

# Sustainable Forest Management: From Awiq-Awiq to a Global Perspective

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Awiq-awiq is a local term of customary law applied by Bayan indigenous people in West Nusa Tenggara, Indonesia. This custom regulates the relationship between a human and other humans, nature, and God. One of the awiq-awiq that rules the relationship of humans and nature is the rule of forest management among Bayan indigenous people, which is based on management sustainability. This study aimed to uncover the sustainable forest management practices, in accordance with awiq-awiq. This research used a qualitative method by identifying the condition of the Bayan indigenous people in managing forest that is based on awiq-awiq from a forest management sustainability perspective. The data collection was carried out through in-depth interview and documentation. There is five stages of data analysis: data reduction, categorisation, synthesis, focus of the research, and summary of the results. The research results showed that the management was in accordance with the aspects of sustainable forest management. The form of forest management using awiq-awiq can maintain forest preservation. Furthermore, it could contribute to sustainable forest management and can be adopted by the international world.

**Keywords:** *Community forest management, Awiq-awiq, Local wisdom.*

## Introduction

The environmental preservation and economic development of a country is accomplished when the forest resource management considers the people's livelihood. Forests are natural resources that occupy a very strategic position in national and state life (Rahmad, 2019). Forests are used as a source of wood, food, and energy. However, this has caused 50 of the tropical forests in the world to diminish (Global Canopy Programme, 2013), and it negatively impacts on people's lives, increases the emission of greenhouse gases, and decreases the biodiversity. These activities are driven by forest exploitation that aims to meet economic demands. The recent socioeconomic transition leads to an increase in human influence, mostly due to the increase in forest exploitation (Malek et al., 2018). The phenomenon of forest logging which is occurring in the world, cannot be controlled. This logging is intended for farming area expansion, grazing, firewood, wood selling, and industrial and infrastructural development, causing forest damage to increase (Ellison & Bachtrog, 2013).

Forest damage happens in a number of countries. Among others, is in Indonesia, with the damaged area of 9,629,204 hectares or 53 per cent out of total forest area, and 8,431,969 hectares of 47 per cent within the forest area (Department of Forestry West Nusa Tenggara 2017). Forest Watch Indonesia (2015) mentioned the forest damage rates in Indonesia during the period of 1970–2015 were 0.6–1.2 million hectares a year in 1970–1990, 1.7–2 million hectares a year in 1990–2000, 1.5–2.2 million hectares a year in 2000–2009, and 1.5 million hectares a year in 2009–2015. Such rates represent the extensive damage in Indonesia. The forest destruction in Indonesia is related to the illegal logging by companies or individuals. One area in Indonesia heavily affected by illegal logging is West Nusa Tenggara, with the forest area of more than 1,071,722 hectares or 53.18 per cent of the total area of its land. The forest damage rates in West Nusa Tenggara were 60 per cent in 2015, and 52 per cent in 2016 (Department of Forestry West Nusa Tenggara, 2017). The destruction rate is at the 1.4 per cent level or minimally 60 per cent of the forest is defective per year. Another cause for forest damage in West Nusa Tenggara is the increase of forest land conversion. In 2009, people illegally used 2,000 hectares or 0.19 per cent of the forest area, and in 2015 it increased to more than 9,308.52 hectares or 0.87 per cent (Department of Forestry West Nusa Tenggara 2017). Illegal logging and forest land conversion are the main causes of forest destruction (Qian et al., 2016; Verbist et al., 2004).

