

Conservation-Based Eco-Tourism Development at the Pangumbahan Beach Turtle Conservation Center, Indonesia

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Abstract:

The negative impact of eco-tourism activities on natural forests can be overcome by empowering local communities in conservation-based eco-tourism activities to maintain natural resources in the area. Community service carried out at the Pangumbahan Beach Turtle Conservation Center in the form of socialization about the development of conservation-based eco-tourism aims to increase public understanding and awareness of the Pangumbahan Beach Turtle Conservation Center about the importance of maintaining the natural resource wealth in Pangumbahan Village so that it is not misused or damaged by visitors. The application of the principles and concepts of conservation-based eco-tourism development in preserving ecosystem functions, preserving natural tourist attractions, socio-cultural sustainability, satisfaction, safety, visitor comfort, and the direction of economic benefits. This service activity is planting tree seedlings as proof of concern for conservation and getting good support from the local community.

Keywords: eco-tourism, conservation, turtles, Pangumbahan Village

1. INTRODUCTION AND THEORY

Pangumbahan Village, Ciracap District, Sukabumi Regency is a village that has diverse potential resources, namely forestry, tourism, marine and fisheries, and agriculture. The tourism potential of Pangumbahan, which is well known in the past among the public, domestic tourists, and foreign tourists, is turtle tourism. Turtle tourism activities are provided by the Pangumbahan Turtle Conservation Center manager, namely releasing hatchlings and watching turtles lay eggs. Hatchlings are baby turtles that have just hatched. The turtles were landing and laying their eggs at the Pangumbahan Turtle Beach, consisting of the olive ridley turtle, loggerhead turtle, hawksbill turtle, leatherback turtle, and dominated by green turtles. The turtle landing and laying eggs caused Pangumbahan Turtle Beach to become one of the areas with high and productive potential for sea turtles. Still, this fact will be directly proportional to the

high level of turtle utilization in various sectors.

Turtle conservation impacts turtle tourism activities directed at eco-tourism bases, but its implementation has not been optimal. Turtle conservation activities have not shown satisfactory results. The facts show the population or the number of turtle nests that have decreased from year to year on the nesting beaches. Research on turtles so far is still partial, so the results have not provided a complete solution to the problems faced (Suwelo, 2000). Turtle research is mainly related to technical issues, including captive breeding (Wahjuhardini, 1992; Fitrari, 2007), population disturbance (Hasan, 2006), nest relocation strategies (Turkozan and Can, 2007), the use of satellites and tagging to monitor turtle migration (Halim, 2001), turtle genetics (Dutton, 2007), descriptive analysis of turtle conservation area (Hartono, 2012) and improving turtle conservation performance through conservation management strategies (Harteti, 2013). To realize the

sustainability of the Pangumbahan Beach area as a turtle conservation area that can positively affect the welfare of the people near and around the conservation area, it is necessary to disseminate information to the public regarding conservation-based eco-tourism.

The impact of environmental damage permanently colors the beginning of the emergence of eco-tourism. One example is the activity of hunting animals in the wild that occurred in the early 1900s in Kenya. The Kenyan government sold a lion as a game for US\$27,000 in 1970. However, it was eventually realized that uncontrolled hunting could lead to the extinction of flora or fauna species and disrupt the balance of existing ecosystems. Based on this experience, the Kenyan government finally made many changes and began to implement modern eco-tourism concepts in the tourism industry. In Indonesia, eco-tourism activities started in the mid-1980s. Mass tourism that occurred around that year was proven to cause the extinction of several species of animals and flora (Fandeli, 2002). Based on previous experience, eco-tourism has begun to be understood and implemented to preserve natural resources and involve the community to play an active role in protecting the environment, which at the same time has an impact on increasing local people's income.

Eco-tourism can be defined as a tourist's journey to a remote area to carry out tourism activities, to enjoy and learn about nature, history, and culture in a room, while prioritizing the preservation of natural resources and the environment so that existing species can be preserved in their habitats and help improve the economy of local communities (Goodwin, 1997 in Sastrayuda, 2010; Anonymous, 2009). According to The International Ecotourism Society in Priono (2012), eco-tourism is a responsible trip to natural areas that conserves the environment, supports the welfare of local communities,

and involves interpretation and environmental education.

