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ENVIRONMENT
FORUM

Korea
Environment
Institute

A collaborative research on the Eco-friendly Management for National Park's Resources and Ecosystem Conservation in Indonesia

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Amid increasing environmental damage to the world, the need for international cooperation in environmental protection research is becoming more significant. Korea supports the sustainable growth of developing nations based on its own recent experience of fast-paced growth. In particular, we are witnessing a growing demand for partnership projects, which aim to prevent environmental pollutions and the excessive use of resources that may follow development. This research report delivers the performance over the past three years, since 2011, for the protection and sustainable use of the natural environment in Southeast Asia, in partnership with the Ministry of Forestry and the National Park under the Ministry of Indonesia. Through the joint research, the two nations mutually examined, compared, and understood how the collaboration on the conservation of the natural environment has been implemented. The research investigated a diverse range of topics, from the policies on the management of natural parks and visitor management to those on biodiversity and how to resolve issues regarding the community and its people. We also shared constructive ideas and built mutual trust, which will serve as the foundations for our future collaborations. I hope that the research results and the proposed projects of this collaboration will reap tangible outcomes and further boost the cooperation between such diverse fields.

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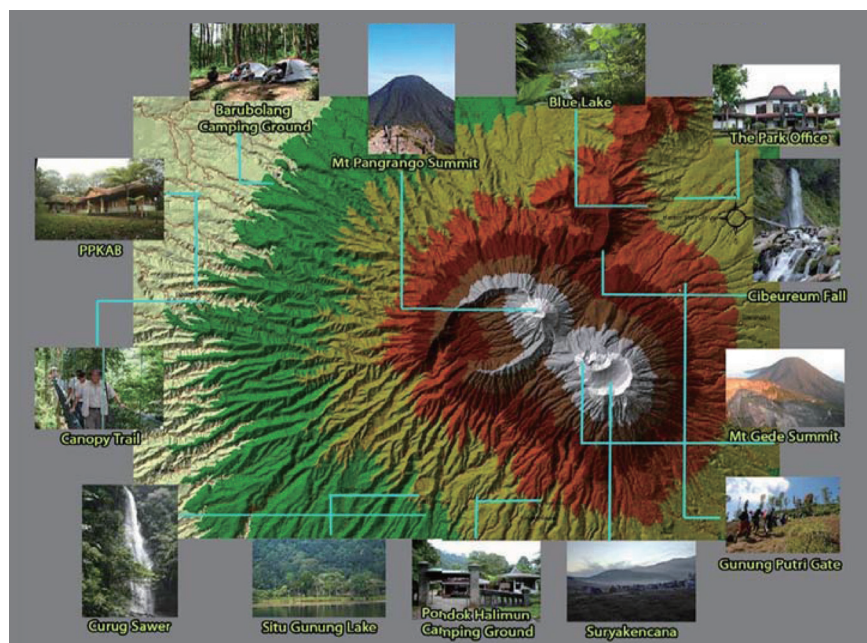
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Chapter 1. Introduction

Geographically, Indonesia borders the Indian Ocean to the west and the Pacific Ocean to the east, with more than 70% of the land covered with forests. With its capacity to house diverse living creatures, Indonesia has been known as a treasure island of natural resources with its affluent biodiversity. In terms of biological diversity, Indonesia boasts the largest number of palm tree species in the world. All areas naturally grow sub-tropical plants, thanks to the tropical climate. The country also has mangrove forests along the coastal lowlands as well as evergreen rainforests. Moreover, a diverse array of alpine flora grows in the high mountain regions and coral reef colonies populate the coastlines that are home to rich marine life. Indonesia is home to countless other wildlife species.

In particular, Indonesian national parks have rich biodiversity and strong potential for development through ecotourism. Of the 50 national parks, 6 are listed as the UNESCO World Network of Biosphere Reserves. The case study site, Gunung Gede Pangrango National Park (GGPNP), is one of those 6 sites with numerous endemic and endangered species.

Figure 1-1. Attraction sites in GGPNP



Visitors of GGPNP are steadily increasing due to the enhancement of social condition and easy access. The Directorate General of Forest Protection and Nature Conservation (DG PHKA) under the Ministry of Forestry, which is responsible for managing all national parks in Indonesia, has designated 21 national parks including GGPNP as model national parks aiming their financial independence to make their own income by developing and promoting ecotourism based on hiking activities. However, the infrastructure for ecotourism is not managed properly due to the lack of system or institution, human resources, budget, etc. Particularly, improper managements of visitor facilities and wastes are adversely affecting the environment within the park as well as the safety of visitors. To resolve these problems, Indonesian side requested Korean research team to consult on the eco-friendly management of Indonesian national parks. Therefore, the purpose of this study is to draw up measures to support the eco-friendly management of Indonesian National Parks, especially for GGPNP, through the collaboration¹⁾ between Korean and Indonesian research team. Under the supervision of Korea Environment Institute(KEI), Korea National Park Service (KNPS) and Inha University participated in the proposal of management plans based on the experiences of Korea. From the Indonesian side, DG PHKA and GGPNP took part in performing the local status review investigations.

