

THE ASYMMETRICAL COMMUNITY-BASED ECOTOURISM DEVELOPMENT AS A PATHWAY FOR DISASTER RISK REDUCTION IN SEGARA ANAKAN LAGOON, CILACAP, CENTRAL JAVA, INDONESIA

Triana Ahdiati, Khairu Roojiqien Sobandi and Solahuddin Kusumanegara

Political Science Department of Jenderal Soedirman University,
Purwokerto, Central Java, Indonesia
Email: triana.ahdiati@gmail.com

This research-based paper examines Segara Anakan lagoon in Central Java, Indonesia as a valuable and full of potential for developing ecotourism. At the same time, this isolated area is also facing challenges of poverty and vulnerable place for various types of disasters. Segara Anakan is a significant environmental zone with many unique ecosystem features in which its location is under the threat of illegal land reclamation and timber theft, which have caused great damage. Various efforts have been done in coping these situations, however, these efforts have been failed to solve the core problem. This study aimed at explaining disaster management through ecotourism development by focusing on sustainability aspect in reducing disaster risk which is carried out effectively. At this point, local community capacity enhancement is the main focus aside from environment that can increase economical resilience and community culture in creating the sustainability. By taking a site in the Segara Anakan Lagoon of Cilacap, the data of the research are collected by doing in-depth interview, observation, documenting study and focus-group discussion. The result shows that the ecotourism potentials in Segara Anakan Lagoon is remarkable but prone to disasters. Unfortunately, there are on-going conflicts between the local people and the local government in developing ecotourism for disaster risk reduction because the development is unorganized and scattered. In short, the creation of community-based ecotourism in a poor area like Kampung Laut Sub-District is an effective way to reduce the disaster risks in the surrounding area of Segara Anakan Lagoon.

Keywords: disaster risk reduction, community-based ecotourism, asymmetrical development, Segara Anakan lagoon

INTRODUCTION

The disaster management in Indonesia today confronts some obstacles from the government as well as the society. From the government side, the implementation in the local level is not well-carried out although the package of disaster policy is already made so that the recovery phase cannot be quickly done. (RAD province of Central Java, 2007; Bappenas, 2009) Concerning to the fact that disaster is a critical problem in which the local government becomes the actors closer to the object than the central government, then it is normatively needed a policy of crisis, (Kusumanegara, 2010) so that disaster management can be done more quickly. Unfortunately, there is no policy of crisis in the local level yet.

This is because there are various potential ecotourism objects in the area such as its natural resources and the local cultural products, including the local wisdom of the Kampung Laut villagers with their historical attachments. Furthermore, these ecotourism prospective will be sustainable if local people as the community can create a community-based ecotourism. Here, the local people can develop their economical level and at the same time, preserve the ecology surrounding them.

From the case of the tsunami disaster occurred in the Widarapayung Wetan village, Cilacap, Ahdiati and Kusumanegara (2013) explained that the disaster management done by the local government was reactive and temporary. Consequently, the disaster management in the next stages becomes the burden of the local people who have already got a low capacity in living their own life around the disaster-prone areas. This becomes the supporting factor that drives the low sensitivity of the society towards the disaster risks and potentially hampers the efforts of disaster risk reduction (DRR) in the disaster management. As in the case of Widarapayung, the area of Segara Anakan lagoon is poor and prone to disaster. (Dudley, 2000; BPKSA, 2003; Yulastoro, 2003; Reichel, 2009) However, the area of Segara Anakan lagoon still has natural resources to be developed as tourism potentials through creating the community-based ecotourism for overcoming the problem of poverty as well as conserving the surrounding environment for sustainable DRR.

Because of being prone to disasters, Cilacap becomes one of the regions set to be the pilot projects of Safer Communities through Disaster Risk Reduction in Development (SC-DRR Program) in Central Java. The program that has already been implemented since 2009 is not carried out successfully because its benefits cannot be taken by all areas in the region, especially the areas which are not set as the pilot projects. One of the areas is the area of Segara Anakan lagoon which becomes the

green belt for Cilacap on account of being very potential to be the buffer zone of huge waves such as tsunami.

