

Problems of Modernization Line on Agroforestry Policy

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Agroforestry 政策における近代化路線の問題点
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1. Preface

In this essay, I will try to clarify the problems of "Modernization Line" on Agroforestry policies in southeast Asian countries, in accordance with my fact-finding study tour in Indonesia (Java) and Thailand from 14th of July to 26th of August, 1985.

The economic development policies in both countries are emphasised on industrialization. But there exist unemployment for numbers of people in society. This unemployment, i. e., the existance of surplus labor is very closely related with Agroforestry. So, Agroforestry policy can be said a reflection in economic and social development structure of respective countries.

From this point of view and with an eye comparing Japanese Agroforestry which have formed the "prototype" of many famous forestry regions, we will try to investigate that the Agroforestry policy in Indonesia or Thailand is suitable or not for an economic development based on historical and socio-economic structure in each country.

Here, we investigate not only by the method of comparison between developed country and developing country but also we consider including the difference of dimension or the types for economic development phase in respective countries. At the same time, we will point out the problems of even-aged uniform afforestation in Japan, which is typical mono-culturalized forestry.

However I had like to give notice that following description is only a outline without strict evidence.

2. Structure of Landownership and Population Pressure in Indonesia and Thailand

By the result of census in 1976, the whole population in Indonesia at the end of 1980 is 164 millions. There lives 83 millions people (60 per cent of whole population) in Java island and population density is about 800 persons per square kilo-meter. These figures mean the highest population density level in the world.

While in Thailand, the whole population is 50 millions and 500 thousands ('84). Population density is about 97 persons per square kilo-meter. These figures are low level comparing to Java island. But these two countries have in common with a luck of employment

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opportunities for productive aged population.

An average size of farm management per one farm household in Indonesia (Java island) is only 0.64 ha (0.62 ha in West area, 0.63 ha in Central area and 0.66 ha in East area ; by Agriculture Census). And there are differentials in farm size, that is, 33.3 per cent of total farm area are possessed by only 5.6 per cent of farm households. They are all managing and possessing the farm over 3 ha in scales.

In Thailand, an average size of farm management area per one farm household is 4.21 ha ('83). Seeing in detail, it is remarkable that Northern and Southern parts are too smaller than Central and Northeastern part. By the statistics, the farm size—they are mainly paddy field—is comparatively larger. But in fact, annual increment of rice yield already assured, because it is largely effected by annual climatic conditions and their paddy field have not equipped irrigation system.

In above mentioned conditions of farm-land holding and management, all most forests are owned by state, except community-use in parts. Meanwhile, by the increasing pressure of surplus labor in agriculture section, the frontier of agricultural land must be enlarged into forest area and be opposed to forestry. It seems that this mechanism is one of the factor for illegal cultivation and forest-cutting.

The conception and the policy of Agroforestry are systematized from administration side as a method to dissolve such contradiction. The national forest is managed by "Perhutani" in Indonesia, and Afforestation Public Organization (F I O) in Thailand.

Here, we will define "Agroforestry" for the present situation as follows :
A land-use method that agriculture, forestry, livestock industry and fishery are managed at the same time or alternately (by shifting system) on the same land.

The Agroforestry are mainly carried out by two styles as follows :

One is a method that the administration has organized "Forest Village" in the planned land of afforestation, and raised poor landless farmer by the providing arable land and their houses. Farmers borrow the forest land on a 2 or 3 years contract, and produce agricultural products by shifting cultivation, and then plant useful trees—teak, rubber tree, pine and eucalyptus—between agricultural crops. Here, nursing work for agricultural crops will do for a weeding work in afforestation at the same time.

Another is the method without especially organized "Forest Village", which the administration permit farmers and forestry workers to cultivate on a 2 or 3 years contract and have them planted useful trees in neighbour area.

These two Agroforestry method aim at following effects :

To control illegal shifting cultivation and forest cutting, to relieve for poor farmers, to get forestry labors, to generate forest resources and to control run off of water and erosion. These policies are fitting to climates and natural environment. So these Agroforestry policies can be said to achieve some performances in southeast Asian countries.

3. Farmer Economy and Mutual Aid System

It is said that farmer economy in Indonesia and Thailand is formed from not "the prin-

“ciple of benefit” but “the ethic of subsistence”. I do not always give all-out support to it, but it seems that this society is not one to be formed by so called market values.

The farmer economy in both countries have remained the part of selfsufficiency in them. They mainly trade their products in neighboring markets. While the long distance trades to the big city market are occupied only a little part.

In addition to it, the mutual aid systems are spread to all over the countries. In Indonesia, there functions re-distribution system called “Gotong-Royong”. And in Thailand there exist too, similar re-distribution system so called “Donation” (—Long Kaek—) that covers more wide range.