This study has been conducted from 2011 to 2013. In 2011, the overall management status and problems of Indonesian National Parks were reviewed and potential collaboration issues between Korea and Indonesia were deducted. Based on the outcomes of 2011, eco-friendly management measures were suggested on the systems or institutions regarding Indonesian national parks and detailed properties including visitor facilities, waste managements, and ecotourism in GGPNP. Also, the Korean research team hosted “Capacity Building Program on National Park: Sharing Experience and Knowledge of Korean & Indonesian National Parks” and invited the experts and officials of Indonesian national parks. In 2013, as the last year of the study, the improvement plans were suggested in the context of the management of visitor facilities and visitors.

1) KEI-DG PHKA MOU signed in June 2011, KNPS-DG PHKA MOU signed in December 2012(simultaneously signed partnership agreements for two pairs of sister parks)

Figure 1-2. Mt.Pangrango seen from Mt. Gede



Source: Photo taken by Ardi Andono

Though this project was finished in 2013, KEI planned to have a long and prosperous relationship with Ministry of Forestry in Indonesia through continuous research cooperations. As the future cooperative project, KEI proposed various activities such as improvement of a system through stakeholder participation, improvement of visitor facilities (setting up shelters), enhancement of visitor's management, raising awareness of local residents, and scientific surveys on biodiversity. For the facility improvement and upgrade of the visitor management system, a public-private partnership is being pushed forward. For cooperation on biodiversity, successive project is being discussed with National Institute of Biological Resources (NIBR) and National Institute of Ecology (NIE) of Korea. KEI could continue to collaborate on the system improvement and to support capacity building for local community, ecotourism, etc. as a part of an ODA(Official Development Assistance) project. After the UNCBD COP12 in 2014, it is expected that biodiversity-related ODA projects from Korea will be increased. Considering this situation, it will be meaningful to carry on a successive project to continue expanding the outcome of this project.

Chapter 2. Key Details of the Indonesia National Park Partnership Project

The Project on the 「Eco-Friendly Management for National Park's Resources and Ecosystem Conservation in Indonesia」 was a three-year project (2011 - 2013) carried out by KEI as a part of the Project on the 「Development and Supply of Green Growth Strategies for Developing Nations in East Asia」.

Within the project period, the Korean research team visited Indonesia twice each year to collaborate and carry out local investigations (Figure 2-1). During these visits, DG PHKA and GGPNP provided support for the local investigations by the Korean team and surveyed and performed the analysis on the status of Indonesia's national parks through a review of the relevant literature. Based on the outcomes of such collaboration, KEI and DG PHKA derived the improvement ideas for the Indonesian national parks.

Figure 2-1. Local investigation and collaboration meeting



Local investigation at GGPNP in 2011



Collaboration meeting in 2012



Local investigation at GGPNP in 2013



Survey of community residents in 2013

In June 2012, KEI hosted the “Capacity Building Program on National Parks: Sharing the Experience and Knowledge of Korean & Indonesian National Parks” by inviting stakeholders of the Indonesian national parks (8 members from DG PHKA and GGPNP) to Korea. In this program, we shared the experiences and expertise of the two nations by presenting and discussing the national park statuses of the two countries, sharing ideas on promoting collaboration, and visiting the national parks of Korea (Jiri Mountain and Bukhan Mountain National Parks). In addition, the Indonesian team visited Korea in April and November of 2013 to visit and collaborate with KEI and KNPS (Figure 2-2).

Figure 2-2. Capacity Building Program & Indonesian team visiting Korea



Capacity Building Program in 2012



Visit Bukhan Mountain National Parks in 2012



Capacity Building Program in 2012



Indonesian team visiting Korea in 2013

Two workshops were held in Indonesia (Oct. 2011 and Dec. 2013). In the 2011 workshop, the statuses of the management of national parks in the two nations were presented with proposals on eligible project items for Indonesian national parks. Future research points were determined via discussions and review. In 2013, the outcomes of the three-year research Project were shared, with presentations and discussions on future post-project collaborations (Figure 2-3).

Figure 2-3. Workshops in Indonesia



Workshop in 2011



Workshop in 2013

KEI International Conferences were held twice in Korea (Nov. 2011 and Nov. 2012) to present the Project performance for the relevant year by holding separate sessions relating to the Project in Indonesia (Figure 2-4).

