



Mingkuen and Kuak: The Hatam People's Practice of Local Wisdom in Sustainable Natural Resource Management in West Papua Province, Indonesia

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Abstract

The purpose of this study is to reveal the use of mingkuen and kuak in the traditional management of natural resources. The method employed in this study is the ethno-directed sampling method. Mingkuen and kuak are types of plants used as the main material in making prohibition signs. Mingkuen is the local name of *Scizostachyum lima* (Poaceae), while kuak is the local name of *Polyscias nodosa* (Araliaceae). The local name of these two species is used as the name for the prohibition signs made. The tradition of using mingkuen and kuak is a form of natural resource management practice that has been performed by the Hatam people from generation to generation. Both prohibition signs serve as a means to prevent the outsiders from accessing the owners' resources. For the Hatam people, the two prohibition signs have significant historical and cultural values. Therefore, the existence of mingkuen and kuak is highly appreciated and respected by the Hatam people. Traditional knowledge is an important part of sustainable development, and therefore it must be preserved.

Keywords: Hatam; Kuak; Local Wisdom; Mingkuen; West Papua.

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1. Introduction

Nature is home to traditional communities that have wisely managed it from generation to generation to meet their needs [1,2]. The increasing number of human population followed by the increasing needs for natural resources has led to the exploitation that is not environmentally friendly. Destruction of the nature is a serious threat to humankind [3] as it can reduce the carrying capacity of the environment to human life itself. Traditional communities are those who also experience any environmental changes that occur. Damage to the nature can even lead to the degradation in the quality of the traditional community's knowledge.

Since the shifting of paradigms from species-based conservation to community-based conservation, attention received by traditional communities as an integral part of a conservation program is getting higher, including in Indonesia, especially since the ratification of the Nagoya Protocol by the government based on law number 11 of 2013, dated 8 May 2013 on access to genetic resources including the exploitation. Recognizing the importance of traditional knowledge, in the present time, the world community has made traditional knowledge as an integral part of the conservation of genetic resources and the environment. Traditional knowledge has a significant contribution in the conservation of natural resources [4,5]. For thousands of years, traditional communities have been selecting wildlife to meet their diverse needs. The experience on friendly exploitation of nature by traditional communities subsequently forms a system of traditional knowledge passed down from generation to generation. The variety of plants discovered to be useful is a proof of the contribution of traditional knowledge in the development of modern science both in the field of food produce and medicines [6,7,8,9].

Papua (including West Papua) is an area with a very high cultural diversity compared to other regions in Indonesia (Mansoben, 1994). The huge diversity of languages in this area is an indicator of a high diversity of cultures in the Papua region. One of the ethnic groups that still maintains their cultural values in their daily lives is the Hatam people. The Hatam is actually the name for a sub-tribe of the major ethnic group, Arfak, the native people of the Arfak mountains in Manokwari, West Papua Province. In addition to the Hatam, the other sub-tribes are Meyah, Moile, Sougb, Irires, and Moskona. Among the sub-tribes belonging to the Arfak, the Hatam is the most dominant and considered the oldest group among the existing sub-tribes.

As a dominant group, the Hatam people control most of the territory in the Arfak mountains from lowlands to highlands with its main livelihood ranging from gardening, hunting, and exploiting other forest products. Like other ethnic groups, the Hatam people have the wisdom in managing their surrounding resources for their needs. *Mingkuen* and *kuak* are forms of local wisdom that are still found among the Hatam. In the midst of the rapid development of technology and information, practices of local knowledge (including the use of *mingkuen* and *kuak*) decline over time. In addition to the technology and information that is advancing and easy to access, a higher level of education, and lifestyle changes are the factors which cause the abandonment of the practices of traditional knowledge.

The Hatam actually already have an area protection system called "*igya ser hanjop*", which is often identified with traditional conservation methods. In his publication, Reference [10] mentions that "*igya ser hanjop*" is the

local community's strategy to protect natural resources from damage using the concept of zoning. Furthermore, the traditional management system is also supported by the opinion of [11] who states that the Arfak community undertakes forest conservation by dividing the forest into areas based on their designation. It is also mentioned that in its management there are areas that can be used for farming, and there are also areas intended for conservation (protected areas). Though viewed as a form of traditional conservation, the "*igya ser hanjop*" is still rightly an actualization of the Hatam's concept of simple of thinking which is "protecting what belongs to them". In their protection practices, the Hatam do not merely classify lands based on their designation, but there is a more specific thing that they do that is using prohibition signs as a traditional form of protection of the resources that they have. Currently, the use of these prohibition signs is not widely known yet as an inseparable part of the Hatam's traditional knowledge system. For that reason, this research focuses more on making efforts to reveal the practice of prohibition sign use in the context of the Hatam's local wisdom. This research needs to be conducted as a basis for establishing sustainable development policies in the Arfak mountains. In addition, exposing the values of local wisdom is a wise move to preserve the noble values and the culture of the Hatam people.