Despite the rapid rates of forest destruction in Indonesia, some forest areas are sustainably preserved. One of the interesting examples is the customary forest area in Bayan, West Nusa Tenggara. Besides the ongoing forest preservation, its vegetation covering area also increases. Based on the research conducted by Wulandari (2013), the change rate of the vegetation of customary forest in Bayan increased in 2000–2012. This vegetation increase is strongly assumed to be related to the role of customary institution in applying *awiq-awiq* for forest

management. *Awiq-awiq* is customary rules or customary law that regulates the relationship of human with God, nature, and other humans which is applied in the Bayan indigenous community. *Awiq-awiq* is arranged regarding the value or way of life of the Bayan indigenous people, and *wetu telu*, which is the three relationships between human and God, human, and nature. The principle of *awiq-awiq* as a norm is the reflection of people's characteristics, figures, attitudes in life, and way of life (Surangangga, 2006).

No one knows when *awiq-awiq* was first created and applied. *Awiq-awiq* is the ancestor's heritage bequeathed hereditarily from generation to the next generations (Jayadi, 2014). The rules (*awiq-awiq*) of the relationship between human and nature are realised in customary forest management in Bayan, aimed at keeping its preservation. *Awiq-awiq*, as the customary rule or law in terms of customary forest management in Bayan, does not have any chapter, article or verse like the common law, but the substance of *awiq-awiq* contains five components: prohibited things, allowed things, obligated things, customary sanction, and the mechanism to apply the sanction. *Awiq-awiq* in the forest management must be obeyed by all Bayan indigenous people. If they violate the rules, they will be imposed with the sanction in accordance with the substance of *awiq-awiq*. The forest management depends significantly on the participation of the local community to avoid the negative effect on the forest and maintain the forest preservation (Ginting et al., 2015; Magdalena 2013; Tamelene et al., 2014).

*Awiq-awiq* of forest management regulates people's behaviour to keep the environment or natural resources with respect and responsibility for nature. People's way of thinking and acting in interaction with nature, and the other people in all ecosystems, has actually existed in the traditional society or indigenous people with the traditional knowledge, known as local wisdom (Mungmachon, 2012; Surtikanti et al., 2017). Based on this, the local wisdom of *awiq-awiq* is the response of human's interaction with the environment, in the form of environmental ethics. In line with the opinion of Sumarmi and Amiruddin (2014), the local wisdom is integrated from several aspects, such as knowledge, belief, sight, and ethics that guide the human behaviour in living within the ecological community.

