



## THE ROLE OF TRADITIONAL BELIEFS AND LOCAL WISDOM IN FOREST CONSERVATION

Asep Mulyadi<sup>1</sup>, Moh. Dede<sup>2</sup>, Millary Agung Widiawaty<sup>3</sup>

<sup>1</sup>Faculty of Social Sciences Education, Universitas Pendidikan Indonesia,  
Jln. Dr. Setiabudhi no. 229, Bandung City, West Java, Indonesia

<sup>2</sup>Center for Environment and Sustainability Science, Universitas Padjadjaran,  
Jln. Sekeloa No. 01, Bandung City, West Java, Indonesia

<sup>3</sup>Research Center for Nuclear Energy System, National Nuclear Energy Agency (BATAN),  
Jln. Kuningan Barat, DKI Jakarta, Indonesia

<sup>1</sup>asepmulyadi@upi.edu, <sup>2</sup>m.dede.geo@gmail.com, <sup>3</sup>millary04@gmail.com

### ABSTRACT

*Deforestation has become a global issue, primary forests have been converted into plantations, agricultural land, and built-up area. Although many environmental regulations have been enacted since the emergence of the sustainable development concept, in reality, they are not effective when compared to forest management by indigenous peoples. This article intends to reveal the role of traditional beliefs and local wisdom in forest conservation. We selected five indigenous communities as representatives of beliefs and forest conservation efforts in Indonesia ie. Nagari Sungai Buluh, Mollo, Kampung Naga, Manggarai, and Dayak Kanayatn. This research uses qualitative data that is analyzed by a descriptive approach, it can explain in detail the forest management by indigenous peoples. Traditional belief systems and conservation have proven to maintain the forests, and also ensure the availability of natural resources and ecosystem services for humans in the surrounding. The indigenous peoples consider the forest to be a clean and sacred place, it can only be accessed or used at certain times. The forest zoning by indigenous peoples guarantees its sustainability and is evidence of the application of ecocentrism, humans are part of nature and are obliged to protect the resources that have been mandated by God.*

**Keywords:** forest management, Indonesia, sustainability, traditional community.

### INTRODUCTION

Forests in Indonesia are one of the natural resources that must be preserved. Forests have various essential functions for human life and others such as hydrological, orological, economic, strategic, ecological, and aesthetic functions. The dynamics of forest ecosystems that are local will affect the global situation (USDA, 2017). Changes to forest ecosystems both in quality and quantity can trigger various environmental problems. When observing the biogeochemical cycles that occur on Earth, forests play an important role in the cycle of water, carbon, nitrogen, and phosphorus. Forest ecosystems contribute to 70 percent of atmospheric humidity and

emit aerosols – mold spores, pollen, microorganisms, and other biological dust – which act as condensation nuclei that trigger precipitation (Evans, 2017). Forest ecosystems are also able to reduce splash erosion that can erode topsoil due to the kinetic energy of rainwater and allow some of the water to slowly flow to the ground surface or be re-evaporated after being held back by leaves, stems, twigs, and plant canopy. The reduction of splash erosion contributes to a decrease in soil colloid content and sediment load in surface water flows that usually cause problems such as silting and eutrophication in storage and rivers (Asdak, 2013). Even the root of forest plants penetrating the soil also

plays a role in the rainwater infiltration process and reduces the run-off rate that can simultaneously increase the capacity and level of groundwater (Widiawaty et al., 2018).

Even though it is considered a renewable natural resource, restoration of forest ecosystems is a big challenge if the damage has eliminated various ecosystem functions and disrupted the existence of other resources, especially water and soil. High population pressure on land causes forest ecosystems to continue to be threatened and degraded by development activities, land clearing, and forest and land fires (USDA, 2019). On the other hand, this threat also arises due to the nature of the forest as common-pool resources (CPRs) which have common properties so that their use is non-rivalry and it seems that the principle of non-excludability can't be applied. This concept causes forest resource management to often face problems, the tendency of forests to be overexploited, and over-exploitation due to the anthropocentric paradigm. This phenomenon continues to occur, even after the enactment of Law Number 32 of 2009 concerning Environmental Protection and Management (Asdak, 2018). This law is not yet strong enough to regulate and overcome environmental problems that exist in Indonesia, even the circulation of protected animals and plants in the market (Mulyadi & Dede, 2020). It is necessary to pay attention to the cultural principles and local wisdom of each different region. Local wisdom is a noble value that applies in the life of the community to, among other things, protect and manage the environment sustainably. Local wisdom is very influential in forest conservation, because the community around the forest has a sustainable function, both in the economic field and even in the socio-cultural field, thus they always maintain and manage the forest even though there are people who could not care less about the function of the forest.

Communities around the forest have their way of managing and utilizing forest products. They use customary norms and culture in managing the forest. The culture has been carried out by their ancestors from generation to generation to protect the

environment. Traditional communities strongly believe that forest management activities are an inseparable part of efforts to protect resources for future generations. Indigenous peoples also understand that forests are a reciprocal link between humans and other living things with natural factors, thus forests are often sacred to maintain their functions, and even have their name as the main feature (Ati et al., 2017; Iskandar, 2017). The important role of forests for humans can be observed in various traditional communities in Indonesia that use forests as the basis for the philosophy of utilizing natural resources and environmental balance. Communities that still keep traditional values and depend on forests create various patterns of forest management through the existence of sacred forests (Baso, 2009; Iskandar, 2009). Indonesia's diverse geographical conditions have triggered the emergence of spatial isolation that has led to various local people's beliefs about forests. The very high ethnic and cultural wealth presents local wisdom in utilizing the forest resources available in their environment. Therefore, this paper aims to present the role of traditional belief systems and conservation in forest preservation in Indonesia.

