

Title	IMPACT OF TURTLE CONSERVATION DEVELOPMENT ON THE SOCIO-ECONOMY OF COASTAL COMMUNITIES AND THE NUMBER OF NESTING TURTLES: A CASE STUDY OF PANGUMBAHAN BEACH, SUKABUMI REGENCY, WEST JAVA, INDONESIA
Author(s)	Wiadnyana, Ngurah N; Nastiti, Adriani Sri
Citation	PROCEEDINGS of the Design Symposium on Conservation of Ecosystem Volume 3 (The 14th SEASTAR2000 workshop) (2015), 3: 6-10
Issue Date	2015-03
URL	http://dx.doi.org/10.14989/198820
Right	
Type	Conference Paper
Textversion	publisher

IMPACT OF TURTLE CONSERVATION DEVELOPMENT ON THE SOCIO-ECONOMY OF COASTAL COMMUNITIES AND THE NUMBER OF NESTING TURTLES: A CASE STUDY OF PANGUMBAHAN BEACH, SUKABUMI REGENCY, WEST JAVA, INDONESIA

Ngurah N Wiadnyana¹ and Adriani Sri Nastiti²

¹Research Centre for Fisheries Management and Conservation. Jalan Pasir Putih No.1. Ancol Timur Jakarta Utara 14430 Indonesia

²Research Institute for Fisheries Resource Enhancement and Conservation. Jalan Cilalawi No.1 Jatiluhur Purwakarta. Jawa Barat 41152 Indonesia
Email: ngurah_prpt@indo.net.id; adrin0506@yahoo.co.id

ABSTRACT

Pangumbahan beach, located between Ujung Genteng and Pangumbahan villages, in Sukabumi Regency (latitude 7°19'10" to 7°19'50" south and longitude 106°23'00" to 106°24'10" east) has been designated as a "Coastal Park" for sea turtle conservation in West Java Province, Indonesia. The beach is suitable for the nesting of green sea turtles (*Chelonia mydas*). The Pangumbahan beach is designated as a coastal park under the decree of the Sukabumi regent No: 523/Kep.639-Dislutkan/2008. Subsequently an increase in the number of visitors was recorded for the period from 2008 to 2012, with the number of people increasing from 13,176 to 21,759. This tourism activity seems have brought benefits to the economy of the coastal communities living around the park. The rise of economic activities is seen in various sectors including: transportation, lodging, restaurants, trade and tourism guides. The income of the people before the advent of ecotourism activities had been low, but the awareness of local people is rising significantly, allowing them to participate in developing turtle conservation in the area. This should bode well for the prospects of enhancing the sea turtle population in Indonesia, especially in West Java. However, the number of nesting turtles on the beach has decreased significantly, in contrast to the increasing number of tourists. A causal relationship between these two trends was unclear, but this finding suggests that conservation and management strategies in ecotourism projects should be evaluated well.

Keyword: Green Turtle, Conservation, Socio-economy, Coastal Community, Pangumbahan Beach

INTRODUCTION

Pangumbahan beach is one of the most important green turtle (*Chelonia mydas*) nesting areas in Indonesia and has been managed as a "Coastal Park" since December 22, 2009. Pangumbahan beach is located between Ujung Genteng village and Pangumbahan, District Ciracap, in Sukabumi Regency, West Java Province, Indonesia (Fig. 1). The length of the beach is approximately 2,300 m with a total area of 58.43 Ha (Anonymous, 2011 a, b) and is located at 7°19'10" - 7°19'50" S and 106°23'00" - 106°24'10" E (Nastiti *et al.*, 2009).

Ecotourism may be important as a tool in planning for sustainable conservation measures in the coastal park. Generally, ecotourism is one category of tourism, or one sector of the market that takes advantage of the natural environment (David, 2009 in Anonymous, 2011c). Tourism based on the

natural environment, such as forest and beach tourism, is only experienced in the local natural environment through natural activities like bird watching in the forests and observign other unique biota in the sea. While ecotourism benefits conservation and management of not only the local environment but also the culture and economy of local communities. For example, in ecotourism, bird watching and recreational SCUBA are conducted with local guides, and visitors will stay in hostels (eco-lodge) provided by local residents. As a result, ecotourism may contribute to the economy of local residents (eco-charge).

