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Scrutinizing Coastal Ecotourism in Gili Trawangan, Indonesia

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Abstract Gili-Trawangan is one of three of the most popular tourist destination in Lombok. It's located lined with 3 other destinations. Based on the comparison of three approaches derived of coastal-ecotourism, it is found that the impact of tourism is determined by the relationship and interaction between the economic-natural, environment, socio-cultural variables, and sub-systems. There are three main issues that should be done to improve coastal ecotourism performance in Gili-Trawangan: sustainable living patterns, conserving coastal community resources, and enhancing regional economic-development. To address environmental concerns, it's needed to maintain environmental cleanliness and minimum of building sites. Besides, it is necessary to conserve a mangrove, sea grass beds, coral reefs, and marine fish as well as ecotourism-fishing. It can be used as a marine fishing tourism too. The effort would increase the number of tourist visits and it's also increase the income of the community and local government.

Keywords Coastal-ecotourism; Economics-development; Natural environment; Coastal community

Introduction

Gili-Trawangan is one of three of the most popular tourist destination in Lombok. It's located lined with 3 other destinations, from the closest to the island of Lombok is Gili Air, and Gili-Meno. All of them have considerable tourism potential, but the most rapidly growing and becoming a holiday destination is Gili-Trawangan, a number of supporting facilities are available complete such as accommodation, restaurant, Automated Teller Machine, and transportation facilities. Various interesting treats you can see on the island. The island is beautiful white sand, the feel of the party is thick, so in addition tourists can feel the calm atmosphere can also enjoy the lively night entertainment with the feel of the party. Gili-Trawangan has the widest area among the three of them, with an area around the island along the 7.5 kilo meters and the area of about 340 hectares, tourists can tour the island tour by riding a bicycle paddle or ride horse-drawn carriage namely 'Cidomo' to enjoy the beauty of the island, because there is no use of motorbikes or cars in the area (Yum, 2017).

Gili-Trawangan with an area of 340 hectares is the largest island. Its take an hour to go around the island. With the size is not too large, the tourists are so easy to explore the three islands. From year to year, the number of tourists to West Nusa-Tenggara continues to grow. According to Central Bureau of Statistics, tourists visit the last three years continues to increase. In 2013, the number of tourists reached 1.4 million, then up to 1.6 million in 2014, and 2.2 million in 2015. This year, the Department of Culture and Tourism of the islands is targeting tourists to reach 3 million (Muhajir, 2017). Moreover, in the Ministry of Tourism note, the average foreign tourists who go to the Gili-Trawangan reach to 1200 people per day. This coast becomes a tourist interest on visiting Lombok that has a wealth of powerful marine tourism. The sand is white, clean, the water is clear, and many dive sites are one of the paradise for divers. Inside the beach is a shipwreck that has become a house of coral reefs and herds of fish as well as a turtle.

There are three locations under the sea beauty at Gili-Trawangan, West Nusa-Tenggara snorkeling at shipwreck point, turtle point, and coral garden. More than 3,000 foreign and domestic tourists daily visit the three islands that enter this regency of North Lombok. Most of them came to enjoy the beauty of the underwater. In the same location as they swim and use swimming glasses, frog boots, and some wearing life jackets. They swim in each

location and snorkel at each location an average of 30-45 minutes. Dozens of glass-bottom boats that transport tourists are also parked at the snorkeling site. Each vessel carries 40-50 passengers. So, at each location there are about 500 people snorkeling. A huge amount for underwater tours. The blue of the sea is changing like market hubbub.

Moreover, Big Bubble diver operator manager in Gili-Trawangan said that the diving business is very good. From year to year, the number of divers in this location is increasing. Most of the divers are from Europe, especially France and England. Other parts of Australia and Asia include Singapore, Malaysia and Indonesia. In a day, the average dive operator to do two dive services, morning and afternoon. Diving locations vary. Although the number of guests per operator is limited as in Big Bubble, but the number of operators also impact on the increasing number of divers as well as the increasing number of tourists who are snorkeling. The increasing number of tourist activities also provides more pressure on the underwater conditions of Gili-Trawangan.

The Ministry of Tourism wants Lombok islands in West Nusa-Tenggara, becoming a major tourist destination for South Korean tourists. He said that the development of tourism, especially in the island is currently quite rapid. The island became one of the destinations that are marketed to Korea in addition to tourists from Middle Eastern countries. He has targeted in 2019 to bring 20 million foreign tourists to Indonesia, one of them is to the island (Asdhiana, 2017).

This study aims are to respond Ministry of Tourism target and find out the performance of coastal eco-tourism in Gili-Trawangan.

1 Literature Review

Ecotourism is able to overcome the fall and rise in traditional tourism performance. Along with advances in modern management practices and increasing emphasis on social responsibility, this concept is a positive solution and promotes sustainable development of environmental degradation caused by the international tourism industry (Whitney, 2017).

