

PROTECTED AREAS AND SURROUNDING COMMUNITIES: CASE STUDY OF KEPULAUAN SERIBU NATIONAL PARK, INDONESIA

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Introduction

Protected areas in Indonesia basically consisted of (a) protected forest: designated to serve life support system, maintain hydrological system, prevent of flood, erosion control, seawater intrusion, and maintain soil fertility, and (b) conservation area: area having specific characteristic established for the purposes of conservation of animal and plant species and their ecosystem. Further, conservation areas are categorized as strict nature reserve, wildlife sanctuary, national park, nature recreation park, and game hunting park.

Indonesia has 50 national parks, consists of 43 terrestrial national parks and 7 marine (marine-terrestrial combined) national parks. Kepulauan Seribu is one of Indonesia's marine national parks, located in the Jakarta Bay area, north of Jakarta, the capital city of Indonesia. This paper explains the condition of Kepulauan Seribu National Park and explores the issues, challenges and lessons learned from the national park.

Brief description of existing situation

Description of Kepulauan Seribu National Park

Kepulauan Seribu National Park (5°24' – 5°45' S; 106°25' – 106°40' E; 107.489 ha; Fig. 1) is located in Jakarta Bay area, stretching about 45 km north of Jakarta. Kepulauan Seribu, which literally means 'one thousand islands', has coverage about 700.000 ha and consists of 105 small islands, very small islands (islets), and coral island (all types of islands ranging from 200 m² to 53 ha), of which part of it (107.489 ha; 15%) was gazetted as a national park in 2002. Unlike other Indonesian national parks which have contiguous area of marine and terrestrial area combined, Kepulauan Seribu National Park consists of only 2 islands (terrestrial) and marine area surrounding 78 islands (excluded those islands) (Balai Taman Nasional Kepulauan Seribu 2005, 2010).

In all area of Kepulauan Seribu, 11 islands are inhabited by people. The rest are either uninhabited (too small or does not have any freshwater resources) or legally privately owned. When the area was gazetted a national park in 2002, the area has been utilized by people for many purposes, including for settlement, fishing, mariculture, recreation, sand harvesting, and transportation route of boats and ships to the big harbor of Jakarta (Tanjung Priok). The major aim of the gazettement was to prevent further ecosystem deterioration due to excessive use and harvest. In addition, some areas, especially in the far north of the area where the ecosystem quality is still in good condition, the coral reef is still excellent and marine turtle (i.e. Hawksbill turtle *Eretmochelys imbricata* and green turtle *Chelonia mydas*) still use some islands for breeding. Therefore, protection for coral reef and other marine species (mainly sea turtle) is necessary.

Of the 78 islands located within the national park, 6 islands are inhabited by people, 20 islands are managed as recreational sites, and the rest are either uninhabited, privately owned or being used for other commercial activities.

Management of Kepulauan Seribu National Park

Like other national parks in Indonesia, the Ministry of Forestry (c.q. the Directorate General of Forest Protection and Nature Conservation) has the authority to manage Kepulauan Seribu National Park. The Ministry has a certain unit to manage the Park and the unit is coordinated by the Head of National Park. The zonation of the Park is presented in Table 1.

Table 1: Zonation of Kepulauan Seribu National Park.

Zone	Coverage (ha)	Main Purposes
Core zone	4,498	To protect habitat of marine turtles and coral reef; consists of 3 separate areas
Protection zone	26,284	Serves as buffer for the core zone; certain environment-friendly activities are still permitted (e.g. education, research, tourism)
Utilization zone	59,634	Designated mainly for recreation and marine tourism
Settlement zone	17,121	To accommodate people's need and activities, including for settlements and limited fishery activities

Source: Balai Taman Nasional Kepulauan Seribu (2010)

