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LANDSCAPE PLANNING AND MANAGEMENT OF MINANGKABAU LAND

(*Perencanaan dan Pengelolaan Lanskap Minangkabau*)

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ABSTRAK

Dalam Suku Minangkabau, lahan dikelola secara komunal. Unit pengelolaan dilakukan melalui sistem nagari, dimana didalamnya diatur pola penggunaan lahan dan sistem waris. Perkembangan dalam pola penggunaan lahan, baik disebabkan oleh pertambahan populasi penduduk maupun perubahan orientasi penggunaan lahan menjadi lebih berorientasi ekonomi dapat menjadi penyebab hilangnya sistem adat dalam manyarakat Minangkabau ini. Sebagai upaya untuk mempertahankan nilai-nilai adat serta sebagai upaya pemanfaatan lahan yang sesuai dengan kharakteristik lingkungan setempat maka dipelukan panduan pengelolaan lansekapnya.

Kata kunci : Minangkabau, lahan, sistem adat, lansekap

THE MINANGKABAU TRADITIONAL LAND USE

Traditional land use is judicious utilizing of nature resources. This is the result of long-term experience of natural resources, natural indicators and the natural limits of human life. Thus they know how to deal with and treat the environment, where to live, which resources can be used and which resources must be preserved. They know what amount of resources can be harvested in certain time. This knowledge is passed from one generation to the next and it has become traditional wisdom.

The land system of the Minangkabau is a community property system: they allow land use in cluster patterns. They build the *nagari* with housing as a centre, farmland surrounds the centre on flat areas and forestlands are situated at outer part on hilly areas. This system creates simple infrastructure development in a village. Concentration of housing provides the communities with easier social interaction. Farmland is situated close to the housing because rice fields need intensive planting and water management. Forestland and mixed cash crop land is situated on hilly areas because it is known that the soil fertility in those areas are unsuitable for annual plants and have a high risk of soil erosion.

Farmland

Rice fields

The basic village crop is rice. Because of the high rainfall, it is possible to grow rice at two times per year. The quality of the rice field varies greatly according to the access to irrigation water. Some fields in the lower areas of the village are too wet to grow any rice at all, even without any irrigation system. A few rice fields can be irrigated for rice cultivation twice a year. Irrigation is practiced both by rainwater and by a number of channels that bring water to the fields from springs and streams, having their source higher up in the mountain. Inefficient irrigation systems and the irregularity of the land in the mountain area result in over all insufficiency of water supplies to the *sawah*. The cultivation of rice on irrigated fields essentially needs constant water flow through the submerged fields.

Based on that cultivation technique, it is can understood that traditional rule allocated rice field on plain land and on wetland physical soil condition. The location of the rice fields is always close to the housing, because both need permanent water supply and the management of the rice field is more demanding than any other cultivation.

Cash Crops Area

The common commodities that planted in house hold plantations are rubber, coconut palm, palm oil, cinnamon, coffee, *gambir* (ingredient used in betel chewing, tanning, and dyeing), cacao, sugar cane, and clove tree. The diversification of commercial trees creates modified canopy stratification: the upper stratum consists of rubber and fruit trees, the middle stratum is dominated by cinnamon and coffee and the lower stratum covers perennial crops, i.e., chili, eggplant and galingale a plant of the ginger family.

First planting usually starts with coffee or rubber, for cover are used *dadap* (flowering trees of *Erythrina* spp.) or fruit tree. The perennial crops take advantage of the cover of the trees. However, after three years, the canopy of the trees eventually will close preventing the farmers to plant perennial crops. To compensate this, the farmers change the perennial crops to cinnamon trees (*Cinamomum* spec.). In some cases, farmers are forced to utilize forestland

through land clearing. Cultivation on this type of land can lasts two to three years only due to the intensive erosion and leaching of the soil matters.

Forestland

In former days, forest territories were decided among clans/lineage. Lineage determined the borders after a series of consultation among them. However, they had no limitation on clear cutting of the forest, which means that they could open the forest as far as they wanted.