Figure 2-4. KEI International Conferences



KEI International Conference 2011



KEI International Conference 2012

Chapter 3. Indonesia National Park Management Status and Improvements

1. General Status of Management

People around the world continue to visit Indonesia. With its national parks designated as World Cultural Heritage sites and as part of the World Network of Biosphere Reserves by UNESCO, Indonesia boasts tremendous growth potential based on eco-tourism that leverages its rich natural and cultural legacies. With the designation of five regions in 1980 as national parks²⁾, in introducing the World Conservation Strategy, the number had reached a total of 50 by 2013.

Many visitors travel to Gunung Gede Pangrango National Park (GGPNP), the national park of the research, located in Western Java Island, due to its easy geographical access and transportation. The Park, designated as a Biosphere Reserve by UNESCO, also features rainforests that are rich with unique species and biodiversity.

The Indonesian government is committed to raising the domestic and international recognition of its tourism sector, as can be seen from the updating of its tourism slogan from “Visit Indonesia” to “Wonderful Indonesia” in 2011. The number of visitors, who come to enjoy tourism activities such as camping, hiking, hot springs, diving, snorkeling, and other types of recreational activities, is gradually increasing. The economic benefits of the tourism services of accommodation, food, and transportation are returned to the residents of the nearby communities.

However, the ever-increasing pressure for economic development is driving the development of the natural environment without sufficient plans for its eco-friendly management. To make matters worse, fire damage, imprudent developments such as illegal logging and the conversion of land use, and illegal hunting and exploitation of wildlife are causing a decrease in biodiversity. Some animal species (the Javan tiger, green turtle, Maleo, parrot, bird-of-paradise, and others) are at risk of extinct.

The Indonesian government established a number of governing laws and regu-

2) Gunung Gede Pangrango National Park, Ujung Kulon NP, Mount Leuser NP, Baluran NP, and Kerinci Seblat NP

lations for the management of national parks, including Law Number 5/1990 concerning the Conservation of Biological Natural Resources and the Ecosystem, The Ministerial of Forestry Decree Number: P.03/Menhut-II/2007, The Ministry of Forestry through the Ministerial of Forestry Decree Number: P.68/Menhut-II/2009, and the Regulation of the Minister of Forestry Number P.56/Menhut-II/2006 concerning Guidelines for National Parks Zoning. The comprehensive supervision and management of the national parks are carried out by DG PHKA and the regional governments, with all financial support coming from the central government. Notably, DG PHKA of Indonesia has designated 21 national parks, including GGPNP, as “Model National Parks”³⁾ and intends to manage these parks with their own finances with the income from their operations. For instance, GGPNP plans to generate income from the development and facilitation of eco-tourism that is mainly based on hiking activities and has allocated its own budget to reach this goal.

The national parks of Indonesia are faced with difficulties as they lack periodic surveys on their natural and historical-cultural resources, the manpower for the management of the parks, the capacity to deliver explanations and education programs on the natural environment, and the budget for building and maintaining the necessary infrastructure. Many visitors travel to GGPNP on holidays, which results in traffic congestion. Moreover, the environmental pollution caused by dumping waste, the old facilities, and the lack of eco-tourism infrastructure all pose safety risks to visitors. Thus, it is critical to secure a systematic management system of the national parks for the conservation of biodiversity and for their sustainability.

Since Korean national parks have experienced and overcome similar obstacles in the past, the collaboration between the two nations has great potential to contribute to the improvement in the practical management of GGPNP, and more broadly, to the national parks of Indonesia. Furthermore, considering that GGPNP is designated as one of the model national parks, the successful eco-friendly management of GGPNP is likely to benefit other national parks of Indonesia.

This report proposes ideas to improve the management of GGPNP in the following categories: A. Maintenance of visitor trails and other visitor facilities, B. Visitor management, C. Management of environmental pollutions and wastes by both visitors and the surrounding communities, D. Activation of eco-tourism, and E. Management of community residents.

3) Decree of Director General of Forest Protection and Nature Conservation Number SK.128/IV-Set/HO/2006 dated 3 May 2006 regarding the Designation of 21 National Parks as Model National Parks, including Gunung Gede Pangrango National Park

2. Eco-Friendly Management Plan of Gunung Gede Pangrango National Park

2-1. Maintenance Plan for Visitor Facilities

The Korean research team investigated the most popular visitor trails of GG-PNP (Gunung Putri Trail~Gunung Gede Trail~Cibodas Trail) twice in 2012 and 2013 with cooperation from GGPNP. In 2012, a national park facility expert from

Figure 3-1. Revamp Status of Visitor Trails and Facilities in 2013



KNPS visited GGPNP for an onsite investigation and provided improvement plans for the visitor facilities, including the trails and signboards, to the Indonesian team. The improvement ideas were provided in detail using examples of Korean facilities. GGPNP has allocated its own budget based on the plan details and is implementing the revamps and maintenance of the trails and facilities in phases from 2012, which will continue until 2015. Most of the findings pointed out during the site visit in 2012 have been significantly improved (Figure 3-1).

