

The need of tree tenure security to maintenance the Traditional Agroforestry (*Parak*) In Koto Malintang Village, West Sumatra

Tri Martial

Department of Agribusiness, Faculty of Agriculture, Islamic University of North Sumatra, Medan. Email: trimartial@uisu.ac.id

Abstract. Communal forests in Indonesia, especially in the form of agroforestry commonly undeveloped and almost in traditional management. In Koto Malintang, West Sumatra agroforestry practice known as '*parak*' has existed since decades ago. This study aims to determine the importance of tree tenure security in the '*parak*' management for its sustainability in Koto Malintang, West Sumatra. The research uses descriptive method to identify the tree tenure security. To assess and describe patterns of tree control on communal land which refers to the Rapid appraisal of social forestry for land and tree tenure. The findings indicate lack of tree tenure security, especially for the purpose of selling the trees. Communal rights limit the freedom of timber use in an uncontrolled manner. But the communal rights maintain the system sustainability that is practiced as local institutional rules. For the income purposes, farmers tend to avoid planting timber-producing trees and prioritizing to quickly produce an annual crop. This is due to the limited of tenure security encourages reluctance of trees planting. Planting more trees is caused by timber interests. Planting trees is caused by the communal interest to the trees benefit for environmental sustainability.

Keywords: Agroforestry, communal land, land and tree tenure security, West Sumatra

Introduction

The government policy makes forests more as a source of foreign exchange, more concern to a large company and marginalized traditional management by communities. Whereas community forest management in agroforestry forms (*parak*) indicate a form of sustainable land use. However agroforestry traditional generally not develop. That is a problem of agroforestry at the community level (Djogo *et al*, 2003). In West Sumatra agroforestry has been widely known since the past in the form of forested land named *parak*. Agroforestry commonly found in public lands especially on dry land in as a garden. Agroforestry potential to development because appropriate to solve the problem of deforestation by planting trees on agricultural land, as well as to increase the income of farmers and ultimately reduce the intensity of the pressure on forests (Segura-Bonilla, 1997; Unruh, 2001; Place and Otsuka, 1997; Dias, 2003). In West Sumatra mostly forested land (*parak*) is the customary land and without certificate. Land ownership generally by communal tribe, where land holders have the right to manage the land (*ganggam baantuak*) as inherited from the mother (matrilineal). As communal ownership of land cannot be sold but can be used to meet the needs of everyday life by land holders.

The weakness of communal land according to Otsuka *et al*, (2001) is which low tenure security. However, in West Sumatra, *parak* tend to conduct as many models of land use practiced by farmers. Sustainability therefore important from the practice tree tenure needed to ensure the certainty of long-term security of tenure in respect to tree investment, because it gives a sense of security against any idea who get benefit from the investments made. The structure of this paper, in second part is the methodology and the study area, then the third section examines the results and discussion from the point of tree tenure as ownership, utilization, control, and security of tree tenure. The fourth section is the conclusion and suggestion.

Materials and Methods

The study was conducted in Koto Malintang village, West Sumatra in the period January to June 2009. Research location was in *parak* area which is an integration of trees and crops. Purposively selected areas, by category there is a pattern of land use or agroforestry systems in the sense in Koto Malintang, West Sumatra as *parak* is dominated by annual crops or trees in a landscape. Koto Malintang village, located in the district of Tanjung Raya, Agam regency, West Sumatra. *Parak* located near the village dominated by durian and cinnamon, and other annual crops in a compact landscape. Observation done by assessing and describing patterns of tree tenure on communal land and the dynamics of the institutional

variables, namely tree ownership, access or utilization, and management or control of the tree. The approach refers to the 'Rapid appraisal social forestry for land and tree tenure' in determining land and tree tenure (FAO, 2000).

The primary data obtained from interviews and questionnaires with respondent's farmers, as well as in-depth interviews with key informants, namely village's leader, customs leaders and local organization's leaders, were secondary data from the physical picture of the local area. Data include socio-economic and demographic characteristics of farmer households, the structure and role of local organizations. Descriptive Analysis to construct explanations of the variability and dynamics of tree tenure that includes ownership, access/use and management / control, and the tree tenure security.

