

Local wisdom in preservation of Lake Toba ecosystems (study on Toba Lake community in the Village of Silalahi I, Sub District of Silahisabungan, Dairi Regency, North Sumatera Province)

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Abstract. This study aims to analyze the perception of Batak Toba community in Silalahi I Village, Silahisabungan Subdistrict to the existence of Lake Toba, local wisdom owned by Batak Toba community in Silalahi I Village, Silahisabungan Sub District in order to preserve Lake Toba and recommend policy to revitalize it which is still running, which runs partially or which has not been done at all. The type of research used in this research is descriptive research with qualitative analysis. Data collection was conducted by interviews with key informants and informants i.e. community leaders, religious leaders and customary leaders in the study sites. The results showed that the perception of the Silalahi I Village community of Silahisabungan subdistrict to the existence of Lake Toba is a source of life. That means Lake Toba is a source of sustenance, a source of livelihood such as a place to fish, where to put floating net cages and as a sustenance of tourism activities. The form of local wisdom in preserving the area of Lake Toba is the existence of some sacred places such as *Nauli basa*, *Partonunan stone (Deang Namora)*, that the entire area of Lake Toba called *Tao Silalahi* controlled by aunty (*Naboru*) *Deang Namora* is a purified area so prohibited spit, wearing jewelry, doing immoral, bathing over 6 o'clock, bringing and eating pork or dogs, bathing naked in the lake, laughing until laughing, and for women if there is a long hair should tie and If you want to take a bath must first permit the grandmother (*oppung*) guard lake. All local wisdom is still done because they still believe, although there is also rarely done. An effective way to revitalize the existing wisdom locals is to continue to perform the ritual or ceremony of the *Statue of Silahisabungan* once a year, and continue to obey the advice given by the King of *Silahisabungan* called *Poda sagu-sagu marlangan*.

Keywords: local wisdom, preservation, Lake Toba ecosystem, revitalization

1. Introduction

Lake Toba area is one of Indonesia's flagship tourism area located in North Sumatra Province. Lake Toba area has been designated as a national strategic area and national tourism object. Utilization of resources that occurred during this example is the depletion of forest area that converted into fields, Imperata, shrubs, and settlements, as well as environmental pollution from agricultural activities and



home industries (BLH Provinsi Sumatera Utara, 2011) [1]. Similarly, forest fires because some of the community to burn Imperata to get the young grass as fodder. Utilization of Lake Toba natural resources also resulted in water pollution, such as residential areas, livestock, agriculture, tourism, and trade activities including markets, hotels and restaurants and water transportation activities. The impact of all these activities is the production of domestic waste and waste that directly or indirectly will enter into the waters of the lake.

For that, we need a collaborative strategy of environmental management in the Lake Toba Region in the form of revitalizing Batak culture and local wisdom. This study aims to analyze the perception of Batak Toba community in Silahisabungan Subdistrict to the existence of Lake Toba and analyze local wisdom owned by Batak Toba community in Silalahi I Village Silahisabungan District to preserve Lake Toba and to recommend the revitalization form of wisdom which is still running or already rarely done.

2. Literature Review

Culture is the whole system of ideas, actions and the work of human beings in the framework of the life of the society which is made human self by learning (Koentjaraningrat, 2009) [2]. The environment according to Salim (1986) [3] defined as all objects, conditions, circumstances, and influences contained in the area that we place and affect the living things including human life. The boundaries of environmental space in this sense can be very broad, but for practically limited environmental space with factors that can be reached by humans such as political factors, social factors, economic factors, natural factors and others.

According to Terry Rambo, human ecology essentially applying ecological concepts systematically in the assessment of human populations. The ecosystem and sociosystem approach expressed by Rambo (1981) [4] states that the scope of human ecology can be analytically divided into socio systems and ecosystems.

In general, local wisdom is the local ideas that are wise, full of wisdom, good value, which is embedded and followed by members of the community. In the Anthropological discipline known as local genius. While Moendardjito (in Ayatrohaedi, 1986: 40-41) [5] states that the potential regional cultural element as local genius because it has been tested its ability to survive until now. The characteristics of local wisdom are as follows.

- able to survive against the outside culture;
- able to accommodate elements of external culture;
- able to integrate elements of outside culture into indigenous cultures;
- able the ability to control;
- able to give direction to the development of culture.

In local wisdom, also contained local cultural wisdom. Local cultural wisdom itself is a local knowledge that has been so integrated with the belief system, norms, and culture and expressed in traditions and myths embraced in the long term. According to Bulmer (1982: 66)[6], the knowledge of society, whether living or abandoned but having lived for long periods of time and being a traditional way of life is important for two reasons. First, scientific research on growing plants and animals can be accelerated by using local people who know it. Second, it is an honor for the knowledge and cultural context that allows the use of such knowledge for conservation efforts.

