THE CONDITIONS GOVERNING AGRICULTURAL DEVELOPMENT IN SOUTHEAST ASIA

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INTRODUCTION

FOR THE PURPOSES of preventing the enlargement of the economic differentials known by the name of "the conflict between North and South" and the intensification of the imbalances between population and food supplies, the development of agriculture in Southeast Asia has become a world problem of the present day. In particular, inasmuch as Southeast Asia is a crucial area in international politics its importance is likely to be stressed all the more. Further, for Japan, whose self-sufficiency in foodstuffs has declined to around 70%, Southeast Asia may be thought of as a new source of food supplies.

In order to develop the agriculture of Southeast Asia, however, many obstacles must be overcome. Southeast Asia, composed of ten countries, possesses aspects both of unity and of diversity, but in the present paper we propose to disregard the conditions peculiar to each country and to make clear the basic conditions common to all the countries of Southeast Asia.

I. DECISION-MAKING UNITS IN AGRICULTURAL DEVELOPMENT

It need hardly be said that in agricultural development the decision-making units concerned possess a decisive role. In the case of the agriculture of Southeast Asia we may cite three such units—the planters, the peasantry, and the governments.

1. The Planters

Up to the Second World War, planters, that is, the plantation entrepreneurs, played an extremely important role in agricultural development in

Southeast Asia. In particular, in the peninsular and island countries of Malaysia, Indonesia, the Philippines, etc., such tropical crops as rubber, sugar-cane, coconuts, palm oil, sisal, tea, coffee, and cotton were developed under the plantation form of management. The role performed by the colonial governments in these regions consisted of assisting the development of these plantations by providing legal backing for the acquisition of land, carrying out experimental research on agricultural technology, and, further, by making available the labour-force required. On the other hand, the colonial authorities paid hardly any attention to the development of native agriculture. In other words, native agriculture was placed in a wholly subordinate position within a dual structure of colonial agriculture consisting of foreign commercialized plantation agriculture and native subsistence agriculture.

We may note that in the rice-producing agriculture of Mainland Southeast Asia, as in Burma, Thailand, and Indo-Chinese countries, the realm of the planter was limited, and at the same time the functions performed by the government were not great. Viewing pre-war agricultural development in Southeast Asia as a whole, we may say that the role of plantations was extraordinarily great.

The most marked change in the post-war agricultural structure in Southeast Asia has been the decline of the plantation. This is so despite the fact that in Malaya the greater part of the rubber plantations formerly run by white men has passed into the hands of overseas Chinese and that in Indonesia too, some plantations formerly run by the Dutch remain under the management of Indonesians or overseas Chinese, while in South Viet-Nam there are still a few plantations run by the French, and in post-war Thailand two Japanese sugar companies, Shibaura seitō and Osaka seitō, have entered the field of sugar-cane cultivation. Viewed as a whole, the planter may be regarded as having lost his position as one of the basic decision-making units in agricultural development at present as a result of the management factors which have rendered the cultivation of tropical crops by native peasants more profitable than plantation agriculture, and, at the same time, as a result of the political factor, represented by the sharp decrease in the numbers of foreign planters, which has accompanied the formation and development of the newly arisen nation states, and it is not likely that the planters will recover their lost position in the future.

2. The Peasantry

The direct undertakers of agricultural production are the cultivating peasants themselves. Investment by landlords in bringing new land under cultivation, in coastal, riverine and lacustrine reclamation, and in land improvement works, is not much practised. It is of course true that the role of landlord capital in the development of the Rangsit area of the Central Plain in Thailand at the beginning of the present century cannot be ignored in the context of the history of the development of rice cultivation in that country. In the case of the development of rice cultivation in the Irrawaddy

Delta in Burma, too, landlords had a considerable role. Both of these instances are of a historic character, and at present the functions of landlords in agricultural development may be said to be of a low order.

It is said with regard to the cultivating peasantries of Southeast Asia that "they are never in desperate want of food because bananas, coconuts and so on grow wild in that region, that the very simplest of housing, enough to keep out wind and rain, is sufficient for them, and that since it is warm they need not worry about clothing; consequently, there is no obstacle to their making a livelihood even if they be lazy, and extremely deficient in the will to work." It is even thought that it may not be possible to treat them as *homines economici* at the level of economic theory. I have the feeling, however, partly derived from my own on-the-spot investigations, that general theories such as this concerning the attributes of the peasantries of Southeast Asia are apt to lead to error. Considering only the question of the will to work, for example, it has been observed that there is a marked difference between the peasantry of Malaya and that of Thailand, although these two countries lie adjacent to one another. What I wish to stress here is the results obtained from my village surveys in the alluvial plains, such as those of the Irrawaddy in Burma and the Menam in Thailand. In particular, the peasantry of the Central Plain in Thailand treat new consumer goods in the form of clothing, food and condiments, beer, tobacco, etc., as a matter of course and, moreover, face an influx of transistor radios, autobikes and other durable consumer goods. But since they cannot obtain the cash income to pay for these articles they may be said to be living in a certain state of frustration. A thirst for cash income accompanying the change in the pattern of consumption, a recognition of the necessity for an increase in income in order to meet this, and a positive desire to improve the management of the holding in order to produce this increase in income—these are the necessary conditions for their qualifying as *homines economici.*

It is abundantly clear, however, that such non-economic conditions as tradition, religion, education, technology, and the level of knowledge have prevented them from becoming *homines economici* in the fullest sense. For example, let us consider the question of the degree of social consciousness among the peasantry. In Thailand, in time of water-shortage, it is common for the peasants to break down common embankments and draw water into their own fields entirely at their own will, or to ignore the damage to common embankments caused by their water-buffaloes when they cross irrigation canals and ditches. These facts raise an important question regarding the maintenance of irrigation installations in Thailand. As countermeasures, there is no alternative but for the government to appoint supervisors of irrigation canals and ditches, but it is next to impossible for the government to administer all the irrigation canals, large and small, in this extensive plain. There is no alternative but to await the appearance of social consciousness among the peasantry. It is probable that any observer would be startled by the lowness of the level of communal consciousness among the peasantry, based

as it is on ignorance. But it will not do for us to conclude from this that "no matter how much effort governments may put into agricultural development it will be no good, because the peasants will not co-operate." The peasants already possess a desire for new development, but they are inferior not only in levels of technology but also in levels of social consciousness. We are obliged to say that while the peasantry fulfil some of the necessary conditions as a decision-making unit in agricultural development they are deficient in the sufficient conditions.

