plan is being prepared or has been prepared but is not being implemented
  - There is no management plan for the national park
3. Park zonation: Is there a zonation system of the national park?
- Zonation is a clear and fixed
  - Zonation is existed but it is not fixed or under development or under discussion
  - Zonation is unclear
  - No zonation at all
4. Regular work plan: Is there a regular work plan and is it being implemented?
- A regular work plan exists and all activities are implemented
  - A regular work plan exists and many activities are implemented
  - A regular work plan exists but few of the activities are implemented
  - No regular work plan exists
5. Maps: Are maps available and in the most advance format?
- Maps are available in digital format, GIS-based
  - Maps are available in digital format, but not GIS-based
  - Maps are available, but not in not digital format
  - Reliable maps are not available yet or being developed
6. Management or division of working area: Is the area divided into smaller working areas for more effective management?
- National park is officially divided well for more effective management
  - Working areas are officially divided but not too well
  - Working areas are not officially divided
  - There is no division of the working areas

7. Planning for land and water use: Does land and water use planning recognize the national park and aid the achievement of objectives?
- Adjacent land and water use planning fully takes into account the long term needs of the national park
  - Adjacent land and water use planning partially takes into account the long term needs of the national park
  - Adjacent land and water use planning does not takes into account the long term needs of the national park, but activities are not detrimental the area
  - Adjacent land and water use planning does not take into account the needs of the national park and activities/policies are detrimental to the survival of the area
8. National park regulations: Are appropriate regulations in place to control land use and activities?
- Regulations for controlling inappropriate land use and activities in the national park exist and provide an excellent basis for management
  - Regulations for controlling land use and activities in the national park exist but there are some weaknesses or gaps
  - Some regulations for controlling land use and activities in the national park exist but these are major weaknesses
  - There is no regulation for controlling land use and activities in the national park
9. National park objectives: Is management undertaken according to agreed objectives?
- The national park has agreed objectives and is managed to meet these objectives
  - The national park has agreed objectives, but is only partially managed according to these objectives
  - The national park has agreed objectives, but is not managed according to these objectives
  - No firm objectives have been agreed for the national park
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- National park design helps achievement of objectives; it is appropriate for species and habitat conservation; and maintains ecological processes such as surface and groundwater flows at a catchment scale, natural disturbance patterns, etc.
  - National park design is not significantly constraining achievement of objectives, but could be improved
  - Inadequacies in national park design mean that achievement of major objectives is difficult but some mitigating actions are being taken (e.g. agreements with adjacent land owners for wildlife corridors or introduction of appropriate catchment management)
  - Inadequacies in national park design mean achieving the major objectives of the national park is very difficult
11. The alignment of national park's plan with "Regional Action Plan for ASEAN Heritage Parks and Protected Areas": Are both aligned or in agreement?
- The national park's plan in fully aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
  - Most of the park's plan is aligned with the Regional Action Plan for ASEAN Heritage Parks and Protected Areas
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## and Protected Areas

### INPUT

12. Staff numbers: Are there enough people employed to manage the national park?
- Staff numbers are adequate for the management needs of the national park
  - Staff numbers are below optimum level for critical management activities
  - Staff numbers are inadequate for critical management activities
  - There are no staff
13. Staff training: Are staff adequately trained to fulfill management objectives?
- Staff training and skills are aligned with the management needs of the national park
  - Staff training and skills are adequate, but could be further improved to fully achieve the objectives of management
  - Staff training and skills are low relative to the needs of the national park
  - Staff lack the skills needed for national park management
14. Law enforcement: Can staff (i.e. those with responsibility for managing the site) enforce national park rules well enough?
- The staff have excellent capacity/resources to enforce national park legislation and regulations
  - The staff have acceptable capacity/resources to enforce national park legislation and regulations but some deficiencies remain
  - There are major deficiencies in staff capacity/resources to enforce national park legislation and regulations (e.g. lack of skills, no patrol budget, lack of institutional support)
  - The staff have no effective capacity/resources to enforce national park legislation and regulations
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  - There are equipment, but still some gaps that constrain management
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17. Resource inventory: Do you have enough information to manage the area?
- Information on the critical habitats, species, ecological processes and cultural values of the national park is sufficient to support all areas of planning and decision making
  - Information on the critical habitats, species, ecological processes and cultural values of the national park is sufficient for most key areas of planning and decision making
  - Information on the critical habitats, species, ecological processes and cultural values of the national park is not sufficient to support planning and decision making
  - There is little or no information available on the critical habitats, species and cultural values of the national park

18. Current budget: Is the current budget sufficient?
- The available budget is sufficient and meets the full management needs of the national park
  - The available budget is acceptable but could be further improved to fully achieve effective management
  - The available budget is inadequate for basic management needs and presents a serious constraint to the capacity to manage
  - There is no budget for management of the national park
19. Security of budget: Is the budget secure and sustainable?
- There is a secure and sustainable budget for the national park and its management needs
  - There is a reasonably secure and sustainable core budget for regular operation of the national park but many innovations and initiatives are reliant on outside funding
  - There is very little secure budget and the national park could not function adequately without outside funding
  - There is no secure budget for the national park and management is wholly reliant on outside or highly variable funding
20. Other resources (funding, human resources, equipments; including voluntary and in-kind input): Is it relatively easy to get funding from other resources (incl. from international NGOs, international donors, local donors, private sectors, etc.)?
- The possibility to get input from other resources is high
  - The possibility to get input from other resources is not so high
  - The possibility to get input from other resources is small, but still possible
  - There is no possibility and chance to get input from other resource(s) at all

#### PROCESS/IMPLEMENTATION

21. Management of budget: Is the budget managed to meet critical management needs?
- Budget management is excellent and meets management needs
  - Budget management is adequate but could be improved
  - Budget management is poor and constrains effectiveness
  - Budget management is very poor and significantly undermines effectiveness (e.g. late release of budget in financial year)
22. National park boundary demarcation: Is the boundary known and demarcated?
- The boundary of the national park is known by the management authority and local residents/neighboring land users and is appropriately demarcated
  - The boundary of the national park is known by both the management authority and local residents/neighboring land users but is not appropriately demarcated
  - The boundary of the national park is known by the management authority but is not known by local residents/neighboring land users
  - The boundary of the national park is not known by the management authority or local residents/neighboring land users
23. Research: Is there a program of management-orientated survey and research work?
- There is a comprehensive, integrated program of survey and research work, which is relevant to management needs
  - There is considerable survey and research work but it is not directed towards the needs of national park management
  - There is a small amount of survey and research work but it is not directed towards the needs

- of national park management
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- Requirements for active management of critical habitats, species, ecological processes and, cultural values are being substantially or fully implemented
  - Many of the requirements for active management of critical habitats, species, ecological processes and, cultural values are being implemented but some key issues are not being addressed
  - Very few of the requirements for active management of critical habitats, species, ecological processes and cultural values are being implemented
  - Active resource management is not being undertaken
25. Maintenance of equipment: Is equipment adequately maintained?
- Equipment and facilities are well maintained
  - There is basic maintenance of equipment and facilities
  - There is some ad hoc maintenance of equipment and facilities
  - There is little or no maintenance of equipment and facilities
26. Education and awareness: Is there a planned education program linked to the objectives and needs?
- There is an appropriate and fully implemented education and awareness program
  - There is an education and awareness program but it only partly meets needs and could be improved
  - There is a limited and ad hoc education and awareness program
  - There is no education and awareness program
27. State and commercial neighbors: Is there cooperation with adjacent land and water users?
- There is regular contact between managers and neighboring official or corporate land and water users, and substantial co-operation on management
  - There is contact between managers and neighboring official or corporate land and water users, but only some co-operation
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28. Indigenous people: Do indigenous and traditional peoples resident or regularly using the national park have input to management decisions? **(Not Applicable)**
- Indigenous and traditional peoples directly participate in all relevant decisions relating to management, e.g. co-management
  - Indigenous and traditional peoples directly contribute to some relevant decisions relating to management but their involvement could be improved
  - Indigenous and traditional peoples have some input into discussions relating to management but no direct role in management
  - Indigenous and traditional peoples have no input into decisions relating to the management of the national park
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  - There is an agreed and implemented monitoring and evaluation system but results do not feed back into management
  - There is some ad hoc monitoring and evaluation, but no overall strategy and/or no regular collection of results
  - There is no monitoring and evaluation in the national park
31. Visitor facilities: Are visitor facilities adequate?
- Visitor facilities and services are excellent for current levels of visitation
  - Visitor facilities and services are adequate for current levels of visitation but could be improved
  - Visitor facilities and services are inappropriate for current levels of visitation
  - There are no visitor facilities and services despite an identified need
32. Commercial tourism operators: Do commercial tour operators contribute to national park management?
- There is good co-operation between managers and tourism operators to enhance visitor experiences, and maintain national park values
  - There is limited co-operation between managers and tourism operators to enhance visitor experiences and maintain national park values
  - There is contact between managers and tourism operators but this is largely confined to administrative or regulatory matters
  - There is little or no contact between managers and tourism operators using the national park
33. Fees: If fees (i.e. entry fees or fines) are applied, do they help national park management?  
**(Not Applicable)**
- Fees are collected and make a substantial contribution to the national park and its environs
  - Fees are collected, and make some contribution to the national park and its environs
  - Fees are collected, but make no contribution to the national park or its environs
  - Although fees are theoretically applied, they are not collected
34. Promotion and information dissemination: Is there any effort to promote the national park via various media (incl. via web, radio, newspapers and magazines)?
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  - The park has no collaboration

#### OUTPUT

37. Provision of habitat for various wildlife species: Does the park able to provide a reliable and safe habitat for various wildlife species?
- The park provides an excellent habitat and refuge for wildlife
  - The park somehow provides a habitat and refuge for wildlife
  - The park provides not so good habitat and refuge for wildlife because hunting/poaching still exist
  - The park cannot provides a habitat and refuge for wildlife
38. Provision of environmental service: Does the park provide environmental service(s) such as water, good quality of air, etc.
- The park provides excellent environmental services all year long
  - The park provides excellent environmental services at least in one season
  - The park provides less environmental services, either all year long or partly
  - The park unable to provide environmental services
39. Prevention of natural catastrophic events: Does the park able to prevent natural catastrophic events (flood, erosion, landslides, forest fires)? **(Not Known)**
- The park fully prevents natural catastrophic events
  - The park prevents most natural catastrophic events
  - The park prevents only a few natural catastrophic events
  - The park is unable to prevent natural catastrophic events
40. Prevention of encroachment: Does the park able to prevent encroachment (from agriculture, mining, housing, industry, etc)?
- The park is free from encroachment
  - The park is slightly encroached, efforts to overcome the problem is on going
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  - The park is heavily logged illegally, no efforts to overcome the problem due to various reasons

