

# Participation of Indigenous People in Forest Management (Case Study in Namo Village, Kulawi District, SigiRegency Central Sulawesi)

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**Abstract:** *The research was conducted in Namo Village, Kulawi District, Sigi Regency. The aim was to know participation of indigenous people in forest management and the influence factor of forest management at Namo Village Kulawi District. The method was survey. Sampling was conducted by Purposive Sampling technique. Data was collected by observation, interview, questionnaire, and documentation and analyzed by the Likert scale. The results showed that the level of participation of indigenous people in forest management was categorized as high, 88%. People have dependency to meet the needs and the economy from the forest. Age, Low level of education and livelihood as a farmer have affected forest management and motivated people more participation in forest management.*

**Keywords:** participation, forest management, indigenous people, Namo Village

## 1. Introduction

Development programs emphasize the development of sustainable forests. Exploitation and unpropriated management of forest cause several natural disasters such as flooding, landslide and others. The forest management program must be based on the assumption that forests are natural resources that should provide the greatest benefits for the people welfare while maintaining the sustainability of forest function.

In some forest areas, interaction between local communities and natural resources is still very strong. The interaction is a positive trend toward forest sustainability. The wider of community is given the opportunity to participate in managing their forests, the higher sense of ownership the forest. Involvement of community in forest management is done by indigenous knowledge or local wisdom [1],[2]. Local wisdom or indigenous knowledge is a cumulative body of knowledge, belief, understanding, insight, habits, or ethics through a process of interaction between community and with their environment that is handed down through generations by cultural transmission in particular environment [3]-[4]

Supporting and encouragement communities in the participation of forest management both individually and groups are very influential on forest conservation. The sustainability of forest management highly depend on the participation of local communities [5]. Local communities as in the research is indigenous people may be best suited for conservation management because they depend on the forest resources, has deep understanding of the area, can comprehend the potential to strengthen and develop the area. They have a clear incentive to manage the forest sustainably and may enhancement of biodiversity [4], [6], [7].

Forest in Kulawi district is a customary forest and facing population pressure as increasing of growing population and

problems of socio-economic. The forest is a catchment area for Kulawi and its surrounding. Therefore it is necessary to study about the participation of indigenous people in forest management in this location. The purpose of this study is to know the participation of indigenous people in forest management and the influence factor of forest management at Namo Village Kulawi District.

## 2. Method

The type of research was qualitative research and the method was survey with environmental approach. Data was collected by observations, questionnaire, documentation, and interview. Community participation in forest management at Namo village is measured by Likert scale. Likert scale is modified into 3 classification (not knowing, less knowing and knowing) with scoring as follows:

Knowing = 5

Less Knowing = 3

Not Knowing = 1

The result of the respondent's questionnaire is calculated the level of achievement by using the formula percentage on each answer subject with the formula adapted from Sugiyono, 2012 [8]

$$\text{Percentage} = \frac{\sum \text{score assessment of each item}}{n \times \text{highest score} \times \text{number of respondent}}$$

n = number of answered

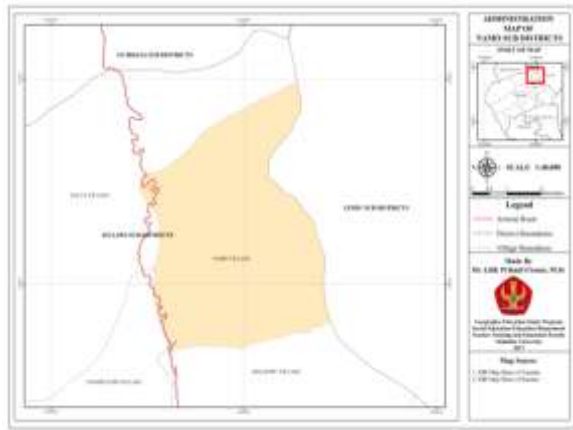
Then the validity criteria used are modified validity criteria that is:

Knowing = > 67%

Less Knowing = 33 - 66%

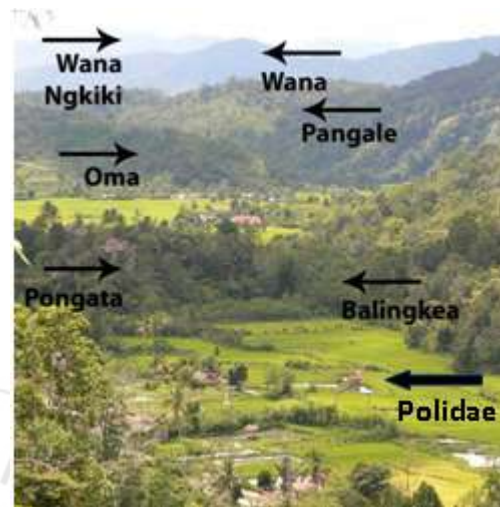
Not Knowing = < 33%

Respondents were selected by purposively random samplings. The research location can be seen at Figure 1.