The tourists generally have the financial ability and have free time to enjoy the beauty of the sights so many choices for them. Similarly, their recreation frequencies are different and most have increased according to their tastes and interests. Many attractions attract people to live in the urban jungle or visit the countryside with a natural ecological environment. Sometimes they visit historical and cultural monuments to appreciate the landscape and experience of a local culture (Chien, 2016).

Based on the comparison of three approaches derived from the coastal environmental management theorem, it is found that the impact of tourism is determined by the relationship and interaction between the economic sub-system, the natural environment and the socio-cultural variables, and successful policies dependent on the coherent flow management of the sub-systems (Lloret and Riera, 2008; Virapart, 2011; Whitney, 2017).

Sustainability communication by tourism service providers in the context of climate change and rural village design education. On the basis of communication, which integrates individual words, writings, actions and individual and collective behavior with local people. Ecotourists address sustainability issues in key areas, including education, marketing and networking activities in conservation areas related to sustainable communications can help eliminate environmental degradation by encouraging more sustainable practices as a result of community resident training, which will greatly assist in building and maintaining Environment as well as bird and oyster farms (Attemene and Eguavoen, 2017).

Coastal tourism is a tour that enjoys the atmosphere along with the coastal scenery, and at the same time, the tourists become coastal lovers. The beach became a major tourist destination. Currently coastal recreation is a trend for them. Coastal ecotourism demand continues to increase as their economic level increases. This situation makes coastal tourism actors pay more attention to the conservation of coastal environments that are key to the future of sustainable tourism. The factors that determine the quality of the tour are the quality of the scenery, the

quality of the water, and the protection of hurricanes, hurricanes and traditional food (Phillips, 2007; Krause and Weir, 2011; Chien, 2016).

Tourists love the beach scene, and at the same time they become coastal lovers. The beach became a major tourist destination. Currently coastal recreation is a trend for them. Coastal ecotourism demand continues to increase as their economic level increases. This situation makes coastal tourism actors pay more attention to the conservation of coastal environments that are key to the future of sustainable tourism. Factors that determine the quality of the tour are the quality of the scenery, the quality of the water, and the protection of hurricanes, storms and traditional food (Krause and Weir, 2011; Chien, 2016; Pace and Morgan, 2017).

Up to now, ecotourism activities are socially responsible travel activities to natural areas supported by environmental disaster programs. This effort supports the community, because they are involved in the business. Furthermore, some of them are involved in the accommodation business to accommodate the needs of national and international tourists visiting the region. This is a unique experience for tourists who understand and appreciate the culture of local people. This activity also creates jobs for local communities and becomes regional development funds (Boscolo et al., 2011).

Currently, the community's understanding of ecotourism continues to increase along with the development of environmentally friendly coastal tourism development program. Solutions, mass tourism development and ecotourism will complement each other. Both types of tourism work together on different scales. When examined from national and international tourism policies, these two travel activities can help integrate in tourism activities. Government programs in developing a wider and global tourism sector can alleviate poverty and create sustainable livelihoods. These obstacles are both integrated into the actual tourism market, coastal natural resources, conservation policies and sustainable tourism development programs (Kelkit et al., 2010; Krause and Weir, 2011; Doyon and Sabinot, 2014; Cobbinah, 2015).

The principle of sustainable coastal tourism that is generally aimed at generating alternative livelihoods for coastal and rural communities. The plan, this principle is used in all regional strategic plans for the development of coastal ecotourism areas. This is done using sustainable natural assets. Such economic outcomes are usually used for revenue sharing between tour operators, local communities, and local governments generated through. This tourism program is also to conserve resources from coastal communities (Sakata and Prideaux, 2013; Picard, 2015; Pace and Morgan, 2017).

Potential coastal areas can play an important role in the development of fishing settlements and coral reef conservation. This is the attraction of nature and cultural tourism. It is a tourist attraction to come to visit the area. On the other hand, fishermen are generally still low income. Development of environmentally based fishermen settlements is needed to increase future income. In addition, various socioeconomic activities in fishing areas can be enhanced by fishery tourism programs in an effort to increase their economic income. This program can preserve the socio-cultural, economic and coastal environment. Similarly, the development of trading activities and management of seafood and traditional food can be done with coastal ecotourism zones, as they support each other (Virapart, 2011; Porter et al., 2015; Whitney, 2017).

Coastal ecotourism has become a private and public sector development program in countries in the West Indian Ocean. The program is to assess coastal ecotourism development and management assistance. The main thing pointing out the target direction is to encourage and improve. This is done to build ecotourism performance. This activity is not visible to travelers for the aesthetic elements of visual and landscape (Diamantis, 2000; Picard, 2007; Almeyda et al., 2010; Picard, 2015; Pace and Morgan, 2017).

