

Comparative Studies on Agroforestry and Forestland Ownership in Japan, Thailand and Indonesia

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日本、タイおよびインドネシアにおけるアグロフォレストリー
と林地所有に関する比較研究

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Introduction

Recently tropical countries have been faced with a serious shortage of food due to high-rate increase of population as well as with a dangerous shrinkage of forestland area. In such a critical situation, Southeast Asian nations have begun to adapt politically, as a measure serving the double purpose of reforestation and agricultural development, a system of production called agroforestry to some extent since more than ten years ago.

Agroforestry may be defined as a land-management system which, on the same unit of land, combines agriculture and forestry, sometimes as well as animal husbandry and/or fish farming, simultaneously (Pekarangan type) or sequentially (Taungya type). It must be mentioned here that, in this paper, agroforestry, if not specified, usually refers to the latter type (Taungya type), which is more prevalent throughout the world, and in which land use is made systematically, utilizing time difference of growth of various crops, and the reproduction of forest is completed at the end of their rotation.

In the summer of 1985 a joint research was conducted on agroforestry in Thailand and Indonesia. Enforced with the observations and the data acquired from it, this paper intends to describe in a summarized form the socio-economic characteristics of agroforestry and problems of forestland ownership in these countries, always comparing with the case in Japan, and then to emphasize the urgency of reform in their system of forestland ownership for both successful reforestation and advancing general welfare of the people.

I. The Socio-Economic Characteristics of Agroforestry in Japan

A. The Formation and Development of Yakihata-Ringyo in Japan¹⁾

(1) Yakihata-ringyo, a variant of agroforestry of taungya type, has existed in Japan,

with a long, but varied history.

This combination system of swidden-cultivation and afforestation first appeared vaguely at the beginning of the 18th century in the feudal-lord-owned forests, realized through the labour of the lower-class rural people who needed food and firewood for their daily consumption. But it was inevitable that yakihata-ringyo in this initial stage remained technologically immature.

(2) Then, around 1900, modern forest ownership was substantially established concurrently with the development of capitalism, and large-scale forest owners came out. The lower-class people who had lost their own forests were forced to resort to swidden-cultivation in the forests now in the possession of large-scale owners, and around 1920 yakihata-ringyo reached its culmination in a fully-developed form.

(3) This long-standing and now prosperous system, however, almost disappeared during the decade of 1950-1960, mainly due to the enlarged labour demand in the fields of industry. Even in rural areas the lower-class people could earn wages, employed in afforestation or timber-cutting, and secure provisions by purchase. Consequently they began to abandon swidden-cultivation as a means of subsistence, for their main purpose of it was always to procure food.

(4) Today yakihata-ringyo survives only locally in two forms. One is, as seen at Sanpoku-cho in Niigata Prefecture, a combination of cultivation of a commodity crop (red turnip) and production of sugi (*Cryptomeria japonica*) or hinoki (*Chamaecyparis obtusa*). In the case of Sanpoku-cho, red turnip by swidden-cultivation, which has already a firm distribution market, is grown by rural farm women who are after a cash income. The other is a form in the national forest under the management of Takahagi district Forest Office in Ibaragi Prefecture, promoted late years by the Forest Agency in order to experiment with various effects. Here swidden-cultivation is operated through the local farmer associations.

B. The Socio-Economic Conditions Necessary for the Existence of Yakihata-Ringyo in Japan

(1) Before World War II

In pre-war Japan, for the existence of yakihata-ringyo were four socio-economic conditions necessary as follows:

- 1) a realization of exclusive large possession in forestland as well as in arable land,
- 2) paralleling with the first, a formation of the nonself-sustaining lower-class people, who had scarcely forestland and arable land to produce sufficient food and firewood for their families,
- 3) a large demand of cultivation in forests among the lower-class people accumulated in rural areas due to increase in population and an extremely-limited industrial labour market,
- 4) and lastly, a willingness and initiative for afforestation on the side of large-scale

forest owners.

These conditions, combined together, made it possible for the lower-class people to work for food and firewood in the forests possessed by large-scale owners who were themselves desiring to afforest them in an economical way. These might be called necessary conditions for the existence of yakihata-ringyo in a immature stage of modern industrial society.

