

Forest Conservation Through Tane'Olen Traditional Tradition Setulang Community of Malinau District North Kalimantan Indonesia

Lariman, Sus Trimurti

Department of Biology Faculty of Mathematics and Natural Sciences, Mulawarman University, East Kalimantan, Indonesia

Email address

lariman_lais@yahoo.co.id (Lariman)

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Abstract: Communities in Setulang and Sengayan, Malinau, East Kalimantan, seem to have understood and are fully aware that forest destruction in the upper reaches of the region can result in floods, declining water quality and landslides. Communities in Long Pada (upstream of Tubu River, Malinau District) protect gaharu (*Aquilaria* spp.) As the mainstay forest products in their village area from exploitation by outsiders. The Kenyahs of Setulang (Malinau District) set the remaining primary forest in the village area as a protected forest (tane 'olen) beginning to monitor the state of the forest to avoid incursions by others. The steps taken by the Setulang villagers to set aside and define their forested areas to become Tane 'Olen are already long-term programs from the beginning they occupy the new territory. They originated (migrated together) from an old village in Long Sa'an, in the Pujungan river basin in 1968. Today 919 people (216 families) occupy 208 well-structured buildings. To solve the problem of strengthening the status of the region and the boundaries of the territory, the intervention of the related parties (Pemda) is very necessary. Without the intervention of the parties then it is not a solution to the problem that will be obtained but will only intensify the dispute between the adjacent villages. In relation to the utilization of forest products in the Tane 'Olen region, there may still be a need for regulatory tools to supplement existing regulations for handling and enforcement to be logical, applicable in the field and not at the expense of the interests of certain parties, especially the community.

Keywords: Forest Conservation, Tradition Tradition, Tane'Olen, Setulang Village Community

1. Introduction

Indonesia is a country with the largest forest in Southeast Asia, or the second largest in the world, with diverse ecosystems ranging from lowland and upland tropical forests to peat swamp forests, freshwater swamps and Mangrove Forests (mangroves). Forests are a balance of nature and the lungs of the earth. In forest areas there are a variety of biodiversity and non-biological, both flora and fauna. The forest is a very potential area, especially in moving the wheels of the economy of people living around the forest area. Starting from lower level, middle and upper level (entrepreneur) and also as an asset/foreign exchange.

Forests have a great service for the survival of living things, especially humans. One of the forest services is taking

carbon dioxide from the air and replacing it with the oxygen that other creatures need. So the forest is called the lungs of the world. So, if too many forests are damaged, there will not be enough oxygen for breathing. Based on Law No. 41/1999 on forestry, forest is defined as a unity of ecosystems in the form of landscapes containing biological resources dominated by trees in their natural environment, which are inseparably linked together. Various government policies that grant forest management rights to state-owned and private enterprises with numerous and rigorous regulations, but the lack of a portion of the socio-cultural field of the community in forest management, lead to widespread public welfare and the exclusion of local communities in forest management. On the one hand the state gained huge foreign exchange from

forestry development, but ironically this huge income is not accompanied by the equitable distribution of development has not yet touch the people around the forest (Anonymous, 2000).

Based on data from Forest Watch Indonesia, 2006, it is estimated that no less than 20 million people live in villages around the forest, and 6 million of which depend on forest and forest products. The average community has been hereditary living in the margins and in the forest. So it can be ascertained the increasingly severe forest damage will adversely affect the lives of people in / and around the forest (Restiyati, 2009)

Since the 1980s many efforts have been made to increase community participation in forest management and gain recognition for existing community forestry activities in Indonesia. Political changes with the reform and enforcement of regional autonomy legislation provide great opportunities for the development of community forests. If managed well, community forest can meet the various needs and services of the forest and open up revenue opportunities. Community forests provide opportunities for institutional strengthening at the community level and can encourage sustainable management of forest resources while maintaining environmental services such as watershed protection. However, community forest development faces some basic challenges that must be addressed before they can be applied on a wide scale.

