

POPULATION GROWTH IN THAILAND

Part II: Population and Employment

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Historically the Thai farmer has grown rice within an environment of plentiful land and water resources. Planting takes place in May, June, and July with the advent of drenching monsoons and the crop ripens while the flooded rivers provide the water to fill the fields. When the waters recede in November and December, the crops are harvested. From late January through April the hot sun of the dry season bakes the fields, leaving them parched and unsuitable for virtually any kind of cultivation.

From May to July Thai farmers are fully active preparing the fields for sowing and transplanting. Then come several months of more subdued activity—watching and waiting while frequently living in temporary homes constructed near the flooded rice fields. In November and December the pace quickens, the intense activity of the harvest is followed by the marketing of that part of the crop not saved for home consumption. In the dry season work virtually ceases except for those farmers who seek and can find temporary employment. Undoubtedly the most fundamental but by no means unique characteristic of rural employment in Thailand is its seasonal nature. Farmers engaged in single-crop agriculture, that is, the majority of Thai farmers, are active only one-half to two-thirds of the year.

Such agricultural methods can continue to sustain a rural population only so long as there are enough land and adequate markets for crops. There is growing evidence and concern, however, that both may be declining. Some observers believe that there is still vacant land for agriculture: official land use surveys, for example, show that 50 per cent of Thailand's surface is forest. From this it has been concluded that increases in population can be largely accommodated in the present, as in the past, by expanding the land area under cultivation

through new land settlements. In the North, however, there is a risk of upsetting the balance between cultivation and water catchment. In the Northeast, where approximately 40 per cent of the land is "unclassified," the quality of the soil is very poor and therefore difficult to cultivate without massive and expensive technological inputs.¹ This may be possible with the development of irrigation systems based on Mekong River dams, but full implementation of such schemes in the Northeast is unlikely to be achieved for at least 15-20 years.

It seems more reasonable to assume that a threshold in agricultural development practices and policies has been reached. Perhaps this threshold is best described as a period during which the number of new farmers is increasing at a faster rate than new land is being or can be opened. A government-sponsored study has noted that the average size farm in 1963 was 3.2 hectares, only 2.8 hectares in 1970, and by 1985 it will have dropped to 1.8 hectares. As land shortage intensifies beyond this present threshold, Thailand can predictably expect both decreased employment and incomes in the rural sector and increased rural to urban migration in search of industrial employment.

As if the impact of population growth on land availability were not creating enough problems for Thai farmers, international markets for rice have been declining during the latter part of the 1960s as a result of improved seeds and yields commonly associated with the green revolution in Asia. This has led to increased self-sufficiency in countries

1. See my *Population Growth in Thailand, Part I: Population and Social Structure* [BG-1-'74], Fieldstaff Reports, Southeast Asia Series, Vol. XXII, No. 1, 1974, for a regional survey of Thailand's agricultural assets and liabilities.

where Thailand has had its traditional markets, and concessional sales of American and Japanese rice have aggravated the decline in demand. By 1971 both the world price and Thai farmers' price of rice was virtually one-half that of four years earlier. There has been substantial recovery with the world food shortages in 1972; but with the end of world drought conditions the Thai government is assuming that international rice markets will remain low for the next few years as the green revolution spreads and yields increase. Only long-term projections give any hope of better world markets for the Thai rice farmer. With 65 per cent of agricultural land in rice production, such market considerations are crucial for Thai agriculture.

The critical questions faced by Thai agriculture, therefore, are how to increase employment opportunities to accommodate the predicted increase in farm labor and simultaneously increase incomes. Ultimately the answer will have to be found in measures to increase productivity of low-income farmers. The danger, however, is that increased productivity will be brought about through labor-saving mechanization rather than labor-expanding technologies. Increases of production will accrue only to the wealthier farmers who can afford expensive inputs, leading to further concentration of agricultural incomes.