## RESEARCH METHOD

Indigenous peoples are a unitary human population, its members are not only tied to the place of residence of a particular area but are also bound to hereditary relationships in kinship ties (genealogical) and social rules (Sangha, 2020; Mahuika & Kukutai, 2021). For traditional people, forests are also considered a gift from their ancestors that must be protected (Iskandar, 2016). In this study, the traditional communities used as study materials represent the cultural diversity in Indonesia such as the Nagari Sungai Buluh (West Sumatra), Mollo community (East Nusa Tenggara), Kampung Naga (West Java), Manggarai Tribe (East Nusa Tenggara), and Dayak Kanayatn community (West Kalimantan). This study completely uses secondary data from previous studies. Efforts to find similarities and differences in the role of belief systems and traditional conservation in forest conservation are carried out through

literature studies from various credible library sources (Williams et al, 2020). We analyzed the data qualitatively with a descriptive approach. Qualitative descriptive research aims to explain in more detail the problems to be investigated by studying individuals, groups, and phenomena (Seixas et al, 2018).

## RESULTS AND DISCUSSION

Protecting forests in a special way carried out by traditional communities is an ethic that must be implemented which is part of their customary norms. Environmental ethics as a cultural product is considered to have high value, it must be implemented in the cultural system (Diana & Pasya, 2015). Humans develop cultural value systems related to the environment, especially forests. If the forest has decreased its carrying capacity and is at a limit that is considered to be able to destabilize their lives. Efforts to maintain community behavior can harm the environment and other humans at the times (Christiawan et al, 2017). Thus, local wisdom as an effort to maintain and protect forests owned by traditional communities is an environmental ethic.

### Traditional Belief and Local Wisdom in Forest Conservation

#### *Nagari Sungai Buluh*

Nagari Sungai Buluh community is the Minangkabau tribe of West Sumatra (BPS, 2018). The need for water resources for household purposes and irrigation of rice fields are obtained from the Kuau River which is located in the nagari forest area. In Sungai Buluh Nagari Forest area, there is cooperation between local government and traditional leaders to determine forest protection activities. To manage forests, the community creates a management agency that has the task of implementing forest management rights boundaries, compiling work plans, protecting forests, carrying out rehabilitation, and making management plans to comply with the directives of the Ministry of Environment and Forestry of Indonesia (KLHK). The Nagari Sungai Buluh community makes customary rules that the Nagari people must obey (Agustini et al., 2017). The regulation is considered able to

reduce illegal logging and can protect forest areas. Nagari Sungai Buluh community is managed based on local wisdom which forms three divisions of forest area (zoning), namely the forbidden forest, stash forest, and processed forest (*parak*). The forest utilization is managed based on ancestral tribe land ownership, which means that people other than those who own the land are prohibited from being involved in managing forest areas or utilizing the nagari forest area.

In the forbidden forest, nagari community is not allowed to use wood from forest products, except for people who are unable to meet their basic needs, then permission to *ninik mamak* who lead their respective clans. The existence of this agreement is because if the timber is cut down, the damage to existing water resources in the forest area will have an impact on the needs of water resources in the community. People who are granted a permit are only allowed to take two sticks of wood and have to replace them with new tree seedlings. To preserve the forbidden forest, the community also believes in the myth of *Inyiak Balang*, the forest guard. *Inyiak Balang* is a tiger (mythological creature) that protects the forest from human greed. In this area, strict customary law applies if the community violates it (Muhammad, 2017). These prohibitions include:

- 1) *Dilarang maambiak buah-buahan yang masih mudo*. Prohibition of picking unripe fruit.
- 2) *Dilarang menebang pohon petai*. This prohibition serves to prevent people from taking too much *petai* and other fruits.
- 3) *Dilarang menebang kayu untuk tujuan apapun*. This prohibition serves to prevent the community from cutting down wood because woody plants are an important component in protecting the nagari area from landslides and floods.

In stash forest, Nagari Sungai Buluh community uses it as a reserve forest to meet their daily needs in case of food shortages. In *the forbidden* forest, nagari community is prohibited from taking and consuming raw forest products. In addition, in stash forest, nagari community is required to plant plants that can cure diseases (herbs). In addition to

the customary regulations above, according to Hamzah and Suharjito (2015), there are also several prohibitions and norms of nagari community, including:

- 1) *Dilarang manabang pohon dakek jo mato aia di hutan ulahan dan simpanan*. It is forbidden to cut down trees close to springs because it will damage water sources that are needed for agriculture and the clean water needs of the nagari community.
- 2) *Masuk sarato tau kalua sarato isi*. Outsiders may not enter the forest without permission from the nagari. The community is not allowed to sell land to outsiders.