The traditional wisdom of a community is often a very useful rule for conservation, as Poffenberger (1990)[7] and Alcorn and Molnar (1996)[8] have pointed out. Basically, rural communities have traditionally taken traditional conservation measures. Ecological evidence for the positive impact of human activities in some areas justifies the participation of local communities in environmental protection, management, and recovery. They have a very rich knowledge of their natural environment, which can be used to design more effective natural conservation management strategies, which tend to involve local communities within them. The general view of the Natural Conservation and Integrated

Development (NCID) project, specifically assumes that effective management of natural resources and their sustainable use should incorporate traditional management practices, and include local people from the planning stage (Eghenter and Bernard Sellato 1999) [9].

In Indonesia has a lot of research on local wisdom such as those relating to coastal ecosystems as did Zulkarnain et al. (2008) [10], Juniarta et al, (2013) [11], Zamzami (2016) [12] and the conservation of Lubuk Larangan by Yuliati and Fatriyadi (2014) [13]. Local wisdom about coastal ecosystems is primarily concerned with (i) determining fishing time based on weather and seasons; (ii) developing fishing gear and clamshells, and; (iii) determine the area of mangrove logging. Including relating to (iv) ceremonies of respect for the sea; (v) a commitment not to capture and kill dolphins, throw garbage into the sea, using fishing gear (*songko*) engaged in fishing and collecting shells, and; (vi) maintaining the mangroves around the coastline. Including the functions and benefits of local wisdom in the community, building a community-based management model based on local wisdom.

Other research on local wisdom in coastal and marine areas is local participants of Lamalera community an expression of human relations to sea (Kurniasari and Elly Reswati, 2011) [14]. This study aims to see the local wisdom established by a fishing community viewed from a psychological perspective environment.

Also research on local issuance of community empowerment in management and development of sustainable fishery resources (Ibad, 2017) [15]. This research aims to find out how local wisdom Situbondo community in managing and developing sustainable fisheries resources.

Then, how local communities have knowledge in managing the resources of river water fisheries in the context of the Lubuk Larangan. Lubuk Larangan not only a practice utilization of fish resources but in it, there are rules, mechanisms of distribution of rights and customary organizations. Besides explaining the complexity of the dynamics of social institutions of fishermen with the environment around the coast in the form of the management of marine tourism culture based on the phenomenon of local wisdom.

Research local knowledge related to forests are done by Suhartini (2016) [16] Takiddin (2014) [17], Akbar (2011) [18], Hasbullah (2014) [19], Permana, Raden Cecep Eka, et al. (2011) [20], the bamboo forest is done (Yuliani et al, 2017) [21], forest and swamp is did by Kumun et al, (2010) [22] and forests do by Saleh (2013) [23]. There is also a related research with forest fires which still contained wisdom values espoused related to fire prevention. Also writing about culture Baduy people in disaster prevention. The results showed that: (1) the Baduy society who always do the slash-and-burn forest to make fields (*huma*), there was no catastrophic forest fires or landslides in Baduy area; (2) in many settlements Baduy area adjacent to the river, not flood, (3) although the house and Baduy community buildings are made of flammable materials (wood, bamboo, rumbia, and fibers), rare fire incidents occur. And (4) Baduy region which is included in West Java earthquake area, there is no damage to the building due to earthquake disaster. Further research on the conservation of Bamboo-Based Forest Local Wisdom in the Village Traditional Village Penglipuran Bangli, Bangli Regency of Bali Province.

Other research on the linkage of local wisdom with community development conducted Purwowibowo and Nur Dyah Gianawati (2016) [24]. Bottom-up community development aims to explain that all activities initiated or conducted are controlled by the local community with informal leaders and members. While research of local wisdom related to lake ecosystem is Rahadiani, A.A.S Dewi et al, (2014) [25] which identifies and analyzes community participation around Lake Beratan in conserving water resources.

In addition, local wisdom studies are also conducted in relation to forests, such as those conducted by Senoaji (2014) [26] on the use of forests and the environment by Baduy people in Banten Selatan and Permana et al (2011) [20] on forest utilization and disaster mitigation by Baduy people in South Banten, and Research on Bamboo forest in Bali by Yeni et al (2016) [27], and how Orang Rimba in Jambi views the forest. There are also some studies of local wisdom related to the environment and natural resources in general as conducted by Indrawardana (2011) [28] which examines the local wisdom of Sunda Kanekes people who are very familiar with the environment, or made by Saleh

(2013) [23] about the Kaili community in Central Sulawesi who has a local wisdom that is still exist in the connection between human and nature.