**Figure 1:** Research Location

- Pongata,  
An area of human settlements, usually located on the lower plains.
- Polidae,  
A farming community land, in the form of rice terraces and farmland.



**Figure 2:** Forest zoning system based on indigenous people

### 3. Results and Discussion

#### a) Indigenous Forest Management System

Indigenous forest management that is implemented by indigenous people has existed long before introduction of forest management regulations and have developed from direct human contact with their environment [9].

The indigenous people in Namole village apply forest management by dividing into specific zones, including:

- Ngkiki Wana, primary forests.  
The area which forest exploitation is not allowed. This zone is located at 1000 meters above sea level with an area of 2300 hectares. The area is dominated by grasses, mosses and shrubs. This zone is an air source so its existence is considered very important.
- Wana, primary forests  
Home of endangered plants and animals. They are also a water catchment zone so it is forbidden for agricultural activities but is allowed for taking resin, fragrances, pharmaceuticals and rattan. The resources are collectively controlled. Private ownership is given only for the first person who taking and processing the resin . Wana area is the largest forest in Ngata Toro with 11,290 Ha.
- Pangale,  
A logged-over forest (5-15 years ago) and the area have been used for garden, agriculture, taking rattan, timber for building materials, the forest pandan for making mats and baskets, medicine, resin, and fragrances. All must be licensed from customary institutions or local government. The area is 2950 Ha.
- Pahawa Pongko,  
A former forest land which have been abandoned for 25 years and over, and have been used as garden and agriculture by local community.
- Balingkea,  
A former garden whose age is 6 months to 1 year. Often processed for palawija plants such as corn, cassava, nuts, chili and vegetables.
- Oma,  
Forest that has not been cultivated for a time periods in order to return the fertility of soil. The private ownership of lands is recognized.

Based on the Figure 2, the indigenous people established a rotational tillage system. The cleared forest land is called popangalea, the first person who opened the land has ownership. The opened land productive is called bone. After several cropping times, the soil fertility decreases with decreasing of nutrients contained in the soil, this soil is called balingkea. Omabalingkea is called for balingkea that can be replanted in the planting period. Balingkea that are not planted again, and left (1-25 years) to restore soil fertility is called Oma.

The activities of shifting cultivation system conducted by indigenous people can be seem below:

- Land clearing  
According to the indigenous rules, the land that can be cultivated is called Oma, especially for Oma Ngura (land that has been abandoned 3-5 years) and Oma Ntua (land that has been abandoned for 25 years), while the forest land should not be cultivated namely Pangale (semi-primary forest). In order to cultivate land on the Pangale zone, a traditional customary permit is required which include submissions of the requirement (i.e. reasons, location and size of the zone). Include. When they receive permission, they have to conduct rituals named "manu Mohamale bull" (white chicken slaughter) to honor the ancestors who occupied the land.
- Harvesting of Timber.  
Harvesting of timber are issued just for the needs of local community. But now, it has been allowed to harvest the timber as raw materials for local furniture industry and buildings. After they obtain the permission, they conduct rituals call "pu Mowurera you" (touching wood). In addition, they are cut tree only at 60 cm in diameter, but it is not allowed to cut in Taolo area, sloping area along the river and landslides and erosion prone areas.

- Harvesting of rattan.  
The rattan must be more than three years old. Location is determined by the customary institution consultation by observing the rotation principle (raombo). In addition, there is a prohibition to take rattan along the river basin when the rice crops start to roll.

