

Fisheries Resources Management by Empowering the Local Wisdom in Madura Straits

Mimit Primyastanto^{1*} Sahri Muhammad¹ Soemarno² Anthon Efani¹

1. School of Fisheries, Brawijaya University, Veteran Street, Malang 65145, Indonesia
2. School of Agriculture, Brawijaya University, Veteran Street, Malang 65145, Indonesia

* E-mail of the corresponding author : mimitprimyastanto@gmail.com

Abstract

The role and status of local wisdom as laws or rules implemented in coastal areas is very important. From the historical side, it was obtained in a very long process and handed down orally by the generation to generation. The purpose of the application is controlling of human nature with their unlimited needs and wants. The research place was conducted in Madura Strait, the area selected was Gili Ketapang areas, Sumber Asih sub district, Probolinggo district, East Java Province. The selection reason was because the determination the location of Gili Ketapang island has abundant potential cultural, fishing, fish processing. Time study was conducted in May – September 2012. The research method used is descriptive qualitative and case studies, the study approach was ethnographic. This method is used because related to indigenous studies, which used data from informants. The results of this research : There are seven cultural or traditions in Gili Island Ketapang, namely: *petik laut*, *onjem*, *nyabis*, *andun*, employment contracts, *pengambek*, and *telasan*. From the seven traditions, only six that potentially eligible become local wisdom, for use in building rights to fishing areas, namely *petik laut*, *onjem*, *nyabis*, *andun*, employment contracts, and *pengambek*. 2. There are two approaches to be made on the concept of community development Gili islands, structural and non-structural approaches.

Key Words: Ethnographic, , Local Wisdom , Community development and Madura Straits.

1. Introduction

The logical consequence of coastal and marine resources as common property resources and open access is the use of coastal and marine natural resources is increasing in almost all regions. Maximum increase of fish production requires appropriate management systems, in accordance with existing condition of marine ecosystems. At one side, fish production needs to be increased, but at the other hand, it should be increased in accordance with carrying capacity of existing marine resources. Thus, marine resources can be renewable (Mimit P, 2011a).

Anugerah Nontji (1993) stated the resources and natural resources potential in Indonesia waters are quite large. Especially after a declared Exclusive Economic Zone (EEZ) to the extent of 200 miles limit, the area that can be exploited and utilized increasingly widespread. Therefore, it takes an effort to preserve fish resources based on local wisdom. The role and status of local wisdom as laws or rules implemented in coastal areas is very important. From the historical side, it was obtained in a very long process and handed down orally by the generation to generation. The purpose of the application is controlling of human nature with their unlimited needs and wants. The existence of local wisdom greatly affect the sustainability of the human environment as a place to live, especially in coastal areas (Sartini, 2004).

Local wisdom is life values inherited from one generation to generation, the form of religion, culture or customs, in general in oral form in a social system form a society. The existence of local wisdom in society is the result of the adaptation process to the next in a very long period of time, to an environment that is usually inhabited, or environments where frequent interactions therein. Some of the functions of the Local Wisdom is: the conservation and preservation of nature, as the adage, trust, ethics and moral meaning, able to control, able to integrate elements of foreign culture into the native culture. (Mimit and Sahri 2011b).

Ridwan (2007) states local wisdom can be understood as a human effort to use cognition to act and behave towards things, objects, or events that occur in a given space. Definition above, arranged in etymology, understand the wisdom as a person's ability to reason his mind, to act or behave as a result of an assessment of things, objects, or events. As a term, it is often defined as wisdom / wisdom. In particular, local refers to limited interaction space with a system of limited value. Interaction space has been designed in such a way, in which involves a relationship patterns between man and man or man and his physical environment.

Some areas of Indonesia country already has a lot of local wisdom as an example in environmental management. The examples are *Phanglima Laot*, *Awig-awig* and *Mane'e*. Wisdom is applied almost fell down by the local community, such as *phanglima laot* in Aceh and *awig awig* in Buleleng, Bali. Its presence greatly affects the local environment preservation. It was contrast with today, where the foreign culture started to go fast in the modern era of globalization (Stefanus, 2005).

Coastal communities at Ketapang Gili islands, the majority of the livelihoods of fishermen, on the basis of its citizens are Muslim, is possible to have local knowledge. Basic Islamic religion can be used as profile coastal indigenous native of Ketapang Gili islands, as a reference in the management of the pro environment. In society lives at Gili Island Ketapang, economy, religion and environmental sustainability can go hand in hand with no one left out (Hagi *et al*, 2012).