The area of Segara Anakan lagoon in Cilacap is the largest mangrove forest in Indonesia (Ardli, 2006; 2007; Reichel, 2009; FAO, 2011). Seen from the coverage of the region, Indonesia becomes the world's largest mangrove area in the world, which is approximately 2.93 million ha or 20% of the total mangrove area of the world today (FAO, 2011). In the last decade (2000-2010), unfortunately, this mangrove area has continuously decreased for 1.4 ha per year (FAO, 2011). Even in the area of Segara Anakan lagoon that covers 9,597 ha, there is a significant reduction up to 13.577 ha per year. (Ardli 2007) In addition to the green belt area, in fact, the area filled with mangrove forest also becomes a fundamental economic resource for fishermen in the surrounding area as well as a very strategic area nationally for coastal fishing and offshore fishing along the south coast of Java island. (Reichel, 2009)

Although the area of Segara Anakan lagoon is already included in RIPPDA Cilacap Tahun 2008 (The Master Plan of Developing Regional Tourism in Cilacap 2008) as *ODTW* (an object of tourist attraction), especially for developing ecotourism, but the implementation of the plan is still hampered because it is not based on the conservation for its sustainability and does not involve the local community. That is why it is needed a solution for overcoming the problem by using the strategy of Community-Based Ecotourism (CBET). In this case, the development of community-based ecotourism becomes urgent to be implemented because the development itself is managed and organized by the community as the local people living in the surrounding area, in which the decisions on its management are made by the local community and its benefits directly belong to the community. (Ngece, 2002; Khanal and Babar, 2007) In the context of disaster management, the development of community-based ecotourism is significant in the efforts of DRR. This happens because the development of community-based ecotourism becomes a new strategy which is innovative to increase the resilience of the socio-economic-cultural aspects of the community in the effort of DRR in a region, especially in the area of Segara Anakan lagoon.

Method

This paper is written based on the result of the research focusing on mapping disaster risk reduction and developing community-based ecotourism in Segara Anakan lagoon, Cilacap, Central Java, Indonesia. The research used a qualitative method with an action research (Islamy, 2003: 2009) as its approach. By locating in the regency of Cilacap, the sites of the research are in the surrounding areas of Segara

Anakan lagoon. There are three types of data sources collected in the research, i.e.: 1) the informants covering local government, community leaders –both from the cultural actors and the entrepreneurs as well– and the local community. The data was collected by doing in-depth interviews, observation and documenting study; 2) the research location covering the sites and the events associated with the disaster risk reduction as well as the development of community-based ecotourism in the Segara Anakan lagoon, especially in the four villages of the Kampung Laut subdistrict. This kind of data was collected by having observation towards the research location; 3) the documents related to the focus of the research. This kind of data was collected by doing documentation study. The data collected in the research is analyzed by using a model of interactive analysis from Miles and Huberman. (Miles & Huberman, 1984; Moleong, 1992: 20) In order to manage a good conclusion, the result of the research is validated by a technique of triangulation. (Lincoln & Guba, 2009: 195)

RESULTS AND DISCUSSIONS

The Area of Segara Anakan Lagoon: Describing the Subdistrict of Kampung Laut and Its History

The area of Segara Anakan lagoon can be reached mainly by a boat or what is better known by the local people as "*compreng*". This *compreng* is the only means of transportation for the people of Kampung Laut to do the mobility. This kind of mobility is still very limited to do, both from the port of Sleko and from the port of Karanganyar in Ujung Gagak village. Not only is it important for the people of Kampung Laut to do their daily mobility, but also useful for the economic activities including tourism activities of the people from Central Java and West Java. Since the people of Kampung Laut are relatively isolated from the people of other sub-districts in Cilacap, then *compreng* becomes the primary means of transportation for them. Based on the result of the observation, there are some alternative ways that can be used by the people of Kampung Laut or tourists to go to the area of Segara Anakan lagoon, particularly to the region of Kampung Laut, i.e. whether take a regular *compreng* or rent a boat from the Sleko port whereby the distance is about one kilometer from the central town of Cilacap.

Kampung Laut as A Settlement Region in the Area of Segara Anakan Lagoon

Kampung Laut is a sub-district that becomes the part of the Segara Anakan in the south coast of Cilacap. The area of the lagoon covering 51,700 ha constitutes an area of brackish water which is a mixture between the river water from the hinterland of Cilacap and the

sea water from the Indian Ocean around the Nusakambangan Island. (ASEAN/ United States, 1992: 1) In general, the area of lagoon is geographically separated with ocean on account of the existences of sediments or the heap of sand or stone/gravel. In this case, the area of lagoon can be found near the coastal areas or even far from the coastal areas. In particular, the area of Segara Anakan lagoon in Cilacap is associated with sea water through two doors, i.e. Plawangan Timur (East Plawangan) and Plawangan Barat (West Plawangan). Thus, the lagoon waters in this area are still affected by the movement of the tidal waves in the Indonesian Ocean.

