

Sustainable management of  
ASEAN Heritage Parks  
through valuing and improving eco-tourism

**Korea Environment Institute**

**Korea National Park Service**

**ASEAN Centre for Biodiversity**

**Makiling Center for Mountain Ecosystems**

**Tarutao National Marine Park**

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## Research Staff

Hyunwoo Lee (Chief Research Fellow, Korea Environment Institute)

Choongki Kim (Research Fellow, Korea Environment Institute)

Yoonjung Kim (Researcher, Korea Environment Institute)

Hag young Heo et al. (Research Fellow, Korea National Park Service)

Atty, Roberto. V. Oliva et al. (Executive Director, ASEAN Centre for Biodiversity)

Nathaniel C. Bantayan et al. (Professor and Director, Makiling Center for Mountain Ecosystems)

Khun Panapol et al. (Superintendent, Tarutao National Marine Park)

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## | Contents |

<b>I . Introduction</b> .....	5
<b>II. Key strategies to implicate BBI's objective</b> .....	7
1. Facilitate the linking of needs through effective partnership.....	7
2. Enhance participation of local people .....	8
3. Transfer techniques and knowledge.....	9
<b>III. Study sites</b> .....	12
<b>IV. Results of the BBI pilot project</b> .....	13
<b>V. Lessons learned and recommendation</b> .....	24
<b>VI. Conclusion</b> .....	26
Annex1. Field survey questionnaires.....	28
Annex2. Project implementation timeline .....	41
Annex3. Project budget .....	42

## **I. Introduction**

To increase effectiveness of management on certain protected areas with high conservation importance, ASEAN member countries have declared ASEAN Heritage Parks (AHPs). However, there was a lack of effort to examine whether the declaration of AHPs have improved the effectiveness of management on such protected areas which have obtained an additional recognition. One on the major objective of AHPs is to facilitate eco-tourism among protected areas. It is well-known that eco-tourism is one of the most important cultural services that should be sustainably managed and facilitated. To enhance and manage cultural services, it is necessary to analyze visitors' spatial preference and visiting characteristic that can be further utilized to set sustainable management strategies. However, it is often a challenge to collect and assess such information, which makes hard to valuate cultural services in developing countries' protected areas.

As such, there is a need to assess and monitor the visiting characteristic of AHPs and support management strategy that encourages sustainable eco-tourism. In specific, Korea Environment Institute (KEI), in collaboration with ASEAN Centre for Biodiversity (ACB) and Korea National Park Service (KNPS), will apply an innovative modeling approach using social big-data to examine the current status of management, and support the development of related management strategies encouraging eco-tourism that enhances cultural services in AHPs. Furthermore, this project conducts field-survey based on questionnaires with local experts to assess what characteristics of the ecosystem attract tourists or deter them from visiting

As AHPs are well-known for high biodiversity, the project will provide new opportunities for the evaluation of cultural services (e.g. recreation, education) focusing on eco-tourism that safeguarding sustainability of protected areas for the countries and region where there are only limited field data. As modeling approach for ecosystem services was presented in the IPBES 4th plenary, KEI would like to support ASEAN

member countries in their adoption of In-VEST recreation model and its application to their forest management. Moreover, through conducting the participatory field-survey, KEI promotes active participation of local experts, park visitors, and regional communities that can raise awareness of sustainable ecotourism and AHPs.

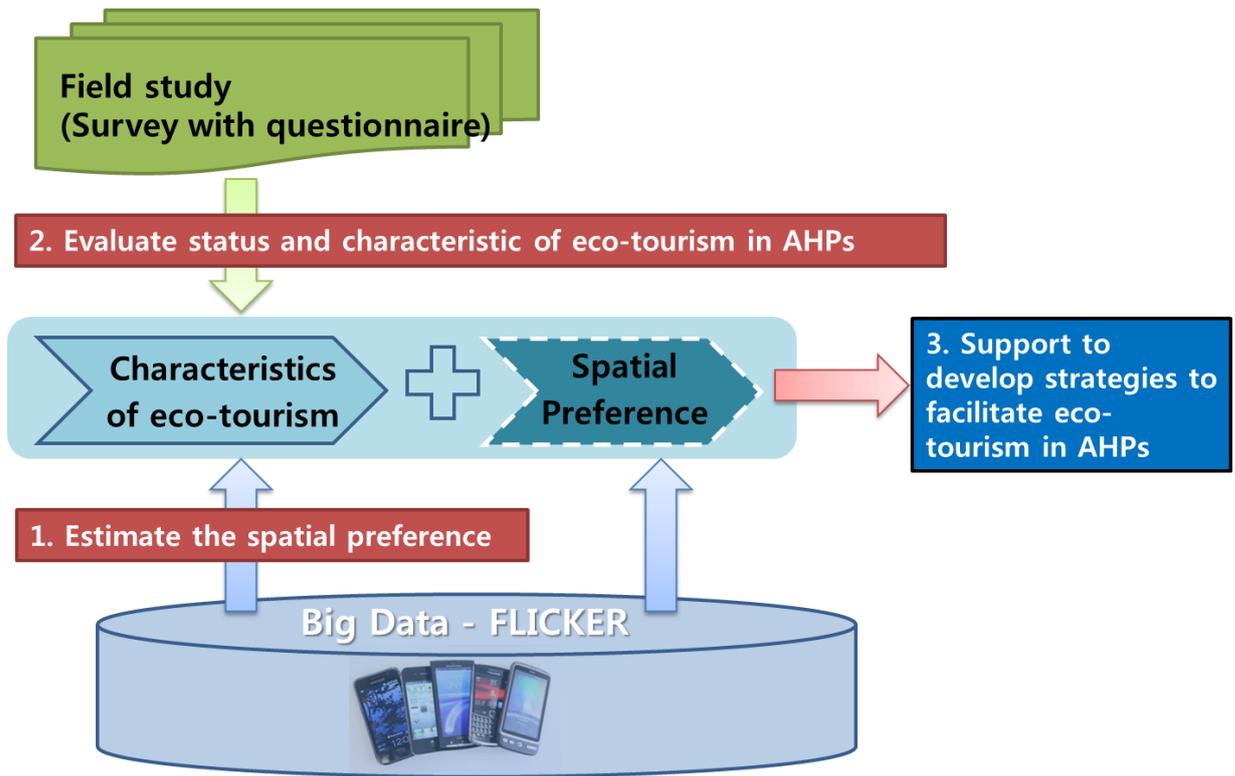


Figure. Conceptual diagram to validate eco-tourism in AHPs

## II. Key strategies to implicate BBI's objective

To implicate BBI's objective throughout implementation of the project, KEI focused on three parts. That is KEI attempts to facilitate the linking of needs through effective partnerships between KEI and ACB, enhance participation of local expert and resident, and transfer techniques and knowledge through implementation of the BBI project and technical workshop.