The purpose of this study is to reveal the use of prohibition signs as the Hatam people's strategy to manage their area and the existing resources contained. This research is a form of appreciation for the Hatam people who have managed and exploited the natural resources wisely using their local wisdom, and this study also serves as a documentation of their traditional knowledge. Apart from being the basis for determining sustainable development policy for the Hatam people, the results of this study can also be used as a reference and study materials for the development of science related to traditional knowledge.

2. Method

This research was conducted in the villages of the Arfak tribe in Kwau and Mokwam, Warmare district, Manokwari Regency, West Papua Province. These locations were chosen because they are the original settlement areas of the indigenous Arfaks. The method employed in this study is the ethno-directed sampling method, and the data were obtained by collecting information on the use of prohibition signs in the traditional management of the area, directly from the people who have knowledge on this matter. The respondents were selected by means of purposive sampling using the snowball sampling [12]. In addition to using the semi-structural interview technique, direct observation in the field together with the respondents was conducted to directly observe the practice of using prohibition signs and to know the materials used. The results of the study were then analyzed descriptively.

3. Result and discussion

3.1. Traditional Knowledge-based area management

As with other ethnic groups that possess local knowledge in managing and using their surrounding resources, the Hatam people also actively protect their resources to support their daily needs. The practices for protecting their resources applied by the Hatam people are the accumulation of knowledge acquired from generation to generation and the demands of the changing times. Traditional knowledge is the intellectual property, which at

the same time serves as cultural wealth passed down by the previous generation, while sustainable development is the demand and the need that must be overcome at the present time by the Hatam people.

- Land tenure system

The Papuans are generally familiar with the term “communal land” that is a plot of land of a certain area controlled individually or in groups, and usually inherited from its predecessor. The area management of the Arfak mountains is inseparable from land ownership rights owned by the Arfak as the people native to that area. The Hatam people themselves called the communal land as *andigpoinya ide dihei*, which means that the land belongs to the ancestors. *Andigpoinya ide dihei* is not only physically deemed important for a variety of purposes, but it also has a very high historical value. The land tenure system adopted by the Hatam people is a small clan-based communal land tenure system. As stated by [13], in Papua there are two land tenure systems that are individual and communal land tenure systems. It is further mentioned that the communal system is subdivided into small clan-based communal system and large clan-based communal system. In the large clan-based land tenure system, the land is owned by the community (village) leader, while in the small clan-based land tenure system, the land is owned by all members of the clan.

Although each member of the clan has the same right, the traditional order of the Hatam determines that seniors are appointed as the leaders. These leaders manage the use of land that will be used by members of their group. Since the person who can own the land is the person coming from the same lineage, there is a small chance of conflicts existing among members with regard to the ownership of the land. From the field observation conducted in the study, it was found that there are more than one land owners who come from different lineages. Differences in the land tenure or ownership system is closely linked to the history of their predecessors. According to the respondents, in earlier times the parents had to divide their land by agreement, and this has been maintained by the next generation up until now. The boundaries of the area that were agreed by the ancestors still survive and remain recognized by the following generations up to the present time. The Hatam people use materials from the nature as signs for land or area ownership boundaries. Rivers, hills, mountains, big trees and large stones are objects that are commonly used by the Hatam people as boundaries. These objects are considered safe because they cannot be moved easily, even considered not to be moved forever, and for that reason there will be no disturbance to the boundaries.

- Prohibition signs in area management practices

The communal form of land ownership indirectly represents boundaries for others who do not belong to the group of land owners for not utilizing the existing resources in the area. Some sanctions will be imposed to anyone who enters or uses the resources in an area owned by another person without any prior permission. Under the rules jointly agreed verbally, the Hatam people actively implement the protection measures for their natural resources and the life support systems which they have. The form of protection in question is a number of prohibition signs made with the aim of restricting the access of others or simply to warn outsiders not to enter the area that is not theirs. For the Hatam people, prohibition signs are something sacred and their existence cannot be considered trivial. There are two types of materials of prohibition signs used by the Hatam people in

connection with the management of the area and the resources therein. They are *mingkuen* and *kuak*.

