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MANAGEMENT OF AQUATIC ECOSYSTEM BASED LOCAL SOCIETY'S KNOWLEDGE: A CASE STUDY OF IKAN LARANGAN IN PANDAM GADANG, WEST SUMATERA, INDONESIA

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Abstract

Minangkabau community is a majority ethnic lived in the West Sumatra province. We can find a local wisdom in this province related to environmental conservation such as ikan larangan. it is part of river to be forbidden area to fish within certain limits and span of time. The researchers interested to discover it which is located in Pandam Gadang village, West Sumatera province. The aims of research is to explore the local wisdom of ikan larangan which is located in Pandam Gadang village and to analyze conservation values contained it. We use interview, observation and documentation are used to collect data. Respondents involved in this research are elders and people in the community purposively. The results showed that the local community made a part of river as ikan larangan divided 3 zones and those areas have conservation values such as protection, preservation and sustainable use.

Keywords

Ikan larangan, Local Wisdom, Environment, Conservation

1. Introduction

Local wisdom comes from two words such as local and wisdom. Local means an inhabitant of a particular area and wisdom means the quality of having experience, knowledge and good judgement. So we can conclude that local wisdom is an idea having a wise. The characteristics of local wisdom that are: (1) able to survive from outside culture; (2) has the ability to accommodate elements of outside cultural elements; (3) having the ability to integrate the outside culture with the original culture; (4) able to give direction to the development of culture (Ayatrohaedi, 1986). In general, local wisdom is an idea developed in a community who have good and wise values and followed by local community (Prasetyo, 2013). Local wisdom as a culture developed in a community can influence education because students had been shaped earlier by local culture than educational theories (Sudiatmika, 2013).

Indonesia is one country in the world which has many local wisdoms. We can find a lot of traditions in each province and they are still preserved by local community. Cultural diversity in Indonesia is influenced by some factors such as race and tribe (Wulandari, 2010). As we know that local wisdom is an ancestral heritage having values of life and blended in the form of religion, culture and custom (Sukmawati, Utaya, & Susilo, 2015). It is still maintained by local people because they believed it has a good value.

West Sumatra is one of the provinces in Indonesia which is located in the central of Sumatra island. Its width is 42,012.89 km² and inhabited by 5,383,988 people (Kemendagri, 2017). The majority of people in this island is Minangkabau ethnic which have a culture called as Minangkabau culture. The province has 19 regencies whose society still preserves traditions inherited by their ancestors. Besides of having administrative leader and a governor, the local community have elders (*niniak mamak*) in each region. *Niniak mamak* is one of the stakeholders involved to make policy, i.e. managing of *Ikan larangan* area.

Ikan larangan is one of the local wisdoms of the Minangkabau community in the West Sumatra province. Approximately 80% of West Sumatra has *ikan larangan* area still preserved by local community (Ilhami & Riandi, 2017). This local wisdom preserves river areas, reservoirs, or lakes within certain limits and certain rules. In general, the communities form some parts of a river area into a forbidden area to catch and consume the fish. Then, the local

government and the elders have important role to manage this local wisdom. *Ikan larangan* area is protected by both criminal and social law. The people who violate this regulation such as stealing the fish will be sentenced in accordance to prevailed regulation. In some areas, people are afraid to catch the fish because of superstition from generation to generation. They believe that the act of stealing the fishes can cause suffering or disaster (Putri, 2016).

The study of *ikan larangan* had been done in many areas in West Sumatra. In Dharmasraya regency, people made Pangian river along 1 km known as *lubuak larangan* (Pawarti, Purnaweni, & Anggoro, 2012). Then, in Kapur IX sub-district, Limapuluh Kota regency, people made kapur river along 700 m as the prohibited area to catch fish (Yuliaty & Priyatna, 2014). The people in the Barung Barung Balantai, Pesisir Selatan regency made *ikan larangan* in the Batang river (Firdaus & Huda, 2015). So, researcher interested to explore one of famous *ikan larangan* areas located in Pandam Gadang village, Limapuluh Kota regency.