The area of Segara Anakan lagoon has an estuarine ecosystem which constitutes one of the types formed in the estuary of the rivers on the surrounding coastal areas. In addition, it also becomes a specific place in which there are two factors influencing the water flow, i.e. the flow of the river water and the tidal current. In this case, the area of Segara Anakan lagoon area is semi-enclosed waters that become the estuary of four rivers, i.e. the rivers of Citanduy, Cimeneng, Cikonde and Cibereum. Those rivers are large rivers which have extensive watershed. The semi-enclosed estuarine condition itself is caused by the existence of the Nusakambangan island which is one of the Indonesian outer islands functioning as the barrier to the Indian Ocean. (DKP and BPKSA) Based on the data of BPS (the Board of Statistic Center) 2013, Kampung Laut has become the separate sub-district since in 1998/1999. The sub-district consists of four villages, i.e. the villages of Ujung Alang, Klaces, Ujung Gagak and Panikel. Before 1999, the region of Kampung Laut was included in the sub-district of Bantarsari and Kawunganten; then from 1999 to 2002, it was only included in Kawunganten.

The existence of Kampung Laut is topographically related to the extent of the arising land due to the sedimentation caused by the mud flowing from the Citanduy river. Recently, the sedimentation still becomes the unsolved problem. This is characterized by the increasing breadth of the mainland sedimentation that threatens the main function of the lagoon area and the livelihood of the surrounding fishermen. The sediment of mud flowed from the Citanduy river approximately covers 0.74 to 1 million cubic meters per year (BPKSA, 2003) Besides the sediment of mud, the river of Citanduy also carries domestic as well as agricultural wastes to the estuary of the river in the area of Segara Anakan lagoon. During 18 years (1984-2002), there had been a constriction of the lagoon area from 2,906 ha to 600 ha. The high rate of sedimentation in the area of Segara Anakan lagoon greatly affects local people living around the area, because most of the population in the region, especially those who live in Kampung Laut, depend their lives on the activities done in the area. The problem is that the sedimentation has

made the amount of fish catch decrease on account of the lagoon constriction. This strikes the income rate of the local people which then gives the huge impact of welfare decline.

In the area of Segara Anakan lagoon, there is a mangrove forest providing a habitat for the life of various precious flora and fauna. (BPKSA, 2005) The Segara Anakan lagoon has an important role in the waters productivity of the south coastal areas of Java. So far, the lagoon has already contributed more than 62 billion rupiahs from the fishery production. It means that the biodiversity resources in the lagoon are able to support the lives of the local people by through producing the brackish fishery. In addition, the mangrove forest in the lagoon has also given the number of birds a habitat and places to roost and nest. The value of the mangrove forests has approximately reached 1,400 US dollars per hectare. It means that the larger the mangrove forest is, the higher the value will be. In this case, the mangrove forest is seen as an important factor that inhibits the silting-up acceleration of the lagoon due to characteristics of mangrove that is able to bind the mud.

The existence of mangrove forest as the main natural ecosystem in the coastal areas of the region has the high ecological and economical value and the important role to keep the carrying capacity balance of the lagoon for the sustainability of the fishery potentials in the south coastal areas of Java. In the area of Segara Anakan lagoon, there are 26 out of 89 types of mangrove in Indonesia. In this case, the mangrove forest in the area of Segara Anakan lagoon functions as the areas of breeding, foraging as well as spawning the various types of fish, shrimp and other marine biota. The various ecological functions make the economic value of the lagoon waters as well as their interaction with the surrounding mangrove ecosystem become an attractive asset to be continuously conserved. (BPKSA, 2003)

The total area of Kampung Laut is 14,519 ha, consisting of 2,551 ha of rice fields, 6,311 ha of state forest, 598 ha of garden soil and 202.80 ha of plantations. (BPS, 2013) However, the local people have not been able to optimally use the area on account of the soil formation of mud sedimentation that has no nutrient for the plant growth yet. In addition, there are many areas of submerged land for the height of the land is only about 1-1.5 m on the water surface. If the tidal wave is high enough, then it will flood and soak the resident area.