Mingkuen is actually a kind of bamboo having a scientific name of *Scizostachyum lima*. This species belongs to the Poaceae family, and it can grow in a place up to an altitude of 700 meters above the sea level. *Mingkuen* is also used to name all of the activities in traditional rituals that use this type of bamboo. For the Hatam people, *mingkuen* has a high historical value, although in this study it is revealed that there are no compelling reasons that make this plant receive such an important place in the culture of the Hatam people. The absence of good knowledge transfer in this ethnic group is believed to be the cause of not knowing the reason why the existence of *mingkuen* is so appreciated by the Hatam people. The results of the observations revealed that the use of *mingkuen* at the present time is more based on a very strong tradition, which has been recognized and believed communally. There is a belief that *mingkuen* has a significance as the ancestral power that is highly regarded in the lives of the Hatam people. Aside from being a prohibition sign, *mingkuen* is often used as a means or medium in ritual practices of the Hatam people. However, in this article, the only discussed use of *mingkuen* is its use as a prohibition sign. In the use of *mingkuen* as a prohibition sign, there are two ways commonly used. They are the use of long-sized *mingkuen* (Figure 1a), and the use of short-sized *mingkuen* (Figure 1b). The *mingkuen* of shorter size is used when there is limited *mingkuen* available. In principle, the sacred value is not indicated by the length of the *mingkuen*, and thus, the use has the same meaning and power. In addition to the difference in size, the installation method of the two types of *mingkuen* sizes is also different as illustrated in Figure 1. In the use of long-sized *mingkuen*, a piece of *mingkuen* bamboo with a length of approximately 150 cm to 200 cm is placed on poles (Figure 1a). Whereas in the use of short-sized *mingkuen*, the *mingkuen* bamboo with the size of 30 cm to 50 cm is split into two halves at the base, and then placed on the poles as in Figure 1b. There are no specific rules regarding the length of *mingkuen* to be used. The sizes of the *mingkuen* mentioned are the sizes commonly used.

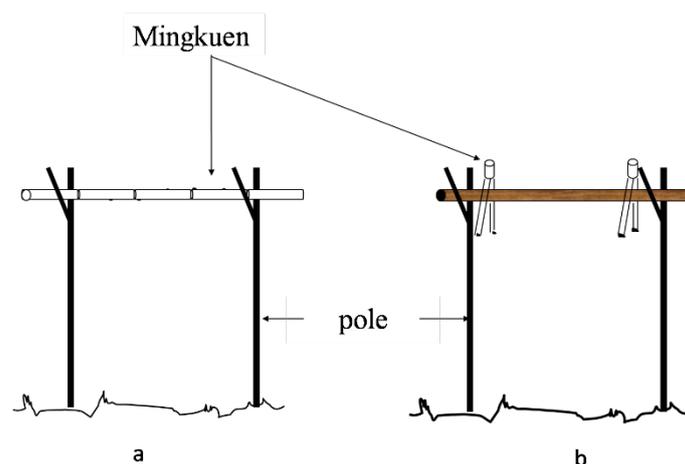


Figure 1: Illustration of the installation of *mingkuen* as a prohibition sign: (a) *mingkuen* in a long size; (B) *mingkuen* in a short size

Kuak is the term used in the language of the Hatam people for plants with a scientific name of *Polyscias nodosa* (of the Araliaceae family). This species is found both in primary and secondary forests with a height reaching over 20 meters. Based on the function, *kuak* has the same role with *mingkuen*. However, *kuak* is used in a

slightly different way. The *mingkuen* used can be short in size, while on the contrary the *kuak* used should be long in size. In addition to that, in order to further assure that the wood used is *kuak*, usually, the leaves or twigs at the ends of the wood are not removed (Figure 2). The results showed that *mingkuen* is much more commonly used than *kuak*. Even, in the present time, *kuak* is rarely used as a prohibition sign. Other than *mingkuen* or *kuak* as the main material, a pole is another component used in a prohibition sign the presence of which is very important. The pole serves to support the *mingkuen* or *kuak* to prevent it from falling off. Thus, the commonly used type of wood is the ones that are strong enough. The types of wood commonly used as a pole, are among others: *amoan* (*Piper aduncum*), *bendab* (*Linociera lanceolata*), *beni* (*Zyzygium sp.*), and *pempas* (*Garcinia sp.*). The diameter of the pole used is about 5 cm with a height of an adult Hatam in general (150 cm to 170 cm).

