

## THE RELATIONSHIP AMONG POTENTIAL OF NATURAL RESOURCES, SOCIAL, ECONOMIC AND CULTURE OF COMMUNITIES IN BUFFERZONE OF MOUNT HALIMUN NATIONAL PARK

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### ABSTRACT

This study was conducted to know of potential of natural resources of Mt. Halimun used by surrounding communities and the development of bufferzone. The potential of natural resources are composed of wildlife, plant biodiversity, land and hydrology. Then, The utilization of natural resources will be correlated with the condition of socio economic and culture of communities.

According to the study, it is known that the major occupation of the village communities are as farmers, who have private land or as laborers (>50%). As laborers, they worked for landlord with salary Rp. 5,000 to Rp 10,000 per day for six days per week. This condition made village communities to depend their livelihood to potential of natural resources of Mt. Halimun NP. Based on dynamic hypothesis, the bufferzone could be developed through data and information of the natural resources that utilized or disturbed by communities. The plant biodiversity are used as energy, traditional medicines, food, handicrafts and forages. Illegal hunting done by surrounding communities was hunting wild pigs, birds and monkeys. To limit the exploitation, illegal cutting, illegal hunting and deforestation The Mt Halimun NP have program social forestry and agroforestry to decrease dependency of communities to the forest. For example the sheep breeding with forage plants in bufferzone. Other programs such as goats breeding and fish or plants development could be done in border land of national park or private land of communities.

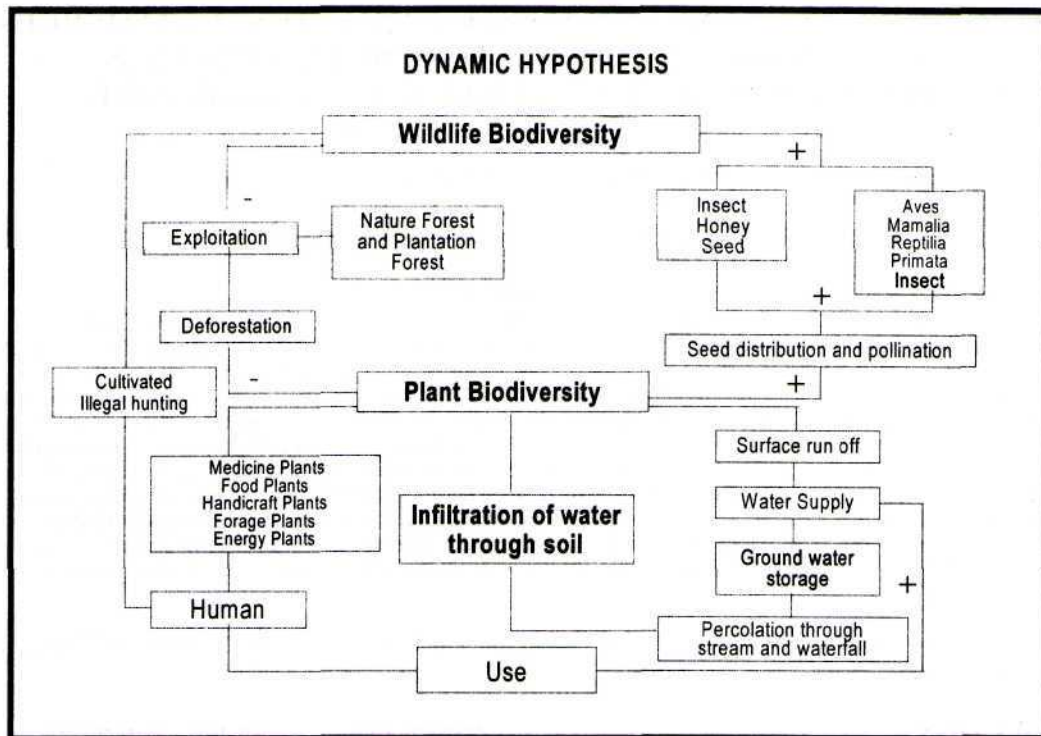
Key words: Sumberdaya alam/natural resources, sosial/social, ekonomi/economic, kebudayaan/culture, Taman Nasional Gunung Halimun/ Mount Halimun National Park

### INTRODUCTION

Management of national park is purposed to classify a certain area adjusted with the use of zoning system. There are core zone, wilderness zone, intensive use zone and buffer zone. The Concept of buffer zone development is directed enclose totally and integral among regional authority, national park and communities to support prosperity communities and conservation objectives.