In 2012, the population number of Kampung Laut is 17,061, consisting of 8,733 men and 8,288 women, with the rate of population increases 1.3%/ year and the sex ratio is 105.85. The average density of the population per kilometer is 118 persons. In this case, the number of the people working in agricultural sector is 1,637 and working as fishermen is 1,429. By having the area of brackish water that is getting

more constricted in the area of Segara Anakan lagoon, however, it can be predicted that the number of fishermen will be reduced every year ahead and the number of farm workers is getting bigger and bigger.

There is no big industrial sector and neither is the medium one in Kampung Laut. The industrial sector in Kampung Laut is only in the form of domestic industry consisting of 67 units with 197 workers. Meanwhile, the educational level of the residents is as follows: 7,741 persons are from elementary; 2,149 persons are from junior high school; 479 persons are from high school; and only 39 persons are in college.

In terms of ethnicity, the heterogeneity of population does not appear in Kampung Laut on account of having no citizen descent, but it appears from the social side of religion as follows: 16,053 people are the adherents of Islam, 674 people are the adherents of Catholic, 164 people are the adherents of Protestant, and 18 people are the adherents of Buddha. From the social religious aspect, it seems to be the cross-cutting cultural process occurred in Kampung Laut as shown by the discovery of the places for the adherents of each religion to worship. Even, there are the places of worship established side by side such as a mosque and a church in the Ujung Alang village of the sub-district.

As a sub-district, Kampung Laut in the area of Segara Anakan lagoon is a unique region. Therefore, the local government thinks that it needs to be protected and designated as a conservation area. In the Act Number 27 of 2007 (UU Nomor 27/2007) on the Management of Coastal Areas and Small Islands, it is mentioned that the area of Segara Anakan lagoon becomes a conservation area which is divided into a core zones, restricted-use zones and other zones. In restricted-use zones, the land shall only be used for coastal aquaculture, ecotourism and traditional fishery.

The existence of Kampung Laut as a conservation area cannot be separated from the existence of the Nusakambangan Island which constitutes the only place that has the lowland tropical rainforest in Central Java. Furthermore, the Nusakambangan Island becomes the main water source for the people living around the area of Segara Anakan lagoon. At lease, there are 11 springs in the island used by those people, i.e. Karangbraja, Jongorasu, Karangbelah, Klapakerep, Masigitsela, Mangunjaya, Batulawang, Jambesewu, Lempongpucung, Kalisema, and Pasuruan.

A Brief History of Kampung Laut

The social construction of Kampung Laut is created from the long journey of its history. In this case, the history of Kampung Laut is closely related to the history of Cilacap regency that can directly, in fact, be linked to the history of the dominant local elites in the regency itself,

in which it is dominated by the Javanese ethnic. Furthermore, there are two major claims about the history Cilacap, including Kampung Laut, which is related to the claim of ethno-kingdom. Those two claims come from the Kingdom of Galuh which is ethnically Sundanese and the Kingdom of Mataram which is ethnically Javanese. (Zuhdi, 2002) In fact, the Sundanese ethnic group dominates two of the five sub-districts in Cilacap, i.e. Sidareja and Dayeuhluhur. So, it is no surprise that in the present situation, the two sub-districts dominated by the Sundanese want to create new regency which is so-called the regency of Cilacap Barat (West Cilacap). In addition, the Kingdom of Galuh also claims that the name of Cilacap originally derives from the Sundanese language, in which Cilacap reflects the word “*ci*” or “*cai*” that means “water”. The name points out the nuance of Sundanese language. Meanwhile according to those who are from the Javanese ethnic, on the other hand, the word “*Cilacap*” comes from “*tlacap*” which means “*tanah yang tajam*” (sharp ground). Etymologically, however, the word “*Cilacap*” derives from the word “*cacab*” or “*mencacab*” which means cara menanam sesuatu di wilayah yang basah (the way to plant something in the wet areas).