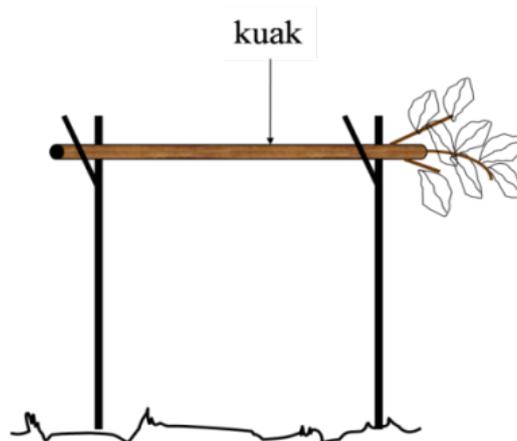


Figure 2: Illustration of the installation of *kuakas* a prohibition sign

The prohibition signs as in Figure 1 and Figure 2 mean anyone is prohibited from entering the area for any reason. Thus, these prohibition signs are more general in nature as they do not specifically restrict certain activities. In addition to the prohibition signs of a general nature, the Hatam people also use prohibition signs together with certain objects that have a special meaning. Prohibition signs accompanied by a special object are referred to as “special prohibition signs” by the author. Objects found on special prohibition signs are used as a medium to deliver a message of the sign maker to others.

The message delivered depends on the type of the object used as one with the prohibition sign, either *mingkuen* or *kuak*. The message may be a prohibition on killing certain animals, or a notification that there is an ancestral graveyard in that place, or a notification that there are farm animals that are let loose in that area. Although visually different, in practice all of the signs bear the same power.

There are some special prohibition signs that expressly restrict certain activities in an area, as well as communicate a message about the events that have taken place in that area. Figure 3 shows several types of special prohibition signs that are often used by the Hatam people. Prohibition signs are usually placed at a location or place that is easy to spot such as the entrance or driveway to an area that people frequently travel through.