Pangumbahan beach is established as conservation area of green turtles (*Chelonia mydas*), in order to sustain the population and develop tourism based on the concept of ecotourism.



Figure 1. Pangumbahan Beach, West Java, Indonesia.

GREEN TURTLE CONSERVATION ACTIVITIES IN PANGUMBAHAN BEACH

Pangumbahan beach has a strategic value associated with the conservation of green turtles. This is shown by an official document issued by the IUCN in 2004 on the status of the global population of green turtles.

The legal basis underlying the management and development of the green turtle conservation area on Pangumbahan beach are: Law of the Republic of Indonesia No. 27/2007 on Management of Coastal Areas and Small Islands; Law of the Republic of Indonesia No. 32/2009 concerning the Protection and Management of the Environment; Regulation of the Government of the Republic of Indonesia No 60/2007 on the Conservation of Fish Resources; Regulation of the Minister of Marine Affairs and Fisheries No. 17/2008 concerning Conservation Areas in Coastal Areas and Small Islands and Regulation Sukabumi District No. 5/2009 on the Conservation of Sea Turtles in Sukabumi. In order to manage the conservation of green turtles, their habitat on the coast of Pangumbahan are divided into six observation posts. According to Segara (2008) nesting beaches along the coast Pangumbahan are a potential area for green turtles to make nests to lay their eggs. Based on observations from six observation posts as described by Wiadnyana and Nastiti (2013), Post 2 and Post 3 have high potential for green turtles nesting, while the Post 1 and Post 4 have less potential.

Currently, there has been a paradigm shift in the use of green turtles in Sukabumi. Management efforts taking into account the aspects of conservation value and economic benefits for the welfare of society are now being prioritized. This allows synergy between the government and the people, increasing the role of communities to enhance their income sources and welfare (Anonymous, 2011c).

Collaborative management of the waters involved in conservation is highly recommended. According to Pomeroy and Berkes (1997) co-management is described as a mix of government-based management and community-based management. There are at least ten different types of hierarchies of management involved in the principles of co-management: informing, consultation, cooperation, communication, information exchange, advisory role, joint action, partnership, community control, and interarea coordination.

Examples of public participation in support of the conservation of green turtles on the Pangumbahan beach can be found in the culture of an Chinese ethnic community, where a young couple must restock some hatchlings into the sea before their wedding ceremony. This type of wisdom needs to be maintained in order to ensure that the public participate green turtle (Nastiti *et al.*, 2008).

SOCIO-ECONOMIC CONDITIONS OF PANGUMBAHAN LOCAL COMMUNITY, AND POSITIVE AND NEGATIVE IMPACTS OF ECOTOURISM DEVELOPMENT

Before the advent of ecotourism activities, communities around the coast Pangumbahan mostly worked as farmers, fishermen, merchants, plantation workers and civil servants. Farmers and fishermen are still the most popular livelihood despite the fact that people are still poor. This is presumably related to the low level of education, which is elementary school for most people in Pangumbahan. If there are any people that have studied to college level, the percentage is very small. Under these conditions the people in Pangumbahan are categorized as low-educated people and generally do not have special skills. These conditions greatly affect the level of knowledge and ability to innovate (Anonymous, 2008).

Residents on the coast of Pangumbahan work as a fisherman, or as workers on fishing vessels. Owners of fishing vessels pay wages to fishermen according to the fish catch. Benefits are generally allocated at 40:60, i.e., 40% for ship owners and 60% for fishermen. However, fishermen using fishing gear and nets receive more money, because the nets are not provided directly by the ship owners. These conditions result in significant differences in living standards between the ship owners and fishermen. The income of fishermen is very volatile, because the catch is affected by weather and other factors. Under these conditions it can be said that the income of coastal communities of Pangumbahan still below standards (Pohan, 2012).