42. Prevention of Illegal wildlife hunting: Does the park able to prevent illegal hunting (poaching) of various wildlife species?
- The park is free from illegal hunting
  - There is a few illegal hunting, efforts to overcome the problem is on going
  - The is substantial illegal hunting, no efforts to overcome the problem due to various reasons
  - The park is heavily hunted illegally, no efforts to overcome the problem due to various reasons
43. Prevention of Illegal extraction of other resources: Does the park able to prevent extraction of other resources (NTFP, sand mining, other inorganic materials)?
- The park is free from illegal extraction of other resources
  - There is a few illegal extraction of other resources, efforts to overcome the problem is on going
  - The is substantial illegal extraction of other resources, no efforts to overcome the problem due to various reasons
  - The other resources in the park is heavily extracted, no efforts to overcome the problem due to various reasons
44. Stakeholder support: Does the national park gain support from various stakeholders?
- The park gains a full support from all stakeholders
  - The park gains support from most stakeholders
  - The park gains support from only from a few stakeholder
  - No support given by the stakeholders to the national park

#### IMPACT/OUTCOME

45. Economic benefit: Is the national park providing economic benefits to local communities, e.g. income, employment, payment for environmental services?
- There is a major flow of economic benefits to local communities from activities associated with the national park
  - There is some flow of economic benefits to local communities
  - Potential economic benefits are recognized and plans to realize these are being developed
  - The national park does not deliver any economic benefits to local communities
46. Condition of values: What is the condition of the important values of the national park as compared to when it was first designated?
- Biodiversity, ecological and cultural values are predominantly intact
  - Some biodiversity, ecological and cultural values are being partially degraded but the most important values have not been significantly impacted
  - Some biodiversity, ecological or cultural values are being severely degraded
  - Many important biodiversity, ecological or cultural values are being severely degraded

Annex 5. Questionnaire main points of the effectiveness of ASEAN Heritage Park.

Elements	Indicators
1. Nature/Context	1.1. Legal status
	1.2. <i>Geographic location*</i>
	1.3. <i>Border security and safety*</i>
2. Planning	2.1. Management plan
	2.2. <i>Park zonation</i>
	2.3. Work plan
	2.4. <i>Map availability</i>
	2.5. <i>Division of working area</i>
	2.6. Planning: land/water use
	2.7. Park regulations
	2.8. Park objectives
	2.9. Park design
	2.10. <i>Alignment with Regional Plan**</i>
3. Input	3.1. Staff numbers
	3.2. Staff quality
	3.3. Law enforcement
	3.4. Equipment
	3.5. Infrastructures
	3.6. Resource inventory
	3.7. Current budget
	3.8. Budget sustainability
	3.9. <i>Other resources</i>
4. Process/Implementation	4.1. Management of budget
	4.2. Boundary demarcation
	4.3. Research
	4.4. Resource management
	4.5. Maintenance of equipment
	4.6. Education and awareness
	4.7. State and commercial neighbors
	4.8. Indigenous people involvement
	4.9. Local communities involvement
	4.10. Monitoring and evaluation
	4.11. Visitor facilities
	4.12. Commercial tourism operators
	4.13. Fee collection and contribution
	4.14. <i>Promotion and information</i>
	4.15. Staff training
	4.16. Collaboration with others

5. Output	5.1. <i>Habitat for wildlife</i>
	5.2. <i>Environmental service</i>
	5.3. <i>Prevention of catastrophic events</i>
	5.4. <i>Prevention of encroachment</i>
	5.5. <i>Prevention of Illegal logging</i>
	5.6. <i>Prevention of poaching</i>
	5.7. <i>Prevention of Illegal extraction</i>
	5.8. <i>Stakeholder support</i>
6. Impact/Outcome	6.1. Economic benefit
	6.2. Condition of values

\*applied only to AHP visited during the study; \*\* excluded for the calculation of management effectiveness  
Indicators written in Italic are not used in the original METT methodology

Annex 6. List of persons interviewed during field visits to five ASEAN Heritage Parks.

No.	Name	Remarks
Virachey National Park, Cambodia		
1.	Chou Sophark	Director of Department of Environment and Virachey National Park
2.	Sov Khamporn	Station Manager at Bonsai, Virachey National Park
3.	Leam Sou	Ranger, Virachey National Park
4.	Som Sophany	Guide and translator at ecotourism center, Virachey National Park
5.	Nut Thoma	Administration staff at Bonsai Station, Virachey National Park
6.	Chek Vanna	Ranger at Bonsai Station, Virachey National Park
Kerinci-Seblat National Park and Ministry of Forestry, Indonesia		
7.	Nandang Gumilar	Head of Administration Unit, Kerinci Seblat National Park
8.	Najinuddin	Head of Utilisation and Services Unit, Kerinci Seblat National Park
9.	David	Head of Protection and Mapping Section, Kerinci Seblat National Park
10.	Darlianto	Ranger at Bukit Tapan Sub-Unit, Kerinci Seblat National Park
11.	Badiyah A. Said	Ministry of Forestry (Headquarter), Indonesia
12.	Jefry Susyafrianto	Ministry of Forestry (Headquarter), Indonesia
13.	Nico Sinaga	Ministry of Forestry (Headquarter), Indonesia
Kinabalu National Park, Malaysia		
14.	Paul Basintal	Director, Kinabalu National Park
15.	Maipol Spait	Deputy Director, Kinabalu National Park
Taman Negara Pahang and PERHILITAN, Malaysia		
16.	Moh. Desa Puteh	Deputy Director, Taman Negara Pahang
17.	Lawrence A. K. Manila	Team Leader of Law Enforcement Group
18.	Muhammad Azizi Mustapa	PERHILITAN, Kuala Lumpur
Khao Yai National Park, Thailand		
19.	Krissada Homsud	Manager of Khao Yai National Park
20.	Nattapong Banterng	Technical Forestry Officer, Khao Yai National Park
21.	Saksan Tiangplub	Head of Klong Pla Kang Protection Unit
22.	Daoloy Soykratok	Guide at Klong Pla Kang Protection Unit, Khao Yai National Park
23.	Pacranuch Dulkul Kappelle	Staff at Department of National Parks, Wildlife and Plant Conservation (DNP)

Annex 7. Main features of ASEAN Heritage Parks.

	Name	Category	Main Landscape	Area (ha)	Area Category*
BN	Tasek Merimbun	National Park	Wetland	7,800	Small
KH	<b>Virachey</b>	<b>National Park</b>	<b>Highland</b>	<b>332,500</b>	<b>Large</b>
	Bokor	National Park	Highland	14,000	Small
ID	Gunung Leuser	National Park	Highland	1,092,692	Very large
	<b>Kerinci-Seblat</b>	<b>National Park</b>	<b>Highland</b>	<b>1,400,000</b>	<b>Very large</b>
	Lorentz	National Park	Highland	2,505,600	Very large
LA	Nam Ha	Protected Area	Highland	222,400	Medium
MY	<b>Kinabalu</b>	<b>National Park</b>	<b>Highland</b>	<b>75,370</b>	<b>Small</b>
	Gunung Mulu	National Park	Highland	52,866	Small
	<b>Taman Negara</b>	<b>National Park</b>	<b>Highland</b>	<b>434,351</b>	<b>Large</b>
MM	Alaungdaw Kathapa	National Park	Highland	159,761	Medium
	Meinmahla Kyun	Wildlife Sanctuary	Marine	13,700	Small
	Indawgyi Lake	Wildlife Sanctuary	Wetland	77,525	Small
	Inle Lake	Wildlife Sanctuary	Wetland	64,200	Small
	Khakaborazi	National Park	Highland	381,246	Large
	Lampi	National Park	Marine	20,484	Small
PH	Mt. Apo	National Park	Highland	54,974	Small
	Iglit- Baco	National Park	Highland	75,445	Small
	Mount Kitanglad Range	Natural Park	Highland	47,270	Small
	Mount Malindang Range	Natural Park	Highland	53,262	Small
SG	Sungei Buloh	Nature Reserve	Wetland	130	Very small
	Bukit Timah	Nature Reserve	Lowland	163	Very small
TH	<b>Khao Yai</b>	<b>National Park</b>	<b>Highland</b>	<b>216,800</b>	<b>Medium</b>
	Tarutao	National Park	Marine	149,000	Medium
	Ao Phang Nga- Mu Koh Surin - Mu Koh Similan	National Park	Marine	40,000	Small
	Kaengkrachan	Forest Complex	Highland	437,300	Large
VN	Hoang Lien Sa Pa	National Park	Highland	29,845	Small
	Ba Be	National Park	Wetland	10,048	Small
	Kon Ka Kinh	National Park	Highland	41,780	Small
	Chu Mom Ray	National Park	Highland	56,621	Small

\*Area Category:

Very large > 1,000,000 ha; Large 250,000 - 1,000,000 ha

Medium 100,000 – 250,000 ha; Small 250 – 100,000 ha

Very small <250 ha

Annex 8. Scoring on questionnaire and the AHPs' effectiveness scores.

