

P-ISSN: 2338-8617

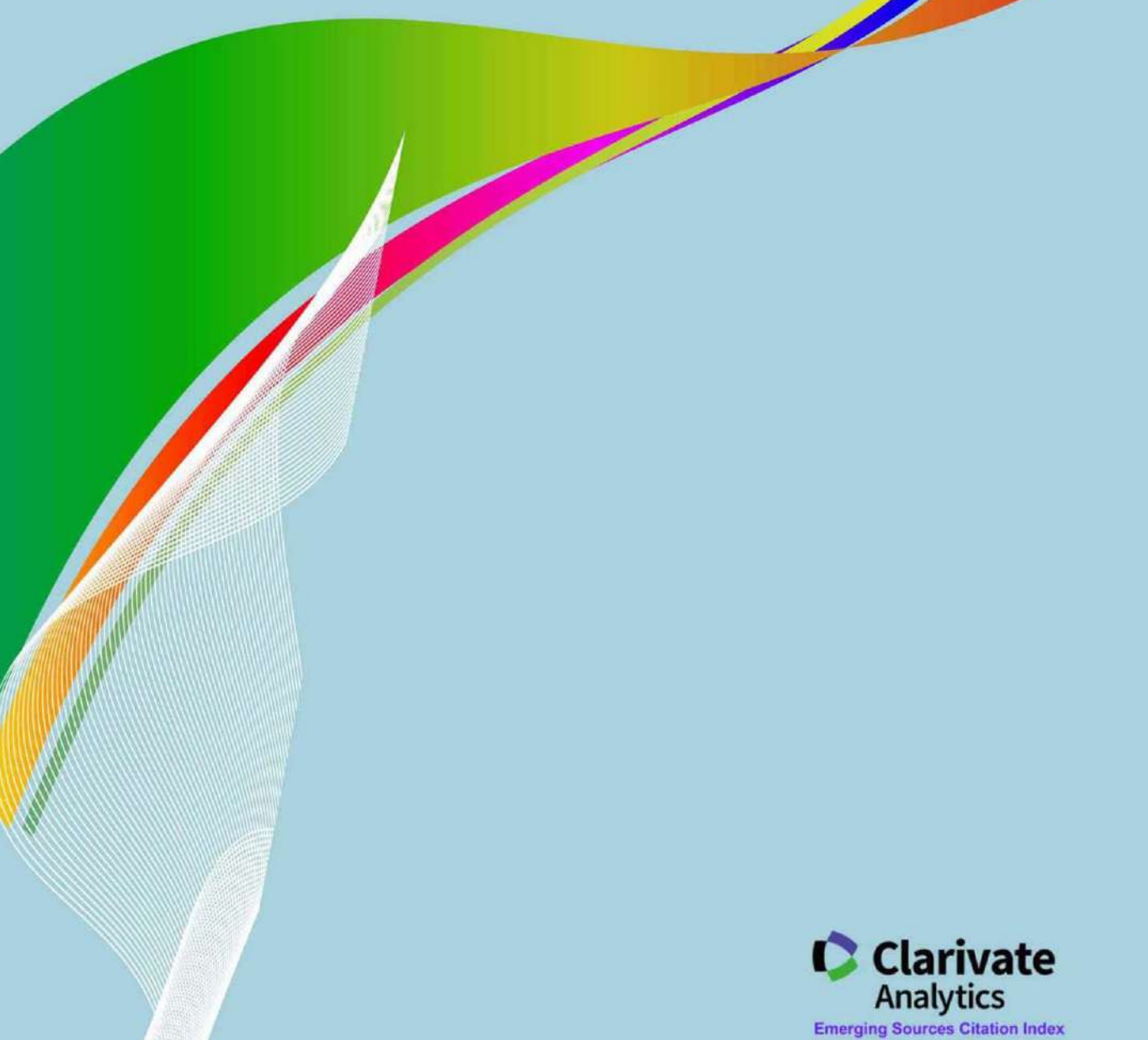
E-ISSN: 2443-2067

Jurnal Ilmiah

PEURADEUN



Vol. 9, No. 1, January 2021



SCAD Independent
Accreditation by IAO since 2014
Copernicus Publications
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JIP
The Indonesian Journal of the Social Sciences
www.journal.scadIndependent.org
DOI Prefix Number: 10.26811