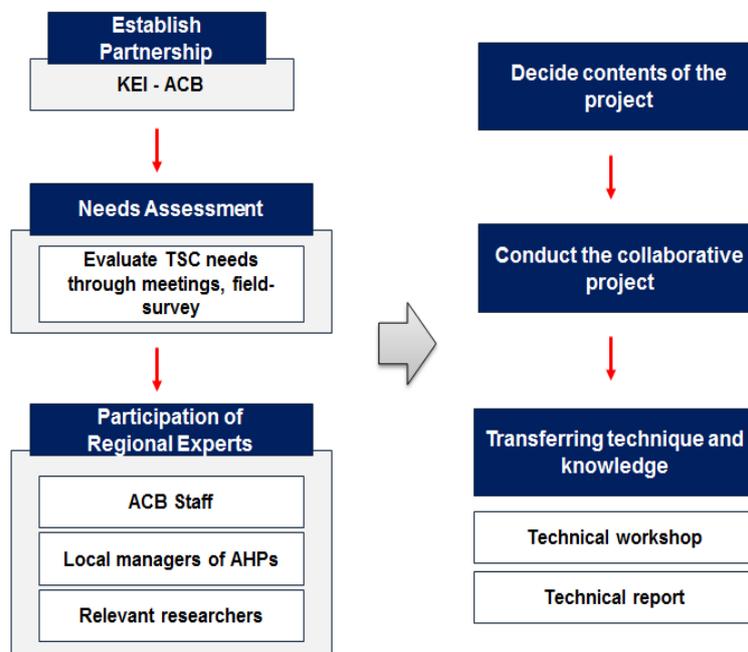


Figure. Process to implicate BBI objectives

### 1. Facilitate the linking of needs through effective partnership

Before conducting the project, KEI visited ASEAN Centre for Biodiversity(ACB) and Makiling forest to discuss the contents of the project. As needs on management of AHPs

is well-explained through experts of ACB, KEI was able to define the final contents of BBI pilot project. Furthermore, through cooperation with ACB, it was able to reach and promote participation of local experts throughout the whole process of the project. KEI visited one of the project sites, Mt. Makiling, as a field study with local expert. On the other hand, KNPS (Korea National Park Services) co-hosted the technical workshop to share the best strategies for sustainable eco-tourism.



**Figure. Field-survey in AHPs (Mt. Makiling, Philippines)**



**Figure. Exploring needs on management of AHPs with local institutions(ACB) and local experts**

## **2. Enhance participation of local people**

As the project conduct participatory field survey, even though KEI prepares questionnaire for the survey, local expert became main actor. Since Mt. Makiling is managed by Makiling Center for Mountain Ecosystems, University of the Philippines Los Banos, main experts on forestry were able to join the project. Furthermore, in case of Tarutao AHP, chief park manager joined the project to conduct the field survey. In specific, local experts promote the technical and scientific cooperation on local ecological knowledge and experience in collaboration with KEI with following work scope.

- Finalized the field survey instrument (questionnaire prepared by KEI) reflecting local expert's view
- Education of enumerators
- Analyze and discuss the results with KEI to develop sustainable management strategy to facilitate eco-tourism

Moreover, local community, manager, and park visitor were involved as a respondent. Through responding to the questionnaire, respondents were able to recognize the role and importance of AHPs and its eco-tourism. The matters including suitability of entrance fee and AHPs' contribution on regional economic benefits were also introduced. Local enumerators support the field survey to make respondents to understand language, meaning and relevant information.

### **3. Transfer techniques and knowledge**

#### ***1. Technical modeling on the status of management using social big-data***

Social big-data acquired from social media web-sites such as Flickr's geo-tagged photographs has diverse information on people's spatial preference. To analyze spatial visiting trend with cost-effectiveness, social big-data can be a useful tool. In this regard, through using In-VEST Recreation Model, spatial allocation and preference of eco-tourism resources in 38 AHPs were analyzed. For selected two study sites, more concrete analysis was performed with high spatial-scale (100m\*100m).

Through technical workshop<sup>1</sup>, the results were explained and discussed for improvement management of AHPs. Modeling techniques to use social big-data to assess spatial preference were transferred to AHPs managers. Each modeling step and its utilization on ecosystem services and eco-tourism were introduced.

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<sup>1</sup> Held in Seoul, Republic of Korea at 3~5th, November

## ***2. Field survey based on questionnaires to assess visiting satisfaction of AHPs***

To analyze visiting satisfaction of two AHPs, to include direct response from visitors, local community and managers, field survey based on questionnaires<sup>2</sup> was performed. The initial version of questionnaire was prepared by KEI. Receiving comments from local expert of Mt. Makiling, the final version was confirmed.

Through conducting the field survey, eco-tourism's elements that can promote sustainability were discussed and shared. KNPS introduce and transfer the knowledge and experience on S. Korea and other countries' best practice on national eco-tourism strategy. Within the survey results, the transferred knowledge was utilized to interpret the results and develop appropriate solution.

## ***3. Details of technical workshop***

- ① Date: 3~5 November, 2016
  - ② Venue: Korea National Park Eco-Learning Institute, Bukhansan National Park, Seoul, Republic of Korea
  - ③ Hosting institutions: Co-hosted by Korean Environment Institute (KEI) and Korea National Park Service (KNPS)
  - ④ Purpose of the workshop: To promote qualitative eco-tourism and management among ASEAN member countries' protected areas (ASEAN Heritage Parks), Korean Environment Institute and Korea National Park Service (KNPS) host workshop on eco-tourism including issues of valuing cultural services with social big-data and setting sustainable management strategies.
-

⑤ Subjects for TSC:

<p><b>KNPS</b></p>	<ul style="list-style-type: none"> <li>▷ Introduction on Korea’s national parks</li> <li>▷ Ecological conservation of Korea’s national parks</li> <li>▷ Eco-tourism and relevant policies</li> <li>▷ Cooperation with regional communities in national parks</li> </ul>
<p><b>KEI</b></p>	<ul style="list-style-type: none"> <li>▷ Introducing BBI pilot project “ Sustainable management of ASEAN Heritage Parks through valuing and improving eco-tourism”</li> <li>▷ Discussion session on our questionnaires of AHPs</li> <li>▷ Training session on valuing cultural services with social big-data</li> </ul>
<p><b>ACB, Mt. Makiling</b></p>	<ul style="list-style-type: none"> <li>▷ Introducing AHPs among ASEAN member states</li> <li>▷ Present field survey results in two AHPs</li> </ul>

⑥ Activity photos:

	<p>During the workshop in Bukhan National Park, Seoul, ROK.</p>
	<p>Organizers and participants of the workshop</p>

### III. Study sites

The BBI project was piloted in two sites namely, Mt. Makiling Natural Reserve located at Laguna Province, Philippines and Tarutao National Marine Park located at Satun Province, Thailand.