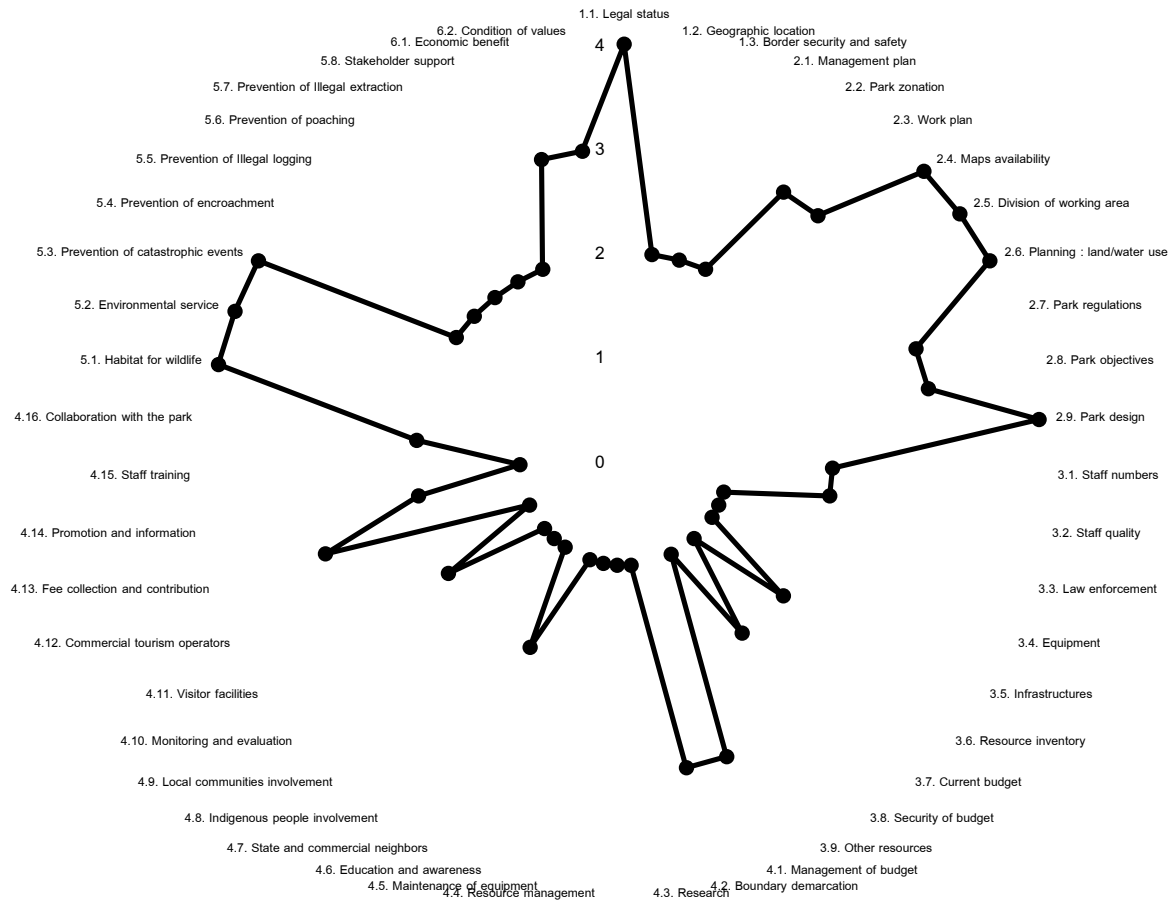
Indicators	Score																
	KH	ID				MY		MM					PH			SG	TH
	Virachey National Park	Leuser National Park	Kerinci Seblat National Park	Lorentz National Park	Kinabalu National Park	Taman Negara Pahang	Alaungdaw Kathapa National Park	Meimahlia Kyun Wildlife Sanctuary	Indawgyi Wildlife Sanctuary	Inle Wetland Wildlife Sanctuary	Khakaborazi Mountain National Park	Lampi Marine National Park	Iglit Baco National Park	Mount Kitanglad Range Natural Park	Mount Malindang Range Natural Park	Bukit Timah Nature Reserve	Khao Yai National Park
1.1. Legal status	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4
2.1. Management plan	2	4	3	3	3	3	2	1	1	1	1	2	3	3	4	4	4
2.2. Park zonation	3	4	3	2	3	3	3	1	1	3	1	3	3	4	4	3	4
2.3. Work plan	3	4	3	3	3	3	3	2	3	2	3	2	3	3	4	3	4
2.4. Maps availability	4	4	4	4	4	4	4	4	4	4	4	4	2	3	4	4	4
2.5. Division of working area	4	4	3	4	4	4	4	2	2	2	2	2	2	4	4	4	4
2.6. Planning : land/water use	4	3	3	3	4	4	3	3	4	3	4	3	2	3	3	3	4
2.7. Park regulations	3	4	3	4	4	4	3	4	3	2	3	4	3	3	3	3	4
2.8. Park objectives	3	4	4	4	4	4	4	3	4	3	4	3	3	4	4	4	4
2.9. Park design	4	3	2	4	4	4	4	4	4	4	4	4	4	3	4	3	4
3.1. Staff numbers	2	3	2	2	3	3	3	3	3	2	2	2	2	3	3	4	4
3.2. Staff quality	2	4	3	2	3	3	3	2	2	2	2	3	2	3	2	3	4
3.3. Law enforcement	1	3	4	2	4	2	3	2	2	2	2	3	3	3	3	3	4
3.4. Equipment	1	4	3	3	3	3	2	2	2	2	2	2	2	3	2	4	4
3.5. Infrastructure	1	3	3	1	3	4	2	2	2	2	2	2	3	3	3	4	4
3.6. Resource inventory	2	3	3	1	3	4	3	4	2	3	3	4	3	3	3	3	3
3.7. Current budget	1	4	3	3	3	4	2	2	3	2	3	2	3	3	3	3	3

3.8. Security of budget	2	4	4	4	4	4	3	3	3	3	3	3	3	3	3	4	4
3.9. Other resources	1	4	3	2	4	4	4	3	4	4	4	3	4	3	3	3	3
4.1. Management of budget	3	4	3	4	3	4	2	3	3	3	3	3	3	3	3	4	3
4.2. Boundary demarcation	3	3	3	2	4	4	4	4	3	3	3	3	2	4	3	4	4
4.3. Research	1	3	2	1	4	3	3	2	2	3	3	3	4	4	4	3	3
4.4. Resource management	1	3	3	1	3	4	2	2	2	2	2	2	4	3	3	3	3
4.5. Maintenance of equipment	1	4	3	3	4	4	3	3	3	3	3	3	4	3	3	4	4
4.6. Education and awareness	1	4	3	3	4	4	3	3	2	3	3	3	4	3	3	3	3
4.7. State and commercial neighbors	2	3	3	3	4	4	3	3	3	3	2	3	1	3	3	4	2
4.8. Indigenous people involvement	1	3	3	2	3	3	2	2	2	2	2	2	3	3	4	NA	2
4.9. Local communities involvement	1	3	3	2	3	4	2	2	2	2	2	2	3	4	3	2	2
4.10. Monitoring and evaluation	1	4	4	4	4	4	2	2	2	2	2	2	2	4	4	2	4
4.11. Visitor facilities	2	4	3	1	4	4	3	2	2	2	1	1	3	3	2	3	4
4.12. Commercial tourism operators	1	3	1	1	4	4	3	1	1	3	1	1	2	3	2	2	1
4.13. Fee collection and contribution	3	3	3	1	4	4	1	1	1	1	1	1	2	3	3	NA	4
4.14. Promotion and information	2	3	3	1	4	4	2	2	2	2	2	2	3	3	3	2	3
4.15. Staff training	1	3	3	1	3	4	3	2	2	2	2	2	2	3	2	3	4
4.16. Collaboration with the park	2	4	4	3	4	4	3	3	3	3	3	2	3	4	3	3	4
5.1. Habitat for	4	3	4	4	4	4	4	3	3	3	4	4	4	3	4	3	4

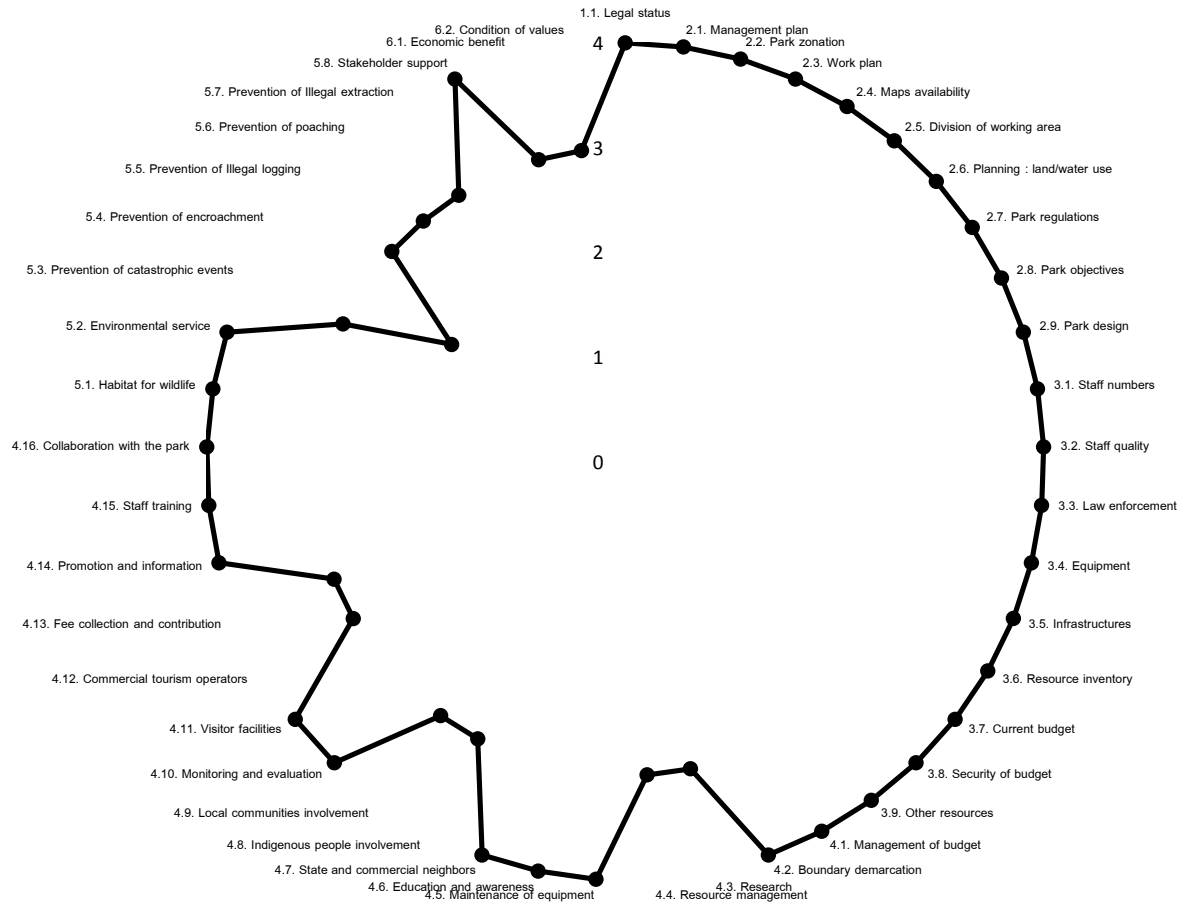
wildlife																	
5.2. Environmental service	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
5.3. Prevention of catastrophic events	4	3	3	4	2	4	3	3	3	3	3	3	3	3	3	NA	3
5.4. Prevention of encroachment	2	2	2	4	4	4	3	3	3	3	2	3	4	3	3	4	3
5.5. Prevention of Illegal logging	2	3	2	4	4	4	3	3	3	3	3	3	3	3	4	4	4
5.6. Prevention of poaching	2	2	2	4	3	3	3	3	3	3	3	3	3	3	3	3	3
5.7. Prevention of Illegal extraction	2	3	2	4	3	3	3	3	3	3	2	3	3	3	3	3	3
5.8. Stakeholder support	2	3	2	2	4	4	2	3	2	3	2	3	3	3	3	3	3
6.1. Economic benefit	2	3	2	2	4	4	3	3	2	3	2	3	2	3	3	3	4
6.2. Condition of values	3	3	3	4	3	4	3	3	3	2	4	3	3	4	3	4	3
<b>TOTAL</b>	<b>100</b>	<b>152</b>	<b>133</b>	<b>124</b>	<b>161</b>	<b>168</b>	<b>131</b>	<b>119</b>	<b>117</b>	<b>119</b>	<b>117</b>	<b>122</b>	<b>130</b>	<b>146</b>	<b>144</b>	<b>139</b>	<b>157</b>
<b>Effectiveness Scores</b>	<b>55.6%</b>	<b>84.4%</b>	<b>73.9%</b>	<b>68.9%</b>	<b>89.4%</b>	<b>93.3%</b>	<b>72.8%</b>	<b>66.1%</b>	<b>65.0%</b>	<b>66.1%</b>	<b>65.0%</b>	<b>67.8%</b>	<b>72.2%</b>	<b>81.1%</b>	<b>80.0%</b>	<b>82.7%</b>	<b>87.2%</b>

Annex 9. Radar plot on indicators used in effectiveness calculation.

