Forest conservation and management practices in Minangkabau Society: Forbidden Forest

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Abstract. Before influence of the western nations, the Minangkabau society already had their own systems related to natural protection and conservation. One of the systems is “Rimbo Larangan” or forbidden forest. In this case, prohibition law is determined by the State Council. The forbidden forest is a prohibition area, disallow to cut all plants. Rivers within the forbidden forest cannot be disturbed. All animals within the forbidden forest cannot be hunted. The conservation system was profitable to the local communities and to persist and sustain for the future. However after the Indonesian independence, especially in the period 1945 to 2000, many forbidden forests are damaged and destroyed. This is due to many forbidden forests are changed to production forests by the national government. It should be noted that the forbidden forest system should be re-applied and maintained now, in order to prevent the destruction of forests, loss of biodiversity, particularly due to the global warming. If forests are healthy, the water and air qualities are guarantee. Due to the social conditions, institutions and many rules have changed. Therefore, many future researches are required.

1. Introduction

Minangkabau is one of the 140 ethnic groups distributed that are in the Nusantara (Malay Archipelago) \cite{1}. According to Navis \cite{2}, Minangkabau people speak and use the Minangkabau tradition. It is part of Malay culture based on monarchy system \cite{2}. Minangkabau society embraced their own custom system, which is characterized by the family system through female lines or matrilineal \cite{3}. The cultures are also very strong tied with Islamic faith.

The capital of the ancient Kingdom of Minangkabau is located at Pagarruyung, Sumatera (Figure 1). Thomas Stamford Raffles, after his expedition to the old Minangkabau capital of Pagarruyung, stated that the Minangkabau was the source of that power, the origin of that nation, and then extensively scattered over the Eastern Archipelago \cite{4}. In the 15th century, most of the Minangkabau people migrated to the area that it now known as Negeri Sembilan, Malaysia. In 1677 the YDP Pagaruyung Sultan sent Raja Ibrahim as the leader of the area \cite{1}.
Before the arrival of Western nations to Malay Archipelago, the Minangkabau society had their own systems related to natural wilderness protection and conservation. The natural protection and conservation systems, such as (1) “rimbo larangan” or forbidden/sacred forests, (2) prohibited rivers or creeks, (3) prohibited ponds, (4) skinning the durian trees, (5) “parak” or agroforest, (6) planting perennial (woody plant or trees), (7) “goro basamo” (cooperation).

This paper is based on survey in West Sumatra, interviewed the local people and government staff and also literature reviews, especially to describe the forbidden forest system according to the Minangkabau customary as a form of natural conservation. The objectives of this study were (1) to present the scientific findings regarding the “Rimbo Larangan” system as a form of natural conservation and forest management, and (2) to create public awareness and obtain their views on the need to be re-applied and maintained, not only for current generation but also for benefits of the next generation.

2. Forbidden Forest System

As information, constitutional system in Minangkabau is federation which each Nagari (state) has the autonomy to regulate their domestic affairs, such as land setting, land uses, water resources protection and others. Regulations related to the domestic affairs are determined by state council, namely Kerapatan Adat Nagari (KAN). The KAN contains three elements, i.e. Wali Nagari (State Head), Ulamas (Islamic leaders), and Cerdik Pandai (Scholars). The KAN is also known as “tungku sajarangan” or three shafts of a kiln. Therefore, the government system is considered as a proto-democracy, before the Greek or western democracy.

Regulation and system of forbidden forest is also determined by the KAN. The KAN determined area boundaries, supervisions, and penalties of forbidden forest. The prohibition law of forbidden forest describe in “tambo” (traditional Minangkabau historiography) as shown in Table 1. Based on the “tambo”, the forbidden forests were function as biodiversity conservation areas, and water
regulations. In the forbidden forests, the trees are prohibited to cut, the rattans cannot be harvested, and the fruits are also prohibited to harvest. Their timber needs are fulfilled from agroforest, namely “parak”. Even the river cannot be disturbed, stones cannot be reversed, and the riverbanks cannot be demolished. Whoever in violation of prohibition, they will be exposed through the customary oath, which is described as tree without roots, branches, flowers and fruits. It can be said, they also would live in distress and outcast. According to the customary system, the forest as forbidden forests was mostly undisturbed. Communities are obedient to the rules that have been assigned.