**Figure. Mt. Makiling**



**Figure. Tarutao National Marine Park**

Selected project sites had plenty of visitors for eco-tourism. However, it is difficult to develop management plan based on actual preference of each visiting spot. That is, two study sites calculate annual number of visitors at main entrance or main visiting spot. However, there should be more data to assess whole visiting trend to improve eco-tourism. Therefore, reflecting importance of eco-tourism, those two study sites were selected upon the recommendation of ACB

## **IV. Results of the BBI pilot project**

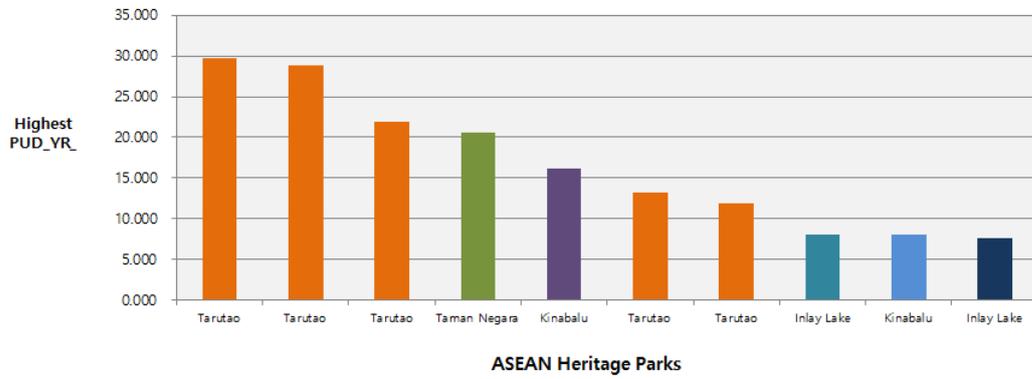
### ***1. Technical modeling on the status of management using social big-data***

For whole AHPs, ranking of spatial preference was identified. Within geo-tagged photographs, which were analyzed through In-VEST Recreation model, photo-user day was calculated. One photo-user-day at a location is one unique photographer who took at least one photo on a specific day. For each cell, the model sums the number of photo-user-days for all days from 2005-2014 (or a user-defined range within those years), and returns the average annual number of photo-user-days (PUD\_YR\_AVG). To identify preference ranking for whole AHPs, (i) ranking of highest Photo-user-days(PUD) (ii) ranking of mean PUD\_YR per AHP (iii) ranking of PUD\_YR per park area were analyzed.

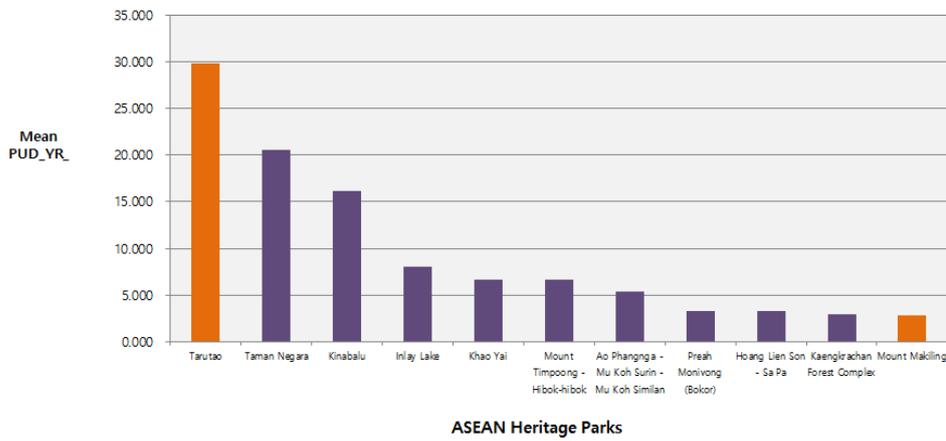
The highest PUD among whole AHPs was discovered in Tarutao National Park, which means Tarutao AHP had highest PUD on geo-tagged photographs at Flickr. Taman Negara, Kinabalu, and Inlay Lake AHPs were also having higher PUD.

Mean PUD\_YR per AHP was also highest in Tarutao AHP. Taman Negara, Kinabalu, and Inlay Lake were also having higher social preference. In case of Mt. Makiling, it had relatively low mean PUD compared to listed AHPs, but it also ranked 10<sup>th</sup> in terms of mean PUD per AHP.

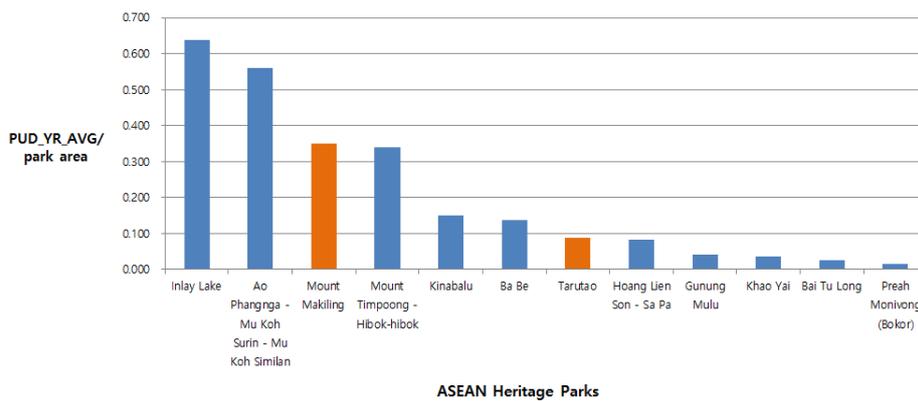
For PUD\_YR per park area, Inlay Lake, Ao Phangnga, and Mt. Makiling had higher ranking. Even though, PUD was lower than other AHPs, Mt. Makiling had higher social preference per area. As Tarutao AHP was having higher park area, PUD-YR per park area was relatively lower than Mt. Makiling.