(2) At the Present Time

As observed in the case of Sanpoku-cho in Niigata Prefecture, in present-day Japan, for the existence of yakihata-ringyo are deemed five socio-economic conditions necessary as follows:

- 1) a realization of exclusive large and middle scale possession in forestland,
- 2) the reverse side of the first, a formation of the lower-class people who have scarcely forestland, though they are not destitute of food because they possess some arable land and they can also obtain wage income,
- 3) the lower-class male people are almost drawn to the fields of industry and the population in rural areas decrease due to an enlarged industrial labour market, and farm women remaining at home will to swidden-cultivate for a cash income with a commodity crop,
- 4) an establishment of distribution market of such commodity crop,
- 5) and lastly, a willingness and initiative for afforestation on the side of large and middle scale forest owners.

These conditions as a whole are deemed contributing now to a realization of yakihata-ringyo, in which the lower-class farm women cultivate for a cash income in forests possessed by large and middle scale owners who are willing to afforest them in an economical way. And these might be called necessary conditions for the existence of yakihata-ringyo in a mature stage of modern industrial society.

C. The Stability of Yakihata-Ringyo in Japan

In the case of Sanpoku-cho in Niigata Prefecture, the steady demand for red turnip, which maintains its price satisfactorily high, stimulates more and more farm women into its production. However, over-production by too many competitive cultivators, should inevitably lower the price, which then might probably make them change from swidden-cultivation to industrial labour always in demand and easily obtainable inside and outside their villages. Already there can be seen, though vaguely, some signs of such change.

Therefore, it may be said that yakihata-ringyo at the present time is unstable, especially when it lacks political and financial supports from the government.

II. The Socio-Economic Characteristics of Agroforestry and Problems of Forestland Ownership in Thailand

A. The Formation and Development of Agroforestry in Thailand²⁾

(1) In Thailand agroforestry of Taungya type was first introduced from Burma in 1898, to produce man-made forests of teak (*Tectona grandis*). But its development was very tardy ever since, and the total agroforestry area up to 1960 was only 8,120 ha.

(2) Then, in 1961, the First National Economic Development Plan was organized by the Thai Government, and afforestation by agroforestry was greatly accelerated under the management of the Forest Industry Organization (FIO) and the Royal Forest Department (RFD), with the view of promoting the benefit of poor farmers and the prevention of forest depletion through the labour of the lower-class people recruited to so-called forest villages. The total man-made forest area up to 1982 was 442,000 ha, 15 % of which was afforested by agroforestry.

(3) Today, the national forest covers almost all forest area in Thailand. And 67 forest villages (including 26 forest villages of Resettlement Project by RFD) have been founded in the national forest, and recruited people inhabit in forest villages. These settlers, who are engaged in agroforestry, can either consume agricultural products harvested from their allotted forest area as their own supply or sell them for a cash income. Thus agroforestry today in Thailand is activated by strong political supports.

(4) Though, among the tree species planted in agroforestry areas, teak and rubber tree are most common, in them are also grown *Acacia auriculiformis*, *Eucalyptus deglupta* and *Leucaena leucocephala*. And the intercrops in agroforestry areas are usually upland rice, maize, chili, coffee, pineapple, etc.

B. The Socio-Economic Conditions Necessary for the Existence of Agroforestry in Thailand Present-Day

The following six socio-economic conditions are contributing to the existence of agroforestry in present-day Thailand:

- 1) a realization of exclusive large possession in forestland,
- 2) paralleling with the first, a formation of the lower-class people who have scarcely forestland and arable land,
- 3) a large demand of cultivation in forests among the lower-class people accumulated in rural areas by an increase of population and an limited industrial labour market,
- 4) an establishment of distribution markets for intercrops,
- 5) a willingness and initiative for afforestation on the side of large-scale forest owner,
- 6) and lastly, strong political and financial supports from the government.

These conditions are making agroforestry practicable in Thailand today, which is

operated indeed in the national forest offered by the government with the double object of giving relief to poor people and promoting afforestation, employing the labour of the settlers in forest villages who want food as well as a cash income.

