

THE ETHNOECOLOGICAL STUDY OF SATOYAMA

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ABSTRACT

The objective of this article is to examine the ethnoecological study of "Satoyama" and to present in the form of descriptive case study approach and literature approach to collect reading materials which related in this object through the website of internet and some books.

The meaning of Satoyama is the mountains near the village. The mountains are put in the ecosystem that is influenced by the life of the communities.

Actually, since 5000 years ago inhabitant of Japan already knew and maintained their forests in harmony. They lived around the fields near the rivers. Approximately 2000 years ago they began to plant rice in their field. Harmonious relationship between humans, forests, land and water ran from year to year in traditional ways, they utilized the environment as wise as they could. Such conditions made Satoyama as traditional wisdom of use.

Due to population growing forest conditions gradually began to change. The forest encroachment and logging for building materials of the giant castles and fuelwood destroyed forest in Japan widely.

With the development of science and technology the economic value of forest in Satoyama have been influenced negatively. In short since the early 1960s years Satoyama has no economic value anymore and the traditional wisdom Satoyama society began to fall down, so the economical thinking take precedence because the rapid growth of population and development science and technology.

At this time many Satoyama areas have been changed shape and it has been converted to land for housing development on a large scale into the "New Town" by the big city like;

"Senri New Town" area of Northern Osaka

"Tama New Town" area of Western Tokyo

"Senboku New Town" area of Southern Osaka

Keyword: Satoyama, traditional wisdom, ethnoecology.

BACKGROUND

"Satoyama" means mountains near the village. These mountain are located in an ecosystem that is influenced by the life of the community. The word Satoyama already known from earlier 18th century and can only be distinguished on the ownership of land in the Spatial Land Use in Japan.

At the time of World War II ended (1945), the major cities in Japan suffered serious damages which caused by air bombing by U.S. forces, so many buildings and houses were burnt and destroyed. To restore these conditions reconstruction were done in the major cities. The need for wood building materials demand of wood greatly increased sharply at that time, so that large trees were felled down and then reforested with the kinds of Sugi (*Cryptomeria sp.*) or Hinoki (*Chamaecyparis obtusa*).

Around the 1960s in Japan energy revolution was brought out and the use of fuelwood and charcoal was replaced by fuel from fossil raw materials. At that time, farmers also have been using chemical fertilizers instead of composts. As a result of these changes, namely energy revolution and use of chemical fertilizers, farming communities of Satoyama no longer maintain their forests, among others: no longer use the leaves or leaf litter for

composting and no longer use the branches and twigs of trees for firewood and charcoal. Forests in Satoyama began to be abandoned by farmers and the end of Forest Ecology Satoyama began to drop and damage.

As a result of forest destruction in the period of spring litter fallen leaves covered the forest ground in Satoyama, in result plants such as grasses and herbs that usually thrives with beautiful flowers can not grow and no longer be found. Pruning branches twigs (*artificial pruning*) is no longer done by forest owners of the community, so the suning no longer penetrate ground through the tree canopy, under-any plant can not grow and only covered by a bunch of small bamboo groves which are usually grown in humid conditions and they do not require sunlight.

The types of shrubs dominate this small bamboo plants and are still under forest. Not a few empty lands due to logging big trees left and poorly maintained resulting in such damaged condition. As a result the value of community-owned land was declining and many are sold to private companies and government with a low price.

With these conditions, many private companies and government bought Satoyama lands with low prices, and changed forest area of Satoyama into residential land. These changes occurred around the year

of 1970s.

Actually since the early 1960s Satoyama had no economic value anymore and the traditional wisdom began to fade due to the growth of population development of science and technology, then these conditions become more critical about the year 1995 (Wikipedia encyclopedia <http://ja.wikipedia.org/wiki/%E9%8C55%BI%BI>).

On the basis of the above statement the author wants to examine the ecological deterioration of Satoyama from review of the history, community activities during the four seasons, utilization of forest ownership and the government's efforts in the protection and preservation of Satoyama.

DISCUSSION

History of Satoyama Forest

Tsunahide Shidei, a honorable Professor of Forest Ecology at Kyoto University used a word of Satoyama broadly Satoyama as a union of an ecosystem.

Approximately 5000 years ago the inhabitant of Japan began planting broad-leaved beech like *kastania* (*Castanea crenata*. C) and shii tree species (*Castanopsis sieboldii*) in the mountains surrounding their village. From year to year in the Japanese archipelago the population increased and the need for adequate human life was increasing too. In the 7th century apparently several forestry communities utilized Satoyama forest. Consequently any diminishing forest potential, especially in the Kinki region (Kyoto, Osaka, Nara, Shiga and Hyogo) in western Japan archipelago. At that time, around the year 676 Yamato Caesar issued a ban concerning logging in certain areas around Satoyama. But this ban was ignored by communities of Satoyama forests. As a result, until the year 800s most forests in the Kinki region were damaged, and about the year 1000s the destruction of forests has reached to the Shikoku region. In the 1550s, 25% of the entire Japanese archipelago of forest were damage.