ACCREDITED "B" by the Ministry of Riset,diklati
from October 30, 2017 until October 30, 2022

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The Local Wisdom of North Buton People in Flood Mitigation

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Article in Jurnal Ilmiah Peuradeun

Available at : <https://journal.scadindependent.org/index.php/jipeuradeun/article/view/480>

DOI : <http://dx.doi.org/10.26811/peuradeun.v9i1.480>

How to Cite this Article

APA : Basri, L. (2021). The Local Wisdom of North Buton People in Flood Mitigation. *Jurnal Ilmiah Peuradeun*, 9(1), 87-102. doi:10.26811/peuradeun.v9i1.480

Others Visit : <https://journal.scadindependent.org/index.php/jipeuradeun>

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THE LOCAL WISDOM OF NORTH BUTON PEOPLE IN FLOOD MITIGATION

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Received: Nov 12, 2019

Accepted: Aug 22, 2020

Published: Jan 30, 2021

Article Url: <https://journal.scadindependent.org/index.php/jipeuradeun/article/view/480>

Abstract

This study aimed to explain and to analyze the local wisdom of the North Buton people in flood disaster mitigation, namely worldview, traditional knowledge, norms, custom, and other traditions conducted by the people of North Buton in natural phenomena observation as the signs of floods, as well as efforts to reduce the risk of flooding by utilizing human resources and natural resources in the vicinity. The results showed that the people of North Buton have a set of local wisdom in flood mitigation which was inherited from their ancestors' legacy. It has been tested through empirical experience and also obtained the traditional legitimacy at North Buton people. That local wisdom included: (1) studying on the animal behavior namely the flock of Joremba (Dragonfly) which get into the residential area and the spooky sounds of Gara (Owl) birds at night, (2) construction of the houses on stilts or semi-permanent house behind the main house, (3) enacting the mamali (taboo) tradition in cutting down of the forests as a control mechanism in ecological balance creation to prevent erosion, (4) exploration of a new spring, (5) observation of the changes of the river volume and the discovery of the presence of the spring that appears suddenly in the rainy season.

Keywords: *Local wisdom; Disaster Mitigation; Flood; North Buton People.*



A. Introduction

Every community has its local wisdom as a cultural product of the past, which is extracted from its noble values or basic values of the culture from the community through the processing of reason and feeling (Basri et al., 2017; Basri, 2018). Local wisdom exists in a social and cultural system then it is embodied in the traditions, values, norms, attitudes, and in the cultural materials, myths, legends, texts, and verbal and non-verbal expressions inherited from generations to generations (Basri et al., 2017; Mbete, 2006).

Despite the current globalization era has caused a struggle between local and global cultural values which increasingly becomes high in intensity (Wahab et al., 2012; Premo and Khun, 2010; Basri et al., 20017), local wisdom has a selective nature and flexibility in which it can survive and continue existing to face the challenges of the times. Moreover, local wisdom is one manner to overcome the crisis of modern culture (Herman, 2016). Hence, the promotion of community is to continue enacting the local wisdom as one of the strategies to adapt their environment in various situations, namely natural disaster mitigation. One of the utilization of local wisdom in natural disaster mitigation among other things can be found in people's habits in Simeulue, Aceh, that utilize *smong*, one kind of local wisdom, as early warning of the tsunami (Gadeng, 2017).

On the other hand, the community in Magelang Regency in the Southwest of Merapi Volcano always utilizes local wisdom as mitigation of the volcano eruption. These local wisdom include studying the behavior of various types of animals, studying the condition of natural plants and cultivation, understanding the ancestor's advice and thought, as well as observation of other natural signs (Setyawati et al., 2015). Correspondingly, (Basri, 2010:23) states that "the Bajo community also constantly learns some signs such as bird behavior, rumbling sound of the waves, the tide phenomenon for identifying disasters at sea".

Concerning the case of disaster phenomenon, the community of North Buton in Southeast Sulawesi is always frequently hit by floods every year. However, people in the area always have a creative solution to the

geographical situation, as a result, floods tend to have a less harmful impact on the survival of residents. The community seems to have a set of habits and outlook on living and local wisdom providing resilience and growth power so that it can cope with and manage the geographical challenges of the floods form that often hit the area where the community lives.