Now it is clear that these conditions are made up of the above-mentioned ones for *yakihata-ringyo* in pre-war Japan [I.B. (1)], with two items added, namely, deep penetration of commodity economy and strong governmental supports. In this fact we may get an insight into developing countries trying politically to promote agroforestry in an immature stage of modern industrial society.

C. The Stability of Agroforestry in Thailand

The applicants to forest villages are now below the prescribed number, and those who have already settled in an assigned village are apt to desert it. One of the reasons is that to them is not guaranteed private ownership of their present occupied land. And in the national forest inside and outside these forest villages illegal swidden-cultivation and tree-cutting are still rife, ultimately because the system of forestland possession is not matured.

If such problems are treated successfully, and if rapid industrialization and decrease of population do not occur, agroforestry in Thailand will continue to be stable for a long time, for the governmental supports are the strongest among three countries, and many policies such as construction of forest villages are effectively being carried out.

D. The Problems of Forestland Ownership in Thailand³⁾

(1) Up to 1855 forestland in Thailand was entirely a possession of the king, and thereafter began the modernization of land ownership system. Then in 1937, by Land Title Deed Act all forestland, excepting negligible private forests, was nationalized. But this act also admitted, on application, the right of management of land to those who want to develop it. However, because the application procedure was bafflingly complicated, rural people generally followed a traditional custom called *Jab Jong* that gives dominium of any cleared and occupied space in an unused free land to the developer.

(2) Even today, following this custom, people illegally swidden-cultivate and cut trees in the national forest, causing dire forest denudation, although the forest police have been reinforced since 1940, and the establishment of forest villages starting from 1967 are also intended to prevent such illegal and pernicious acts. It is admittedly this traditional custom that is most responsible to forest depletion still in progress and also is a serious obstacle to promoting afforestation by agroforestry system.

III. The Socio-Economic Characteristics of Agroforestry and Problems of Forestland Ownership in Indonesia

A. The Formation and Development of Agroforestry in Indonesia⁴⁾

(1) The first introduction of agroforestry of *Taungya* type into Indonesia was done from Burma by a Dutchman with the intention of teak-afforestation in the then colonized

Java in 1883, and this system received a steady and satisfactory development in the same island.

(2) During World War II, and then during the War of Independence, agroforestry was forced to stagnate. But, since about 1973, when the political stability was regained and the policy of economic development was organized, agroforestry began to spread rapidly again in Java. In Java agroforestry was promoted under the management of Perum Perhutani, as an economical measure of afforestation of the national forest and a relief of poor people, employing the labour of the rural lower-class people. As in Thailand, forest villages were set up for agroforestry, taking in a portion of them as settlers.

The afforestation area of 1980 in Java (including the island of Madura) was 71,000 ha, 31 % of which was done by agroforestry system. And in the case of high-priced teak, agroforestry covered 80 % of its area.

(3) Today, in Java agroforestry of Taungya type called Tumpangsari is carried in the national forest which covers almost all of its forest area. The cultivator here, as in Thailand, under political supports, can either consume agricultural products as their own supply or sell them for a cash income.

(4) The major tree species planted here by agroforestry system are teak and *Pine merkusii*, with *Leucaena leucocephala*, *Albizia falcate* and *Acacia decurrens* as their collaterals, and the intercrops in agroforestry areas include bean, tomato, potato, cabbage, corn, upland rice, pineapple, etc.

B. The Socio-Economic Conditions Necessary for the Existence of Agroforestry in Present-day Indonesia.

It may be said that the necessary conditions for the existence of agroforestry are essentially the same in both Thailand and Indonesia, though these countries differ in population density, arable land and forestland area, and degree of development as a modern industrial society. That is, the six conditions in Thailand [II.B.] are similarly valid in Java, reflecting the immaturity of industrialization in these developing countries where agroforestry is eagerly propelled by political measures.

C. The Stability of Agroforestry in Indonesia

In the national forest in Java illegal tree-cutting is widespread, and in the national forest in the other districts illegal swidden-cultivation is causing much trouble, ultimately due to the immaturity of the system of forestland possession, as in Thailand.

If these problems are treated successfully, and if rapid industrialization and sudden decrease of population do not occur, agroforestry in Java will continue to be stable for a long time, for people who desire to enter for agroforestry are most numerous, and political and financial supports are being strengthened gradually.