There are two stories about the history of Cilacap, including the history of the Nusakambangan Island. *First*, the history from the Sundanese ethnic group which is so-called “*Babad Nusa Tembiri* (the chronicle of *nusa tembiri*)”, or which is more popular in the region of Banyumasan with the historical story “*Babad Pasirluhur* (the chronicle of Pasirluhur)”. (Priyadi, 2007) In this chronicle, there is a history of Kamandaka or Banyak Catra. He was a descendant of the Kingdom of Pajajaran. The heroic action of Kamandaka who was successful in killing Nusa Tembiri or King Pule Bahas, the ruler of Nusakambangan, had made himself as the new ruler of Nusakambangan by becoming Adipati Pasirluhur (the Duke of Pasirluhur). Finally, Kamandaka was granted as a son-in-law and further became the successor of King Kanda Daha in the region of Banyumas.

The second version of the history comes from the Javanese ethnic group which is so-called “*Babad Tanah Jawi* (the chronicle of Javanese land)”. In this historical story, there was a soldier namely Trunojo who was assigned to get the Wijaya Kusuma flower. The assignment was given as a prerequisite to conquer the throne of Mataram. Such flower only grew in Nusakambangan. Therefore, King Mangkurat as the ruler of the Kingdom of Mataram, told Prata-Taka not to return to the kingdom before he got the flower although it would take a very long time. (Zuhdi, 2002)

Based on in-depth interviews with the traditional leader in Kampung Laut, Mr. Darmono, it was specifically stated that the

Kingdom of Mataram sent his soldiers to find the Wijaya Kusuma flower as well as to further the influence of the Kingdom of Galuh. In the early 19th century, the first group of people who came to the Nusakambangan Island was the group of Mataram soldiers. There were four people coming to take care of the island and the surrounding area, including the area of Segara Anakan lagoon. The four people known as the guardians were Ki Jaga Playa, Ki Jaga Praya, Ki Jaga Rasmi and Ki Jaga Laut. Each of them had his own responsibility to take of the certain places of the island. Then, they eventually settled around the island until the King of Mataram ordered them to return to Mataram. Therefore, they lived in there and established the villages around the island. Since then, they claimed that the island was included in the territory of Mataram.

In 1825, there was a great war between the Diponegoro's soldiers coming from Sumatra and Belanda (Netherland) as the colonialist. In this battle, the Dutch colonialists eventually won the war. The Diponegoro's soldiers were dumped by the Dutch into the Nusakambangan Island as the prisoners of the colonial government. In short, Diponegoro soldiers dumped in a very isolated island from the outside world, i.e. the Nusakambangan island. Five years later, the prisoners met with people from the community of the Mataram guards. These prisoners were in the conditions of being lustful for wealth. Therefore, they stole and robbed all of the properties in the township. Moreover, they did the rape of women in the township. From the various actions, they could conquer the island and the surrounding area as well as united in a community. This community then built three villages, i.e. Ujung Alang, Ujung Gagak and Panikel, and named these three villages with their own justification. *First*, Ujung Alang was named so because this village was laid in the end of Kali Malang river. *Second*, Ujung Gagak was named so because this village was located in the end of the Ujung Gagak where it was signed by the number of *gagak* birds (crows) living there in a group. *Third*, the name of Panikel was taken from the story of Ki Jaga Laut from the Kingdom of Mataram.

According to the traditional leader of Kampung Laut, the story of naming Panikel was begun from the era of Dutch colonialism in which its colonial region was up to the Nusakambangan Island. Once upon a time, a long-haired woman who was escaping from the colonial government fell down and stepped on her own hair. Since then, the local residents named the place village as "*Panikel*" which means "*rambut yang terinjak*" (trampled hair). That was why the village residents, especially the women, did not want to and even were not allowed to have long hair. In the folklore of Kampung Laut, Ki Jaga Laut was believed as the ancestor of Kampung Laut. After establishing these three villages in the area of Segara Anakan lagoon, the residents then turned their lives

of being farmers into fishermen. In connection with this change of work type, they learned over time to be able to fish in the lagoon area and earn a living from this area. To support their new livelihood as fishermen, they built houses on the waters of the lagoon with shallow water. In this case, they built houses from the logs of mangrove combined with other trees from the surrounding area. Therefore, they named their own village as “Kampung Laut” which means “*perkampungan di atas air laut*” (the villages on the sea).