And until the early 18th century a large part of Satoyama forest still damaged. Background of forest damage caused by the growth of population and development of timber to meet the needs of life, especially for timber buildings and for construction of a giant fortress at that time.

Besides that, the vast forest damage caused terrible natural disasters, among others, forest fires, floods, landslides, and others. Shogun empire period Tukugawa worried that natural disasters would happen more and more sweeping damage the forest. So it adopted the policy to protect forests around the year 1666. In this policy emphasized the protection of reforestation and legislated regulating logging and timber trade strictly.

And the policy of forest could succeeded so refor-

estation could also be maintained materialized forest sustainability.

But in the modern era Satoyama forest began to face crisis and met three times of crisis. First, motivated by the Meiji revolution, resulting in the Kingdom of the Shogun Tukugawa fall down so that the policy of forest protection became chaotic. Many of the illegal logging occurred at that time because there was no oversight. Secondly, the existence of the World War II to meet the needs of war carried out logging and deforestation eventually happened in several areas. Third, around the year 1995 Satoyama conditions became more critical. Forests that have been maintained for the purpose of household needs such as firewood has replaced to fossil fuels. Changes in fuelwood use already got on around the year 1970s. Besides, with the use of chemical fertilizers and spread of farming communities of Satoyama no longer use the organic fertilizer obtained from the collection of litter or leaves from trees. With advances in technology, the use of livestock for plowing also replaced with modern technological equipment. As a result of forest around Satoyama no longer neglected, and abandoned.

With science and technology developments on these conditions give a negative impact for utilization and economic value of Satoyama forest. Eventually in the early 1960s Satoyama forest no longer have economic value and wisdom of traditional communities around the Satoyama began to fade due to the development of these science and technology.

And now Satoyama area began to change shape and it is converted to land for the construction of large-scale housing and into the "New Town" surrounding big cities like Senri New Town (Northern Osaka), Tama New Town (Western Tokyo), Senboku New Town (Southern Osaka). (Wikipedia encyclopedia <http://ja.wikipedia.org/wiki/%E9%8C55%BI%BI>)

The activities of Satoyama community with accordance of Four Seasons

1. Spring

In the spring the farmer collect the litter of trees (tree leaves that fall to the ground) which will be used as compost material. Besides, people who lived around the Satoyama come to Satoyama and pick edible sprouts of trees plants such as the types of ferns others. In the spring Fukujuso plants (*Adonis ramosa*) and Katakuri (*Erythronium japonicum Decne*) are also flowering dense and beautiful, and there are species of frogs that lay eggs in standing water under the trees and soon the eggs hatch, so that populations of frogs in abundant during spring.

2. Summer

In the summer the farmer begins to cultivate his land in preparation for rice cultivation. The type medaka fish (small fish) come to the little streames through

the flow of time and lay eggs in the fields. They live by eating water grass which grow in the stream. The farmer uses livestock such as cattle and horses to cultivate rice fields and farms. The farmer collects grasses to feed his live stocks. Remnants of the trampled grass are mixed with dung as composting materials. Insects such as beetles come flying into Satoyama forest and suck the juice of trees.

3. Autumn

The autumn is harvest season which usually followed by rice. Similarly, vegetables grow abundantly in the vegetable gardens. At the time the rain fall in autumn jems assorted mushrooms grow under the trees in Satoyama forest. In this season fruit trees such as tree kastania (*Castanea crenata C*) and Kaki (*Diospyros Thumb feet*) are also fruiting in abundance. After that the tree leaves change color to red and yellow reddish towards the autumn.

4. Winter

In winter farmer goes to Satoyama forest and works in the forest. He cut the branches and twigs of trees to be made later in the dry wood or charcoal fire. Charcoal will be used for cooking and heating the room. Usually when the farmer cut down big trees, and allowed to grow new shoots as the new generation and maintained for 20-30 years to be harvested again ('Nono-chan no jiyu kenkyu' Asahi shinbun-sha (2001) Tokyo Jepang).

Forest Utilization of Satoyama

In the utilization of forest, that is and forest management, especially the set of logging is done every 10-20 years, the cutting of trees is done by leaving a milestone in the base of the tree. Most harvested trees are used for firewood or charcoal materials. After cut down of the big trees from stool shoots the trunks grow back as new regeneration of tree.

In the red pine forest (*Pinus densiflora*): red pine trees are used for building materials, thus maintained in a long time. Branches of red pine trees and branches of woody plants which grow under pine trees used for firewood. Ash trees and wood used are spread in the garden as a potassium fertilizer.

If there is a large and tall trees listed one by one as an expensive property and recorded at the village office and managed strictly.

Plants under the tree is used for organic fertilizer and animal feed.

Falling leaves are also used for fuel, and residual ash firewood was distributed to former orchards as elemental calcium.