**Figure. ranking of highest Photo-user-days(PUD)**



**Figure. ranking of mean PUD\_YR per AHP**



**Figure. ranking of PUD\_YR per park area**

For selected two study sites, in-depth analysis was performed. PUD was analyzed with concrete spatial scale (100\*100m). Tarutao AHP had more higher PUD ranged from 0 to 33.2. In case of Mt. Makiling, it had PUD ranged from 0 to 3.1. As discussed with AHPs managers, the results were effective to recognize high and low spatial preferences for whole sites, which was difficult to analyze with simple statistical data. The AHPs managers also pointed out there were unknown or unpopular spatial spots with high visiting preference, which should be recognize for future eco-tourism planning.

To identify ecological, artificial resource's allocation, the project analyzed open street map's open data sources. As some of the AHPs may difficult to have their own spatial information map with allocation of resources, KEI also promote technical and scientific cooperation on analyzing technique of open street map.

As for Mt. Makiling, AHP managers indicate high preference on educational sites. That is, spatial spot with educational facilities had higher visiting preference. Furthermore, following field survey also indicated high preference and expectation on educational program in Mt. Makiling. However, overall facility and infrastructure should be improved. As a whole, Mt. Makiling need to further develop educational program within the modeling results such as new educational trail.

As for Tarutao AHP, there was a distinct spatial preference among islands. For instance, majority of Koh Lipe Island's spatial spots had higher visiting preferences. As for Koh Tarutao Islands, the modeling results illustrated the sparse preference. Comparing with allocation of eco-tourism resources, extracted from open street map, it was able to indicate recreational resource's importance on Tarutao AHP's eco-tourism.



## **2. *Field survey based on questionnaires to assess visiting satisfaction of AHPs***<sup>3</sup>

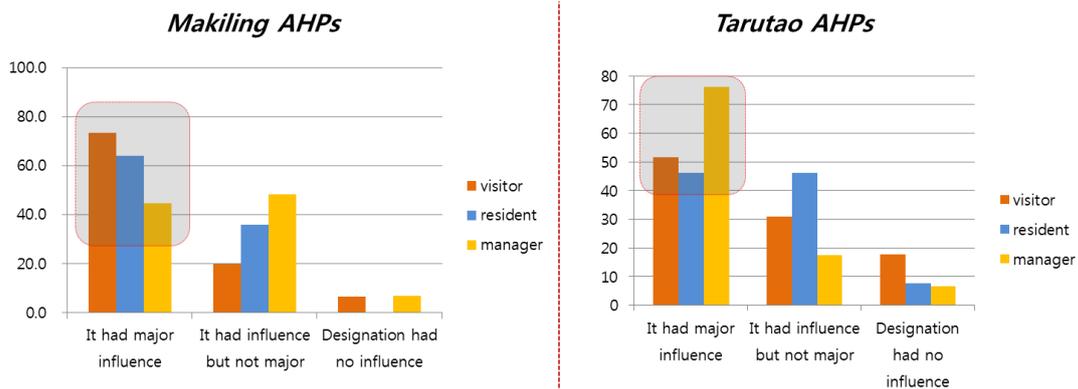
Surveys were conducted in two ASEAN Heritage Parks, namely: Tarutao National Park (TNP) in Thailand and Mt Makiling Forest Reserve (MMFR) in the Philippines between October 7 and 11, 2016; and September 24 and October 6, 2016, respectively. Corresponding questionnaires were provided by KEI for three sets of respondents: visitors, managers and local community. From a total of 142 respondents in TNP, visitors, managers and local community represented 49, 46 and 47, respectively. On the other hand, there were 35 visitor-respondents, 30 manager-respondents and 35 local community-respondents for a total of 100 respondents in MMFR. Data collection was done using purposive sampling and a combination of self-administered and interview sessions with the respondents. The questionnaire was divided into four parts, namely: description of the respondent (i.e. sex, age) and frequency of visit; impact of designation as an AHP; points of interest and level of satisfaction; and fee structure, willingness to pay and spending habits of respondents.

For TNP, results showed that visitors and locals primarily visit due to the scenic beauty and leisure that the place offers. First-timers comprise 69% for the former and only 23% for the latter. For MMFR, first-time visitors represent 71.4% while 6.1% are local first-timers. Locals in both parks know that such have been designated as AHPs, i.e. 85.1% for TNP and 68.6% for MMFR. However, more visitors (53.1%) in TNP know about the AHP programme than visitors in MMFR (34.3%). Perhaps this is due to the fact that TNP is a more popular site than MMFR. In addition, more visitors (78.3%) and locals (64%) in MMFR believe that its designation as an AHP had a major influence in increasing visitation. For TNP, less number of visitors (51.7%) and locals (46.2%) believe so. Expectedly, a greater proportion of respondent-managers in both sites offered the same opinion.

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<sup>3</sup> *ACB and Field Survey Team Members from Makiling Center for Mountain Ecosystems (Nathaniel C. Bantayan, Rogelio T. Andrada, II, Aireen Barredo-Parducho and Kyle Pierre Israel) prepared and written the results of the field survey*

On the question on whether AHP designation will improve the ecological/biological and social/cultural values, visitors in both sites have high expectations while managers and locals in TNP see an improvement. For MMFR, managers and locals believe that these values will be much improved. In addition, visitors have high expectations that facilities will be improved. Similarly, majority of managers and locals expect improvement as well (MMFR – very much improved; TNP – much improved). In terms of economic benefit, the respondents in TNP believe an increase due to the AHP designation (managers = 97.8; locals = 100%) estimated at an average of USD 30 (THB 1390) for managers and average of USD188 (THB6710.5) for locals. For MMFR, the increase in economic benefit ranges between USD7.5 (PHP 368) on the average for locals and USD322 (PHP19,000) on the average for managers.



**Figure. Recognized effectiveness of AHPs to eco-tourism**

As far as the impact of AHP designation on regional community participation is concerned, managers and locals in both sites overwhelmingly agree that participation has increased. For TNP, hotel/resort activity (for managers) and outdoor leisure (for locals) have increased. For MMFR, participation has increased for outdoor leisure according to both sets of respondents. In addition, all respondents in both sites say that they will continue to visit the AHP, in particular Lipe Island (for visitors) and Tarutao Island (for locals) in TNP and the Makiling Botanic Gardens (MBG), Flatrocks,

Mudspring (for visitors), and Peak 2 (for locals, including MBG and Mudspring) in MMFR. Managers in TNP and MMFR recommend the Tarutao Island and MBG, respectively.