At this point there arises the question of peasant education, or educational investment. This may be divided into school education (particularly elementary education) and agricultural or rural extension work. School education contributes indirectly to agricultural development. But agricultural improvement and extension work are more urgent than anything else as tasks having direct consequences. If agricultural improvement and extension work were more fully carried out, the consciousness, level of knowledge, and technology among the peasantry may be expected to rise rapidly. For this to be accomplished it will be necessary, on the one hand, for some time to elapse, and at the same time the matter will depend to a very large extent on the policies of the government. In other words, the question of the peasantry as a decision-making unit in agricultural development will, to a certain extent, be switched to a question of the government, a matter which we discuss next.

3. The Government

The agricultural improvement and extension work which we have mentioned above is a task which falls to the government. In the future, as is clear, advances in agriculture will not depend on the peasants themselves but will be initiated by the government. In this case the government possesses two functions. One is that of basic policy, of deciding in which directions to advance development, and the other is that of providing financial backing sufficient to implement basic policy. In other words, the government must perform an entrepreneurial role which includes innovation in agricultural development. We shall discuss later the provision of funds as a part of this entrepreneurial role. For the present I wish to examine the drawing up and execution of plans by the government as a decision-making unit in agricultural development.

What is demanded of the government as a decision-making unit in agricultural development before all else is political stability. Agricultural development is not easily advanced in those countries in post-war Southeast Asia, such as North and South Viet-Nam and Indonesia, which have been in a continuous state of political confusion. The country which, in contrast to these, has been stable is Thailand. It is possible to say that Thailand is a model case of economic development, not only in Southeast Asia but among the developing countries in general, and this had been due in very great measure to the political stability of the country since the war.

Next, we may expect that there will be a strong demand for governments

to adopt a positive posture in relation to development. In the case of the economic development of Thailand we may say that rapid development took place under the influence of the Sarit régime, which came to power in 1958. This positive posture manifested itself on the one hand in a unifying reorganization of national administrative mechanisms in the interest of economic development, and on the other in the positive introduction of foreign capital and the investment of state capital for the purposes of development. There are differences among the countries of Southeast Asia with regard to this positive posture on the part of the government as a decision-making unit in agricultural development as well as with regard to political stability. The facts would seem to be that Thailand and Malaysia are perhaps the countries which fulfil these conditions to the greatest degree, while Indonesia is not provided with either.

Progressing further from these basic conditions, there are also a number of problems in administration as carried on by the governments.

The first is the inefficiency of administration associated with the lack of will to work on the part of government officials. Malaysian officials, under the influence of British rule to a great degree, are outstandingly capable and industrious. As a whole, however, there is much doubt as to whether the administrative efficiency of the governments of Southeast Asia is actually sufficient for effective agricultural development. Studies of administrative efficiency and in-service training seem to me urgently necessary.

The second problem is that of administrative centralization, a problem which has a strong influence on agricultural development. The most extreme example of this is found in the case of Thailand. The agricultural experiment stations in the provinces in Thailand act entirely on instructions from the Ministry of Agriculture in Bangkok. All the data obtained from their studies are sent to the centre, and are kept at the Ministry. The experiment stations in the provinces do not even keep their own data. Under such circumstances the researchers at the experiment stations in the provinces cannot find the enthusiasm to press forward with experimental work which will meet the needs of agricultural practice. It is of course natural that the central government should have a great say in matters when a development plan has been set up and is being put into effect, but the delegation of powers to the provinces as far as is possible would seem to be necessary for rendering administration efficient. There is also the consideration that the tendency for government officials to dislike working in the provinces or rural areas is a great obstacle to agricultural development.

The third problem is that, because of social conditions such as the influence of class or caste systems or an "élite consciousness" among government officials, even the officials whose business it is to deal with agricultural matters stick firmly to office work and have no fondness for coming into contact with the peasants or going into the villages themselves. Because of the gap between government officials and the peasants it frequently happens that agricultural development policy as planned is divorced from reality, and

that the means for its implementation do not penetrate fully into the peasantry.

Fourthly, administrative sectionalism is an accompaniment of a bureaucratic system, and we may say that the more underdeveloped the country the worse this sectionalism is. In the case of Thailand, it is no exaggeration to say that not only is there no co-ordination among the various Ministries, but that the Departments within each Ministry exist in a state of independence of one another. In encouraging the growing of winter crops on land used only in the summer for rice cultivation the Ministry of the Interior, the Department of Rice and the Department of Agriculture in the Ministry of Agriculture, and the Department of Irrigation and Department of Land Cooperatives in the Ministry of National Development all act independently of one another. To such a degree is this a loss that the most startling instances come to one's notice.[1]

Fifthly, we cannot overlook corruption and graft in the governments of the countries of Southeast Asia. There are some countries, such as Burma and Malaysia which enjoy clean government, but when corruption and graft have made their way into the administrative system extending from the centre to the provinces, planning at the centre is subject to extraordinary distortions in the natural course of events, as is its execution at the periphery of the administrative network.

II. CAPITAL FOR AGRICULTURAL DEVELOPMENT

Capital for agricultural development may be divided into two broad categories. The first is individual or private capital for the purposes of forming and developing individual agricultural holdings. This includes fixed capital for irrigation and drainage, for large agricultural machinery and implements and for the larger domestic animals, as well as liquid capital for seed, fertilizers, agricultural chemicals, small agricultural machinery and implements, the smaller domestic animals and so on, in addition to which some quantity of circulating capital may also be expected to be required. Secondly, there is the social capital required to provide the basis for the individual agricultural holding. This is the so-called 'capital for the infrastructure,' and in the broad sense of this term, investment in education may also be included in it. This must be borne by the state.