In addition to managing the stored forest as a reserve forest, Nagari Sungai Buluh community also utilizes certain forest areas as an economic source known as *parak*. In Nagari Sungai Buluh, *parak* is planted with plants that have a selling value for the community. In the processed forested processed forest, nagari community plants a lot of cultivated plants such as forest chilies and ferns as the basic ingredients. In addition, nagari community also helps to plant herbal plants such as *kumis kucing* (*Orthosiphon aristatus*), *pasak bumi* (*Eurycoma longifolia*) and *tapak dewa* (*Gynura divaricata*). This herbal plant is a source of income for nagari community.

#### *Mollo Community*

The Mollo community is an indigenous community that inhabits the Mollo area, East Nusa Tenggara. According to the Mollo people, the forest is a resource to meet the various needs of life that is part of their culture (WWF, 2010). The attachment of the Mollo community to the Gunung Mutis forest is a tradition that has been passed down from generation to generation, although in the current era some of the forests is categorized as a state forest area through *Cagar Alam Gunung Mutis* (CAGM) or Gunung Muntis National Park. For the Mollo community, the CAGM area is a place for herding livestock as well as a provider of water sources for households, building materials, and firewood. Non-timber forest products such as honey can also be used to increase household income.

The forest in Mount Mutis also serves as a habitat for *ampupu* (*Eucalyptus urophylla*) (Anna, 2015).

Mount Mutis for the Mollo community is likened to a *mama* (mother) who can irrigate the island of Timor, thus soil fertility and the welfare of living things are maintained. In addition, the Mollo community also describes the forest of Mount Mutis as land that symbolizes their flesh, water as blood, stones as bones, and trees as their hair. Referring to the arrangement of the area, Mollo community divide the Gunung Mutis forest area into three parts (zones): *nais-tala'* (*hutan larangan*), *padang penggembalaan*, and *perkampungan*. *Nais-tala'* (forbidden forest) is an area with natural forest ecosystems that are still natural and are considered sacred to the Mollo community. The forbidden forest is sacred as a place for performing rituals in which there is a *Faut kanaf-Oe kanaf* which is a stone belonging to each clan used for ceremonies for their ancestors.

For the Mollo community, the existence of living things in *the forbidden forest* should not be taken and must be approved by the customary leader. The ban on cutting down trees is strictly enforced following the contents of the regulations made by the king and traditional elders. The ban can be revoked after meeting the objective criteria, for example having met the harvest requirements that must be preceded by a traditional ceremony (Anna, 2015). Apart from sanctions and prohibitions, there are also custom orders to plant banyan trees (*Ficus sp.*), bamboo (*Bambossa sp.*) and tamarind (*Tamarindus indicus*) around springs in forbidden forest. Tree planting is also carried out around springs, riverbanks, landslide-prone areas, and in their clan's stone sites – several rituals such as honey harvesting ceremonies, welcoming guests, and vows making ceremonies are carried out there.

Mollo community has a tradition of raising large animals such as cows and horses. To prevent livestock from entering the forbidden forest, the community-made *O'af* (a fence for roaming livestock). Apart from raising livestock, the Mollo community also

has an economic activity, harvesting forest honey (Nomeni & Hakim, 2012). Honey is taken traditionally and regulated in strict customary regulations, such as not being late for harvesting, taken at night, beginning with a traditional ceremony and slaughtering livestock, praying to ancestors, and singing along the way to the tree where the harvest is located. The song is a compliment and appeals to the bees, thus the following year they will produce honey again. Tree honey is collected twice a year.

#### *Kampung Naga*

Kampung Naga is a traditional Sundanese community that inhabits one of the fertile valleys in the Tasikmalaya Regency. Kampung Naga community preserves *papagon hirup* culture that includes a will regarding forbidden forest (prohibition forest) and burial areas, a mandate about a simple lifestyle, a prohibition on actions and ceremonies, as well as the consequences of violating traditions such as feelings of guilt, thus they can create a harmonious life with their cultural and natural environment. One the evidence of harmonious living behavior can be found in the wisdom of forest and environmental management (Ningrum, 2012). The arrangement of the Kampung Naga area is divided into three zones based on its sacredness, holy, clean, and dirty areas (Iskandar & Iskandar, 2018). In Kampung Naga there is a customary forest known as *leuweung larangan* (forbidden forest) as a sacred area because there are graves of the ancestors. This forest is strictly guarded, thus visitors are restricted (Hidayat, 2015). Kampung Naga community still preserves various myths and ancestral messages containing various prohibitions, invitations, and sanctions in managing the forest (Pratiwi, 2016). *Tri tangtu* is closely held by Kampung Naga community, the forest is a sacred area that is kept sacred and preserved from outside influences and is jointly monitored. In addition, there is also an *absorption* forest that contains a variety of plants that contribute to the microclimate of Kampung Naga. This belief is continuously strengthened and institutionalized into a lifestyle, thus Kampung Naga community can utilize forest resources appropriately.

The forest has the main function, as a life support system to regulate water, prevent flooding, control erosion, and maintain soil fertility. Community-based management of Kampung Naga forest resources has benefits as a sustainable economic, social and ecological balance. For Kampung Naga community, the forest is a gift from their ancestors that must be protected. The local wisdom of Kampong Naga community has been proven to save an area and its contents with various forms of prohibition (*pamali*). The forest in Kampung Naga is divided into four areas, *hutan larangan* (forbidden forest), *hutan keramat* (sacred forest), *hutan serapan* (absorption forest) and *hutan garapan* (cultivated forest). *Hutan larangan* is a forest area that is closely guarded for its sustainability. *Hutan larangan* is across the Ciwulan river (Darusman, 2016; As'ari et al., 2018). They believe anyone who visits *the forbidden* forest will not return, although there is no evidence of this. This is what makes the people of Kampung Naga and visiting tourists afraid to enter the forbidden forest. The benefit is the forest and the ecosystem there are still well preserved and maintained.