In contrast to the folklore of Kampung Laut, the historical story of naming Kampung Laut by the community outside Kampung Laut is different. In this case, the identity marker of the local people accepted and spread widely in the center town of Cilacap, especially among the local authorities, is that Kampung Laut constitutes the exiled place of criminals and rebels against the government such as the followers of PKI (Partai Komunis Indonesia/ the Indonesian Communist Party). In the Suharto regime, for example, the military apparatus sent away the political prisoners associated with the party to the Nusakambangan Island. As the consequence, it has made the political identity marker of the Kampung Laut as the place for the state rebels. At this point, the local people of Kampung Laut ultimately perceive themselves as being in opposition to the government or more commonly known as the rebel.

The Ecotourism Potentials in the Area of Segara Anakan Lagoon, Cilacap

In Nusakambangan Island, there are various types of plant and animal. The plants in the forest area of Nusakambangan cover the mangrove forest in the area of Segara Anakan lagoon and the tropical rainforest. Recently, the tropical rainforest in the Nusakambangan Island which constitutes the lowland wet tropical forest has only been the rest of the end ever. In addition, there are currently crops planted intentionally by the local people in the residential areas such as coconut (*Cocos nucifera*), guava (*Psidium guajava*), sukun/ breadfruit (*Artocarpus papaya*), mango (*Mangifera indica*), and ketapang (*Terminalia Catapa*). Meanwhile, in the field, the local people plant cassava (*Manihot utilisima*), sweet potato (*Ipomea batatas*), cabai rawit/ cayenne pepper (*Capsicum frutescens*), eggplant (*Solanum melongena*), radish (*Rhapanus sativus*), and long bean (*Crotalaria sp*). In this case, the seeds of the plants come from both the government assistance fund and the own fund of the community living around the area. Meanwhile, the animal species in the Nusakambangan Island are mammals and rodentia, reptiles and amphibians, and birds as well.

The existence of various types of flora and fauna in the area of Segara Anakan lagoon proves that the area has great natural resources to be developed as the ecotourism potentials. The ecotourism development in the area of Segara Anakan has, in fact, become a concern of the local government of Cilacap. The concrete form of how the local government of Cilacap has been concerned to the ecotourism development can be seen in the spatial plan of the Segara Anakan area made in 1995 for the period of 1995-2005 which was then revised in 2000 for the period 2000-2010. In the document, the area of Segara Anakan lagoon was planned to be used as follows:

- 1) Segara Anakan would be used as the protected areas that include natural spaces and cultural heritage with the concrete form of having the existence of mangrove forest;
- 2) Segara Anakan would be used as a cultivation area of rice fields that include agriculture, fisheries, agriculture, and tourism.

In the book of the spatial plan of the Segara Anakan, it is stated that the area for the activities of natural tourism is included in WWP IV (Satuan Wilayah Pembangunan IV/ the Regional Development Unit) covering the sub-district of Kawunganten. To follow up the plan, the local government of Cilacap releases the Decree of Cilacap Regent Number 40/1996 on Establishing the Organization of the Project Management Office (PMO) the Segara Anakan Conservation and Development Project. In concrete terms, the existence of BPKSA (Badan Pengelola Kawasan Segara Anakan/ the Board of Managing the Area of Segara Anakan) through the decree has indicated the commitment of the local government of Cilacap to develop the area of Segara Anakan lagoon. One of the units in BPKSA has a responsibility of developing the ecotourism in the area of Segara Anakan lagoon. Unfortunately, the ecotourism development in the area is only a discourse; yet there is no activity of ecotourism development itself, particularly that of involving the local people living around the area. Based on its *RIPPDA Cilacap Tahun 2008* (The Master Plan of Developing Regional Tourism in Cilacap 2008), in fact, the local government of Cilacap prioritizes the area of Segara Anakan lagoon including Kampung Laut to be developed as a tourism object after Teluk Penyu.

The Disaster Threats in the Area of Segara Anakan Lagoon and Their Risk Reduction: Time to Develop Community-Based Ecotourism?

The area of Segara Anakan lagoon is a very beautiful place which has great natural resources to be the ecotourism potentials. Unfortunately, it is also vulnerable to disaster threats on account of its

location. In this case, the vulnerability of ecotourism potentials in the area of Segara Anakan lagoon necessitates that the area needs special attention to anticipate the impact of disasters that may occur in future. Anticipation takes the form of planning and comprehensively understanding the disasters posing threats to the area so that any disaster will be efficiently managed. So, understanding the various types of potential disasters in the area is very important.

