

Community Economic Innovation in Mangrove Area at East Beach of Java Island

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Abstract

Banyuwangi is in a position that is very strategic that have potential include prospective tourism and business vehicles in the form of a crossing port to the Bali, loading port of goods, beach tourism, Ijen Mountain tours and Mangrove Forests. At Cemara Beach, there are about 11 types of Mangroves whose density is still lacking. Even though around it there are ponds, as well as the landing place to lay eggs. In relation to the living conditions of coastal communities, one important aspect of strengthening Mangrove conservation is to involve and seek local community support. The existence of Mangrove areas is expected to reduce sedimentation. This research was conducted on the east coast of Java Island, namely Cemara Beach, which is located in Rowo Village, Pakis Sub-district, Banyuwangi District, Banyuwangi Regency, East Java, Indonesia in 2020. The results of the study show: a) The Community is able to deal with change and technological innovation overcome the negative impact of the development of special interest tourism as a center for Mangrove processing production, Mangrove nurseries, turtle conservation, Cemara forest; b) The ability of the community has increased sufficiently in entrepreneurship based on Mangrove potency on the Cemara beach; c) Partner communities are able to plan integrated and sustainable management of areas that will be used as the basis for implementing physical development, spatial facilities, and special interest tourism infrastructure.

Keywords

Banyuwangi; mangrove area; economic innovation; Cemara beach



I. Introduction

Banyuwangi is a district that has the longest coastline in the province of East Java, along 175.8 KM, with a variety of high potential such as renewable resources, non-renewable resources and environmental services. Banyuwangi Regency is in a very strategic position and has the potential for a port, a vehicle for tourism, and a prospective business in the form of a crossing port to the island of Bali, loading port of goods, beach tourism, Ijen Mountain tours and Mangrove Forests. Coastal tourism includes Plengkung beach tourism which has the second largest waves in the world after Hawaii, Sukamade beach tourism, boom beach and Cemara beach where turtles lay eggs, and very promising fishery potential so that it can be profitable in economic development and open investment opportunities in the Regency Banyuwangi (Putri et al, 2015).

Based on the results of research conducted by Setyaningrum (2020) at Cemara Beach, Banyuwangi Regency regarding the identification of Mangrove species, there are about 11 types of Mangroves whose density is still lacking. Whereas in the vicinity of Cemara Beach there are ponds, and also as a landing place for turtles to lay their eggs. In fact, of the 11 identified species, some of which can be processed into food and beverages.

Conservation of living natural resources is the management of resources and utilization of living natural resources that are carried out wisely to ensure their availability while maintaining and increasing the quality of diversity and value. Conservation of living natural resources and their ecosystems is carried out through the following activities: a) protection of life support systems; b) preservation of diversity of plant and animal species and their ecosystems; c) sustainable use of biological natural resources and their ecosystems (Ministry of Forestry, 2013).

Flexibility in the approach to conserving people (Kawamuna et al, 2017) grove has been carried out at Cemara Beach, Banyuwangi. Namely combining two important elements between the role of the community and the socio-economic development of the local population. In relation to the living conditions of coastal communities, one important aspect of community strengthening and Mangrove conservation activities is to involve and seek support from local communities. The goal of ecological restoration alone is not a single determinant factor for the success of any program, if the community as one of the stakeholders and puts their life on the existing natural resources is not included, the rehabilitation program will fail.

In connection with the regional partnership program at Cemara Beach, of the 11 identified Mangrove species, three of which focus on Mangrove nurseries are *Sonneratia caseolaris* (Bogem), *Avicennia* sp. (Api-api), *Rhizophora apiculata* (Mangrove). These three types are chosen in conducting nurseries, only as a stimulus for the community so that they can continue with other types of nurseries. The selection of seeds is carried out based on the easiest to the most difficult cultivation techniques, also related to their distribution on Cemara Beach (Dewi, 2019).