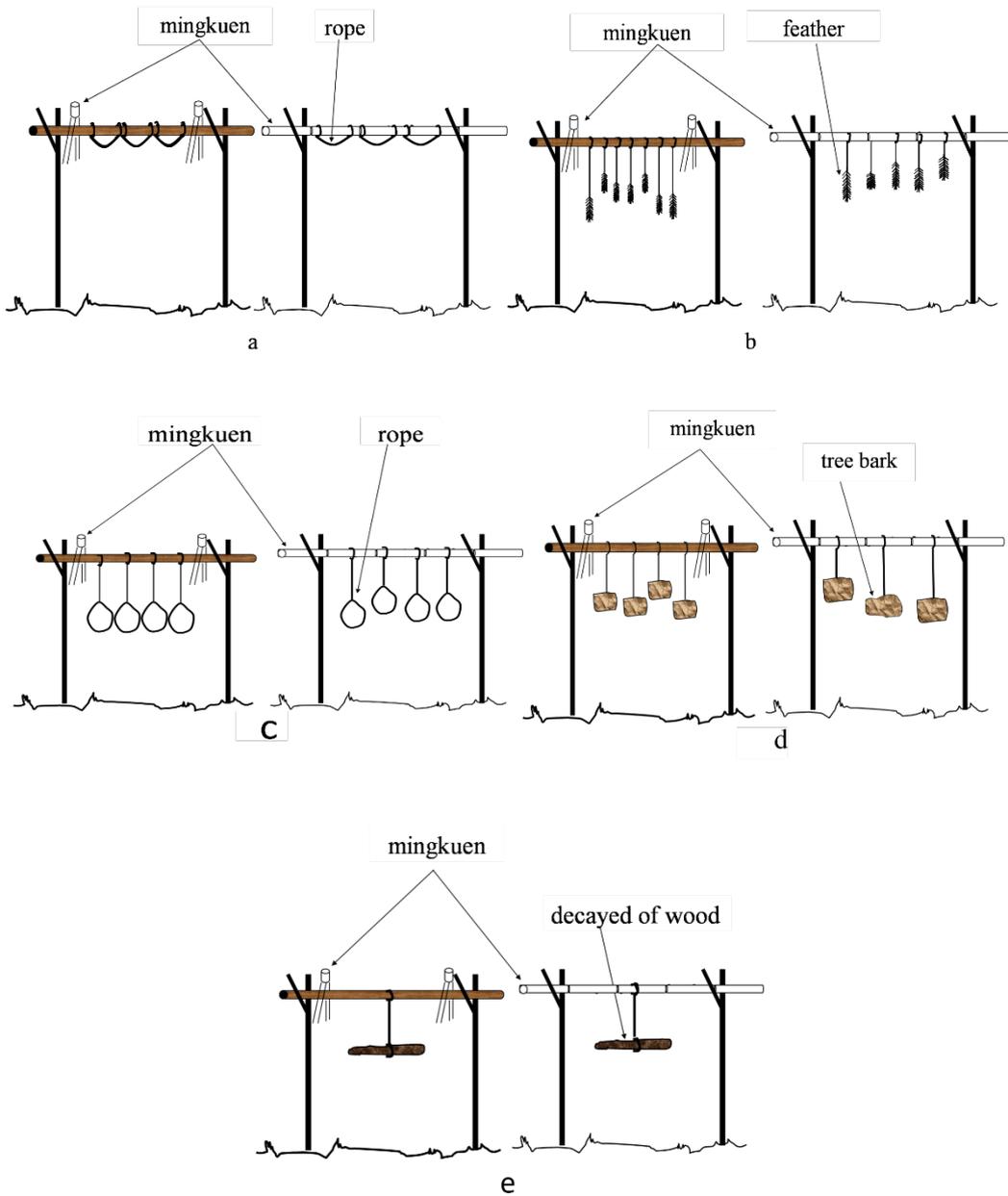


Figure 3: Prohibition signs with a special message. (a) a prohibition against entering the area and a notification that there is an ancestral graveyard in the area; (b) a prohibition against hunting or killing any kinds of birds; (c) a prohibition against killing pigs, and a notification that there are farm animals (usually pigs) that are let loose; (d) a prohibition against entering the area, with the threat of a fine for violators in the form of *kain timur* cloth; (e) a prohibition against entering the area, and a notification that the owner of the area is deceased.

- Rules in making prohibition signs

Information is obtained from the respondents that although a prohibition sign seems easy to make not everyone is allowed to make it. Symbolizing the application of their cultural values that they very highly regard, the Hatam strongly adhere to every rule relating to the making of prohibition signs. Here are the terms and conditions to be followed by the Hatam when making a prohibition sign:

1. Prohibition signs can only be made using the *mingkuen* bamboo or the *kuak* wood as the main material, whereas for the poles all types of wood can be used.
2. Prohibition signs may only be put in place by adult men. Among the Hatam, those who are considered as adults are men who are married, or men who are not married but have been able to work on a field or a farm independently.
3. Before putting the sign in place, first of all evidence of violations that take place in the area must be known. Evidence of a violation may be a discovery of animal body parts that prove that there have been animal killings, destroyed plants/crops, or other kinds of evidence that indicate that strangers have been entering the area.
4. Before the sign is put in place, a permission or approval of the customary owners/land owners must be obtained first, based on the evidence of violations encountered or known. If the sign is erected without the permission from the owner/the person in charge, then the sign has no power and no effects will result if violated.
5. A prohibition sign that has been erected can not be canceled or disassembled by anyone. A prohibition sign that has been put in place will usually be left on its own until it gets decayed by itself.

The rules made relating to the making of prohibition signs have been applied in the lives of the Hatam people from generation to generation, and have become one of the cultural heritages that still exists today. Although in practice there are no written documents that govern it, the rules are well observed by the Hatam.

Amidst the ever-advancing development of technology and information, the Hatam still maintain their cultural values that are passed down from generation to generation. The use of *mingkuen* and *kuak* proves the existence of traditional knowledge and cultural values in the lives of the Hatam people today. Aside from being a form of homage to the ancestors, the existence of local knowledge and wisdom possessed by the Hatam is not separate from their awareness of the importance of natural resources for their survival. The Hatam people believe that they still have a strong bond and relationship with the ancestral spirits that dwell in the surrounding environment, especially the forest (*bahamti*). Damaging the environment or forest is believed to invoke disasters or calamities upon themselves. The Hatam people also understand very well that when the forest is destroyed the rivers will run dry and eventually their farms will be damaged.