Nowadays, the community can identify the phenomenon of the flood by utilizing their traditional knowledge such as observation of natural phenomena in the form of wind movement and rainfall conditions, the increase of water volume, animal behavior around them, and understanding other traditional cultures. As a form of long-term disaster mitigation, they have been carried out structural-cultural ecological adaptations, such as building houses on stilts, trees plantation, making embankments and cleaning gutters, boat preparation as operational vehicles for evacuation, and other measured preventive action. The habit of North Buton people who always utilizing their local wisdom to disaster mitigation of floods is a unique phenomenon because the traditional culture has been eroded by modern culture, and traditional culture has been abandoned by the supporting community. Therefore, the research of flood mitigation phenomenon was conducted to give new information about the alternative solutions in flood disaster mitigation, namely mitigation based indigenous knowledge.

B. Method

1. Research Design

This research was designed using a descriptive survey or normative survey method with a qualitative approach. It was assumed that certain phenomena usually follow general patterns that usually occur (Yunus, 2010). It was also used based on a situation that the phenomenon of flood disaster mitigation by utilizing local wisdom as a habit patterned on the people of North Buton, which is inherited from generation to generation. While the qualitative approach is an approach that views social reality as something that is holistic/intact, complex, dynamic, full of meaning, and the relationship of interactive phenomena (Sugiyono, 2018).



It was also used for the analysis of the obtained original data from all informants according to their knowledge and experience in flood disaster mitigation.

2. Research Sample

This research was conducted on communities exposed to floods in North Buton spread across six small villages and one urban village, including Lambelu, Bubu, Ronta, Soloi Agung, Katawo, Lamoahi, and Kambowa urban villages. This study was employed utilizing a survey method that lasted for three months from May to July 2018. Key informants of the study were traditional leaders, elders, villagers who were exposed to floods, rain shamans, faith leaders, village and sub-district officers, and other villagers considered having a set of traditional knowledge about climatology. The informants were determined by the snowball sampling technique. The identity of the informant is kept secret to maintain the security and the privacy of the informant.

3. Data Collection

Data collection was carried out through in-depth interview methods while jotting notes and recording information conveyed by informants. Of all its explored, the information was elaborated as detailed as possible regarding traditional knowledge concerning weather, adaptation methods, and strategies to manage the environment. The information about flood mitigation was collected based on local culture, attitudes, and actions during flood and post-flood. Data collection through in-depth interviews was ended after the obtained data was considered sufficiently (Sugiyono, 2018). The research data were also obtained through observations of the impact of floods on the social-economic life of the local communities and also the behavior of exposed people exposed by floods.

4. Data Analysis

The data that had been collected, were processed and analyzed using interactive analysis techniques that included data reduction, data display, and verification, or concluding (Emzir, 2010). Data reduction,



namely the composing units of all data collected from interviews and observation, are divided one by one, collected according to their classification and categorization. Data display is composing the relationship between categories of data, compares one data category with other data categories, and interprets the meaning of each data relationship. The conclusion is the result of research to answer the purpose and focus of the research based on the results of data analysis.

C. Result and Discussion

1. Result

Findings and discussion of the study are presented to answer research questions about the local wisdom in flood mitigation of the community in North Buton. The intended local wisdom is presented as follows.

a. Examination of Animal Characteristics

The community in North Buton assumed that animals had a very close relationship with nature and had a sharper instinct compared to humans, therefore animals could early detect disasters or other natural events that would occur around them. As a result, many animals generally survived when natural disasters occurred. Anticipatory steps taken by animals to avoid the threat of natural disasters included migration to other places or areas that were much safer. Therefore, the people of North Buton studied and found out the behavior of animals to find out natural phenomena that occurred around them, including signs of a flood.

Joremba (dragonfly) and the sound of *gara* (owl) at night were two kinds of animals at which their characteristics were looked. Providing that a large number of floating dragonflies roamed around in a residential area and considered as a signal of heavy rain that potentially could cause the flood. According to the people, dragonflies were inhabitants around waterways or wet places far from residential areas. This information was given by one of the community leaders of North Buton in the Lambale village which said " *kai ompole joremba kumorano lumola ilarao kampo, bhotaanopo musuona iompole,*



anuaike tandano bhei kowaho te bhei kowaa" (if dragonfly often flies in residential areas, especially in considerable amounts, it a sign of rain and will lead to flood). This was also supported by other respondents saying that "*biasano jorembe kai usu ilaro kampo, biasano tanda-tandano bhei kowaho moransa te bhei kowaa*" (when dragonflies swarm the community residential area, there are usually signs of heavy rain and potential flooding).