Some of the visitor facilities that were found to be in need of improvements from the 2013 site investigation were the entrance signboards and mileposts. Suggestions for the improvement included the installment and replacement of direction signs, the revamp of certain trail zones, the installation of shelters and toilets, and the installation of safety facilities in the hot spring zones (Figure 3-2). However, since GGPNP is in the middle of its revamp as stated, it is expected that these findings will be implemented shortly after the current revamp.

Figure 3-2. Visitor trails & facilities that require improvements as of 2013



Direction plates requiring replacement



Fallen trees on the trail



A trail zone that needs revamping



A temporary shelter requiring maintenance

Meanwhile, damage to the natural environment due to camping visitors is a significant concern for GGPNP. For the prevention of such activities, the Park

plans to build a new shelter at the peak of the Suryakencana plains, which is currently used as a camping site, and will prohibit camping in all areas but the shelter zone (Figure 3-3). In relation to the plan, GGPNP has requested its Korean counterpart to provide information on the shelters of Jiri Mountain as well as support on establishing the plans for building new shelters. In response, the Korean research team prepared a new shelter construction plan (including an estimated spacing plan, the type of shelter, the supply of energy and water, the location of toilets, and plans for convenience facilities and prevention facilities against safety incidents) by analyzing the proposed site conditions and provided the design plan (proposal) (Figure 3-4, 3-5).

Figure 3-3. Suryakencana meadows



An edelweiss monitoring site

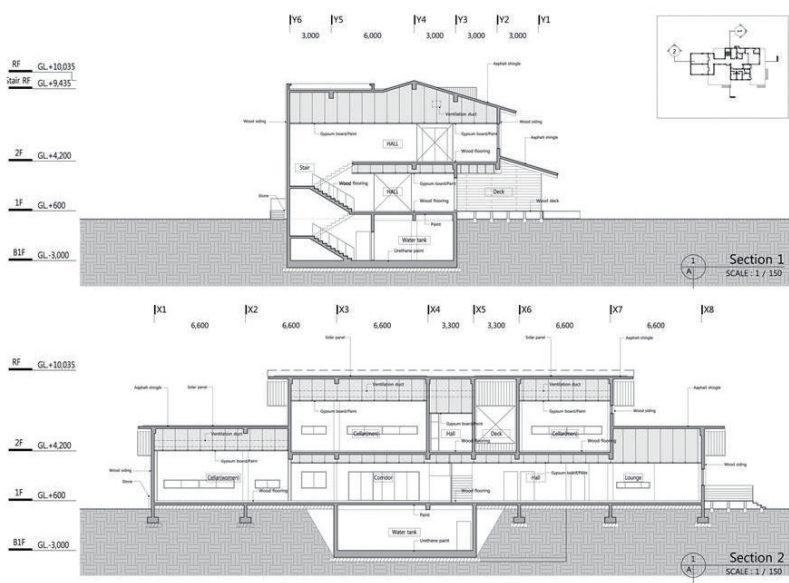


A disturbed camping site

Figure 3-4. A 3D image of the new shelter (proposal)



Figure 3-5. A cross-section diagram of the new shelter (proposal)



2-2. Visitor Management Plan

There are a number of issues that arise from visitor activities and facility damage at GGPNP. Some of the key examples are facility damage, such as damaged shelters and signboards; the collecting of wildlife plants, such as edelweiss flowers; and fires, wastes, and water pollution caused by campers' accidents and negligence. Such issues still remain unresolved despite various measures, including the periodic closing of visitor trails (twice each year), the restriction of the number of visitors, and the checking of personal belongings, implemented by GGPNP to prevent such violations and damage by visitors.

The visitor management should be improved not just in terms of regulations but also in implementing better visitor services. The purpose of the visitor management is to prevent damages to the environment and provide quality relaxing experiences to the visitors. Therefore, the joint research team proposed to revise related policies, such as by adding new clauses that categorize damaging actions of visitors and stipulate their punishments, and the visitor management strategy based on the experiences of Korea as follows.

Establish a Visitor Management Strategy

First, as the inflow of GGPNP visitors is increasing and more visitor infrastructure is offered, it is expected that the number of visitors will continue to grow. Since visitor demand is the most pivotal factor that influences the management of natural resources and facilities, it is necessary to introduce a scientific visitor counting system, to initiate a study on the demand forecast, to provide customized services based on visitor needs, and to implement a phased visitor management plan to cope with potential environmental damages in order to efficiently respond the rising demand. Second, the imbalances in the visitor demand, focused at certain time periods and locations, need to be managed. To this end, visitor trends need to be continuously monitored. Third, it is necessary to develop visitor trails that can accommodate the regional culture and ecosystem. In Korea, Dulle-gil of Bukhan Mountain, Olle Trail of Jeju Island, and Dulle-gil of Jiri Mountain have been successfully introduced and operated. Lastly, it is imperative to come up with a visitor management strategy to respond to the social environment changes and increasing visitor demand of national parks in a systematic fashion.