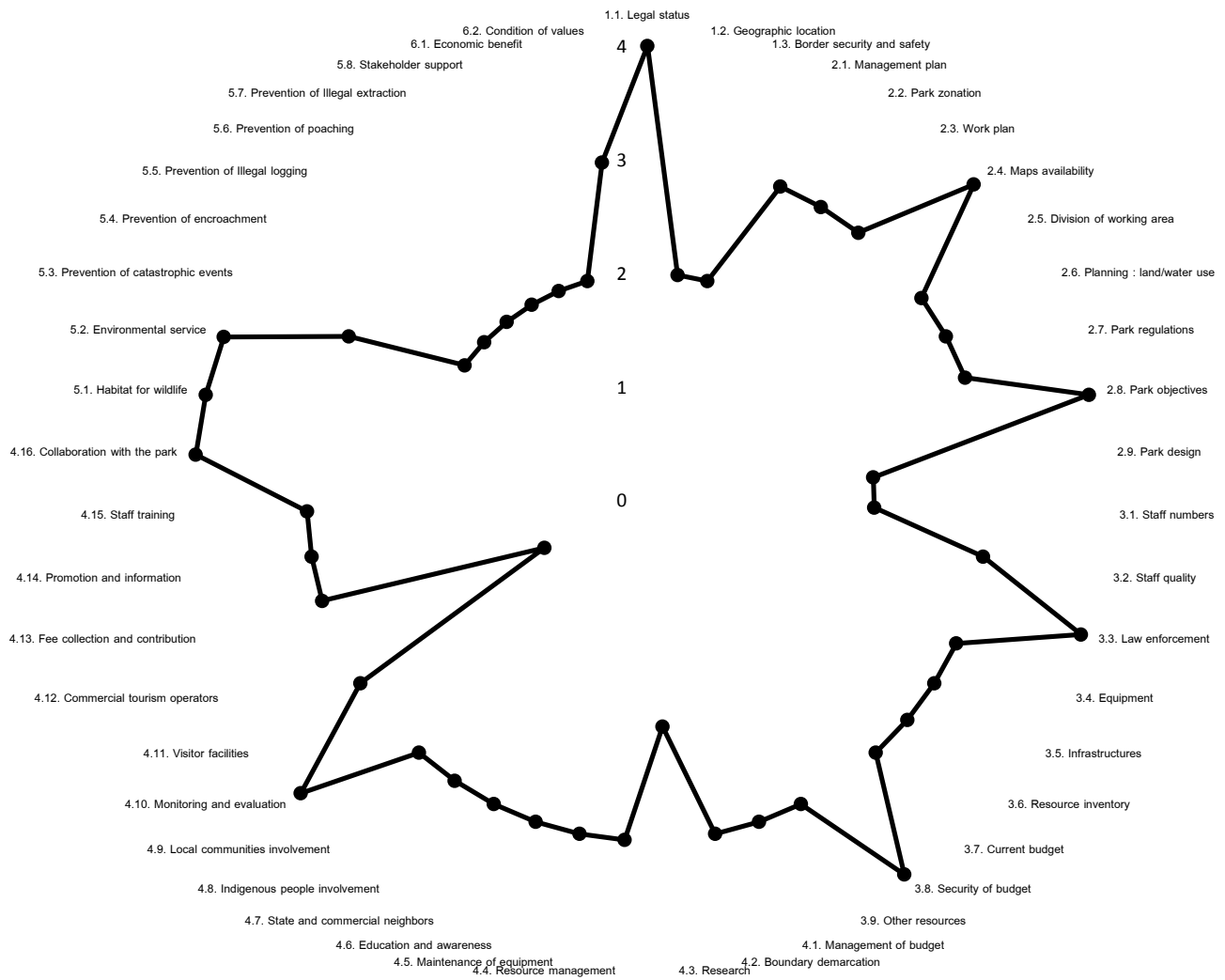
1. Virachey National Park (Cambodia)



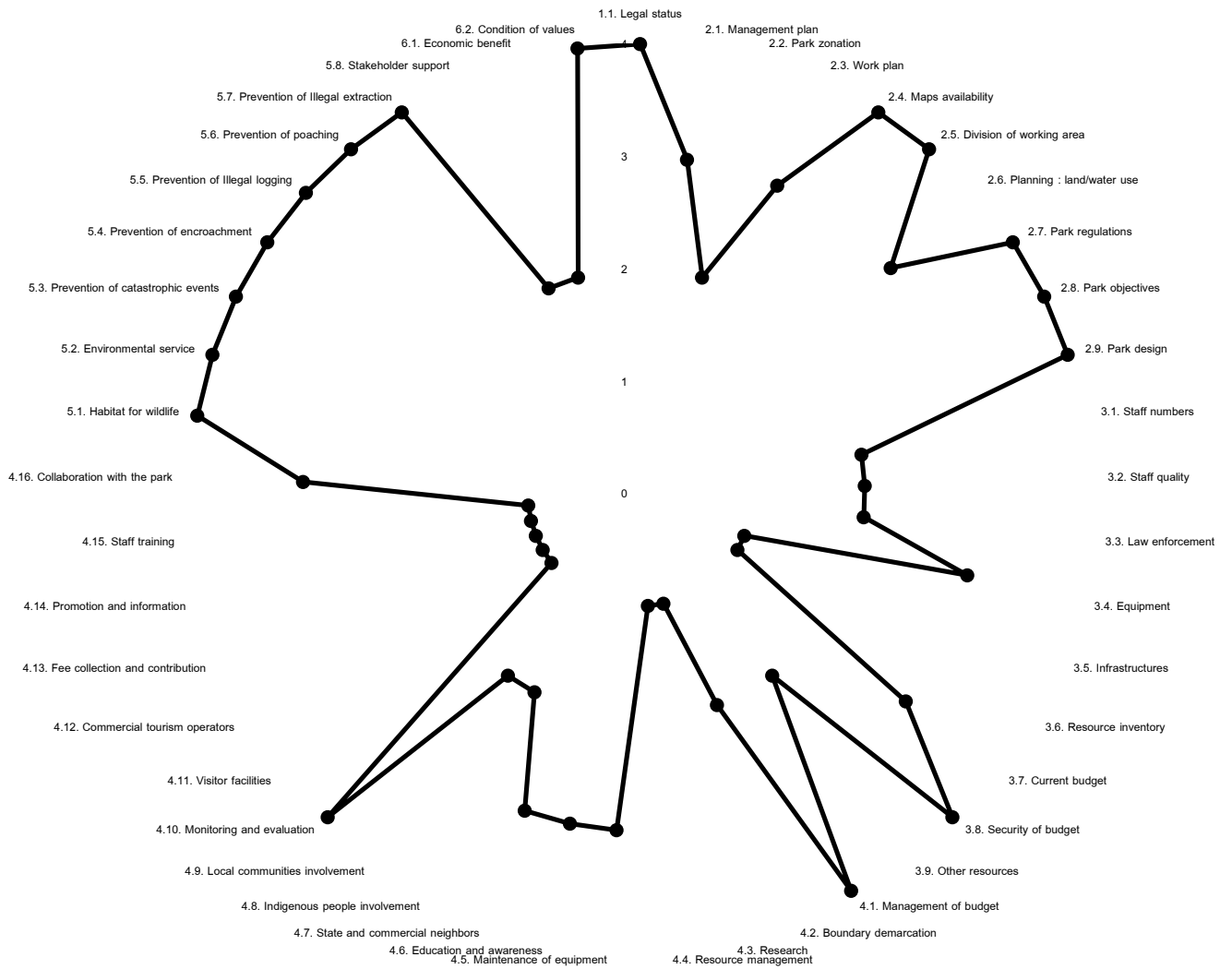
## 2. Leuser National Park



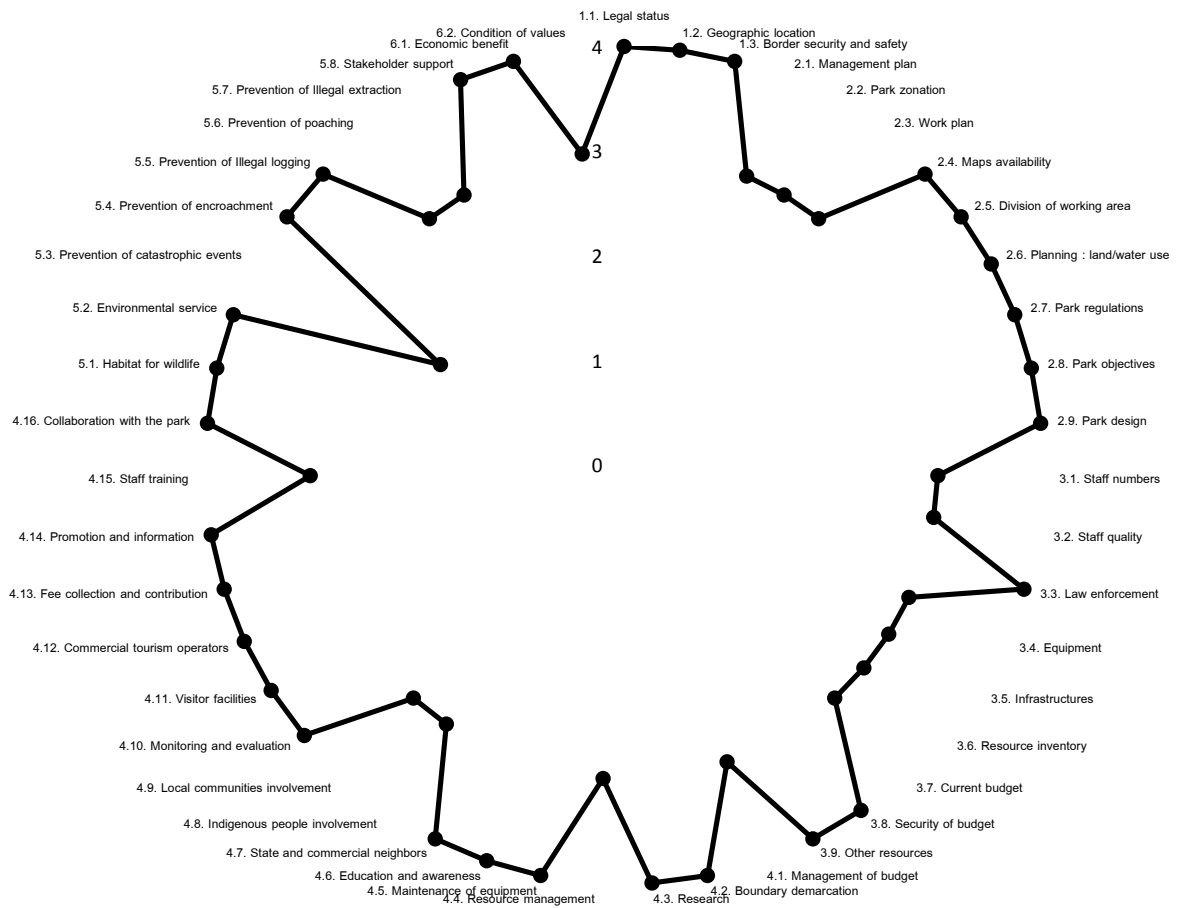
### 3. Kerinci Seblat National Park (Indonesia)