Broadly speaking, ecotourism is all travel activities and enjoy the beauty of nature beach by maintaining coastal resources that protected with local cultural wisdom. These attractions would be enjoyed by those with coastal environments of a natural visual and landscape aesthetics. This will encourage and enhance regional economic

development by maintaining the management of coastal ecotourism. At the same time, the program can create sustainable livelihoods with quality standards of coastal ecotourism, and conserve resources from coastal communities. Finally, it developed trading activities of a seafood and traditional food – at the coastal ecotourism zones (Boscolo et al., 2011; Virapart, 2011; Rahmi, 2015; Picard, 2015; Rusli et al., 2015; Chien, 2016; Whitney, 2017, Pace and Morgan, 2017).

2 Meterials and Methods

This quantitative and qualitative research were conducted from February 2015 - February 2016 in Gili-Trawangan, Lombok (Figure 1), by allocating 300 questionnaires to: tourists, tour-guide, travel agency, Department of culture and tourism, Hotel, restaurant, tourist bus, driver (Jenning, 2001).

Figure 1 Gili Trawangan, Lombok, Indonesia

Collected data was tabulated by using content analysis (Cohen, 1960; Henderson, 1991; Gottschalk, 2013), based on the concept of coastal ecotourism. Its focus on all traveling activities and enjoy the beauty of nature beach - with local cultural wisdom, coastal environments - natural visual and landscape aesthetics, enhance regional economic development, conserve resources from coastal communities, sustainable livelihoods, and trading activities of a seafood - traditional food (Boscolo et al., 2011; Virapart, 2011; Rusli et al., 2015; Picard, 2015; Chien, 2016; Whitney, 2017; Pace and Morgan, 2017).

Data collected was corroborated by using triangulation techniques. It's amplifying an observation, open interviews, and secondary data analysis for verification (Marwick and Uniger, 1975). Interview results are strongly influenced by the situation of the interviewer, both in terms of interests, topics, or opinions or views of the respondents. In brief, the outcome of the content analysis tabulation of coastal-ecotourism explored analysis, posting each attribute, frequency counted, and discussion of existing and expected performance (Diamantis, 2000; Almeyda et al., 2010; Picard, 2015; Pace and Morgan, 2017).

3 Results and Discussion

The results of this study based on the concept of coastal ecotourism show that Gili Trawangan's current performance is in critical condition (K_1 = 0.5852) (Table 1). There are three main issues that would be settle down accordingly: sustainable livelihoods, conserve resources from coastal communities, and enhance regional economic development. After that, then needed reinforcement in three other things (Table 2): enhanced trading activities of seafood or traditional food, keep cleaning coastal environment to get natural visual and landscape aesthetics of undersea life, and develop natural beach destination with local cultural wisdom. It would improve the performance of coastal ecotourism in Gili-Trawangan (K_2=0.7037).

As we trace back to the past, about 35 years ago, Gili-Trawangan is still quiet. Not many people on this 340-hectare island. Residents who live on the island are only hundreds on the east side of the island. The inhabitants work as fishermen and farmers. Corn and cassava become the main commodities as well as the main

food. For consumption purposes, they have to buy a rice from outside the island, especially Lombok Island, West Nusa-Tenggara. It is not an easy thing for the life of the people there.

Table 1 Existing condition of coastal ecotourism in Gili Trawangan

Existing Coastal Ecotourism in Gili Trawangan	Value	% Freq
Travelling - enjoy the beauty of nature beach - local cultural wisdom	32	0.2025
Coastal environments - natural visual and landscape aesthetics	35	0.2215
Enhance regional economic development	23	0.1456
Sustainable livelihoods	21	0.1329
Conserve resources from coastal communities	22	0.1392
Trading activities of a seafood - traditional food	25	0.1582

Note: Kappa Coefficient = K_1 = 0,5852

Table 2 Expecting condition of coastal ecotourism in Gili Trawangan

Expecting Coastal Ecotourism in Gili Trawangan	Value	% Freq
Travelling - enjoy the beauty of nature beach - local cultural wisdom	35	0.1842
Coastal environments - natural visual and landscape aesthetics	36	0.1895
Enhance regional economic development	30	0.1579
Sustainable livelihoods	29	0.1526
Conserve resources from coastal communities	32	0.1684
Trading activities of a seafood - traditional food	28	0.1474

Note: Kappa Coefficient = K_2 =0,7037

As mentioned above, recent study also found several key points that undermine coastal tourism performance: a number of buildings along the coast, waste that damage coastal environments. Because it is necessary conservation of coral reefs, mangroves, seaweed beds, and turtles. In addition, fisheries and fisheries-tourism development activities have not increased significantly in the regions thus reducing employment opportunities.

Based on data from government data of Gili-Trawangan's Hamlet, there are currently around 150 licensed edifices along the coast. According to local residents, the owner of the building has no legal basis to use the beach. They use the place because they have big capital. Local people generally say that the use of coastal arrangements has actually existed for a long time. But, no one applied it. Samba Villa is one of the tourism facilities that use the beach for its restaurant. On the north side of the beach they have a restaurant right on the beach. Other buildings lined the surrounding. Manager Samba Villa and Restaurant, said construction on the beach is actually not supposed to be done. They also received warnings. But, as do hundreds of other businesses along the coast, they still use this area (Saputri, 2017).