2. Method

The research place was conducted in Madura Strait, the area selected was Gili Ketapang areas, Sumber Asih sub district, Probolinggo district, East Java Province. The selection reason was because the determination the location of Gili Ketapang island has abundant potential cultural, fishing, fish processing. Time study was conducted in May – September 2012. The research method used is descriptive qualitative and case studies, the study approach was ethnographic. This method is used because related to indigenous studies, which used data from informants (Arikunto, 1997). Qualitative research conducted in natural setting and qualitative data collected. More qualitative methods based on phenomenological philosophy that promotes appreciation. Qualitative methods seek to understand and interpret the meaning, an event interaction of human behavior in certain situations (Usman and Purnomo, 2006).

According to Yin (2009), a case study is widely used in social science research, especially traditional disciplines (psychology, sociology, political science and anthropology). Case studies are also often used as a method of research related to study of regional planning, public administration, public policy and management science. This will be very suited to a study about how or why. Case studies are also used as a method of study to complete a qualitative descriptive method. In this study, researcher used an ethnographic approach. According to Mardoyo (2008), Ethnographic studies describe and interpret the cultural, social group or system. Although the meaning of culture is very broad, but in ethnographic study usually focused on patterns of activity, language, beliefs, rituals and ways of life. An ethnographer focuses the attention on the details of local life and connect with social processes broader. In this study, the technique to determine sample is purposive sample, to determine a random sample or random. Because this study use a qualitative descriptive method, when data or information obtained has been representative and considered valid from an informant, then the data is representative for all samples to be studied. In this study, researchers gather information from several community leaders and fishermen on the Gili Island (Mbeté, 2005)

2.1 Data Analysis Method

Data analysis method used in this research is a qualitative method data analysis. This process goes on with: (1) recording, resulting in notes field, coded so the data can still be traced to the source, (2) collecting, classifying, (3) thinking, making annotations, searching and finding patterns and relationships, and making general findings. Inference is done by comparing the data obtained for the six coastal zone management requirements according to Christy (1992).

3. Results and Discussion

The research location is in Gili Ketapang, one village in Sumberasih subdistrict. Gili Ketapang village located in the waterfront/coastal lowlands and the Gili Ketapang village fisheries potential was quite promising. According to information from several Key Informant of Gili population, the Gili islands population is migrants who came from Madura island, precisely from Sampang district. Around early 1991 settlers began arriving to the Gili Island, has mostly livelihoods of fishermen. The reason was the area of origin, ie Sampang district, does not work good potential then they try their lucky on an island that previously only inhabited by some heads of families, who could still counted by fingers. As general culture of Madura people, if someone were successful in a foreign country, that person would invite relatives and friends to be able to follow in the footsteps of success. although it must be hard work.

3.1 The population Condition

Villagers Gili Ketapang mostly Madurese, Madurese language used in everyday life communication. According to several residents interviewed by the author, Madurese ancestors came from the island Sampang district. The total population of Gili Ketapang village in 2011 was 8402 people, consisting of 3941 men and 4461 women. The Islamic religion is majority religion. The composition are 8400 Islamic faiths and 2 Catholic. So Islam is the majority religion of Gili Island community.

3.2 Potential of Local Wisdom

3.2.1 Petik Laut

Fishermen communities believe the ocean authorities in Madura Strait is Prophet Khidr. Petik Laut ceremony is held by coastal fishermen every year before fishing season to honor Prophet Khidr. With this ritual activity, fishermen asked for salvation in sailing and given abundant fish catches. Prophet Khidr is believed to manifest

himself in middle of ocean with white dress and turban. Nevertheless, according to Kusnadi (1992), it is not easy for fishermen to be able to see the event because it is a luck indication. Perception that Prophet Khidr is ocean ruler also found in fishermen community North Coastal of Madura Island.

The tradition of *petik laut* is done every year, but based on the deal Gili island residents, will be held this year or not. After investigators interviews some informants, the date and time of implementation is uncertain. This means that there is no provision on the implementation schedule of *petik laut*. It is because need an agreement, obtained with prior consultation by some leaders and Gili island community. If people want, it will be held *petik laut* in accordance with the Gili Islands want. The composition of the *petik laut* event is as follows :: (1) *Selamedden* (salvation) is done by the Gili islands society, usually led by local community leaders. (2) *Jittekk* (*boat replica*), a replica of the boat was filled with a variety of offerings, from the cone to the cow head and then be floated at sea, accompanied by fishing vessels. The content of this *jittekk* usually head of cow, household appliance (clothes, kitchen ware, everyday human needs), clothing. In fact, the first tradition of *petik laut* use gold and jewels are placed in the ears of the cow's head to be floated. (3) In the evening, the event continued with performances *kreningen* or *tabbuan* or *ketoprak / ludruk*, specifically invited from Madura Island and will be watched together by the people The place is in a west field area of Gili island. Gili Island people call this event a "*kreningan*" or "*tabbuan*". Human relationship with the environment is a necessity. Therefore, man as caliphate on earth have a great responsibility to always maintain the balance. (Mimit *et al.*, 2010). *Petik Laut* ceremony can be added with environment event in order to fulfill local wisdom in fisheries areas management, namely :