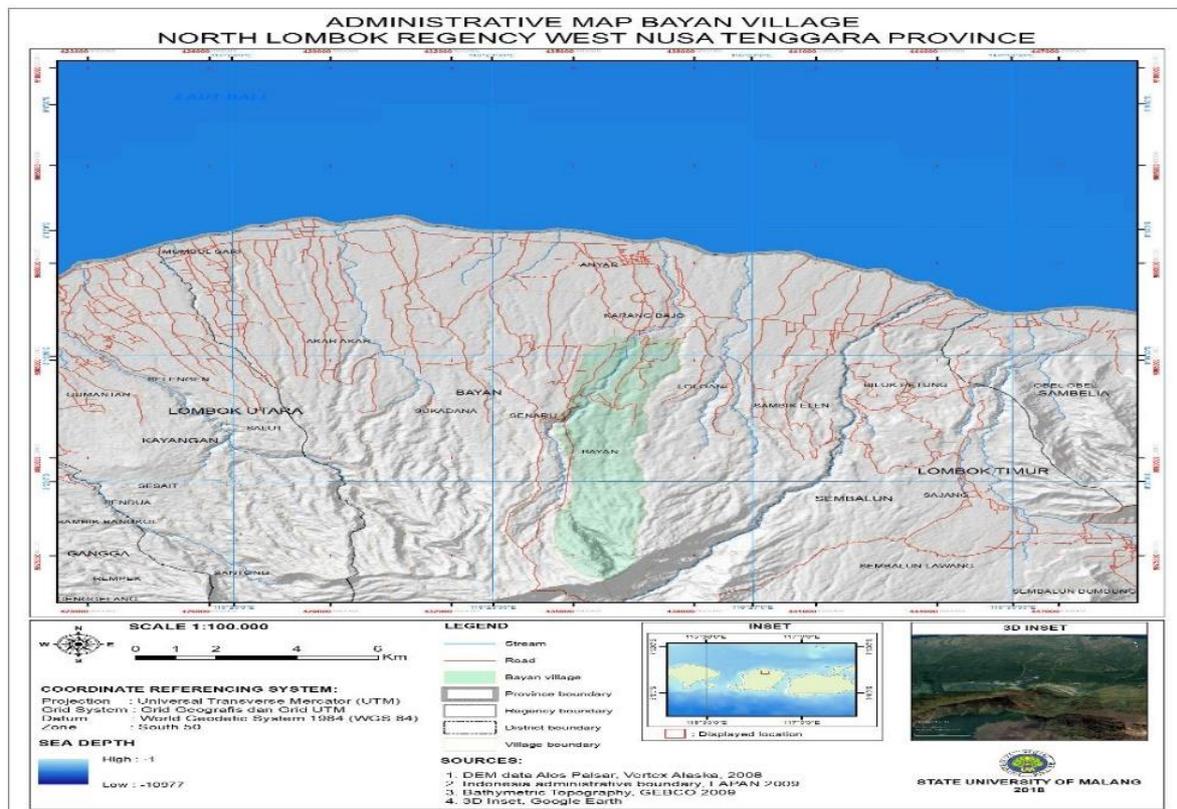
Several research studies on local wisdom-based forest management that has been conducted includes the Togutil Tribe, Halmahera (Tamelene et al., 2014); Oromo Ethnic, in South Ethiopia (Tesfaye et al., 2012); Pakpak Ethnic, in North Sumatera (Hidayat, 2011); Tengger Tribe, in East Java (Ayuninggar et al., 2011); Ban Nong Hua Khon Tribe, and Tambon Nong Muen Than, in Thailand (Burrirat & Thamsenamupop 2010); and Wana Tribe, in Central Sulawesi (Sahlan, 2012). The results collectively proved that local wisdom-based forest management could preserve the forest and balance the aspect of ecology, economy, and culture. The ecological aspect includes planting and fostering the trees, harvesting the forest products, and not destroying the forest by hunting the animals, logging the trees carelessly, and burning the forest area (Suryaningsih et al., 2012), which will collectively have a positive impact on

forest conditions. This is in accordance with the sustainability forest management perspective, wherein the natural resources are respected by not destroying them. Based on this case, the researchers studied uncovering the sustainable forest management practices in accordance with the *awiq-awiq* of the Bayan indigenous people and supported by the principles of sustainable forest management.

## Methods

This study is a qualitative research with the objective to reveal sustainable forest management based on *awiq-awiq* and is supported by the aspect of sustainable forest management. The research was conducted in the Bayan Village, Bayan Sub-District, North Lombok Regency, West Nusa Tenggara Province, Indonesia. The research was conducted in the Bayan Village for the following reasons: 1) the customary forest in that village still uses *awiq-awiq* in its management; 2) the Bayan Village has a sustainable customary forest; and 3) the Bayan villagers still tightly hold the local wisdom in all behaviours, and among others, in the interaction between individuals and the environment or natural resources. The map of the research location can be seen in Figure. 1 below.