In the other hand, based on Indonesia Law No. 5 of 1990 about the conservation of natural resources and ecosystems, There are conservation principles such as protection, preservation and sustainable use. The protection means the maintenance of ecological processes that support the viability of life to improve the welfare of the community. Preservation of the diversity of plants and animals and their ecosystems, carried out by maintaining the integrity of the nature reserve area to remain in the original state. Then the sustainable use of biological resources and ecosystem can be done through the utilization of environmental conditions or living creatures in the form of plants or animals. So the principal objectives of the study were as follows

- to study characteristic of local wisdom *ikan larangan* located in pandam gadang
- to analyze conservation values contained within it.

2. Methodology

This research used qualitative approach which reveals sosial situation and described a reality correctly (Satori, 2014). to explore *ikan larangan* area located in Pandam Gadang village, Limapuluh Kota regency, West Sumatera, we were collected through observation and deep-interview. Observation technique use observation sheet and was supported by camera. Deep-interview involved three elders in Pandam Gadang village as research respondents. They are key informants who have knowledge about historical *ikan larangan* in Pandam Gadang. Interview

analysis use triangulation methods comparing information based on interviewing (fig.1). And then, information based interviewing elders was strengthened by direct observation and documentation used camera

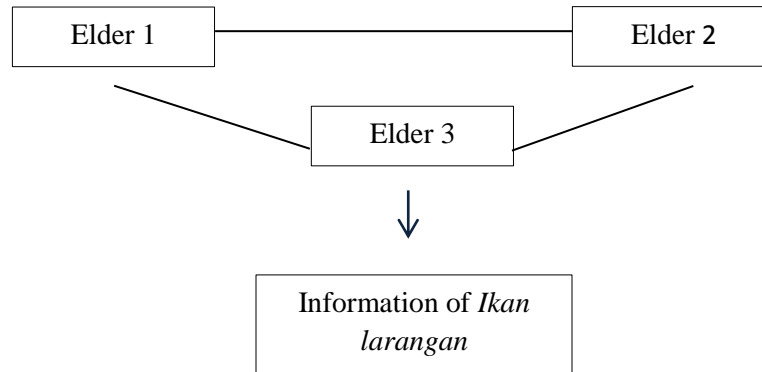


Fig 1: *Triangulation subject*

to analysis conservation value, we use documentation technique. We analyze it based on conservation principle according to Law No. 5 of 1990 about the conservation of biological natural resources and ecosystem by Ministry of Marine Affairs and Fisheries Republic of Indonesia.

3. Result

3.1 Description of ikan larangan in Pandam Gadang

Pandam Gadang village is passed by a river. The society of the village divided the river into 3 zones known as ikan larangan. In the areas, the people are forbidden to catch and consume freely because of bound by rules. The researcher gives the coding A, B and C area to facilitate the naming of each region of river as illustrated below

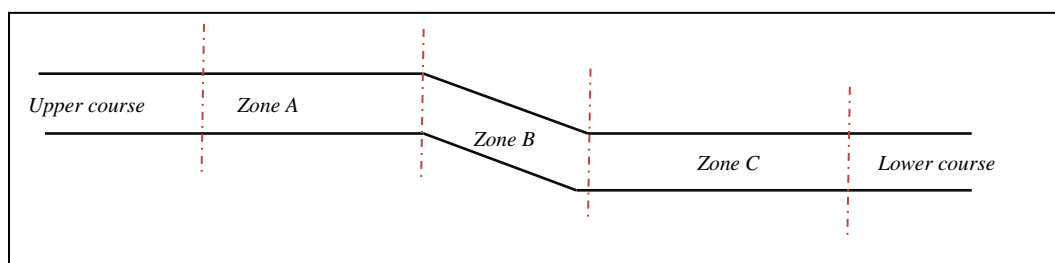


Fig 2: *Map of river Ikan larangan area in Pandam gadang, Limapuluh Kota regency*