Mushrooms "Matsutake" growing under red pine trees are usually common and sale. Other edible mushrooms and wild plants are used by local people as food.

Ownership of Satoyama

In the Edo period (Shogun Tokugawa Kingdom), possession of Satoyama is divided into various types, namely: (1) government property; (2) property rights of local residents (*local Common's*), and (3) private property rights. For example: the property rights of government, the government has the right to property and the residents therein may cut wood, the property of local residents the village has a proprietary of Satoyama (*local comon's*) but the government has the right to have the tree (mean time to cut down trees, need to get a permit logging and government). In Ownership by local residents (*local Common's*), local residents are given the actual status of forest maintenance by the government, residents may harvest timber as long as the government's permission. The trees that grow around Satoyama are owned by the government. In private ownership, private owner can use multiple trees to establish a Buddhist temple with the status of property rights, and others.

After the Meiji revolution Ownership of Satoyama turned into three types: government ownership, local resident ownership and private ownership. On private property, inheritance tax becomes a big problem. Tax of forest land and yield designated are cheaper than agricultural land or residential land. But the inheritance tax imposed in accordance with an area of land, so the amount of tax to be expensive. And sometimes the heirs can not pay the inheritance taxes so that private property is sold or is deliver to government. ('Nono-chan no jiyu kenkyu' Asahi shinbun-sha (2001) Tokyo Jepang)

The efforts of Japanese government for Protection and Preservation Satoyama

In 1994 the Japanese government adopted the policy of nature protection in accordance with basic guidelines Satoyama environment.

The white book concerning the environment in 1998 stated that the government must find a way that is suitable for agriculture and forestry activities for protection of Satoyama areas.

Based on the basic guidelines of the Department of Natural Environment in the Ministry of Environment concluded that a study on the state of Satoyama must be carried out and proposed to the Central Government. Environmental research and nature protection of Japan has been started since year 1999 till the year 2001. Then the results of this study were analyzed by the Department of Natural Environment in the Ministry of Environment and has been entered into the revision stage of the State strategy on biodiversity.

Interim report of the results and analysis of Satoyama research are as follows:

1. Satoyama forest is mainly secondary forest, so the above research focused on a secondary forest. Size

of research object approximately seven million seven hundred thousand hectares (21% of the total area of Japan) and forest type consists of five types:

1. *Quercus crispula* forest (approximately one million eight hundred thousand hectares) in northern
2. *Quercus serrata* forest (approximately two million three hundred thousand ha) is on the east to the Northwest
3. *Pinus densiflora* forest (approximately two million three hundred thousand ha) in the western part
4. *Castanopsis sieboldii* forest (approximately eight hundred thousand ha) in southern
5. And others (approximately five hundred thousand ha)

Each secondary forest has unique characteristics that are different from other tree species. For the maintenance and protection of forests should certainly pay attention to the unique character of each tree species.

If the secondary forests are not maintained or left alone, *Quercus serrata* forest and *Pinus densiflora* forest will dominate and affect biodiversity.

2. Activities of people in Satoyama

Information about the activities of people in Satoyama collected by a questionnaire conducted in 1999 and 2000 and the results can be viewed on the internet. Approximately 1000 groups or organizations engaged in activities in Satoyama and spread throughout territory of Japan. Approximately 34% of all the information collected primarily near three megapolis namely: Tokyo, Nagoya, and Osaka.

3. Many groups or communities organizations carry out observations at most natural forests, and then management, maintenance and protection of Satoyama forest held.

4. Many people hope that Satoyama forest used as a pure natural forest near the city.

5. Many organizations or groups point out that the development of housing, waste disposal, and reforestation with other plant species such as bamboo species that spread to secondary forest Satoyama eventually destroy the forests (Nihon no Satochi Satoyama no Chosa bunseki ni tsuite').

CONCLUSION

1. Satoyama means the mountain near the village and has been known around the 18th century. Due to the growth of population and development of science and technology, Satoyama have no economic value anymore and the traditional wisdom of the community began to fade.
2. The community activities of Satoyama during the four seasons are as follows: (1) in spring the farmer collects litter into compost, people pick up wild plants as food; (2) in summer the farmer begins to cultivate his land to grow rice preparation; (3) in autumn the farmer begins to harvest the rice and vegetables, (4) before the winter they cut the branches and twigs of trees as firewood and charcoal materials.
3. In the utilization of Satoyama forest by the cutting of trees are controlled every 10-20 years. Tree felling is done by leaving a stool shoots for a new base of a tree as the next generation. Some remnants of logging used for fuel and charcoal. Residual combustion in the form of ashes spread in their gardens. Under the pine forest stands (*Pinus densiflora*) usually common mushroom 'Matsutake' which is very liked by Japanese.
4. There are three kinds of ownership, of Satoyama namely: government ownership, property rights of local residents (local commons), and private property.
5. To rehabilitate damage of Satoyama forest the Japanese government has tried to engage the protection and preservation of forests by conducting various studies.

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