- At float ceremony, the released offering is added by fish seeds in large quantities to make environmental benefits.
- In addition to offering float ceremony, it is added transplantation activities at shallow coral reefs around Gili island. This activity requires an expert in his field. Therefore, it needs cooperation with relevant experts without removing the role of Gili islands community.
- At *Petik Laut* entertainment events, which are generally held in two days, in addition to *ludruk Madura* performances, it would be more useful if the government provide education and training to give additional insight and knowledge for society.
- *Petik Laut* Ceremony exactly should be scheduled in every year for sure. This could become a tourism commodity and can add value to Gili islands and should be used as ecotourism location.

3.2.2 *Nyabis*

Nyabis tradition done by almost all the Gili islands society. *Nyabis* done by visiting clerics who trusted and believed to be a spiritual teacher. *Nyabis* by Gili Island community was a process to get blessing, the prayers from clerics. The widespread belief of Gili islands society are with the presence of blessed, all activities, ranging from capture, trade and all the problems can be deal more easily and smoothly. In general, the implementation of *nyabis* done on Friday. According to the assumption of some informants, Friday is a holiday boarding school and clerics will be ready, because they does not teach Islamic students. Generally, Friday was chosen because on Friday the fishermen of Gili island does not go arrests or sea. The vessel will be restyled and painted with lime ship at hull section.

Nyabis culture is done by almost all the Gili Islands society. Although there is no link between the catch or income earned after *nyabis*, the Gili islands still do *nyabis* culture as a form of other effort than real businesses. Local wisdom of *nyabis* was done by small capital fishermen, while big capital fishermen very need data on fishery resources and better catch technology to increase its investment. If local wisdom of *Nyabis* be done, it is intimately related to nature conservation of fish resources, with about 1 day per week, 4 days per month and an average of 48 days fishermen does not sail consciously. It gives fish time to spawn and migration.

3.2.3 *Pengambek*

Patron-client system is a social interaction that always exist almost all fishing community on the Java island. Generally, according to Kusnadi (2000), patron-client relations occurred intensively in a society that facing social problems and the scarcity of complex economic resources. In rural and suburban areas based on agriculture, a patron will help the client as a form of business to address immediate needs, or ease the debt burden on the client. Clients receive the kindness as a "debt of gratitude", respect, and are committed to helping patrons with recruitment resources at their disposal. In some cases in some areas of fishermen communities, patron-client condition is described as "patron help to client in the form of economic aid, which is ultimately the

client will indirectly indebted to the patron". But according to the informants who met investigators, namely Mr. T, the means of *pengambek* in Gili island was vessel whose job is to pick up and bring the catch of fishing vessels, such as *payang jurung*, and then brought to the auction or to a storage warehouse on Gili Ketapang island.

Local wisdom *pengambek* should pursue his role for small fishermen interest with government directives on market information and services amount that must be covered in order not damage fishermen. *Pengambek* is one form of local wisdom in fishermen society. According to Firth (1946), In addition to providing working capital loans to fishermen, the main task of broker (*pangamba*) is conducting market activity continuously so the fish remain available to consumers and save the fish price when fishermen catch little or abundant. Intermediary traders who sell the fish catch among Madura fishermen is called *pangamba* (Jordan and Niehof, 1982).

3.2.4 *Onjem or Rumpon*

Onjem is one way of Gili Ketapang islands society to increase fish catches. This method is a tradition handed down and passed by the Gili Ketapang island, and until now it is still being done. *Onjem or rumpon*, placed over the spot of choice, there are a lot of reefs around the Gili Island. The assumption is that at the top of the reef the fish will gather. *Onjem* in the Gili island is still made in traditional way. The ingredients of these *Onjem* consisted of dried palm leaves, small twigs, tires, rope "slap" and the big rock that serves as ballast. *Onjem* is heredity in nature. Despite being placed right in the middle of the sea, *onjem* is a picture of human adaptation to the surrounding environment. *Onjem* still exist today, in modern science have different shapes and manufacturing techniques are very simple. When going to make an arrest in *onjem*, Gili Island communities that have *onjem* just "using" reference of natural conditions in the surrounding areas, without the help of modern tools and this without any difficulty.

They usually use a tool that could be see as a tree in Gili Islands and the mountains on Java island. *Onjem* culture can be improved and augmented by government participation in providing a good education to make *rumpon*, and expert advice so more *onjem* owned by every citizen. It is expected, bad season condition, although the fish results obtained from *rumpon* is a little, at least it ensure the availability of fish as fishermen main commodity. In addition, the transplanted coral reefs in long term will increase the availability of fish resources at sea.