**Figure 1.** Map of Research Location



Source. Research Team

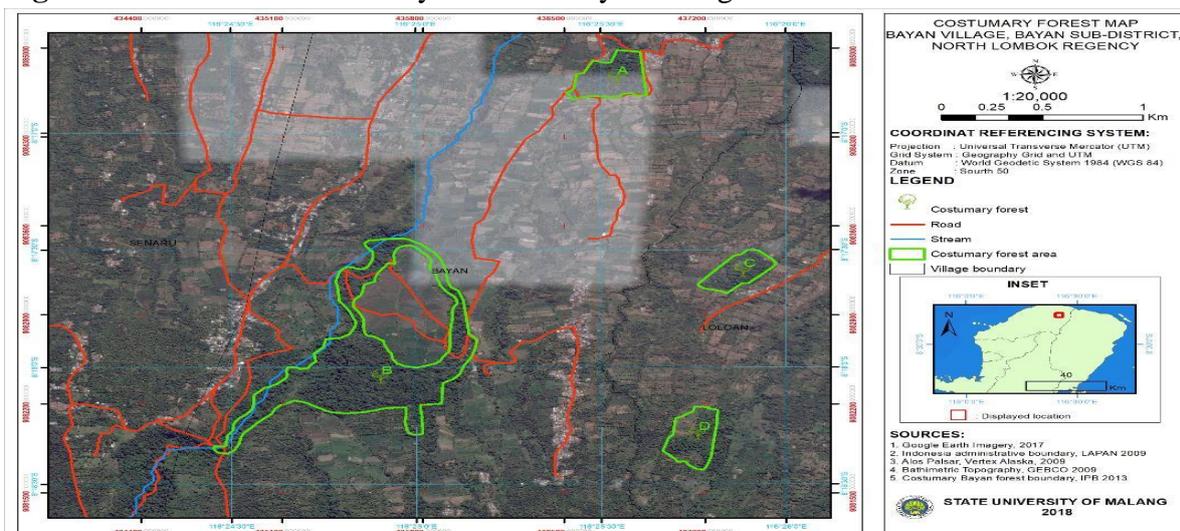
The data collection in this research used in-depth interview, and documentation. The informants in the study included traditional leaders, indigenous peoples, and the district and village heads in Bayan. The traditional leaders became the key informants, meanwhile the supporting informants consisted of the Head of the Sub-District, the Head of Bayan Village, and the Bayan indigenous people. The data obtained from the informants was at an unlimited number because data collection is not performed if the data is already saturated. This qualitative research data analysis includes five phases of data reduction, categorisation, synthesis the focus of the research, and the summary of the results.

## Results

### *Characteristic of Research Area*

The Bayan Village is located in the Bayan Sub-District of the North Lombok Regency, in West Nusa Tenggara. Furthermore, the Bayan Village is situated around the forest at the southern foot of Mount Rinjani. The village is well-known for its original villagers that are loyal to their customs and traditions, such as how to behave towards other humans, God, nature, and the pattern and mechanism of living. The astronomical location of the Bayan Village is 116040'5319" BT-116043'4061" BT and -8026'5211" LS-8037'9154" LS. Meanwhile, the geographical location of the Bayan Village is south of Batu Kiang in the Central Lombok Regency, east of the Sambelia Sub-District in the East Lombok Regency, west of Kayangan in the West Lombok Regency, and north of the East Sea. Based on such a location, the customary forest is divided into four areas, namely Bangket Bayan (65.51 per cent), Mandala (11.73 per cent), Tiu Rarangan (7.83 per cent), and Pengempokan (10.34 per cent). A map of the customary forest location is provided below in Figure 2.

**Figure 2.** Location of Customary Forest in Bayan Village



The location of the customary forest in Bayan, and as portrayed in Figure 2, is spread across the following hamlets: the customary forest of Bangket Bayan (A) in the Teras Genit Hamlet; the customary forest of Mandala (B) in the Mandala hamlet; and the customary forests of Tiu Rarangan (C), and Pengempokan (D) in the Batu Jompang Hamlet. The Bayan indigenous people believe that the customary forest in Bayan is a sacred place because it can provide blessing and welfare for Bayan indigenous people. Such an assumption is supported by the existence of a spring in the customary forest that becomes the living source in Lombok Island generally, and in Bayan especially.