Looking first at overall production, there is substantial scope for large increases. Most rice is cultivated by traditional techniques with yields among the lowest in Southeast Asia. Thailand's average yield per hectare in 1970 was 1.95 tons as compared with 2.65 in peninsular Malaysia, 2.31 in Sri Lanka, 2.04 in Indonesia, 3.99 in Taiwan, and 5.6 in Japan. Setting aside cost factors and farmer receptivity, there is ample room for the optimistic view that the application of such modern inputs as fertilizers and new seed varieties will effect substantial increases in production. In reality, however, there are enormous obstacles.

On the positive side, double cropping presents a major opportunity to expand production for the simple reason that almost 90 per cent of Thailand's ricelands in the Central Plains remain idle during the dry season. Bringing this land into cultivation would create jobs, raise incomes and, simultaneously, increase the total agricultural product. Much of the new labor demand would be met by the

absorption of large numbers of the seasonally unemployed. Government surveys have shown, for example, in the North in April 1969 and Northeast in April 1968 that 51.7 and 47.5 per cent respectively of the agricultural labor force had no work. Whereas in the same regions during the busy harvest month of December the percentages were 10 and 8.7.

Crop diversification is another possibility which has already been adopted, in varying degrees, by many Thai farmers. Farms on the upland fringes of the Central Plain and out of the main flooding areas are cultivating maize, vegetables, soya beans, cassava, sugar cane, cotton, and other food and fiber plants in preference to rice. Although the phenomenon is not precisely documented, farm incomes and general prosperity are apparently higher in those areas of the Central Region where nonrice agriculture dominates. It is clear that income per land unit is higher for most diversified production than for rice. Additionally, there is statistically significant correlation between high population growth and net in-migration (1960-1970) in provinces where nonrice cultivation is dominant. Low population growth was recorded over the same period in provinces where rice cultivation is dominant. It would seem, therefore, that diversified agriculture can support a larger population at higher income levels.

If the benefits to be derived from double cropping and diversification are apparent, what are the obstacles? Most important, the intensity of the dry season makes it virtually impossible to grow a second crop without irrigation and, conversely, the intensity of the monsoons and subsequent flooding severely limit the crops that can be grown without more adequate water control. In 30 per cent of the Central Plain and in some areas of the Northeast, for example, the monsoon floods normally reach 15 feet. This not only excludes cultivation of most food and fiber plants, but also makes it impossible to grow the new high-yield varieties of rice, indeed, any except the traditional low-yield long-stem rice.

Irrigation and water control are thus the *sine qua non* for modernization of Thai agriculture. Except in the Northern Region, where narrow valleys have permitted relatively inexpensive irrigation schemes, immense capital investments are required for the construction of dams, canals, and feeder systems which would give double cropping and diversification capabilities to more farmers. The substantial

Traditional waterways during floods in Central Plain.



Barn on a flooded farm.

sums which have gone into dams and irrigation canals over the last 50 years, however, have not resulted in a significant amount of land being double cropped. As noted above, most estimates figure that only a disappointing 10 per cent of the Central Plain is cultivated in the dry season. In 1969, for example, only 30 per cent of total rice land was irrigated as opposed to 33 per cent in Indonesia and 40 per cent in Malaysia.

A significant cause of the failure to increase dry season cropping rests with the financial inability of farmers to take advantage of irrigation possibilities. In many instances smaller farmers do not have the required capital resources to build the necessary feeder canals or secure the small water pumps needed to distribute water into their fields. Additionally, land holding patterns are often so irregular due to centuries of fragmentation and transfer of ownership that irrigation canals cannot be constructed without major land consolidation efforts. But consolidation is expensive: the estimated cost for one land consolidation scheme in the Central Plain was about \$375 for an average size rice farm of three hectares or roughly three times the average annual income from such a farm. At present public sources are either unwilling or unable to bear the costs of consolidation on a large scale.