3.2.5 *Employment Contract*

The employment contract between the employer and crew can occur. If crew have debts to the employer, the crew not have the right to work or move to other employer before he had repaid the debt. Then in terms of sharing, suppose the catch after cashed earn 1 million rupiah, then the first cut the cost of going to sea, for example, two hundred thousand rupiah, while the rest of the RP. 800,000.00 divided between the employer and crew amounted to 300,000 for employer, and 500,000 crew to all who participated. The system of labor recruitment crew in Gili island is unofficial and informal. Here still use a very close kinship. On one condition, according to some informants who met the author, if there is a crew who can not participate in one trip, if total crew is less than seven, then it would not be to sail today.

3.2.6 *Telasan*

Tradition of *telasan* (feast) in island Gili island decided that at 27th of fasting month, 3 day before the feast, all activities at sea already stopped. One day after the feast, new activities resumed. At times like this fish very cheap. Warehouse where the sale of fish is still closed, so the fish price is very cheap. Associated with the feast of Eid al-Fitr, or known as Eid, the Gili islands will conduct consumer culture. It is a culture that is almost evenly in Indonesia. When approaching Eid-ul-Fitr, the expenditure spent on each member of the family head can reach millions of rupiah. Gili island perception is when *Telasan* condition the clothes from top head to toe must be new.

If analyzed deeper, these activities can have a positive impact on the environment, if held a bit longer and consistently and continuously. The effect is giving time to marine life in the arrest exploited to proliferate and regenerate. So that the quality and quantity can be maintained and continued. Local wisdom of *Telasan* will have a positive impact on fish resources sustainability, because voluntarily fishermen does not sail for average 10 days (usually 7 days before and after the feast of Eid al-Fitr). Moreover, *mudik* (go home to village) culture to each respective areas and coming to relatives will distribute local economy, so there is economic equality process. It will be able to alleviate poverty in the area.

3.2.7 *Andun*

Andun is the process of temporary moving caching fish effort by fishermen due to several constraints. One is the effect of bad weather. Gending wind, where the wind is very strong in the middle of the sea and the waves are very malignant, although fish is abundant but the fishermen were reluctant to exchange their safety risks. Generally, Gili island fishermen moved to the Paiton (border of Probolinggo and Situbondo) and Pasuruan. Process *andun* done with the ship and the entire crew were willing to participate *andun* to the location specified

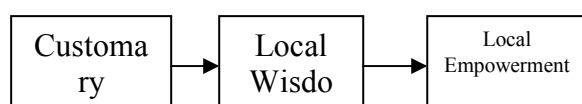
by the Fishing master. Generally, gending wind happened at the months of August to September and the beginning of November.

Andun local wisdom needs to be directed to a new area, even to Exclusive Economic Zone (EEZ), in order to increase fishermen income while maintaining fish resource sustainability. *Andun* means fishermen will not sail voluntarily in their region without having forced, so there are about 3 months for fish resources to recover with spawning or migration. It has positive impact on fish resources conservation. This is similar to local wisdom of *SASI* and *Mane'e* to ensure fish resources sustainability. Moreover, government makes *andun* policy in order fishermen sail to area that still has not managed like ZEE.

Fish type to be caught economically important for export commodity. In addition to conserve fishery resources in Madura Strait, *Andun* also improve fishermen ability of science and technology, thus empowering fishing communities become more modern and improving welfare. Fishermen *Andun* duration depend on income level of the catch. If the income level in fishermen region is little, then the fishermen will seek other areas, in order to make better income, as it did in bantique, Philippines (Illo and Pollo, 1990).

3.3 The concept of Local Wisdom

According to Sulaiman (2010), customary law has two elements, namely: (1) elements of reality, that it is customary in similar circumstances are always considered by the people, and (2) a psychological element, that there is the belief of the people, it mean customary has law enforcement. If it made to become frameworks are follows:



Basic of local wisdom is actually derived from customary law in society. Therefore, not all customary law can be categorized in local wisdom, according to some experts. If a law could be categorized in traditional wisdom, it can be used as guidelines and becoming one tool in the effort to empower community. The goal is an sustainability condition, supporting the environmental, social, without leaving its economy aspect (Grenier, 1998).

Table 1. Local culture condition in the Gili

	PL	NY	PN	ON	KK	AN	TE
A	x	x	x	x	x	x	x
B	x	x					x
C	x		x		x		x
D	x	x	x	x	x	x	x
E	x	x	x	x	x	x	x
F	x	x	x	x	x	x	
G	x	x	x	x	x	x	x
H	x						

Description:

PL: *Petik laut* , NY: *Nyabis*, PN: *Pengambek*, ON: *Onjem*, KK: Contract Work, AN: *Andun*, TE: *Telasan*

A: Traditional, B: Religious, C: Togetherness, D: Concrete and visual, E: Open and simple, F: Changed

(Government and non Government Actors), G: Not codified, H: Deliberation and consensus

Description: a cross (X) indicates the local wisdom nature.