### **Awiq-awiq-based Forest Management by Bayan Indigenous People**

From the in-depth interview, it was found that the *awiq-awiq*-based forest management by the Bayan indigenous people is based on their behaviour towards the forest. The *Awiq-awiq*-based forest management of the Bayan indigenous people as the customary law, was formalised in the village regulation in 2006. However, the customary institution is still responsible for this *awiq-awiq*; the Government does not intervene in this regulation. It is in line with the statement of one of the in-depth interview participants, as follows:

“*Awiq-awiq*-based forest management as the customary law in Bayan has been used as a regulation of [the] village since 2006, so this customary law has been formally approved, but the government still may not intervene. After this *awiq-awiq* is formalized into the regulation of [the] village, Bayan indigenous people are proud of and obey this rule”.

The formalisation of *awiq-awiq* in the form of the village regulation can help Bayan indigenous people in preserving the customary law which they believe can preserve the forest. Besides, people consider the forest as the source of life, so they respect the forest and protect it. This case is in line with the statement of one of the in-depth interview participants, as follows:

“Bayan indigenous people are afraid of logging the tree[s] in the forest because of the sanction. Besides, the forest has a mystic power and sacred value. They regard [the] forest as the life source, so that they have to conserve it in accordance with *awiq-awiq*”.

The forestry resources utilisation for the Bayan indigenous people is only for fulfilling their current needs by picking up, and not strimming or logging, to maintain the forest’s preservation. This case is stated in *awiq-awiq*, which can create the harmonisation of the relationship between human and nature, so that the forest preservation in the Bayan Village can be maintained until today. This is supported by one of the in-depth interview participants, as follows:



“We use the forestry resources to fulfil the needs at that time. For example, we get five candlenut seeds falling down in the forest. We do not take all those seeds, but we just take as we need by picking up, not strumming”.

Such a statement provides the context that people must be fair and not selfish in using the forestry resources.

## Discussion

The *Awiq-awiq* of forest management by the Bayan indigenous people brings a positive impact on the forest and the quality of the environment. This customary law is known and understood by all Bayan indigenous people. However, due to the modern era, the people worry that the local wisdom, which has provided benefit to their life, will be degraded and thus this customary law is formalised as the regulation of the Bayan Village. The formalised *awiq-awiq* acknowledges the customary forest and its law among the communities, and it will continue to be applied in line with the times. However, the customary institution is still responsible for that law, without intervention from the Government. This condition is the result of research by Crook and Decker (2006) on forest management, where in South Africa, it does not want to intervene and control the Government. The Government has a role in the conduct of activities relating to indigenous forest conditions. Indigenous peoples, as indigenous forest owners, have the right to manage its personal interests, and the Government should play by setting a standard in forest governance according to the character and local wisdom that can be valuable to inherited local economic, social, and cultural traditions, as well as a sustainable environment (Hadur, 2018). According to Article 1 (12) of Regulation Minister of Environment and Forestry No. P. 83/MENLKH/Secretariat/Kum.1/10/2016 of the Social Forestry, the ‘indigenous forest’ is a forest in the area of the indigenous peoples. In addition, the indigenous forest is a forest that is within the customary rights that governments are supposed to respect of the territorial jurisdiction of indigenous and tribal peoples (Sari & Fu'adah, 2014).

The society and government *awiq-awiq* uphold and defend forest management because the *awiq-awiq*-based forest management can be an effective strategy in sustainable forest management since it has been proven to preserve the forest up until today. The implementation of *awiq-awiq* can resist the rate of forest land conversion and keep the sustainability of the forest (Research Team West Lombok, 2006). A similar research was also conducted by Youn (2009) in South Korea. It identified the use of forest resources through traditional knowledge and lifestyle. It was found that traditional knowledge as a cultural heritage could help conserve the forest and finally improve the quality of the environment and the value of forest resources. Similarly, decentralisation theory suggests that local decision makers may make better decisions than centralised authorities (Tadesse et al., 2017). Customs management technology should be part of all forest planning activities (Messerchmidt & Hammett, 1997). Indigenous

peoples, as indigenous forest owners, have the right to manage its personal interests, and the Government should play by setting a standard in forest governance according to the character and local wisdom that can be valuable to the inherited local economic, social and cultural traditions, as well as a sustainable environment (Hadur, 2018).