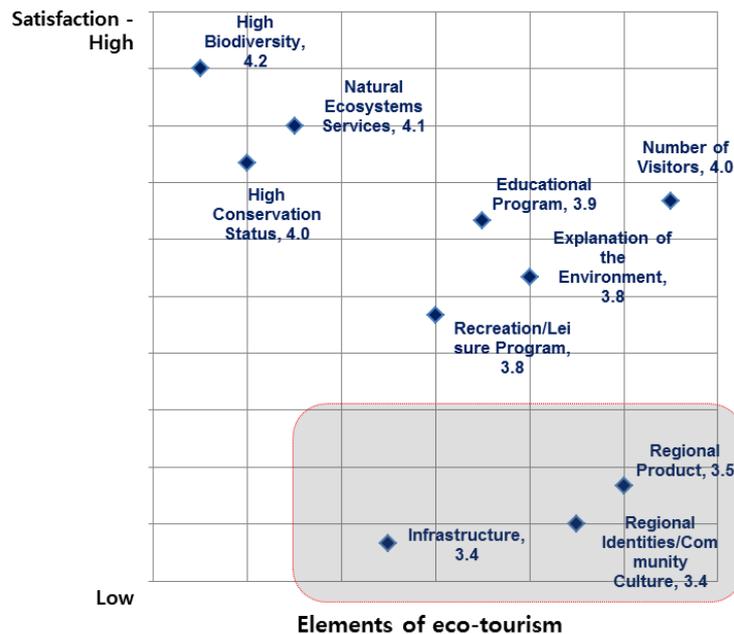


Figure. (MMFR) Visiting satisfaction for each attributes of eco-tourism

There were eleven (11) factors that were rated by the respondents, namely: high biodiversity, high conservation status, natural ecosystem services, facilities, infrastructure, leisure/recreation program, education program, explanation of environment, regional identity/community culture, regional product, number of visitors. Results show that visitors of the two sites are satisfied with all of the factors. For locals, the same level of satisfaction were obtained with higher satisfaction on two factors: high biodiversity and educational program. Manager-respondents in MMFR exhibited higher satisfaction for factors like high biodiversity, high conservation status, natural ecosystems services, educational program, explanation of the environment, and number of visitors. These results are not surprising since MMFR is recognized world-wide for

its unique biodiversity given its size. It is managed by a university that explains why the educational program is rated high. Also, MMFR maintains a small cadre of students who are nature interpreters.

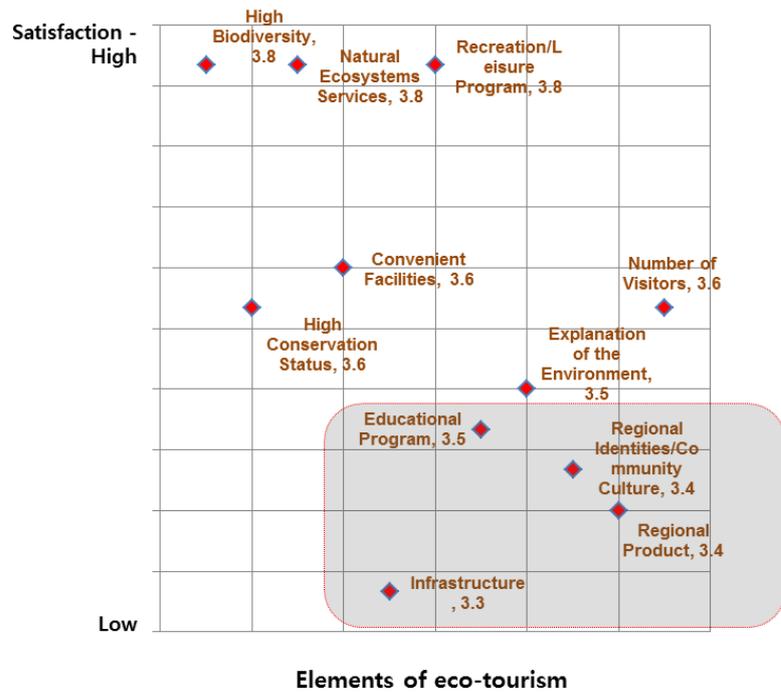


Figure. (TNP) Visiting satisfaction for each attributes of eco-tourism

On the question on the suitability of the admission fees, an overwhelming proportion of the manager-respondents from MMFR believe that the fees are unsuitable and should be increased. Although a majority of the visitors (67.6%) and locals (52.9%) believe that the admission fee is suitable, they also believe that that the fee should be increased (visitors 67.7%; locals 75%) citing the need to improve the facilities and conserve the natural resources. On the other hand, TNP respondents [managers (80%), visitors (72.9%), locals (76.1%)] opine that the fee is suitable. However, they also note that any fee increase should focus on management of visitors and conservation of natural resources.

After AHP designation, the budget in MMFR minimally increased, according to the manager-respondents (55.6%) while a great majority (88.9%) of TNP manager-respondents believe the same which, accordingly came from government funding and fee increase. For MMFR, the manager-respondents reported the increase coming from external funding and government funding, respectively. The same respondents also believe that the increases are not sufficient (TNP 68.9%; MMFR 90.5%).

The respondents were also asked about their spending habits on transportation, hotel, dining, leisure, education and shopping. Visitors and locals in TNP spend an average of USD62 and USD38, respectively from a range of USD6 – 281 and USD 7 – USD337. Similarly, locals in MMFR spend an average of USD0.60 from a range of USD0 – USD4. Unfortunately, no data is available on the transportation habit of visitors, although MMFR is comparatively more accessible than TNP. Conversely, visitors and locals in TNP spend an average of USD99 and USD48.5 from a range of USD14-USD225 and USD14 -USD393, respectively to stay in hotels around TNP. Visitors in MMFR spend less with an average of USD15.6 from a range of USD0.0 – USD24.2. In general, visitors in MMFR have day-trips and do not require accommodation. In terms of dining habit, visitors in TNP and MMFR spend an average of USD34 (between USD6 – USD140) and USD0.61 (between USD2 – USD30.25), respectively. For locals in TNP and MMFR, they spend an average of USD13.5 (between USD0.6 – USD56) and USD1.2 (between USD0.0 – USD4), respectively. Since there is a huge population of students in MMFR, food is relatively cheaper. Spending habits on leisure is more diverse in TNP with an average of USD46.5 and USD25.5 for visitors and locals, respectively. For MMFR, the average is USD4.0 and USD0.5 for visitors and locals, respectively. The range for TNP visitors is USD14 – USD 140 while for locals, the range is USD6 – USD70. On the other hand, for MMFR visitors and locals, the range is USD2 – USD 10.1 and USD0.0 – USD 2, respectively. There is no data to show on spending on shopping in TNP. The same is true for locals in MMFR. In both sites, shops for souvenir items are scarce. However, data show that visitors in MMFR spend an

average of USD11.45 between a range of USD0.06 – USD20.2.