In addition to the local knowledge possessed by its inhabitants, Mokwam is one area that is rich in the diversity of birds and other wild animals. Upon this realization, the local government through the relevant agency is promoting Mokwam as an eco-tourism destination.

Various programs have been carried out, including the installation of a sign board written with an appeal or a prohibition against hunting wild animals. At the research site, there have been found two types of prohibition signs, namely the traditionally made prohibition signs (*mingkuen* and *kuak*), and prohibition signs put up by the local government (Figure 4b).

Both types contain the same message that prohibits the hunting or killing of wildlife in the area. While having the same meaning and purpose, both have different effects to the Hatam people.

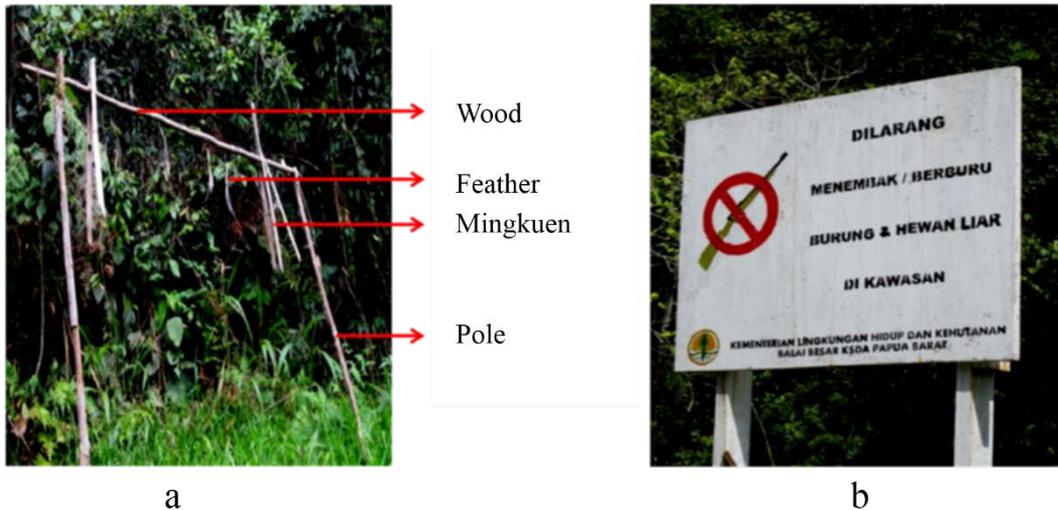


Figure 4: Two forms of prohibition signs. (a) *Mingkuen*; (b) a prohibition sign board made by the local government written with the message “shooting/hunting for birds and other wild animals in this area is prohibited.”

Based on the interviews with the respondents, a fact is found that the Hatam in Mokwam have more respect for *mingkuen* and *kuak* than the other prohibition signs. The cultural values that are still deeply rooted in the lives of the Hatam make them more afraid of the consequences that must be accepted if violating *mingkuen* and *kuak*. The Hatam believe that whoever violates the prohibition signs, either *mingkuen* or *kuak*, will experience adversity. The adversity referred to here is a situation or event that is harmful either to themselves or their family members. Some respondents even said that those who violate *mingkuen* or *kuak* can suffer from an illness that leads to their death. If someone gets sick for violating *mingkuen* or *kuak*, then he or she should make an apology and resolve the issue with the owner of the area who put up the sign. Usually, the person in violation must satisfy several requirements demanded by the owner of the area, such as paying a sum of money, giving pigs or *kain timur* cloth as the consequence of the wrongful deed the person has committed. Among the three things, *kain timur* cloth is an object that has a very high value to the Hatam. The older the cloth, or the higher the historical value, the higher the value placed on the cloth even if it is already faded. A *kain timur* cloth with a high historical value is valued at tens or even hundreds of millions, so that a fine in the form of *kain timur* cloth is often considered the most severe. This shows the high value the Hatam places on historical values associated with their ancestors and culture.

In addition to the consequences in the form of adversity, in the area where a prohibition sign is placed some traps are also set up, in the form of sharp objects placed in the ground and covered with litter or dry leaves. The purpose of these traps is to injure the people entering the area without permission or regard to the prohibition sign in place. The sharp objects used as a trap are made of bamboo sharpened at the end and then stuck in the ground in significant amounts and placed sporadically. In the process, today the Hatam people tend to create a trap using a plank studded with a considerable number of nails and placed on the forest grounds with the sharp part facing upwards, and then covered with litter or dry leaves that are not easily visible. A person entering the area without permission or deliberately violating the prohibition sign would not know where the traps are

located, so the chances of the person getting hit by the trap and injured are higher.

