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**THE ROLE OF AGRICULTURE IN NATIONAL
DEVELOPMENT PLANNING**

by

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This is a preliminary working paper based on field work undertaken by the Development Planning Project. This material is presented in unfinished form, and will eventually serve as part of a larger report on the results of the Project's work. It is submitted in this context and is not to be quoted.

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THE ROLE OF AGRICULTURE IN NATIONAL DEVELOPMENT PLANNING

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Introduction

At the present stage of development, agricultural backwardness is the major economic problem confronting most less-developed countries. Economic history clearly teaches that a country cannot develop unless traditional agricultural stagnation is overcome and widespread productivity improvements occur in agriculture. The notion that industrialization can be achieved by neglecting agriculture and emphasizing industrial development alone is fallacious. This myth, never really sanctioned by good economic theory, has been discredited by post-war experience in many developing countries. Yet the primrose path of hothouse industrialization still has appeal to the leaders of many developing countries, including several in Southeast Asia.

We have learned from the experience of successfully developing countries that, with very few exceptions, agricultural and industrial development must go hand in hand. The controversy about agricultural versus industrial development is a fruitless one. Given the benefit of all we have learned in the post-war period, therefore, one wonders why this issue was featured at the recent Tokyo Conference on Economic Development in Southeast Asia. One suspects that development planning efforts have been so haphazard in Southeast Asia that the underlying relationship between agricultural and industrial development has not yet been

discovered from development experience. In this situation, the nationalistic aversion to the colonial status of an agricultural exporter and a manufactured goods importer may continue to thwart assigning agriculture its proper role in the development process.

The industry-biased development strategy is inevitably self-defeating in all but a few special cases. In the typical Southeast Asian less-developed economy -- which at this stage of development is both export-oriented and dualistic in domestic economic structure -- such a strategy fails to capitalize on the strengths of the initial situation and ignores the weaknesses.

The strength of the initial situation is that domestic dualism between a small, capital-intensive industrial sector and a large, backward agricultural sector is ameliorated by relationships with the foreign sector, reflected in the economy's export orientation. Any economy with an export ratio of, let us say, 15 per cent or higher has a basically triangular pattern of resources flows -- among industry, agriculture and the foreign sector. This triangular pattern, not found in the large, low-export countries (e.g. India, Pakistan), can serve to overcome the basic development problem of dualism. A successful development strategy would recognize this basic factor, exploiting the triangular pattern to progressively bridge the gap between domestic industry and agriculture. Such a strategy was successfully pursued by Japan in the past and is currently being employed with success in such export-oriented economies as Taiwan, Israel and Mexico.

1. Traditional Agriculture

The characteristics of traditional agriculture are well known. We re-emphasize here a few features that have special relevance for the position taken in this paper.

Traditional agriculture includes both production for domestic consumption and production of primary products for export. Traditional agriculture, therefore, is defined with reference to its institutional and technological conditions rather than by its output. Institutionally, traditional agriculture is based upon the household unit and provides a direct link between household activity and production. The same unit which consumes allocates its own labor to production and it also tends to supply much of its own capital. Technologically, traditional agriculture is characterized by unchanging labor -- intensive methods of production which do not incorporate productivity-raising innovations such as fertilizer, pesticides and mechanical power. In fact, the two properties are related through capital formation processes in traditional agriculture. To the extent that capital is formed, it represents primarily direct application of the household's labor to creation of capital goods. Lack of access to outside finance and absence of monetary saving restricts the capacity of traditional agricultural households to acquire outside capital goods and other inputs which are the key to raising agricultural productivity through technological change. In this sense, traditional agriculture continues to be the major activity in most less-developed countries, in terms of employment

of the labor force. Even in the Philippines, it appears that approximately 60 per cent of the labor force is currently employed in traditional agriculture.

Dominated by its traditional component, agriculture in less-developed countries continues to be considerably less productive than non-agriculture. This situation reflects the basic feature of dualism, a technologically backward and stagnant agricultural sector existing side by side with a more technologically advanced and progressive industrial sector. During the recent years 1962-1964, agricultural productivity per man year of labor in the Philippines has averaged only 40 per cent of productivity in non-agricultural employment.^{1/} This is a rather startling discrepancy remembering that we are including production for export as well as domestic use in agriculture's value added.

