

Local Wisdom - Based Mangrove Ecotourism Development Model That Supports Kampung Laut Tourism Village Segara Anakan Cilacap – Central Java Indonesia

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Abstract. Segara Anakan Lagoon experiences a decrease in environmental quality and quantity overtimes. It is due to the sedimentation from Citanduy, Cikonde, and Ciberueum Rivers. One of ways to maintain the ecological, economic, and cultural functions is by selling environmental services through the development of sustainable Segara Anakan mangrove ecotourism and Kampung Laut tourism village. The research aimed to (b) analyze community knowledge, perception, and attitude towards ecotourism and tourism village as well as their behavior and participation in the management of Segara Anakan mangrove ecotourism and tourism village; (b) explore the (sea and fresh) waters natural resources potential and local potential (local wisdom) as the development of sustainable tourism village and mangrove ecotourism. The research method used quantitative with simple random sampling as the sampling technique. Slovin formula was used for the number of sample. Data analysis used frequency distribution, Spearman correlation, multiple linear regression, and interactive analysis. The research result indicates that community understanding of ecotourism and tourism village was generally low. It impacted their perception, attitude, and behavior that were less supportive towards ecotourism and tourism village. Local potentials that can be developed were culinary, batik craft from mangrove, art, shrimp and crab farming, cultural ceremonies, and culinary home industries. Suggestions given were to give understanding to the communities, the development of Kelompok Sadar Wisata (Pokdarwis) (tourism awareness group), pokdarwis on ecotourism and tourism village, and the increase in integrated involvement of local government and PT Pertamina in ecotourism funding.

Date of Submission: 04-10-2018

Date of acceptance: 16-10-2018

I. Introduction

Mangrove ecosystem is unique and it can be used as a potential natural resource for tourism area. One effort in optimal local resources utilization is by developing ecotourism concept. The implementation of ecotourism system in the mangrove ecosystem is an approach in sustainable ecosystem utilization. Ecotourism activity is an effective alternative to overcome environmental problems in the ecosystem, such as overexploitation by the community, by creating economic alternatives for the community. Ecotourism activity cannot be separated from conservation efforts, local economic empowerment, and respecting cultural differences. The shift in world tourism concept to ecotourism model is due to tourist overfullness.

Kampung Laut Segara Anakan is one of the largest mangrove forests in Java Island with area of 14,519 Ha. The population generally works at (a) inshore fishery, (b) offshore fishery, and (c) agriculture. Segara Anakan area is decreasing overtime. Data from BPKSA stated that in 1903 the area was 6,450 ha, 6,060 ha in 1939, 4,290 ha in 1971, 1,800 ha in 1992, 1,400 ha in 1999; however, in 2000 the area was only 500-600 ha, 527 ha in 2012, and in 2014 it was only 500 ha (BPKSA, 2015). It is unfortunate since Segara Anakan and Kampung Laut are estuary ecosystem consisting of open waters, muddy island, salt marsh, and mangrove forest. Mangrove forest is the habitat for various valuable flora and fauna. The lagoon has contributed more than 62 billion Rupiah per year to fishery production and it is increasing along with the increasing function of the ecosystem. The value of mangrove forest reaches 1,400 US\$ per ha (Suyanto, 2017).

Therefore, an effort is needed to improve mangrove forest quality and quantity as well as community economy without damaging the environment. One of ways is by selling environmental services through the development of sustainable mangrove ecosystem with the establishment of unique, sustainable tourism village.

The study focused on (a) exploring the local human resources potentials (knowledge, perception, attitude, behavior) that could influence community participation in the development of local wisdom-based sustainable ecotourism and tourism village, and (b) exploring local potentials (natural potential as well as local wisdom) that could support the development of mangrove ecotourism and tourism village of Kampung Laut Segara Anakan.

The research method used qualitative and quantitative. Quantitative method used descriptive and explanative survey, content analysis, and secondary data analysis, whereas qualitative method used embedded research. Samples consisted of fishermen, public figures, BPD, head of RT (neighborhood association), head of village, administrators of Pokdarwis, and Department of Tourism apparatus. Sampling technique used simple random sampling with Slovin formula used for the number of sample. Data analysis used frequency distribution, Spearman correlation, and multiple linear regression, whereas FGD used purposive sampling with interactive analysis.