Then we can see the view of *ikan larangan* area on the figure 2 below

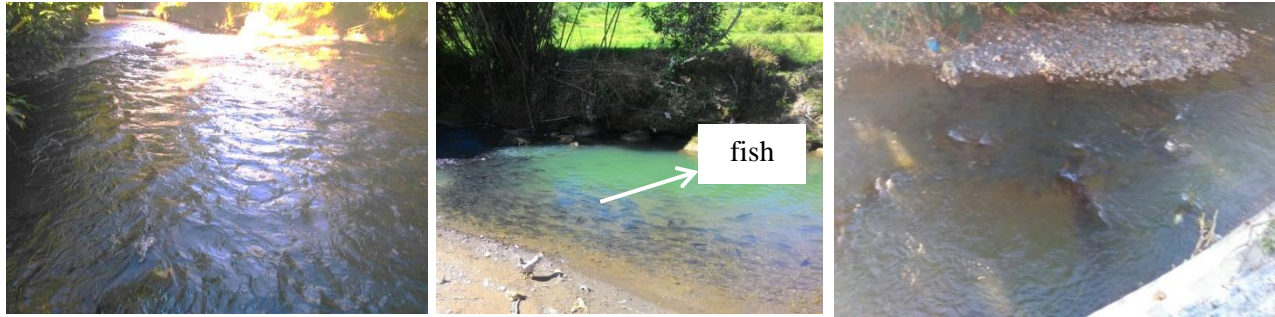


Fig. 3: Ikan larangan area zone A, B and C

In figure 1, there are 3 zones to be forbidden area. Each zone has different characteristics and system management. Zone A which is located next to the upstream is managed by mosque management. The management usually determine harvesting period of once a year. They held an open fishing event by paying the registration fee and set a specified time limit. Similar to zone A, zone C which is managed by a youth organization in the village as known karang taruna determine harvesting system into one a year. However zone B differs from zone A and zone C. Based on information from local elders said that zone B is the oldest prohibition area (since dutch colonial) than other zones. Zone B is not fixed harvesting system forever. The society has the belief that the location has magical powers installed by the previous elders. They believe that whoever steals and consumes the fish then he will get the calamity and the belief is still existed until now. they are said,

Elder I :”This area (zone B) made since 1812 when Indonesia was in the dutch colonial period by previous elders and people prohibited to eat the fish”

Elder II :”This area (B) believe has udua (a magical power) and the people afraid to consume the fish ”

Elder III :”Anyone eaten the fish in the area would get disaster such as stomachache

3.2 Conservation values contained in the local wisdom of ikan larangan

The management system of ikan larangan area was analyzed based on the conservation principle according to Law No. 5 of 1990, RI about the conservation of biological natural resources and ecosystem. It can be seen on table 1

Table 1: *Analysis of the management system of ikan larangan area and Conservation value*

No	Management system of <i>ikan larangan</i>	Conservation value
1	Prohibition to fish in <i>ikan larangan</i> area and to damage the environment	Protection
	Have customary and official law	
2	Not applying the harvesting system to area B because the society believe has magical value	Preservation
3	Harvesting is carried out once a year on areas A and C	Sustainable use
	The society may to fish outside the boundary of the prohibition area	

4. Discussion

Ikan larangan area in Pandam Gadang is the practice of conservation of fishery resources based on local knowledge. Local knowledge is the knowledge society has through their life experiences in interacting with people, natural resources and objects around the region. The local wisdom became a model of community-based fisheries management by prohibition of river within a certain period of time. Communities made the river which has relatively quiet flow to be a location of ikan larangan. Fish generally tend to breed in a relatively calm river flow. And then ikan larangan has rules that bind the whole community in treating nature both customary rules and government rules (Yuliaty & Priyatna, 2014).