Programs are more available in TNP than in MMFR with visitors and locals spending an average of USD29.2 [between USD0.0 and USD56.2] and USD55.5 [between USD14 – USD182.5], respectively. Interestingly, locals in TNP spend more on park programs than do visitors. On spending on education, visitors and locals in TNP spend an average of USD9.4 and USD21, respectively. While in MMFR, visitors and locals spend comparatively little with an average of USD0.22 and USD0.06, respectively.

As an offshoot of this study, we propose to expand the survey to other AHP sites, for instance, Khao Yai National Park in Thailand, Gunung Mulu National Park in Sarawak, Malaysia; Bai Tu Long in Vietnam, Tubbataha Reefs Natural Park in the Philippines. However, the survey instrument needs to be improved to capture as much information as possible relative to the ecosystem services that the AHPs provide in addition to the factors that were assessed. This study also proposes to conduct a capacity building program to share best practices in AHPs that implement sound technical, financial and managerial programs that are hallmarks of sustainable ecotourism (Attachment B).

During the conduct of the survey, it became apparent that several factors affected its smooth and efficient implementation. These factors are the following: appropriateness of the questionnaire, timing of the survey and training of the enumerator/facilitator.

Some of the questions in the survey instrument were difficult to answer. In particular, on the impact of the AHP designation of the park on the conservation value, ecological/biological value, social/cultural value, education program. Also, the language of the questionnaire needs to be localized to facilitate the survey. In addition, the definition of the respondents needs to be refined especially with regard to the managers, and the distinction between the locals and the visitors. What constitutes a manager needs to be ascertained. For MMFR, which has a community inside, the definition of the who are the locals needs to be drawn to distinguish them from visitors. The timing of the survey should be done during the peak season to capture more respondents. Likewise, the enumerator/facilitator needs to undergo training to ensure that the

objectives of the survey are met. Thus, capacity building of park personnel is important.

The conduct of surveys of this nature is critical to monitor the awareness of all stakeholders (ie. locals, visitors, managers) on the ecosystem and other valuable services that ASEAN Heritage Parks provide.

## **V. Lessons learned and recommendation**

The project is required to be replicated in other AHPs that benefit to much extent from their ecotourism programmes, such as Khao Yai National Park in Thailand, Gunung Mulu National Park in Sarawak, Malaysia; Bai Tu Long in Vietnam, Tubbataha Reefs Natural Park in the Philippines.

To improve the conduct of similar activities in the future, the project poses the lessons learned and recommendations that should be considered in future study, to wit:

- Through implementing two methodologies including 1) In-VEST model with social big-data and 2) field survey based on questionnaire, synergy was produced. Spatial visiting characteristics and contextual visiting characteristics (e.g. effectiveness after the designation of AHPs) were comprehensively evaluated.
- Designing a survey instrument that is suited to the context of the site, such as use of more appropriate language, clear distinction of sampling population (e.g. locals and visitors may appear to come from the group depending on local situation; what constitute the “manager” group), and in consideration of the management structure of the park.
- The modeling technique was approved to be effectiveness in developing country’s eco-tourism and cultural service assessment. Where field data is limited, social big-data can be utilized for cost-effective evaluation..
- Modeling technique to use more diverse social big data such as Twitter should be recommended to further utilize improved analysis in park

management.

- The project needs to be sustained in longer-term to facilitate sustainable eco-tourism in whole AHPs. Transferred technique and knowledge need to be maintained and utilized in AHPs' management.
- More activities on capacity building are required to be introduced. AHPs managers are the key personnel to implement the transferred knowledge.
- Future study sites need to have big-data as much as possible to produce effective results for eco-tourism program. For future study on AHPs, this year's results on rankings of PUD among AHPs should be considered.

## **VI. Conclusion**

Eco-tourism is one of the most important cultural services that should be sustainably managed and facilitated. To enhance and manage cultural services, it is necessary to analyze visitors' spatial preference and visiting characteristic that can be further utilized to set sustainable management strategies. However, it is often a challenge to collect and assess such information, which makes hard to value cultural services in developing countries' protected areas. In this regard, utilizing InVEST Recreation Model and field survey based on questionnaires, KEI in collaboration with ACB and KNPS analyzed status of eco-tourism among ASEAN Heritage Parks (AHPs), the authenticated national parks recognized for its high biodiversity, as a program to facilitate 'Technical and Scientific Cooperation' under Bio-Bridge Initiative of Convention of Biodiversity.

Using In-VEST Recreation Model, spatial allocation and preference of eco-tourism resources in 38 AHPs was analyzed. Among all 38 AHPs, as for Mt. Makiling and Tarutao national parks, in-depth analysis was performed to investigate attributes that facilitating eco-tourism. AHP managers recognized the spatial spots with high preference that was difficult to quantify. Comparing with spatial allocation of eco-tourism amenities (e.g. facility, road), it is found that Mt. Makiling had higher importance on educational infra. On the other hand, Tarutao AHP had higher importance on recreational infra to facilitate eco-tourism.

Within field survey, local experts were able to recognize strong and weak elements (e.g. ecosystem services, program, infrastructure) of eco-tourism. To point out, field survey was effective to CEPA on AHPs to participants including AHP manager, enumerator, and respondents.

This study's results can be utilized to support the development of related management strategies encouraging eco-tourism that enhances cultural services in AHPs. Specifically, as AHPs are well-known for high biodiversity, the project will provide new opportunities in region for the valuation of cultural services focusing on eco-tourism

that safeguarding biodiversity for the countries and region where there are only limited field data. Furthermore, we expect the project output could be used in other ASEAN heritage parks and ASEAN Member Countries' protected areas. The project could be replicable especially in the skills of applying InVEST Recreation Model and valuating eco-tourism in AHPs with social big data accompanied with field-survey.

As a whole, we expect that the modeling results will contribute to enhance Aichi Biodiversity Target 1, 11, and 14. That is, the project support to improve eco-tourism strategies for management of national park, increase public awareness on AHPs, and support the ways to increase sustainable use of natural resources to enhance ecosystem services.