Traditionally, forestland was allocated as a reserve area. Only the good quality trees were harvested for construction, especially for the poles of traditional houses. Based on the *adat*, the size and status of the forestland was not changed. These areas were inherited as *hutan tinggi* owned by the *nagari* or clan. In the meantime, the vegetation cover of these areas is changing. The more economic oriented led to the conversion of the forestland into mixed cash crop land, creating a higher risk for soil erosion. Whereas, the soil structure and soil type cannot support that changing. Most of this forestland is situated on high slope areas and the management of the mixed cash crops cultivation is quite extensive. In the meantime, some areas become secondary forests again. Nevertheless, in November 2000, there were landslides and floods in most highland areas of the west side of West Sumatra Province.

According to the physical condition and economic oriented, it is needed management based on ecological aspect combined with economic oriented that can keep forest functions. This input especial for the forestlands where were change.

Residentral Patterns

According to the traditional rule, a *nagari* can be built if it includes the following elements: *adat* house, mosque, and water source to take a bath and other household purposes and access/road (*barumah gadang, bamusajik, batapian tampek mandi dan balabuah*). All houses in the village are connected by a network of roads and unpaved paths, some also passable to motor traffic, other only by foot. In fact these roads and paths form the focus of housing. Most houses are strung out evenly on both sides of the roads.

Traditionally, the residential buildings (*Rumah Gadang*) were built stretch along from west to east, to avert the house from direct solar insulation and keep the air inside the house cool. But there is another argument, that *Rumah Gadang* are built look out Mt. Merapi, which is considered as a legend. Since roads are constructed, this is also affects to the position of *Rumah Gadang* and others houses. Many of them are built parallel to the roads.

The traditional Minangkabau house, of which only a few still remain, is a large and impressing construction, rising up to 2 m high above ground, with a characteristically sloped roof, and a communal *surau* nearby where the men and boys live. Because of tradition to leave homeland area, many *Rumah Gadang* are un-resident and that some of them are damage.

The rule about housing lay out was not found as long as research was been held. The new houses built follow the roads and can built surrounding *Rumah Gadang*. Adulteration of housing site in some villages was occurring. But this is based on family agreement. The sites where used for new houses are for the most part of site of rice fields, because that sites is situated close with settlement area.
Scheme of village land use ca be shown in Figure 1 that created by Scholz (1997).

PRESENT SITUATION OF THE MINANGKABAU LAND USE

Up to now, the Minangkabau people keep the land use system based on traditional rules. No drastic changing of land status in a village. The allocation land accordant the traditional rule can be seen in most of villages in hearth land of Minangkabau. This is happened because of the tradition to leave home area makes the population in hearth land of Minangkabau is not rapidly increase. In Tanah Datar District as a sample, average population growth in last ten years is 0.68% per years. This condition makes low land dependence.

In village forestland, the changing that happens is land cover change. Some parts of the forestland have been changed to mixed cash crop trees, fruit trees and perennial crops. Due to only extensive cultivation systems, shrub and imperata grass is growing in some areas.

Also there is little changing in extend of housing site. All this time, the new houses built at open space near the old house or *Rumah Gadang*. No exact rules are found in space arrangement surrounding *Rumah Gadang*. But in few chases occurred houses development outside traditional housing site. The site where the new houses built is the plot of rice field, because it is close with the settlement area. This decision was happened after consensus in a family was reached.

Although land is owned communally and *kaum* land is cultivated by denizen together, every one can work on land for subsistence with the right of land use. The extent of the right of land use depends upon the ability to work and the availability of land. Minangkabau society has an assumption that all of land in their borough, including virgin forestland is *ulayat* land. Consequently, transferring *ulayat* land to the government always needs *adat* procedures. But transferring land of *ulayat suku* or *kaum* surrounding the village needs a retribution fund (Navis, 1980).

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LANDSCAPE PLANNING AND MANAGEMENT FOR PRESERVATION OF LAND AND CULTURE

Landscape planning is a method for creating suitable land for living and the preservation of natural resources. The consideration of environmental conditions has become an important aspect of this. One method of knowing the rules for using natural resources is based on traditional land use that has been adapted to the environment. Traditional values (*adat*) provide easier solutions for managing the environment.