We will consider private or individual capital, the investment of which should, in principle, be carried out by the cultivating peasants, in so far as agricultural development is carried on in the form of individual farms. However, in the developing countries this is not an easy task. The actual condition of saving and investment among the peasants is a focal question for the purposes of understanding accurately the Southeast Asian peasant economy, but we regret that up to the present practically no wide-ranging and detailed surveys of the peasant economy have been made. For reliable

1 T. Motooka, "Tai nōgyō ni okeru seisan kiban no seibi" (Basic Requirements for Agricultural Development in Thailand), *Tōnan Ajia kenkyū*, Vol. 4, Dec., 1966, p. 525.

figures for the rates of saving and investment in the peasant economy we must await future survey studies. I should like to draw attention, however, to the following three points which I have obtained from my own field surveys.

Firstly, the Southeast Asian peasant economy is in great measure self-sufficient and static. On the typical peasant an economic balance is more or less maintained in times of normal harvests, not only on the subsistence side but also on the cash income side, but practically no surplus is produced. In times of bad harvests, however, at least the capital required for planting the next year's crops, and in the majority of cases capital required for living expenses also, is borrowed at high rates of interest, principally from commercial middlemen, some of whom are landlords, on the security of future assets. This indebtedness oppresses the peasant economy, but it frequently happens that these loans can be paid back in times of good harvests. Consequently, viewing the peasant economy somewhat in the long term, it is extremely static and cyclical. In other words, it is practically impossible for it to produce a surplus for the investment required for new development.

Secondly, approximately 10% of household expenditure is paid into religious establishments, both among the Mohammedans and among the Buddhists in rural areas. The presentation of offerings of gold leaf to pagodas in Burma is a well-known instance of this. These religious disbursements are frequently an absolute item of expenditure. In other words, the peasants run their agricultural holdings and maintain their livelihood with the balance left after the deduction of these religious contributions. Saving which might be invested is diverted to religious purposes. This is why a great investment effect could be looked for if the peasants were to cease to subsidize religion and diverted the money to economic development, but this is impossible for peasants bound by the obligations of a religious society.

Thirdly, the increase in cash expenditures accompanying changes in the pattern of consumption has a hopeful aspect in that it stimulates the peasant's desire to produce, but at the same time it causes disturbance of the static peasant holding. In Thailand, which has been proud of being a "country of peasant proprietors," the peasants are now buying new consumer goods regardless of the balance between their own income and expenditure, and the cash expenditures for this purpose are sometimes financed out of loans. We are witnessing the tragedy of their giving up their land because they are unable to pay back these loans, with the result that the number of tenant farmers is gradually increasing.[2] A rapid development from self-sufficiency to production for the market is assuredly the developmental process of the agricultural economy, but the functions of merchant usury capital in this developmental process becoming a serious problem in a different sense from that implied in the static agricultural economy.

2 T. Motooka, "Problems of Land Reform in Thailand with Reference to the Japanese Experience," in M. Inoki (ed.), *Japan's Future in Southeast Asia*, Kyoto, The Center for Southeast Asian Studies, Kyoto University, 1966, pp. 15–28.

As is clear from the above considerations, state investment for rapid agricultural development must be made not only in relation to the infrastructure, but must also be substituted, partially, for the individual and private investments which should properly be borne by the peasant economy. Consequently, state capital comes to play a leading role as agricultural development capital.

While it is clear that the introduction of state capital is urgently required, many complicated problems have already appeared in this connexion.

Firstly, the ability to make state capital available. Many students of the subject take up the economic development of Japan since the Meiji Restoration of 1868 in reference to the economic development of Southeast Asia. Japan's modernization and economic development in the last one hundred years are assuredly an extraordinarily successful case, even when viewed on a world scale. In the early Meiji period the land tax accounted for approximately 80% of national tax revenue,[8] and this must be noted as the major financial factor in the "take-off" in Japan's economic development. In contrast to this, taking the example of Thailand we find that the tax and premiums on exports of rice occupied approximately 10–15% of national revenue. A figure of roughly the same order is inferred in the case of Burma also. No more than this could be made available from the agricultural sectors. Both Japan of the early Meiji period and present-day Thailand are agricultural countries. In the case of Thailand, unlike that of Japan, the ability to make state capital available for the purposes of economic "take-off" may be regarded as having been small. The same can be said of the other countries of Southeast Asia.

Secondly, the state must supply capital to the cultivating peasants for

[8] In Japan, the land tax as a proportion of total national tax revenues was 72.8% in 1875, gradually rose to 82.0% in 1885, and thereafter declined continuously, reaching 19.3% in 1915. T. Ogura (ed.), *Kindai ni okeru Nihon nōgyō no hatten* (Agricultural Development in Modern Japan), Tokyo, Research Committee on Agricultural Policy, 1963, p. 22.

In a recent work containing his principal papers, published on the occasion of his retirement, Mr. Barter, who has served the FAO for many years, evaluates in the following terms the role of the land tax in the process of the modernization of Japan's economy.

"Much attention has been given lately to the early development of Japan as the first example of an advanced economic and agricultural development in an Asian country. In Japan the main source both of government revenue and of investment was initially the land tax. Land tax alone accounted for 86% of the total tax revenue in the mid-1870s, 45% by the mid-1880s, and still 22% by 1907. Taking into account the burden of excise and other taxes, it is estimated that agriculture's share of taxes exceeded 80% as late as the mid-1890s and was still over 50% at the time of the First World War. Much of this taxation was used for investment, and government investment in Japan exceeded 50% of total investment throughout the period 1895–1910. This is a remarkable example of the classical pattern." P. G. H. Barter, *Problems of Agricultural Development,* Geneva, Librairie Droz, 1966, p. 30.

the improvement of their farms. In addition to this there are public investments for the purposes of agricultural development, headed by large-scale irrigation and drainage works, technical development investment for the purposes of research in agricultural technology, and, furthermore, educational investment aiming at the introduction of new technology into the peasant economy and at the raising of levels of knowledge among the peasantry for this purpose. All these must be borne by the state. How this immense volume of capital is to be made available is the most serious question in the developing countries. The most important means at present in use for this purpose are indirect taxes, particularly taxes on imports and consumption taxes on tobacco, alcoholic beverages, etc. As a result, consumers' prices are raised and the rise in levels of consumption is impeded. There are, however, limits beyond which indirect taxes cannot be raised. Further, indirect taxation is in conflict with the principle of a fair incidence of taxation. As an accompaniment to the progressive growth of the economy, direct taxes, particularly taxes on corporate and private incomes, must be levied on an increased scale. However, it may be no easy matter to establish satisfactorily the taxation systems, or tax-collecting systems, required for this purpose.