Results and Discussion

Tree Tenure

Tree tenure cover what rights, in what part of the tree, and for how long. Tree herein is intended as an annual plant with many benefits such as timber and fruit (multipurpose). Patterns of tree tenure in communal land is shown Table 1. In the communal land, tree owned by growers as land holders named *ganggam baantuak* or who have received tenure. Crop growers are proprietary, but the kinds of trees that are not plants by themselves are communal rights there. This is proof by the members can still request a communal timber just to meet their needs (Table 2), but for commercial purposes it is prohibited.

Table 1. Matrix of tree tenure on communal tribe's land in Koto Malintang village

Villages	Tree Species	Type of Rights
Koto Malintang	Durian (<i>Durio zibethinus</i>)	Fruit is owned by Landowners and members of the village in <i>balangge</i> system, while the wood is owned by Landowners and members of the tribe. Cutting down is from the tribe's leader (<i>mamak tungganai</i>) and village leaders. Tenure rights are unlimited of time.
	Cinnamon (<i>Cinnamomum burmanii</i>)	Growers and members of the tribe have right to the bark and stem, as a source of income. The duration of the tenure is for the rest of the plant.
	Surian (<i>Toona sureni</i>), meranti (<i>Shorea sp</i>) and bayur(<i>Pterospermum javanicum</i>)	Right to wood is for land holders and members of tribes, and so to twigs and branches. Cutting needs permission from the house's leader (<i>mamak</i>) and village leaders. Tenure rights are unlimited of time.

Table 2. The rights to the trees that exist in the communal land / tribe

No.	Types of Rights	Characteristics
1.	Planting and planting again	Individual
2.	Maintenance	Individual
3.	Bequeath	Individual / communal
4.	Chop	Individual
5.	Using tree	Individual / communal
6.	Sell	Individual

In the perception of communal land ownership is eternal, where if the management of the land done well with a crop and land management, the right of land is also high. If the land is abandoned or not maintained then the land will return to the property of tribe. So we can say ownership is characterized by land management. Planting tree is not a drag on communal land, communal land ownership it will trigger the planting of trees. This is consistent with research Otsuka *et al*, (2001) that the ownership of communal lands will

trigger planting trees at the initial level. Use and access tree is determined by the rights of what can be done on the tree. These rights can be seen from the right of felling and take advantage of tree. While trees that grows not by their own (parent plant) may be asked by others to be cut down if allowed by the land holders. Felling permit must be from adat leaders (*ninik mamak*) and village's leader.

Table 4. The main characteristics of agroforestry in Koto Malintang

Strata	Kind of Plants	
The species in the ground	Bush	
Plants in medium strata	Coffee, Cinnamon	Chocolate,
Types of plants on highest strata	Durian, MPTS, with the closing high strata	

Tree use in the communal tribal varies depending on the grower, type planted, crop function for personal or communal interests. Utilization of trees on communal land generally as a garden which consist the type's trees. Utilization can be divided into two types: productive trees in order to get the fruit, as well as trees for the purpose of obtaining the benefits of wood, such as Surian, meranti, bayur, and others. The difference of that's objectives indicates that farm management is also very different. *Parak* generally dominated the durian tree. The form of agroforestry is shown in Table 4. Right to harvest based grower, raiser, and the types of plants, so the tree cannot be felling with individual decisions. This can be explained that the farmers have a tendency to grow crops secured if the goal is to sell or obtain cash income. Farmers will avoid a long-term timber plants, and selecting plants with the collateral to get cash income from crops. It can be shown in Table 5. It appears that for the income purposes, farmers prefer planting an agro-based cocoa and coffee which reaches 74 percent of its total revenues.