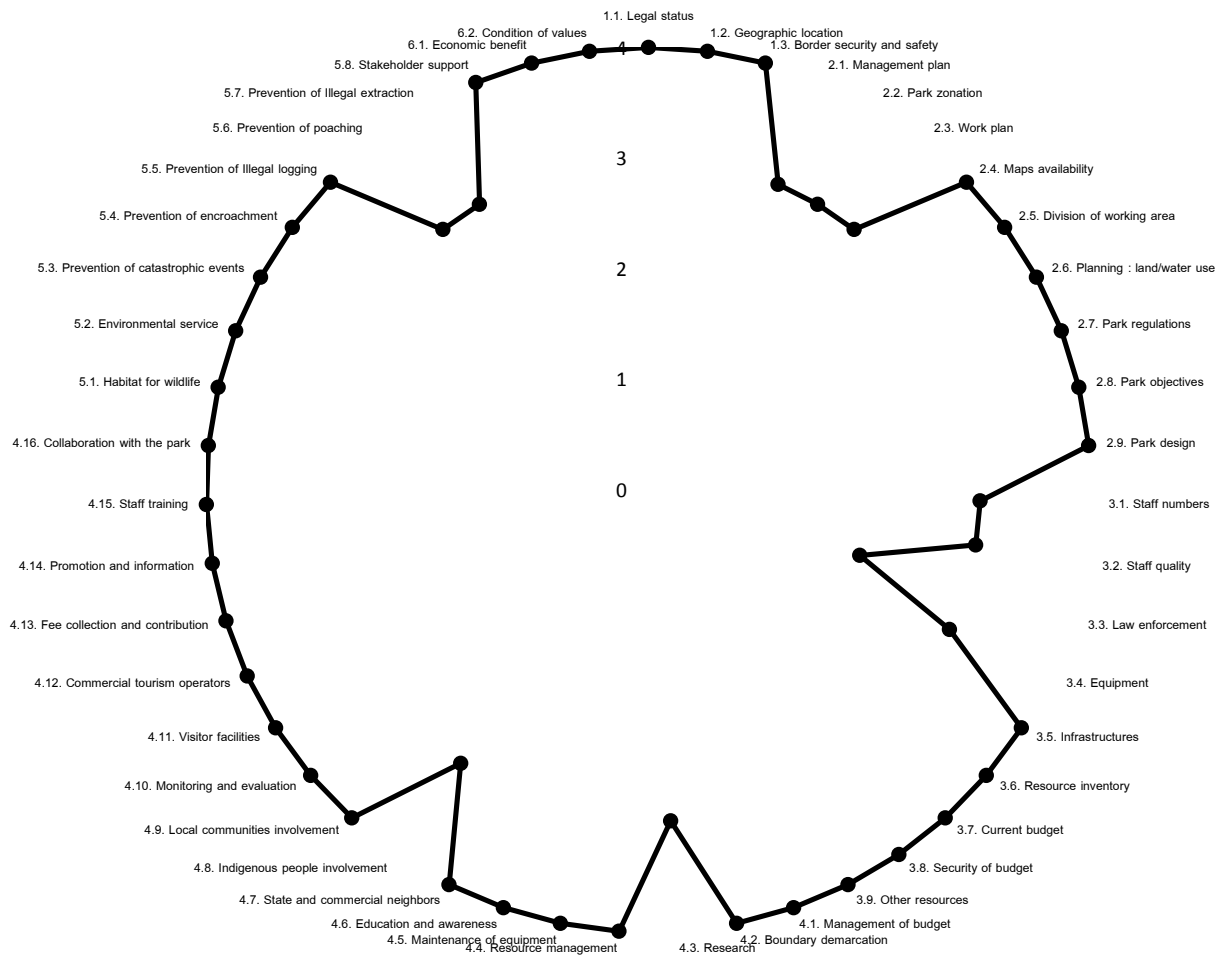
#### 4. Lorentz National Park (Indonesia)



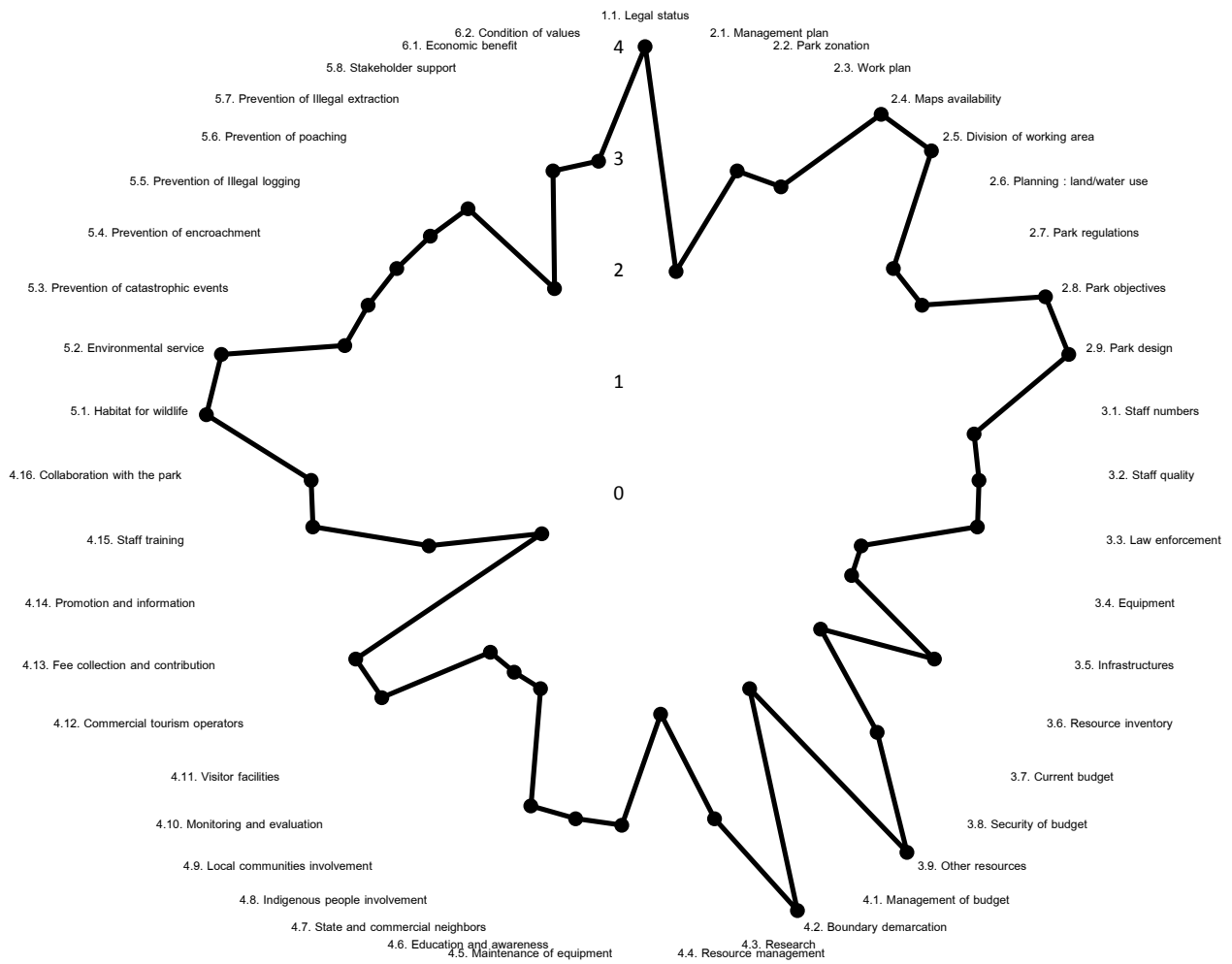
## 5. Kinabalu National Park (Malaysia)



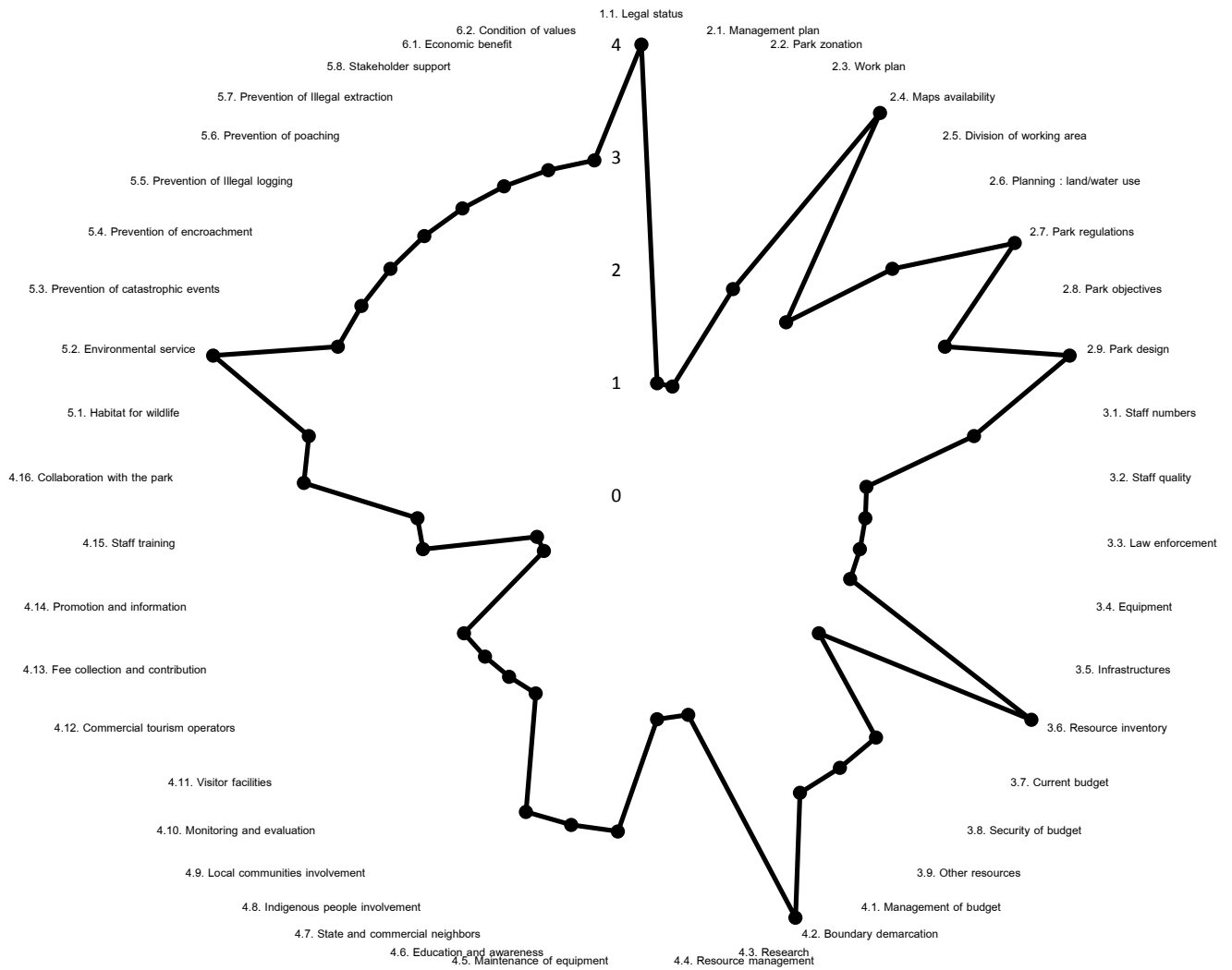
## 6. Taman Negara Pahang (Malaysia)