In *the sacred forest*, Kampung Naga community believes in ancestral origins in forming their village. In *hutan keramat* there are tombs of the ancestors, *Sembah Dalem Singaparana* (Sukandar, 2020). The function of a *sacred forest* is the same as a forbidden forest for conservation. The difference between a sacred forest and the forbidden forest is access to the forest. At certain times, such as holding traditional ceremonies, only people can enter *the sacred forest*, such as visiting the graves of their ancestors (Saringendyanti et al., 2008). In addition to the prohibition against entering *the forbidden forest and sacred forest*, there is also the prohibition of cutting down trees in *the forbidden forest and sacred forest*. In addition, if a baby is born, they must plant one tree, using a selective cutting system, if they cut down a tree they must replace it. There is another forest type, Kampung Naga community also has *hutan serapan*. This area is a forest area planted with types of trees that can absorb water, such as pine, mahogany,

and bamboo. Trees create a microclimate for agricultural land and preserve water and soil fertility, thus helping to create a sustainable agricultural production process. *Absorption* forest is a collaboration with PT Perhutani, Kampung Naga community and other communities often hold tree planting cooperation. The arable forest is a forest that the Kampung Naga community uses and manages the forest. Kampung Naga community is an agrarian society whose life is farming by utilizing cultivated arable forests (Ningrum, 2012). *Hutan garapan* in

Kampung Naga is privately owned. Even though the land they cultivate is private, they still use and manage the forest in accordance with applicable customary rules (**Table 1**). The access rights of the Kampung Naga community to arable forests in the Kampung Naga forest area are classified as owners who have transfer rights to be able to sell or rent all or part of the land they own but in accordance with applicable laws and norms, and may not be sold or rented to the outside community.

**Table 1.** Customary Regulations in Kampung Naga related to *Hutan Garapan*.

Customary Law Rules	Benefit
the arable forest is private land for generations and may not be handed over to a community other than the Kampung Naga community.	Maintaining the rules, laws, and customary norms so as not to fade.
The area of arable forest has tall trees (primary forest).	Water absorption and wind resistance.
The farming system must comply with the applicable customary law rules according to the star count.	Plant pest control.
Farming is expected to use organic and environmentally friendly materials.	Maintenance of soil and plant fertility.
Performing rituals of planting, sowing, and harvesting.	Respect to God and ancestors.
There are certain dates in horticulture planting.	Planting at the same time, maintaining a community culture, treating ecosystems wisely, and encouraging social responsibility to help each other.
The rule of the selective logging system applies in cutting trees.	Protection of places for growth and regeneration, protection against pests and diseases, as well as protection against fire hazards, and ensuring the sustainability of production in small areas.
Taking, utilizing, and cutting down must be in accordance with needs, not desires.	Limiting excessive cutting of trees.
Replanting if cutting trees.	Reforestation and reboisation.
One baby born requires one tree to be planted.	Ecological sustainability for future generations.

Source: Modification from Pratiwi, 2016

#### *Manggarai Tribe*

Earth in the perception of the Manggarai tribe is a mother who provides food, she must be respected and treated with sacredness. Meanwhile, the sky is the father who gives rain for soil fertility (Iswandono, 2016). Manggarai tribe inhabits the Ruteng

Mountains, located in Manggarai Regency and West Manggarai Regency, East Nusa Tenggara. Manggarai tribe treats the forest as a sacred place. In *Barong Wae*, worshipers of the spirits that guard the springs require to designate a sacred area for the forest located at the water source. At *the Barong Wae*

ceremony, sometimes people plant a fig tree (*Ficus variegata*) as part of the ritual. Especially for the forest around Lake Ranamese, the Manggarai tribe also forbids taking the existing wild plants and animals (Rambut, 2016). This belief comes from the legend that Lake Ranamese was once a densely forested valley. Reputedly, once there was a hunter who turned into a large stone known as *watu naga* (dragon stone), where people often performed the ritual of pouring chicken blood over the dragon stone for their ancestors every year.

Manggarai tribe has sustainable local belief values related to the spatial distribution system of land management to prevent degradation. The sacred area is a place to perform traditional worship rituals (Perdana, 2016). The people of Wae Rebo worship the seven spirits who inhabit the seven sacred places. Those are high hills from which to see the entire Manggarai area. While *Ponto Nao* and *Golo Ponto* are the names of the northern hills, *Hembel* is the name of a place, *Wae Regang* is the name of a dry river that has water in the rainy season, *Ulu Wae Rebo* is the name of the water source of the Wae Rebo river and *Polo* is the name of a deep ravine. The five sacred areas to the north of the village are all within the boundaries of the Wae Rebo village area. Manggarai tribe believes that ancestral spirits are in the north, which is the boundary of the Wae Rebo people, thus people do not work in *the enclave* area that is in the north of the sacred area. *A sacred forest (pong cengit)* is spring protection for the traditional barong wae ceremony. The belief in barong wae causes the area around springs and lakes to be sacred. Sacred forest is a tradition of forest protection with community participation, thus it should be a core zone in a national park (Kosmaryandi, 2012). The Manggarai people believe in totemism that keeps certain animals in the forest.