Communities in Setulang and Sengayan, Malinau, East Kalimantan, seem to have understood and are fully aware that forest destruction in the upper reaches of the region can result in floods, declining water quality and landslides. Communities in Long Pada (upstream of Tubu River, Malinau District) protect gaharu (*Aquilaria* spp.) As the mainstay forest products in their village area from exploitation by outsiders. The Kenyahs of Setulang (Malinau District) set the remaining primary forest in the village area as a protected forest (tane 'olen) beginning to monitor the state of the forest to avoid incursions by others

The greatest challenge for natural resource management is maintaining a balance between the fulfillment of human needs and the sustainability of the utilization and existence of natural resources. The local community with its social capital is togetherness, the mobility of ideas, mutual trust and mutual benefit to achieve mutual progress and ecological wisdom that is deep knowledge about the environment, have the potential to be utilized for the sake of repairing and saving the forest in Indonesia. Therefore, it is important to further develop the empowerment of local communities in forest management

2. Method

The data in this study were collected based on field survey and desk study activities from various sources. To determine the important role of Setulang villagers, Malinau District in forest management and rescue efforts through Tane'Olen customary traditions.

3. Results and Discussion

Understanding of Local Communities and Their Involvement with Nature From some local societal terms used, Sardjono (2004) concluded that the understanding of local communities is a group of people, both called indigenous peoples and migrants (both from outside and outside the region), who have been hereditary in and around the forest so that have cultural attachment (including technology and cultural norms) and livelihoods (including subsistence and income) together on forest products and / or forest land.

Local people are the heirs of traditional wisdom. They have indigenous wisdom, indigenous institution, and indigenous technology needed to preserve the forest. Because it has such wisdom, local people view the forest as being not limited to its economic potential. For them, forest is a life entity laden with value. The forest is the teacher, because the forest is inspired by the interdependence between creatures and how to live in harmony in diversity. In the eyes of local people, forests are entities to be glorified. Forest is a life support system. Humans can live peacefully if they develop a symbiotic mutualism with them (Nasution, 2007).

3.1. Community Forest (HKm)

In Forestry Minister's regulation no. P. 37 / Menhut-II / 2007 states that Community Forest is a state forest that is not burdened with land rights and its main use is to empower the local community. There are three important factors in the implementation of community forest policy, namely (1) the certainty of the working area, (2) business licensing and (3) facilitation. The provision of a definitive Hkm permit (35 years) is expected to ensure the sustainability of community livelihoods legally, maintaining the status of the area and the community itself can be effective in the efforts of securing and rehabilitating the area. To ensure the implementation of HKm policy in an optimal, orderly and responsible manner requires consistency and firmness of the rule of law, and the control mechanism of HKm management periodically. This mechanism is carried out as a controlling spirit in the implementation of HKm management so that the control over this implementation is not only the responsibility of certain agencies but the "grand event" has been held and become the center of concern for many people, whether the Forest Policy just as justification or real deserves to be a forest management model based on the sustainability of forest functions from the ecosystem aspect.

In this paper we define community forests as all forest management systems in which communities engage in any form (see also Policy # 9 on Social Forestry). Community involvement through HKm is an opportunity to submit some tasks of forest security and management to individuals / community groups. Potential damage to forest resources due to temporary interest will be mitigated by damage to forest resources as a result of temporary interest can be suppressed by assigning responsibilities and rights in a controlled manner. HKm farmers groups with agreed-upon group

regulations are able to overcome encroachment, illegal logging, forest fires, and other problems

In line with the still widespread forest clearing by holders of Forest Concession Rights (HPH), Timber Forest Product Utilization License (IUPHHK), Hutan Kemasyarakatan (HKm) and so on in Kalimantan, there are still a small number of community groups (villages) good forests, both ecologically and economically. Ecologically sound forest functions can benefit indirect communities, such as avoiding the dangers of floods and landslides, clear river water (except in the after rain), clean and fresh air, etc.. While economically, the community can take the forest products (timber and non timber, including fruits) directly and continuously in the long term. However, for the latter, the principle of sustainability in harvesting of forest products should remain a guideline.