Currently the waste generation on the island reaches 13 tons every day - about 2.3 kg per person. The Gili-Eco Trust Foundation's board outlines the results of the Waste4Change (2016) study. Approximately 92% of waste comes from tourism activities. This waste problem needs special attention. Together with the National Aquaculture Conservation Center of Kupang, WWF-Indonesia introduced the best practices of Gili-Trawangan and Signing Blue governance, a platform for the realization of responsible marine tourism practices and management (Syukur et al., 2017).

The island is still overshadowed by serious problems related to waste management and lighting installation of public facilities. The volume of garbage on the island reaches 8-10 tons every day. In that area, in that area there is no location that can be used as a temporary dump so that the pile of garbage must be taken one by one, then planted or brought to the mainland of Lombok. Through the construction of this waste treatment facility, of course the garbage problem that has occurred in this island can be overcome so that it can make this area as a comfortable tourist destination (Praditya, 2016). Village chief said that his community is restless with the accumulation of garbage and wastewater which is allegedly dumped into the sea waters by entrepreneurs because

it disturbs the convenience of tourists. Although he has tried to prevent the disposal of liquid waste into the sea, but there are still many restaurants and hotel managers who throw their liquid waste carelessly into the sea. This liquid waste is very disturbing to tourists and most importantly, the liquid waste is very threatening undersea ecosystem (Ratomo, 2015; Saptohutomo, 2015).

In addition to handling waste, currently the Government of North Lombok regency is doing the arrangement of facilities and infrastructure in this island, such as revamping the dock and the art market transfer. The art market that became the center of souvenirs and culinary centers is planned to be moved to the interior of the village. The art market will be moved to local government-owned land near the field within the township. Former Head of Public Relations of North Lombok Regency Government is optimistic that the art market transfer will give wider impact to the community. With the move the art market to a new place will further revive the economy in Gili-Trawangan village. In addition, the displacement of this art market will open new jobs and increase local revenue (Ratomo, 2015; Saptohutomo, 2015).

As the development of coastal tourism in the islands, the problem of garbage is now a complicated issue. As a small island, with an area of only about 340 hectares, the carrying capacity of the environment in the beach is somewhat limited. In fact, on the other hand, garbage continues to grow. The addition of waste is in line with the continued growth of various tourist facilities such as hotels, shops, restaurants, cafes, and of course settlements. According to the Hamlet data, there are currently 442 tourism businesses on the island. The most is a cottage or home-stay as many as 157 businesses. In addition, there are 103 stores and boarding houses, 71 bungalows and small hotels, 54 middle-class hotels, 41 villas, and 13 luxury hotels, resorts and dive shops. Moreover, the jasmine hotels in the islands are 125 units with 1496 rooms and 1629 bedding facilities, while for home-stay type there are 95 rooms with 1901 rooms and 2062 bedding facilities. Total business type of hotel and lodging in the island as many as 220 units, 3,397 bedrooms, and 3,691 bed facilities (Rizky, 2016).

According to the head of the local hamlet, currently there are 500 families or around 2,000 people. The number of workers reached 2,000 people. Those who go in and out about 1,000 per day. The number of tourists averages up to 3,000 per day. The more visits, the more junk they generate. The problem is, most businesses do not have waste processing. The Waves Inn does not equally rework the garbage from their hotel. The garbage from the 12 lodges is taken directly to the trash to be transported by the janitor. At the same time, as the tourists begin to enjoy the morning shine, the janitors start his work to transport the garbage on the island. Every day, from 6.30 pm Central Indonesia time, they begin to comb the main road of this island from the south. They moved the contents of the trash can on the left side of the road to Cidomo's bath. They also wear T-shirts from t-shirts and hats, so eyes are only visible from their faces. They become a garbage man as well as coach's Cidomo, like a typical Lombok horse vehicle. They do not sort out organic and inorganic waste. Just take the plastic bottle and put it in a different bag. After the tub is full, they head to the center of the island. They passed a three-meter footpath in the island settlement. From the most crowded place on the eastern side of the island, they spur Cidomo on the concrete road before entering a dingier area with dusty roads (Septia, 2017).

Cidomo socialization activities is a continuation of the same socialization in the year 2014, which is a socialization of Cidomo Healthy Care Movement, which is facilitated by PT. Multi-Bintang, supported by the Department of Tourism and Agriculture Department of Agriculture, Plantation, Forestry and Marine of North Lombok Regency. At that time, Multi-Bintang focuses on this socialization as support to the public and the government to maintain the uniqueness of Gili-Trawangan as an eco-tourism area with the ban on the use of motor vehicles in the area. This socialization continues to be done regularly so that the coachmen increasingly understand the importance of horse health for coastal tourism. Horse as the main transportation on the island and at the same time is an effort of local communities to preserve the environment (Guswan, 2017).