Taking this into consideration, the development can preserve the culture, which in fact can support sustainable development. In this study, analysis of the scientific aspects of land use confirms that traditional rules for land suitability in the highlands of West Sumatra are perfectly responsible. The Minangkabau traditional rules give land use planning basis as follows :

- Land allocation for protected and cultivated areas
- Land suitability based on degree of slope and soil characteristics
- Land allocation with cluster pattern for housing, agriculture and forest.
- Housing with linear pattern

Based on soil characteristics, management systems must take care with the conversion of forestland to cultivated land, which brings on cover changes takes to the high risk of soil erosion in inclined areas. Traditionally, slope areas are covered by forestland but as a consequence of population growth, economic orientation and the disappearance of the function of the *nagari* consultative forum, land functions have changed. Some forestland areas are planted with perennial crops based on economic orientation. But this situation has taken place spontaneously and without good planning. An example of this occurred some years ago in Sumanik Village (Tanah Datar Distric): the people planted clove trees when the market price was high, but when the time came to harvest the cloves, the price had decreased. Now the clove trees are neglected and the land has become more open. In such a situation there is a need for and input of technology for the recovery of land cover as well as a need for market research for information about marketable commodities.

In the study area, following the traditional rule most rice fields cover andosol soils from tuff volcanic and red-yellow podzol (spodosols) from alluvial genesis. Mixed cash crops and forests however cover red-yellow podzol (ultisol) and andosol soil.

Based on Twardy (1995), land evaluation of rice fields in spodosol soil areas is also needed because agricultural activity in these areas requires high input production. It is should be changed with perennial crops. Forest areas grow on ultisol and oxisol soil. It is better to maintain this condition rather than converting the land because these soils are highly erosive and need high input production and technology for agricultural use.

The application of an agroforestry system could be possible in an area where forest has become secondary forest as a consequence of extensive use. Agroforesty is a system of land management based on the sustainability of yield increase of plants by combining forest plants and economically oriented plants and/or domesticated animals with a management system based on local culture. For this solution research is needed in order to know which agroforestry systems can be used and which kind of trees can be planted in accordance with the economic aspects and agro-climatic conditions.

Another input is needed for applying the traditional rules based on ecological aspects for sustainable development. This input is watershed management. Water bodies are important sources for human activities; therefore management of water sources and riversides is needed. It is important to maintain forestland as catchment's areas because one forest function is hydrological arrangement. The arrangement of buffer zones along riversides reduces erosion by water flow and distils the high input of nutrients into the rivers, because the farmers use fertilizers in agricultural management. The designing of buffer zones should be done along riversides. The application of this technique needs socialization and consultation with the landowners, because buffer zone areas will use private or community lands. Based on the Presidential Decree No 32/1990, the breadth of a buffer zone for big rivers (more than 200m breadth) is 100 meters at each side of the river and 50 meter for tributaries located outside of a settlement area. For rivers located in settlement areas, riverside borders must be 10 to 15 meter or approximately enough to build inspection roads. Plant cover is made up of a combination of shrubs, bushes to trees. In this case one could choose fruit trees, bamboo, or perennial trees, which have economic significance. Based on this management, the sketch of land use management can be seen at Figure 2.

Traditionally, a *nagari* was decided as autonomous and self-sufficient community, accordingly the village system must return to the *nagari* system and re-function the *nagari* consultative forum in order to manage the *nagari* land. But some aspects of management should be introduced to improve the *nagari* form of management. The knowledge of the *ninik mamak* and *penghulu* about planning, organizing, actuating, and controlling should be re-introduced and improved. This is important because in the future the problem of *nagari* management will more complex. It is related to social and economic development, lands limit for extensive management system and the changing of the culture.