The area of Segara Anakan lagoon is vulnerable to various types of disasters typical of coastal regions, such as tidal waves, twisters, disease epidemics, sea accidents, earthquakes and tsunamis. These types of disasters are also difficult to predict and the impact may cause natural and environmental destruction, and harm human, plant and animal life. According to the Directorate of Mitigation, The National Coordination Board of Indonesia, disaster is defined as:

“An incident or series of incidents that threaten/s the life and livelihood of a society caused by, either a natural factor and/or an unnatural factor or a human factor, and cause/s the fall of the victims, environmental destruction, material loss, and psychological impact.” (Triutomo, Widjaja and Amri 2007, 3)

Concerning to the definition, the area of Segara Anakan lagoon has faced some disaster problems. For examples:

- 1) At the time of the election of Governor and Deputy Governor of Central Java May 26, 2013, there was flood that inundated almost all *TPS (Tempat Pemilihan Suara/* polling stations) in four villages to a height of 20-30 cm due to the tide and the heavy rain from Saturday night to Sunday morning). In fact, almost all of the houses in the villages were inundated at the time;
- 2) Besides the flood, there was also an earthquake and typhoon occurring in the village of Ujung Alang on 2 September 2009, in which there were two houses were razed to the ground, 15 houses were seriously damaged, 30 houses were badly damaged, and 50 houses were slightly damaged;
- 3) Since 2005, around 14,000 people in the four villages have been lack of having clean water. This is because the 11 springs on the island of Nusakambangan (Selok, Landak, Jambean, Gua Karang, Masigit Sela, Sikutan, Klapa Kerep, Sodong Geblug, Beji, Nusa Manuk, Jongor Asu, and Legok Pari) which have usually been utilized by the local residents are now mixed with sea water;
- 4) Because the lagoon has been silted up, the livelihood of the local people mostly changes from fishermen to farmers. In addition, some of the people do not know what to do to enhance their lives. Even

there some of them make gambling as their habits to gain more money. This can lead them to be in the poverty problems.

In relation to ecotourism principles, disaster risk reduction is achievable through the development of ecotourism yet there are still many people who have not understood the significance of ecotourism in reducing the disaster risks at the coastal areas such as in the area of Segara Anakan lagoon. Most understand the significance of disaster risk reduction in the context of anticipating disasters for personal safety, without realizing that disaster risk reduction can be done through ecotourism, and also improving the lives of locals in the area. This is because there is no participation from the local people in tourism development managed by the local government. If there are some activities of developing tourism in the area, they are only money-oriented activities held sporadically by some actors. For example, cut mangrove destructively for daily needs (such as firewood and roof-rack of houses) or commodity. Consequently, the ecotourism potential in the area is not optimally used for the sake of the regional development and welfare. Therefore, the local participation prior to the local people as the community living around the area of Segara Anakan lagoon needs to be realized to develop ecotourism as well as reduce the disaster risks in the area itself.

An Asymmetrical Development of Community-based Ecotourism: A Pathway for Disaster Risk Reduction in the Area of Segara Anakan Lagoon, Cilacap, Indonesia

The ecotourism development in a vulnerable area prone to disasters as in the area of Segara Anakan lagoon is more difficult than in an area that is reasonably safe. In this case, the ecotourism development in a vulnerable area is not only hampered by the ignorance of the officers, tourists' behavior, lack of a master plan, and a misconception of what ecotourism means, but also by the areas potential for natural disasters, in this case, tsunami, tidal waves, flood and others. One of the factors causing the vulnerability of the ecotourism potentials is the ecosystem damage. There are seven categories of stressors that can damage the ecosystem of coastal areas: 1) climate change, such as increases in sea level and ocean temperature; 2) extreme natural events, such as tsunami, hurricane, drought, and harmful-algal bloom; 3) sedimentation in estuary due to bad watershed managements; 4) pollution, such as excess nitrogen from agricultural and urban runoff; the waste of heavy metals of gold mine or textile industries, and urban waste; 6) noxious-predator species, such as the crown-of-thorn starfish (*acanthaster planci*); 7) land and resource use, such as over-harvested fisheries, over cutting of mangrove trees, or land reclamation of

mangrove forest for shrimp industries, or sea-ford, or human settlements. (UNEP) In line with the area condition of Segara Anakan lagoon, those seven stressors will be able to damage the ecosystem of the area if it is not anticipated by the management of disaster risk reduction.