In Sukabumi Regency, especially in Pangumbahan Village, some areas are suitable for eco-tourism locations. One of the areas in question is the Pangumbahan Beach Turtle Conservation Center. The Pangumbahan Beach Turtle Conservation Center is often visited by domestic and foreign tourists interested in observing animals, especially various turtles in the area. According to Mackinnon (1990) in Qomariah (2009), management's success depends on the support and appreciation given to areas protected by the surrounding community. Based on this, to reduce the negative impact of eco-tourism activities on natural forests by visitors, it is necessary to empower local communities in conservation-based eco-tourism activities to maintain the preservation of natural resources. Empowerment of local communities in eco-tourism activities and conserving natural resources can also improve the community's economy. To develop conservation-based eco-tourism at the Pangumbahan Village turtle conservation center and improve the local community's economy is necessary to carry out outreach activities to provide an understanding for the community about eco-tourism and the conservation efforts that need to be carried out. Empowerment of local communities helps maintain biodiversity in Pangumbahan Village and improve the community's economy at the Pangumbahan Beach Turtle Conservation Center.

The Pangumbahan Beach Turtle Conservation Center has received socialization or counseling related to eco-tourism, but it has not been optimal. Therefore, knowledge about eco-tourism and conservation itself is still very lacking. Based on these problems, community service was carried out in socialization about conservation-based eco-tourism at the Pangumbahan Beach Turtle Conservation Center, Sorong Regency. This activity aims to educate the

Pangumbahan Beach Turtle Conservation Center public about the positive benefits of eco-tourism and the importance of conservation efforts in Pangumbahan Village. This program is expected to be an example for other locations or areas that have opened themselves up to eco-tourism activities, especially those in the Ciracap District, Sukabumi Regency.

2. METHOD

This study uses a qualitative design, which is used to explore and understand the social and human aspects of an individual or group. This research approach is a case study where a case study examines a particular system or case from time to time that involves resources that are rich in data and related information. The case study was chosen because this research only focuses on analyzing Conservation-Based Ecotourism Management at the Pangumbahan Beach Turtle Conservation Center. This study uses the Miles and Huberman model, whose analysis is carried out continuously until the data is saturated. Data was collected using field observations and in-depth interviews as primary data with several informants regarding the use of fish bombs by fishers. At the same time, the data was collected in documents, books, and journals as secondary data.

The research location in Pangumbahan Village, Ciracap District, Sukabumi Regency, is a village that has diverse resource potential, namely forestry, tourism, marine and fisheries, and agriculture. The tourism potential of Pangumbahan, which is well known in the past among the public, domestic tourists, and foreign tourists, is turtle tourism. Turtle tourism activities are provided by the Pangumbahan Turtle Conservation Center, namely releasing hatchlings and watching turtles lay eggs. The research subjects were the Manager of the Pangumbahan Turtle Conservation Center, managed by the Regional Government of West Java Province, Marine and Fisheries

Service, Southern Region Maritime and Fishery Service Branch, tourists, and local communities.

STATE OF THE ART

Research by Taurus Zeno Adi Eti Harnino, I Nyoman Yoga Parawangsa, Luthfiana Aprilianita Sari, and Sulastri Arsad stated that the turtle is one of the reptile animals that can migrate long distances along the Indian Ocean, Pacific Ocean, and Southeast Asia. Turtle migration aims to mate, find a location for laying eggs, or find food. Turtles have an essential role in maintaining the balance of the marine ecosystem. However, humans' high utilization of turtles has caused the turtle population to decline. One of the conservation sites supporting the government program is in Serangan, Denpasar Bali, TCEC (Turtle Conservation and Education Center), where several types of turtles exist, such as the hawksbill turtle, hawksbill turtle, and green turtle. This study uses observation methods that include beach monitoring, relocation of turtle eggs to semi-natural hatching nests, rearing of hatchlings and turtles as well as measuring the length and width of the turtle carapace arch (CCL/CCW), sands temperature, nest depth, nest diameter, distance nest and count the number of eggs to see the success of hatching. The results of turtle conservation activities range from rearing turtles, hatching turtle eggs, relocating eggs, and rearing hatchlings to release hatchlings. The effectiveness given by TCEC to manage and preserve the existence of sea turtles in Indonesia, especially in the Bali area, is to raise public awareness by not consuming turtle eggs and meat.

Research conducted by Irma Minarti Harahap, Achmad Fahrudin, and Yusli Wardiatno stated the establishment of the Sukabumi Regency Marine Protected Area and the reserve of the Pangumbahan Beach Turtle Area as a Coastal and Small Islands Conservation Area (KKP3K) directly or

indirectly requires participation. The local community in its management. The views (perceptions) of the community about conservation activities in the surrounding environment help improve management activities in the Sukabumi Regency MPA. The analysis of the validity and reliability of the assessed indicator variables indicates that each variable has a Corrected Item Total Correlation value greater than 0.300. While the reliability value obtained is greater than 0.700, namely 0.827 (perception), 0.897 (participation), 0.894 (law enforcement), 0.858 (policy), and 0.846 for the management variable. Based on the results of the analysis of variables that determine the level of success in the management of conservation areas, it can be concluded that the variables of stakeholder perceptions and local government policies related to the Pangumbahan Turtle Conservation Area are the most dominant in determining the success of the conservation area management.