The research of ecological wisdom related to lake ecosystem has been done by Rahadiani (2014) [25] who analyzing community participation around Lake Beratan in conserving water resources while research relating to Lake Toba is still limited to the conservation model of Lake Toba water resources (Sihotang, 2012) [29] reviewed by the soil and environmental conservation disciplines. However, research on local wisdom related to the preservation of the ecosystem of Lake Toba still not much done.

3. Research Methods

The type of research used in this research is descriptive research, with the qualitative approach. Interviews were conducted on informants and key informants i.e. community leaders, and religious leaders as well as customary leaders in the study sites. Community leaders, in this case, are people or organizations whose daily activities relate to the preservation of Lake Toba ecosystem based on local wisdom. Data analysis is done simultaneously with data collection process (on going analysis). Qualitative analysis is done following the process, among others, data reduction, data presentation, discussion and drawing conclusions based on the reduction and presentation of data that has been done previously.

4. Results and Discussions

4.1. Perceptions of Silalahi Village community against Lake Toba ecosystem

Silahisabungan sub-district is the cultural area of the Toba Batak ethnic group that belongs to Silahisabungan clan group. Group Marga Silahisabungan there are 8 clan (marga) that is 1. *Sihaloho*, 2. *Situngkir / Sipangkar / Sipayung*. 3. *Rumasondi / Rumasingap / Silalahi-Sihaloho / Silalahi-Sinabutar / Silalahi-Sinagiro / Silalahi Sinabang / Nadapdap / Silalahi-Sinurat / Nadapdap / Doloksaribu*, 4. *Sidabutar*, 5. *Sidabariba*, 6. *Sidebang*, 7. *Pintubatu / Sigiro* and 8. *Tambun / Tambunan*.

Perception of Silalahi Village Village I Silahiabungan District to Lake Toba existence is a source of life. That means Lake Toba is a source of sustenance, livelihoods such as fishermen catch fish such as *Mujair* fish (*Oreochromis mossambicus*), *Goldfish* (*Cyprinus carpio*), *Batak* fish (*neolissochillus Thienamanni sumatranus*), until *pora-pora* fish (*Mystacoleuseus padangensis*) *Tilapia* (*Oreochomis niloticus*) and now lobster (*Nephropidae*), a place to put floating net cages and as a supplement to the sustenance of tourism activities.

4.2. Local wisdom in the community of Silalahi Village Silahisabungan District in preserving the area of Lake Toba

Some form of local wisdom in the village community Silalahi I Subdistrict Silahisabungan in the preservation area of Lake Toba is the sacred place that is *Nauli Basa*, (*Partonunan stone Liang Namora*) and the whole area of Lake Toba is located in the region Silahisabungan called lake (*Tao Silalahi*) controlled by aunty *naboru Deang Namora*. *Partonunan stone* or *Siliang Namora* is where aunty *Naboru Deang Namora* lived the rest of his life. The story is where aunty *naboru Deang Namora* weave. This place is sacred, that is not to spit or remove dirt. *Tao Silalahi* is the area of the lake is considered sacred so is forbidden to spit, shit, wear jewelry, do immoral, as well if you want a shower should ask permission first to *Grandma (Opung)* guards the lake, should not shower over at 6 pm, not allowed to bring and eat pork or dog at the edge of Lake Toba, should not bathe naked in the lake, and banned from laughing until uproariously, as well as for women if there are long-haired must be tied.

The form of local wisdom above is in accordance with what is said by Keraf (2002)[24], and Gobyah (2009)[25] is a form of knowledge, belief, understanding, or insight and custom or ethics that guide human behavior in life in the community and also the truth has been used or steady in an area.

Therefore, local wisdom can be interpreted as a value that is considered good and right that took place for generations and implemented by the community concerned as a result of the interaction between humans and their environment.

The results also indicate the existence of various forms of local wisdom such as social institutions or social sanctions are customary institutions King (*Raja Silahisabungan*) which also has sanctions and advice to descendants called *Poda Sagu-sagu Marlangan* which include contents descendants of the clan Silalahi must love one another and may not engage in quarrels and disputes. There is also a local wisdom associated with forest conservation ie entering the forest must keep the deeds and words as do not say rough and loud. Also, they believe that the water source of the community in the village of Silalahi I named *Aek Sipaula Hosa* (water that restores breath) is believed to cure various diseases, therefore until now still maintained its sustainability. *Aek Sipaulak Hosa* is also used as a source of drinking water for Silalahi villagers by channeling water through pipes to people's homes.

The function of local wisdom is 1) for the conservation of natural resources, 2) for human resources development, for example in relation to life cycle ceremony, 3) for the development of culture and science, for example, ceremonies of a certain custom, and 4) as advice, beliefs, literature, and taboos. In the case of local wisdom in the village of Silalahi I there is also a local wisdom that serves for the development of culture and science that is the Statue (*Tugu*) Ceremony. The ceremony is still done and done for three consecutive days. The ceremony consists of pilgrimage, giving offerings, and eating together. The purpose of the ceremony to commemorate the history of the descendants of the clan of *Silahisabungan*.