Elements of the Visitor Management Strategy

1) Phased Visitor Management Strategy

The phased visitor management strategy consists of 4 steps (Table 3-1) as described in detail below.

- Phase 1 (Promotion & Education): Provide information, run visitor promotion programs, initiate community programs, offer tour guides and educational campaigns
- Phase 2 (Area Management): Install facilities for damage prevention and access control, build new and revamp trails, utilize alternative transportations, provide incentives
- Phase 3 (Price Policy): Introduce congestion fees
- Phase 4 (Restrictions): Prohibit activities, restrict visiting hours, restrict the number of visitors, impose fines, restrict vehicle passing, and close trails

Table 3-1. Characteristics of the Phased Management Strategy

Phase	Focus of Management	Characteristics	Remarks
1	Promotion & Education	Potentially powerful management tool Encourage the change in visitor behavior Respect the free will of visitors	Indirect Management
2	Area Management	Right to select → Visitor / park manager → Park management actions	
3	Price Policy	While the policy is efficient, it may create conflicts	Direct Management
4	Restrictions	Focus on behavior restrictions Concern over any decrease in the quality of the visits	

Although the effects of visitor management may be realized in a somewhat delayed manner, the indirect management measures that can change visitor behavior and prevent environmental damages need to be introduced first. The direct alternatives should only be adopted when the objectives of the indirect options were not achieved.

2) Analysis of Spatial and Temporal Visitor Concentration

The concentration of visitors in certain locations at certain times triggers a higher cost burden to both the park managers and the visitors and can also lead to a drop in visitor satisfaction due to the overall service level and resulting confusion. Moreover, damage to the park is more significant due to the concentration of visitors at certain times, such as high seasons and weekends, or certain locations or time zones, rather than by the total number of visitors. The analysis on the spatial and temporal concentration of visitors is necessary to identify their preferences and their level of concentration within key areas of the Park and to prepare management strategies that can minimize the undesired effects from their visits. The survey can initially provide guide maps of the Park with the areas that have relatively higher visitor frequency to the respondents and either directly ask for the manual input of their times of stay and the paths taken in a diary format or provide RFID(Radio-frequency identification) chips to be returned at the end of their visits.

3) Implementation of a Web-based Management System

The web-based management system is implemented to systematically manage the indicators that can determine whether GGPNP has exceeded its optimal capacity. Moreover, by continuously monitoring the indicators, the park managers can secure time series data for the analysis of changing trends, which should be used as the basis for designing and operating strategies for visitor resources, facilities, and visitor management.

The management system can analyze and express the spatial data by leveraging the advantageous functions of the geographic information system and can be used for the checking and analysis of large volumes of data in a quick and accurate manner. It is advisable for the system to be configured into a DB server that can integrate and manage the indicators and spatial data and that operates by clients accessing the server.

4) Visitor Service Quality Improvement Strategy

The visitors services of GGPNP should not aim to provide an excessive number of services following the increase in visitor demand but rather should focus on offering differentiated services that cannot be experienced in the cities. The following factors are some considerations for improving the service quality of GGPNP.

First, provide quality information (applications and the development of QR codes, etc.) that the visitors can freely use, without controlling visitor behavior. Second, introduce tools for park management that require the participation of the

people (e.g. LNT: leave no trace program, etc.) through education and promotion. Third, directly and indirectly manage the visitors by utilizing various onsite management and education materials.

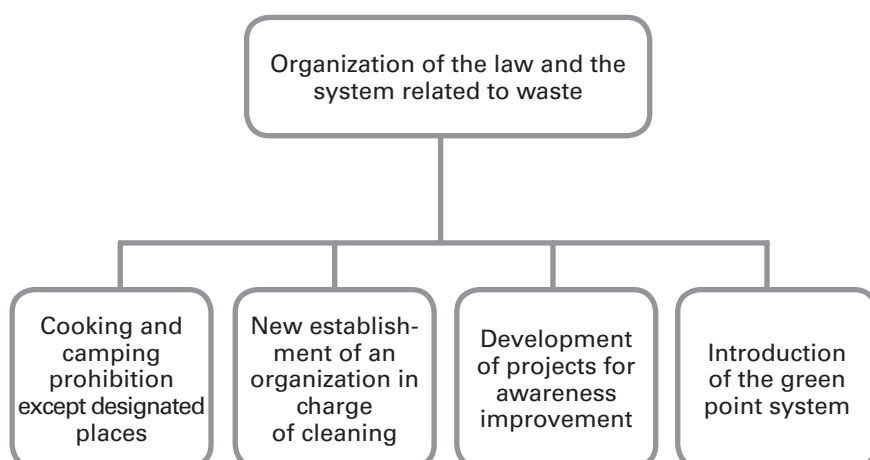
5) Plan to Raise the Awareness of National Parks

The conflicts of interest that occur in relation to national parks mainly arise from the strict execution of natural conservation policies and the resulting inconveniences experienced by the community residents. However, the nature conservation policy of the national parks can energize the local economy in the medium- to long-term by allowing the sustainable use of the natural parks and by the growth of eco-tourism. In fact, global demand for eco-tourism is growing at about 8% each year. In this context, researchers shall assess the economic values of national parks and their ripple effects on the local economy and share and promote the results with the community. Through such activities for raising awareness, the community residents will start to commit themselves to conserving nature, and this can help improve the interactions between the stakeholders in maintaining the national parks.