In addition to irrigation, higher yields, double cropping, and diversification will also depend on the use of new seeds and fertilizers which in turn depend upon their availability, and, in the case of fertilizer, their availability at acceptable cost. So far high-yield varieties have not been made widely available with the exception of new varieties of maize grown in the northern part of the Central Plain. So-called miracle rice seeds have received little use for a combination of reasons: the Thai government has to maintain the taste quality of its traditional varieties for export value purposes and, perhaps more significantly, the high-yield rice varieties require extensive use of fertilizers and a degree of water control which is not generally present. The three high-yield varieties of rice promoted by the government in 1970 were being planted on less than .01 per cent of the total rice land in Thailand. Their yields, however, have been as high as 4.4 tons per hectare as opposed to high yields of 2.4 tons per hectare for the better of the traditional varieties. The traditional varieties required ten to 15 kilograms per hectare of fertilizer

to achieve these yields, while the high-yield varieties require over 80 kilograms for maximum yields.

The high cost and inadequate supply of fertilizer comes close to being a national disgrace. There is one fertilizer factory in Thailand, the Mae Moh plant in Chiang Mai, which can produce only an estimated 5 per cent of total need. Having accumulated a total deficit of \$19 million, it must be labeled a highly uneconomical enterprise. Nevertheless, it receives protection from foreign-produced fertilizers to the extent that fertilizer prices in Thailand are the highest in Asia while application is among the lowest. One hundred kilograms of ammonium sulfate in 1968 cost \$33 in Thailand, \$27 in India, \$25.6 in Japan, and \$17.1 in East Pakistan. This probably accounts for the fact that 1970 data show that fertilizer was applied at an average amount of 1.79 kilograms per hectare of rice land; whereas, as we have seen, government recommended high-yield varieties require more than 80 kilograms per hectare. Perhaps now that the Chairman of the Mae Moh Company, former Prime Minister Thanom Kittikachorn, is in political exile, the company will be disbanded or, at least, refused protection from cheaper, imported fertilizers.

But even if it could be assumed that more of these technical inputs were available, there would still remain the problem of providing concomitant educational services. There is, on the average, only one extension agent for every 3,400 farmers. It is hard to imagine, therefore, how the typical rice farmer, who in hard times barely operates above a subsistence level and who has received at best only four years of primary education, can be expected to see anything but risk in diversification into what new seeds and crops are available without attentive, careful guidance.

All of these innovative techniques and inputs, needless to say, are expensive and out of the reach of most Thai farmers. Average farm income is so low and access to capital by way of credit at reasonable interest rates so limited that there has not been widespread response even to existing opportunities. For example: the ratio of fertilizer prices to the wholesale price of rice in Thailand in 1969 was 2.97, while in the Philippines it was 2.17, in peninsular Malaysia 1.9, and in Sri Lanka 1.26. Thus growth in farm output today barely keeps abreast of increased population and employment demand. How long can it continue?

Of primary concern is income for the rice farmer. Export duties, especially the so-called rice premium, have kept the domestic price of rice low. While the premium has kept down inflation, it has also depressed farm incomes. Some argue that this has forced diversification as farmers have realized other market opportunities. The extent to which this is true, however, may be quite limited as most of the diversification has taken place either where irrigation has permitted it, as in the Central Plain, or in upland areas where rice is not normally grown anyway. Obviously other methods have to be found if farmers are to increase incomes enough to allow for far greater farm investment in these new inputs.

The other source of capital is normally agricultural credit, but in Thailand it is either scarce or expensive. Many farmers are in perpetual debt to moneylenders and middlemen. Virtually every farm survey over the past 40-50 years has shown that indebtedness is a major problem in every region. A recent United Nations survey shows as many as 65 per cent of all Thai farmers in debt, in amounts ranging from \$200 in the North to \$400 in the Northeast and nearly \$450 in the Central Plain.² The survey has also shown that roughly 50 per cent of loans are used for such agriculturally nonproductive purposes as living expenses. Moreover, interest rates on such commercial loans range on the average from 45 per cent in the Central Plain to as high as 85 per cent in the Northeast.

