Ethnoecology: Local Wisdom of Forest Conservation in Tenganan Pengringsingan Traditional Village

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Abstract. This paper aims to 1) analyze the background of forest conservation in the Tenganan Pegringsingan Traditional Village, 2) analyze the strategies used by the traditional village in forest conservation in the Tenganan Pegringsingan Traditional Village. This type of research is qualitative, the technique of determining the informants using purposive sampling. Data collection uses in-depth interviews, observation, and content analysis methods. The results showed that the background of forest conservation in the Tenganan Traditional Village is to create welfare for the community, and carry out the mandate written in the awig-awig of the Tenganan Pegringsingan Traditional Village. The strategy implemented for forest conservation is to regulate the village forest issue in awig-awig and to enculturate the myth of Lelipi Selan Bukit which means supervision, protection, religion, loyalty.

Keywords: Ethnoecology, Forest Conservation

1. Introduction

Bali is known by various names, including the island of a thousand temples, the island of the gods. The name is considered reasonable because Bali with its traditional villages has uniqueness in culture and also in environmental preservation. The ability to preserve the environment is supported by the Tri Hita Karana ideology which has three meanings for the welfare of human life [1]. In the process, Balinese people, especially in Bali Aga villages, in an effort to achieve prosperity develop local wisdom on the forest environment, known as ethnoecology.

Borrowing the thoughts of Ethnoecology as a science of ecology and human adaptation: this is due to the analysis and discussion of human adaptation along with the culture attached to their habitat and other living creatures [2]. Humans are not only as biotic creatures part of the natural environment but humans as a force to change nature. Every society will have adaptation techniques passed down from previous generations and these techniques will experience dynamic development. The discussions and analyzes carried out sometimes do not pay attention to the mutual influence between one region and another. Indonesia is among the nations globally possessing extensive forest reserves, earning it the nickname ‘the Earth’s oxygen supplier.’ Nevertheless, it faces a peril as its forested regions continually diminish due to deforestation. This deforestation has, in turn, led to flash floods and landslides in multiple localities [3].
By borrowing the opinion of [4], deforestation is caused by a cowboy economic system. Deforestation is a situation where forest cover is lost and all its aspects have an impact on the loss of the structure and function of the forest itself. The cowboy economy can be seen from Forest Watch Indonesia data, during 2000 to 2017, it was recorded that Indonesia had lost more than 23 million hectares of natural forest, equivalent to 75 times the area of Yogyakarta province. This situation is in accordance with the characteristics of the cowboy economic system which is characterized by the use of natural resources and the arbitrary disposal of waste, because humans assume that nature has an unlimited ability to maintain their health, which can lead to fatal consequences, namely severe environmental damage. Human treatment of the environment is also related to the perspective or paradigm of modern science. The paradigm adopted is a mechanistic or Cartesian perspective which is centered on mechanistic, reductionist, objectivist and technocratic ideas [5], [6], [7], [8]. Anthropocentrism is more focused on humans, namely male humans who support a masculinity culture so that men arbitrarily rape nature to fulfill their desires [6].

Starting from this explanation, it is also interesting to put forward the relationship between globalization, technology and environmental damage. Globalization has various dimensions, one of which is the globalization of technology. According to [9] technological globalization “... means mastery of the world through mastery of technology, not only, especially communication and information technology, but also technology that destroys the environment and biotechnology that threatens humans without the ability to control”. Thus, talking about environmental damage is not solely due to the actions of local communities who apply the cowboy economic system, but is also related to technological globalization which is characterized by global-scale technological inputs that have the potential to damage the environment.

Deforestation is one of Indonesia's forest problems that still occurs today. One of the causes of deforestation is the phenomenon of limited access to land by local communities living around the forest [10]. In fact, according to [11], people who live in and around tropical rain forests have a livelihood that depends on trees or forest products to meet their daily needs. This limited access to land encourages people to enter forest areas and utilize forest resources, often without going through a standard licensing process.

Provides an overview of the level of forest destruction that has placed Indonesia in unsustainable management [12]. The results of the study show that there are at least 2 factors that cause damage to the environment and forest resources, namely; (1) unbalanced portion of utilization activities with forest rehabilitation activities in forest management policies; (2) utilization that is more concentrated on the utilization of timber forest products. The government's orientation and policies in managing forest resources are considered to be only timber oriented (timber oriented).