2-3. Waste Management Plan

It is necessary to establish the law prohibiting littering, to found an organization in charge of cleaning newly, and to strengthen projects for awareness improvement (Figure 3-6).

Figure 3-6. Improvement Plan for Waste Treatment in GGPNP



Prohibition of cooking and camping in the park except for the designated places

Like in Korean national parks, it is judged that there will be the effect of reducing waste generation if cooking, camping, and littering are prohibited at the place except designated places within the national park, the law charging fines in breach of these is established, and regular patrol and checkup are performed for littering prevention. The law should be established in accordance with the local condition by considering the procedure of introducing the law in Indonesia and public emotion about the law.

New Establishment of an Organization in Charge of Cleaning

If an organization in charge of only works related to cleaning is established in the national park, it is judged that cleaning works would be carried out more efficiently. If it is difficult to establish an organization in charge of cleaning works newly, it is efficient to adopt the method managing cleaning works through a contract with the cleaning service. If the cleaning service is led to hire local residents, a big help may be made to income of local residents.

Awareness Improvement

The most important method needed to reduce waste in the national park is the improvement of visitor awareness. The improvement of visitor awareness through a campaign for no littering and installation of a guideboard is the most effective and long-term method in waste management. The effective methods for awareness improvement are public relation plans for people using mass media such as TV, newspaper, and radio, campaigns for visitors to the national park, and environmental education.

Introduction of the Green Point System

The green point system is the system giving points to a national park visitor who collects waste in the park or takes back his/her own waste. It is a way of reducing waste generation by giving monetary incentives such as a free pass to a parking lot and a shelter, and souvenirs to a visitor who voluntarily collects and brings waste. It

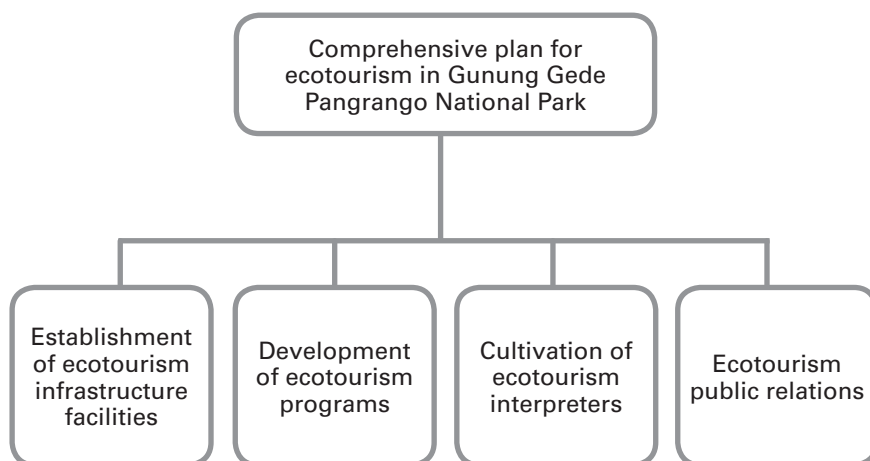
was judged that it was possible to implement a plan that had visitors actively participate in waste collection by introducing a plan giving incentives such as provision of souvenirs to a visitor who collected waste to take to the resort because the resort was usually located at the entrance of the national park in Indonesia.

2-4. Plan to Activate Eco-tourism

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As an analysis result of current status, it is judged that the first matter that should be carried forward to revitalize ecotourism of GGPNP is to make a comprehensive ecotourism plan. The ecotourism plan should include a plan for establishment of ecotourism infrastructure facilities, development of ecotourism programs, training for ecotourism interpreters, and a plan for ecotourism public relations (Figure 3-7).

Figure 3-7. The Scheme Drawing of Ecotourism Management in GGPNP



Establishment of an Ecotourism Plan

A comprehensive plan for revitalization of ecotourism in GGPNP is required to include the vision, goals, detailed promotion plans, and schedule in a comprehensive plan for ecotourism. After a comprehensive plan for ecotourism is made, the budget and personnel should be allocated properly so that detailed plans and projects can be carried out according to the schedule and regular checkups should

be made to identify whether projects are performed according to the plan. When a comprehensive plan for ecotourism in GGPNP is established, it is essential to establish the plan through participation from various classes such as national park managers, local residents, and experts and to collect opinions from various stakeholders. In addition, it is required to include establishment of ecotourism infrastructure facilities, development of ecotourism programs, training for ecotourism interpreters, and plans for ecotourism public relations.