Traditional agricultural activity in the export-oriented economy consists of two main components, production for domestic use and production for export. In some small, open economies, however, this distinction has little significance for traditional agriculture since the same outputs are produced for both domestic use and export (monomorphic agriculture). Traditional rice export economies, such as Thailand and Burma, exemplify this case. In others, export production is based upon crops such as rubber, sugar, and copra, introduced and primarily

^{1/} At 1955 prices, agricultural productivity averaged 730 pesos, non-agricultural productivity 1809 pesos.

produced for export (differentiated agriculture).

Production for domestic use is typically labor-intensive, employing traditional methods of production in a large number of small units. Production for export may similarly employ traditional small-scale labor-intensive methods, or it may represent a combination of traditional agriculture and larger-scale, more capital-intensive methods (e.g. plantation culture). Where such a dichotomy exists within export agriculture itself, however, institutional conditions frequently prevent changing the status quo by gradually transforming the traditional, small-scale export sector. Here, too, significant differentials in labor productivity arise between the traditional and the plantation sector.

From this brief review of characteristics of traditional agriculture, we can discover some of the reasons for the development planner's aversion to assigning high priority to agricultural development. First, unlike the targets of industrial development programs, there is already a functioning activity, though backward, massive and forbidding. The problem confronting the planner, therefore, is one of transforming a traditional activity rather than the more glamorous task of creating a new one. Secondly, the problem of agricultural transformation is basically one of gradual, small improvements in widely scattered, numerous small units. Moreover, the link between production and households in much of traditional agriculture presents difficulties of a cultural nature which the planner is likely to find particularly perplexing.

Beyond these domestic deterrents, there lies an unmistakable post-war nationalistic climate which associates agricultural exports with the colonial policy of exploitation. Agricultural export specialization and its associated import dependence on industrial countries, it is alleged, victimize the developing country through deteriorating terms of trade between agricultural exports and industrial imports. This interpretation deflects interest from programs designed to encourage the growth and diversification of agricultural exports to programs of import substitution. Given the general aversion to tackle the basic problem of transforming and modernizing agriculture as a whole, it is not difficult to understand the attractiveness of an industry-biased pattern of development which neglects agriculture and accentuates rather than moderates domestic dualism.

II. The Industry-Biased Strategy

We explore the nature of the industry-biased development strategy by examining first the rare case where such a strategy is inevitable and therefore appropriate. This is the situation where a small, urban center forms a separate political (and hence economic) unit. In practice we find this situation in such city-states as Hong Kong and Singapore where a former entrepot city, utilized during colonial times as a center to service colonial-type exports, becomes transformed into an industrial enclave. It is important to observe for our purposes that such a city-state possesses virtually no agricultural sector and hence does not confront the developmental problem of rural-urban dualism.

In this situation the avenues for development are limited. Development cannot proceed on the basis of transforming a massive traditional agricultural sector to feed the process of domestic industrial expansion by providing markets, raw materials, capital and food. Industrial expansion must be primarily geared to demand in foreign markets and the inputs for industrial production must be largely drawn from abroad. A triangular development pattern -- based upon an interplay of agriculture, industry and foreign trade -- is ruled out by the absence of a domestic agricultural sector.

If industrialization is to occur, therefore, it must take place through foreign trade channels already established by the entrepot history of these small enclave economies. Given the absence of a rural backyard in the sense of a large, stagnant traditional agricultural sector, development strategy can be frankly industry-biased. The emphasis is upon shifting from the traditional entrepot focus to an industrial center of gravity.

The resource flow patterns implicit in this simplest case are useful for understanding the dynamics of the industry-biased strategy. There is first the problem of access to cheap labor supply for industrial expansion. In Hong Kong and Singapore, this problem has been solved by importing labor from the Asian mainland, thus providing all the benefits of an almost perfectly elastic supply curve of labor without necessitating agricultural improvement to release agricultural labor. Moreover, the influx of labor can be controlled by immigration policy to prevent excessive urbanization and unemployment.