Local Potentials on Factors Influencing Participation in the Management of Ecotourism and Tourism Village as Human Resources Potential

Ecotourism has become a new trend in international world as one of the 4T issues (Transportation, Telecommunication, Tourism, and Technology) in the third millennium. Ecotourism is a concept development from the alignment between human activities (tourism aspect) and the surrounding environments (ecological aspect). Tourism industry, up to date, plays important role and has a great meaning in human life aspect. In its development, tourism sector has tendency to change from the concept of unsustainable forms of tourism into sustainable tourism. Based on the tourism side, ecotourism is the collaboration of three tourism types, namely: rural tourism, natural tourism, and cultural tourism. Natural tourism, as we known, has the tendency to change into ecotourism if sustainable tourism is the reference (Nowforn et al., 2008).

Mangrove ecotourism at Kampung Laut Segara Anakan Cilacap Central Java is one of tourism object mostly visited by the tourist either in regular days or holidays. The ecotourism has an interesting charm of beauty that attract local as well as foreign tourists.

Kampung Laut is a name of a settlement located in Segara Anakan area, which is a waters area located in Cilacap land in the western part of Nusakambangan Island. The kampungs (villages) are located on the sea waters of Segara Anakan. Therefore, it is called as Kampung Laut or Bejagan (Pejagan) in another term.

The natural condition around the tourism object supports the life of marine biota. Thus the area is a heaven for biota living around the location. Various types of fishes can be found in the location, such as grouper, giant prawn, and giant mottled eel, and many more. In addition, the visitors could also enjoy various specific seafood menu, among others, mud clam, crab, shrimp, and mullet. The location is also a suitable place for fishing lovers. Therefore, the location is very suitable to be a tourism village.

Community knowledge of ecotourism was generally low and only some of them had understanding about mangrove ecotourism. Related to the understanding about Segara Anakan mangrove tourism village, most respondents (54%) stated that the tourism village only explores local potential to attract tourists in order to improve community prosperity, 30% of the respondents stated that the tourism village is prioritizing mangrove potential and tradition (local wisdom) in the Kampung Laut and only a small portion of the respondent (16%) stated that the tourism village explores and raises natural and human resources potential in the Kampung Laut. According to the respondents, the benefit of mangrove forest tourism village was to preserve the breeding ground of fishes and marine biota (64%), to attract tourist with the natural beauty of Segara Anakan mangrove forest (30%), and to help absorbing air pollution and the producer of CO₂ by maintaining the mangrove forest (6%). Regarding the shrinking mangrove forest, most respondent (68%) stated that it was NGOs that responsible for mangrove tourism village management, 26% of respondents stated that it was Pokdarwis responsibility and only 6% of respondents stated that it was the government responsibility. Related to the implementation of mangrove tourism village, 66% of the respondents stated that Pokdarwis has influence on mangrove tourism village development, 26% stated it was NGOs as the public interest fighters that has the influence, and only 8% stated that it was government as the power holder. Respondent stated that in order for the tourism village to be well developed, community who will be impacted should be involved (66%), and community, NGOs, and government should be together in tourism village planning and implementation (34%).

As regards to fishermen attitude towards the existence of ecotourism and tourism village, 70% of the respondents were strongly agree and support the existence of tourism village, 26% of them agree but less support and only 4% did not support the tourism village. About community participation in mangrove tourism village management, most respondent (62%) stated that they always keep the mangrove forest from damage thus they support the tourism village program, 34% of the respondents were less participate in the mangrove ecotourism, and only 4% never participated in mangrove ecotourism management.

The dominant or most influential actors in driving ecotourism to achieve mangrove tourism village according to the respondents were, in sequential, Father Carolus from YSBS (42%), local government (30%), public figures (14%), Pokdarwis (8%), related NGOs (4%) and, academics.

Simultaneous relationship between knowledge, perception on ecotourism and tourism village, attitude towards behavior and participation in ecotourism and tourism village management was positively correlated of 0.354. In this case, the relationship was significant and real.

As for simultaneous influence, regarding participation in mangrove ecotourism and tourism village management, operational variables of knowledge, perception, attitude, and behavior had positive influence of 17.3%, whereas the remaining 82.7% was influenced by other unidentified factors.

Exploring the local potentials that support local wisdom-based mangrove ecotourism and tourism village development in Kampung Laut

1. Natural Resources Potential

Mangrove ecotourism located in Lempong Pucung Hamlet, Ujung Alang Village, Kampung Laut has great potential to be developed. Currently, the ecotourism location is managed by PT. Pertamina in cooperation with Mr. Wahyono. Unfortunately, there was no cooperation with the village institutions.

In Lempong hamlet there were three houses, and one of them belongs to Mr. Slamet. His house often used by the tourist as a place to rest but not for staying. In Paniten hamlet, specifically in Mr. Tukiman house, his backyard was planted with mangrove. To develop the ecotourism, PT. Pertamina had given some assistance in form of materials, such as boards and woods, to build small resort for the tourists; however, due to the less maintenance, the resorts seemed shabby.