Mt. Halimun National Park is conservation area with high biodiversity and ecosystem types, compared with other conservation areas in Java. Due to the existancies of endemic primate such as javan gibbon (*Hylobates moloch*) and grizzled leaf monkey (*Presbytis comata*). Manan ( 1979) noted that wildlife is part of creature life which has a role on sustainable and harmony ecosystem. For conservation effort, it is needed point of view and

consideration, because this conservation area got big pressure and problem from communities such as illegal hunting, illegal cutting, deforestation and exploitation. In order to manage a conservation area, it is considered the facts that related with ecology, socio economic and cultural aspects which is figured as dynamic hypothesis. Natural condition is composed of four major factors i.e. wildlife biodiversity, plant biodiversity, land and hydrology. Utilized condition composed of one major factor: human. The aims of the model is to show the importance of the ecological roles that found in National Park ecosystem. However, the park conservation are also potential as sources development for surrounding communities through utilization to increase life level. Therefore there are at least two problems that must be understood and deal with namely the potential of natural resources of national park and the development of buffer zone.



Source: Modification from Significance of Tropical Karst Biodiversity Conservation: A System Dynamics Modeling Approach by Arzyana Sunkar (1994).

**METHODS**

The study used purposive sampling method and added with questioner and interview to get data and information of potential natural resources used by communities. The data is analyzed/categorized through their need for daily consumption and their activities. Interview used Rapid Rural Appraisal Method. The respondents have been ex members or members of social forestry of Mt. Halimun National Park since 1994/1995. They are living in villages of Malasari, Kabandungan, Cihamerang, Cipeuteuy, Gn. Malang and Cikiray.

**The Information of Study Areas**

*Mt. Halimun National Park*

Mt. Halimun was declared as Mt . Halimun National Park based on Letter of Decree from Ministry of Forestry No. 282/Kpts-II/1992, on February, 28 1992. It covers 40,000 hectare. This national park lays on 6°45' LS and 106° BT.

Rainfall is about 4,000-6,000 mm/year (400-600 mm/month).

Mt. Halimun National park has three types of ecosystems which are lowland forest (500- 1,000 m asl), sub mountain forest (1,000-1,500 m asl) and mountain forest (1,500-1,929 m asl). In sub mountain forest, are found the species such as rasamala (*Altingia exelsa*), saninten (*Castanopsis argentea*), huru (*Litsea* sp.), puspa (*Schima wallichii*), dan pasang (*Quercus* sp.). Montane forest (1,500-1,929 m asl), are dominated by Podocarpaceae like jamuju (*Dacrycarpus imbricatus*), kiputri (*Podocarpus neriifolius*), kibima (*Podocarpus amara*), and *Podocarpus blumei*. In this conservation area, it is also found 4.500 species flora which are important information for Java island such as orchids and rattans.

This area is a habitat of wildlife such as birds 140 species where 90 species are endemic, migrated of Java island. Among them are: *Megalaema corvina*, *Alcipe pyrhoptera*, *Rhipidura*

*phoenicura*, *Dicrurus remifer*, *Garrulax rufipron* and *Grocia albonatus*. There are 55 species of big mamals, 40 species small mamals, 16 species amphibs, 2 species reptils, and 77 species of butterflies such as Amathusiidae, Danaidae, Hesperidae, Lycaenidae, Nymphalidae, Papilionidae, Pieridae dan Satyridae.

### General Information of the Village Communities

Mt. Halimun National Park is surrounded by 48 villages belongs to Lebak, Sukabumi and Bogor Regencies. Generally, the villagers are farmers with own land or as laborers, where 68% in Malasari, Kabandungan 90%, Cihamerang 82%,

Cipeutey 40%, Gn. Malang 62%, Cikiray 65%. The averages salary is Rp. 5,000 to Rp. 10,000 per day and they work for six days per week. To add their income, their wives work in agriculture too for 15-20 days per planting season or six months. The salary is Rp. 3,000 to Rp. 5,000 per day (Bismark, 1996; Sawitri and Bismark, 2001).

Social forestry of national park has made some activities such as planting and breeding. The planting activities were planted wood plants such as jeunjing (*Paraserianthes falcataria*); fruit plants such as rambutan (*Nepelium lapaceum*), durio (*Durio zibethinus*), melinjo (*Gnetum gnemori*) and petai (*Pithecelobium sp*) and vegetables.