The Mangrove nursery at Cemara Beach is considered successful, because the community already has a location as a nursery center, and even routinely performs nurseries. The nurseries have various objectives, namely expanding the Mangrove area, resisting the waves of the sea, reducing sedimentation and building tourism and education areas. These various objectives are strongly supported by the local community who are involved in management, the community is given the right to take harvest from the Mangrove area without damaging it, and is involved in regular nursery and planting programs as providers of Mangrove seedlings. These various destinations are also supported by a strategic location that makes access easier. The existence of Mangrove areas is expected to reduce sedimentation. Mangrove ecosystem restoration efforts to revive its original function, by presenting (planting) Mangrove seedlings, such as *Rhizophora*, *Sonneratia*, *Avicennia*, and *Acanthus* have been carried out by universities, the private sector and the community. This research was conducted on the east coast of Java Island, namely Cemara Beach, which is located in Rowo Village, Pakis Sub-district, Banyuwangi District, Banyuwangi Regency, East Java, Indonesia in 2020.

II. Review of Literatures

2.1 People's Economy

The birth of a welfare economic system cannot be separated from the thought of the concept of the welfare state law. This opinion can be seen from what was stated by Bagir Manan. According to Hanan and Hariijanti (2014), the concept of a modern legal state contains three main points, namely: a) political aspects, requiring restrictions on State power; b) the concept of law, and among others the rule of law, the principle of legality, and the rule of law; c) socio-economic aspects, are social justice and general welfare. The correlation of the three aspects mentioned above is human rights and socio-economic

welfare. This conception is contrary to the classic rule of law conception that places human rights only on political right.

This is certainly not satisfactory, so human rights need to be extended to the social field, namely social human rights (*sociale grondrechten* / *soziale menschenrechten*). This is because social rights give the state or government authority, duties and responsibilities to enter or participate in the lives of individuals and communities. This understanding gave birth to an understanding of economic democracy or populist economy in the field. In daily practice, social justice is limited only to economic justice, so according to Bagir Manan, that social justice must also cover all aspects of community, national and state life (Hosein, 2016).

However, economic justice is a very prominent thing in the form of the state and government obligations to realize the general welfare and prosperity of the people. [8] saw this by suggesting several functions of the state in relation to the above aspects as follows: a) The state has a function as a guarantor of welfare for all its people; b) The state plays its role and function as a regulator; c) The state also plays its role as an entrepreneur or runs certain sectors through state-owned enterprises; and d) The state also plays its role as supervisor. The question that must be asked is how the state and government can bring about the welfare and prosperity of the people. As explained above, that the emergence of the concept of a welfare law state is a development of the theory of people's sovereignty, and the failure of the conceptions of classical law and socialist rule of law in providing welfare and prosperity to the people. Based on this thinking, the role of society to be more involved in economic development is very important.

2.2 Mangrove Area

Mangrove forests are formations of specific plants, and are generally found growing and developing in protected coastal areas in the tropics and subtropics. The word Mangrove itself comes from a combination of Portuguese, namely *Mangue*, and English, namely *grove* [9]. In Portuguese, the word Mangrove is used for individual plant species, and the word *mangal* is used for forest communities consisting of individuals of Mangrove species. Whereas in English, the word Mangrove is used both for communities of trees or grasses that grow in coastal areas and for individuals of other plant species that grow associated with it. In addition, Mastaller in [10] mention that the word Mangrove comes from the ancient Malay language, namely *Mangimangi* which is used to describe the *Avicennia* clan, and until now the term is still used for the Maluku region. In this regard, various kinds of terms are used to refer to Mangrove forests, including the coastal woodland, *mangal* and *tidalforest* [9][11]. In general, [12] provide an understanding that Mangrove forest is a forest formation that is influenced by the presence of tides, with anaerobic soil conditions. Meanwhile [13] defines Mangrove forest as a group of plants consisting of various types of plants from different families, but has the same morphological and physiological adaptability to habitats affected by tides.

Meanwhile [14] defines Mangrove forest as forest that mainly grows on alluvial mud in coastal areas and river estuaries, whose existence is always influenced by tidal water, and consists of *Avicennia*, *Sonneratia*, *Rhizophora*, *Bruguiera*, *Ceriops*, *Lumnitzera*, *Excoecaria*, *Xylocarpus*, *Scyphiphora* and *Nypa* [13] define Mangroves as both plants that grow in tidal areas and as communities. Related to the above definition, the most basic and important thing to understand is that Mangrove plant species are able to grow and develop in coastal environments that are extremely saline, water saturated, soil conditions are less stable and anaerobic. With these environmental conditions, several types of Mangrove

plants are able to develop a mechanism that allows them to actively remove salt from the tissue.