As regard to the physical potential of mangrove forest in Segara Anakan lagoon there were 31 types mangrove vegetation diversity that could attract tourist and developed into mangrove forest ecotourism (Sudarmaji, 2008). Those types were, among others, bakau bandul (*rhizophora mucronata*), bakau kacangan (*rhizophora apiculata*), tancang (*bruguiera gymnorrhiza*), tanjan (*bruguiera parviflora*), api-api (*avicennia marina*), *avicennia officinalis*, nyirih (*xylocarpus granatum*), nyuruh (*xylocarpus moluccensis*), kayu duduk, buta-buta (*excoecaria agallocha*), jaranan and bogem (*sonneratia*), alba and many more.

Another physical potential of the ecotourism was fauna potential. The mangrove forest is the habitat of various fauna. There were 3 types of mammals, namely: lutung (*Presbytis cristata*), crab-eating macaque (*Macaca fascicularis*) and linsang (*Lutra perspicillata*). In addition, it is also a resting and nesting place for water birds (there were 41 types found), a spawning place, and a nurturing and foraging place for fishes (there were 45 types of fish found). There were also reptiles, such as monitor lizard (*Varanus salvator*) and hamalopsi buccata (Tarsoem 2009).

Mangrove ecotourism could be divided into 4 (four) areas (tourism zones), namely: (Ria Puryanti, 1999).

1. Mangrove forest protected area is aimed for scientific tourism, which is an introduction to mangrove vegetation and wildlife and for research activity conducted by higher education institutions and other researchers.
2. Waters protected area around the mangrove forest is aimed for scientific tourism (an introduction to wildlife vegetation and aquatic biota) and research.
3. Mangrove forest ecotourism area is aimed for scientific activities (an introduction to mangrove vegetation and wildlife) and recreational activities (sightseeing, photo hunting, bird watching, board walk, fishing, and introduction to cultural art, culinary, crafts or souvenirs made from mangrove in Kampung Laut communities).
4. Mangrove forest ecotourism area is aimed for scientific activities (an introduction to wildlife and aquatic biota) and recreational activities (sightseeing, photo hunting, bird watching, and fishing).

In order to support the ecotourism activities, facilities and infrastructures needed to be built with space development concept that guarantee human quality and clean air, cool, and comfortable place. The infrastructure consisted of ferry or tourist boat stops, ecotourism customer service, and public facilities such as toilet, praying room, restaurant, board walk, surveillance tower, surveillance board, observation hide, and gazebo.

Based on the history of ecotourism location, according to the statement from Ujung Alang elders, the communities who lived in Kampung Laut stated that they always call their place as “turu kumpulan banyu, selimutan barat”. It means “sleeping on water pillow and covered with wind.”

Historically, Ujung Alang is located in the middle of the sea. Initially, the population occupied houses on stilts on the water. However, along with the changing time and due to continuous sedimentation process in high amount that reached tens of cubic square meter every year, Segara Anakan started to be shallow and in turn, the communities were no longer occupied those houses and moved to permanent houses.

Local potential conception that could support the development of mangrove ecotourism and tourism village in Kampung Laut by empowering the communities as ecotourism servant to recognize unique natural objects that can be developed were: (a) traditional water crossing using boat to do fishing and crab hunting and introduction to net knitting, netting, salted fish and shrimp cracker production, and pejalan fish cooking (Kampung Laut); (b) building guest houses that closed to tourism village objects (home industries), rowing

training center, and floating restaurant; (c) providing sport facilities, such as beach volley ball and water motor; and (d) other supporting facilities, specifically buildings for guest house constructed with nipa palm leaves rooftop and houses on stilts. Those were strategies for ecotourism and tourism village development utilizing physical local potential that could empower local communities for the prosperity of Kampung Laut communities (Sarno, 2008).



Figure 1. Flora and Fauna in Segara Anakan Mangrove Ecosystem and the Tourists

2. Human Resources Potential (local wisdom)

Local wisdom in Kampung Laut as mangrove tourism village was related to the community belief to ruler myths and marine life maintenance. Therefore, in order for the sea continues to give benefit instead of damage to the Kampung Laut communities, the communities conducted sedekah laut (sea offerings) every Friday in Syura (Muharram) month and it had been conducted for generations. With tourists visiting tourism objects closed to Kampung Laut, such as Nusakambangan Island and the surrounding beaches and caves, the location had potential to be developed as mangrove ecotourism.