Table 1. Energy plants used by villagers around Gn. Halimun National Park

No.	Local name	Botani name	Information
1.	Ki Bonteng	<i>Casearia coriacea</i>	Stem, small branch
2.	Harendong	<i>Cliderna hirta</i>	Stem, small branch
3.	Kapinango	<i>Dyoxylum densiflorum</i>	Stem, small branch
4.	Kecapi hutan	<i>Sandoricum koetjape</i>	Stem, small branch
5.	Kisireum	<i>Eugenia clavimirtus</i>	Stem, small branch
6.	Kopo	<i>Eugenia densijlora</i>	Stem, small branch
7.	Gelam	<i>Eugenia fastigata</i>	Stem, small branch
8.	Kimokla	<i>Knema cinerea</i>	Stem, small branch
9.	Hamirung	<i>Ficus toxicara</i>	Stem, small branch
10.	Seuhang	<i>Ficus alba</i>	Stem, small branch
11.	Walén	<i>Ficus ribes</i>	Stem, small branch
12.	Jeunjing	<i>Albizia chinensis</i>	Stem, small branch
13.	Kelapa	<i>Cocos nucifera</i>	Stem, small branch
14.	Kaliandra	<i>Caliandra sp</i>	Stem, small branch
15.	Puspa	<i>Schima wallichii</i>	Stem, small branch
16.	Datnar	<i>Agathis alba</i>	Stem, small branch

## Potential Natural Resources of National Park and the Problems

Mt. Halimun National Park as a conservation area has high biodiversity of flora, fauna and ecosystem. The flora and fauna biodiversity are used by surrounding communities as energy, traditional medicines, handicrafts, and forages. The surrounding communities trend to fulfill their energy from national park area because the petroleum is rare and expensive. The energy plants species of national park used by surrounding communities presented in Table 1.

The traditional medicine plants that are generally used by communities are ki cantung (*Goniothalamus macrophyllus*), keras tulang (*Psychotria montana*), ki kuwat (*Polygala paniculata*), tangkur (*Pogonatherum paniceum*) and pacing (*Costus speciosus*) (Hadi, 1994; Heriyanto, 2001). The use of karastulang, ki kuwat, and tangkur are for men, while pacing is used for fever dan ki cantung is for birth control.

The plants for forage from conservation area, are grass (*Pallimia* spp.), seuseureuhan (*Cinnamomum parthenoxylori*) and nampong (*Macaranga rhizoides*), kecubung (*Datura suaveolens*) and caliandra (*Calliandra* spp.) (Heriyanto, 2001).

The species for handicrafts are rattans (*Calamus* spp), bamboo (*Bambusa* spp.), pandan (*Pandanus* spp.) and puspa (*Schima wallichii*). These handicrafts are kitchen goods, home decoration, and so on.

Illegal hunting by surrounding communities are to protect their paddy field and plantation from wild pig (*Sus scrofa*), birds and monkey (*Macaca fascicularis*).

## Species Conservation and Development of Buffer Zone

Species conservation are included for many conservation areas such as nature conservation, and protection. These are efforted by legislation system

of species, habitat and ecosystem. However, outside conservation areas developed management systems that have purposed to increase ecological value and socioeconomic communities through species conservation in agroforestry.

Management of surrounding national park is determined as buffer zone because of national park function in conservation and protection biodiversity flora, fauna, and ecosystem. The development program of community forest disposes three following main objectives (FoEh, 1994) namely safeguard the forests and environmental stability, conservation efforts, and water regime; increasing the sustainable multi purpose outputs (food and forest product) related to willingness of local people; poverty alleviation and increase welfare.

The problems arises in determination and management of bufferzone. It including firstly, the perception from many sectors and communities is not same; secondly, surrounding communities of national park are marginal communities that are fulfill their needs from exploitation of natural resources (Bismark, 2001). These situation looked by Wirjodarmodjo (1985) who noted that socio economic condition of village communities is not so good and cause poverty and many problems of life quality such as decreasing forest area for illegal agriculture and damaging forest because of illegal hunting.

These conditions above are happened in bufferzone, especially in Halimun National Park in which exploitation the biodiversity of wildlife and plants done by surrounding communities. These situations can not be continued, so it needs enclose totally and integral development of buffer zone as part of regional development. The development of bufferzone should take surrounding communities as part in species conservation species through the implementation of appropriate utilization of natural resources and traditional knowledge.