Establishment of Ecotourism Infrastructure Facilities

As for ecotourism infrastructure facilities in GGPNP, it is necessary to make an improvement plan by figuring out current status and problems of convenience facilities such as roads, accommodations, and restaurants. If accessibility to the ecotourism place and infrastructure facilities are maintained, it is time to establish plans to install a visitor center, nature observation trails, interpretation and guide boards, and observatories in the ecotourism place. The matter that should preferentially be considered in installing facilities in the ecotourism place is to protect natural resources and environment.

Development of Ecotourism Programs

If ecotourism infrastructure facilities are established in GGPNP, it is necessary to develop ecotourism programs for visitors to the ecotourism place. Ecotourism programs should be programs that characteristics of ecological and cultural resources in the relevant area are shown very well and the local lifestyle can be respected and understood.

After the program development, it is necessary to consider strengths and weaknesses, and supplements by conducting a fam tour for local travel agencies and the parties involved in the local government.

Training for Ecotourism Interpreters

The most important matter in ecotourism is an interpreter who guides visitors and explains the local environment and nature. An ecotourism interpreter should understand not only history, culture, and history but also lifestyle in the relevant local area. Training programs for interpreters, participation in this programs, and

sufficient human resources desiring to be interpreters are needed to cultivate good interpreters.

It is essential to predict the local demand for interpreters to revitalize ecotourism. After the demand for interpreters is predicted, it is needed to prepare training programs for interpreters and to train and supply interpreters with high qualifications.

Plan for Ecotourism Public Relations (PR)

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It is necessary to establish a systematic PR plan to revitalize ecotourism in the Gunung Gede Pangrango National Park. It is required to make a PR plan using various media and methods such as TV and newspaper. It is also required to include development plans for BI (Brand Identity) representing ecotourism in an area and application plans in the PR plan. Moreover, it is one of PR plans to invite a local press corps to manage a fam tour.

Organization of a Resident Consultative Body

Since interests of the parties involved are different and conflicting, it takes considerable time until a resident consultative body is organized and local residents reach to an agreement through their participation in a consultative body. In severe cases, it may take several years to make a simple decision related to ecotourism. Even though there may be this boring and difficult process, it is required to overcome this to proceed for regional development and internal stability through ecotourism from the long-term point of view.

2-5. Plan to Manage Community Residents

The social awareness and role of the local community are critical in the eco-friendly management of national parks. For the purposes of this research, we have surveyed the nearby communities of GGPNP, inquiring into the current living conditions of the residents, their recognition of GGPNP, and their willingness to participate in the future, which will become the foundation for improving their awareness on natural conservation and for building on eco-friendly development strategies for the local communities.

Table 3-2. Purpose and Scope of the Survey

Purpose	To derive implications for community development and enhancement of conservation awareness of local residents in GGPNP areas
Survey area	10 villages including 3 in Cianjur, 3 in Bogor, 4 in Sukabumi *Cianjur : Near to the GGPNP office. Many villagers are engaged in commerce. *Bogor : Far from the GGNP office. Most villagers are farmers. Low visitors. *Sukabumi : A typical farming area. A small commerce area in the entrance of hiking trail.
Duration	July 1 to 7, 2013 by Inha University
Investigator	Visit a local community center and interview
Survey methods	213 questionnaire

The respondents from the nearby communities of GGPNP were reviewed for their demographic characteristics of gender, age, number of family members, academic background, occupation, monthly income, area of residence, period of residence, and property ownership status. The survey was conducted on a total of 213 residents, with 73 residents from Bogor, 59 from Sukabumi, and 81 from Cianjur.