Manggarai tribe also believes that forest plants have magical powers to cure disease. The willingness of the community to carry out forest conservation is due to the high benefits of a species or the myth of environmental benefits such as increasing water discharge. This conservation effort

becomes very strong when there is an element of belief by giving the name of a god to the teno tree as the abode on a type *Ficus sp.* tree, as well as the existence of myths of goodness such as the assumption that it can ward off evil spirits and can maintain peace (Iswandono et al., 2015). The forest is not allowed to be cut down by anyone except with the permission of *Tua*. Timber harvesting by the community is not on a large scale for sale, but only for the need to build houses and still consider sustainability aspects (Firdaus, 2012).

#### *Dayak Kanayatn*

Dayak Kanayatn community lives in Sidas Daya Village, Landak Regency, West Kalimantan. Sidas Daya village is a hilly area with an altitude of 200 meters above sea level consisting of lowlands and a small part of swampy areas. Kanayatn Dayak community has a relationship with forest that they call *kompokng marang*. This concept refers to the traditional wisdom of forest management that has existed for a long time and has always existed in the community (Sahertian, 2021). *Kompokng* indicates a location that is overgrown with large trees and is taller than other trees there. *Kompokng* still exists because of the behavior of Kanayatn Dayak Community that respects it. *Kompokng* is generally owned by one family, but can also be owned by individuals if the ownership mechanism continues to be inherited and maintained from generation to generation (Desinta & Darmastuti, 2019). Each household has at least two *kompokng* areas planted with various trees – usually those that can be used as building materials. *Kompokng* also has a sacred value for Dayak Kanayatn community because it contains sacred places and springs. *Kompokng* is often associated with mystical things because it is believed that society is inhabited by spirits (Soni, 2012).

The sacralization of *kompokng* causes the utilization of the resources in it to be carried out wisely with an open scheme. Anyone can take the fruit that falls from the tree in the *kompokng* area. This rule becomes different if a *kompokng* is designated as a customary area (*kompokng marang*) where

forest products may not be taken by anyone, including the owner. According to local legend, *kompokng marang* was discovered by an old woman named *Ne' Togak*. One day *Ne' Togak* was hunting in the forest and then met someone who was believed to be a spirit who had transformed into a human and introduced himself as *Jubata* - Dayak Kanayatn community called the highest entity with this term (Hartatik, 2006). *Jubata* is believed to have passed down customs to the ancestors of the Dayak Kanayatn community. *Jubata* gave a mandate to *Ne' Togak* that the forest should not be used to open fields, should not be polluted, any animals should not be killed, and the stones contained in it should not be moved or taken. Dayak Kanayatn community is also required to bring offerings into the forest if they want to open fields and after the harvest season. This belief must be obeyed and has consequences, calamity will occur in Sidas Daya Village. Inside the *Kompokng Marang*, there are two altars known as *panyugu* (field opening ritual) and *Naik dango* (post-harvest thanksgiving). *Kompokng Marang* also has stacked stones consisting of three levels with a height of about 300 meters from the ground. The three rock levels each have the names *Badango*, *Lengor*, and *Alatn* rocks as representations of *Jubata*, thus they are used as places to offer prayers. Anyone who wants to enter *kompokng marang* is required to ask permission from *Jubata*. The prayer is usually led by a priest *panyangahatn* or *sampakng*. Thus, *kompokng marang* can be interpreted as a *hutan larangan* (Oktaviani, 2015).

The local wisdom of Dayak Kanayatn community in Sidas Daya Village in protecting *kompokng marang* is proven by beliefs and customary law that apply to everyone (Rahmawati, 2012; Soni, 2012). First, *Jubata* maintains the belief regarding *kompokng marang* as conveyed by *Ne' Togak*, so that its existence is sacred which must be obeyed if you do not want calamity (*jukat*) both in terms of behavior and taking resources in it. Second, there is customary law that contains various customary orders and sanctions for those who violate it. Those who want to enter *Kompokng Marang*, must notify and ask permission from *pangkalatn*.

The role of Dayak Kanayatn community in Sidas Daya Village in protecting *kompokng marang* can be observed in their conservation efforts, including:

- 1) Build a guardrail around *kompokng marang* using wood and bamboo.
- 2) Planting several types of trees such as rubber, tengkawang, and langsung outside the *kompokng marang* area as markers or boundaries.
- 3) If there are parties who intentionally / unintentionally damage, burn, or cut down trees in the *kompokng marang*, they are required to replace them and replant them with the same type and a number of trees.

### **Differences and Similarities in Forest Conservation**

Based on five indigenous communities with traditional belief systems and conservation in forest conservation, there are similarities and differences due to cultural diversity. Differences in the biophysical environment (ecosystem) and good social systems also influence the interaction pattern of the community with the surrounding forest. These differences can occur due to past experiences, availability of forest resources, and patterns of use. The behavior of indigenous communities in treating forests is also influenced by their cosmological, where people with traditional life patterns and styles interact more strongly with nature (Suharyono & Amien, 2013). Another difference in the traditional pattern of forest conservation is the decision-making mechanism regarding the management and access to its resources. Generally, in adat communities, decisions regarding forest management are made through adat institutions by deliberation, while others decide based on individual cults. Access to *the forbidden* forest is also relative to the social system because some forbidden forests accessed at any time (as long as they are licensed), while others can only be accessed when there are certain conditions such as ceremonies, traditional rituals, or emergencies (Latifah et al., 2020; Dede et al., 2021; Uspayanti et al., 2021).