Table 5. Land area and income of farmers in three villages

No.	Information	
1.	Average land area	1425 Ha
2.	The median income	Rp.1.588.300
3.	Revenue per Hectare	Rp.833.200
4.	Percent of revenue garden	74.12%

Trees which are communal rights, the land holder cannot be replaced with new crops. The individual right and communal rights cannot be separated. Existence of communal rights are essentially based on the status of the land is communal property, so that the land holder cannot freely change the existing cropping pattern. The impact of these conditions can be shown in Koto Malintang that maintains the pattern-based agroforestry with multipurpose trees with durian dominated the top canopy layer (Table 6).

Tables 6. Types plant dominant in agroforestry at Koto Malintang

No.	Name Type	Freq.Relative
1.	Durian	95
2.	Cinnamon	80
3.	Bayur	65
4.	Cacao	55
5.	Surian	55
6.	Coffee	25
7.	Areca nut	25
8.	Nutmeg	15
9.	Clove	5
10.	Gardamon	5

Trees are dominant element in determining the systems of agroforestry sustainability (MacDicken and Vergera. 1990), the tree element according to Raintree (1990) is a key element in the production of the long-term sustainability. In agroforestry with the non-wood crops dominant or other agricultural crops will lead to long-term sustainability of the system in question. Communal rights to trees would strengthen the sustainability of the system by maintaining a planting pattern held in the local institutional rules. At Koto Malintang, where communal land tenure has been establish tree growth for decades. Agroforestry patterns that resemble natural forests with dominance of Durian as the main tree species as well as a multi-purpose approach to indigenous trees which protect the environment and serve as an approach to land management and crop pattern in accordance with the local barrier.

This fact as the evidence that privatization of property rights on communal land is not decisive for the sustainability of the land resource management system. This refers to Western-style of property starts from the totality rights to the land will support investments to land in planting tree (Bruce, 1988) or tree planting and sustainability factors will be performed on private property ownership. Naturally communal property rights are not an option in the sustainability of natural resource management.

Control mechanisms to timber carried by the owner. Controls mechanism to the trees regarding the rights to make decisions on crop selection and management as well as the ability to remove other users of the property. Common problems of tree control over the conflict with other users. It is the authority of the owner of the trees, but problem of tree rights if it cannot be resolved over the conflict with other parties then settled in house customs leader (*mamak*), and if it cannot be solved by house leader were also brought to the KAN (customs leaders representative). Deliberation of KAN to solve a conflict is also accompanied by all the elements of such village's leader, youth and women's representative (*Bundo Kanduang*). At the higher levels will involve local government authorities, such as police.

Tree Tenure Security

Tree tenure security by Bruce (1988) may indicate that other state or private cannot interfere with the use of a tree by the owner. Security of tenure determined by rights that exist on the object concerned. Tenure may be short, but it can describe the belief in the legal system which no doubts about the disenfranchised. Another element is long of tenure (duration). If tenure is too short for example one year it will be difficult given the return on investment to the area. For example, farmers will not plant trees because there are no allegations of security to use the timber later. The third element is the requirement of full rights. Although trees can be held for life but not secure if cannot be inherited or sold. So secure mean if the rights to fully ownership. Characteristics of the tree rights in the village shown in Table 7.

Table 7. Type the rights of trees that exist in the three villages

No.	Types of Rights	Characteristics
1.	Planting and planting again	✓
2.	Maintenance	✓
3.	Bequeath	✓
4.	Chop	Γ
5.	Using tree	Γ
6.	Sell	Γ
Average existing rights on the tree		3.45

Description: ✓ = to do with notice. Γ = can be done with consultation / consent

Based to the existing rights (Table 7), the index tree tenure security shows that there is security of tenure status is moderate. In the standard 6 'rights are observed in above the average level of security of land rights at 3, 45. If observed on the rights above the does not exist is the right cut and sell trees. This suggests doubts about the use of wood products. Although the category of rights that exist high enough tendency toward an

individual, but the totality of wood utilization remains limited freedom shown by certain rights such as the use and selling of timber is limited by communal rules.