3. RESULTS AND DISCUSSION

The Turtle Conservation Center in Sukabumi Regency is located in Pangumbahan Village, Ciracap District. It is managed by the Technical Implementation Unit of the Sukabumi Regency Marine and Fisheries Service. The Turtle Conservation Center in Sukabumi Regency works a 2.4 km long area where turtles lay eggs. The 14 km-long region comprises six turtle nesting centers and a turtle hatchery. There are two turtle hatcheries, one is open, and the other is closed. Each incubator can accommodate about 1500 turtle eggs. In addition, there are offices and lodging. Specifically for housing, it can be rented out to the public, especially students who want to see the process of laying eggs and hatching.

The ticket price is IDR 10,000 for entering the location and parking the vehicle. The Pangumbahan Turtle Conservation is open 24 hours, but the

hatchling release process is always at 5 pm (almost every day, in general). Although there is no unique tour guide provided, entering the conservation area, which is quite large, visitors will see lots of infographic boards about turtles; types of turtles, habitats, and information on the current situation where the existence of sea turtles is endangered. Before entering the hatching and hatchery area, it is good to enter the touch pool to see the turtles being cared for in the room for research; some hatchlings are prepared to be released in the afternoon. The release of hatchlings is in the afternoon to prevent heat and when few predators attack the hatchlings at night.

The Pangumbahan Turtle Conservation Center supervises and protects the egg-laying turtles. Every day, especially from October to January, there are about 60 turtles laying eggs in the Pangumbahan beach area. Each turtle laying eggs must be attended to by at least one officer. Why wait? Before laying eggs, turtles first dig a hole in the beach sand. The depth of the hole is about 30 to 40 cm. Turtles have an excellent instinct to measure the spot's depth where they deposit their eggs. At this depth, an average of 100 eggs are released within two hours. After laying eggs, the turtle closes the hole again (not allowed by officers). After resting for about 30 minutes, the turtles returned to the sea. If the eggs are not monitored, monitor lizards, and dogs will undoubtedly eat the eggs. These two predatory animals can sniff turtle eggs and eat hundreds of eggs. In addition to these animal predators, there are also other predators, namely people who deliberately take their eggs to sell.

After the turtles headed to the sea, officers immediately took the eggs and brought them to the hatchery to be incubated in the sand at 40 cm. Each hole contains 100 eggs, and within one month (30 days), the eggs will hatch, and the hatchlings (turtle chicks) will come out on their own. Baby turtles or hatchlings that

are a day old are immediately released back into the sea. According to the conservation officer, the hatchlings must be immediately released into the sea to adapt to their habitat instantly. Hatchlings should not live long in the cage because they will get used to getting food. However, the natural food is in the sea itself. Only ten of the thousand hatchlings released into the sea will return to Pangumbahan beach until they reach adulthood, and marine predators will eat up the others. If we do not let go of the sea again, the Turtle year will run out.

Damage to the coast and turtle habitat is a problem that often occurs and does not even rule out the possibility that it can occur in conservation areas used as tourist attractions. Efforts to empower the community as the leader of rooms used as eco-tourism destinations are necessary to prevent damage to forests or the site. The socialization held on December 12, 2021, can be described below.

Conservation-Based Ecotourism Development

a. Eco-tourism management principles and criteria

Eco-tourism has a positive impact on the development of an area. This positive impact must, of course, be balanced with a well-maintained natural condition so that it can be used as an attraction for tourists or visitors. Conservation-based eco-tourism is an eco-tourism development that focuses on environmentally friendly tourism patterns, where eco-tourism development must maintain, protect, and be responsible for nature conservation. The principles and criteria for eco-tourism management made by the National Standardization Agency of Indonesia in the Indonesian National Standard (SNI 8013:2014) regarding Nature Tourism Management include conservation. These principles and criteria are below (Supriadi et al., 2017):

1. Ecosystem function sustainability
2. Preservation of natural tourist attraction objects
3. Socio-cultural sustainability

4. Satisfaction, safety, and comfort of visitors

5. The principle of economic benefit

By referring to the principles and criteria set by the National Standardization Agency of Indonesia, eco-tourism development will give good results. The preservation of ecosystem functions to eco-tourism can be done by preventing forest destruction by visitors, including poaching in forest areas. Thus, the conservation of the ecosystem function will naturally lead to preserving natural tourist objects and attractions because a good ecosystem and its uniqueness will attract visitors to that place. Socio-cultural conservation can be in the form of maintaining community culture. In this sense, the culture of society must be adequate. Domestic and foreign tourists will bring a different culture from the local community. Therefore, the organization must be able to distinguish between acceptable and unacceptable good things.