The similarity between traditional conservation in forest conservation is the assumption that forest conservation is an effort to preserve life. The forest is described as a mother figure who always protects if its existence is maintained. Mother's love is manifested in the form of resources – especially water. Another similarity is the concept of a forbidden forest that has strict management under customary regulations. The prohibited forest is a core area that has an influence on other surrounding areas, including cultivation areas and community-built areas (Ritonga et al., 2014). Resources of forbidden forests are common goods but have very limited criteria for use, where access must be through community elders. Another similarity can be seen from the community's philosophy in forest spatial planning, where the forest is always limited to the area of cultivated forest for both plantation and animal husbandry. Indigenous communities always give natural signs of vegetation or physical objects – geographically (landform), thus certain parties realize that a *forbidden* forest is a forbidden area to be entered and used carelessly (Rukayah et al., 2018; Mulyadi et al., 2020; Rachmawan, 2020). Indigenous communities are also aware of and apply the concept of ecosystem sustainability, where the sanctions for violating forbidden forests are ecologically friendly punishments, such as replanting trees according to the number (Setiawan et al., 2012). In addition, indigenous communities regard the forest as a sacred area because it contains tombs and relics of ancestors, supernaturals, and other purified entities.

## CONCLUSIONS

Population growth and development are inevitability occurred by human beings in the world. This phenomenon causes human demand for resources to increase and creates high pressure on the environment, including the existence of forests where modern regulations are powerless to deal with human greed. In response to this, humans must be able to take lessons from the community that always protects the forest, as is often found by indigenous peoples. Traditional belief

systems and conservation have proven to be able to maintain the existence of forests and ensure the availability of other resources. Conservation efforts on natural resources regard it as a sacred place that can only be accessed or used at certain times. Human belief is part of nature and has been mandated by God to indigenous peoples, which is very necessary for the community in the post-modern era, thus studies of it can be improved.

## RECOMMENDATIONS

Efforts to explore various local wisdom can continue to be deepened by further studies, including the forest management by indigenous peoples. It will be useful to know the dynamics of traditional forest management in the globalization and modernization era.

## REFERENCES

- Agustini, S., Dharmawan, A. H. & Putri, E. I. K. (2017). Bentuk Pengelolaan Hutan Nagari Sungai Buluh Kabupaten Padang Pariaman. *BHUMI: Jurnal Agraria dan Pertanahan*, 3 (2): 267-278.
- Anna, D. J. (2015). *Konservasi Hutan Gunung Mutis oleh Masyarakat Mollo, Nusa Tenggara Timur*. Skripsi. Fakultas Kehutanan, Institut Pertanian Bogor.
- As'ari, R., Sari, W. & Meilani, D. (2018). Pelestarian Sungai Ciwulan Berbasis Kearifan Lokal Leuweung Larangan di Kampung Adat Naga Kabupaten Tasikmalaya. *Prosiding Seminar Nasional Geografi UMS IX 2018*. Solo: UMS Press.
- Asdak, C. (2013). *Hidrologi dan Pengelolaan Daerah Aliran Sungai*. Yogyakarta: Gadjah Mada University Press.
- Asdak, C. (2018). *Kajian Lingkungan Hidup Strategis: Jalan Menuju Pembangunan Berkelanjutan*. Yogyakarta: Gadjah Mada University Press.
- Ati, A., Anshari, B. I., Rosanti, E., Widiawaty, M. A. & Dede, M. (2017). Socio-cultural and environmental aspects of toponymy system of villages in the East Region of Cirebon. *Proceeding of the 2<sup>nd</sup> International Conference on Sociology Education*. Bandung: Scitepress.