Viewed from the land tenure security (Table 8), it appears that individual rights are limited. But there are guarantees in the system of communal land holders to be able to continue to use, and can be inherited. Refer to the FAO (2002) mentions in a community-based land tenure continues to have a strong security even without the rights to pawn or sell. For in reality they are still able to manage the land in peace and get the food sources of it, but not on the product timber. In accordance with the results of Otsuka and Place (2001) that the communal land for timber planting purposes, does not provide incentives for full ownership rights to the timber. According to Bruce (1988) stronger tenure security only if there is a full right to the land and if the land can be inherited or sold. Similarly to trees, it case clearly shows the security over assessed from individual rights. The strength of these rights requires that owners can use those rights freely without any restrictions or other requirements, because the property is a legal concept that the rights of the source is free to use and protected from the interference of others (Nicita *et al*, 2005).

Table 8. The rights that exist on the land in the three study sites

No.	Types of Rights	Characteristics
1.	Planting and planting again	√
2.	Bequeath	√
3.	Rent	√
4.	Provide	Γ
5.	Pawn	Γ
6.	Sell	X
Average existing rights to land		3.1

Description: √ = to do with notice, Γ = can be done with deliberation/under certain conditions, X = not done

The impact of the limitation of individual rights by the communal rights to trees that are farmers difficult to change cropping patterns on communal land. In the case when the restriction by communal rights to the tree is reduced, there is a tendency to change the crop pattern by land holders towards a more commercial kind. In the opinion of Place and Otsuka (1997), if private ownership is uncertain and it is unclear the incentives to land and trees will be hampered. In addition, security of tenure has a positive effect on investments spur more productive and more sustainable land use. In West Sumatra, although the status of communal ownership of land access to the tree given to members who have been appointed communal land to cultivate, while the rights of the other members is limited. The implications were on the farm management and not on the farm ownership of land, resulting in individual rights on land that is not a prerequisite for investment to land.

Individual rights do not stand alone in communal ownership. But with communal rights are reflected the rules of customary. This suggests that an individual's decision easier, so that the highest level of the tree can be transferred to another party. Communal rules in the interests of the tree, directly or indirectly, would restrict the freedom of individual rights to the tree. The presences of woods were maintained in this condition as a result of the inherent rights of communal which is difficult to change. So it can be said the existence of trees caused by setting communal rights to trees on communal land. It can be seen to the tree where communal interests in maintaining the function of the environment, the presence of trees are difficult to change into more commercial forms. Planting or not planting trees is not caused by the status of land tenure security, but due to communal rights attached to the tree. This is in contrast to the opinion Otsuka *et al* (2001) that mentions the farmers tend to not planting trees on communal land because low of tenure security. Cutting down trees even though the land is held by customary activities must receive approval from the custom and the villages.

Sources of security, according to FAO (2002) there are several determinants, among other institutions, and the government's recognition of formal legal rules. In West Sumatra in

the customary system, local institutions that determine the security status is customary in the form of customary village's representatives (KAN). The existence of customary rights will exist to a person when a member of the clan. The right of use, control and transfer of land will be obtained when holding the land in question belongs. This right also includes issuing the people of the land. Second is the recognition of the government in this rule also applies villages in recognition these communal lands, because the government itself was *nagari* is also part of the system of customs prevailing in the society in Minangkabau (West Sumatra). The third source of security in West Sumatra is a formal legal rules-government for communal land. BAL of 1960 recognizes customary land-based indigenous peoples since the customs society is still been there. West Sumatra is the core of Minangkabau existed customs prevailing in the society. Therefore, the rights of indigenous people on communal lands are also automatically recognized, although the BAL states if the land cannot be proven then it becomes the state's ownership.

Conclusions

Individual rights and communal existed in the tenure tree (tree tenure) on communal land as a result of the communal land ownership. The existence of communal rights in the tree limit the freedom of individual rights, so farmers tend to maintain the existing cropping pattern (agroforestry), it is executed in the local institutional rules and the basis for sustainability of agroforestry systems. Due to limitations on individual rights encourage tree farmers prefer the non-timber for the purpose of direct revenue agroforestry land. To encourage tree planting suggested more strengthen property rights trees (tree tenure) than the status of land ownership such as land titling that encourages privatization of land. For further research critical view of the role of local institutions in supporting the tree tenure system on communal land.

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