Thirdly, a further source of capital is the introduction of foreign capital as gifts or loans from foreign countries or international organizations. The conditions for loans are in general liberal. At the same time the supply of capital by means of such gifts or "soft loans" from foreign countries produces many evils. We may say that from the first the Japanese indemnity payments head the lists of bad examples in Southeast Asia. In Indonesia and the Philippines, for example, they were used to finance luxury consumption, and in Burma for the construction of large power stations which were actually not in accordance with her economic development. In the countries of Southeast Asia importance is not attached to a goal-oriented or rational utilization of funds supplied by foreign countries.[4]

Aid from foreign countries should be given under the conditions of the firm establishment of the principle of self-help denoted by the words, "Help for those who help themselves." In concrete terms, when a country receives foreign capital the projects carried out with it should not depend on the foreign capital alone, but a "counterpart" to the foreign capital should be supplied by the recipient country. Further, in order for the introduction of foreign capital to produce results, technical aid must be sought in parallel with it. Moreover, in the case of development projects accompanying the introduction of foreign capital it will probably be necessary to pay particular attention to the administrative abilities and efficiency of governments.

4 T. Motooka, "Political, Economic, and Social Factors in the Development of Water Resources in Southeast Asia," in Y. Fujioka (ed.), *Water Resource Utilization in Southeast Asia*, Kyoto, The Center for Southeast Asian Studies, Kyoto University, 1966, p. 17.

III. THE SOCIO-ECONOMIC CONDITIONS GOVERNING AGRICULTURAL DEVELOPMENT

Socio-economic factors may be taken up as conditions impeding agricultural development. These comprise institutional, social, religious, traditional, and racial problems. These differ to an extraordinary degree among the various countries of Southeast Asia. Here we take up the principal ones among these.

The first is the institutions of land-tenure. Some are of the opinion that the land-tenure systems of Southeast Asia are an important cause of the social and political unrest in that area.[5] However, there are marked differences in the land-tenure systems as between one country and another.[6] Thailand, for example, is relatively underpopulated, and since the squatter's right which provides that state-owned land brought under cultivation by peasants reverts to their ownership has been assured since the 19th century, the cultivating peasant proprietor system of agriculture is predominant at present, and the land-tenure system is not impeding agricultural development. (Of course, as has already been stated, it is extremely important as a matter of future agricultural policy to devise some countermeasures in the light of the fact that the system of cultivating peasant proprietorship is tending to break up, although at a slow pace.)[7] In contrast, in the Philippines the tenancy system is predominant because of such factors as the geomorphic conditions of the country as a collection of islands, a high population pressure, the persistence of the system of large landholdings, a legacy of Spanish rule, and the fact that the landlord system is involved in the administrative mechanisms of the country. What is more, not only is absentee landlordism, but these absentee landlords display practically no interest in the improvement of agriculture, avoid the investment of capital in agriculture, and impede reform of the land-tenure system with their political power. It is scarcely to be denied that this landlord system is an obstacle not only to the agricultural development of the Philippines but also to the economic development and political stability of that country.

It sometimes happens that a large land-holding system possesses highly advantageous aspects from the point of view of agricultural development. As we have already noted, the reclamation of the Rangsit area of Thailand was carried out by landlords. Again, the development and increased production of tropical cash crops in Malaya and Indonesia, or again in Indo-China, was undertaken by means of the plantation form of agriculture, a

5 E. H. Jacoby, *Agrarian Unrest in Southeast Asia,* New York, Columbia University Press, 1949.

6 T. Takigawa, "Tōnan Ajia ni okeru tochikaikaku no kihon seikaku" (Basic Characteristics of Land Reforms in Southeast Asian Countries), *Ajia Kenkyū,* Vol. 13, No. 2 (July 1966).

7 T. Motooka, "Problems of Land Reform in Thailand with Reference to the Japanese Experience."

form in which the unit of management is based on large-scale land ownership. However, the importance of the plantation has sharply diminished in present-day Southeast Asia, as mentioned above. Landlords do not carry out agricultural investment, and have no functions except that of levying rents. It is no exaggeration to say that the merits of the landlord system have practically disappeared, and that only its evil effects remain. Consequently, while we cannot go so far as to say that reform of the land-tenure system is an indispensable condition for agricultural development, it is a promoting condition.

The carrying out of land reform seems to us to be very difficult in practice. The success of the land reforms in post-war Japan and Taiwan is frequently cited. But we must remember that in Japan a land-tenure policy had been developed since the 1930's as a means of dealing with the depressed condition of the rural areas at that time, and that with this as backing the reform was enforced at a stroke as a part of post-war American occupation policy, while from the point of view of the landlords of Taiwan the reform of the land-tenure system in Taiwan was also enforced by conquerors from Mainland China. In both cases the government's ability to overcome the resistance of the landlord class was an essential condition. In the countries of Southeast Asia, however, government authority and the interests of the landlords are very closely related, except in the socialist countries.

Secondly, there are the mechanisms for credit and marketing which are closely related to agricultural development. Throughout the rural areas of Southeast Asia practically all the credit and marketing mechanisms are in the hands of the overseas Chinese. (In Burma they are joined by the Indians and Pakistanis.) I wish to evaluate the credit and marketing functions performed by these Chinese particularly highly, especially for the achievements they have attained in the introduction of cash crops into agriculture, and for their efficiency. The censure that they exploit the peasants is not necessarily justified from the point of view of economic efficiency. The truth would rather seem to be that the commercialization of rice-production on the mainland Southeast Asia and of cash crops in the islands could not have been accomplished without the activities of these overseas Chinese.