On the other hand, under the framework of the establishment of the Regional Marine

Conservation Area (RMCA) or Kawasan Konservasi Laut Daerah (KKLD) the Regent of Sukabumi issued Decree No. 523/Kep.639-Dislutkan/2008 about Turtle Beach area as a Regional Marine Conservation Area of Pangumbahan Coast and Small Islands of Sukabumi with the status of "Coastal Park". Among the five decisions that have been established, decision No. 5 provides that the Coastal Conservation Areas and Small Islands of Sukabumi are utilized for the purposes of ecotourism, marine turtle research and development, and community economic development in accordance with the management plan.

Community participation in the management of protected areas is a priority, given that the actual day-to-day activities are in the conservation area. Co-management, partnership and collaboration that emphasizes the primary role of the improvement of well-being, is very important. The private sector can be partners through Corporate Social Responsibility (CSR) mechanisms (Suraji, 2012).

The determination of decision has been drawn up as a management plan document for a green turtle conservation area on Pangumbahan beach by a private individual (CV Sela Kencana). The document sets out a vision for the management and development of marine protected areas, as well as economic empowerment, socio-cultural benefits, fishing enterprise development and strengthening of coastal communities.

Ecotourism activities on Pangumbahan beach have been successfully managed and the green turtle conservation area has been realized. Besides the beautiful beach with white sand, tourists enjoy watching green turtle nesting and releasing hatchlings.

The presence of tourists on Pangumbahan beach has positive impacts for the surrounding residents. The public can obtain additional revenue from the tourists, who are both domestic and foreign. Tourism activities may also provide new employment for of local people around the beach, enabling the economy of Pangumbahan to grow (Pohan, 2012).

The increasing number of tourist arrivals from 2008 to 2012 (Fig. 2) is an indicator of the positive impact of ecotourism activities.

The increase in domestic and foreign visitors to the Pangumbahan beach to watch green turtles laying eggs and restocking of hatchlings, and enjoying the sunset, markedly improved the economy. Various economic activities have been developed with the availability of bungalo and hotel accommodation, restaurants, car rental services, land and water transportation, tour guides, tourist shops selling foods and souvenirs, and other services. Economic activity has been sponsored by the government through the National Program for

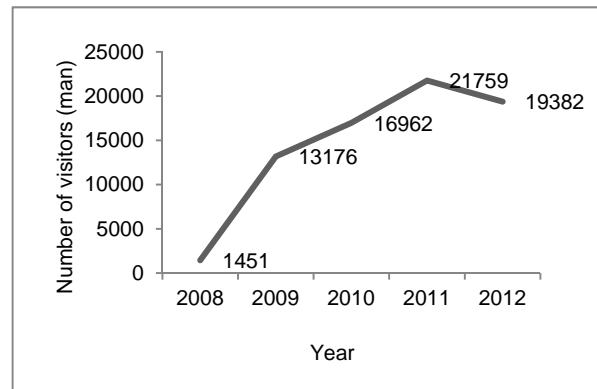


Figure 2. The number of tourists on the Pangumbahan beach (Anonymous 2011a, b; 2012).

Community Empowerment (PNPM) (Anonymous 2011a).

Economic development in the coastal communities of Pangumbahan has resulted in increased revenues. Before the advent of community ecotourism activities, the areas was categorized as poor and less educated, and generally the people did not have any special skills. Now the people inhabiting the Pangumbahan beach have raised their socio-economic status to the level of middle class.

The development of a wide range of attractions on Pangumbahan beach, which is managed in the form of ecotourism-based turtle conservation, has had an impact on the economy of local communities. Generally, people that worked only as traditional fishermen have now switched livelihoods to various ecotourism activities that support the sustainability of turtle conservation in Pangumbahan coast. Some forms of the perceived benefits of ecotourism communities are observed in the commercial sectors (Anonymous, 2011 c):

1. Transportation:

There are four packages to the coastal park (turtle conservation) managed by the local community. These usually consist of a 2 days and 1 night package for Rp. 500.000,- (50 US\$) per person, and the *ojeg* (motorbike taxi) takes travelers from Ujung Genteng to the Turtle Conservation at a rate of Rp. 20.000 each way. Other transportation services have been developed to facilitate tourism activities as well.