Forests are part of the environmental system that is closely related to interconnected natural processes. As one of the most valuable components of natural resources, forests have an important role in conserving other natural resources and maintaining environmental functions. For the life of the people of the Tenganan Pegringsingan Traditional Village, the forest has a very important meaning, especially its function to protect residential areas from the danger of
landslides. The preservation and function of forests that are still maintained until now is the success of indigenous peoples in managing forests by relying on local customary systems which are carried out through "awig-awig" traditional villages. However, it must be admitted that the "awig-awig" is certainly not free from weaknesses and various problems [13]. To study the ethnoecology of the Tenganan Pegingsingan community, an article entitled Ethnoecology: Local Wisdom of Forest Conservation in the Tenganan Pengringningan Traditional Village was made.

2. Method

The method used in this research is qualitative research. Data collection techniques used interview, observation, and content analysis methods. The technique of determining the informants used purposive sampling. This was followed by snowball sampling following the informants’ instructions from key informants. In collecting data, the author also made active observations and analyzed documents that recorded in Tenganan Pegringningan Village. The data that has been collected is then tested for the validity of the data with the data triangulation process, namely the triangulation of methods and sources. From the existing data, the process of data analysis and data presentation was carried out using Miles and Huberman’s interactive model data analysis [14].

3. Results and Discussion

3.1 Background of Forest Conservation in Tenganan Pegringningan Village

3.1.1. Providing Welfare

The forest area in the Tenganan Pegringningan Traditional Village is actually a mixed land which, apart from being protected, is also used as plantation land or moor by local indigenous people. This forest area is located in a hilly area or on a plateau that is higher than residential areas which includes Kangin Hill, Kauh Hill, and Kaja Hill with an average slope of 40%. The status of land ownership in forest areas is divided into two, namely individual property and customary village property (collective or communal), but the management of all these lands remains under the authority of the adat village. Most of the land is worked by land cultivators.

I Wayan Rupa and friends illustrate that the majority of the people of Tenganan Pegringningan’s livelihood is farming and gardening. This can be seen from the land use for plantations and rice fields. Tegal land and plantations are located in the western, eastern and northern hilly areas, while rice fields are located in the east of East Hill. The topography is mostly hilly which is a village forest with quite a potential condition, besides producing fruit it also produces cotton, palm fiber, wood and water sap (tuak). The natural environment of this hill for the people of Tenganan Pegringningan has economic value, social value and natural value so that it is very well preserved. Besides that, according to [15], in addition, forest conservation efforts in Tenganan Pegringningan Village also aim to protect water sources, because the Bukit Kangin forest is a forest with a water catchment area, a place of natural resources, so the forest needs to be preserved. So that the ecological function of the forest as a water supply is maintained and the existence of the forest is also well maintained. To continue to provide welfare for the people of Tenganan Pegringningan Village, in every village meeting
forum it is always emphasized that the community is an important component in forest conservation. By borrowing the opinion of [16] who explains that one of the important elements in forest management is the concept of conservation, especially regarding the sustainability of forest products. Since it was first born until now, the definition of forest product sustainability has evolved and varies from country to country. At first a forest was considered to be used sustainably if annual cutting or yoman felling did not reduce yield capacity and if after logging was carried out throughout the Yoman forest, the potential for stands in the field did not decrease as before logging [16]. The concept of sustainability of these results has changed as stated by [17] that: The endeavor to facilitate the continuous and optimal provision of all tangible and intangible effects of the forest for the benefit of human being of present and future generations. Therefore, the concept of sustainability of forest products is now generally considered to have a relationship with a wider scope in terms of ecology and socio-economics of a region.

The other side of the concept of forest product sustainability in forest management is the concept of normal forest, this concept is closely related to the silvicultural practice and the yield regulation policy used [16]. According to Osmaton in [16] normal forest is a forest that can achieve and maintain the degree of forest perfection to meet the provisions in accordance with management objectives. Ideally, normal forest is a stand with an even distribution of age classes and maximum increment. The annual cutting or yoman cutting in essence must be equal to the increment for the period in question. Thus the maximum wood yield can be expanded over time without jeopardizing future yields, and therefore forest sustainability can be maintained. Since yield sustainability can mean that forest clearance or yoman is equal to the annual increment, the amount of harvest can be calculated as equal to the current increment. This view is the basis for the method of setting results based on increment alone. The problem is how the current increment is estimated or measured. In this way the estimator only sees the yield settings based on the number of trees and the size of the diameter. This way it will be easy to identify whether the tree is sustainable [16].