The principles in the concept of ecotourism are able to be used for disaster risk reduction in ecotourism development in the area of Segara Anakan lagoon by elaborating the ecotourism potential of the area. *First*, the principle of sustainability – centering tourist activities around the environmental preservation and conservation of the natural landscape, flora and fauna. This principle supports the next principle – safety, in which the natural environment as a tourist site must be safe and conserved, so that it is there for the next generation. Both these principles concern the principle of environmental integrity – the conservation of various creatures living around such as human beings, animals, plants, and so on. In this case, the variety of creatures is assumed to survive if the ecosystem is conserved. That is why the ecotourism development should be carried out after holistic planning and its implementation be focused on sustaining the natural harmony between human beings and their environment. All of these principles support the development of ecotourism in the area of Segara Anakan lagoon if they are engaged effectively and if implementation is efficient. As a result, all of the relevant actors in the tourism activities should get the benefits from the activities. The benefits should be achieved dimensionally by the providers as well as the tourists in the tourism area. (Ahdiati & Kusumanegara, 2013: 136 - 137)

In accordance of managing disaster risk reduction through the ecotourism development in the area of Segara Anakan lagoon, there are several efforts that have done by the local government such as dredging the mud sedimentation from the lagoon and cleaning the water for the local residents. However, the project of dredging the mud that has carried out since 2003 was not socialized before to the local people. This has caused a problem for the traditional fishermen –especially those who live in Ujungalang village– in which the income from catching the fish is drastically decreased. Even most of them do not receive the compensation of the project as what the fishermen with mini tiger trawlers or what is so-called *apong* net do (Rp 1,000,000,- for each). In addition, the local government has made a program of tracking the mangrove as a tourism package in which every tourist is able to see the scenery of the lagoon with all of its potentials. As a matter of fact, this program is also claimed by the local people involved in Forum Warga Kampung Laut (a civic forum established by the local people, especially by the organizers of *compreng*) as their own program. This has created

on-going conflicts between the local people and the local government. (Reichel, 2009; Sobandi, 2011)

What happens in the area of Segara Anakan lagoon shows that there are unorganized activities of developing ecotourism for disaster risk reduction in the area which are caused by the scattered efforts done by the local government and the local people as well. As a very potential area but prone to disasters, the area of Segara Anakan lagoon has a complex problem of development that need a specific treatment to solve it. In this case, the development has to be asymmetrical compared to other areas. *First*, the ecotourism development for disaster risk reduction has to be community-based in which most of the activities are done by and for the local people. *Second*, the development itself has to be supported by the specific policies both in formulation and implementation. It means that the local government through the related offices, especially *Disbudpar* (the Office of Culture and Tourism) and *BPBD* (the Regional Institution of Disaster Management) has to cooperate with the local people in carrying out the programs of the development. The last but not least, the cooperation between the local people and the government has to be sustainable by having a strong leadership. This kind of leadership is needed to guarantee the sustainable development of community-based ecotourism for disaster risk reduction itself. Finally, the asymmetrical development of community-based ecotourism is hopefully able to become a pathway for disaster risk reduction in the area of Segara Anakan lagoon.

CONCLUSION

The area of Segara Anakan lagoon has enormous ecotourism potential yet is vulnerable to disasters, i.e. its natural resources, beaches, coastline, trees, and scenery; its human resources; and its ecotourism products. The area is most vulnerable to disaster because of its coastal location.

No solution for addressing the problem of disaster threats in the area of Segara Anakan lagoon has been proposed due to several factors, including the lack of effective policy and a lack of coordination among the actors engaging in tourism associated activities. It must be recognized that the development of community-based ecotourism can be used to reduce the risks for potential disasters in the area. The approach to disaster management in this area is still reactive and has not yet involved all of the relevant actors. To develop environment-based tourism in a coastal area vulnerable to disasters, an effective approach is needed for developing community-based ecotourism as well as reducing

the disaster risks. The approach to ecotourism developed at the area of Segara Anakan lagoon, Cilacap, in the future should involve the local people as the community to manage the disaster risk reduction in the policy, both in formulation and implementation. It means that the specific condition of Segara Anakan lagoon requires a specific treatment to develop community-based ecotourism for disaster risk reduction, i.e. the asymmetrical development community-based ecotourism with a strong leadership.

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