Meanwhile, other organs have the ability to adapt by developing a respiratory root system to obtain oxygen from the root system that lives on anaerobic substrates. In addition, several types of Mangrove plants such as *Rhizophora* sp., *Bruguiera* sp. and *Ceriops* sp. able to develop using fruit (propagules) that have germinated while still attached to the parent tree or known as viviparous. However, as with other types of plants, Mangrove plants still need fresh water normally, nutrients and oxygen.

In addition, the presence of Mangrove forests in these coastal areas usually grows and develops in close relation to other ecosystems, such as seagrass beds, algae and coral reefs. In Indonesia, Mangrove forests grow and are scattered throughout the archipelago, from Sumatra to Irian Island. The area of Indonesia's Mangrove forests is estimated to be around 4.25 million hectares, while according to the report of [15] the area of Mangrove forests in 1993 was estimated to be around 2.49 million hectares. Of all the Mangrove forests in Indonesia, there are about 202 species of plants that live in Mangrove forests, including 89 types of trees, 5 types of palms, 19 types of climbers, 44 species of herbs, 44 types of epiphytes, 1 type of ferns. Of these, 43 are true Mangrove species, while other species are plant species that are usually associated with Mangrove forest species. Of the 43 Mangrove species, 33 are classified as tree and the rest are shrubs. Meanwhile, according to (16), there were 75 species of Mangrove plants in Indonesia.

III. Results and Discussion

3.1 Economically and Ecologically Sustainable Mangrove Processed Products

Mangroves do not only have functions ecologically but also economically, namely that they can be used for fruit and leaves as food. Several types of Mangroves in Cemara Beach for leaves and even fruit can be managed into peyek, tea and Mangrove syrup. And this has been done by women from the coastal community groups of Pantai Cemara since two years ago, precisely since the implementation of the regional partnership program.

Ecologically, the use of Mangrove leaves and fruit will not damage or reduce the value of natural Mangrove resources at Cemara Beach. Because the method of picking Mangrove leaves in this case is the Deruju (*Acanthus ilicifolius* L.) type by picking 3 to 5 leaves at the top of the leaves, the Mangroves will not die or run out on the contrary, they will grow more and more [17]. While the use of Mangrove fruit, especially the type of *Sonneratia caseolaris*, the fruit is taken for ripe ones, usually the fruit will fall off by itself when it is ripe or the fruit is yellowish green which indicates that the fruit can be picked. For the sustainability of the *Sonneratia caseolaris* type is to divide the fruit that is processed into syrup and which is made of nursery material, considering that this type of nursery comes from very ripe fruit, usually the seeds that fall from the tree.

Economically, processed Mangrove products are sold to visitors who enter the Cemara Beach area. Meanwhile, the sustainability of the existence of these processed products is by selling out of the area and while it is still in the stage of introducing it to several Government Women's Organizations.



Figure 1. Peyek, Tea and syrup processed from Mangrove, Cemara Beach

3.2 Management of Special Interest Tourism Areas (Ecotourism) Community Based

Cemara Beach is designated as one of the tourist destinations in Banyuwangi Regency. Only tourism that is presented is not beach tourism in general, but more towards conservation. The conservation in question is the conservation of turtles, sea cypresses and Mangroves. The three coastal resources are combined in an integrated management manner, so that there is no overlapping or fighting over management priorities. Sea turtles that land on Cemara Beach to lay eggs need a representative area, in this case a core zone is established in which there are sea Cemara plants which are dense enough to be suitable for nesting turtle eggs. On the other hand, the core zone adjacent to the river which extends along Cemara Beach contains Mangroves. Mangrove itself functions to keep the coastal area from abrasion and to maintain water absorption around the core zone, considering that Cemara itself is a plant that requires a lot of water. This conservation value then directly impacts in its management as well as ecotourism [18].

The regional partnership program at Cemara Beach focuses on areas of special interest, namely turtle education, especially Mangrove education. Mangrove ecotourism attractions that can be enjoyed by tourists are Mangrove tracking along the river to the estuary, Mangrove tracks where people can enjoy the atmosphere of the Mangrove forest by knowing the types of Mangroves in the area, and even taking selfies. Ecotourism management at Cemara Beach is carried out by the community groups themselves, starting from planning, implementing to monitoring and evaluating. In planning, the community itself designs and makes such a Mangrove track which ends its journey at the Mangrove nursery and there is a display of processed Mangrove products that tourists can buy and enjoy [19].