D. The Problems of Forestland Ownership in Indonesia

(1) Up to 1870, all forestland in Java was dominated by feudal lords, and in a later stage it was almost entirely nationalized by Dutch Indian Government.

(2) In 1870 Domain Statement was issued, which was an important part of Dutch Agrarian Law of 1870.

The Domain Statement stipulated, that all land for which by third parties no right of ownership could be shown, was declared as property of the nation. In this context Free National Land was discernable from Not Free National Land.

In Java the Free National Land consisted mostly of wild lands. A special form in this category was the national forestland. The Not Free National Land could be temporarily ceded for example for agricultural enterprises in long lease or granted to local people under various traditional arrangements.

(3) In Basic Agrarian Law of 1960 after independence a more orderly land administration was imposed, however, special provisions for forest lands were not made. This took place in Basic Forestry Law of 1967, which replaced colonial Forestry Law of 1927. Basic Forestry Law of 1967 is in force for all forestland in Indonesia, whereas the colonial Forestry Law of 1927 was valid only for Java and Madura.

(4) In other districts than Java, the swidden-cultivators in the national forest, who could not easily abandon the customary use of forest, still continue plunderous land-use such as illegal random tree-cutting and swidden-cultivation. Even in Java illegal tree-cutting, and in some regions illegal cultivation, cannot be prevented, though they are major causes of forest depletion and serious obstacles to the progress of afforestation by agroforestry.

IV. The Policy of Forestland Ownership in the Modernization Process of Japan

Illegal cultivation and tree-cutting are greatly impedimental to the prevention of forest depletion and a successful execution of afforestation by agroforestry in Thailand and Indonesia. In past Japan there were really illegal tree-cutting and action by rural people, but this knotty problem was solved, after much meandering as follows, in her long process of modernization.

(1) In the feudal age, forestland in Japan was classified into three great categories: in order of area, villagers' common forest, feudal lord's forest and private forest.

(2) At the entrance of modern age, during the decade of 1870-1880, the feudal lord's forests were directly nationalized, and the private forests were legalized intactly as such. And, as for the common forests that were the largest in area, though those were immediately admitted as such at first, if only their customary collective use could be confirmed, in the lately years such confirmation was regarded as insufficient and if those lacked a tangible evidence of afforestation as well as a documentary evidence of joint occupation and use, those were included into the national forest. Such the latter cases were numerous and the government tolerated the old custom awhile. But some time later it was laid under severe restriction.

This measure occasioned, from 1880 to 1900, in various districts all over Japan, violent protests from the people reclaiming their right, who frequently trespassed and even stealed timber from the national forest. The government was annoyed by the troubles.

(3) During the decade of 1890-1900 the government tried to relieve the situation by receding, selling or leasing considerable portion of the national forest under dispute to the past users. As a result, the government could settle the great portion of the dispute and could advance favourably the management of the national forest.

V. The Prospects for the Future of Agroforestry and Forestland Ownership in Thailand and Indonesia (Conclusion)

Today, in Thailand and Indonesia, agroforestry, with the strong supports from the government, is functioning as effective measure of economical afforestation of the national forest and also relief for the poor farmer and labour. Accordingly, it must be furthered, for both countries have been furnished with necessary conditions for it. They are categorically agriculture and forestry societies, imbued already with commodity economy, which tends to increase demand of cultivation among the poor rural people. Whereas, Japan has already been shifted to a modern industrial society, where agroforestry is unstable, for most labour in rural areas has been soaked up into industrial labour market.

However, to make agroforestry in Thailand and Indonesia more successful on a firm basis, it is indispensable to solve the problems of forestland ownership.

I hope, each government should respond to the requirements of the rural people and make their cyclic structure of production and life more solid, by reforming the present system of forestland ownership so that they can possess or use some portion of the national forest. It is imperative for each government to contrive a regional plan of system which harmonizes afforestation by the rural people, protection of forest by them and their economic benefit. When the each government makes the plan, the case of past Japan will be a good guide to it, I think.