Nevertheless, the presence of the overseas Chinese has created a number of problems which remain unsolved from the economic point of view alone. In Thailand, the Chinese problem produced much tension from the latter half of the 19th century and on into the first years of the 20th century, but since then the "Thaiization" of the overseas Chinese has been skilfully advanced by the government, and we may say that at the moment there is practically no censure of the overseas Chinese. This fact constitutes one of the factors in Thailand's political stability. In Malaya the Moslem Malays do not intermarry with the Chinese. What is more, the Chinese live not only in the towns, but also form Chinese settlements in the rural areas. Further, the overseas Chinese are not a racial minority, but account for approximately 37% of total population. Inasmuch as Malaysia is a multi-

racial state, racial conflicts are the more severe. This may prove to be a source of trouble for Malaysia. The Chinese question has also produced extraordinarily troublesome racial problems in Burma and Indonesia. We can assume that the overseas Chinese present more a political problem than an economic one.

The agricultural co-operatives movement comes on to the scene as an agricultural development measure aiming at transferring credit and marketing functions from the hands of the overseas Chinese to those of the peasants. It is assuredly desirable that agricultural co-operatives should exclude middlemen and take control of the credit and marketing mechanism. In practice, however, this measure is carried forward as a movement "from above," as a part of the work of the government, and the peasants do not have the social consciousness or the ability which would enable them to adopt it as something of their own. We may say that this movement is in a state of uncertainty.[8] Furthermore, managers are needed for the agricultural co-operatives if the co-operative movement is to be developed. When the co-operatives are directly run by the government, that is to say, when the managers of the co-operatives are government officials, the efficiency of management is markedly inferior. On the other hand, a considerable period of time will be required if the social consciousness and spontaneous action of the rank-and-file of the co-operatives are to be awaited. The nurturing of capable co-operative managers must be a chief policy measure for the immediate future.

Thirdly, we may cite the traditional village structure. It is said that in comparison with other developing countries, the peasants in the rural society of Thailand are independent in character and their communal organizations are not strong,[9] and this weakness in communal organization constitutes a barrier to the development of communal utilization of water-supplies, as in irrigation and drainage works. But even in the rural society of Thailand such factors as the traditional character of the village, the power of the headmen, and the influence of the Buddhist temples play an impeding role in relation to the introduction of new technology. In the countries other than Thailand the communal consciousness of the village is extremely strong. This traditional communal organization in the village in relation to tradition, custom, and religion is an extraordinarily strong impediment to the progressive introduction of technology by individuals.

In the case of Indonesia in particular, communal consciousness is strong within village society, while conversely there is strong antagonism between villages. This constitutes a great obstacle to agricultural development projects affecting areas larger than a single village.

As agricultural development policies, and in particular in connexion with agricultural production, "package programmes" have been adopted in various places. These are measures for having the whole village adopt new

8 T. Motooka, "Tai nōgyō ni okeru seisan kiban no seibi."

9 H. P. Philipps, *Thai Peasant Personality, The Patterning of Interpersonal Behavior in the Village of Bang Chan*, Berkeley and Los Angeles, University of California Press, 1965, p. 17.

forms of technology, such as new varieties of seed, fertilizers, agricultural chemicals, and agricultural machinery and implements, simultaneously and comprehensively. This may also prove to be a powerful means for breaking up the traditional institutions of the village.[10]

Community development programmes are frequently taken up as agricultural development policies. These aim at full-scale and comprehensive development, not only of agricultural production but also of transportation and communications, or of education, medical services, etc., as parts of the infrastructure. These may be expected to be more efficacious than development projects directed at farming alone. But even in the case of such development plans as these, the manner in which the village reacts to the plan is the most important condition involved. We frequently see instances in which the plans are forcibly carried through without the autonomous co-operation of the village. In the case of the community development programmes in Northeast Thailand, for example, the programmes are all too much in the nature of plans which have merely been sent down "from above," and the villagers fail to respond autonomously to them. It is the community development programme carried out by means of substantial and long-term co-operation with the villagers that is likely to prove successful in overcoming traditional bonds.

Fourthly, movements of labour between sectors of production and between regions are necessary for the purposes of economic development. It is one of the characteristics of developing countries that they lack a "social ladder" and that the immobility of labour is quite strong. The stronger the communal institutions of the village, the more immobile labour there becomes. Thailand is thought to be a country with a comparatively high mobility of labour, but in Indonesia labour is extremely immobile. The key to the development of Indonesia lies in transferring population from Java, which is suffering from over-population, to the Outer Provinces where development has made hardly any progress because of the paucity of population. Under the political and economic situation at present prevailing in Indonesia movements of population, though desirable, are very difficult to bring about, but a regional redistribution of population must certainly be taken up as a matter of future planning. Actually, even within Java itself there are serious inter-regional antagonisms between the eastern, central, and western areas. A further important fact is the disastrous occurrence of ten thousand deaths from starvation on the island of Lombok in the spring of 1966, and it is said that the deaths were confined to certain localities within the island and that other localities were entirely free from food-shortage.

10 For example, the Package Programme at Tegalega in western Java is said to be extremely successful. In this case 57 households of peasants increased their yields of maize by approximately five times from 800 kg. per hectare to nearly 5,000 kg. per hectare by adopting new strains of seed, using recommended fertilizers (both as regards types of fertilizers and quantities applied), making changes in the depth of sowing, carrying out disease and pest control measures, etc. A. T. Mosher, *Getting Agriculture Moving,* New York, The Agricultural Development Council, 1966, pp. 77–78.

The question of labour immobility is deeply involved with such social conditions as language, race, tribe, history, etc. If the restrictions on labour mobility associated with these conditions are to be relaxed to any degree, such policy means as the dissemination of peasant education and the strengthening of the authority of the central government will be necessary.

We may add that in this sense, too, movements of population within a country as an accompaniment to bringing new land under cultivation and coastal, riverine, and lacustrine reclamation, and in particular the Resettlement Schemes to which particular importance is attached in Malaya, will no doubt be highly evaluated for the purposes of raising the mobility of labour within the agricultural sector.