Similarly, non-labor inputs as well as food for the growing labor force must be drawn mainly from abroad. This is accommodated by import substitution, as labor-intensive industrial products are removed from the import account and are replaced by industrial raw materials, capital goods for industrial expansion and food for the growing industrial labor force.

The scope of industrialization of this special type is limited by the absence of a domestic agricultural basis. There is little or no opportunity for backward linkages to a domestic raw material producing sector and economies of scale are limited by the small size of the domestic market.

Yet such economies have exhibited impressive rates of growth from an industry-biased development strategy. Significant in this regard is the absence of the drag which would otherwise be exerted by a dominant traditional agricultural sector with low productivity and large-scale under-employment. In short, the opportunities for short-run progress are enhanced by the absence of the problem of domestic dualism between a growing industrial sector and a massive, low-income agricultural sector.

Very few developing countries, however, face this very special initial situation. There are, no doubt, a variety of other initial conditions, all marked by domestic dualism, but for our purposes we concentrate on one type of economy common in Southeast Asia. The case we have in mind combines the openness of the small enclave type economy with the problem of a sharp dichotomy or dualism between

agriculture and industry. Hence the description "open dualistic economy."

Newly independent countries inheriting this type of economy from their colonial past have found the industry-biased development strategy especially appealing. The traditional concentration in agriculture and primary export products is associated with the failure of the previous colonial regime to foster the growth of an industrial sector producing for the domestic market. National planning, therefore, becomes oriented toward the rapid development of an industrial sector, neglecting, and at the expense of, the agricultural sector.

This strategy produces a set of policies and investment programs designed to promote lopsided expansion of the economy. Capital, foreign exchange and other key resources are made available to industrial entrepreneurs on favorable terms and industrial growth surges ahead. Analysis is likely to reveal, however, that these advantages are conferred upon industry by net transfers from the agricultural sector, which continues to be the center of gravity in terms of employment and output shares. The constellation of industry-biased policies in effect shift the domestic terms of trade increasingly in favor of industry and against agriculture. The traditional agricultural sector is forced into an industrial expansion under conditions which do not promote improvements in agricultural productivity.

Since economies of this type are heavily involved in world markets with exports traditionally emanating from the agricultural sector, the foreign trade flows exhibit rather dramatic changes associated with such lopsided industrial

growth. Traditional agricultural exports may be maintained, although disincentive effects of industrial-biased policies on agriculture may cause their growth to become increasingly sluggish. There will be little diversification of exports since industrial products are unlikely to compete in the early stages and there are no inducements to diversify or improve qualities of agricultural exports.

The important foreign trade changes, therefore, occur on the import side. Industrial expansion will be aimed at substitution of imported manufactured finished goods, perhaps in some sequence related to complexity of technology. Rapid industrial expansion, however, will require growing volumes of imported capital goods. Moreover, in the absence of programs to increase the supply of domestic raw materials for the emerging industries, intermediate goods for industrial production will come to be of growing importance in the import accounts. Perhaps even food will have to be imported as agriculture continues to lag and urban demand for food grows with rising industrial income. In short, we note a pattern of import substitution very similar to the Singapore-Hong Kong enclave type of industrial development -- as though the large agricultural sector ceased to exist for development purposes, except as a reservoir of labor resources and a source to be squeezed to finance industrial expansion. The latter is, of course, a significant difference.

In the Philippines, for example, where the industrial-biased strategy was clearly ascendant during the 1950's the structure of imports showed the following changes of the type discussed:

	<u>Per cent of total</u>	
	<u>1949-51</u>	<u>1960-62</u>
Capital goods	12	20
Intermediate goods	37	66
Finished goods	51	14

A central feature of this type of strategy, therefore, is growing dependence upon foreign sources of supply for the inputs necessary for industrial expansion, particularly intermediate goods. This amounts to employing the lagging agricultural sector to finance from abroad the import requirements for industrial expansion, while neglecting the opportunities for obtaining them domestically through strengthening backward linkages between industry and agriculture.

Weaknesses of the Industrial-Biased Strategy

We are now in a position to evaluate the weaknesses of this strategy and then to proceed to investigate the implications for evolving a more positive concept for agriculture in national development planning in economies of the open, dualistic type.