The Ikan larangan has the main functions of ecology, economy, tourism and social. Ecologically, it can protect the existence of local fish species, become fish breeding areas and maintain the cleanliness of the river environment. In the ikan larangan area in pandam gadang set some zones. So, the system managed by society same with the zonation system of marine conservation areas by marine and fishery ministry. This zone consists of core zones, sustainable fisheries zones and utilization zones. The core zone has a role as a spawning, nurturing and areas that should not be disturbed by humans. In area B of ikan larangan became the core zone. Economically, the revenue from harvesting contributes to rural development. Revenues earned in zones A and C have a percentage of revenue sharing with the village goverment. So that funds can be used by the village government in the development process. By tourism, the area became a recreation area for the community. Many people outside the region visited only to see fish fish

contained in the ikan larangan area. Because zone B is not applied harvesting system, fish in the area more than other area so that people call it ikan banyak. The type of fish that is preserved in the area is the fish that already exist in the river such as garing fish (*Tor tombroides*). The fish is one of the original fish group of Indonesia and the people usually consume its meat. This fish has a large body weight and is classified as an omnivore in the original habitat (Haryono, 2006). Socio-culturally, the community also conserves the local wisdom of the ancestors and a means of social responsibility for the sustainability of natural resources.

Ikan larangan of Pandam Gadang village is a conservation based on local knowledge. as we know, one of the functions of local wisdom is the conservation of natural resources. Conservation contains an understanding of protection, preservation and wise use of natural resources aimed at promoting the conservation of natural resources and the balance of ecosystem to improve the welfare of society (Ministry of Marine Affairs and Fisheries Republic of Indonesia, 1990). Local wisdom formed by the community is a form of realization of community obligation as part of local community to take conservation action. The community uses the custom and constitutional law in order to preserve the nature of one of the local wisdom of ikan larangan.

The Ikan larangan area has the principle of protection. The determination of the policy of prohibition to fish and have both customary and official law. Customary law, for those who violate the rules will be called along with elders/ niniak mamak respectively. Niniak mamak is a customary term in the social system of minangkabau society and they has big role in social life of society. The minangkabau people has niniak mamak as tribal leader. The leader is urgent to keep culture in society. Result of research about yoruba culture in africa showed that africa's succsees depend on african leader (Rotimi, 2016). If people breaks the law, determination of penalties based on information and deliberation from related parties. Usually the fine is some sacks of cement. Then the local government through the fishery department also took part by issuing legislation to maintain the sustainability of ikan larangan area. Because this area has became to attracts tourists to visit, a legal law is needed as a preventive measure to keep the area from committing crime. Based on Law No. 31 of 2004 states that anyone is forbidden to catch fish in ikan larangan area, using explosives, other actions that damage the environment causing interference of survival the organism inside, the act will be classified as a criminal act with a maximum imprisonment of 6 years and a fine of up to 1.2 billion rupiah. The role of law is

important as a means of social control example law enforcement and tax measure can control administration of waste management (Wongchummali and Pampasit, 2017). This provides restrictions for people who commit deviant acts and accept the consequences of the deeds performed. In essence the role of law as a social control aims to achieve stability with harmony and community change (Iriani, 2016).

This area also contains a preservation principle with the establishment of area B as an area that should not be harvested. Local people believe that in the area has a spiritual power. Based on the explanation of one of the elder that the previous elders gave the *mantra* or the community knew it with *udua*. For those who consume fish in the area will experience abdominal pain characterized by a large stomach. Scientifically, the determination of the location of area B provides benefits to preserve fish species. This is same with the zonation system of the breeding conservation area regulated by the ministry of marine and fisheries.

The principle of sustainable utilization in this area is indicated by the harvesting system in zones A and B. Zone A is managed by the mosque management which is harvested at an average of once a year. Zone C is managed by the youth organization which is also an average once a year. However, harvesting time is relatively more conditional given the purpose of harvesting at this location is usually to raise funds in holding certain youth events. This proves the existence of this area gives consumptive value for the surrounding community.

5. Conclusions

Local wisdom of ikan larangan located in Pandam Gadang, Limapuluh Kota regency is a conservation of aquatic ecosystem based on local knowledge which is divided into 3 areas with different characteristics and management system. Those areas contained conservation values such as preservation, preservation, and sustainable use. So, government have to more attention to the area in order to still preserved and science teacher can use this context for science learning. Because the research only did one of areas in West Sumatera, The next research can be developed to explore other area of ikan larangan in the West Sumatera.

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