Notes

- 1) Cf. Sumiyoshi Arika, Ringyo-Chitai no Keisei-Katei [The process of Development of the Forestry District] (Tokyo, 1974).
- 2) Cf. The Science and Technology Agency, Nettai-Rin no Kaihatsu to Hozen ni kansuru Kiso-Chosa [A Basic Research on the Development and the Conservation of Tropical Forest] (Tokyo, 1984); The Timber Storage Organization of Japan et al., Kaigai Ringyo-Shigen Kankyo Kiso-Chosa Hokokusho [A Basic-research Report on the Foreign Forest Resources] (Tokyo, 1980); Pongsak Sahunalu, "Present Condition of Agroforestry and Its Problems in Thailand.....Ecological Aspects" (Kyoto Seminar, 1984); and Wuthipol

Hoamuangkaew, "Agroforestry in Thailand" (Kyoto Seminar, 1984).

- 3) Cf. Takeo Shinohara, "Tonan-Asia Shokoku Rinya-Seido no Hikaku-Seidoshi-teki Kenkyu [Comparative Studies about the History of Forest Institutions in Southeast Asian Countries] (II)", The Science Bulletin of the College of Agriculture, University of the Ryukyus, No.22 (Okinawa, 1975); The Science and Technology Agency, op. cit.; and The Timber Storage Organization of Japan et al., op. cit.
- 4) Cf. The Science and Technology Agency, op. cit.; The Timber Storage Organization of Japan et al., op. cit.; Sanusi Wiradinata, "Present Condition and Problems of Agroforestry in Indonesia, in particular outside Forest Areas" (Kyoto Seminar, 1984); and Junus Kartasubrata, "Agroforestry in Indonesia with Special Reference to Tumpangsari in Forest Area" (Kyoto Seminar, 1984)
- 5) Cf. Takeo Shinohara, "Tonan-Asia Shokoku Rinya-Seido no Hikaku-Seidoshi-teki Kenkyu [Comparative Studies about the History of Forest Institutions in Southeast Asian Countries] (I)", The Science Bulletin of the College of Agriculture, University of the Ryukyus, No.21 (Okinawa, 1974); The Science and Technology Agency, op. cit.; and The Timber Storage Organization of Japan et al., op. cit.

摘 要

熱帯の国々は、近年、人口急増に伴う食糧不足問題や森林の減少問題に直面している。そのような危機的状態の中にある東南アジアの国々では、森林再生と農産物増産の2つの目的を同時に果す手段としてアグロフォレストリーと呼ばれる生産システムを政策的に適用し始め、10数年前からそれは広汎に展開してきた。

1984年から1985年にかけて日本、タイおよびインドネシアの11名の研究者によって日本、タイおよびインドネシアのアグロフォレストリーに関する共同の現地調査が実施された。筆者はこの調査に参加して、これらの国々におけるアグロフォレストリーの社会経済的性格の特質と林地所有問題を比較研究した。本論文はその比較研究の結果を要約的に述べたものである。

今日、タイとインドネシアにおいては、アグロフォレストリーは、政府の強力な支援によって、国有林の安上りの造林や貧しい農民・労働者の救済の手段として効果的に機能している。従って、アグロフォレストリーの成立に必要な諸条件を備えている両国では、アグロフォレストリーは今後も発展させるべきである。両国は範疇的には商品経済の浸透した農林業社会としてあり、地域の貧しい人々の間に耕作需要が増大する傾向があるからである。

ところが、日本は既に近代工業社会へ移行しており、アグロフォレストリーは不安定である。何故なら、地域の労働力の多くは工業労働力市場へ吸収されており、地域の人々の耕作需要が弱いからである。日本でアグロフォレストリーを発展させるためには、地域の人々の耕作需要を増大させる特別な工夫が必要である。

さて、タイとインドネシアにおいて、アグロフォレストリーを安定した土台の上でより発展させるためには、林地所有問題を解決することが絶対に必要であると考えられる。国有林が林

地の殆どを占める両国において、両国の政府は、地域の人々が国有林の一部を所有または利用できるように現在の林地所有制度を改革することによって、地域の人々の要求に答え、彼等の生産と生活の循環構造をより堅実なものにすることを望む。地域の人々による造林と彼等による森林の保護が、彼等の経済的利益と結びつく制度を、地域計画として創り出すことが、両国政府にとって肝要であると考えられる。

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