Issues, challenges and prospects

Issues and challenges

There are many issues and challenges faced by the national park, many of which still on-going and need to be taken care of. These are:

a. **Coordination of area management**

Unlike other national parks whose management is fully carry out by the Ministry of Forestry, many Government agencies are officially authorized the area, one way or another, including Ministry of Interior, Ministry of Fisheries and Marine Affairs, Ministry of Tourism, Ministry of Environment, and the Ministry of Forestry. Each Government agencies has their own agenda and sometimes the agenda is not compatible one and another. Ministry of Fisheries and Marine Affairs, for example, has a plan to increase a production of fisheries and the most suitable sites are in the core area of national park where such activity is strictly prohibited.

b. **Deterioration of biodiversity**

Having a depth of 20 to 40 m, the marine ecosystem of Kepulauan Seribu National Park thrives with coral reef. There are 60 genera of coral with an average abundance of 10.19 colonies/ha and the coral reef coverage has been decreasing to 36.48% (average) (Balai Taman Nasional Kepulauan Seribu 2004). The lack of mooring buoy at diving sites and the careless beginner divers also contributes to the destruction of coral reef. Further, mangroves and sea grasses are declining in most areas and even vanished on islands with heavy settlements due to

land clearing and sedimentation. Landing sites for Hawksbill turtle has been diminishing from 13 islands in 1998 down to 1 island in 2003.

c. Harvest of biotic and abiotic resources

The natural resources of the islands, including fishes and many other marine species (for food and ornamental), coral (for construction and ornament), and sand have been heavily harvested to fulfill the need of local community. Currently there are 232 fish species with a density of 36.132 individuals/ha, of which the density is too low for the catch of fishermen in the area. The use of cyanide, potassium, bomb and destructive fishing method (e.g. muro-ami net gills) is still a common practice to harvest fishes for food and ornament by local fishermen (Balai Taman Nasional Kepulauan Seribu 2005).

d. Mass tourism

Kepulauan Seribu National Park is the closest marine site for recreation and educational tourism for the people of Jakarta and its greater metropolitan (Jabodetabek – Jakarta, Bogor, Depok, Tangerang, Bekasi). As the income of the people of Jakarta tends to increase, coupled with the current movement of ‘back to nature’ for recreation and tourism, Kepulauan Seribu National Park has been packed with mass tourism (Adirani undated). If the tourism is not managed properly, surely it will have a bad influence to the ecosystem of the national park.

e. Environmental pollution

The southern part of the national park borders with Jakarta Bay. Thirteen rivers are ended in the bay, bringing various environmental pollutions from the densely populated of Java, including both industrial pollution (there are about 100 various industries along those rivers) and domestic pollution. In addition, there is a busy international sea harbor in Jakarta Bay area (Tanjung Priok), give an additional pollution from ships’ and boats’ fuels. Thus, the environmental condition of the southern part of the national park is worse than the northern. All recreational sites are located in the north, where the environment is still good and coral reef thrives.

Prospects

Being located very close to the capital city of Jakarta, the national park indeed has a good prospect for tourism, education, and supporting welfare of local community. As for tourism, the national park manager has designated 26 diving spots for scuba diving and snorkeling. Other activities that has been going on are various water sports, fishing, camping, out-bond activities, educational tourism (such as mangrove and sea-grasses planting, coral transplantation, rehabilitation of marine turtles and Brahminy Kite *Halistur indus*, birdwatching), and sunbathing (mostly by foreigners). Expensive and exclusive resorts, modern and modest camping grounds, home stays, as well as other infrastructures for transportation (jetties, helipad) have been developed to support tourism activities.

The area within and surrounding national park provides a source of income for many local people as well. There are about 22,705 people inhabit the 8.70 km² terrestrial areas (average density 2,610 people/km²). The most densely populated island is Panggang Island (9,193 people/km²), most of them are fishermen. Traditional and semi-traditional fisheries have been practice in the area since a long time ago. In the last decade or so the booming tourism in the area provides an additional source of income for the local people through various goods and services.