In connection with the problems encountered on the island is the problem of waste, degradation of ecosystems and the presence of rare Biota such as sharks and mantas. The government together with NGO's and related institutions are trying to make awareness efforts. The existence of an aquatic conservation area is devoted to four

reasons. First, protect and conserve fish resources as well as important types of ecosystems in the waters to ensure the sustainability of their ecological functions. Second, to realize the utilization of fish resources and ecosystem and environmental services in a sustainable manner. Third, preserving local wisdom in the management of fish resources in or around water conservation areas. Fourth improve the welfare of people around the conservation area (Skhafid, 2014).

Nevertheless, there are a couple of efforts from various parties to improve the quality of the coastal environment. Considering natural damage is a serious threat to coastal tourism as an impact of forest encroachment and environmental pollution. Moreover, this region is very dependent on the natural tourism sector. 50% of the island's tourist destinations are environmental issues. This coastal environment is a serious problem that must be faced by all parties. For that, at the Festival of Enchantment Gili-Indah Department of Culture and Tourism. This movement is contained by the planting of flamboyant trees by the Deputy Governor of West Nusa-Tenggara (Ili, 2016). Currently, PT Bank Mandiri Public company, provides USD 9 million to build road and waste management systems in Gili-Trawangan, West Nusa-Tenggara. Of the total assistance, USD 50,000 is allocated for street lighting on the beach, then the funds are allocated to build a sewage treatment system. Being one of the leading tourist destinations in the region.

By the time, damage to coral reefs in the tourist area, because of the rapid ships from Bali which often unleash anchored anchor in Gili-Trawangan. They bring passengers about 100-200 foreign tourists. Then they release the anchor without control, so the marine ecosystems become damaged, especially coral reefs. The Executive Director of the Forum for the Environment says that 55% of the coral reefs in the island, North Lombok, West Nusa-Tenggara, are now in severe damage. Even the Ministry of Marine Affairs and Fisheries recorded the level of coral reef damage where this goal reached 70% (Poerwanto, 2016). Besides, according to the Wildlife Conservation Society, diving tourism is a dynamic tourism activity, there is a direct or indirect relationship between the number of divers with coral damage. Increasing or decreasing the number of divers in a dive tourist area will move dynamically to follow the changes that occur in natural resources and other external factors. There is a linear relationship between the uniqueness of dive sites with the number of divers over time, this is influenced the service of tour operators to maintain customer satisfaction and keep running tourism promotion. In any case, it appears that social and ecological thresholds are critical and inter-factor linkages need to be considered in managing watershed areas to meet conservation and tourism / recreational needs. Unfortunately, carrying capacity is difficult to define critical thresholds, and has different meanings for different people.

Diving activities are increasingly popular with tourists. Moreover, many diving-points in Indonesia whose beauty is already worldwide. Unfortunately, more and more divers' can make coral reef stress. Plunging is a way for tourists to see coral reefs of various colors and sizes. The divers also increasingly forgot the land, when looking at the adorable sea fish passing around the coral reefs. Beyond that, apparently there is a negative impact of the activities. Like the enemy in the blanket, the negative impact is not much known to many travelers and managers diving-tour operators. Coral reefs are also like that which can be stressful if many divers are swimming around. For that, it is good the tour operators who offer activities in addition to making regular schedules. They should be able to make a long time lag, so that not many tourists who swim to the sea. Travelers should also be aware and they can not go around together for long periods (Farhan, 2013).

Previously, Head of Marine and Marine Affairs, Marine and Fishery of North Lombok, said there are about 15% of the 2,954 hectares of dead coral in Gili-Trawangan. Coral reefs are dominated by Acropora Suharsonoi, and Avicennia Marina. In addition, there are types Acropora Hyacinthus and Acropora Clathrata (Skhafid, 2014; Rahmi, 2015). As a note, the average growth of corals for each 25 m2 / year slowed in 21 observation sites on the island, amounting to 0.023 m2 / year or equivalent to 0.575 m2. The lowest slow-growing reefs occurred at the Corner Reef and Blue Plains observation sites of 0.002 m2 / year respectively (Susanti and Suharti, 2014).

Furthermore, observation of reef fish from the indicator fish category recorded as many as 27 species of fish “Kepe-Kepe” found in the location of observation. Types of *Chaetodon Klenii*, *Chaetodon Baronessa*, *Chaetodon*

Trifascialis are quite dominant in observations and awards in the number of individuals on the island. Potential fish species for reef fish communities in the top 10 based on the composition of biomass are *Myripristis Kuntee*, *Acanthurus Olivaceus*, *Kyphosus Cinerascens*, *Acanthurus Leucocheilus*, *Ctenochaetus Striatus*, *Naso Brachycentron*, *Mulloidichthys Flavolineatus*, *Neonipon Sammara*, *Naso Lituratus*, and *Lutjanus Kasmira*. In addition, coral fish of the cockatoo species (*Hipposcarus spp and Scarus spp*) are coral gulpers. This group bites the coral surface and removes algae and other materials just a little bit of traces of tooth extraction on the coral substrate. Larger and more important types of diggers, such as *Bolbometopon Muricatum*, *Cetoscarus sp* and all types of *Chlorurus spp*., Are different from the scraper group, because these groups are higher and so on (Susanti and Suharti, 2014).