The fundamental weakness is that this strategy perpetuates -- in fact aggravates -- domestic dualism. It is essentially designed to produce a dynamic industrial enclave surrounded by a wasteland of low productivity, stagnant agriculture. Yet there is an ironic feature in the necessity to squeeze a surplus from the agricultural sector to provide capital and food for the industrial sector. This

levy is made upon a sector in which per capita real income will inevitably be held stagnant or fall by a combination of neglect and growing population. Only a minute part of agriculture's population increase will be absorbed into the growing but capital-intensive industrial sector.

Eventually, therefore, this pattern of development will grind to a halt as a result of retardation in the agricultural sector. Agricultural exports will stagnate for disincentive reasons as well as from the encroachment of growing population on land, causing a shift from export to food crops. With no changes in the traditional saving-investment process in agriculture, productivity increases will not occur and food supply will have to be increased by using land devoted to export crops or by resorting to cultivation of less and less productive fringe areas.

Export stagnation will reduce foreign exchange resources while the import-biased industrialization requires growing supplies of foreign capital and intermediate goods. Moreover, supplies of food for the expanding industrial enclave will be increasingly threatened by the combination of low productivity in agriculture and relentless population pressure. The terms of trade squeeze will induce farmers to attempt to market smaller shares of their total output. In short, when the initial slack has been exhausted by these forces, the capacity to force transfers from agriculture through either the export-import nexus or through domestic terms of trade squeeze will evaporate. We note that these problems were not found in the Hong Kong-Singapore case.

It is this set of consequences which has reawakened interest in agricultural development in many less-developed countries. Having experimented with the industry-biased development strategy during the post-war period, development planners have come to understand that over a ten or twenty-year period, the growth of industry and the growth of the economy as a whole will eventually be limited by the rate of growth of agricultural output. In fact, if one surveys growth achievements of less-developed countries, one sees unmistakable evidence of this proposition. The leading growth countries -- Taiwan, Israel, Mexico, for example -- have shown high rates of agricultural progress. The argument can be put even more strongly. Countries which have shown a spurt of industrial growth (high rates of industrial expansion without rapid agricultural progress) have confronted eventually falling rates of overall growth. On the other hand, all countries with relatively high rates of agricultural growth have shown consistent and rising overall growth rates for their economies.

III. The Alternative: The Symbiosis Strategy

Where an economy shows both openness and dualism as dominant initial structural conditions, a successful development strategy must be built around the interplay of changes in agriculture, industry and foreign trade. An initial aspect of this strategy is the encouragement of a symbiotic relationship between industry and agriculture in which each sector's growth reinforces and encourages the growth dynamics of the other. This strategy, therefore, has important

implications for the patterns of industrial and agricultural development and, in the open economy, for changes in foreign trade flows as well.

The essence of the symbiosis strategy is to strengthen the links between industrial and agricultural growth or, put in another way, to progressively eliminate the fundamental dualism between the growth dynamics of the two sectors.

A first major requirement, differing sharply from the industry-biased strategy, is an initial period of agricultural gestation. Investment and technological change must be aggressively introduced throughout the agricultural sector to raise productivity in traditional food crops, to diversify production, to provide intermediate goods for domestic industry and to expand and diversify agricultural exports. If this seems to be an unrealistically large order, we must remember that all successfully developing countries have passed through such a stage -- Japan in the late 19th century and Taiwan and Israel during the past decade.

Productivity increases and diversified output won during the stage of agricultural gestation provide the basis for a process of symbiotic growth between industry and agriculture. There are several key aspects to this relationship. First, there is the financial -- or real transfer -- aspect on which the industry-biased strategy must eventually run aground. As agricultural gestation produces rising productivity, we have provided the basis for a marginal savings approach to real transfers from agriculture to finance the much higher and longer costs of industrial development. This implies that a share of real income increases from

agriculture can be utilized to finance industrial development while providing for the incentive considerations of rising per capita incomes, quite unlike the dead-end industry-biased strategy of squeezing dry a stagnant, unresponsive traditional agricultural sector.