In summary, the national park has a good and promising prospect. However, the national park needs to be managed wisely to sustain its natural beauty and function.

Lessons to be learned

The setting and management of the national park has given us a chance to learn many things. Some are new and unique to Indonesia, some others are common problems. The lessons learned drawn from the national park are as follows:

1. **Abandoning concept ‘excluding communities’ from national park**
According to the current Indonesian law (Act No. 5/1999), local people are excluded from the national park. However, in reality almost all national parks in Indonesia have people within and around the park and these people rely on the natural resources of the park. The Kepulauan Seribu National park is rather unique in term of the management, as the national park covers only marine parts and the islands itself (except 2 small islands) are not part of the national park. Therefore, the concept of excluding people of the national park cannot be applied in Kepulauan Seribu National Park. Local communities and their life are already embedded within the national park even before the national park was gazetted.
2. **The need to have a good coordination among Government agencies**
As there are a numbers of Government Agencies responsible to the area, a good coordination is extremely crucial. All of the Ministries mentioned previously have the same level of authority and in many cases it can create difficulties when some Agencies have a conflicting plan.
The national park manager has introduced a Collaborative Management approach to lessen the problem. Judging the current situation and problems in the field, more coordination still needs to be done.
3. **Environmental friendly tourism is essential**
Being so close to the capital city of Jakarta, Kepulauan Seribu is the perfect getaway for the people of Jakarta. Marine tourism and its infrastructures have been flourished, even before when the location has not gazetted as a national park. According to the national park manager, currently carrying capacity of the national park has been exceeded. Unfortunately there is no reliable data on the number of visitors. A proper management of tourists needs to be carried out immediately to prevent further damage to the area.
4. **Sustainable harvest needs to be promoted and exercised**
The national park might serve as a model on how a national park is able to provide a good livelihood for the local communities. The idea of having a zonation to conserve breeding sites for fishes and many other marine species, as well as to designate the harvestable area, is aimed to promote a sustainable harvest in the national park. Unfortunately not many people understand this idea. Many still think that it is merely a way to exclude people to utilize ‘common resources’ of that area.
Another example of a successful sustainable harvest program promoted by the national park is coral ‘farming’ through transplantation. By using this method, the harvest in some sites is coming from the farmed coral and no longer from naturally grown coral anymore.

5. Ecosystem recovery and restoration takes time
Once the ecosystem has been deteriorated and damaged, recovery to its original stage is difficult and takes a long time. Currently the national park has various program related to recovery of the marine ecosystem, namely mangrove planting, sea-grasses planting and enrichment, raptor release, coral reef monitoring, provision of new habitat for coral growth, marine turtle breeding and release, as well as protecting and monitoring of turtle breeding site.
6. National park and community's welfare
Until now there are many critiques on whether a national park gives a benefit to local communities. Many local communities and Agencies still perceived that the national park is only hampered the development of the area by setting up many restrictions and prohibitions. The management of the national park has been working hard to show that the national park contributes to the community's welfare.
7. Opportunity to Collaborate with community and private sectors
As there are numerous stakeholders in the national park and its surrounding, there are many opportunities of the national park to collaborate with local communities and private sectors (including owners of the resorts, tour operators, large- and medium-scale fishing industries, and many others) in order to develop the national park in a sustainable manner. A common understanding among/between them is fundamental to develop mutual beneficial collaboration.

Conclusion

Kepulauan Seribu National Park with its designation history and natural setting can be an example on how a national park can play a big role for community and vice versa. It is also a good illustration to show that planning and development need to be integrated among various stakeholders and Government authorities. At the end, searching for a balance between development and conservation of natural resources is the key to the successful management of the area.