According to Belkes (1995) , local wisdom is cumulative in nature with hereditary confidence, linked between public relations with the environment. According to some experts, local wisdom is distinguished by culture in a given society. Generally, local wisdom has a direct effect on the preservation of the environment inhabited by people. Hereditary and traditional, local wisdom already exists to prevent too open access, which of course, with damaging consequences.

Sulaiman (2010) defines a more detailed local wisdom as "knowledge built by the community for generations, related the relationship with nature and natural resources". Local wisdom of society includes all knowledge related to social sciences, politics and geography. According to Christy (1992) there are six things that must be met as conditions of a local wisdom for environment management, including: a)Condition of natural resources should have obvious characteristics, eg in the form of coral reef or mangrove ecosystem. b). Boundaries must be

clearly owned and is predetermined, for example, the extent to which we may catch fish. c). Caching technology have determined the type of equipment and the type of catch that will be set in the local wisdom. d). Culture, local culture must be modeled in according with indigenous empowerment so it will not clash. e). Wealth distribution must protect existing institutional model. f). Government authorities and agencies. Government authority and assertiveness should also be able to make decisions that should be integrated to other agencies concerned.

In an effort coastal environmental sustainability by empowering local wisdom, then there are two roles: (1). The role of the government to undertake structural changes in the framework of laws and political practices of natural resource management, in this case the government favored the local community, such as the employment contract system and the results are also on the migration of fishermen (andun) stricken Exclusive Economic Zone (ZEE). (2). The Role of Non-Government is the strategy of strengthening local institutions, such as the presence of investors in the tourism sea quotation, also strengthening capital and market information for small fishermen that depend not only on *pengambek*. Old time fishermen andun very dependent on income from the arrest, if the level of income a little fishing in areas of origin, then the fishermen will find other areas, in order to better revenue, as happened in bantique, Philippines (Illo and Pollo, 1990). *Pengambek* and fishing is a strong working relationship in order to overcome difficulties in marketing the catch of fishermen and because of limited capital. On the other hand fishermen are always disadvantaged in partnership, particularly the amount of prices and services specified by the *pengambek* (Acheson, 1981).

Employment contracts applicable to the fishing communities, there is a competition between ship owners to compete for labor or *pandiga* available. Symptoms begin to appear in the presence of such vessels requires more manpower, so no fishing opportunities *pandiga* as workers doing a job on the ship option that gives better results section.

Table 2. Local Wisdom Preview As a Model of Coastal Zone Management

	PL	NY	PN	ON	KK	AN	TE
X1	x		x	x		x	
X2							
X3				x	x	x	
X4	x	x	x	x	x	x	x
X5	x		x		x	x	
X6	x		x	x	x	x	

Description: X1: Natural Characteristics, X2: Limits, X3: Technology, X4: Culture, X5: Wealth Distribution, X6: Government Authorities

Local wisdom in the usage context, as community empowerment tool, must have six elements (Christy, 1992). Therefore, from some local wisdom in Gili island, it can be seen whether it meets the six requirements or not.

3.4 Utilization of local wisdom in context Sustainable development of fishery resources

The natural resources condition continue to be exploited without thinking about the nature balance and sustainable concepts, persistent in global era like this. Market demand continues to be the ruler. It is resulting domino effect on deteriorating environmental conditions. This suggests the importance of an management region integrated and wisely (Tuwo, A. 2011).

3.5 Local Wisdom Empowerment Opportunities

Local wisdom, traditions and cultures in society of Ketapang Gili islands has a great opportunity to be managed and empowered again, so could to regulate the daily lives everyday people and the norms and rules that favor to environment, in the context of coastal and marine resource management. According to several informants and sources encountered by the author, the communities in the study had high enthusiasm when the *petik laut* event will take place. It is also not much different from the adherence conditions to property rights concept of onjem, despite being in communal open access. *Andun, contract work and pengambek* it's no different with the culture and customs that exist in everyday life, where the concept are very religious and adhered to.

Such conditions will be positive on how we will build a model of community-based natural resource management. The existence of systems that have formed a strong and entrenched in society will help incorporate the mindset how to take the best advantage of natural surroundings. Therefore, the such people should become culture and tradition wealth and the most potentially beneficial in community-based management. This can be one of the important instruments in building social forces to attempt the management and utilization of coastal and marine resources (Mickelsen, 2003).