To maintain the level of forest sustainability as desired, the Forest Stewardship Council (FSC) and European Forest Certification (PEFC), which are organizations that develop standards for sustainable forest management, are set by each institution. The FSC standard stipulates ten principles as prerequisites for good world-class forests, each principle has criteria and yoman as requirements for fulfilling good forest management (certified forest), the ten principles are:

1) Compliance with law FSC principle, which directs managers to comply with all national and international legal regulations related to their business activities as well as FSC principles
2) Tenure and use rights and responsibilities, namely directing forest managers to be responsible for their land tenure and use rights.
3) Indigenous people's rights, namely directing managers to respect the rights of local communities around the management area so that a mutual symbiosis occurs.
4) Community relations and worker rights, namely directing managers to have good relations and or cooperate with the surrounding community and comply with employee rights according to regulations.
5) Benefit from the forest, which directs forest managers to identify and record all benefits from managed forests, including benefits for the surrounding community.
6) Environmental impact, namely directing managers to carry out the Yoman system to a minimum of damaging the environment.
7) Management plan, which requires managers to have good work plans for aspects of production, social and environmental plans in carrying out their activities.
8) Monitoring and yoman t, which requires managers to systematically monitor all work activities and carry out yoman assessments in order to make improvements.
9) Maintenance of high conservation value forest, which directs managers to maintain and maintain areas within their scope of work that are proven to have high conservation value, such as main springs, wildlife habitats, and cultural heritage.
10) Plantation, namely directing plantation forest managers to meet principles one to yoman and conservation criteria set by the FSC for plantation forests.

3.1 2 Avoiding Customary Sanctions
The life of the Tenganan Pegringsingan Traditional Village community is regulated in awig-awig which also regulates sanctions for those who destroy the village forest. Violation of the rules of local wisdom will result in the imposition of strict sanctions on those who violate. The sanctions imposed can be more severe if the party who violates the status of village manners, as stated by I Wayan Yasa below: “The sanctions are very severe if you commit a violation. If someone cuts down a forest indiscriminately, then a village krama member must step down from a village krama member to become an ordinary village member… and be subject to sanctions, fines, and so on.” Other consequences that are no less severe can also be felt by those who violate these awig-awig. The consequence is in the form of public scorn for the violators, where the scorn can be felt to be heavier when compared to their obligation to pay fines for the violations they have committed, namely getting scorn from their extended family.

The sanction was imposed by the Pakraman village through the village kliang as the daily executor of customary government with reference to awig-awig. If the village kliang cannot make a decision regarding the appropriate sanctions to be imposed on the violator, then the village kliang will ask for consideration from the luanan as an advisor in the Tenganan Pegringsingan traditional government structure. The decision-making process here can also involve all members of village manners by holding a village meeting in the bale agung. In the case of a yoman meeting, village manners can also participate in presenting kliang gumi who are representatives of the Tenganan Pegringsingan community as a whole to give consideration to the decisions to be taken.

Village manners as the party leading the government in Pakraman Tenganan Pegringsingan Village can collectively be seen as the ruling party, where they have the power to consider and enforce the application of awig-awig and the sanctions for violations against members of the subjugated community. The application of awig-awig and the imposition of sanctions on every form of violation of awig-awig to the violator is a manifestation of the application of symbolic violence, namely violence that is forced to obtain obedience which is not perceived as coercion, but is accepted as something that should be so. Symbolic violence can be carried out by individuals or groups who have symbolic capital. So that in this case it can be understood that village manners are also included in that kliang desa is a group that has symbolic capital, namely capital that comes from honor or prestige. In fact, those who are classified as village manners are respected by the local community, where in the classification of the population in the community in the village, those who are classified as village manners occupy the top position.

The policy decided by the village manners has legitimacy that is recognized and accepted by the local community. Legitimacy here is very important, because this can support the preservation of local wisdom which is a mental structure (habitus), related to forest management in the well-established village of Pakraman Tenganan Pegringsingan, in addition to ensuring the sustainability of power relations. The obligation given
by Pakraman village to Tenganan Pegringsingan youths to take part in Metruna Yoman activities can also be understood as a form of implementing symbolic violence.