Besides, to examine the dragonflies' behavior to find out the occurrence of floods, the sound of birds at night also was studied by the people because they believed that birds could give some warnings to humans about an event to come. Gara, also known as the owl, a kind of bird whose sound was constantly considered in the local community to recognize a sign of a flood. When it came to the rainy season, gara (owl) sounded loud and shrill, especially when it sounded at dawn. According to the community, this sound signaled the impending flood and it likely led to both severe material losses and fatalities.

It was supported by the statement of one of the North Buton community leaders in the Kambowa Village who said that "*ita'u 2017 Kelurahan Kambowa iperna kumowaa owose tei ompole ipodaki weweuahando mia, diantaranya iyo ruabhoto winawano waa saade raha wacu te saade raha ngkabhoke, polohako pia'alono hinapo ikowaa, mia riiko ndo porongemo unino manu-manu gara aisomo kai kowaa hinai daa yo winawano karenano yo mia ndo lausakomo wumawao kansiendo te sahinahakondo imasigi i'entahano*" (in 2017 the Kambowa Village had been hit by flash floods and caused material losses which were quite severe, including two houses washed away consisting of one permanent stone house and one house on stilts. Fortunately only a few nights before the flood, local people heard the sound of the owl, so when the flood hit, there were no fatalities because villagers immediately moved their goods and evacuated his family at the mosque located in the higher area).

b. Observation of the Clouds and the Rain Intensity Characteristics

Another possessed knowledge of the community in North Buton which was constantly used to recognize the signs of a flood, the

knowledge of the characteristics of clouds, and the rain intensity. According to the people in North Buton, the cloud giving clues to the occurrence of heavy rain and the potential flood was a dark black cloud, sometimes it is also slightly colored in white. The prototype of the cloud resembled a mushroom plant or a blooming umbrella, where at the top it looked rather smooth, but at the bottom parts, there were visible rough and dark bubbles. The bubble was considered by the community as a bag of water or as a place for rainwater.

According to the local community that *“sala saade ponto'ori cinia ako minai turuna hako yo ponto'ori kundo te waho baratino iduma bhakutano kundo mokapa kowarna mohalo ngkanao pau, nobibito bae tondu, olu nomohalo ompudu, omie dasiapumo, maka iyo giu aiko tanda-tandanomo bhei kowaho moransa torusu kai jadi waa”*, (when the sky was covered with clouds that resembled like a mushroom, followed by the movement of the wind that blew hard and the position of the cloud was slightly lower from the earth's surface, then at the same time there was lightning and thunders, then the community was in alert because such weather conditions led to heavy rains and floods). In such weather conditions, the rain fell for days, usually lasting two to three days without stopping. The residents in the raining area were certain that such kind of weather could lead to the potential of the flood. The people in North Buton realized that the rainy season occurred from April to mid-August, but the peak of the rainy season occurred from June to mid-July. Thus, June to July was the peak of the community's readiness for the flood disaster.

c. Exploring a New Spring

Another method used by the community in North Buton to recognize signs of the flood was used to look for and to find a new spring as a temporary source of water, either in the vicinity of residential areas, around forests, rivers, or other places. The spring was not indicated as a natural spring, but a seepage spring that gushed on the surface of the ground, due to heavy rain that fell for several days. The people were aware that the innate nature of water flow from a high place to a low place



or seeping into the ground. According to the local community that “igau potae mia moawano ompele-ompole matano ee iwula waho, maka anuaiko ikotanda eeno waho hinai soopio ilaro wita” (if the residents find many sources of water in the rainy season, it means that the rainwater does not seep into the ground). The ground overgrown by plants or other trees has some slit as the rainwater seeps into it. The water will go down into the ground, so it will not cause flooding.