It is wrong to regard these communities and mutual aid systems are still kept with principles of pre-capitalism or un-marketable values based on their traditions. It seems that the market based on capitalism has already existed in that community or mutual aid system. Thus the co-existence of contradictory relationships is the largest characteristic of farmer economy in both countries.

Of course, seeing the history of many developed countries, it is easily supposed that farmer economy based selfsufficiency will be involved in market based on capitalism gradually. The processes of such involution are not all same by countries. Far from being same, there should be discovered fully their own characteristics.

In other words, the existance of deep-seated mutual aid system and economy in kind will indicate different modernization process in the involution by market economy. This seems that most appropriate way to promote their modernization should be choosed themselves according to their nature.

4. What Japanese Modernization had brought

Now, we will investigate Japanese modernization process included farmer economy.

After the Meiji Restoration (1867), Japanese capitalism took the way of the European industrialization. But as Japan was one of so called backward country, the impact which industry pulled agricultural labor out of village strongly was low, and the decomposition of farmers was poor. While remaining farmers with small acreage and surplus labor in the agriculture section, Japanese capitalism was developed.

In this modernization process, agriculture products and labor had been changed to marketable goods. Specially concerning to the labor, it became to form marketable goods as a migrant worker or a part-time farmer.

After the World War II, on the side of agriculture production, there had progressed machinarization and spread to put much agricultural chemical and fertilizer on the field. The agriculture production have become to mono-culture as a forming of specialized producing region. This is, of course, the result of pursuing only efficiency in regional economy. An agriculture village community of old time are decomposed. It has increased farm family who bought as far as vegetables for self consumption.

While on the side of forestry, the afforestations that was linked with shifting cultivation have developed. Specially, until the World War II, farmer economy had production for

self-sufficiency in its main part. So, in the mountain village with large forest area, people had been required production of crops and vegetables for self-support in forest area.

It was generally seen that landless farmers had produced agricultural products on landowner's forest land, and after production they had to return the forest with afforestation to owners. This was shifting cultivation system, so call "Yakihata-Ringyo". Almost famous forestry regions in Japan have more or less related to and originated from this Yakihata-Ringyo system.

In other words, the bases of Japanese forestry regions have been formed from this system.

But in Yakihata-Ringyo, the planting tree species were limited only coniferous trees. Therefore, the development of these even-aged uniform afforestation with coniferous tree had a meaning that the forest area for agroforestry use of farmers became narrow gradually. Thus the enlargement of coniferous forest by Yakihata-Ringyo pushed the farmers out of the shifting cultivation and shut out from fire-wood and charcoal production in the forests.

After the War II, especially after 1957, demand of fire-wood and charcoal was rapidly reduced by the fuel-revolution. And from the same time, afforestation was more broadly and rapidly developed.

From this time (1957), Japan has quickly grown in economy and soon attained to so called economic high growth period. Therefore, many young laborers have flowed out to set about work for the secondary and tertiary industry sector from agriculture sector. Further, from about 1965, it has become impossible to keep social life in the agricultural and mountain village by decrease in population. This is so called "depopulation problem" and had seen severely in deep remote mountain village.

At this stage, afforestation system by Yakihata-Ringyo seemed to have almost vanished from agricultural and mountain village.

But it was not completely vanished. For example, in Sanpoku-cho in Niigata pref. and Atsumi-cho in Yamagata pref. and Shiiba district in Miyazaki pref., shifting cultivation system has been still existed by linked with special agricultural products. These special products mean the foods that are discovered new contemporary merit on the point of their safety and delicious taste without fertilizer and chemical.

The modern agriculture technology have proceeded on the premise to put much fertilizer and chemical on land. But today the modernization process have required again safety food without chemical and fertilizer. This is strenge and paradoxical relation, but the fact is as mentioned above.

In the other regions without such special product, Yakihata-Ringyo system have been vanished.

The collapse of Yakihata-Ringyo system in Japan has meanings as follows :
Dissolution on a composite of agriculture and forestry in region or management ; it caused the supporting capacity of population to weaken and to push population out of agriculture and mountain village.

Therefore, the forestry came to must keep labors by itself. But forestry is very inferior in competition with other industry and is also difficult to employ the laborers for all the year round because of its seasonal labor demand. While seeing the forest resources, many

forests that planted after the War II are remaining without tending, for example, thinning.

In many forest regions, the forest cooperatives have arranged to systematize the forestry and promoted to keep labors. But entry of young labors is very few, so the average age of forestry laborers has been rising by years. These are large problems of Japanese forestry.

5. Problems of Modernization Line

We could see the Japanese modernization line in above description :

By the process of Japanese modernization, what matters has occurred in agricultural and mountain villages, farmer economy and agricultural production? In addition to it, what problems exist?