Table 3-3. Demographics Analysis

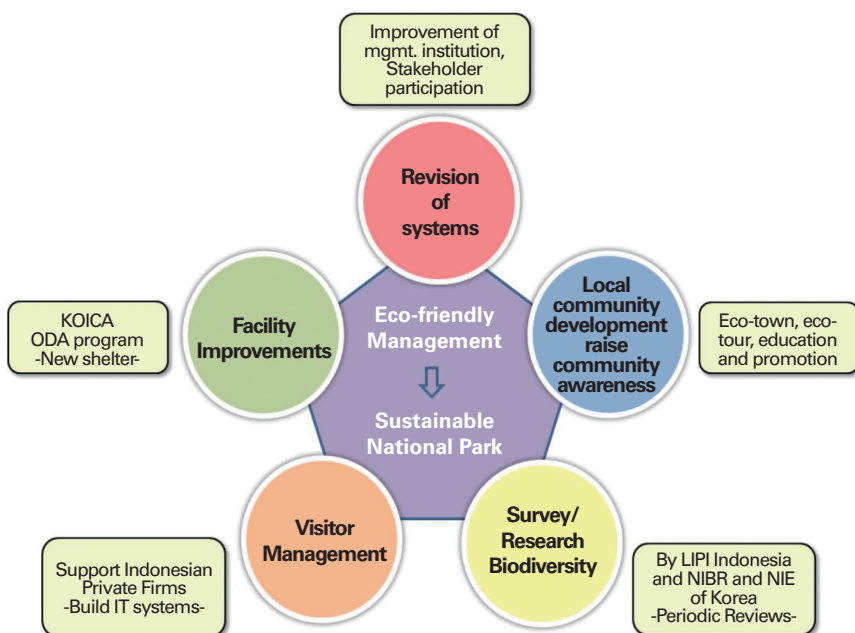
Questionnaire	213(Bogor 73, Sukabumi 59, Cianjur 81)
Sex	Men 61%, Women 39%
Age	20-39 age 54%(20-29 age 26.8%, 30-39 age 27.2%)
Family	3-4 person 47.4%
Education	Middle school or lower 63.4% (uneducated 8.6%, elementary 28.6%, middle school 26.3%)
Job	commerce 23.9%, farming/livestock 19.7%
Monthly income in family	Less than 1 million Rupiah 61% ※ Minimum wage for workers in 2013: 2.2million Rupiah
Residence	Over 21 years 62.9%, 16-20 years 10.8%
Landowning	No Land 82.2%

The results of the survey show that most of the community residents evaluate the value of the natural environment of GGPNP highly, and they have a high awareness for the conservation of its ecosystem. While most responded positively to the protection of the environment, they provided negative feedback when it came to the regulations that affected their vested rights in everyday life and their economic activities. The residents also commented that improvements were needed in living conditions as well as in social-economic aspects. A high percentage of the respondents showed their agreement and willingness to participate in the building of eco-villages as a means to bring about the eco-friendly development of the local communities. In summary, it seems necessary that GGPNP should focus not only on the conservation of the Park's resources and their sustainability, but also on the means to generate economic returns by implementing projects that can improve the living conditions of the community members and create jobs for increasing their incomes.

Chapter 4. Future Plans for Cooperation

The three-year project came to an end in 2013. Nonetheless, we will continue to collaborate with the Ministry of Forestry of Indonesia. The future collaboration programs range from revisions of institutional frameworks for the increased participation of the stakeholders, including the community residents, to improvements in visitor facilities (building new shelters), improvements in visitor management, the raising of community awareness, and conducting surveys and researches on biodiversity.

Figure 4-1. Plan of Future Korea-Indonesia Collaborations



The upgraded programs for visitor facilities and the management system will be operated by a Public-Private Partnership. That is, the building of a new shelter will be covered as a public program (by KOICA), and the upgrading of the visitor management system will be driven by the private sector (by raising donations from local Indonesian companies). At the time of the shelter construction, the installation of a research facility for the recovery of the surrounding edelweiss should also be considered. The proposal for investment from the private sector will be prepared by GGPNP and DG PHKA and will be agreed upon with private firms of Indonesia. KEI or an expert from KNPS of Korea will be able to provide the necessary technical support. Moreover, KEI will be able to continue with research in various fields, such as improvements in the national park systems, the support and capacity-building of communities, and eco-tourism, in which Indonesia's Ministry of Forestry is highly interested. In addition, a follow-up program, "Korea-Indonesia Biodiversity Collaboration Strategy" (should be finalized), is needed for cooperation between Korea and Indonesia on biodiversity.

Currently, Korea is emerging as one of the major member countries in multilateral conferences on biodiversity, as can be seen from its hosting of the 10th Ramsar General Assembly (2008) and the 10th General Assembly of the UN Convention to Combat Desertification (2011), as well as its appointment to hold the 12th Conference of the Parties(COP 12) to the Convention on Biological Diversity in 2014. There are expectations that Korea will take a few actions in 2014 in successfully hosting the COP 12. In particular, Korea is expected to lead a discussion on the "Pyeongchang Roadmap" that will achieve the targets of biodiversity from Aichi and the "Korea Biodiversity Initiative" that will support the roadmap during the COP 12. The Initiative focuses on building a platform for the advancement of science and technology, with ODA (official development assistance) programs at its center. As already determined at the COP 11, Korea will double its support for external assistance on biodiversity until 2015 and further expand it to match the level of OECD nations. While we have not been able to identify many biodiversity-related activities in the previous ODA programs, we hope that the support for biodiversity will increase after the COP 12. While this three-year research program has come to an end, it would be significant to continue and expand the research findings to ODA and other follow-up programs, and many such efforts already seem to be in the process of realization.

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