3.2 Village Forest Conservation Strategy
3.2.1 Family Agent
Various efforts for the preservation of village forests are carried out by the Traditional Village which is based on Tri Hita Karana. The agents of change in society are maximized by the Traditional Village Prajuru. The socialization of local wisdom in the form of awig-awig which regulates forest management in the Pakraman Tenganan Pegringsingan Village community is obtained from an early age in childhood. The socialization took place in the family environment, in the community, and through Nyoman's metruna activities. The socialization aims to introduce and improve each individual's understanding of society towards these awig-awig. The socialization also aims to increase attention and introduce the responsibility of every member of the community towards their environment. The responsibility here is in the form of the obligation of every member of the community to maintain the sustainability of the environment, including the forests they own.

3.2.2 Community Agent
In the Tenganan Pegringsingan community, the family is an agent who plays a very important role in disseminating the local wisdom. This can not be separated from the interactions that occur in the family can take place more intensively, where in the process of these interactions educative communication can be established. As stated by [18] that communication between family members can be educative communication if parents intentionally want to transform values into children.

In terms of socialization in this family environment, parents play a very important role in introducing and providing an understanding of the local wisdom to their children. In addition, parents are also a source of knowledge for the child to ask everything related to local wisdom in forest management. The socialization is a very important initial capital for the development of a child to further understand the local wisdom in the future. In addition, the knowledge gained from this socialization process can help to internalize the local community's habits related to forest management into the child or self.

With this violation case, the public can get real examples of the acceptable consequences of violating awig-awig. In this case, people not only get information by hearing or through stories, but also by seeing or knowing it directly. The socialization of local wisdom also took place in the Metruna Nyoman activity. This Metruna must be followed by every Tenganan Pegringsingan youth before they get married. This activity is intended to better introduce the local community's customs and prepare the younger generation of Tenganan Pegringsingan who will later replace his predecessor's position in running the wheels of customary government as members of village manners.
Without participating in this activity, a young man will not be recognized as an adult by custom. In this activity, the socialization of local wisdom in forest management is carried out by giving speeches or lectures to the participants of the activity. The speech here can be given by local
community traditional leaders. The socialization is not done by telling chapter by chapter of awig-awig as stated in the book of awig-awig, but mostly by telling examples of cases of violations that have occurred in people's lives. This is intended so that participants are interested in listening to the information presented. In addition, this method of delivery is also intended to make it easier for participants to receive or absorb information about forest management regulations that apply to people's lives.

This way of socializing is based on the consideration that there is likely to be a difference in the abilities of the participants in capturing the information provided. This is because there is often a large age difference between the participants in the Metruna Nyoman activities. The participants in one period of this metruna nyoman activity can consist of teenagers and children, where during this activity they are no longer grouped according to age as in formal schools, but blend into one group. The following is Ketut Sudisatika's explanation regarding the socialization of local wisdom in forest management that took place in Nyoman's metruna activities.

In disseminating the local wisdom of awig-awig that governs forest management, the participants were also not given a manual as a source of reading or a source of knowledge about these rules. In this series of Metruna Nyoman activities, there is an activity that prevents ketekung. In this ngintarang ketekung activity, the participants of Metruna Nyoman will be invited to tour the Pakraman Tenganan Pegringsingan Village area. Through this activity, it is hoped that the participants who are the younger generation of Tenganan Pegringsingan will understand the area and the natural conditions of the village. So that they can find out which areas are their ancestral heritage areas that must be preserved.