In this section, we will try to summarize the problems in Japanese modernization process and to consider the method of the modernization in Indonesia and Thailand.

(1) The technological basis of expansion in Japanese agricultural productivity shall be to put much fertilizer and chemical on land. This method has resulted not only to change natural ecosystem largely, but also to threaten safety of foods.

It is said that the farmers who use chemical fertilizer in Java island are enlarged 52.4 per cent in 1973 compared with 12.7 per cent in 1963 (by Agricultural Census). And in Thailand, there is a similar report. (Note : Jun Kitahara ; “Development and Agriculture—Capitalism in Southeast Asia—” ; 1985, Sekai-shisou-sha, pp. 180)

Also it seems that quantity of used chemical is increased like as the chemical fertilizer. It is supposed that the demerit for over putting of fertilizer and chemical will be enlarged on comparing the example in Japan. Against increasing these foods lacked safety, people are sure to request for safety foods in near future.

(2) Concentration to one kind of agricultural crop and “forming of specialized producing region” are factors to mono-cultivate agricultural production system. There is a similar tendency in forestry production. Various forests have changed into only log-use coniferous forest, Sugi (*Cryptomeria*) and Hinoki (*Chamaecyparis*). Namely, forestry have become to mono-culture, too, in the point of forest composition and also land-use structure.

Owing to such mono-cultivation in Agriculture and Forestry, the structure of works in agriculture and mountain village was simplified, so that the network system of intergeneration works was collapsed and the continued existence of community was threatened.

Lively activity of community depends on assignment of role intergeneration and full display of their own special ability of each generation in it. But if these conditions were lost, the community shall be resulted to promote its destruction.

The mutual aid systems, “Gotong-Royong” in Indonesia and “Donation” in Thailand, are seemed to be based on existence of community. Therefore, it is necessary to maintain their production bases through making these social systems usefully and lively.

(3) It had brought about the difficulties which could not ensure the forest labor to mono-cultivate the forestry production and to weaken their community bases.

As one of the nature of forestry work is a seasonality, it is necessary to maintain the working structure combined with agricultural work. But thus inter-industrial structure had

been collapsed, forestry will have to bear a lot of cost to keep labors by itself. Japanese forestry is just confront with this problem, therefore, now, a political appropriate counter-measure is required.

(4) Large difference of forest policy among Japan, Indonesia and Thailand is a point of how should be treated the “relative forest land” in the state forest. On the point of settlement policy and efficient use of forest land, it will be necessary to reconsider present Agroforestry policy which has a principle to return back the land to the nation after 2 or 3 year’s contact.

In addition to it, it seems to be necessary to consider the disposal policy that a part of national forest change to private forest, also to adopt a method of “profit sharing afforestation” between state and local people.

Some methods of modernization line in Agroforestry policy are presented above. But it is clear that government should adopt the best method appropriate to their countries and its characteristics.

摘 要

本小論は、インドネシア（ジャワ島）及びタイ国の実態をふまえて、日本との比較において Agroforestry 政策の問題点を明らかにしようとしたものである。

この場合、留意しておかねばならない点は、単に先進・後進との対比で考えるのではなく、それぞれの国の経済発展の次元の違い、ないしは型の違いとして考えられなければならないこと。同時に、日本が進めてきた一斉拡大造林（モノカルチャー）の持つ問題点も指摘しておかねばならない。

(1) 日本の農業生産力増大の技術的基礎は、化学肥料と農薬の多投によるものであったといつてよい。その結果は、自然の生態系を大きく変えたばかりでなく、食物の安全性をおびやかすこととなった。この傾向は、現在、インドネシア、タイ国においても急速に進みつつある。

(2) 農業における単一作目への集中、それに基づく「産地形成」は農業生産体系を著しくモノカルチャー化した。それは、林業生産においても同様で、スギ、ヒノキを中心とする針葉樹用材林に単一化され、林分構成上からも土地利用構造の面からもモノカルチャー化した。

(3) 農林業生産のモノカルチャー化、それによるコミュニティの基盤の弱体化は、林業労働力の確保を困難ならしめるという結果をまねいた。

(4) 日本の場合と、インドネシア及びタイ国の場合との大きな違いは、林地の国有化の中における相対的林地の取り扱いである。2～3年の期限で栽培し、その後は再び国有林地化を基本とする現在の Agroforestry 政策は、住民の定住化政策の上からも、また国土の有効利用の面からも一考する必要があるのではないかと思われる。国有林の一部民有化政策と合せて、地域住民との「分収造林方式」を採用することも考慮されてよいものと思われる。

(注) 本研究は森田学教授（京都大学農学部を代表とする「Agroforestry に関する国際的研究」（トヨタ財団助成）に参加して作成したものである。