Figure 2. Mangrove Track, Cemara Beach

3.3 Economic and Social Impact

Integrated management of coastal areas, especially those on Cemara Beach, has a fairly good effect on the coastal fishing communities of the area. Prior to 2018, the community managing Cemara Beach did not understand the function of Mangroves in a comprehensive manner, management was only for the conservation of turtles and Cemara trees. It was only in 2018 through the regional partnership program that the community got to know Mangroves in a comprehensive manner starting from their ecological and economic functions. And until 2020, the focus of community groups is added towards Mangrove management not only from an ecological perspective, but also from an economic perspective.

During the three years running until 2020, the management of the area from an ecological perspective has increased quite a bit. For spruce and Mangrove areas, the density increases every year, the area of the Cemara beach itself is around 8 Ha. 70% is an area of Cemara and Mangrove plants. Currently, the density has reached up to 80%, especially the Mangrove area which reaches 3 Ha to an increase of around 4 Ha, considering that Mangrove planting is not always 100% successful in growing every year. However, the patchwork system continues so that Mangrove growth continues to increase every year.

Economic and social impacts, can be seen from the number of visitors each year to Cemara Beach. And when viewed from the number of tickets sold, each year tends to be the same, possibly this is because national publications have not been optimally carried out.

Table 1. Number of Visitors and Income of Cemara Beach Ecotourism

Year	Price of entrance ticket	Price of round trip ticket	Number of visitors	Total (Rp)
2017	2.000	-	149.991	299.982.000
2018	3.000	-	113.131	339.293.000
2019	3.000	-	113.156	339.468.000
Oktober 2019	-	5.000	2.400	12.000.000

The table above shows that ticket prices since 2018 have indeed been increased and that is the decision of the Tourism Office because since 2018 the entrance ticket to Cemara Beach has also contributed tax retribution to the regions of 10%. The number of visitors in 2017 was indeed higher than the following year, because that year Cemara Beach was just grounded in the people around Banyuwangi so that curiosity arose and many wanted to visit. However, in the following years the number of visitors has indeed decreased compared to 2017, but this is not a problem because in terms of income it actually increases, this is because those who come to Cemara Beach already know that Cemara Beach is a coastal area that provides special tours, namely conservation education.

In 2019, the stretch of ecotourism went up again, especially in October because Mangrove ecotourism attractions were added by river tracing using boats. This is quite attractive to many visitors, especially children to adolescents, they are attracted along the river where Mangrove trees are found on either side of the river.

Table 2. Results of Mangrove Peanut Processing

Year	Peyek Price (Rp)	Amount (Pack)	Total (Rp)
2018	5.000	895	4.475.000
2019	5.000	971	4.855.000

Based on the table above, the total sales are still far from expectations, because group members have not been total in producing the intended processed product. The demand for Mangrove projects is still not high, because there are still many who are not familiar with these products, especially for people outside the area. However, at least there has been income from Mangrove processing. As for Mangrove syrup and tea, in this case the increase in partner income cannot be measured, because demand is limited if there is demand.

IV. Conclusion

Based on this analysis, it can be concluded as follows:

- a. The community is capable of dealing with changes in technological innovation and overcoming the negative impacts of developing special interest tourism as a center for Mangrove processing production, Mangrove nurseries, turtle conservation, Cemara forest. This is evidenced by the presence of Mangrove nurseries, as well as Mangrove processed products into peyek, tea and Mangrove syrup.
- b. The ability of the community is quite increasing in entrepreneurship based on the potential of Mangroves on the Cemara beach. This is shown by the emergence of ecotourism attractions, namely Mangrove tracks, Mangrove nursery education, Mangrove tracking using boats and canoes. In addition, people are capable in the field of entrepreneurship from the aspects of management skills (management, accounting / bookkeeping), production, packaging, marketing, branding.
- c. Partner communities are able to plan integrated and sustainable management of areas that will be used as the basis for implementing physical development, spatial facilities, special interest tourism facilities and infrastructure.

The suggestion in this progress report is how the Banyuwangi Regency Government collaborates with the private sector to be consistent with the corporate social responsibility (CSR) that can be provided at Cemara Beach, considering that the waters of Cemara Beach also have an estuary which is downstream from several company dumps around Cemara Beach and from upstream.

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