IV. THE TECHNOLOGICAL CONDITIONS GOVERNING AGRICULTURAL DEVELOPMENT

On all sides attention is drawn to the low level of agricultural technology in Southeast Asia. This low level of technology is most strikingly shown by the yields of rice per unit area. As shown in Table 1, the yields of rice (unhulled) in the countries of Southeast and East Asia fall into three groups. The first comprises Japan, with a yield of 5 tons per hectare, the second comprises the former Japanese colonies, Korea and Taiwan, with yields of around 3

Table 1. YIELDS OF RICE (UNHULLED) PER HECTARE IN THE COUNTRIES OF ASIA (in 100 kg.)

Country	1948/49–1952/53 (A)	1958/59–1962/63 (B)	Rate of Increase $\left(\frac{B-A}{A}\right)$
Burma	14.6	16.3	12%
Cambodia	11.7	10.1	−14
Ceylon	12.9	17.9	39
Mainland China	21.7	26.9	24
Taiwan	22.1	31.2	41
India	11.3	14.5	28
Indonesia	16.1	17.8	11
North Korea	29.4	...	...
South Korea	27.5	29.3	7
Laos	6.4	7.9	23
Malaysia: Malaya	18.6	23.7	27
Saba	12.6	20.4	62
Sarawak	4.5	9.4	109
Pakistan	13.8	15.1	9
Philippines	11.8	11.8	0
Thailand	13.1	14.0	7
North Viet-Nam	...	20.4	...
South Viet-Nam	13.6	20.4	50
Japan	40.0	49.1	23

Source: *ECAFE Economic Survey of Asia and the Far East, 1964,* Bangkok, 1965, p. 106.

tons per hectare, and the third group has yields of between 1 and 2 tons per hectare. This group comprises Malaya, Viet-Nam, Indonesia, Ceylon, Pakistan, Burma, India, Thailand, the Philippines, etc., in that order. Whereas the increase of the five-year average from 1958–59 to 1962–63 over that from 1948–49 to 1952–53, that is, the rate of increase in yields over this ten-year period, was 23% in the case of Japan, the increase was in general low in the countries of Southeast Asia, and lay between 12% and 14%. This low productivity of rice production is influenced, as we shall show below, not only by the level of technology but also by price considerations, but for the present we shall confine our attention to the levels of agricultural technology.

First there is the fact that we cannot find in the countries of Southeast Asia anything analogous to the technology of the "conscious and earnest agriculturalists" (*tokunōka*) which contributed to the early development of Japanese agricultural technology. We may say that agricultural technology which has been improved by the peasants themselves is practically non-existent. Consequently, new agricultural technology must be nurtured outside the peasantry and introduced into the peasant economy. Experimental research on agricultural technology carried out by the government and the diffusion of the results of this research to the peasants are particularly important in the countries of Southeast Asia. In the pre-war colonial period, however, experimental research on commercial crops for export from the colonial countries was carried out at the request of the planters, and was frequently positively pursued with their financial backing. The botanical gardens of Bogor and Singapore carried out basic studies of tropical plants, and the Rubber Research Institute at Kuala Lumpur is the finest rubber experimental station in the world. On the other hand, the colonial countries did not study crops other than the important commercial crops for export, and even in the case of rice, as the staple article of diet of the natives, experimental research on the plant was scarcely carried out by the governments. After the war the countries of Southeast Asia recognized, as a matter of agricultural policy, the necessity for agricultural experimental research on crops other than those grown on the plantations, and they have set up agricultural experiment stations. The most advanced country in this respect is Thailand, where agricultural experiment stations have been set up in practically every province, their total number exceeding seventy. These stations cover the principal crops, such as rice, field crops and rubber, and the organization linking experiment stations at the centre and in the provinces has more or less been established. Unfortunately, however, great results have not been produced to date. The reasons for this are that agricultural experimental research takes time, whereas it is only in recent years that this organization has been established. The number of technologists engaged in this research is limited, and the quality of the personnel is not advanced. Moreover, technologists at experiment stations have not been fond of field work. The equipment for experiments is also poor. Because of the extreme sectionalism in the government bureaucratic organization, agricultural ex-

perimental research as a whole is not well organized. Again, because of the centralization of administration which we have mentioned no autonomy is accorded to the provincial experiment stations. Even the most advanced of these countries, Thailand, is in this condition. The situation is still worse in the other countries.

The tasks before agricultural experimental research are numerous, ranging over the breeding of new plant varieties, the introduction of new crops, fertilizer application, irrigation and drainage, disease and pest control, the improvement of methods of cultivation, the introduction of agricultural machinery and implements, the establishment of rotational or multiple cropping systems, the improvement of methods of husking and threshing, and the improvement of methods of storage and transportation, etc. The actual situation with regard to every one of these tasks is that practically no results have been forthcoming in the countries of Southeast Asia to date.

If tackled positively, however, there is no reason why the production of results from experimental research should present particular difficulty. In 1964, as the result of several years' co-operation in Malayan rice improvement technology, Japan produced *Malinja*, a variety of rice for winter cropping, and in 1965 *Mashli*, a variety strongly resistant to rice blight, and at present these varieties are being rapidly diffused in Malaya.[11] Research results which are worthy of attention to a degree which renders them incomparable to the above case are those produced by the International Rice Research Institute at Los Baños in the Philippines. This Institute has already succeeded in breeding the new varieties IR8-288-3, IR9-60 and IR5-47-2.[12]

11 *Rice Culture in Malaya*, Kyoto, The Center for Southeast Asian Studies, Kyoto University, 1965.

12 Dr. R. F. Chandler, Jr., the Director of the International Rice Research Institute, reports as follows: "One of the important achievements of the year [of 1965] was the identification of certain selections from the Institute's breeding program which were sufficiently outstanding to warrant testing throughout the tropical and sub-tropical rice-growing regions. Most of the selections sent to other areas have been in the F6 or F7 generation. Although by the end of 1965 more than 570 crosses had been made, it was only the progeny of crosses made in 1962 that had become sufficiently stable to permit appropriate evaluation and widespread testing.