- Baso, G. (2009). Mophilonga Katuvua: Konsepsi Masyarakat Adat Toro dalam Mempertahankan Kelestarian Sumberdaya Hutan. *Situs Keramat Alami: Peran Budaya dalam Konservasi Keragaman Hayati*. Jakarta: Yayasan Obor Indonesia.
- BPS. (2018). *Kecamatan Sijunjung dalam Angka*. Sijunjung: BPS Kabupaten Sijunjung.
- Christiawan, P. I. (2017). The Role of Local Wisdom in Controlling Deforestation. *International Journal of Development and Sustainability*, 6 (8): 876-888.
- Darusman, Y. (2016). Kearifan Lokal dan Pelestarian Lingkungan (Studi Kasus di Kampung Naga, Kabupaten Tasikmalaya dan di Kampung Kuta, Kabupaten Ciamis). *Jurnal Nasional*, 1 (1): 1-15.
- Dede, M., Nurbayani, S., Ridwan, I., Widiawaty, M. A. & Anshari, B. I. (2021). Green development based on local wisdom: a study of Kuta's indigenous house, Ciamis. *IOP Conference Series: Earth and Environmental Science*, 683: 012134.
- Desinta, S. G. & Darmastuti, R. (2019). Konstruksi Identitas Masyarakat Dayak Melalui Budaya Baroah Dalam Membangun Citra Desa Sompak di Kabupaten Landak. *Avant Garde*, 7(2): 218-233.
- Diana, D. & Pasya, G. K. (2015). Pelestarian dan Peran Masyarakat di Kawasan Sekitar Situ Cisanti. *Sosiohumanika*, 8 (2): 293-312.
- Evans, K. (2017). *Mengaitkan Pohon dan Air: Selamatkan Hutan, atau Kekurangan Curah Hujan*. Retrieved from <https://forestsnews.cifor.org/49154/mengaitkan-pohon-dan-air?fnl=id>.
- Firdaus. (2012). Puar Cama Untuk Anak Cucu: Kearifan Lokal Untuk Sustainability Forest di Manggarai Barat. *Jurnal Ilmu Sosial Mamangan*, 1 (1): 39-50.
- Hamzah, D. & Suharjito, I. (2015). Efektifitas Kelembagaan Lokal dalam Pengelolaan Sumber Daya Hutan pada Masyarakat Nagari Simanau, Kabupaten Solok. *Jurnal Risalah Kebijakan Pertanian dan Lingkungan*, 2 (2): 117-128.
- Hartatik, H. (2006). Adat dan Perubahan Budaya Pada Masyarakat Dayak Kanayatn. *Naditira Widya*, 16: 87-102.
- Hidayat, S. Y. (2015). *Pengaruh Kearifan Lokal Masyarakat Adat Kampung Naga Terhadap Pengelolaan Sumberdaya Hutan*. Tesis. Fakultas Kehutanan, Universitas Gajah Mada.
- Iskandar, J. & Iskandar, B. S. (2018). Etnoekologi, Biodiversitas Padi dan Modernisasi Budidaya Padi: Studi Kasus pada Masyarakat Baduy dan Kampung Naga. *Jurnal Biodjati*, 3 (1): 47-42.
- Iskandar, J. (2009). Pelestarian Daerah Mandala dan Keragaman Hayati oleh Orang Baduy. *Situs Keramat Alami: Peran Budaya dalam Konservasi Keragaman Hayati*. Jakarta: Yayasan Obor Indonesia.
- Iskandar, J. (2016). Etnobiologi dan Keragaman Budaya di Indonesia. *Umbara: Indonesian Journal of Anthropology*, 1 (1): 27-42.
- Iskandar, J. (2017). *Ekologi Manusia dan Pembangunan Berkelanjutan*. Bandung: Program Studi Magister Ilmu Lingkungan, Universitas Padjadjaran.
- Iswardono, E. (2016). *Integrasi Kearifan Lokal Masyarakat Suku Manggarai dalam Konservasi Tumbuhan dan Ekosistem Pegunungan Ruteng Nusa Tenggara Timur*. Disertasi. Sekolah Pascasarjana, Institut Pertanian Bogor.
- Iswardono, E., Zuhud, M., Hikmat, A. & Kosmaryandi, N. (2015). Pengetahuan Etnobotani Suku Manggarai dan Implikasinya terhadap Pemanfaatan Tumbuhan Hutan di Pegunungan Ruteng. *Jurnal Ilmu Pertanian Indonesia (JIPI)*, 20 (3): 171-181.
- Kosmaryandi, N. (2012). Gagasan Baru Zonasi Taman Nasional: Sintesis Kepentingan Konservasi Keanekaragaman hayati dan Kehidupan Masyarakat Adat. *Jurnal Manajemen Hutan Tropika*, 18 (2): 69-77.
- Latifah, S., Purwoko, A., Rambey, R. & Tarigan, R. H. (2020). The Form of Local Wisdom of Society in Maintaining the Sustainability of Forest Ecosystems in Lake Toba Region. *Proceeding of the International Conference of Science*,