Institutional credit from the government Bank for Agriculture and Agricultural Co-operatives is available at lower interest rates—about 10 per cent—but to a limited extent. While the amount of credit extended to individual farmers over the past six years by the Bank for Agriculture and Agricultural Co-operatives has increased nearly six times and the number of branches nearly four times, farmers must usually have full title to their land in order to qualify for these institutional loans. It is estimated that only 40 per cent of Thailand's farmers enjoy such full title. It is, however, difficult to estimate with accuracy the actual availability of institutional credit; surveys within the last few years have put credits obtained from institutional

sources as low as 23 per cent and as high as 50 per cent of the total number of loans.

The difficulty of securing credit, the high costs of fertilizer and technological improvements are but the beginning of the list of obstacles confronting efforts to increase the incomes of most Thai farmers. They are sufficient to suggest, however, that without policies distinctly designed to benefit the poorer farmers, productivity will remain a function of wealth. The rich will get richer and those who most need to produce more to earn more on smaller and smaller farms will be producing relatively less. In the Northeast and in the traditional rice-growing areas of the Central Plain there is no reason to expect production levels to rise at all. In fact, it is conceivable that without modern conservation efforts soil fertility will deteriorate with use and production actually decline.

Employment in Industry and Services

So long as rural development fails to provide employment for the rapidly increasing number of rural workers, migration in search of work will remain substantial. Migration from one rural area to another in pursuit of cultivable new land is a tradition in Thailand. More recently the objective of rural-rural migration is an area where crop diversification has led to increased productivity and manpower needs. Indications are that the rate of migration into urban areas (both Bangkok and provincial towns) is becoming even more significant,³ and may have already surpassed that between rural areas.

The demand for work in the industrial sector is no less affected by rapid population growth, although the impact is just beginning to be felt. And in industry as in agriculture there are clear problems confronting industrial expansion and, more specifically, efforts to promote labor-intensive enterprises. First, the low level of rural incomes and the consequent low demand for industrial goods have affected overall industrial development. The Thai domestic market is limited to a large extent to the urban population. Moreover, national industrialization and economic policies over the past few

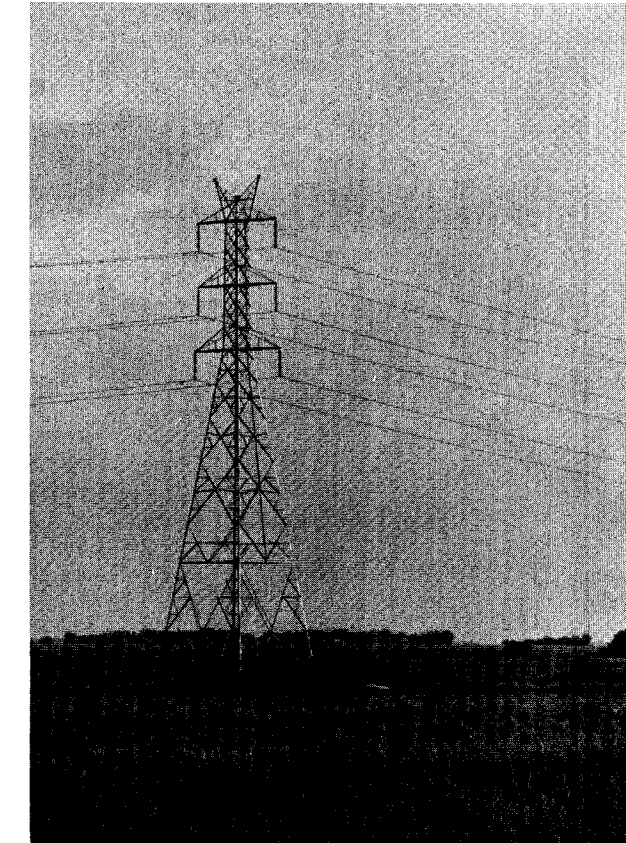
2. Food and Agricultural Organization and the United Nations Development Program/Special Fund, "Project Working Paper No. 5: Agricultural Credit in Thailand with Special Reference to Fertilizer Use," *Soil Fertility Research Project in Thailand*, Bangkok, 1972.