The three selections seemed particularly outstanding under Philippine conditions and, at this stage, especially on the Experimental Farm, are IR8-288-3, IR9-60, and IR5-47-2. It happens that each of these three lines have the variety Peta as one of the parents. Peta is a tall, tropical *indica* variety with high vigour, seed dormancy, and resistance to certain important diseases. It was developed in Indonesia but is now one of the Seed Board varieties in the Philippines.

One of the best selections resulting from the crossing of Peta with Dee-geo-woo-gen (a short *indica* variety from Taiwan) was IR8-288-3. This line has high yielding ability, some resistance to the tungro virus disease, is short and nitrogen responsive, and has desirable cooking and eating qualities.

The crossing of Peta with I-geo-tze, another short *indica* from Taiwan, also produced a promising selection, IR9-60. It has fairly high seed dormancy, is short (95 cm. high), non-lodging, and nitrogen responsive. In many trials it has yielded between 6,000 and

In the light of the results produced by this large-scale International Rice Research Institute and by the contrastingly very small-scale Japanese Rice Technology Aid Plan in Malaya, I am convinced that the breeding of new varieties is by no means difficult. For the overcoming of levels of technology steps must first be taken to develop agricultural experimental research in a positive manner. For this purpose the following points should receive particular attention.

(1) At present the fact that the return of investment in agricultural technical development is estimated highly is recognized on all sides, and not only in the United States but also in Southeast Asia. I wish to stress that from the point of view of the investment effect the basic measures to secure agricultural development in Southeast Asia are to be found in the development of new forms of agricultural technology.

(2) For the present we cannot expect the peasants of Southeast Asia to undertake technical development for themselves. Again, now that the plantation is in decline, technical development on the basis of private enterprise has also become impossible. Consequently, practically all technical development in agriculture will have to be carried on by the governments themselves.

(3) For agricultural experimental research time is particularly required, inasmuch as the objects studied are growing crops. In the breeding and fixation of new varieties, for example, trials covering several generations are necessary. Nevertheless there is an urgent demand for new forms of technology for agricultural development. It is hoped that experimental research related to agriculture will be commenced at the earliest possible date.

(4) In order that results may be produced from these studies a high level of research and the latest research equipment are desirable. Though the most sophisticated agricultural technology is not necessary for the peasants of Southeast Asia, we must not confuse this fact with the need for more advanced studies of agricultural technology. The fullest consideration must be paid to the quality of research personnel and to research equipment if research results of the best possible quality are to be produced as soon as possible. It is clear that at the present stage positive foreign aid for the purposes of studies of agricultural technology is necessary for the countries of Southeast Asia.

(5) Lastly, levels of agricultural technology in the field will be raised only when the new forms of technology which have been developed have been introduced among the peasantry. Extension work directed at the peasants

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7,000 kg./ha. under good management.

The IR5-47-2 selection is a cross between Peta and Tankai Rotan, a relatively tall *indica* variety from Malaysia, selected as a parent because it was not as tall as most *indicas,* and, in early trials, appeared to be vigorous and non-photoperiod-sensitive. The IR5-47-2 is a line of medium height (138 cm.) and maturity (132 days), and appears to be rather resistant to the tungro virus disease and to bacterial leaf blight. In recent preliminary yield trials it has produced over 6.5 metric tons per hectare in the monsoon season. It is now being widely tested in Southeast Asia." (The International Rice Research Institute, *Annual Report, 1965,* Los Banõs, Laguna, Philippines, 1966, p. 15.)

and the investment of capital in the agricultural holding are necessary conditions. From the point of view of the introduction of new forms of technology, the importance of agricultural improvement and extension work and of capital investment will, no doubt, be recognized anew.

V. THE PRICE RELATIONS GOVERNING AGRICULTURAL DEVELOPMENT

Whether or not a new form of technology will be profitable for the peasants will depend on whether or not it will produce higher net returns. The introduction of technology is determined by the connexion between input and output prices. The most striking example is the case of the introduction of fertilizers. If the application of fertilizer is profitable, the peasants may be expected to apply it. In concrete terms, the question is not how many kilograms increase in the yield of rice can be produced by the application of 1 kg. of fertilizer; it is necessary that the price of 1 kg. of fertilizer should be less than the price of the rice represented by the increase in the yield produced. The amount of rice (converted into terms of polished rice) considered necessary for the purchase of 1 kg. of fertilizer in the peasant economy is the determining condition. From FAO statistics I have drawn up the data which I show in this connexion. The statistics give figures for the Philippines and Thailand alone among the countries of Southeast Asia, and there are also many doubtful points regarding the figures themselves. But trusting these statistics for the meantime I arrive at the figures shown in Table 2. As is clear from these, taking the example of ammonium sulphate, a representative nitrogenous fertilizer, whereas in Japan the peasants consider

Table 2. POLISHED RICE REQUIRED FOR PURCHASE OF 1 KG. OF FERTILIZERS IN THE PEASANT ECONOMY, 1964

(in kg.)

		Ammonium Sulphate	Calcium Cyanamide	Urea	Super-Phosphate		Sulphate of Calcium	Chloride of Potash
					P_2O_5 less than 25%	P_2O_5 more than 25%		
Absolute Figures	Japan	0.996	1.347	0.913	0.921	0.826	0.543	0.366
	Philippines	2.762	—	—	2.114	—	—	1.173
	Thailand	5.129	5.643	4.430	3.824	3.180	2.261	1.654
As % of Japan	Japan	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Philippines	277.3	—	—	231.5	—	—	320.5
	Thailand	515.0	418.9	485.2	415.2	385.0	416.4	451.9

Note: Since only wholesale prices for polished rice appear in the statistics for the Philippines and Thailand, prices 20% lower have been taken as producers' prices.