Local potentials related to food were shrimp paste, dried shrimp paste, crab, rebon, and mullet, which is the typical fish of Segara Anakan. Shrimp paste and dried shrimp paste are seasonal that depend on the existence of rebon. The local potentials can be used to attract tourist to visit the location as the culinary tourism in Kampung Laut tourism village.

Local wisdom was the main soul in community-based ecotourism and tourism village management. According to Destha (in Nasrudin, 2014), the local wisdom value is manifested in the community through the values of uniqueness, authenticity, and originality of the community. According to him, it is this local wisdom that can be offered to the tourists by establishing a tourism village. However, he also stated that “Do not let the local wisdom sold to the tourists erase the village and local community identity.”

In line with Destha, Sidiq Wicaksana, a Tourism Science lecturer at Gadjah Mada University, explained that local wisdom should be a base in establishing a tourism village. “Phenomenon occurred is that many villages imitating and copying without considering their own local wisdom in village development.” Sidiq explained that tourism village should be able to attract tourist due to their uniqueness. Further, village management is based on full awareness and participation of the communities. He also emphasized that “To manage a tourism village, the communities should be able to see the existing potentials. Do not imitate other tourism villages and force it to theirs.” Especially now the majority of tourism offered is related to natural tourism and bring the same atmosphere, which is rafting, caving, hiking, flying fox, and so on (Fandeli, 2001).

Making local wisdom as a tourism asset has proven successful in several tourism villages. It is admitted by Sugeng Handoko, an administrator of Ujung Alang tourism village. He said that Kampung Laut is born as tourism village due to its natural potential of mangrove forest. Sugeng explained that mangrove forest potential is truly the uniqueness of Ujung Alang Village. He added that “There is no compulsion in the management of Ujung Alang mangrove tourism village. We really see the potentials and develop them.”

Initially, Ujung Alang villagers had no awareness on mangrove potential. According to Sugeng again, the establishment of tourism village was due to Karang Taruna (youth organization) activities. He said that “At that time, our activities were to preserve Segara Anaka mangrove forest area. We had no idea to make it as a tourism village.” The development of mangrove tourism village is a form of sustainable ecotourism developed by the communities. It is this spirit, according to Destha, that the villages must have to develop their villages as a tourism village. “The base of tourism village is the community and its local wisdom. The community should

become a subject instead of object,” he affirmed. This spirit should be supported by Law of Village and in the future the asset can be used as a sustainable economic asset (Sugeng, 2018).

It is not a surprise that once we arrive at Kampung Laut, we often hear the term of Mbah Jaga Laut. The name is very influential among the Kampung Laut communities and its surroundings since it has an important history. Mbah Jaga Laut consists of the word Mbah means the elder and Jaga Laut means the sea guard. It is said that the community believed that their existence in the kampung that surrounded by the sea was guarded by “someone” and one of the guards was Mbah Jaga Laut. As a form of gratitude for the calm sea condition in Segara Anakan area, the communities at the area conduct Sedekah Laut ceremony every Syuro 1st or Muharram 1st, which is every Jumat Kliwon (a certain Friday based on Javanese Calendar).



Figure 2. Sedekah Laut Ceremony at KP Laut Cilacap (Doc. Sub-district, 2016)

Religious Ecotourism of Caves around the Mangrove Forest

In addition to seafood culinary tourism with various fishes, shrimps, and crabs, tourists visited the Ujung Alang tourism village at Kampung Laut could have a trip to various caves in Nusakambangan, among others, Masigit Sela, Semar, Batu Lawang, Maria, Pintu Gerbang Caves, and so on. At the caves tourists could enjoy the beauty of the caves while drinking coconut water, which is the cheapest way to quench thirst. At Masigit Sela cave, tourists could see places visited by former presidents of the Republic of Indonesia, Mr. Soekarno and Mr. Soeharto and the legacies of kyais (a respected people) from Jepara.

The area is called Ujung Alang Kampung Laut since its malang-malang (transverse) location. Ujung Alang village is also called as Mutean. The word has various definitions. First, Mutean came from the word Mutiara (pearl) since the area known for its scallops and shells where pearls existed. The second version is the name came from the word Mutih. It is said that there was a group of kyai from Jepara who visited Ujung Alang and they ended their journey at Masigit Sela Cave in Nusakambangan.

Many people from outside the Kampung Laut area visited Masigit Sela Cave, such as from Indramayu, Kuningan, Cirebon, and so on. The cave is identical to Pesugihan (an instant way to gain wealth without hard work and it is a form of agreement between human and supernatural beings). Therefore, in certain days or months, many people from outside the Kampung Village visited the cave. The beauty of Nusakambangan Island can be seen clearly and we could go there to get fresh air. Moreover, Nusakambangan area and its surroundings are still green and natural.