3.2. Setulang Forest Potential

3.2.1. Structure and Potential

As mentioned above, in general the condition of the Setulang forest (Tane 'Olen) is very good. Many trees are gigantic and scattered in various places. The largest tree size encountered has a circumference of stems on the ban 1.250 cm or with a trunk diameter of 398 cm. According to the local community the tree species are called "beteny". Another

common type of giant tree is the "majau" (*Shorea johorensis*), one of which can be found on the upper hillside between the tributary (lalut) Tenapan and Payang. The last tree is the size of the circumference of the stem on the banar 700 cm or with the stem diameter of 223 cm. These large trees generally have a height of more than 40 m with crowned positions towering above the actual forest canopy. Other types of trees that also have such canopy include "bangeris" *Koompassia excelsa* and "mountain jelutung" *Dyera costulata*

Survey results show that the tree size of the Tane 'Olen forest community is varied. The difference between the smallest stem circumference and the largest one is between 31.4 cm and 1,250 cm. The overall size of the stem circumference class still shows a general pattern for the structure of the primary tropical rain forest, ie the largest number of individuals found in the smallest stem-sized tree group (Diameter 10 - 29cm). Stem-sized trees reach 188 cm (diameter 60 cm) or more on all measuring paths with a density of 60.30 stems per hectare

The relationship between the number of individual trees and the diameter class indicates that the larger the diameter class, the less the number of individuals described as the inverted J curve, this inverted J-curve is a common link in natural forest.

Table 1. Average timber potential per hectare in Setulang's Tane 'Olen forest.

path name	diameter			class				
	20 -	49 cm	>	20 cm	>	50 cm	>	60 cm
	N	V	N	V	N	V	N	V
Line 1	131.84	65.64	186.63	366.52	54.79	300.87	38.68	273.16
Line 2	167.15	87.95	234.31	431.90	67.15	343.95	46.77	303.19
Line 3	122.50	61.35	185.19	497.73	62.69	436.38	45.56	404.50
Line 4	141.57	82.11	200.43	430.76	58.86	348.65	47.43	326.52
weighted average	140.40	72.85	200.71	421.07	60.30	348.22	43.51	316.98

Information: N = amount of trees (stem/ha) V = volume of trees (m³/ha)

Potential data as shown in Table 2 shows that the potential of timber on line 1, line 2, line 3 and line 4 for stem diameter = 20 cm ranged between 366.52 and 497.73 m / ha with the number of stems between 185.19 and 234, 31 stems / ha. As for trees with stem diameter 20 - 49 cm, known as the core tree potency ranges between 65.64 - 87.95 m / ha with a stem density between 122.50 - 167.15 stems / ha. The potential of cutting timber with a stem diameter = 50 cm ranges between 300.87 - 436.38 m / ha with the number of stems between 54.79 - 67.15 stems / ha and timber potential for diameter = 60 cm ranged between 273.16 - 404.50 m / ha with the

number of stems between 38.68 - 47.43 stems / ha

Based on the potential criteria, Setulang's forest condition meets the Forestry Minister's Decree No: 88 / Kpts-II / 2003 on the criteria of natural forest potential in production forest that can be used for sustainable forest use. In the decree mentioned that for Kalimantan rayon at least there should be trees with diameter of 20 - 49 cm as many as 39 stems / ha and the diameter = 50 cm as many as 15 stems / ha, while the conditions in Setulang forest the number of trees is much more many.

Table 2. Average wood potential per hectare based on the grouping of utilization types in Setulang's Tane 'Olen forest.

group type	diameter			class				
	20 -	49 cm	>	20 cm	>	50 cm	>	60 cm
	N	V	N	V	N	V	N	V
fruit trees	18.71	8.93	23.94	24.77	5.22	15.84	3.51	13.15
protected types	11.59	6.60	20.16	45.63	8.57	39.03	6.31	35.16
wood carpentry	63.13	36.87	102.13	307.34	39.00	270.47	29.96	252.06
other wood species	46.97	20.45	54.48	43.33	7.51	22.88	3.73	16.61
Total	140.40	72.85	200.71	421.07	60.30	348.22	43.51	316.98

In addition, the forests of Setulang village are also characterized by the average density level for trees with stems = 20 cm in diameter that reach 200.71 stems / ha. The highest tree density was found in line 2 (234.31 stems / ha), followed by line 4 (200.43 stems / ha) and the lowest on line 3 (185.19 stems / ha).