Source: Compiled from FAO, *Production Yearbook, 1965,* Rome, 1966, pp. 344–346, 415–417.

an output increase of 0.996 kg. of polished rice necessary to warrant the purchase of 1 kg. of ammonium sulphate, in the Philippines 2.762 kg. and in Thailand 5.129 kg. are necessary. In other words, while a Japanese peasant has only to get a yield increase equivalent to 1 kg. of polished rice for an added 1 kg. of ammonium sulphate, the Thai peasant must get a yield increase equivalent to 5 kg. of polished rice if it is to pay. In connexion with this there arises the question that fertilizer prices in Thailand might be too high. According to the FAO statistics, however, ammonium sulphate prices in the year 1964–65 were $27.9 per 100 kg. in Thailand, as against $26.4 in Japan. There is practically no difference. It is the farm prices for rice which produce the difference between Japan and Thailand. Taking the FAO statistics and converting it into terms of polished rice, the peasant's sale price per 100 kg. in 1964 was $5.44 in Thailand, as against $26.5 in Japan. Thai peasants get only approximately one-sixth of the price which the Japanese peasants receive for their produce. In the price relation between rice and fertilizer this fact places the Thai peasant in an unfavourable position and by its economic effect impedes the increased use of fertilizer.[18]

As is shown by these input-output relations, an important determinant of agricultural development is to be found precisely in the size of the net returns based on these price relations.

Two aspects of the peasant's net return may be considered. The first is the increase in this return, and the second is its stability. The factors making for an increase in net returns are to be found in increases in the prices of outputs and decrease in the prices of inputs. However, in the rice-producing countries of Southeast Asia, headed by Thailand, a policy of low prices for rice is being enforced—in concrete terms, enforced by means of taxes and premiums on rice exports. The ground for this policy of low prices for rice consists of two points—making the peasantry an important source of state revenue through indirect taxation, and keeping down the consumer's price of rice on the home market by this means. Basically, however, this policy runs contrary to the principle of progressive taxation, and, from the point of view of international trade, to the principle of world trade liberalization. Further, considering rice consumers in terms of the non-agricultural population, since the non-agricultural population amounts to no more than 20% of total population in the case of Thailand this policy cannot be expected to produce very much effect in keeping prices low on the home market. It is necessary that the current policy of low prices for agricultural products be examined.

All are agreed on the necessity of keeping down the prices of investment goods. As concrete measures to this end some advocate taking steps to

[18] I find these FAO statistics difficult to recognize as they stand. This is because the prices for rice in the FAO statistics are lower than in reality, especially in the case of Thailand. It also seems true, however, that the peasant purchase prices for fertilizers given here are lower than in reality. Considering both, I may find no obstacle to my belief that in terms of farm prices the purchase of 1 kg. of ammonium sulphate requires 1 kg. of polished rice in Japan and 5 kg. of polished rice in Thailand.

produce the latest producers' goods at home, as opposed to the present situation in which practically all these producers' goods—fertilizers, agricultural machinery and implements, agricultural chemicals, and so on—must be imported from abroad. One example is a urea factory set up in East Pakistan, with the plant imported from Japan. But it is very doubtful whether self-sufficiency in producers' goods would in fact be cheaper than imports. The revenue from import taxes on these producers' goods must be deducted. Efforts should be made to economize expenditure in the process of distributing these producers' goods down to the peasant level.

Further, if self-sufficiency is to be aimed at, capital and technology will be required in the construction of new factories for these producers' goods. Should not the limited capital and technology at the disposal of the countries of Southeast Asia be allocated rather to the improvement of the infrastructure (for example, irrigation and drainage, and transportation). Again, when factories for the new producers' goods are to be built, this is done by the introduction of large sums of foreign investment. In many cases it is done by means of low-interest, long-term loans, but whether or not these projects will possess the ability to pay back these loans is a matter which must be fully worked out.

We must also take up price stabilization policies, another important aspect of price policy. Monoculture for the export market is outstanding as a characteristic of Southeast Asian agriculture. Furthermore, apart from rice most cash crops are semi-perennial or perennials, and the price elasticity of their supply is low. The prices for agricultural products, and consequently peasant cash incomes, become exceedingly unstable. As countermeasures there are price stabilization measures based on international agreement, as in the case of coffee, but these are not producing much real effect. In the future it will be necessary to devise price stabilization measures on an international scale in the interests of agricultural development in the developing countries throughout the world.

One form of price stabilization policy which each country can put into effect and which is practicable at the present time is the development from monoculture to diversified agriculture. This may be considered under the two heads of the introduction of diversification on the individual holding and the introduction of diversification on a national scale. The introduction of diversification on the individual holding is also esteemed as a means of introducing rationality, particularly on the self-sufficient, small-scale agricultural holding. The introduction of winter crops on land which is used for growing a single crop of rice in the summer, for example, may be said to be an instance of the adoption of the principle of diversification. The most successful instance of the diversification of agriculture on a national scale is that of Thailand, where field crops have been incorporated in a system of agriculture in which rice cultivation predominates. This has developed markedly since the war, more in the form of the introduction of field crops in newly-reclaimed areas not suitable for rice than by the introduction of

field crops on land primarily used for rice cultivation. It has contributed greatly not only to the raising of agricultural incomes in Thailand but also to their stability.[14]

CONCLUSION

We have taken up the decision-making unit concerned in development, capital, socio-economic conditions, technology, and prices as conditions governing the development of agriculture in Southeast Asia. We have omitted consideration of the natural basis of agriculture, and this is an important remaining problem. In particular we must recognize that the natural conditions of the tropics possess advantageous and disadvantageous aspects in relation to agricultural development. Again, parallel to increase in yields, the potentialities for the opening up of new land must be looked into as a means of implementing agricultural development in Southeast Asia. As a matter of policy, it seems that the emphasis should be placed on increasing yields. I should like to point out that new land may be expected to be developed spontaneously, provided that the infrastructure, particularly transportation, is improved.

Though the overcoming of these conditions impeding the agricultural development of Southeast Asia is a matter of great difficulty, it seems to me that it is possible if all Southeast Asian countries could concentrate their efforts on achieving their objectives, and could receive the requisite aid from foreign countries. Accordingly, the most urgently needed policies should be given priority and carried out as soon as possible. These policies have to be decided on the basis of comprehensive research on the economic and agricultural situation of each Southeast Asian country.

14 L. R. Brown, *Agricultural Diversification and Economic Development in Thailand: A Case Study*, Washington D. C., United States Department of Agriculture, 1963.