3. See Visid Prachuabmoh, John Knodel, Suchart Prasithrathsin and Nibhon Debavalya, *The Rural and Urban Population of Thailand: Comparative Profiles*. (Bangkok: Institute of Population Studies, Chulalongkorn University, 1972), pp. 17-23.

years have stressed import substitution and not export promotion. Thus foreign markets to augment the weak domestic market for manufactures have not been developed.

Second, over 20 years ago the government established state enterprises in such many and varied industries as transport, pharmaceuticals, sugar, tobacco, and oil refining. Originally an act of economic nationalism, state enterprises were intended to limit the role of Chinese businessmen in the Thai economy. This has met with only limited success. Far more successful were the military, politicians, and bureaucrats who established themselves in leading positions in the enterprises and as the main beneficiaries of revenues. Consequently, there has also been a marked tendency over recent years to use state enterprises as instruments of patronage and for the enterprises to become powerful bureaucratic vested interests. This has not only given them distinct advantages over competitive private enterprises in access to capital, it has also tended to promote inefficient management and unsound investment policies. Perhaps the most regrettable tendency in the state enterprises has been to become excessively dependent on expensive, prestigious foreign equipment and capital-intensive technology during a period when employment needs have been rapidly increasing.

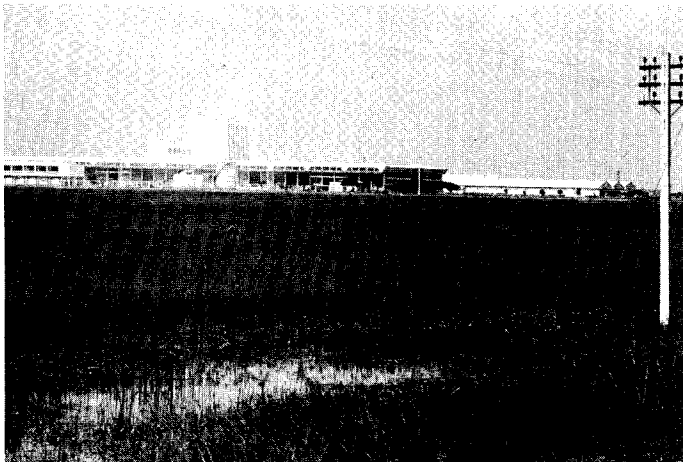
In the manufacturing sector as a whole, the Thai government has offered major incentives to foreign investment, hoping thereby to stimulate larger capital inflows and growth in economic output. The results here have also been disappointing, as both



("Power to the People!") Hydroelectric power passing over Central Plain rice paddy.

state enterprises and the foreign-owned industries not only failed to grow as anticipated but also tended to be capital-intensive, absorbing little of the labor surplus.

Industrial and agricultural cohabitation near Bangkok.



Cutting fodder from boats for water buffalo.



In contrast, large numbers of small private enterprises such as rice milling, woodworking, food and beverage production, and other light manufacturing are far more relevant to employment. They possess at least two advantages: they employ a smaller number of the scarce trained manpower and semiskilled workers per unit of output; and they require less capital expenditure and provide more labor opportunity per unit of output. Only within the last few years, however, have these smaller industries been promoted even minimally by the Ministry of Industries. Current policy, albeit improved, still gives priority to large-scale manufacturing enterprises with prestigious, advanced, capital-intensive technology and high profits for the bureaucratic ownership.

Somewhat ironically, it appears that industry is absorbing less and less of the growing labor force while the service sector is absorbing more. The average annual growth rate of industrial sector employment has declined in most of its component parts: the growth in mining employment has declined from 11.9 per cent per year between 1960 and 1967 to 2.6 per cent between 1967 and 1971; manufacturing employment growth rates have declined from 5.7 to 1.1 per cent during the same time periods; and construction employment dropped from 9.4 per cent to 2.2 per cent. Only employment in communications and transportation showed an increase in annual growth rates. In the service sector, however, employment increased from 5.1 per cent between 1960 and 1967 to 6.1 per cent between 1967 and 1971.