For certain tree species that have important economic value, for example ulin *Eusideroxylon zwageri* and torpawang *Shorea macrophylla* each have a density level of 10.28 and 7.43 stems / ha. While gaharu (which is logged everywhere) only reaches 0.34 stems / ha and jelutung *Dyera costulata* 0.94 stems / ha.

3.2.2. Composition and Diversity Type

Vegetation composition in a forest type is very important. The composition includes vegetation in the upper canopy layer (tree) and vegetation in the lower layer (forest floor). Included here are climbing plants (lianas and rattan), non-rattan ferns, herbs, epiphytic plants, mosses and others, all of which are genetic resources of the plant species present in them. The high level of biodiversity (biodiversity) in tropical forests is one of its own treasures that is priceless. Tropical forests with good vegetation conditions are living laboratories that keep a variety of natural secrets that still need to be learned. In this regard, efforts to maintain tropical forests are necessary for the fulfillment of future living needs and the development of science and technology

The level of biodiversity shows the level of stability of a forest community. The higher the level of diversity the higher the level of stability of a community (Richards, 1964, Whitmore, 1990). Regarding Setulang forest (Tane 'Olen) forest, the variety of tree species is quite high. Although only based on the name of the local area, the wealth is seen with the total amount (trees, piles, stakes and seedlings) as many as 279 species and rattan as many as 20 species.

3.2.3. Regeneration

Natural regeneration in a forest area, has a very important role in maintaining the continuity of the type of constituents and the quality of the stand in the future. When a forest area cultivated or exploited, there is a change in the structure and composition of the stands ranging from regeneration at the level of seedlings, stakes, poles and core tree. Therefore, in the framework of forest exploitation, regulation has been made on the type and number of forest youth to ensure the sustainability of forest production and sustainability. Such arrangements are contained in the Decree of the Directorate General of Forest Exploitation No. 200 / Kpts-IV / 1994 on Criteria of Unproductive Natural Production Forest. In that provision it is explained that in an area there is no need to plant cultivation if in the area the resident stand has the regeneration condition as follows:

- a. Minimum seedling rate of 1,000 stems / ha
- b. Minimum stake level of 240 stems / ha
- c. The minimum pole level of 75 stems / ha
- d. Tree core diameter = 50 cm minimum 25 stems / ha
- e. 10 parent trees are spread evenly

In the forests of Setulang village, based on the data obtained, the natural regeneration has been well under way and detailed as follows.

a. Semai Level

The regeneration potential for seedling rates in this forest area is very high. Of 249 plots observed (each measuring 2 m x 2 m) there were 26,492,26 stems / ha (Appendix 11). As is the case with the tree level, the most dominant red meranti here. Based on the magnitude of the important value index, red meranti has an INP of 12.700%, followed by lime (INP = 8,961), nyatoh (INP = 8.251%). Based on the number of individual seedlings, it also appears very clear that the red meranti has a density value of 2,257.752 stems / ha. This density value is well above the density value owned by other types of tillers from other trees

Species diversity is also high. This is indicated by the magnitude of the index of Shanon and Weiner (H') numbers reaching 3.88 ($H' > 3.5$). There are at least 143 species of tree seedlings in this Setulang forest area. Based on the grouping of the use, there are 29 types of fruits, 30 wood carpentry, 7 species of protected trees and 76 species of other types of trees.