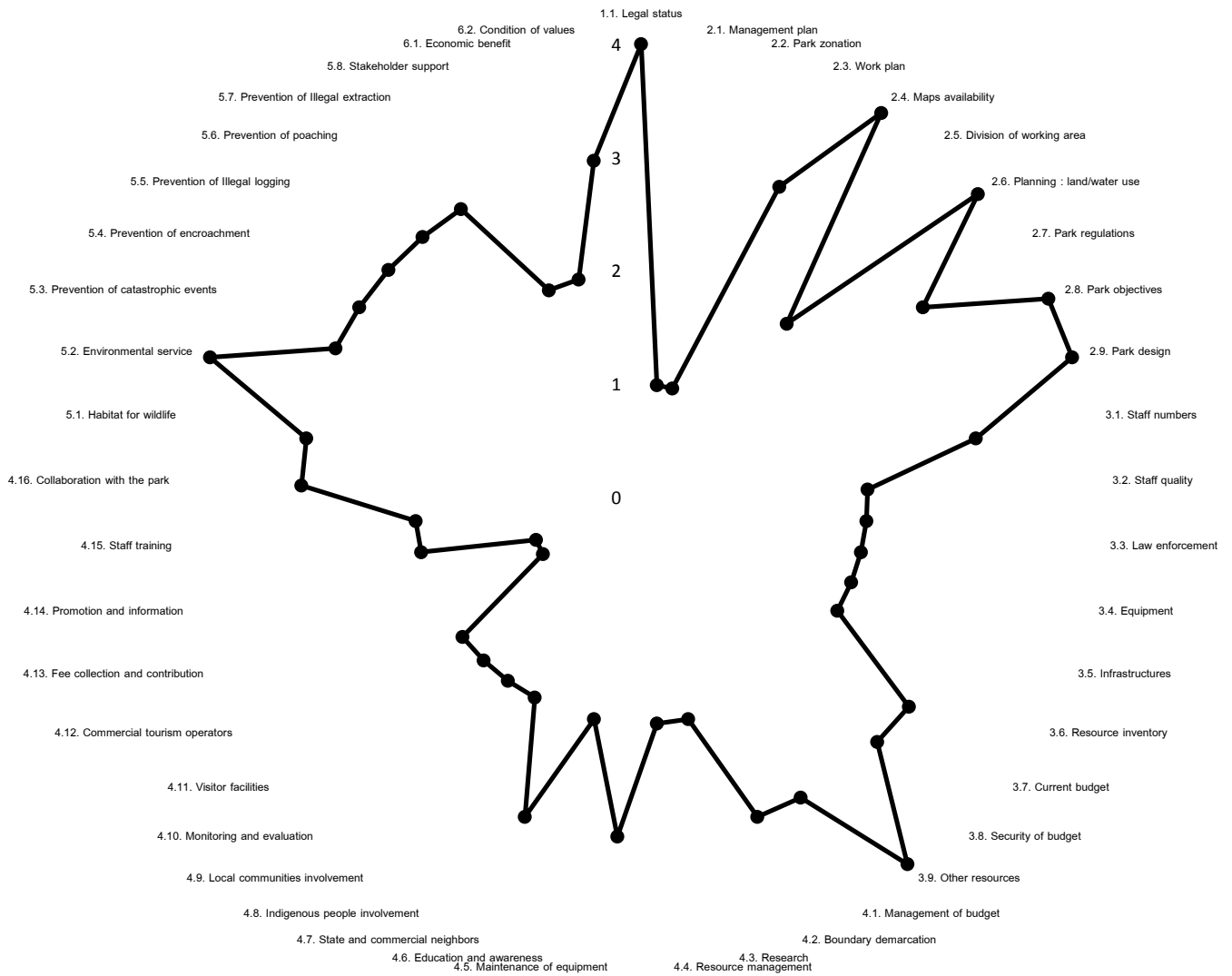
## 7. Alaungdaw Kathapa National Park (Myanmar)



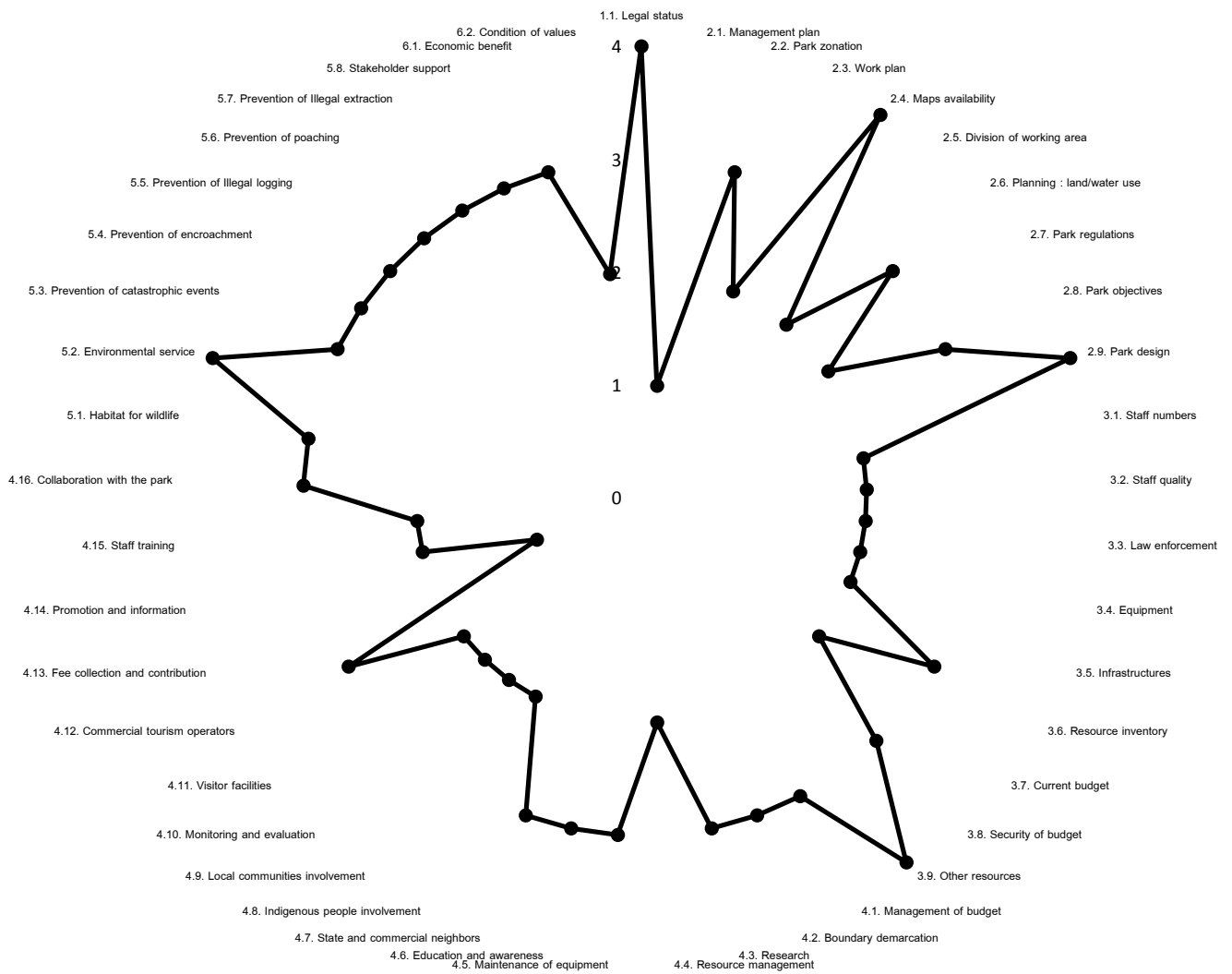
## 8. Meinmahla Kathapa Wildlife Sanctuary (Myanmar)