A sustainable forest management strategy to conserve forests must consider the ecological, economic, and social factors. Moreover, the aspect of sustainable production forest management is in line with the substance of *awiq-awiq*. This aspect becomes the reference in managing the continuation of forest functions by considering the ecological, economic, and social aspects so that the environment and sustainable development can improve (Nurtjahjawilasa et al., 2014; Park et al., 2017). The interaction between the aspects of the sustainable forest management, which are based on the natural resource development using *awiq-awiq*, can be seen in Table 1.

**Table 1:** Interaction of Aspects of Forest Management and *Awiq-awiq* Custom

The aspect of Forest Management	<i>Awiq-awiq</i> Custom.
The certainty and safety of forestry resources	The protection and safety of the forestry resources based on <i>awiq-awiq</i> are implicitly seen in issuing the sanction for the rule offenders by the customary institution.
Preservation	The forest preservation is the realisation of the substance of <i>awiq-awiq</i> and reflected from the people's perception.
Ecological conservation	The rule of <i>awiq-awiq</i> is related to the prohibited things, allowed things, obligated things, and the sanction of the violation to the ecological conservation activity.
Economic, social, and cultural benefits	Considering the social, economic, and cultural aspects stated in <i>awiq-awiq</i> regarding the prohibited things, allowed things, obligated things, and the sanction of violence.
Institutional	activities related to <i>awiq-awiq</i> will be discussed through adat institutions

According to Table 1 there is a suitability of *awiq-awiq* with aspects of the sustainable forest, which considers that Bayan Indigenous peoples in forest management cannot be separated from the supervision of the customary institution assigned in the forest. The customary forest in Bayan is kept by *perumbaq* and *penyanding*; *perumbaq* refers to the one who supervises and stays in the forest, while *penyanding* is the one who helps the *perumbaq*. They keep the forest from people who destruct the forest based on *awiq-awiq*. Supervision can minimise illegal logging. If there are people who violate *awiq-awiq*, for example by illegal logging, they will be sanctioned according to the customary law. This case is supported by the aspect of preserved

forest management regarding the forest protection. The forest protection is undertaken through supervision of the illegal logging (Abdullahi et al., 2013; Relox et al., 2011).

Any violation of the rules will be handled by the custom and the sanction will be imposed clearly. The customary law enforcement supports people to obey *awiq-awiq*. The sanction will be imposed through *gundem* (discussion), during which the offenders will be called and put on trial in the customary house by determining the schedule of paying the fine and in accordance with the time and way of custom. When the offenders pay the fine, they firstly complete a purification ritual called *bedak keramis*. *Bedak keramis*, made of turmeric grate and coconut milk, is poured to the head of the offenders. Afterwards they slaughter a buffalo. The following pictures (Figures 3 and 4) are a portrayal of applying the sanction to the *awiq-awiq* offenders who conducted illegal logging.

**Figure 3. (a) and (b)** Imposing sanction to *awiq-awiq* offenders attended by *toaq lokaq*



**Figure 4.** (a) The activity of *bedek keramis* for *awiq-awiq* offenders; a sequence of the purification ritual (b) Slaughtering a buffalo after purification



Figures 3 and 4, associated with the aspect of preserved forest management, includes five components related to the *awiq-awiq* custom applied by the Bayan indigenous people. The aspect of the certainty and safety of forest resources aims to protect the forest resources from destructive activities, such as illegal logging. This case is in line with *awiq-awiq* in protecting the forest resources by providing sanction and law enforcement for the forest destroyers. The forest protection and preservation that involve the local community are the attempts to keep, protect, and maintain the forest from any kind of threat (Sukarman, 2018). The Bayan indigenous peoples retain *awiq-awiq* because of the forest conditions affect the water conditions and that have an impact on the environment and their economies. Forests are water-storage warehouses and absorb rainwater and dew which will eventually drain into rivers through the eyes of water springs in the forest (Senoaji, 2004). This impacts upon the livelihood of large-scale farmers who urgently need enough water for their agricultural activities. If there is a drought and a water shortage in the village of Bayan, it will have a negative impact on their lives, especially the economy. As the village is located in the highlands of Bayan and is vulnerable to the occurrence of landslides, the occurrence of landslides can be minimised with forest preservation. A sustainable forest is able to minimise the occurrence of landslides because plant roots can absorb water from the soil and strengthen the land movement that leads to landslides. Accordingly, forests are able to prevent erosion and landslides (Senoaji, 2004).