Therefore, when the people found some new water sources in the rainy season which suddenly appeared on the ground, such a natural phenomenon was identified as one indication of the flood. This sudden spring gave a signal that the soil around the place contained a lot of water. According to the people in North Buton if rainwater did not seep into the ground, the ground had already filled with a lot of water on the surface or seepage. Thus, if heavy rain occurred, it caused flooding. This statement was consistent with the perception of one respondent in the Ronta village which stated that “*ee who lausako otomatis umusu ilaro wita ilalu i’olotano bhonse-bhonse ano wita. Bharaako tiba-tiba misikalombamo matano ee ntonia maka anuaiko montongkaako ee waho hinai sacuncuo isopio wita*” (the rainwater automatically goes into the soil through the cracks or cavities in the ground. If sudden new springs appear, then it shows that rainwater is not fully absorbed by the ground).

d. Monitoring of the River Water Volume

Functions in meeting their daily needs were known as both primary and secondary signs. One of the functions of the river apart from being a provider of clean water was that the river could guide people on signs of the flood, through the increase of the river water volume. Therefore, according to the people in North Buton that “*menganako juluno volume eeno laa ijadimo kateseseando miano Kambowa te miano Buton Utara bho umantisipasio cunano korbaan bharako isidakumo waa*” (observing the changing of river water volume from time to time had become a habit of the people in North Buton during the rainy season for generations). They carried out these activities as a form of alertness in anticipating the occurrence of floods that could at any time strike their settlements.

To facilitate monitoring activities, local people often made a sign on one part of the river such as installing olono key (stakes/wooden boundaries) as markers on the river's edge, wrapping ropes on tree trunks on the riverbank, and other efforts to create some characteristic features which could distinguish the occurrence of changes in river water volume at normal times and the increase in river water volume after raining. If the river water level reached or approached the boundary markers they had set, the people were very certain that such an increase in the water volume of the river would lead to flooding.

Experience of the local community was shown that if the volume of river water had reached the marker, the river water began to overflow and fill the residential areas. It was because the river was no longer able to accommodate the flow of water. These phenomena happened repeatedly and had been going on for a long time so that the local people regarded it as a truth that they constantly used as guidance. The interesting fact shows the readiness of residents in monitoring the volume of river water could reduce the impact caused by flood even though the local community was regularly hit by the flood. Indeed, the people believed that although flood occasionally occurred three times in a year, at the time there was no fatality and/or material casualty which caused local communities to suffer from the flood. Since the community had anticipated it earlier after finding out the increase in the volume of river water, they were able to evacuate their property and family in places that were relatively safer from floods, such as on hills, on stilts, or other public facilities.

e. *Momali* (taboo) Destroying Forests

The other local wisdom possessed by the people in North Buton in reducing the risk of the flood was the existence of ancient rule which it was forbidden to cut down trees that could result in damage to forests. According to the community, cutting down forests in bungling would result in disasters for humans and the environment. Forest in the perception of the people was an ecosystem inhabited by spirits. If the forest was destroyed, it would disturb other creatures living, as a result, it



was feared that disharmony between forest ecosystems and human ecosystems would occur.

In one oral tradition of the people in North Buton, it stated that there was one village that was flooded and many people died in the past. At that time, the forest was cut down to expand a new land to become fields and orchards. The community believed that the incident occurred because the spirits felt disturbed and angry about what humans did. Based on these phenomena, people believed that nature and forests would be friendly if humans wanted to maintain them. Therefore, the forest needed to be well-organized, as well as its designation and its utilization should be by human needs.

2. Discussion

a. Study of the Natural Phenomenons and Animal Characteristics

Some of the people in North Buton are constantly exposed to annual floods. The people in the area are sometimes hit by floods twice or three times a year. Every time flood occurs, many rice fields, orchards, and houses are submerged, and there is even houses and animals farm of the local community that is washed away by the flood. The flood that occurs is generally caused by high rainfall and overflowing rivers because they are unable to settle rainwater. To anticipate or reduce the impact that will be caused by flood, local communities respond by applying local knowledge that they have passed down through generations from their ancestors such as, studying natural phenomena such as monitoring the water volume of the river, studying the characteristics of clouds, exploring new springs and examining animals characteristics.

Recognizing flood signs by studying various natural phenomena had become a patterned habit in the lives of the community in North Buton. This local wisdom had experienced internalization in family and community life, so its existence had become an inseparable part of the community as a whole. Therefore, when heavy rains occurred within a few days, the local community with their awareness went to observed the natural phenomenon as part of anticipating flood. If there was a

community member who discovered the geological phenomenon, it was directly conveyed to other community members verbally, so the people were more alert in dealing with a flood.