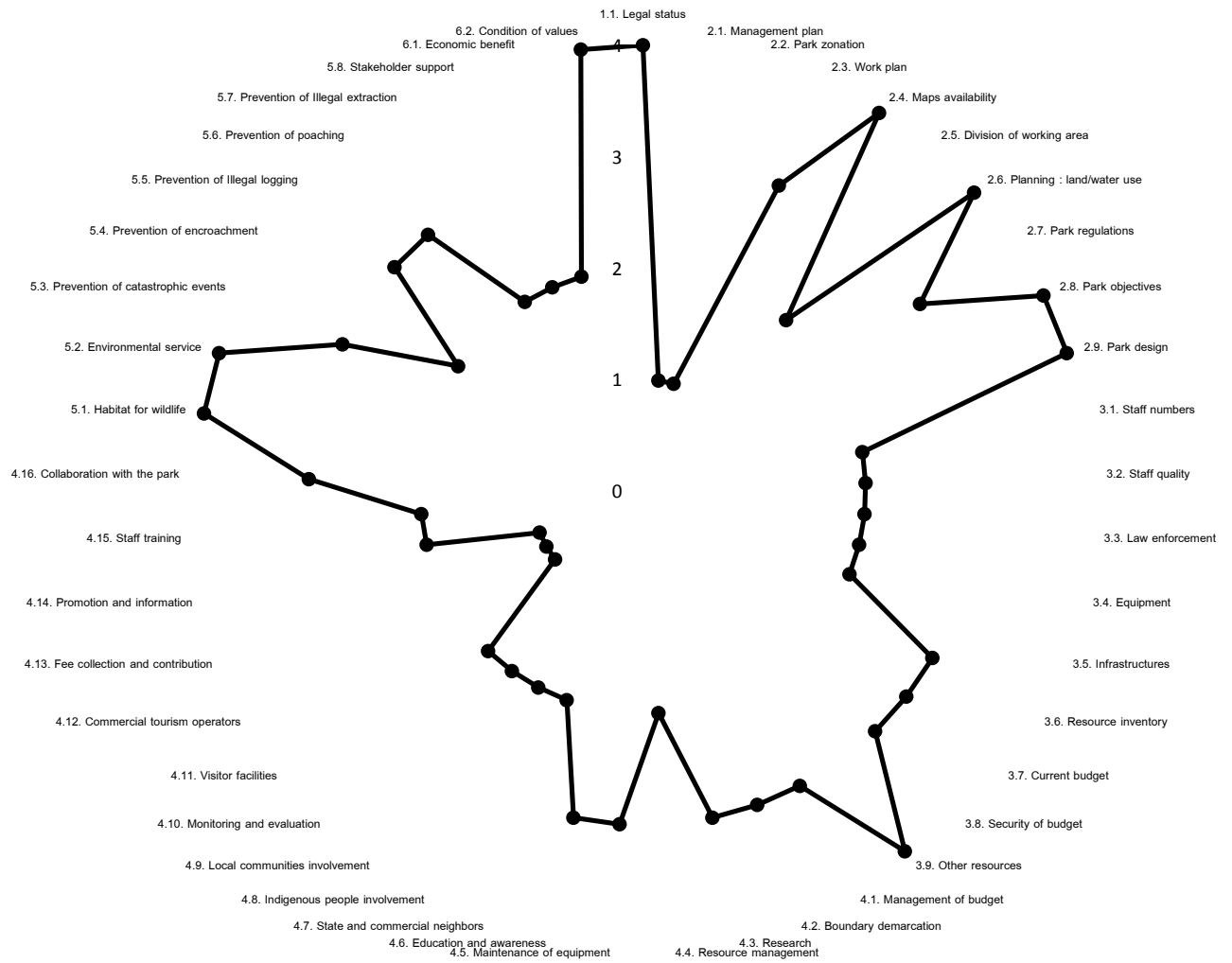
## 9. Indawgyi Wildlife Sanctuary (Myanmar)



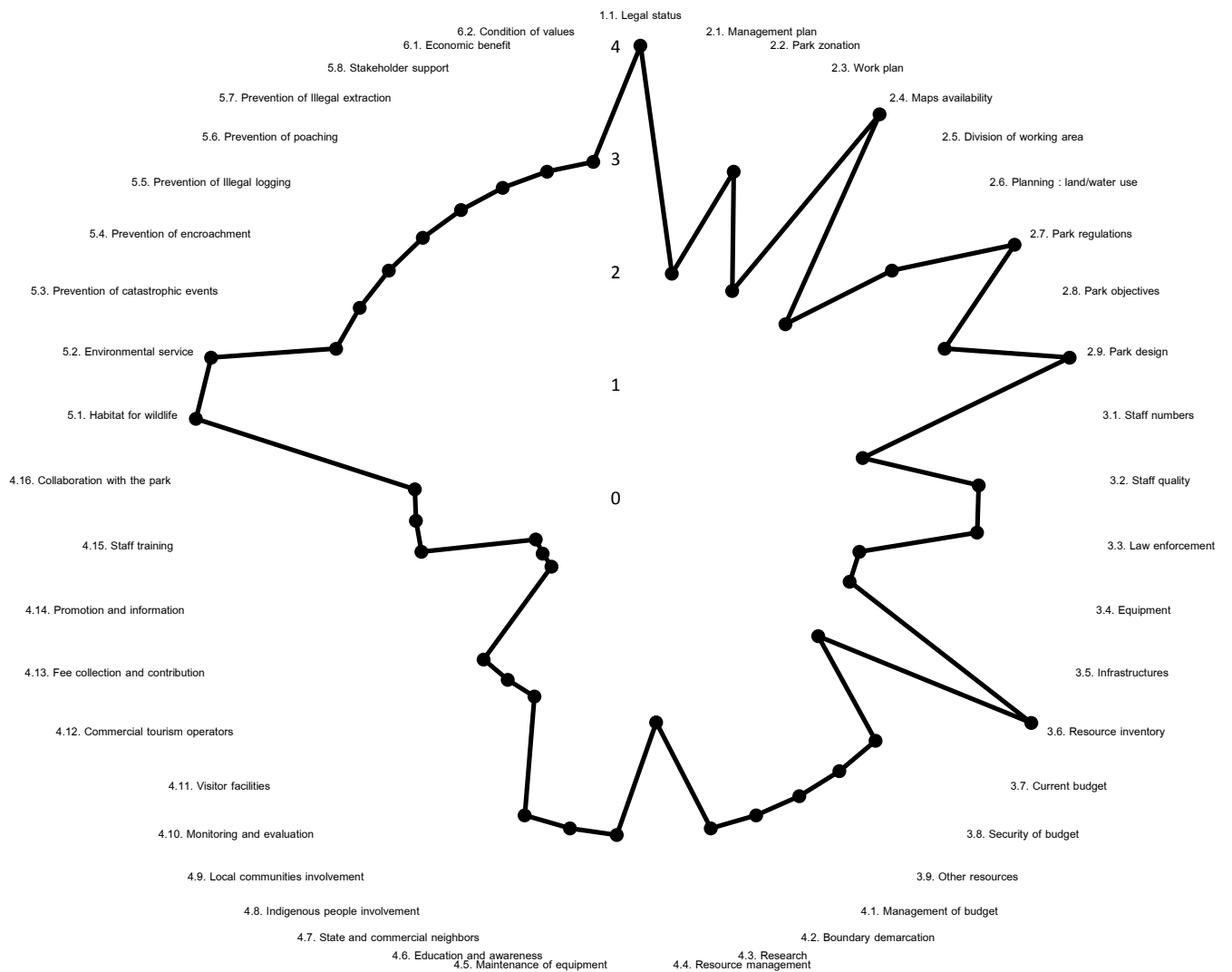
# 10. Inle Wetland Wildlife Sanctuary (Myanmar)



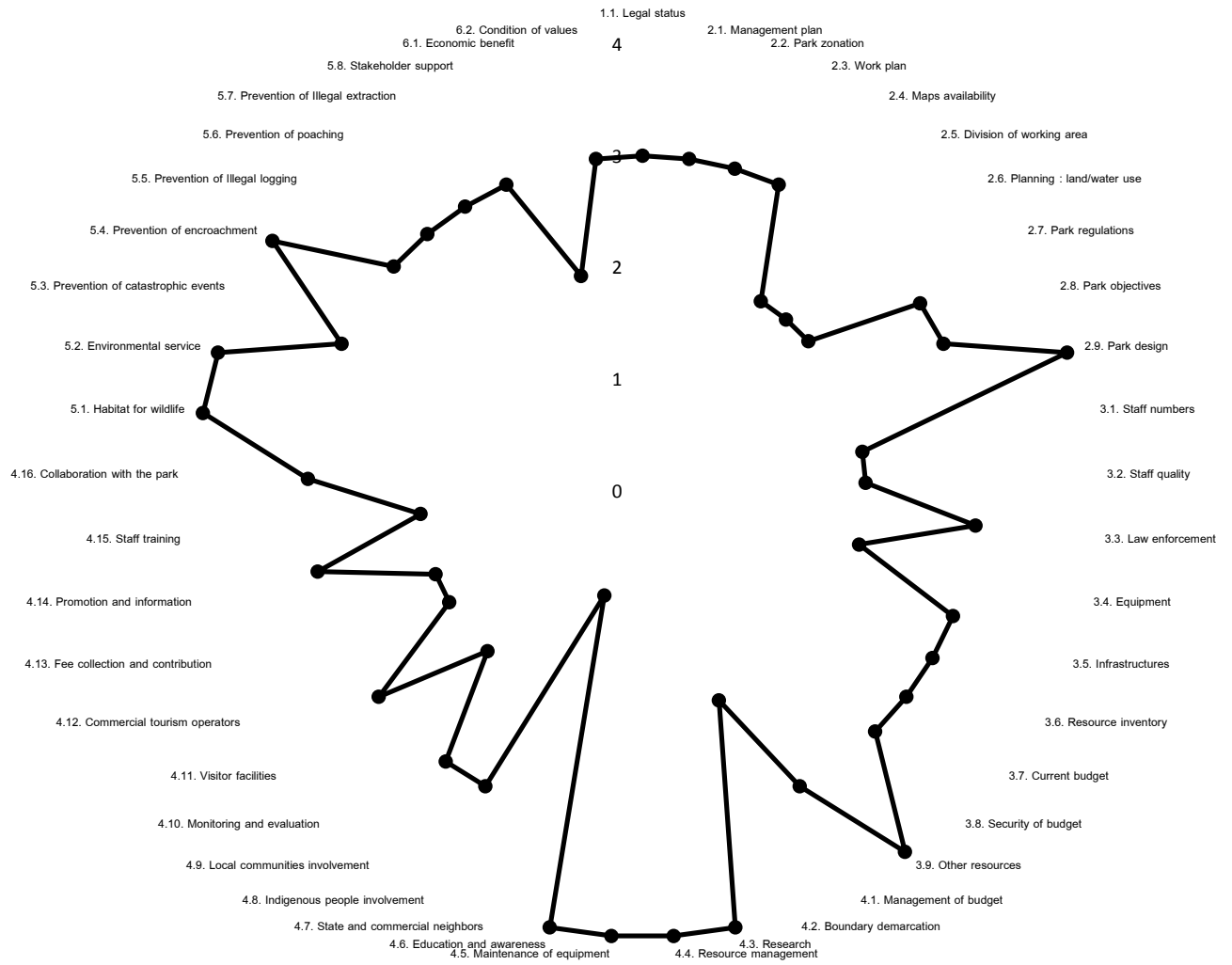
# 11. Khakaborazi Mountain National Park (Myanmar)