2. Lodging:

The demand for lodging is increasing. Some the popular accommodations are the villas Amanda Queen, Papa's Inn, Villa Adi, as well as homes that can be rented for between Rp. 100.000, - to Rp. 500.000. The charge depends on how complete the available facilities are, and will also typically rise

during the holiday season and the green turtle nesting season.

3. Restaurants.:

The rising demand for food services has also been met with a significant increase in the number of restaurants. In addition to private restaurants, there is an eating facility run by the local government, although the prices are relatively high, perhaps due to the cost of bring foodstuffs the long distance.

4. Trade:

The trading sector increases with the rising number of visitors coming to Pangumbahan Beach. Various kinds of goods are sold, such as items for daily needs, local cakes and souvenirs. The fishermen may sell directly their fish catch to the visitors as well.

5. Guides:

Tourists coming to observe turtle conservation may hire a guide to assist with viewing of green turtle activities, especially during the night nesting activities, which are very popular with but local and foreign visitors.

There are many other additional benefits enjoyed by the community, not only in economic aspects, but also in terms of culture. The local community can introduce its culture through various events to the visitors. This requires support to ensure adequate human resources and regulations. Empowered communities playing an active role in the ecotourism activities will provide an added boost to the marketability of the integrated Regional Tourism of the Pangumbahan coastal area.

The number of visitors has increased over times, as a result of the improvement in facilities. As a result, socio-cultural and economic development, as well as public education, have also seen improvements. However it must be remembered that green turtle conservation is the main objective of the establishment of KKLD. In order to conserve the green turtles on Pangumbahan beach, it is necessary to conduct studies to determine the appropriate number of visitors to be allowed to visit the nesting area on Pangumbahan Beach. This measure of management is quite important, given the fact that the number of green turtles landed on Pangumbahan Beach has decreased rapidly (Fig. 3).

The declining green turtle landings seems be inversely correlated with the increasing number of the visitors to the Pangumbahan Beach (Fig. 2 and Fig. 3). The decrease of female turtles nesting on the beach might be due the turtles' sensitivity to light and sound produced by human activities on and around the beach. During the process of nesting

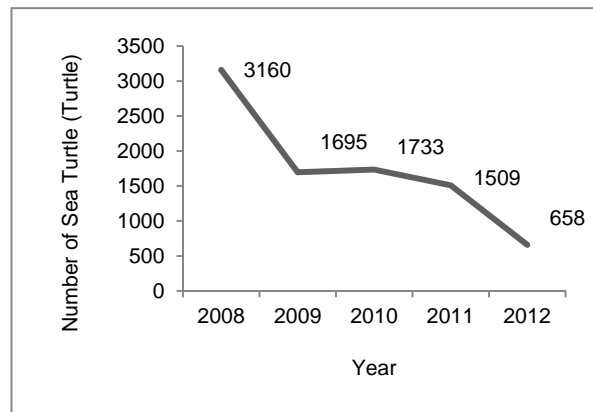


Figure 3. The number of green turtles nested in Pangumbahan beach (Anonymous,2011 a, b; 2012).

the turtles need suitable conditions. Visitors to the beach take pictures with flashes in order to capture images of the green turtles' beautiful nesting process, and noise levels are raised when visitors move around on the beach. These increases in light and noises on the beach are linked directly to tourism activities.

CONCLUSION

A turtle conservation area has been established on the Pangumbahan coast of Sukabumi Regency, West Java, Indonesia, in form of a "Coastal Park". The turtle conservation area has brought positive impacts to the social and economic life of coastal communities of Pangumbahan by improving the economy, as indicated by an increase in income revenue and education/skills. Appropriate management practices are necessary to ensure the sustainability of the conservation activity, especially the need to anticipate negative impacts of the increasing human activities on the beach, such as observation of sea turtle nesting. This suggests that the number of visitors to the site should be limited in order to avoid disturbances to turtle activity on the beach.