In protected tree species group, tengkawang tiller was dominant with density value 542,636 stems / ha and INP 3.528%, followed by ulin (density 319,767 stems / ha and INP 3.209%) and gaharu (density 213,178 stems / ha and INP 1.327%). Tengkawang birds and bayur respectively found only in 1 plot of observation

b. Stake Level

Tree species at this level can be regarded as a very important regenerative component because the key to success or failure of the regeneration process takes place can be seen in this phase. Many tree species are very successful in producing seedlings but gradually the seedlings die from unsustainable environmental conditions. Based on data obtained by regeneration conditions at this level for Setulang forest also progresses quite well. At this level, 146 species were found, with 31 types of fruit group, 36 species of wood carvings, 5 species of protected trees and 74 trees of other trees. Density of species showed very high value, that is 4,136,425 stems / ha. In the type of fruits are often found and occupied the most dominant position with the INP of 7.534% and density value 159.69 stems / ha. The second dominant sequence is occupied by lempede (density value 82.17 stems / ha and INP = 4.04%)

Groups of species protected at this level include 5 species, namely ulin, gaharu, jelutung, tengkawang and tengkawang birds. Ulin was ranked first in terms of dominance with INP of 3.711% and density of 77.52 stems / ha, followed by tengkawang (INP = 3.38% and density of 72.87 stems / ha). For the other three species classified as very little that is only with the value of density of less than 10 stems / ha.

c. Level of Pillars

The regeneration at the mast level includes trees with stem diameters = 10 cm to <20 cm. In the Setulang's Taneq Olen forest at this level were found as many as 133 tree species

with a value of $H'3.93$. This means that species diversity is also very high. Fruit tree groups include 29 species, 41 species of wood carpenters, 5 species of protected trees and 58 species of wood.

3.2.4. Potential of Rattan

The potential for non-timber forest products in Setulang forest, especially rattan, is predicted to be quite high. This is indicated by the frequent clumps of rattan found in the observation plots along the survey path. Recorded as many as 20 types of rattan in this forest area and usually people use it for various purposes, such as to make baskets, binding parts of the house, crafts, ropes, and others.

Table 3. Recapitulation of rattan potential on each survey path in Setulang's Tane'Olen forest.

No	type of rattan	density	
		Clumps/ha	Stem/ha
1	Semuleh	6.17	34.88
2	Seringan	6.00	43.81
3	Lais	3.21	16.94
4	Merah	2.49	17.26
5	Lilin	2.09	13.56
6	Segah	1.17	8.21
7	Anyeng	0.92	3.88
8	Jae	0.82	3.28
9	Tevongen	0.67	2.11
10	Semut	0.55	4.58
11	Asa	0.17	0.77
12	Sanain	0.12	0.67
13	Balamato	0.05	0.20
14	Jerit	0.05	0.20
15	Kelingan	0.05	0.47
16	Keras	0.05	0.17
17	Belongan	0.02	0.15
18	Besar	0.02	0.07
19	kecil	0.02	0.37
20	Selingan	0.02	0.10
	amount	24.68	151.69

Based on the data presented in Table 3, it appears that the rattan is the most dominant with the density value of 6.17 clump / ha or 34.88 stems / ha, followed by the rattan as light as 6.00 density / ha or 43, 81 stems / ha, and so on Rattan sega which is one type of rattan that is widely used by the population is only in the order of 6, with a density of 1.17 clump / ha or 8.21 stems / ha

3.3. Setulang Forest Role in Supporting the Conservation Program

The condition of the downstream Malinau river which is always turbid and not only after rain, indicates that there has been severe forest destruction along the river and the upper reaches. Thus, in order to avoid larger disasters (floods, landslides and droughts), preventative measures must be started. One of them is by reducing and preventing the excessive logging and destruction of forests and maintaining and establishing protected areas upstream. In this regard, the protected forest function of Setulang and Sengayan villages is very important in maintaining the stability of the quantity and quality of the water that flows in each region. The

Sengayan River and Setulang River both run through the Malinau River.