# Annex1. Field-survey - questionnaires

## (Local community) AHPs' eco-tourism - Questionnaire

### A. Basic information

1. Sex (Please check)      ① male      ② female

2. Age \_\_\_\_\_

3. Purpose of your most recent visit (Write number) (1st: \_\_\_\_\_) (2st: \_\_\_\_\_)

- |                 |                          |
|-----------------|--------------------------|
| ① Scenic beauty | ④ Experiencing Community |
| ② Tracking      | ⑤ Leisure                |
| ③ Education     | ⑥ Participating festival |
| ⑦ Others(_____) |                          |

4. How often do you visit Mt. Makiling Forest Reserve (MMFR)? (Write number) \_\_\_\_\_

- |                    |                             |
|--------------------|-----------------------------|
| ① First time       | ④ 6-10 times a year         |
| ② 1-2 times a year | ⑤ More than 10 times a year |
| ③ 3-5 times a year |                             |

### B. Evaluating effectiveness on designation of AHPs

1. Did you know or hear about ASEAN Heritage Parks (AHP)? (Please check)    ① yes      ② no

2. Did you know that this place was designated as AHPs? (Please check)      ① yes      ② no

3. If you chose ① in prior question, do you think the designation as AHP increased visitation? (Please check)

- ① It had major influences
- ② It had influenced increase in visitors, but it was not a major reason
- ③ The designation had no influence

4. What aspects of MMFR were improved after it was designated as AHP? (Please check box)

Factors	Not at all ①	②	③	④	Very much ⑤	Can't say
ecological/biodiversity values						
social/cultural values						
facility						
education/program						

5. After MMFR's designation as AHP, did you enjoy an increase in economic benefits? (Please check)

Not at all ①	②	③	④	Very much ⑤

(5-1) In terms of income, how much economic benefit was increased? (Monthly \$ \_\_\_\_\_)

6. After MMFR's designation as AHP, do you think participation of regional community has increased? (Please check)

Not at all ①	②	③	④	Very much ⑤

(6-1) What kind of participation was increased? (Write number ) \_\_\_\_\_

- ① Selling products
- ② Hotel/Resort activity
- ③ Dining activity
- ④ Outdoor leisure
- ④

Others(\_\_\_\_\_)

**C. Evaluating eco-tourism in AHPs**

1. What is your overall satisfaction of this AHPs? (Please check box)

Very un-satisfied				Very satisfied
①	②	③	④	⑤

2. Will you continue visiting this AHP? (Please check box)

Not at all				Very much
①	②	③	④	⑤

3. What are your typical activities when visiting this AHP? (Write number) (1st: \_\_\_\_\_)

(2st: \_\_\_\_\_)

- ① Admiring scenic beauty
- ② Tracking
- ③ Education
- ④ Experiencing Community
- ⑤ Leisure
- ⑥ Participating festival
- ⑦ Others(\_\_\_\_\_)

4. Which places do you commonly visit in this AHP?

(1st)
(2nd)
(3rd)

5. What are your most impressive place in this AHP?

(1st)
-------

6. Please rate your overall satisfaction of the following factors (Please check following box)

Factors		Very unsatisfied ①	②	③	④	Very satisfied ⑤
Natural resources	High biodiversity					
	High conservation status (low deforestation rate)					
	Natural ecosystem services including CO2 sequestration, clean water etc.					
Facility	Convenient facilities					
	Infrastructure					
Program	Leisure/recreation program					
	Education program					
	Explanation of environment					
Community	Regional identity/Community culture					
	Regional product					
Carrying capacity	Number of visitors (per day basis)					

7. Do you think MMFR's designation as an AHP led to people having an increased recognition of its biodiversity value? (Please check)

Not at all ①	②	③	④	Very much ⑤	Can't Say
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**D. Willingness to pay on eco-tourism**

1. Do you think this admission fee is suitable? (Write the number) \_\_\_\_\_

- ① Unsuitable, it needs to be decreased
- ② Unsuitable, it needs to be increased
- ③ Suitable
- ④ No idea

2. Are you willing to pay more for this AHP? (Write the number) \_\_\_\_\_

- ① Don't want to pay more
- ② 10% additional payment (on top of the current fee)
- ③ 20~30% additional payment (on top of the current fee)
- ④ 30~50% additional payment (on top of the current fee)
- ⑤ 50~100% additional payment (on top of the current fee)
- ⑥ More than 100% additional payment (on top of the current fee)

3. What are the reasons for your willingness to pay? (Write the number) (1st: \_\_\_\_\_) (2st: \_\_\_\_\_)

- ① Conservation of natural resources
- ② Improve facility
- ③ Improve program
- ④ Increase regional economic benefit
- ⑤ Management of visitors

4. How much did you spend during your visitation of this AHPs?

(USD)	
① Transportation	\$
② Hotel	\$
③ Dining	\$
④ Leisure	\$
⑤ Program	\$
⑥ Education	\$
⑦ Shopping	\$

## (Visitors) AHPs' eco-tourism - Questionnaire

### A. Basic information

1. Sex (Please check)      ① male      ② female
2. Age \_\_\_\_\_
3. Purpose of your most recent visit (Write number) (1st: \_\_\_\_\_) (2st: \_\_\_\_\_)
  - ① Scenic beauty
  - ② Tracking
  - ③ Education
  - ④ Experiencing Community
  - ⑤ Leisure
  - ⑥ Participating festival
  - ⑦ Others(\_\_\_\_\_)
4. How often do you visit Mt. Makiling Forest Reserve (MMFR)? (Write number) \_\_\_\_\_
  - ① First time
  - ② 1-2 times a year
  - ③ 3-5 times a year
  - ④ 6-10 times a year
  - ⑤ More than 10 times a year

### B. Evaluating effectiveness on designation of AHPs

1. Did you know or hear about ASEAN Heritage Parks (AHP)? (Please check)    ① yes      ② no
2. Did you know that this place was designated as AHPs? (Please check)    ① yes      ② no
3. If you chose ① in prior question, do you think the designation as AHP increased visitation? (Please check)
  - ① It had major influences
  - ② It had influenced increase in visitors, but it was not a major reason
  - ③ The designation had no influence

4. If you chose ① or ② in the prior question, please rate your expectation of the following factors of the AHP

Factors	Not at all ①	②	③	④	Very much ⑤
Expectation of ecological/biodiversity values					
Expectation of social/cultural values					
Expectation of facility					
Expectation of education/program					

### C. Evaluating eco-tourism in AHPs

1. What is your overall satisfaction of this AHP? (Please check box)

Very un-satisfied ①	②	③	④	Very satisfied ⑤
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2. Will you continue visiting this AHP? (Please check box)

Not at all ①	②	③	④	Very much ⑤
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3. What activities did you do while visiting this AHP? (Write number)

(1st: \_\_\_\_\_) (2st: \_\_\_\_\_)

- |                          |                          |
|--------------------------|--------------------------|
| ① Admiring scenic beauty | ④ Experiencing Community |
| ② Tracking               | ⑤ Leisure                |
| ③ Education              | ⑦ Participating festival |
| ⑧ Others(_____)          |                          |