ACKNOWLEDGMENT

The authors would like to thank the Head of the Conservation Technical Unit of Green Turtle (*Chelonia mydas*) of Pangumbahan, Marine and Fisheries Service of Sukabumi Regency, West Java, for their cooperation in providing the data and information in order to complete this paper and the anonymous reviewers for their valuable correction.

REFERENCES

Anonymous. 2011a. Progress Report on Sea Turtle Conservation Area Management Coastal Park Turtle Pangumbahan Sukabumi (until 2010) Local Government Sukabumi. Department of Marine and Fisheries. 118 pages (unpublished).

Anonymous. 2011b. Progress Report on Sea Turtle Conservation Area Management Coastal Park Turtle Pangumbahan Sukabumi (up to June 2011) Local Government Sukabumi. Department of Marine and Fisheries. 26 pages (unpublished).

Anonymous. 2011c. Papers Ecotourism: Beaches Pangumbahan, Ujung Genteng, Sukabumi. tssimamora.wordpress.com/2011/07/14/paper-ecotouris-beach-pangumbahan-ujung-genteng-sukabumi. Downloaded on January 18, 2013. At 9.18.

Anonymous. 2012. Progress Report on Sea Turtle Conservation Area Management Coastal Park Turtle Pangumbahan Sukabumi. Local Government Sukabumi. Department of Marine and Fisheries. 4 pages (unpublished).

Anonymous. 2008. Evaluation of Sea Turtle Conservation in the South Coast of Java (West Java and Banten). Research Institute for Fisheries Stock Enhancement. Final report. Research Center for Capture Fisheries. Marine and Fisheries Research Agency Ministry of Maritime Affairs and Fisheries: 89 pages (unpublished).

Nastiti A.S., Krismono and N. N. Wiadnyana. 2009. Green Sea Turtle Conservation Evaluation System (*Chelonia mydas*) at the Pangumbahan Beach Sukabumi Regency. West Java Province. Final Report Annual Intensive Program Researcher and Engineer. Marine and Fisheries Research Agency in 2008. 74 Page.

Nastiti A.S., A. Fitrianto and N.N. Wiadnyana. 2010. Aspect Morphology, Reproduction, and Behavior Green Turtle (*Chelonia mydas*) on the Pangumbahan Beach, Sukabumi Regency, West Java. Bawal. 3.2:93-101.

Pohan, A. A. 2012. Life Coastal Residents Ujung Genteng. <http://puncakbukit.blogspot.com/2012/12/kehidupan-penduduk-pesisir-end-genteng.html>. Downloaded on 20 January 2012, at 11:59.

Pomeroy, R. S. and F. Berkes. 1997. "Two To Tango: The Role Of Government In Fisheries Co-Management". Marine Policy, Elsevier Science, Vol 21 No. 5, pp. 465-480.

Segara, R.. A.. 2008. Study Characteristics Green turtle nesting habitat biophysical (*Chelonia mydas*) in Pangumbahan Sukabumi, West Java. Science Program and Marine Technology. Faculty of Fisheries and Marine Science. Bogor Institute of Agriculture. Thesis. 81 p. (unpublished).

Suraji. 2012. Effective management of the Region Aquatic Conservation. <http://suraji.wordpress.com/2012/05/09/menyoal-pengelolaan-efektif-water-conservation-area-to-welfare-the-e-kkp3k-method-effectiveness-evaluation-conservation-area-coastal-waters-and-small-islands/>. Downloaded on January 20, 2013, at 13:17.

Wiadnyana, N.N. and A.S. Nastiti. 2013. Sea turtle management progress of Pangumbahan Beach, Sukabumi District, West Java-Indonesia. Proceedings of The Design Symposium on Conservation of Ecosystem (SEASTARS2000), February 20-21, 2012 in Bangkok, Thailand.p.29-35.