Local wisdom is one of the considerations that should be highly prioritized and more dominant, as it is closely associated with the local communities in direct contact with the development object. It is also based on condition that what is to be built should be accepted as part of daily life of the local community, without any friction or even conflict with the social aspects of cultural life and already developed earlier, before the management model will be built in the area (Akmar and Syarifudin, 2007).

3.6 *Management and Empowerment Model*

The concept of community based management will empower and involve local people as one of the stakeholders that directly in contact with the object to be managed and utilized. It became one solutions to reduce the discrepancy universal central policy amid the characteristics of each region that very different. These different characteristics can be cultural, natural conditions and local human resources. Therefore, we can take advantage of the local community or local agencies if it will assist in customizing the model policies that will be applied (Suhartini, 2009).

Nikijuluw (2003) stated Community Based Management (CBM) is one approach to natural resources management, such as fisheries, which put the knowledge and awareness of local communities as a basis for management. Community Based Management can be defined as a natural resource management system in a place where the local community at the site actively involved in natural resources management contained therein. In the context of local knowledge, local wisdom that suitable with environment preservation, when seen in the condition described in the chapters above, we can look at that two local cultures are equally potential as local wisdom, the *petik laut* and *andum*. Meanwhile, five other local culture is a culture with religious in nature and the dependence of a fisherman society. Even so, there is possibility of the five cultures can be managed as a form of co management concept, though not based on local wisdom. There needs to be some additional concepts to be used as a form of co-management in the concept of sustainable development (Masri, 2010).

3.7 *Building a Community-Based Resource Management Model*

Development strategy of coastal communities in community-based sustainable development plans can be carried out through two approaches, namely, the non-structural and structural in nature. Of the two approaches, the need for local agreements that exist within the community and protected by the local government as a protector against the local agreements are made and implemented in local communities.

3.7.1 *Subjective approach.*

Non-structural approach or a subjective approach that puts human beings as subjects who have the discretion to take initiative and act according to his will, accompanied with an understanding of the concept or insight as the basis for achieving the targets will be achieved (Susilo. et al, 2006.) By providing insight and knowledge in management, although it took a long time, by themselves people are more aware of their own relationship with the environment, and will also form an alternative livelihood. For example, if the dirty environment in Gili island is addressed in forming the concept of ecotourism, it will bring economic resource for the local community. Therefore, Probolinggo government authorities should enhance and broaden knowledge in several ways, such as counseling and training to people actively involved. Examples are : a. Skills development community. b. Increasing the knowledge and insight. c. Increasing public interest in order to participate. d. Improving the quality of formal education of human resources and e. Motivate people to take part. When referring to the explanation above, we can incorporate these steps into some customs and cultures that have been identified on the Gili Island, including:

The *petik laut* tradition, on ceremony schedule there are a few things in mind logically absurd and less useful, without having to replace and eliminate, it is added the event a more useful and direct impact on the surrounding environment and community. *Petik laut* Ceremonies can be modified without removing the original condition, including:

- At floating an offering ceremony, it is added with fish seeds releasing in large quantities so that no environmental benefits can be obtained.
- In addition to float an offering ceremony, it is added activity transplant coral reef at shallow sea around the Gili island. This activity requires skilled workers. Therefore, it was necessary cooperation with relevant experts without removing the Gili islands community participation.
- In *petik laut* entertainment, which are generally held for two days, in addition to the Madura ludruk arts performances, it would be useful if the government provides education and training so that additional insight and knowledge achieved.
- *Petik laut* Ceremony should be scheduled every year for sure. It can be used as a commodity and adding the value in selling tourism Gili islands which could be used as a location for ecotourism.

Community-owned Onjem in Gili islands still traditional and still owned only by few handful people. Under these conditions, the government would better providing a good education in the *onjem* manufacture, the

necessary tools, such as GPS and expert advice, so more onjem owned by every citizen. It hoped, in scarcity condition, although the results not so much, at least ensure the availability of fish as the main commodity of fishermen. In addition, transplantation of coral reefs in the long run will increase the availability of fish in the sea resources. Local wisdom recognition also implement laws from religion. It was done in China country as follows: In-depth analyses show that people's consciousness of ecological conservation was derived from the edification of kinds of ancient eco-ethical wisdom, such as totemism, nature worship, Zhou Yi, Taoism, Buddhism, Confucianism, Mohism, etc. (Maolin Li, et.al, 2010).

3.7.2 Structural approach.

The main objective is to structure the structural approach, the local agency. The system can be formed and the system connects all aspects of life, both in coastal and marine areas and support aspects related, including social, economic and environmental. By structuring the structural aspects, the community is expected to get a greater opportunity to utilize natural resources in a sustainable manner. In addition, the development of social and economic structures are expected to create a vital role for public to participate in protecting the natural resources from inside and outside threats. Therefore, it can be done with these following strategies steps: a. Establish a local institution. b. Develop public access to the decision making process and c. Improve public access to information.