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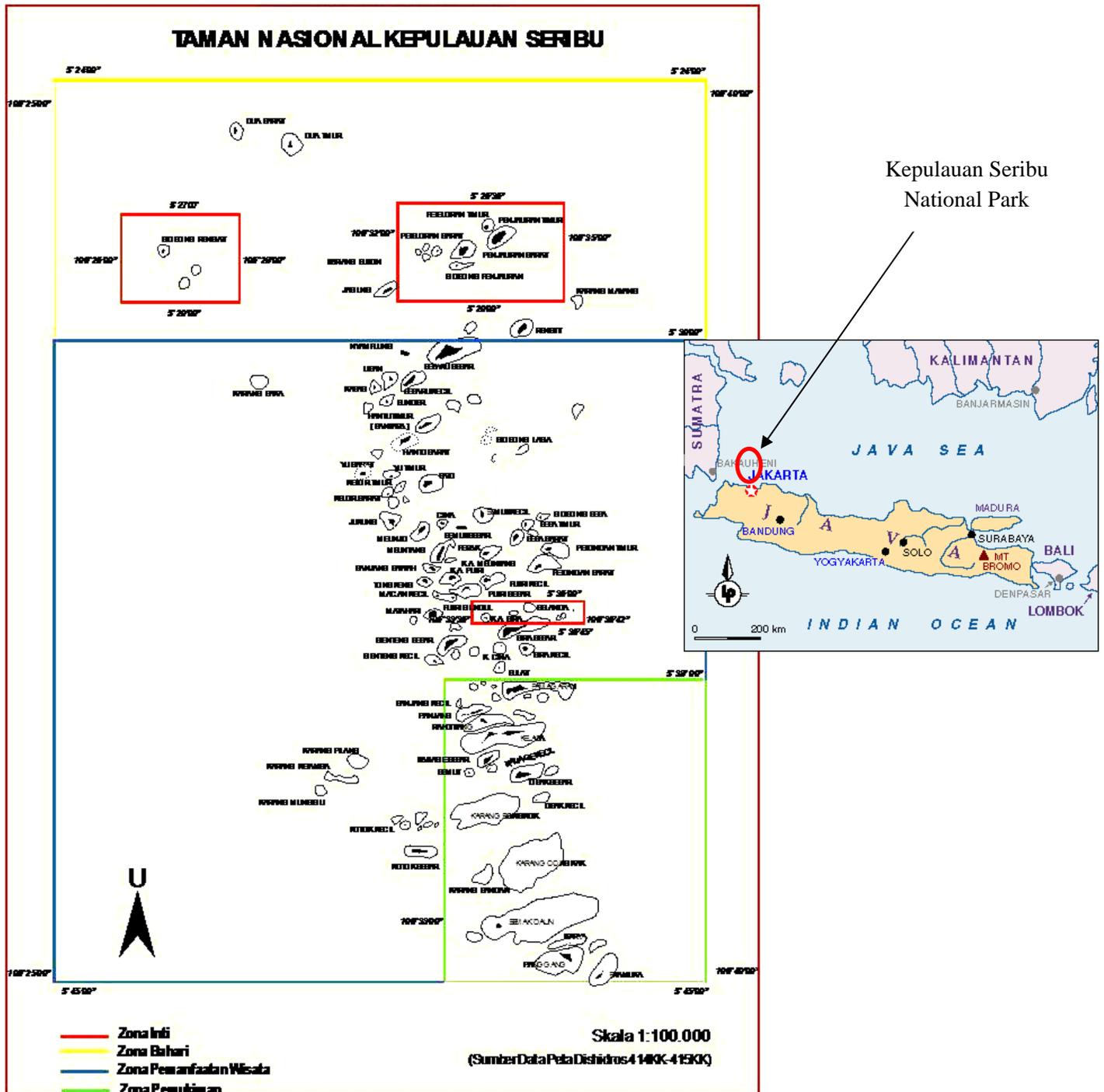


Figure 1. Map of Kepulauan Seribu National Park and its zonation.
Source: Balai Taman Nasional Kepulauan Seribu (2005)