Especially for Setulang forest, its role or function has been deeply felt by the people of the village, especially as a source of clean water other than as a hunting ground, where to take rattan, fruits and others. In Sengayan forest, the benefits as a direct source of clean water to date have not been possible because it is located far from residential areas. In addition, the water that flows in the river Sengayan will easily become turbid because most of the forest on the left side along the river is damaged

Aside from being a water regulator, both forests (Setulang and Sengayan) have a very important role in terms of conservation in maintaining the balance of the forest ecosystem and its environment in this case including the surrounding communities. To protect the rare and / or commonly used species in the two communities from becoming non-extinct, the forests where the plant species grow must be maintained. Maintaining the forest also means maintaining the condition of the existing forest ecosystem. Many types of plants that in maintaining its survival are highly dependent on the condition of this ecosystem. Extreme example, the Raflesia plant (also called 'carrion flower') will not be found again if the plant that became its host extinct from the surface of the earth, because Raflesia can only live (as parasites) if the host plant is there, the plant of the Tetrastigma clan.

3.4. Community Based Forest Management in Setulang Village

In line with the still widespread forest clearing by holders of Forest Concession Rights (HPH), Timber Forest Product Utilization Permits (IUPHHK), Hutan Kemasyarakatan (HKm) and so on in Kalimantan, there are still a small number of community groups (villages) good forests, both ecologically and economically. Ecologically sound forest functions can benefit indirect communities, such as avoiding the dangers of floods and landslides, clear river water (except in the after rain), clean and fresh air, etc.. While economically, the community can take the forest products (timber and non timber, including fruits) directly and continuously in the long term. However, for the latter, the principle of sustainability in harvesting of forest products should remain a guideline.

One of the above-mentioned community groups is Setulang's villagers. To reach this village, from the city of Malinau can be reached by river transportation (ketinting) which takes approximately one hour. In a pinched and indecisive situation due to temptations and seduction by timber entrepreneurs, Setulang villagers finally agreed to keep about 5,300 ha of forest area to become 'savings forest' which they called 'Tane'Olen'. Even for the handling they have also established the Village Forest Management Agency. The persistence and enthusiasm of the Setulang villagers in defending their forests received much attention, both from within and from abroad. It can be said that visitors come to this place after another to see the forest of Setulang

village directly through CIFOR's intermediaries

The steps taken by the Setulang villagers to set aside and define their forested areas to become Tane 'Olen are already long-term programs from the beginning they occupy the new territory. They originated (migrated together) from an old village in Long Sa'an, in the Pujungan river basin in 1968. Today 919 people (216 families) occupy 208 well-structured buildings.

Setulang villagers' agreement to establish the Tane' Olen region can not be separated from the background of knowledge they inherited from generation to generation. The horrific landscape as a result of the flood and landslide disaster that occurred in various places, including in the surrounding areas also underlies the current attitudes and wisdom in Setulang village. Many young generation who have been educated in Higher Education. This is where the role of knowledge perceived by the community.

3.5. Problems and Obstacles

After the inauguration of the Tane 'Olen region by the Setulang community leaders rather than the area is free from problems and obstacles. The various problems and obstacles can be disruptions that come from various directions and in various forms as well. One of them is in the form of land grabs by taking / cutting trees in the area around the border with the village of Sentaban in the north and Setarap village in the south. All related to this problem would be a barrier to the way of handling the area as expected

Still not strong regional status is also a problem that at any time can be great. Strengthening the status of the area can be reached by asking the local government to create a Regional Regulation (Perda) which also includes aspects of handling. In addition, the problem of boundaries with the surrounding villages is also considered vulnerable

To solve the problem of strengthening the status of the region and the boundaries of the territory, the intervention of the related parties (Pemda) is very necessary. Without the intervention of the parties then it is not solving the problems that will be obtained but it will only intensify the dispute between the villages adjacent

In relation to the utilization of forest products in the Tane 'Olen region, there may still be a need for regulatory tools to supplement existing regulations for handling and enforcement to be logical, applicable in the field and not at the expense of the interests of certain parties, especially the community.

4. Conclusion

Based on the potential criteria, Setulang's forest condition meets the Forestry Minister's Decree No: 88 / Kpts-II / 2003 on the criteria of natural forest potential in production forest that can be used for sustainable forest use. In the decree mentioned that for Kalimantan rayon at least there should be trees with diameter of 20 - 49 cm as many as 39 stems / ha and the diameter = 50 cm as many as 15 stems / ha, while the conditions in Setulang forest the number of trees is much

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