4. Conclusions and Recommendations

4.1 Conclusion

There are seven cultural or traditions in Gili Island Ketapang, namely: *petik laut*, *onjem*, *nyabis*, *andun*, employment contracts, *pengambek*, and *telasan*. From the seven traditions, only six that potentially eligible become local wisdom, for use in building rights to fishing areas, namely *petik laut*, *onjem*, *nyabis*, *andun*, employment contracts, and *pengambek*. There are two approaches to be made on the concept of community development Gili islands, structural and non-structural approaches.

4.2 Suggestion

Petik Laut ceremony can be added with environment event in order to fulfill local wisdom in fisheries areas management, namely :

- At float ceremony, the released offering is added by fish seeds in large quantities to make environmental benefits.
- At offering float ceremony, it is added transplantation activities at shallow coral reefs around Gili island. This activity requires an expert in his field. Therefore, it needs cooperation with relevant experts without removing the role of Gili islands community.
- At Petik Laut entertainment events, which are generally held in two days, in addition to ludruk Madura performances, it would be more useful if the government provide education and training to give additional insight and knowledge for society.
- Petik Laut Ceremony exactly should be scheduled in every year for sure. This could become a tourism commodity and can add value to Gili islands and should be used as ecotourism location.

Onjem culture can be improved and augmented by government participation in providing a good education to make rumpon, and expert advice so more onjem owned by every citizen. It is expected, bad season condition, although the fish results obtained from rumpon is a little, at least it ensure the availability of fish as fishermen main commodity. In addition, the transplantation of coral reefs in long term will increase the availability of fish resources at sea.

Andun local wisdom needs to be directed to a new area, even to Exclusive Economic Zone (EEZ), in order to increase fishermen income while maintaining fish resource sustainability

Employment contract system should be pursued. Government should make rules to create healthy competition in order to avoid social conflict.

Local wisdom of nyabis was done by small capital fishermen, while big capital fishermen very need data on fishery resources and better catch technology to increase their investment.

Local wisdom pengambek should pursued his role for small fishermen interest with government directives on market information and services amount that must be covered in order not damage fishermen.