- Technology, Engineering, Environmental and Ramification Researches 2018*. Medan: Scitepress.
- Mahuika, N. & Kukutai, T. (2021). Introduction: Indigenous Perspectives on Genealogical Research. *Genealogy*, 5(3), 63.
- Muhammad, A. (2017). *Keragaan Praktik Kearifan Lokal dan Keberlanjutan Hutan Nagari (Kasus: Nagari Sungai Buluh Kabupaten Padang Pariaman dan Nagari Paru Kabupaten Sijunjung Sumatera Barat)*. Skripsi. Fakultas Ekologi Manusia, Institut Pertanian Bogor.
- Mulyadi, A. & Dede, M. (2020). Perdagangan Burung di Kota Bandung (Antara Ekonomi, Keanekaragaman Hayati, dan Konservasi). *Jurnal Geografi Gea*, 20 (2): 105-112.
- Mulyadi, A., Dede, M., Widiawaty, M. A. & Anshari, B. I. (2020). Toponyms and flood disaster in The Capital Region of Jakarta, Indonesia. *Proceeding of the 4<sup>th</sup> International Geography Seminar*. Bandung: Universitas Pendidikan Indonesia.
- Ningrum, E. (2012). Dinamika Masyarakat Tradisional Kampung Naga di Kabupaten Tasikmalaya. *Mimbar*, 28 (1): 47-54.
- Nomeni, Y. & Hakim, M. R. (2012). *Ternak dan Madu untuk Lestarian Kawasan Gunung Mutis*. WWF Indonesia.
- Oktaviani, U. D. (2015). Mantra Upacara Ngabati' Pada Upacara Pertanian Suku Dayak Kanayatn di Dusun Pakbuis Desa Banying Kecamatan Sengah Temila Kabupaten Landak Kalimantan Barat. *Vox Edukasi: Jurnal Ilmiah Ilmu Pendidikan*, 6(2), 168-183.
- Perdana, M. R. (2016). Tata Spasial Permukiman Tradisional Manggarai berdasar Ritual Pentu di Kampung Wae Rebo di Pulau Flores. *Space*, 3(2): 174-200.
- Pratiwi, C. (2016). *Pengaruh Kearifan Lokal Masyarakat Adat Kampung Naga terhadap Pengelolaan Hutan*. Skripsi. Fakultas Ekologi Manusia, Institut Pertanian Bogor.
- Rachmawan, D. (2020). Masyarakat Adat, Pengetahuan Ekologi Tradisional, dan Hutan Gambut di Indonesia. *Gambut dan Pengetahuan Ekologi Tradisional: Kebijakan, Degradasi, dan Restorasi*. Jakarta: Yayasan Pustaka Obor Indonesia
- Rahmawati, N. (2012). Nilai Pendidikan dalam Budaya Menanam Padi Suku Dayak Kanayatn di Kalimantan Barat. *Patanjala*, 4 (1): 14-24.
- Rambut, K. (2016). Kontroversi Persepsi Generasi Tua dan Generasi Muda dalam Teks Ritual Barong Wea. *Prosiding Simposium Internasional Bahasa-Bahasa Lokal Nasional dan Global*. Kendari: Universitas Halu Oleo.
- Ritonga, A., Mardhiansyah, M. & Kausar, K. (2014). *Identifikasi Kearifan Lokal Masyarakat Hutan Larangan Adat Rumbio, Kabupaten Kampar Terhadap Perlindungan Hutan*. Pekanbaru: Universitas Riau.
- Rukayah, R. S., Puguh, D. R., Susilo, E. S. & Indraswara, M. S. (2018, May). Local Wisdom of the Native Settlement as A Main Gate in the Northern Axis of Javanese City Center in Semarang. *IOP Conference Series: Earth and Environmental Science*, 152: 012032.
- Sahertian, C. I. (2021). Sakralitas Burung Enggang dalam Teologi Lokal Masyarakat Dayak Kanayatn. *Epigraphe: Jurnal Teologi dan Pelayanan Kristiani*, 5 (1): 58-75.
- Sangha, K. K. (2020). Global Importance of Indigenous and Local Communities' Managed Lands: Building a Case for Stewardship Schemes. *Sustainability*, 12(19), 7839.
- Saringendyanti, E., Yuniadi, A. & Adyawardhina, R. (2008). Kampung Naga, Tasikmalaya dalam Mitologi: Upaya Memaknai Warisan Budaya Sunda. *Laporan Akhir Penelitian Peneliti Muda (Litmud)*. Sumedang: Fakultas Sastra, Universitas Padjadjaran.
- Seixas, B. V., Smith, N. & Mitton, C. (2018). The qualitative descriptive approach in international comparative studies: using online qualitative surveys. *International Journal of Health Policy and Management*, 7 (9): 778.
- Setiawan, A. Y., Pasya, G. K. & Rohmat, D. (2012). Nilai-Nilai Tata Lingkungan terhadap Kelestarian Lingkungan di

- Kampung Cikondang Kabupaten Bandung dan Implikasinya dalam Pembelajaran Geografi. *Jurnal Geografi Gea*, 12 (2): 61-70.
- Soni, C. P. (2012). *Kearifan Lokal Masyarakat Adat Dayak Kanayatn dalam Pengelolaan Hutan Adat (Marang) di Kampung Sidas Daya Kecamatan Sengah Temila Kabupaten Landak Kalimantan Barat*. Skripsi. Fakultas Ilmu Sosial. Universitas Negeri Yogyakarta.
- Suharyono, S. & Amien, M. (2013). *Pengantar Filsafat Geografi*. Yogyakarta: Penerbit Ombak.
- Sukandar, J. (2020). *Nilai-nilai pendidikan Islam dalam upacara Hajat Sasih pada masyarakat Kampung Naga Tasikmalaya*. Bandung: UIN Sunan Gunung Djati.
- USDA. (2017). *Water, Air, and Soil*. Retrieved from <https://www.fs.fed.us/science-technology/water-air-soil>.
- USDA. (2019). *Forests to Faucets*. Retrieved from [https://www.fs.fed.us/ecosystem-services/FS\\_Efforts/forests2faucets.html](https://www.fs.fed.us/ecosystem-services/FS_Efforts/forests2faucets.html).
- Uspayanti, R., Butarbutar, R., Hiskya, H. J. & Ainani, A. F. (2021). Local Wisdom and its Implication for Nature Conservation. *Review of International Geographical Education Online*, 11 (5): 292-302.
- Widiawaty, M. A., Dede, M. & Ismail, A. (2018). Comparative Study Modeling of Ground Water Using Geographic Information System in Kayuambon Village, Bandung Barat Regency. *Jurnal Geografi Gea*, 18 (1): 63-71.
- Williams, P., Sikutshwa, L. & Shackleton, S. (2020). Acknowledging Indigenous and Local Knowledge to Facilitate Collaboration in Landscape Approaches—Lessons from a Systematic Review. *Land*, 9(9), 331.
- WWF. (2010). *Perambahan Lahan Hutan pada Kawasan Hutan Mutis-Timau*. Kupang: WWF Nusa Tenggara.