| Table 1. Rules and penalties of the forbidden forest |
|-----------------------------------------------|
| **Minangkabau Language** | **English** |
| --- | --- |
| *Ka rimbo, kayu tak buliah ditabang, rotan tak buliah dirangguik, manau tak buliah di pancuang* | To the forest, the tree cannot be cut, the rattan cannot be snatched, manau cannot be decapitated |
| *Kabatang Aie, Aie tak buliah di karuah, batu tak buliah di baliak, tabiang tak buliah diruntuah* | To the river, the water cannot be murky, stones cannot be reversed, the banks cannot be demolished |
| *Ka Samak baluka, buah manih, buah masam tak buliah di panjang* | To the bushes, both the sweet and sour fruits cannot be taken, climb the young, and others |
| *Kok Pantang dilampaui, Ka bawah indak baureka, Ka aieh indak bapucuak, Di tangah tangah digiriak kumbang. Idui sagan mati tak namuah, bah karakok tumbuh di batu* | If the ban is violated, to the bottom is no roots, to the top is no bud, in the middle id drilled by the beetle, live shy, do not want to die, as a kerakap grows on the stone |

Remark: 1 = Manau is a large-diameter rattan species and is important as a raw material in the furniture industry; 2 = Type of broadleaf betel. This means that anyone who violates these rules will be living in the lurc/poor or very sick.

During the Dutch colonial and after Indonesia’s independence, the land and forest management system of Minangkabau have to be changed from the Minangkabau customary (Table 2 and 3). It also eliminates a lot of Minangkabau customary rules, including the rules of the leadership of the Minangkabau system. As a result, many natural wildernesses become degraded and destroyed.

| Table 2. Land and forest management status and system in Minangkabau from time to time |
|-----------------------------------------------|
| **Period** | **Land and Forest Status** | **Administrator or Management** |
| --- | --- | --- |
| Before 1916 | Customary forest (*hutan ulayat/adat; HU*) | Customary chiefs (*Penghulu*) appropriate to the customary rules |
| 1916-1945 | There is an agreement between the Dutch colonial government and custom leaders: registered forest (*Hutan register; HR*) and customary forest (*HU*) | HR: Dutch colonial government HU: customary chiefs and rules |
| 1945-1983 | HR and HU | HR: Natinal government HU: customary chiefs |
| > 1983 | • State forest: nature reserve (*HSAW*), protection forest (*HL*). • Community: non forest area or forest for other uses (*APL*) • Any overlapping between state forest and HU | State forest: National and Provincial Government APL: community and customary rules |

Remark: Modified from Nursidah et al. [5]
Table 3. Principles and comparison of forest management between Minangkabau customary and national/provincial government

| Principle and Design          | FMMC                                           | FMNG                                           |
|------------------------------|------------------------------------------------|------------------------------------------------|
| 1. Boundary                  | Boundary is clear, known and mutually agreed   | Already boundaries, many boundary markers are disappeared |
| a. Resources                 | Registered at the State Council               | No permits for forest users, illegal extraction is occurred |
| b. Users                     |                                                 |                                                 |
| 2. Suitability               | There is an agreed profit sharing through fee, known as “bungo” | There is no profit sharing or contribution from illegal user |
| a. Distribution of cost and benefit | Forest utilization can be done according to the ability of forests (forest multifunction) | There is a total ban on the local communities in the utilization of forest products |
| b. The rules limit the time and physical aspects related to local environmental conditions, socio-economic and cultural |                                                 |                                                 |
| 3. Setting of collective choice | The rules made by the representatives of the community through discussion (participatory) in the KAN (State Council) | The rules set by the government, not participatory, top down, mostly ignoring the local communities |
| 4. Monitoring                | Controlled by the forest chief *(tuo rimbo)* that is selected from the local community | Controlled by forest guard (Jagawana) are selected from the outside |
| a. Controller is active to monitor, responsible to user | Nagari (state) has the independent authority on forests | Forest clearing for road construction or uses by other sector (partly yes) |
| b. There is no external pressure to control the local monitoring | Gradual penalties and obeyed | Penalties are provided in regulations, but lack of implementation (partly yes) |
| 5. Application of penalties | Negotiation and encourage consultation         | Formal court, the cost is expensive, not effective (partly yes) |
| 6. Conflict resolution mechanisms |                                                 |                                                 |
| 7. Recognition of the right to organize | Each tribe has equal rights to a group | There is no forest user groups, but that there is a group project workers (mostly yes) |
| a. Users are entitled to design institutions and is not hampered by external factors or local authority | The principle of equitable distribution of assets, equity in utilization and in groups | There are no user groups, only labor groups, top down, not independent |
| b. There is no group of users that can prevent other users to organize themselves in association |                                                 |                                                 |