A sightseeing in certain areas of mangrove forest in the Island classified as less good. It's dominated by the type of *Excoecaria Agallocha* and *Lumnitzera Racemosa*. In addition, there are two types of seagrass which has 100% *Thalassia Hemrpichii* and *Cymodocea Rotundata*. Six other seagrass species are linked to the sea-grass monitoring transect in nine stations. Two types of seagrass which have 100% are *Thalassia Hemrpichii* and *Cymodocea Rotundata*. Medium, other types only exist in some stations only. On the other hand, *E. Acoroides*, commonly found in various Indonesian landscapes, are rarely seen in Gili-Matra, possibly the type of sand fuels and sludge release materials, the best substrate for growth of *E. Ecoroides*, a factor of very low abundance.

Regarding waste management, an effort was made by local community to improve the carrying capacity of the coastal environment on the island is to waste and clean the beach. The district government of North Lombok has just put the first stone on the construction of Integrated Waste Management Site in the islands to treat liquid and solid waste. He hoped, the construction of the place if the garbage to the extent that later can settle down accumulation of garbage in the islands (Rizky, 2016).

On the other hand, a dozen foreign tourists participated clean a beach along the eastern sides. They were all in short, casual trousers. Some are bare-chested, some are singlet. Every tourist carrying burlap sacks. They picked up one by one the garbage they found on the white sand beach then put it in a gunny sack. Around them, other tourists there are fun swimming, lounging, or even sunbathing with just a bikini. Dozens of foreign tourists are cleaning the beach along about 1 km. After cleaning the beach, the volunteers did get a free beer. That's how Gili-Eco Trust invites tourists and locals to take care of the environment in Gili-Trawangan and two other islands around it, Gili-Meno and Gili-Air commonly known as Gili-Matra. Work to clean up the beach they do every Friday afternoon. The location is sedentary. In one devotional work, they get 80-120 kg of plastic waste. It is still small compared to about 12 tons - 17 tons of waste per day on the island (Marbun, 2015; Rizky, 2016).

Tourism is like two sides of a coin. It not only brings economic benefits, but also has the potential to put pressure on the quality of ecosystems, even marginalization of local communities. Signing Blue's socialization on the island is an effort to reduce the pressure on resources on the island, which are facing the issue of waste generation, spatial conflict, and tourism spatial use arrangements. The commitment of tourism actors to the improvement of coastal tourism, and verified in the application of environmentally based business (Syukur et al., 2017).

In partnership with several communities, PT Multi-Bintang also organizes Wise Waste Management to educate people how to segregate garbage and reduce plastic waste. Following the Socialization of Wise Manage Waste, as a concrete step they donate the dumpster to be spread on the island and recycled bags to reduce the use of plastic bags. This garbage can be a pilot for the community to separate garbage cans and bottles, organic waste and non-organic waste. With this waste separation is expected to reduce pollution and utilize the recyclable value of waste that can be recycled. With their socialization and the real form of a separate bin, people can start together to keep the island clean (Guswan, 2017).

Talking about the island's environment is impossible without involving Gili-Eco Trust. Non-governmental organizations with the official name of the Gili-Indah Ecosystem Foundation are always referred to as resource persons when discussing environmental conservation. Gili-Eco Trust does do various environmental conservation

activities. These include protecting and rehabilitating coral reefs, preventing coastal erosion, cleaning beaches, educating and raising awareness, managing and recycling waste, providing health clinics for animals, as well as coral reef research (Marbun, 2015).

In 2004, the part-time coordinator at Gili-Eco Trust imported Biorock technology. This technology found by Wolf Hilzberg and Tom Goreau has been applied in several places including in Pemuteran, Buleleng, northern Bali. To date, there are about 140 dots around Gili-Matra that have used technology to protect and rehabilitate the coral reefs. The many points that use this Biorock technology to be Gili-Matra as the location with the largest Biorock point in the world. Since 2006, they have also held biorock workshops every two years. Their eighth workshop in November 2012 was attended by about 100 participants from various countries. They learned how to restore the coral reefs, which offer sustainable tourism concepts, including protecting coral reefs and fish. Since last year, they have also expanded its programs including managing and recycling garbage on the island. Their main activities mainly recycle and add value to new products from waste. They work with the Environmental Care Community Front who collects garbage from every hotel, restaurant, cafe, or resident's home and takes it to the final dump (Marbun, 2015; Rizky, 2016).