The satisfaction, safety, and comfort of visitors reflect the full service provided by the local community. As the leader of the eco-tourism area, the district must be able to offer guarantees to tourists about their safety. Meanwhile, the principle of economic benefit is more emphasized in increasing people's income due to visits from tourists. Eco-tourism itself can indirectly have a positive effect on the community's economy if it is carried out with a total sense of responsibility.

1. Eco-tourism sustainability from economic, social, and environmental aspects (conservation principles and community participation)

Eco-tourism developed in conservation areas is Green & Fair eco-tourism. This business activity contributes to conservation by increasing awareness and supporting protecting landscapes with high biological, ecological, and historical value. The Pangumbahan Beach Turtle Conservation Center community must consider the environment's carrying capacity for this principle to work

correctly. Every tourist visit and activity is managed to not conflict with the local community's conservation principles and socio-cultural principles.

2. Development of local community institutions and partnerships (principle of community participation)

Eco-tourism development can be done through good cooperation and coordination between the community and local government, UPT, travel agencies, or NGOs. The community, as the owner, acts as a manager or stakeholder who can benefit directly from the development and management of eco-tourism so that eco-tourism can be a source of income for the local community. Based on the interview results, the Pangumbahan Beach Turtle Conservation Center has collaborated with Biofarma, and this collaboration results in the form of eco-tourism socialization for the community.

3. The term guide or guide is often mentioned in eco-tourism.

The guide's task is to accompany visitors until the visit is co. A guide must have the main thing is his knowledge and experience about the environment and nature visited by the tourist. Therefore, the local community is very suitable for the job. In addition to benefiting from eco-tourism, local communities can have a dual role, namely as a guide and a manager who will preserve nature and tourism objects. The initial step for community development at the Pangumbahan Beach Turtle Conservation Center is to provide opportunities for community members to become guides or companions for visitors. However, due to limitations in using English, assistance is usually given to domestic tourists. In contrast, for foreign tourists, it is entrusted to one of the tour leaders as translators (from outside the Pangumbahan Beach Turtle Conservation Center) who usually brings foreign tourists as guests in Pangumbahan and the community remains as a companion to point the way through the forest.

4. Principles of education and nature tourism

Eco-tourism provides many opportunities to introduce tourists to the importance of protecting nature and respecting local culture. When enjoying the beauty of the landscape in Pangumbahan turtle beach, the community can also directly get to know flora and fauna and the culture of the community so that it can increase the knowledge of visitors while at the same time giving satisfaction to the existing scenery. Education about the ethics and culture of the local community needs to be stated in a guide for tourists, which contains community ethics that guests or tourists need to follow while in eco-tourism areas controlled by local communities.

b. Community Capacity to Engage in Ecotourism Development

In carrying out its role as an eco-tourism area manager, the community must always be directly involved, open to receiving every visit from guests, and always ready to face the changes in their environment. The Guidelines for Community-Based Ecotourism Development (2001) are stated in Qomariah (2009).

1. Ability to host lodging (Homestay)

One example of accommodation that is usually provided in eco-tourism is a homestay or lodging house. The managed homestay can be a simple inn addressed directly by the community, or each family can deliver their home to be occupied by guests or visitors. In addition, the existence of a homestay can provide direct benefits or benefits for the owner or visitor. For a homestay, owners can get economic benefits from tourist visits. Meanwhile, the benefits obtained by tourists are direct opportunities to learn about the culture of the local community. They both exchange information and get to know each other to foster tolerance and better understanding. The thing to note is that the culture of tourists is sometimes not

the same as the culture of the local community.

Therefore, it is highly expected that people will adopt only positive things, while things that will negatively impact should not be followed. From the results of field observations, the homestay provided by the Pangumbahan Beach Turtle Conservation Center is very suitable to be occupied. The situation is adjusted to the environmental conditions. The tourists who visit are satisfied with the services provided because they seem friendly and pleasant, from the cleanliness of the homestay to the provision of food.