Remark: Summarized from Nursidah et al. [5]; FMMC = forest management by Minangkabau customary; FMNG = forest management by national or provincial government at Arau catchment area
3. Surviving Forbidden Forest

Although many land management systems of the Minangkabau have changed by the Dutch colonial and the Indonesian government after independence, but in some particular Nagari of Minangkabau in West Sumatra province, natural conservation systems according to forbidden forest can still be found today. For example, there are found in (1) Nagari Guguak Malalo, Tanah Datar district [6], (2) Nagari Kamang Mudik, Agam district [7], (3) Nagari Alam Pauh Duo, Solok Selatan district [8-10], and other Nagari in West Sumatra. Forbidden forest systems that are based on Minangkabau customary have been successfully protected to be in natural wilderness condition. This is because of the cooperation among the rulers/leaders and local people, known as a model of co-management institutions.

Land management system in Nagaro Guguak Malalo is shown in Picture 2. According to Rolis and Febriamansyah [11], most lands in Guguak Malalo are covered by forests and the interspaces (agroforests) which contains: bamboo, coffee, cinnamon, cardamom, the cocoa, and various types of fruits, respectively. Coffee plants were introduced by the Dutch in the period “Cultuurstelsel” (forced labor system), which was about the end of the 19th century, the master landscape until the early 20th century. From the 1950s to the 1980s, clove and nutmeg were the plants of choice because the market price is very high.

However, at the present time, the people in Nagari Guguak Malalo have started again to manage their lands according to the rules of Minangkabau tradition (Figure 2). Subsequently, the general land management under Minangkabau customary is shown at Figure 3. The local people have gained a lot of benefits, such as the water was always obtainable and clean river water can continue to flow throughout the year. In addition, the prohibition forest is also useful for biodiversity conservation, both flora and fauna. If there is no forest or destroyed, the river will not drain the water throughout the year and it will be a disaster, such as flooding during the rainy season, drought during the dry season, or landslides. Therefore, the prohibition forest that is declared across the region continued to exist. Finally, the various benefits can be drawn and various disasters can be avoided.
4. Conclusions and Future Research

Forbidden forest system under Minangkabau tradition have been successfully in order to protect the natural wilderness. This is because of the cohesiveness among the rulers/leaders and local people, known as a model of co-management institutions. However, centralized control of the Dutch colonial and Indonesian independence period until 2000 has led to deforestation and caused many disasters. Therefore, this forbidden forest system is needed to be implemented and maintained, in order to avoid the destruction of forests, loss of biodiversity, and global warming. It will also guarantee the quality of the air and the water continues to flow throughout the year.

The joint management of forests by the government and local communities (the model of co-management institutions) are more appropriate, because it provides a greater opportunity for recognition of indigenous rights, until the capacity of villages to be better, then the choice of forest management can be administered into the Nagari forest management based on society model. Subsequently, due to the social conditions, institutions and many of rules have changed, many future researches are required. Therefore, a joint research between national and international universities or institution should be established to cover all aspects of the issue. The results would be expected to support the forbidden forest system can be reapplied properly in widely areas.
5. References

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