Secondly, the symbiosis strategy has an important foreign trade aspect, again contrasting sharply with the industry-biased strategy. Export diversification is pushed by promoting gradually widening opportunities for domestic processing of primary products. We note that this in itself will serve to strengthen a dynamic relationship between industry and agriculture. Similarly, agricultural development progress will be aimed explicitly at developing local sources of intermediate goods which play so large a role in the growing import requirements of the industry-biased strategy. We see here an opportunity to employ the agricultural sector in a way not available to the small enclave economy, a device which can serve to carry development much further than within the confines of a small city-state. On the export side, therefore, this strategy seeks to foster the growth of export earnings by employing the industrial sector to process a growing variety of domestic agricultural goods and by maintaining incentives to increase and diversify agricultural exports as well as to improve their qualities. On the import side, the growing export earnings are reinforced by the foreign-exchange saving policies associated with promotion of local raw material supplies. This contrasts sharply with the industry-biased case where imported raw material requirements eventually dominate the import account. Export expansion and import-substitution of this

type provide growing foreign exchange resources available to finance capital goods requirements for both modernization of agriculture and continuous expansion of industry.

Thirdly, the symbiosis strategy has an important finished goods market aspect. As both industrial and agricultural incomes rise, we provide the basis for increasingly widening trade opportunities between the two. Domestic industrial expansion will receive the stimulus of rising demand from the massive agricultural sector. Similarly, rising industrial incomes will present demands for new agricultural commodities -- fruits, dairy and meat products, for example -- long after the income elasticities of demand for staple food products have been exhausted. Though it may seem trite to stress these mutual market opportunities, it is important to note that this basic agriculture-industry relationship is neglected by the previous strategy which in effect confines market opportunities to rising incomes within a small expanding industrial enclave.

IV. Implications for National Development Planning

The main conclusion from our analysis is that agriculture, as well as industry, must be given a prominent role in development planning if the economy is to progress consistently toward the objective of self-sustained growth. This conclusion is based on the initial condition of domestic dualism. Before the center of gravity can be shifted to industry -- a feature of all developed countries -- agriculture and industry must pass through a relatively long period of symbiotic growth in which the development of each reinforces growth of the other. This

mutually reinforcing growth pattern will eventually shift the center of dynamic growth to the industrial sector, but in an economy with a modern, highly productive agricultural base.

A second conclusion is that the basis for the crucial symbiotic relationship must be built into national development plans at the earliest possible stage. Early industrial development which is divorced from the agricultural base of the less-developed economy cannot provide momentum for continued growth and raises barriers to its own expansion.

A third conclusion follows from this assertion. National development planning must be based upon an aggregate framework which explicitly analyzes the existing interrelationships between agriculture and industry. In the open, dualistic economy, moreover, the planning framework must incorporate the foreign trade sector in such a way that the triangular pattern of flows among agriculture, industry and foreign trade are integrated into a consistent whole. Moreover, the institutional basis of planning must be such that the critical relationships between these three central nexi of activity can become the focus of the development strategy.

In most national planning processes, however, these central nexi of activity are kept separate through much, if not all, of the planning process. Industrial, agricultural and foreign trade planning tend to be assigned to separate agencies -- at least in the preliminary stages -- and incorporated into a master plan without analysis of the critical development relationships among the three. In other words, no underlying strategy of development based upon the symbiotic relationships so

central to successful development is evolved to guide the planning for the major components of the open, dualistic economy. In fact, this common institutional deficiency itself appears to be an added reason for the common ascendance of industrialization programs which neglect and obscure the possibility of a dynamic relationship with domestic agriculture.

A final implication concerns the importance of sequencing in the triangular pattern of development in the open, dualistic economy. Much of the earlier discussion has implied that industry-biased development is self-defeating because it is based upon a sequence which interferes with strengthening flows among the three basic nexi, industry, agriculture and foreign trade. National planning, to be effective, must strengthen these flows to maximize resources for raising agricultural productivity, and simultaneously, to provide resources for continuous expansion of industry. Given the presence of the massive, backward agricultural sector, it is essential that agricultural gestation be given priority in the early stages to lay the basis for allowing agriculture to play its historical role of financing transfers to industry both through domestic and foreign trade channels.