This could be done by agroforestry programs, developing cultural ecosystem of local communities as garden plant growth, secondary forest growth, and protected of watershed areas. For example, the development of agroforestry with medicinal plants in Meru Betiri National Park has contributed the income about 23%. The activity also reduces the frequency of farmers to go to the forest, about 48% (Kaswinto, 1999).

In Mt. Halimun National Park, the awareness of communities against existence of national park and biodiversity conservation is about 60%. They know that it is prohibited to take woods, hunting and pasturing.

The development of bufferzone of Mt Halimun National Park should be managed based on the dynamic hypothesis. Wildlife and plant biodiversity used by surrounding communities should be bred in the border land of national park or the villagers own to land. However, the social forestry related to three aspects such as planting forest, cultivated plants and sheep breeding could be adjusted to the community needs.

It is suggested to plant private land adjacent to the forest with wood plants such as jeunjing (*Parasericmthes falcataria*), handicraft plants, and cultivated plants. While in forest land adjacent to private land may be planted with banana and figs. These plantations are expected as corridor of national park to reduce the disturbance of private land by wildlife and to limit the illegal hunting of wildlife.

The cultivated plants should be planted in the surrounding gardens, or village land. The species suggested are traditional medicine, forages, and food plants. Sheep breeding should be combined with planting of forage plants such as calliandra and kecubung. In term of increase the income, sheep breeding is more promising than wood plant. Within three months the people could gain Rp. 150,000-200,000/sheep. Sheep breeding could be combined with other such as fish and goats. By these programs, it is expected to reduce

or eliminate 'exploitation\*' deforestation, and illegal hunting.

## CONCLUSION

Dealing with natural resources of the conservation areas, the model of dynamic hypothesis would focus on wildlife and plant biodiversity utilized by surrounding communities of Mt. Halimun National Park as medicine plants, energy plants, food plants, handicraft plants, and forage plants. Surrounding communities of buffer zone in Mt. Halimun National Park are mostly farmers who work in their own land or as laborer. They are still depend on forest by using biodiversity of wildlife and plants for their needs. Social forestry and agroforestry concept (such as sheep and plants developments) are needed to, increase people welfare and the awareness of biodiversity conservation.

Stake holders participation as community partners should be promoted to develop of bufferzone and biodiversity conservation.

## REFERENCES

- Bismark M. 1996.** *Pola Penetapan dan Pengelolaan Zona Penyangga di Taman Nasional Gunung Halimun, Jawa Barat.* Tidak diterbitkan.
- Bismark M. 2001.** Pengembangan dan Pengelolaan Eboni dalam Sistem Daerah Penyangga. Makalah dalam *Seminar Pengembangan dan Pengelolaan Eboni.* Ujung Pandang.
- FoEh JEHJ. 1994.** Implementation Strategy of a Community Forest Management Model in South Sulawesi: Social-Economic and Cultural Approaches. Makalah dalam *Seminar Social Forestry and Sustainable Forest Management,* Yogyakarta. August 29-September 2, 1994.
- Hadi DW. 1994.** *Keanekaragaman Floristik Taman Nasional Gunung Halimun dan Pemanfaatannya oleh Masyarakat Sekitar.* Program Pascasarjana, Institut Pertanian Bogor, Bogor. p 35-112
- Heriyanto NM. 2001.** *Kajian Interaksi dan Persepsi Masyarakat Lokal (Desa*

*dhamerang, Desa Mekarjaya, dan Desa Cipeuteuy) dengan Taman Nasional Gunung Halimun.* Tidak diterbitkan.

**Kaswinto 1999.** Pendampingan Masyarakat di Desa-desa Penyangga Taman Nasional Meru Betiri. *Forum Komunikasi Kehutanan CGIF. 13-15 September 1999. Jambi.*

**Manan S. 1980.** *Masalah Pembinaan Kelestarian Ekosistem Hutan.* Departemen Manajemen Hutan. Institut Pertanian Bogor. Bogor.

**Sawitri R dan Bismark M. 2001.** *Kajian*

*Penetapan Parameter Zona Inti, Zona Rimba, Zona Pemanfaatan dan Daerah Penyangga di Taman Nasional Gunung Halimun.* Tidak diterbitkan.

**Sunkar A. 1994.** Significance of Tropical Karst Biodiversity Conservation: a System Dynamics Modeling Approach. *Lokakarya Nasional Keanekaragaman Hayati Tropik Indonesia.* Serpong, 3-5 Nopember 1994.

**Wirjodarmodjo H. 1985.** *Model Pengelolaan Hutan di Pulau Jawa.* Perum Perhutani, Jakarta.