Tourists did not need to worry about their safety in Ujung Alang tourism village regarding their belongings since there were no thieves, pick pockets, or even robbers at the village. In that village, one house to another or one person to another is a family. There is no suspicion, threats, or anything else in the area. In addition, if a guest arrives at Ujung Alang, that person was not allowed to take a rest immediately after a long journey since it is considered as a prohibition. Once there was a guest came to one of houses in Ujung Alang. The guest took a rest immediately and then he/she died. The event is considered as a warning by the community.

Cilacap Regency Government planned to develop ecotourism around the Segara Anakan area and Nusakambangan Island. The head of Department of Tourism and Culture of Cilacap Regency stated that:

"We are working on marine tourism and ecotourism in addition to the existing tourism objects. In the future, we expect that it can be a superior tourism in Cilacap Regency." She expected that the marine tourism and ecotourism development in Segara Anakan and Nusakambangan Island is in line with government policy of President Joko Widodo in maritime field, especially beach tourism. She said "Fortunately most tourism objects in Cilacap are beaches."

Generally, the prospect of mangrove ecotourism and tourism village development in Kampung Laut can be described as follows: (a) Kampung Laut is located in cross-water (cross-water accessibility) connecting Cilacap City (the port) to Pangandaran tourism object; (b) The mangrove forest objects enjoyed by the tourists

during their trip are mangrove area and the edge of Nusakambangan Island; (c) Home industries in form of shrimp paste, ebi, crackers, salted fish, shrimp, crab, lobster, and rajungan; although their existence was inadequate, they could be developed. In addition, there are other crafts, such as traditional knit to make nets and toils as well as batik craft from mangrove.



Figure 3. House Shape at Kampung Laut in 1935 (right) and at present (left)

(Source: Document of Kampung Laut Sub-district)

Unique. Kampung Laut is unique; however, its uniqueness is not only limited to its location that is on the water, it is also in the middle of the biggest lagoon in Asia. Lagoon is a collection of salt water separated from the sea by barriers in form of sand, coral reef, and other barriers. The trapped sea water mix with river water that flow into the sea has decreased the salinity to brackish with a relatively calm waters condition. Historically, Ujung Alang Kampung Laut is located in the middle of the sea and the population occupied houses on stilts on the water. However, along with changing time and due to continuous sedimentation process in high amount that reached tens of cubic square meter every year, Segara Anakan started to shallow and in turn, the communities were no longer occupied those houses and moved to permanent houses.

As time goes by, the identity of Kampung Laut started to disappear. Problems occurred were not only from the socioeconomic condition of the community but also environmental degradation. Towards the 1980s, houses on stilts also started to disappear. It was due to the difficulty to look for tancang wood or other types of wood that has better quality to be used as house building. In addition, rapid silting occurred continuously from materials, especially mud, carried by Citanduy River and other rivers that flow into the Segara Anakan. As a consequence, sedimentation and hilling under the houses caused the settlement changed into a land. The house shape changed into a modern house type as displayed in the above picture.

II. Conclusion and Suggestion

The exoticism of Kampung Laut ecotourism based on the naming aspect was already evocative and it is expected to be able to create an independent community. Communities as the manager as well as tourists must be able to maintain and protect the mangrove ecosystem and ecotourism along with its environmental cleanliness. If it occurred, sustainable and environmentally sound ecotourism and tourism village and sustainable development can be achieved to support Indonesia's millennium development.

Kampung Laut, especially Ujung Gagak and Ujung Alang Villages, had local potentials that could be developed into sustainable tourism village and mangrove area ecotourism of Segara Anakan. However, fishermen's knowledge of the importance of ecotourism and tourism village for economic life and environment was generally low. It was due to the perception, attitude, and behavior of the communities that less supportive towards tourism village thus participation in ecotourism management was less optimal.

Problems in the fisherman communities regarding management of mangrove forest area ecotourism that supports unique tourism village was the non-existence of actors of ecotourism development in, among others, art, ritual culture, craft, farming, home industries, ecotourism destinations, to support the tourism village. Pokdarwis existed but it was less optimal in its activities thus the communities were apathetic and the government was not maximal in their mangrove ecotourism development. Therefore, an integrated coordination is needed between the related government and other stakeholders (PT. Pertamina).

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Edy Suyanto "Local Wisdom - Based Mangrove Ecotourism Development Model That Supports Kampung Laut Tourism Village Segara Anakan Cilacap – Central Java Indonesia "IOSR Journal of Environmental Science, Toxicology and Food Technology (IOSR-JESTFT) 12.9 (2018): 27-33