The efforts of the people of North Buton in flood mitigation disasters through a local wisdom approach of the community concerned are called cultural coping (Setiawan, 2014). It is relevant according to the perspective of Setiyawati et al. (2015:101) was called the “traditional ability to recognize the signs of the traditional flood that had been performed repeatedly and naturally had a good value in overcoming the problem of the flood, as the result, the people considered it as a truth from generations to generations”.

The habits of the people in North Buton that utilize local wisdom as flood disaster mitigation, following the findings of Humaida et al. (2018:30) that “local wisdom in some local communities are used as the basis to manage their environment”. Humans and the environment interact with each other, where the environment provides stimulation to humans and humans respond to the environment so that human actions aligned and harmony with nature (Hadi, 2017; Selasih, 2018). The findings of Humaida et al. (2018), Hadi (2017), and Selasih (2018) reinforce the existence of the traditional ethics of the North Buton people, in environmental management is living harmoniously with nature, no controlling and regulating nature. In the worldview of the North Buton people, harmony between humans and nature will create peace on earth.

Other local wisdom that was consistently practiced by people in the North Buton to mitigating flood disasters was understood as the characteristics and behavior of the *joremba* (dragonfly) and *gara* (owl). The community's readiness in mitigating flood disasters through local wisdom approaches, namely the understanding of the characteristics and behavior of *joremba* (dragonfly) and *gara* (owl). It shows that the community has traditional knowledge and practices that become the local wisdom in disaster mitigation, especially floods. This local wisdom is in line with the findings of Noor et al. (2007:1) that “in traditional societies, they always observe animals such as fish, crocodiles, birds, bats, other wild animals



and stars to find out natural phenomena which are then used as clues both as signs of a natural disaster or a season in agriculture”.

b. Taboo As Social Control

Another local wisdom that was consistently practiced by the people in North Buton toward mitigation of flood disasters was the existence of ancient rule which was forbidden to cut down forests. The community believed that a tree or forest was the place in which supernatural spirits lived. If they encroached on trees or forests, it might disturb the tranquility and comfort of supernatural beings, as a result, these creatures could make a discomfort activity, disturb, and even harm humans.

To avoid these habits, the ancestors of the community in North Buton created a mechanism that became one control device called *momali* (taboo) to make people more careful in cutting down trees. With no arbitrary cutting down, a tree would create a balance of ecological and prevent the occurrence of erosion. It was in line with the results of the previous study that woods and water protected by taboo, or sacred forests and trees were potentially creating ecosystem resilience (Taena et al., 2016). North Buton cosmology about taboo or prohibition from cutting down forests was in line with the findings of the other study that the natural environment where we lived in was not only humans who inhabit it, but also more creatures. Therefore, people must be careful in their actions and behavior (Suyuti et al., 2007).

The ability of communities in North Buton in the signal or marks recognition was given by nature as a guide for disaster mitigation, consistent with the finding of the study that people occasionally used symbols since those symbols encouraged people to be creative to overcome the difficulties of life and their ignorance. It is the human task to interpret them as guidance in navigating life (Muliyana, 2008). Furthermore, the ability of the people in North Buton that learned from nature in flood mitigation seemed to resemble the cosmology of the Minangkabau community that learned from the natural landscape, (Hasanuddin, 2016).

D. Conclusion

The people of North Buton are still maintaining and use indigenous knowledge in flood mitigation. The local wisdom namely: (1) examination of the behavior of animals as groups of joremba (dragonfly) roaming into residential are and spooky sounds of birds gara (owl) at night, (2) creation of a tradition of inhibition or taboo in disafforest as a control mechanism in the creation of an ecological equilibrium to prevent soil erosion, (3) looking at changes in the volume water of the river, (4) identification of the sources of water spring which appeared suddenly in the rainy season. Local wisdom of the signs of a flood seemed very simple, less rational, and difficult to accept with the modern mind. However, it was very functional for the signs of a flood discovery, so it got traditional legitimacy in the living of the people in North Buton. In the globalization centenary, the local wisdom of the North Buton people needs to get strengthened institutional capacity. Therefore local wisdom is not crushed by globalization and can be adapted by other communities and become a reference in disaster mitigation policies.

Acknowledgment

The author thanks all respondents of the North Buton community and local leaders for the supporting data of this research.

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