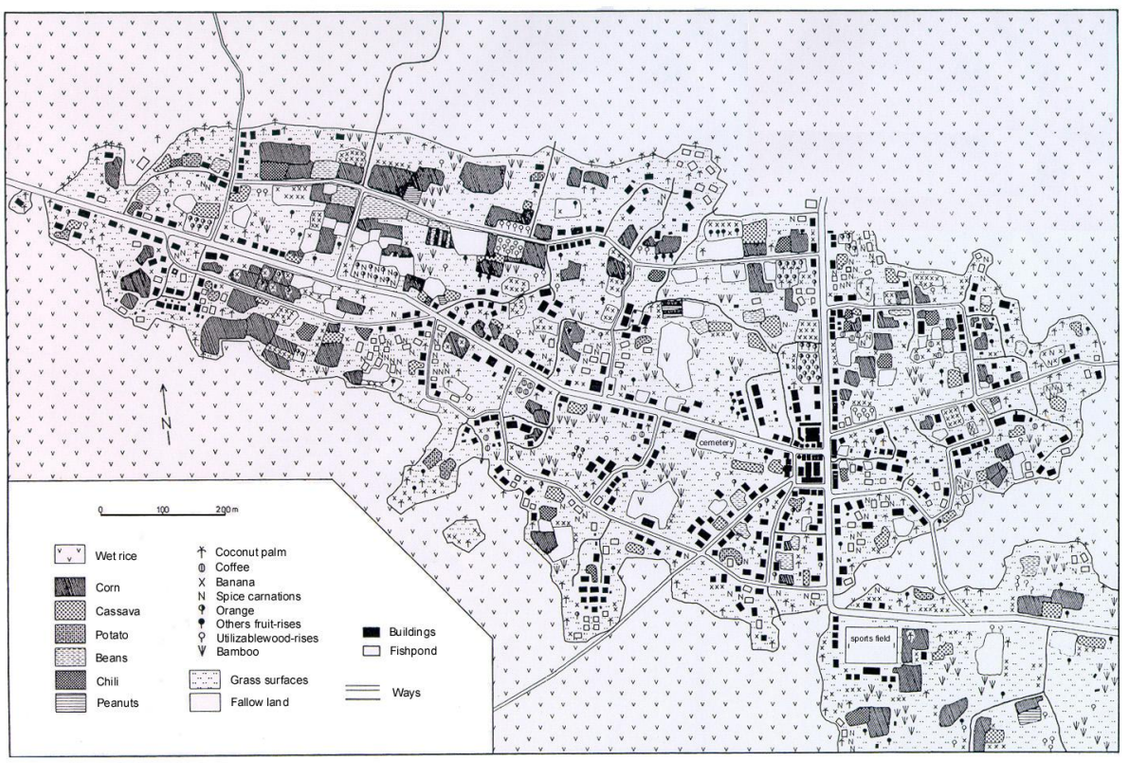

Figure 1. Village land use, an example at Rambatan Village (Source: Scholz, 1977)

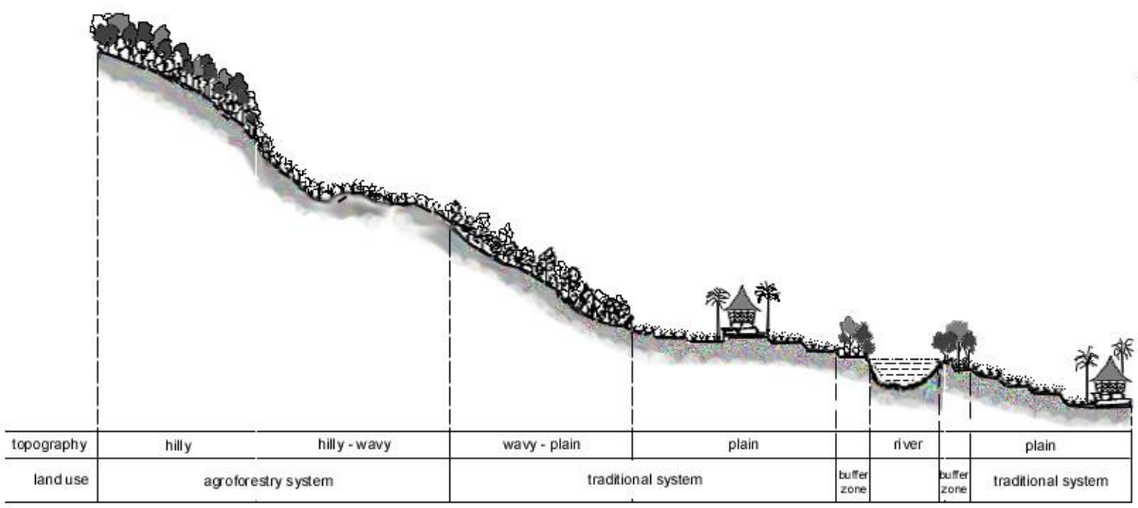

Figure 2. Guidance of land use management for highland area in Minangkabau Land

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GLOSSARY

adat	traditional prescriptive law in Indonesia tradition, customary law
balai adat	consultative hall in Minangkabau village
hutan nagari	*nagari* forestland
kaum	family, lineage
musajik (masjid)	mosque
nagari	Minangkabau village
ninik mamak	the grand matriarch
penghulu	clan chief
rumah gadang	big house, traditional house of Minangkabau
sawah	irrigated rice field
suku	clans
surau	prayer house
ulayat	land or territory, village land property