References

- Acheson, James M, 1981. "Anthropology of Fishing", in *Annual Review of Anthropology*. Vol. 10.
- Akmar A.M. and Syarifudin, 2007. "Mengungkap Kearifan Lingkungan Sulawesi Selatan. PPLH Regional Sulawesi Selatan, Maluku dan Papua". Kementerian Negara Lingkungan Hidup RI. Makasar. Masagena Press.
- Arikunto, S. 1997. "Prosedur Penelitian Suatu Pendekatan Praktek", Ed. V, Rineka Cipta, Yogyakarta.
- Anugerah Nontji, 1993. "Laut Nusantara". Penerbit Djambatan. Jakarta.
- Belkes, Fikret, Peter George and Richard. J. Perston, 1995. "Co-management : The Evolution in Theory and Practise of The Joint Administration of Living Resources". In *Alternatives*, Vol. 18 No.2. Pages : 12-18.
- Christy, Jr, Francis T. 1982. "Territorial use rights in marine fisheries: definitions and conditions. Fishery Development Planning Service", FAO Fishery Policy and Planning Division.
- Firth, 1946. "Malay Fishermen, Their Peasant Economy", London Keagan Paul Trench. rubner&Co.
- Grenier, 1998. "Working with Indegenous Knowledge A Guide to Researchers", International Development Research Centre. PO Box 6500, Ottawa, Canada.
- Hagi P. S. Edi and P. Mimit, 2012. "Kajian Profil Kearifan Masyarakat Pesisir Pulau Gili Kecamatan Sumberasih Kabupaten Probolinggo", FPIK UB. Malang.
- Illo, J. F. and J.B. Polo, 1990. Fisheries, Traders, Farmers, Wives: "The Life Stories of Ten Women in a Fishing Village", Quezon City: Intitute of Philippine Culture, Ateneo de Manila, University.
- Jordan, R.F and Niechof. A. 1982. "Patondu Revisited, A case study of Modernization in Fishery", In Review of Indonesian and Malayan Affairs.
- Kusnadi, 1992. "Rokat Pangkalan. Tradisi Budaya Komunitas Nelayan di Pasean, Madura", Jember. Pusat Penelitian. Universitas Jember.
- _____. 2000. "Nelayan Strategi Adaptasi Dan Jaringan Sosial". HUP Press. ISBN 979-9231-34-5. Bandung.
- Maolin Li, Xianshi Jin, Qisheng Tang. 2010. "Policies, Regulations, and Eco-Ethical Wisdom Relating to Ancient Chinese Fisheries", *Articles Springer Science + Business Media B.V.* Accepted July 14 2010.
- Mardoyo, 2008. "Pengendalian Mutu Kinerja Kompetensi", Jurnal Penelitian.
- Masri, 2010. "Identifikasi Karakter Sosial Ekonomi dan budaya Masyarakat Nelayan Sungai Limau di Kabupaten Padang Pariaman dalam Penyediaan Perumahan Pemukiman", Thesis UNDIP. Semarang.
- Mbete, 2005. "Selayang Pandang Metode Penelitian Kualitatif", Unika Widya Mandira.
- Mickelsen, 2003. "Methods for development Work and Research : A Guide for Practicioners", Nolleo, M (Terjemahan Methode Penelitian Partisipatoris dan Upaya-upaya Pemberdayaan), Sebuah Buku Pegangan
- Bagi Praktisi Lapangan, Yayasan Obor Indonesia, Jakarta.
- Mimit P, Ratih dan Edi S. 2010. "Perilaku Perusakan Lingkungan Masya-rakat Pesisir Dalam Perspektif Islam. Blitar. Jawa Timur". *Jurnal Pembangunan Dan Alam Lestari*. ISSN : 2087-3522. Vol. 1. Edisi1, 2010, 49-58.
- _____, 2011a. "Kebijakan Perikanan Lebih Tangkap (Over Fishing)", Buku. Program Pasca Sarjana, Universitas Brawijaya. ISBN : 978-602- 8624-94-7 Malang.
- _____, dan M .Sahri , 2011b. "Kearifan Lokal Untuk Pengelolaan Sumberdaya Ikan Lebih Tangkap", Buku ISBN : 978-602-8624-95-4. PPS UB. Malang.
- Nikijuluw, Victor, P.H. 2003. "Aspek Sosial Ekonomi Masyarakat Pesisir dalam Strategi Pemberdayaan Mereka dalam Konteks Pengelolaan Sumberdaya Pesisir Secara Terpadu", Direktorat Pemberdayaan Masyarakat, Ditjen Pesisir dan Pulau-pulau Kecil. Departemen Kelautan dan Perikanan. Jakarta.
- Ridwan. N. A. 2007. "Landasan Keilmuan Kearifan Lokal. Jurnal STAIN", Purwokerto.
- Sartini, 2004. "Menggali Kearifan Lokal Nusantara , Sebuah Kajian Filsafati. Jurnal Filsafat", Agustus 2004. Jilid 37 Nomor 2. UGM. Yogyakarta.
- Stefanus, S., 2005. "Pengelolaan Sumberdaya Pesisir dan Laut Melalui Pemberdayaan Kearifan Lokal di Kabupaten Lembata, Propinsi Nusa Tenggara Timur", Thesis, PPS-UNDIP. Semarang.
- Suhartini, 2009. "Kajian Kearifan Lokal Masyarakat dalam Pengelolaan Sumberdaya Alam Lingkungan", *Prosiding Seminar Nasional Penelitian, Pedidikan dan Penerapan MIPA*, Fakultas MIPA, Universitas Negeri Yogyakarta.
- Sulaiman, 2010. "Model Alternatif Pengelolaan Perikanan Berbasis Hukum Adat Laot di Kabupaten Aceh jaya, Menuju Keberlanjutan Lingkungan yang Berorientasi Kesejahteraan Masyarakat", UNDIP. Semarang.
- Susilo. E. Wahyu. H. Dan Riski. A.L. 2006. "Sosiologi Perikanan". Edisi 2. PPS UB. Malang.
- Usman dan Purnomo, 2006. "Metode Penelitian Sosial", Bumi Aksara. Jakarta.
- Tuwo, A. 2011. "Pengelolaan Ekowisata Pesisir dan Laut", Brillian Internasional. Surabaya.
- Yin, Robert. K. 2009. "Studi Kasus Desain dan Metode", Rajawali Perss. Jakarta.

This academic article was published by The International Institute for Science, Technology and Education (IISTE). The IISTE is a pioneer in the Open Access Publishing service based in the U.S. and Europe. The aim of the institute is Accelerating Global Knowledge Sharing.

More information about the publisher can be found in the IISTE's homepage:

<http://www.iiste.org>

CALL FOR PAPERS

The IISTE is currently hosting more than 30 peer-reviewed academic journals and collaborating with academic institutions around the world. There's no deadline for submission. **Prospective authors of IISTE journals can find the submission instruction on the following page:** <http://www.iiste.org/Journals/>

The IISTE editorial team promises to review and publish all the qualified submissions in a **fast** manner. All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Printed version of the journals is also available upon request of readers and authors.

IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digital Library, NewJour, Google Scholar