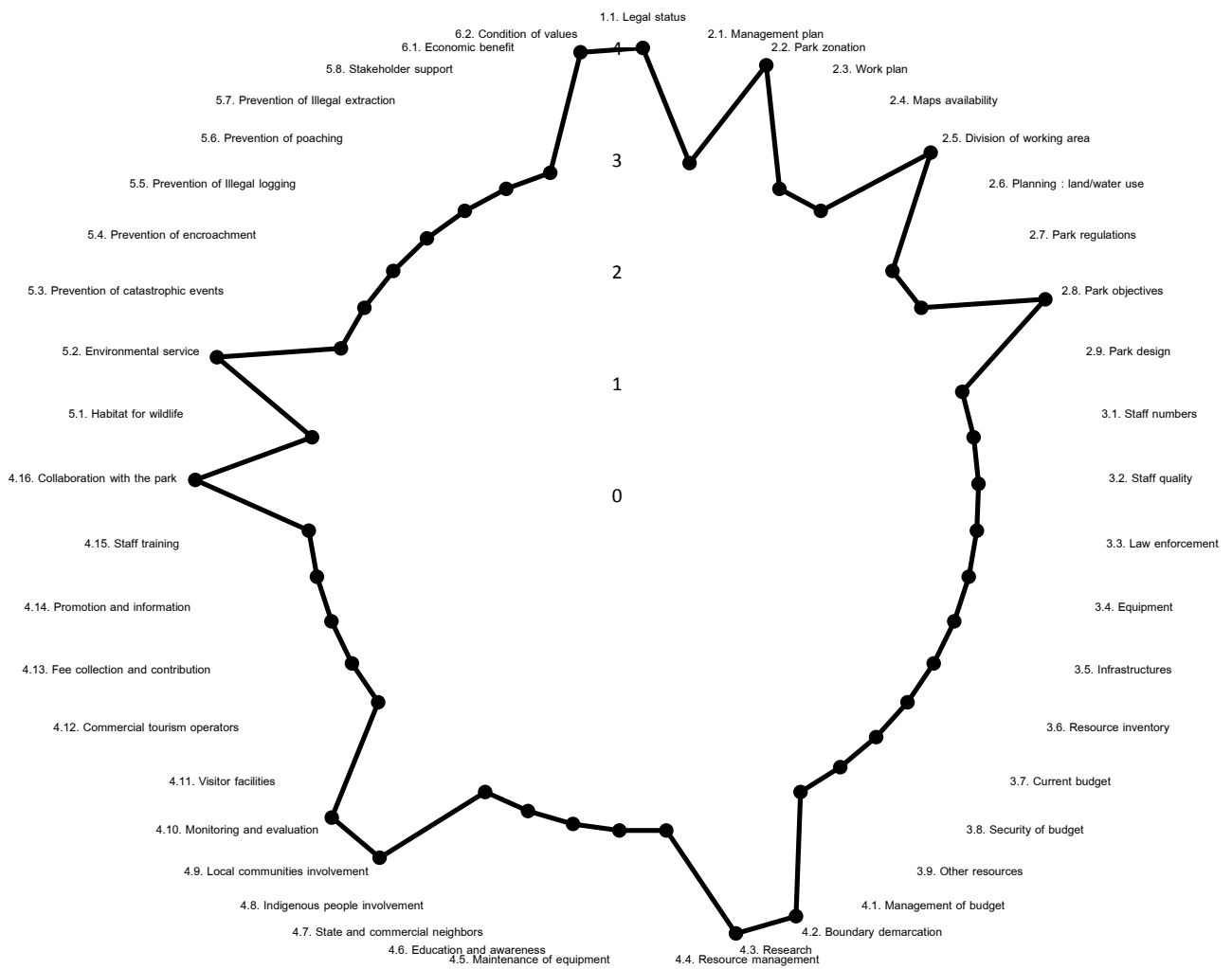
## 12. Lampi Marine National Park (Myanmar)



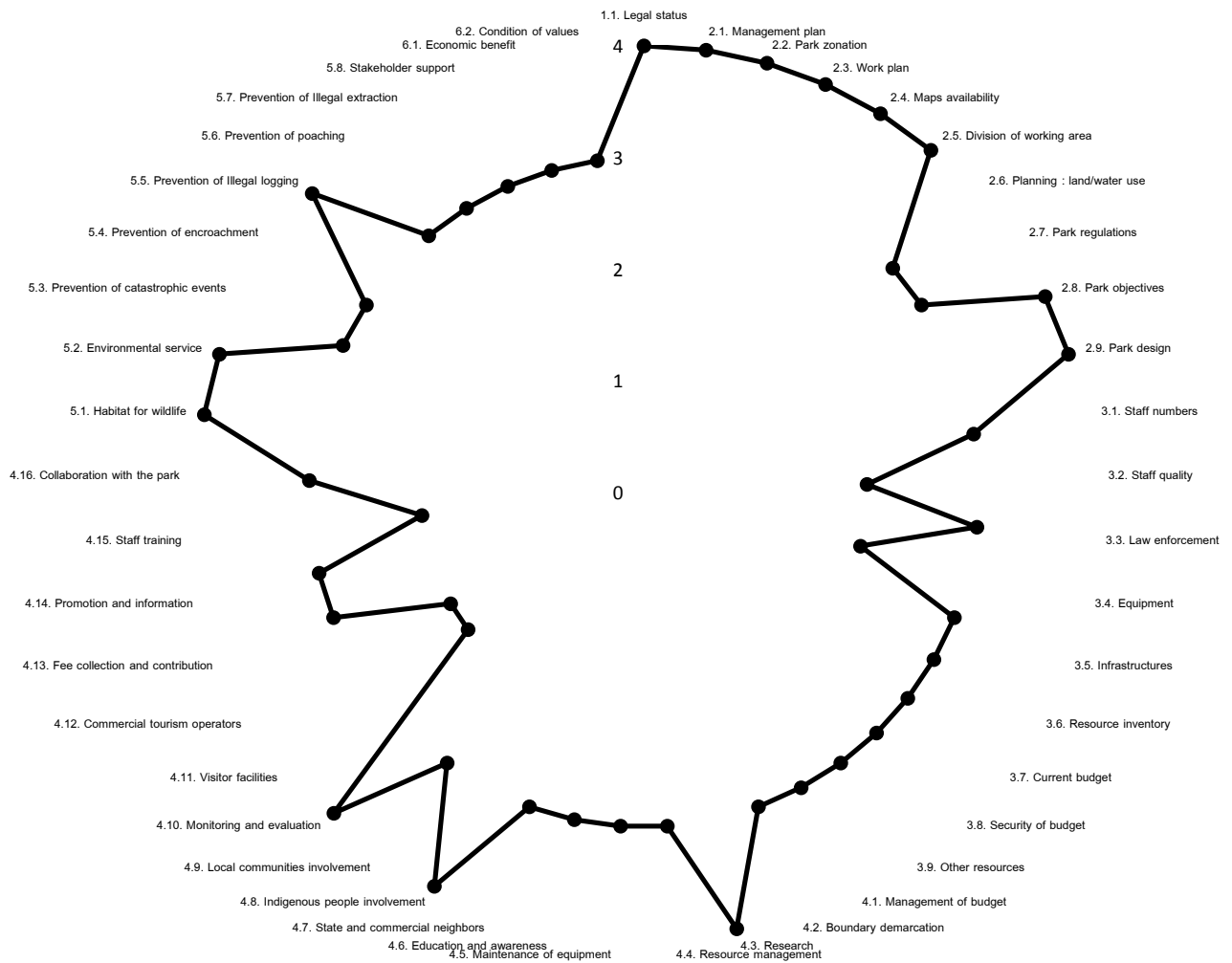
### 13. Iglit Baco National Park (Philippines)



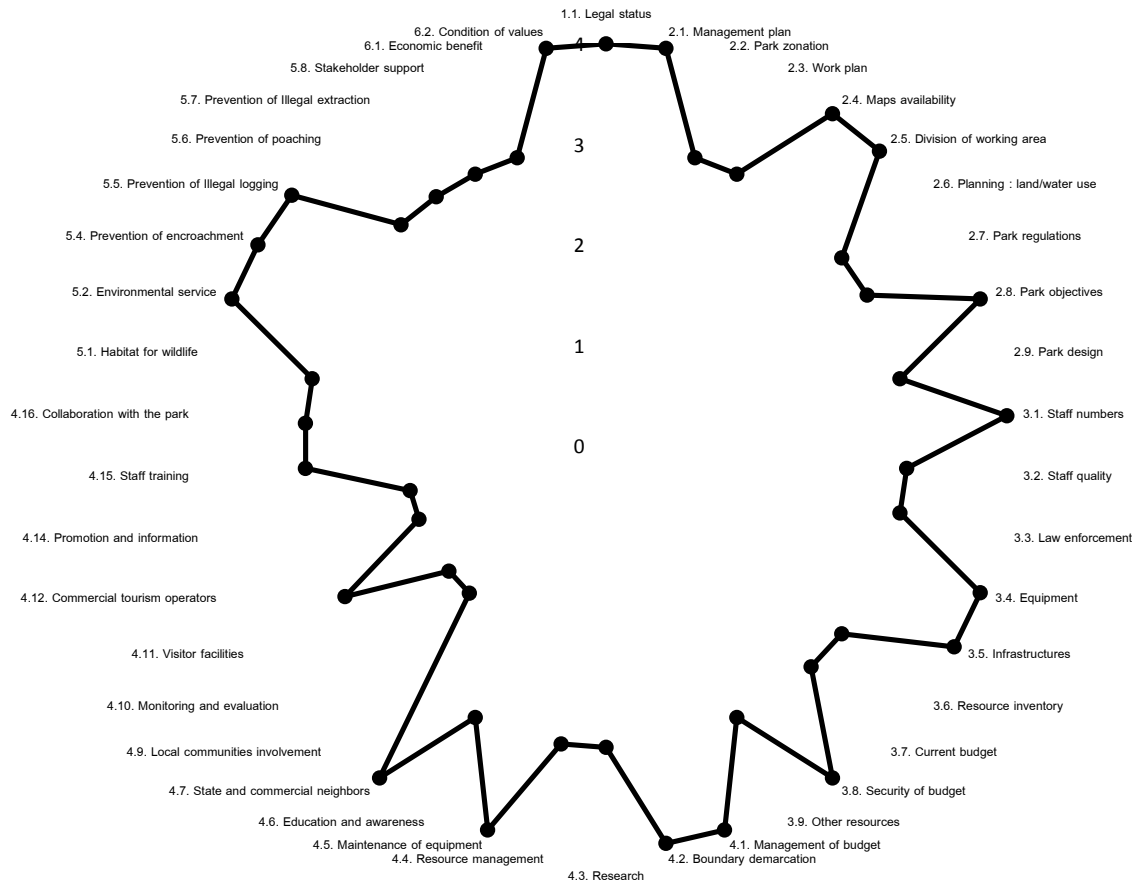
# 14. Mount Kitanglad Range Natural Park (Philippines)



# 15. Mount Malindang Range Natural Park (Philippines)



## 16. Bukit Timah Nature Reserve (Singapore)



## 17. Khao Yai National Park (Thailand)