3.3 Disseminate the oral tradition of the myth of Lelipi Selan Bukit

Observing all the descriptions of the myth of lelipi besides the hill in Tenganan Village, it is obtained that the story reflects the life of a farming community who believes in God Almighty, lives in a simple, homogeneous state, and helps each other. The whole story is packaged in a cultural situation of a farmer's life which is full of a sense of kinship. They understand each other, enjoy being together, both in joy and in sorrow. The story about Lelipi Selan Bukit, is a myth that is still the story of the people of Tenganan until now [19]. A brief explanation of this myth is expressed as follows:

“Lelipi Selan Bukit is a myth that is widely known by the people of the Tenganan Pegringsingan Traditional Village, Tenganan Village, Manggis District, Karangasem Regency. In this myth, it is told that in ancient times Bendesa Tenganan had fields planted with various crops such as bananas, fruits and others. The cultivation of the field was left entirely to an ethical cultivator, I Tundung. In cultivating the garden, I Tundung often experienced losses so that he felt ashamed of the Bendesa and had the thought that the Bendesa would suspect himself of these losses. To avoid further loss, I Tundung then performed penance meditation at Nagasulung Temple to ask Ida Sang Hyang Widhi Wasa to bestow a frightening appearance on I Tundung so that people would no longer
dare to steal. The request was granted and he was awarded the appearance of a large black snake. One time the son of the customary village chief came to the field bringing I Tundung rice, there he could not find I Tundung and then he shouted I Tundung's name several times. Suddenly a big black snake appeared which made Bendesa's child frightened and ran screaming to run home. He then told this to his father who then came to the field himself. Arriving at the field Bendesa also did not find I Tundung, he then called out I Tundung's name and what came was a big black snake. The Bendesa was very surprised by the arrival of the snake, but the snake who was the incarnation of I Tundung could speak and tell his story until he became a black snake. That was the last day of I Tundung who in the form of a black snake could speak like a human. And since then I Tundung was given the task of guarding the Bendesa garden and also the entire Tenganan Village area. Finally, until now the people of Tenganan believe that a large black snake incarnated by I Tundung called lelipi selan hill will continue to protect the Tenganan Village area.”

The myth of Lelipi Selahan Bukit is part of the belief system of the Tenganan Pegringsingan community. The belief system owned by this community will always influence the mindset and behavior of the Tenganan Pegringsingan community which will eventually lead to ways of managing and utilizing the environment. Lelipi Selahan Bukit has unwittingly transformed into ecological wisdom that protects the Tenganan Pegringsingan forest area.

Along with the development of the era of modernity, people's thoughts always develop, this is marked by a cognitive increase in people's thinking. Viewed from the perspective of rational thinking, the myth of Lelipi Selahan Bukit is a form of protection for the ancestors of the Tenganan Pegringsingan community for their forest environment, with the existence of the myth of Lelipi Selahan Bukit, it is hoped that residents will not dare to destroy the forest area indiscriminately. Forests as one of the areas that support the livelihoods of the people of Tenganan Pegringsingan should indeed be preserved. Forests store natural resources, water reserves that are useful for villagers and keep Tenganan Pegringsingan Village protected from natural disasters such as landslides. The myth of Lelipi Selahan Bukit also serves as a reminder for the residents of Tenganan Pegringsingan to always be careful when entering the forest area, because in the forest there are dangerous animals. Animals such as snakes that still inhabit the forest area in Tenganan Pegringsingan Village can be used as a benchmark that their habitat area is still well maintained, because if the habitat area has been damaged, the animals will become difficult to find in the area. The existence of snakes can also be used as signals of a natural event for the people of Tenganan Pegringsingan Village.

4. Conclusion

The background of the preservation of the Village Forest in the Tenganan Pegringsingan Traditional Village is motivated by the fact that the village forest has provided welfare. This can be seen from the work of most of the people as farmers, and there are several rights that can be fulfilled if the sustainability of the village forest is maintained. Forest management is regulated with the aim of community welfare. However, traditional villages have
special rights in the form of ngalang, ngambeng, ngambang, ngerampag for the purposes of religious ceremonies (Hinduism). Ngalang is the right to take 7 coconuts, 5 combed bananas, 9 pineapples, 1 jackfruit, mango, wani, duku, kepundung, ron (palm leaf), busung (palm / coconut leaf) and 1 bamboo stick per clump. Ngambeng is the right to take atakeh and acutak palm wine, according to need. Ngambang is the right to catch one chick that is still with its mother per brood. Meanwhile, ngerampag is the right to cut down 1 tree per cutak. Another thing behind forest conservation is the existence of awig-awig which regulates and provides strict sanctions for those who dare to destroy the forest. Preservation is carried out by using agents of change such as families and communities and no less important is socialization through the Materuna Nyoman tradition, which is one of the cultural curriculum materials by introducing the village environment.

References