The safety of forest resources impacts on the forest preservation and it can be achieved by forest protection from any kind of threat that may cause destruction to the forest. This aspect is also reflected from the *awiq-awiq* substance. For example, the ‘prohibited thing’ is illegal



logging. The excessive exploitation of natural resources without considering the environmental supporting power definitely causes an ecological disaster for the ecosystem preservation and balance in this world (Prawesthi, 2016). The aspect of ecological conservation provides social, economic, and cultural benefits, which are the goals implicitly stated in *awiq-awiq*. The social benefit of the *awiq-awiq* related aspects of ecological conservation in sustainable forest management is to improve the kinship between the people by establishing good communication. This is because every year, people perform rituals or traditional events in the forest. When the events take place, society must be present and bring one chicken tail for every head of the family, as they worked together in such activities. In addition, the imposition of sanctions on violators of *awiq-awiq* will be announced and witnessed by the public. When the application of the sanctions occurs in public, people gather and interact. The economic benefits are also obtained from *awiq-awiq*. This is because the springs that continuously overflow from the forest facilitate local agricultural activities. Most of the indigenous peoples' livelihood is provided from their roles as agricultural-Bayans. Good agricultural yields will increase their economy. In addition, forest management with *awiq-awiq* is still used today and is useful for sustainable cultures. *Awiq-awiq* rules contain many elements of culture, as well as its application continues to involve traditional institutions. Ecological preservation of cultural behaviour has a positive impact on social, economic, and cultural factors (Chadijah, 2017).

The institution is the most significant aspect in regulating and directing the model of forest management. This case is in line with *awiq-awiq* that is related to the role and involvement of the customary institution, which is fully responsible for the condition of the customary forest of the Bayan indigenous people. One of the involvements of the customary institution is in customary law enforcement, for the case of *awiq-awiq* violation. This customary law enforcement influences the condition of the customary forest in Bayan, as well as the forest being sustainable up until today. The roles of customary law and institution bring a good condition and sustainability to the forest (Subiakto & Bakrie, 2015). Institutional aspects are needed for sustainable forest management (Lal, 1997; Purnomo et al., 2018). The Bayan indigenous forest sustainability provides sustainable benefits for life. This is evidenced by the springs with a debit which is able to meet the needs of the indigenous peoples' parrots, as well as three other villages, other than those used by the PDAM North Lombok. Several developing countries in Southeast Asia, including Indonesia, manage the forest in accordance with the customary law and tradition of each area and for the next generation (Poffenberger, 2006). The local wisdom can maintain the forest and environment in the form of habits that are sacred, and the value and norms that must be obeyed by the people hereditarily (Marfa'i, 2012). Therefore, the *awiq-awiq* custom is expected to contribute to a more sustainable forest management.



## **Conclusions**

Based on the research results, it can be concluded that the *awiq-awiq*-based forest management philosophy supports the sustainability of forest functions and maintains the quality of the environment. The strategy of forest management based on *awiq-awiq* is in accordance with the aspect of the preserved production forest management, which is based on natural resource development that considers the ecological factors. The *awiq-awiq* provides benefits to the ecological, economic, social, and cultural elements. The *awiq-awiq* has been formalised as the village regulation, so that it is recognised locally. Thus, it can be adopted by the international world to contribute to sustainable global forest management.

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