Besides not having any historical values or other traditional values, the signs made by the government are even considered as limiting the Hatam people in making use of wild animals for consumption. The limited source of animal protein due to the remote access from the market and also the expensive prices cause the Hatam to rely heavily on nature to meet their needs of animal protein. Apart from that, the signs made by the government are not accompanied by a detailed explanation, causing many interpretations to arise among the people. This condition is what causes them to not heed the prohibition. On the other hand, traditionally made prohibition signs still allow them to take the forest products or hunt in the area belonging to them to a limited extent.

3.2. *Mingkuen, kuak, and sustainable development for the Hatam people*

Sustainable development is truly the key to the realization of social welfare and the assurance of the availability of resources and their functions for the generations to come. The three main aspects that serve as the pillars of sustainable development are the environmental, economic, and social aspects. There are three factors necessary to support sustainable development, namely: the preservation of essential ecological processes, the availability of sufficient resources, as well as the appropriate socio-cultural and economic environments [13]. From these opinions, it is clear that sustainability is an important aspect to be emphasized in future development.

In the lives of the Hatam, the aspects of sustainable development have actually been around since a long time ago. They emerged as a form of interaction of the Hatam people with the ecosystem. The traditional social and economic life established as a form of interaction of the traditional community with the environment is the basis for the sustainable development itself. The use of *mingkuen* and *kuak* is not solely to protect the animals or plants, but more widely to protect the life support system that is closely related to the aspects of economy and their social and cultural life.

To carry out a sustainable development, natural capital is not the only thing necessary, as human capital is also important, which includes their culture and knowledge [14]. The Hatam people already have an important capital in the form of cultural property, local wisdom and also traditional knowledge. *Mingkuen* and *kuak* are forms of the local wisdom of the traditional community that should be used to serve as the basis for designing a community development policy. Synergizing innovations and local wisdom is a wise step to improve the success of the development program and minimize failures and conflicts of interest between the government or the relevant parties and the traditional communities. As a response to the situation in the area of Mokwam, there are several things that need to be addressed when planning to develop or implement policies on the Hatam, namely:

1. Integrating cultural values and local wisdom of the Hatam people into the development programs being made so they will not overlap.
2. Making the Hatam people as the subject of the development itself in order to minimize conflicts.
3. The development program had better be designed from the bottom up with due regard to the circumstances and condition of the Hatam people as the subject as well as the target of the

development.

Even though today the use of *mingkuen* can still be found, the indicated declining concern with tradition is taking place following the changing lifestyle of the Hatam. With the absence of good documentation on traditional knowledge and local wisdom, worsened by a bad knowledge transfer system, it is feared that the information relating to traditional knowledge on the use of natural resources as well as the local wisdom will gradually disappear. Traditional communities can not be left on their own to find solutions to these problems. Involvement of various parties is required to overcome the degradation of knowledge that is happening in traditional communities. Universities and research institutions are independent parties that can act as a link between the government as a policy maker and the traditional community as the target of the government's policies. This is consistent with what is proposed by [14] that universities and research institutions through the scientific studies on traditional knowledge can generate new knowledge that can be used for the welfare of the communities.

3.3. Conclusion

The use of *mingkuen* and *kuak* in the lives of the Hatam up until today is an indication that the Hatam people traditionally still retain their wisdom in managing natural resources. Cultural elements and historical values attached to *mingkuen* and *kuak* make the Hatam highly uphold and respect both signs. Although indications of a decrease in the intensity of the use of *mingkuen* and *kuak* are found as a result of the changing lifestyle of the people of Hatam today, the presence of *mingkuen* and *kuak* are still needed as an inseparable part of the Hatam's culture. A good documentation of every form of traditional knowledge and local wisdom that accompanies it, and integrating it into any sustainable development policy is the right solution to develop the Hatam community and at the same time preserve their traditional knowledge and local wisdom.

Acknowledgements

Our gratitude goes to the people in the area of Mokwam (Kwau, Syou, and Syoubri villages) who have given us their permission and the opportunity to conduct this study. This research was made possible thanks to the funding by the Ministry of Research, Technology, and Higher Education through the program of Postgraduate Scholarships and Doctoral Dissertation Research Grants Program of 2016.

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