The Gili-Eco Trust office in the central part of the island became a kind of workshop and showroom how the agency recycles the waste. Their big project is to make the house more visible as a store. They also established Sea made, an effort to make recyclable products from trash on the island. Souvenirs such as necklaces, bracelets, ashtrays, and ornamental lampshades fill the shelves in their offices. Everything is made from garbage. The eye of a dolphin-shaped necklace, for example, is made of battered bottle shard. So it is with the ring.

Another recycling effort they have done is to create an eco-brick, a glass brick. The garbage is shredded into the sand and formed into a brick. The location of this glazed fabric is near a garbage dump. In a day they produce about 3,500 bricks. The result is then used for constructing materials such as ordinary bricks. For environmental campaign programs, they also introduce Eco-Diver, divers are concerned about the environment. Not only must it preserve the environment while diving, Eco Divers also learn to identify and identify coral reefs, create coral reefs, rehabilitate and collect coral damage data. Similar campaigns were also conducted for schoolchildren as well as local residents. Through its various programs, they continue to invite people and tourists to care and help save the environment in Gili-Matra.

In terms of turtle conservation, foreign tourists bask in the white sand of the island's three largest islands on the western side of the island of Lombok. Local tourists busy bathing on the beach, taking pictures of themselves, or just walking or cycling. Some tourists passing the east coast of the island stop at the turtle breeding ground. The location of this farm is on the beach. Therefore, tourists easily recognize the place. The turtle breeding center is an open house with thatched roof. In the building area of about 20 x 15 square meters there are three glass-walled pools. The three hatching ponds are kept from freshly hatched until they are ready to be released into the open seas. This effort is to keep the turtle population on the island (Muhajir, 2017).

Turtle breeding center on the island started from the initiative of the former head of the hamlet. He sees more turtle loss in the three islands. He then made a turtle breeding place by buying turtle eggs from fishermen and then hatching. Originally the breeding place on the beach open. However, the Garuda Indonesia airlines then help build the hall as it is today. Management of breeding center carried out independently. Many other residents who helped turtle conservation efforts. They together feed, clean the pool, and keep the breeding hall. Until the late 1990s, many turtles lay their eggs in the island. However, due to the massive development of tourism as well as fishing by fishermen, the turtles on the island are decreasing.

The turtle egg is then worn sand for about 40 days. This hatchery is in a special building with a sand floor. Ash shows his egg battered. Some have been peeled off, hatchlings have hatched. Within a month, they incubated about 350 turtle eggs. The two most common types are green turtles (*Chelonia Midas*) and Hawksbill turtles (*Eretmochelys Imbricata*). From egg hatcheries, poultry children are brought to processing ponds. For 6-8 months,

the hatchling will be treated there. During that time the managers will take care of the dive every day. According to them, within a year they can process 1,500 tails. At the age of 6-8 months, the tortoise has just been released into the open sea. Tourists who can donate USD 20 for each sea turtle (Muhajir, 2017). Thereby, they get donations from tourists for the daily operational cost of turtle breeding center of the island. According to them, until now none of the institutions that support the conservation effort. In 2008, the Garuda Indonesia party built the breeding hall. However, at this time they never come or support again. They just built it, and after that never helped to take care of the building. The government also does not care at all. In fact, it would be nice if the government came and helped the turtle breeder management agency. In fact, to manage the breeding center, they need a day cost of about USD 20 for sea turtle feed and maintenance costs. Therefore, they have removed the donation box in the hall. However, very few visitors donate to them.

At the same location, among the three dyke, algae cover is between 54-70%, the highest is in Gili-Meno (70.8%), whereas hard coral cover is between 15-34%, the highest is in Gili-Trawangan (34.13%). Soft corals or soft corals of many of these islands (7.96%). The composition of the coral substrate is not much different from that encountered outside the Gili-Matra Aquatic Park area, which is on the north coast of Lombok Island (Skhafid, 2014).

The highest hard coral cover in Gili-Air is at the Bongkas Reef location of 41.5% and the lowest is in Batfish Point. While the highest in Gili-Trawangan is in Trawangan Slope (61.5%) and lowest in Shark Point (20%). High hard coral cover is mostly found on the location of coral reefs with high steepness. On a coral reef with a depth of 2-5 meters' massive damage is most commonly encountered. The waters in this depth is the place where most fishery activities occur. This location is also a place that is rich in fish resources so it becomes an easy target for fishing activities using bombs. The highly unstable coral reefs due to bombing activities are very difficult to attach to coral larvae so that recruitment is difficult and substrates previously dominated by coral reefs are transformed into dominant algae.