4. Which places do you commonly visit in this AHP?

<u>(1st)</u>
<u>(2nd)</u>
<u>(3rd)</u>

5. What do you think is the most impressive place in this AHP?

<u>(1st)</u>
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6. Please rate your satisfaction of the following factors (Please check box)

Factors		Very unsatisfied				Very satisfied
		①	②	③	④	⑤
Natural resources	High biodiversity					
	High conservation status (low deforestation rate)					
	Natural ecosystem services including CO2 sequestration, clean water etc.					
Facility	Convenient facilities					
	Infrastructure					
Program	Leisure/recreation program					
	Education program					
	Explanation of environment					
Community	Regional identity/Community culture					
	Regional product					
Carrying capacity	Number of visitors (per day)					

7. Do you think MMFR's designation as an AHP led to people having an increased recognition of its biodiversity value? (Please check)

Not at all				Very much	Can't
①	②	③	④	⑤	Say

**D. Willingness to pay on eco-tourism**

1. Do you think this admission fee is suitable? (Write the number) \_\_\_\_\_

- ① Unsuitable, it needs to be decreased
- ② Unsuitable, it needs to be increased
- ③ Suitable
- ④ No idea

2. Are you willing to pay more for this AHP? (Write the number) \_\_\_\_\_

- ① Don't want to pay more
- ② 10% additional payment (on top of the current fee)
- ③ 20~30% additional payment (on top of the current fee)
- ④ 30~50% additional payment (on top of the current fee)
- ⑤ 50~100% additional payment (on top of the current fee)
- ⑥ More than 100% additional payment (on top of the current fee)

3. What are the reasons for your willingness to pay? (Write the number) (1st: \_\_\_\_\_) (2st: \_\_\_\_\_)

- ① Conservation of natural resources
- ② Improve facility
- ③ Improve program
- ④ Increase regional economic benefit
- ⑤ Management of visitors

4. How much did you spend during your visitation of this AHPs?

(USD)	
① Transportation	\$
② Hotel	\$
③ Dining	\$
④ Leisure	\$
⑤ Program	\$
⑥ Education	\$
⑦ Shopping	\$



5. After MMFR's designation as AHP, did you enjoy an increase in economic benefits? (Please check)

Not at all				Very much
①	②	③	④	⑤

(5-1) In terms of income, how much economic benefit was increased? (Monthly \$ \_\_\_\_\_)

6. After MMFR's designation as AHP, do you think participation of regional community has increased?

(Please check)

Not at all				Very much
①	②	③	④	⑤

(6-1) What kind of participation was increased? (Write number ) \_\_\_\_\_

- ① Selling products
- ② Hotel/Resort activity
- ③ Dining activity
- ④ Outdoor leisure
- ④

Others(\_\_\_\_\_)

**C. Evaluating eco-tourism in AHPs**

1. What is your overall satisfaction of this AHPs? (Please check box)

Very un-satisfied				Very satisfied
①	②	③	⑤	⑤

2. Which of the following aspects are mostly well-managed? (Write number) (1st: \_\_\_\_\_)

(2st: \_\_\_\_\_)

- ① Scenic beauty
- ② Tracking
- ③ Education
- ④ Experiencing Community
- ⑤ Leisure
- ⑥ Participating festival
- ⑨ Others(\_\_\_\_\_)

3. What are your most recommended place for visitors?

(1st)
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4. Which place do you think is the most well-managed inside the AHP?

(1st)
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5. Please rate the following factors in terms of management condition (Please check box)

Factors		Very poor ①	②	③	④	Very good ⑤
Natural resources	High biodiversity					
	High conservation status (low deforestation rate)					
	Natural ecosystem services including CO2 sequestration, clean water etc					
Facility	Convenient facilities					
	Infrastructure					
Program	Leisure/recreation program					
	Education program					
	Explanation of environment					
Community	Regional identity/Community culture					
	Regional product					
Carrying capacity	Number of visitors					

6. Do you think MMFR's designation as an AHP led to people having an increased recognition of its biodiversity value?

Not at all ①	②	③	④	Very much ⑤
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**D. Financial elements**

1. Do you think this admission fee is suitable? (Write number) \_\_\_\_\_

- ① Unsuitable, it needs to be decreased
- ② Unsuitable, it needs to be increased
- ③ Suitable
- ④ No idea

2. Do you believe that the admission fee should be increased? (Write number) \_\_\_\_\_

- ① Admission fee should stay the same
- ② 10% additional payment (on top of the current fee)
- ③ 20~30% additional payment (on top of the current fee)
- ④ 30~50% additional payment (on top of the current fee)
- ⑤ 50~100% additional payment (on top of the current fee)
- ⑥ More than 100% additional payment (on top of the current fee)

3. What is the major reason for this additional funding? (Write the number) (1st: \_\_\_\_\_) (2st: \_\_\_\_\_)

- ① Conservation of natural resources
- ② Improve facility
- ③ Improve program
- ④ Increase regional economic benefit
- ⑤ Management of visitors

3. After the designation of AHPs, did the management budget increase?

(Please check)    ① yes    ② no

(4-1) If management budget was increased, was it sufficient? (Please check)    ① yes    ② no

(4-2) How management budget was increased?

- ① Increased government funding
  - ② Increased external funding  
(e.g. International Organization)
  - ③ Increased admission fee (visitors)
  - ④ Others
- \_\_\_\_\_

## Annex2. Project implementation timeline

Period	Activity
February	-KEI participates ‘ASEAN conference’ to discuss collaboration between ACB and KEI
June-July	-Select two project sites in consultation with ASEAN Centre for Biodiversity -Collect local information on management of AHPs -Collect social big data to assess the current status and value of eco-tourism
August-September	-Collect local information on management of AHPs -Conduct a technical modeling to assess eco-tourism using social big data (Flickr) -Field survey
October--November	-Field survey -Prepare draft project results to sustain and increase CEPA and sustainable use of ecosystem services -Provide a training workshop (ROK, 3~5 Nov)
December	-Showcase the outcome at COP13 -Submit final report

### Annex3. Project budget

(1000 KRW)

Activity		BBI investment (1000₩)	KEI in-kind contribution (1000₩)	Total (1000₩)
Fees	Senior Research Fellows, Researcher	28,726	15,398	44,124
Travel	Traveling expenses	-	4,000	4,000
Communication		1,545	-	1,545
External partner	Field-survey	14,000	-	14,000
	Collaborating local partner to offer information of AHPs and to hold the workshop		16,000	16,000
Others		448	-	448
<b>Total</b>		<b>44,720</b>	<b>35,398</b>	<b>80,118</b>