2. Basic English skills

The community's essential ability in English is the initial capital in making the place an eco-tourism area because, in the end, the site will be visited by foreign tourists or visitors (overseas). The local's ability to speak English is felt to be very limited. Some children who are still in elementary school (SD) have been slowly taught by a guide from outside the village to recognize and know the names of animals in English. However, this is not enough. Therefore, English training or courses need to be carried out so that the community can also become a tour guides in their area. It affects the local community's economy because the costs incurred by visitors will be enjoyed directly by the people who become Tour Guides.

3. Tech Skills

In addition to the ability in English, the community must also have skills in technology, for example, promoting Tourism Villages using social media and websites.

4. Financial management skills

Finance is essential. Therefore, financial management should be transparent by making monthly financial reports to maintain mutual trust. Each receipt or expenditure is recorded and reported at a meeting or joint meeting. The collected funds can later be managed to develop or

improve facilities and infrastructure at the eco-tourism location.

5. Marketing skills

Marketing skills are related to the promotional activities carried out. Introducing or promoting a location as an eco-tourism area is a clear plan that must be carried out. Promotional activities need to be carried out more broadly, not only by word of mouth but can be done through various media, both print and electronic media. These promotional activities can be in the form of :

- a) Dissemination of leaflets, making posters and banners installed in four strategic places so that the wider community can know them
- b) Promotion through print and electronic media
- c) Update the information on the website from time to time. Establish cooperation/partnerships with travel agencies and other parties related to tourism activities

6. Openness to Visitors

Openness to visitors who come is an essential factor in developing eco-tourism. The community's openness will be reflected through the services provided and the satisfaction felt by visitors. Openness can also be given to academics from various universities within their regions or other areas to conduct research to promote existing biodiversity and the local community's culture.

7. Ease of Transportation

Important issues that have not been resolved are transportation and accessibility at the Pangumbahan Beach Turtle Conservation Center. For now, accessibility to the Pangumbahan Beach Turtle Conservation Center is still challenging because the public usually uses the transportation, and visitors only reach the main road. Furthermore, the people and visitors must rent a motorcycle taxi or bring their vehicle. Therefore, the availability of public transportation to the Pangumbahan Beach Turtle Conservation Center needs to be done so that

transportation flow becomes smooth. This activity can be carried out in collaboration with the Regional Government. The main requirements that must be remembered in the area's opening are those related to environmental sustainability around the coast so that turtles are not afraid to go to the beach and lay their eggs.

4. CONCLUSION

The attractive natural conditions of Pangumbahan Beach are one of the tourist attractions that provide essential education to the community to maintain biodiversity, such as leatherback turtles (*Dermochelys coriacea*), Hawksbill turtles (*Eretmochelys imbricata*), Lekang turtles (*Lepidochelys olivacea*), loggerhead turtles (*Caretta caretta*), Flat Turtle (*Natator depressus*), Green Turtle (*Chelonia mydas*). Educational forms include watching turtles lay their eggs and releasing hatchlings to the beach. This potential is attractive to be used as an eco-tourism object.

Eco-tourism can be defined as a tourist's journey to a remote area to carry out tourism activities to enjoy and learn about nature, history, and culture while prioritizing the preservation of natural resources and the environment. However, the negative impact of eco-tourism may arise due to the lack of community involvement in protecting the environment. Based on this, to reduce the adverse effects of eco-tourism activities on natural forests by visitors, it is necessary to empower local communities in conservation-based eco-tourism activities to maintain the preservation of natural resources in the area.

Conservation-based eco-tourism is an eco-tourism development that focuses on environmentally friendly tourism patterns, where eco-tourism development must maintain, protect, and be responsible for nature conservation. The community service activity in the form of socialization about the development of conservation-based eco-tourism at the Pangumbahan

Beach Turtle Conservation Center is based on the principles and criteria of eco-tourism management made by BSN in SNI 8013:2014 concerning Nature Tourism Management in the form of preserving ecosystem functions, preserving natural tourist attraction objects, socio-cultural sustainability, satisfaction, safety, and comfort of visitors as well as the principle of economic benefits. Eco-tourism management based on conservation must also pay attention to the sustainability of eco-tourism from economic, social, and environmental aspects, development of local community institutions and partnerships, community-based eco-tourism, and the principles of education and nature tourism. The essential issue is accessibility to the Pangumbahan Beach Turtle Conservation Center, which needs serious attention from the local government to develop the Pangumbahan Beach Turtle Conservation Center as an eco-tourism area that can run well.

The last activity of this community service is mangrove planting. This activity received good support from the local community. The maintenance of the newly planted plants is wholly left to the community at the Pangumbahan Beach Turtle Conservation Center.

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