Traditional living patterns applied by local communities need to be preserved. The utilization of the natural resources controlled by the indigenous knowledge will protect the forest from being exploited. Indigenous knowledge and local culture is carried out wisely because forest resource management and utilization of forest products are also required to empower these communities. Maintaining the preservation of forests requires the existence of customary rules applied in this area. The provisions or rules that exist in this region can be grouped into two, namely *Toipetagi* (Prohibition) and *Toipopalia* (taboo). In *Toipetagi*, there are several prohibitions namely :

- It is not allowed to clear the forest or to treat the forest where there is a Water source 'ue ntumu' and 'ue bohe'
- Prohibition of pruning and cutting down trees that grow in river bed or small rivers that exist in forests and pass through the settlements and in steep slopes and for a traditional medicines such as banyan tree and melinjo.
- Hard restrictions on land acquisition in Wana ngkiki and Wana
- Do not open gardens in the former Pangale, Oma, Balingkea, Pohawa pongko.

*Toipopalia* (taboo) includes :

- ban to bring forest products such as rattan, pandan forests, raw bamboo in large quantities to home through rice fields during the rice season in a fruitful state.
- ban to dislodge rattan in the river during the rice season, as it will affect the harvest success (the rice will empty or lacking) or "Nakahoana".
- ban on clearing the forest where there is known to be a resin.
- ban on logging is known as the staple food of birds in the forest.

The customary apply to indigenous people particularly in the management of customary forests. Generally, when people violate the rules, they will get a sanctions. Initially, the sanction given was in the form of a buffalo, a besa or traditional fabric, and ten Dulan (Hampole Hangu), however the sanction given is in the form of money now.

#### **b) Indigenous Peoples' Participation on Forest Management**

Based on interviews and questionnaires, participation of indigenous peoples in forest management in Kulawi region especially in Namo village can be categorized as high as 88%. The majority of respondents have already understand and know how to manage the forest and benefits from the forest management.

Forest management in Namo Village Kulawi District has existed since tens years ago so makes people familiar with the existence of customary forest. The people have extensive

knowledge about the forest because of personal experience and long-term observation as well as real lessons from parents and their ancestors. They define customary forest as a land overgrown with trees and its management is governed by local customary rules. The majority of peoples know functions and boundaries of forest, how to preserve and manage the forest and the impacts arising from the forest that are not well maintained, even though the motivation to manage forest is strongly influenced by economic reasons. The forest have been planted by the intercropping system that is planting crops with food crops and timbers in order to gain a double benefit from the timber and food crops also to prevent and reduce erosion, flood and landslides in case of heavy rain.

Indigenous knowledge, understanding about forest, the source and how to access the information are important variables to catalyze participation and collective action [10] Nashik 2007 concluded that community participation in teak forest management was high and will have an impact on two aspects, namely economic aspects (increased community income) and ecological aspects (better environmental sustainability) [11] Awang's (2003) said that for communities living in forests, forests are a source of family life, also contribute timber and building materials for the benefit of families so forests can act as factors of production [12]. Forest management can be develop from indigenous knowledge. Indigenous knowledge is a bridge the demands of development whilst establishing healthy environment conditions to achieve sustainable development in forest management. According to Salampessy, et.al, 2010 People's participation in managing the HLGN is based on the perceived benefits and how they manage the dusung depends on their own character or morale [13].

#### **c) Factors Affecting Indigenous People's Participation in Forest Management**

Some Social economic factors that influence participation indigenous people in forest management were reported. Regardless of age, age of respondent are influence in participation as categorized as high, 93,36%. The majority of respondent is in young ages (> 43 years old). The young man have ability to manage forests because they have easily receive innovation and technology how to manage the forest and also have realized the importance of forestry in their livelihood strategies.

The education level of respondents in Namo village has relatively low, primary school, with percentage of 43.33% compared with other levels education and most of respondent, 83,33% as a farmer, but the participation in managing forest is high. This is caused by the awareness in preservation of forest is high. Their life depend on the forest resources. The more villagers depend on forests the more positive perceptions of the benefits of forests. Positive perception is influenced by the dependence of respondents on forests, so the forest has a positive value to farmers (respondents) [14]. This level of community dependency is affected by how deep the communities interact with forest. The wider interaction the higher participation.



#### 4. Conclusion

Based on the results of research directly in the field it can be concluded as follows:

- The participation of indigenous peoples on forest management in Namo Village is high. This can be seen from the condition of the people who mostly have dependency to meet the needs and the economy from the forest.
- Young age, low level of education and livelihood as a farmer have affected and motivated people more participaton in forest management

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