The Wildlife Conservation Society cites one instructor in Gili-Trawangan that the high number of dive tourists at some of the favorite locations is due to the uniqueness of certain Biota that makes diving attraction, such as Sharks, Turtles, Wreck (sinking ship) and Coral Garden which impact on the high frequency Visits are as many as 3-5 times per week, and the demand of tourists. In addition, the number of tourist arrivals in August increased up to two times compared with July, it is expected that in August is one of the high season. In their study, they mentioned the carrying capacity is the ability of the area or the location of diving tourism activities to receive a number of tourists with the intensity of diving activities on coral reef ecosystems that take place continuously without destroying their habitat. The carrying capacity in this study was calculated using coral growth as a limiting factor.

To improve the carrying capacity of the environment, the Minister of Tourism supports the steps of the Regent of North Lombok who conduct the illegal building control in Gili-Trawangan Beach resort. This can be an example for areas that have beautiful beach destinations, beautiful scenery, from the edge of the road. Be never intercepted by any building. He also asserted that anything that destroys the landscape must be disciplined, because everywhere, all over the world, the beach must be unfurled. Meanwhile, from the Bureau of Antara reported that the Regent of North Lombok will conduct curb unauthorized buildings that stood in the line of the Beach.

There are 143 business properties, such as hotels and restaurants, in the tourist areas that violate the rules and do not have permission so should be dismantled. Buildings that violate the Local Regulations of North Lombok, since standing less than 30 meters from the coastline are also demolished. A total of 143 business buildings that have been standing along the coastline of the tourist area finally dismantled the owners are voluntarily assisted government officials. The demolition of the building is in accordance with the Regional Regulation and the Provincial Spatial Plan on the limits of the construction of the building may be done at a distance of 100 meters from the shoreline. It is impossible for the government to set a boundary for the construction of a building 100 m from the shore, therefore they are subject to a limit of 30 m. When referring to the minimum limit of the building

from the beach as far as 100 meters, of course all the constructions both on the coastline and in front of it will be dismantled (Septia, 2017).

Meanwhile, in terms of community empowerment, along with the growing population of the island is slowly beginning to threaten the sustainability of the island. Recently, there have been efforts to maintain environmental quality by involving school children from three islands together to participate in environmental education activities. Each school includes about 20 students to participate in this activity. This activity is held with the cooperation of Gili-Indah Village Government, Wildlife Conservation Society, River National Water Conservation Center The working area of Gili-Trawangan Water Park which is one of the National Watershed Conservation Area (Iman, 2014).

To support the goal of management and utilization of fish resources and ecosystem and environmental services in a sustainable manner, it is necessary to disseminate information to the community, especially the next generation. Activities such as education and awareness about Megafauna and charismatic Biota, especially sharks and manta rays. Organizing this event is also to commemorate World Environment Day. The enthusiasm of children in the activity is very high, the children feel happy with the activity. In addition to the material in the classroom they also get material outside the classroom knowledge of turtle breeding. In the turtle breeding area they are also shown directly to the egg hatchery. To improve the spirit and enthusiasm of children in this activity is given games about environmental education and the importance of environmental protection, especially marine ecosystems. Here also do screenings of movies about sharks and mantas so they are expected to still exist Biota from extinction. Students are expected to know the various regulations related to the protection of endangered fish species. Participants are also expected to understand the importance of conserving fish resources (Skhafid, 2014).

Types of important target fish, such as Lutjanus Argentimaculatu, grouper, baronang, *Lethrinus sp*, thick lips, yellow tails, and *E. fuscoguttatus* can negatively affect the coral resilience process through arrest management, especially the use of unsustainable fishing methods. The destructive fishing methods are a negative factor for coral reefs. In contrast, community policies and initiatives on protection and conservation can be a positive factor.

4 Conclusion

The results of this study based on the concept of coastal ecotourism show that the performance of coastal ecotourism in Gili-Trawangan in critical condition. There are three main issues that should be done to improve coastal ecotourism performance in Gili-Trawangan: sustainable living patterns, conserving coastal community resources, and enhancing regional economic development. In addition, it is also necessary to increase the trading activities of seafood and traditional food, to maintain coastal environment cleanliness in order to maintain visual aesthetics and natural landscape under the sea, and adjust government policy with local cultural wisdom.

The study also found several key points that undermine coastal tourism performance: a number of buildings along the coast, waste that damage coastal environments. Because it is necessary conservation of coral reefs, mangroves, seaweed beds, and turtles. In addition, fisheries and fisheries-tourism development activities have not increased significantly in the regions thus reducing employment opportunities.

5 Implications

To address environmental concerns, the first steps needed to maintain environmental cleanliness and maintain a minimum of building sites along the coastal areas. This can control the quality of the environment to support ecotourism-coastal. In addition, it is necessary conservation of mangroves, seagrass beds, coral reefs, and marine fish. Thus, ecotourism-fishing can be used as a portfolio marine fishing tourism. It can increase the number of tourist visits and it also increases the income of the community and local government too.

Author's contributions

The Author makes substantial contributions to conception and design, and/or acquisition of data, and/or analysis and interpretation of data. Moreover, author participates in drafting the article or revising it critically for important intellectual content. However, author gives final approval of the version to be submitted and any revised version.

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