Previously, if there were people who married the same clan (*endogamy marga*) sanctioned that is drowned in the lake but now sanction is only driven out of the village. The purpose of the Statue party in Silalahi Village to strengthen the relationship of friendship rope (*pomparan*) Silalahisabungan in the world. Also to remind the younger generation to preserve Silahisabungan ancestral culture. Another purpose of the statue party is to ask for blessings, ask for health, abundant harvest and thank the ancestors (*grandpa=oppung*) Silalahisabungan. This statue party is also a container for descendants (*pomparan*) Silalahisabungan in order mutual respect and love among them in a kinship system *Dalihan Na Tolu*.

Until now, no efforts have been made by Silalahi I villagers, as well as traditional leaders, religious leaders, and government either village government to the district and district government to maintain or revitalize the overall local wisdom in the area Silahisabungan make it a legal umbrella such as Village Regulations or Regional Regulations. In fact, there are also religious leaders, especially those from Protestant Christianity HKBP which considers local wisdom as a polytheistic activity or violate the religion.

Other local wisdom in the village of Silalahi I is the activity of *Martua Oma-oma* that is the ceremony to ask the blessing to God (*Mula Jadi Na Bolon*) before planting rice in farm or *sawah*. *Martua Oma Oma* is a ritual that is done by slaughtering buffalo and then distributed to people to be cooked and added by making the cake (*itak gurgur*) which then prayed together. Before slaughtering the buffalo given lime, (*citrus hystrix*), then prayed to the God and it was distributed to everyone.

Local wisdom existing in Silalahi village are still held, and there is a proposed to do revitalization. Based on interviews with informants, they stated that all local wisdom is still done. The reason they keep implementing the local wisdom is that they believe and are proven in everyday life. For example, the belief in the local wisdom of *Simanappang* is the northern part of Silalahi Village guard, stating that if any one who intends evil will come to the village, it will sound like a bell. The voice was made a marker by the villagers. The sound of the bell came out without any realization. *Simanappang* area was also used as a place to put offerings to ask something of a desire to God (*Oppung Mula Jadi Na Bolon*). According to informants that not long ago still heard a sound like a bell (*pagar sigiring*) sounds and it is also believed that no buffalo would pass through this area because of the sacred.

Another example is the *Sitappar Api (Nauli basa)* sacred place that is sanctified so as not to spit and dispose of dirt, should not wear jewelry. A place to pray for God (*Oppung Mula Jadi Na Bolon*). *Nauli Basa* is a village guard in the South. Likewise, the guard of the lake aunty *Namboru Deang*

Namora who still believed because there are still a few days ago women from Sidikalang drowned in Lake Toba for violating abstinence that is wearing jewelry and excessive laughter.

Likewise with the *Partonunan Stone* or *Liang Namora* that until now still area sacred for the pilgrimage to pray for descendants and other prayers both pilgrims who are Christians and Muslims.

But there is also rare local wisdom like *martua oma-oma*, in the last ten years still once done, the reason is that the cost is very big to distribute the buffalo meat to the entire community of Silalahi Village.

How to duplicate local wisdom that still exists, and revitalizes local wisdom that some still do and have not done at all. An effective way to revitalize the existing wisdom locals is to continue to perform the rituals of statue (*Tugu*), and keep the messages / advice (*Poda sago-sagu marlangan*) whose contents are: love each other, keep agreeing to love each other, all the descendants of Silahisabungan fair and impartial if there is a dispute between the descendants of Silahisabungan.

5. Conclusion

Perception of Silalahi I Village Silahiabungan District to Lake Toba existence is a source of life. That means Lake Toba is a source of sustenance, livelihoods such as fishermen catch fish, after that the floating net cages and as add sustenance of tourism activities.

Forms of local wisdom in the village community Silalahi I Sub Silahisabungan in the preservation area of Lake Toba is the sacred place *nauli basa*, *partonunan stone (Liang Namora)*, the whole area of Lake Toba called Tao Silalahi controlled by namboru Deang Namora that sacred so it is forbidden to spit, shit, to wear jewelry, to do immoral as well if you want a shower should ask permission first at grandma (*Opung*) guards the lake, should not shower over at 6 pm, should not be brought and eating pork or dog, in the edge of Lake Toba, should not bathe naked in the lake, and banned from laughing until uproariously, as well as for women if there are long-haired should be tied up. Local wisdom is still done, but some are rarely done. How to revitalize local wisdom which is still partly done and has not done at all is to comply with messages/advices *Poda sago-sagu marlangan*.

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