TABLE I

	1960	1971
Total Employment	12,594,000	16,906,000
Agricultural	10,443,000	13,076,000
Agricultural %	82.9%	77.4%
Nonagricultural	2,151,000	3,827,000
Nonagricultural %	17.1%	22.6%
a. Industrial Sector	736,000	1,275,000
Industrial Sector %	5.9%	7.5%
b. Service Sector	1,415,000	2,555,000
Service Sector %	11.2%	15.1%

Source: Unpublished information from the National Economic and Social Development Board, Bangkok.

These trends can be seen in aggregate figures as well: from 1960 to 1967 an average of 55,000 new employees a year entered the industrial sector, but the average dropped to 22,250 between 1967 and 1971. In the service sector the annual average increase for 1960-1967 was 84,570. This increased to 136,000 new employees per year in the later period. Table I gives a general indication of labor force distribution and change between 1960 and 1971.

What these statistics mean for the lives and livelihoods of the Thai population is more difficult to state. It appears that the urban work force is growing at a faster rate than the industrial sector can absorb new workers, the surplus being diverted at increasingly higher rates into the service sector. The net result is almost certainly increased *underemployment*. In other words, instead of being absorbed by "modern" services related to and created by demand from industrial advances (e.g., banking), the expansion of employment in the service sector may simply be the result of excessive supply. This view is supported by the fact that an increasing percentage of workers in the service sector are unpaid family workers or nonsalaried "own account" workers. To the extent that the relatively large expansion of service sector employment is a result of a labor surplus, it is, in effect, *underemployment*, a sharing of a fixed quantity of work by an increasing number of persons. A labor force survey undertaken in 1969 appears to support this observation in its finding that 18 per cent of urban workers worked less than 40 hours a week.

These data, while not adequate to present a precise empirical picture of the dimensions of underemployment, are nevertheless substantiated by visual impressions in Bangkok. The scene is by no means as grim as that of other Asian cities where mass urban migration has left huge labor surpluses eminently visible in their idleness. In Bangkok, at least, most people appear to have some means to a meager livelihood—small hawker stands, taxis on the brink of physical collapse, or in massage parlors which are often thinly disguised brothels.

Government Resources

In addition to its impact on agriculture, industry, the labor force, and the economy, the high rate of population growth is having a considerable impact on the Thai government's budgetary commitments

to social development. Ultimate success in raising productivity and incomes will, in a general but important way, depend upon the level of education of Thais, their standards of health and the general manmade environment, especially in Bangkok, where many who have left the farm go to live.

In terms of educational opportunities, the present population growth rate will aggravate an already critical situation. Today, as in the recent past, the vast majority of school age children complete only the minimum required four years of education. In terms of government expenditure, this has meant an increase in allocated funds from \$99,865,000 in 1964 to \$297,625,000 in 1973, of which roughly 55 per cent must go for education in primary schools. This enormous increase has barely maintained the current level of educational opportunities for most citizens, yet it represents nearly 20 per cent of the total Thai government budget for this year.

What does this mean for the future? Even assuming a fertility decline of one-third by 1985, the number of children enrolled in the required first four years of primary school will increase to 7,800,000 from 4,400,000 in 1967. If the government is successful in raising the minimum primary school requirement to seven years, present estimates place the cost in 1990 at some \$460,000,000 for primary education, again assuming a fertility decline of one-third. This sum represents about 2 per cent of the estimated GDP for 1990.

As might be expected, educational opportunities are now heavily biased in favor of the urban population in spite of the clear need for improved rural manpower skills. In rural areas, according to a recent survey, 73.8 per cent of all males and 76.9 per cent of all females attain four years of education whereas only 6.2 per cent and 4.2 per cent respectively attain 12 years of education. In Bangkok, however, only 25.8 per cent of all males and 34.4 per cent of all females end their education after four years while 27.8 and 18.3 per cent respectively complete 12 years. It should be noted that these percentages are for all ages; educational attainment figures for younger age groups show an even more acute difference between rural regions and Bangkok.

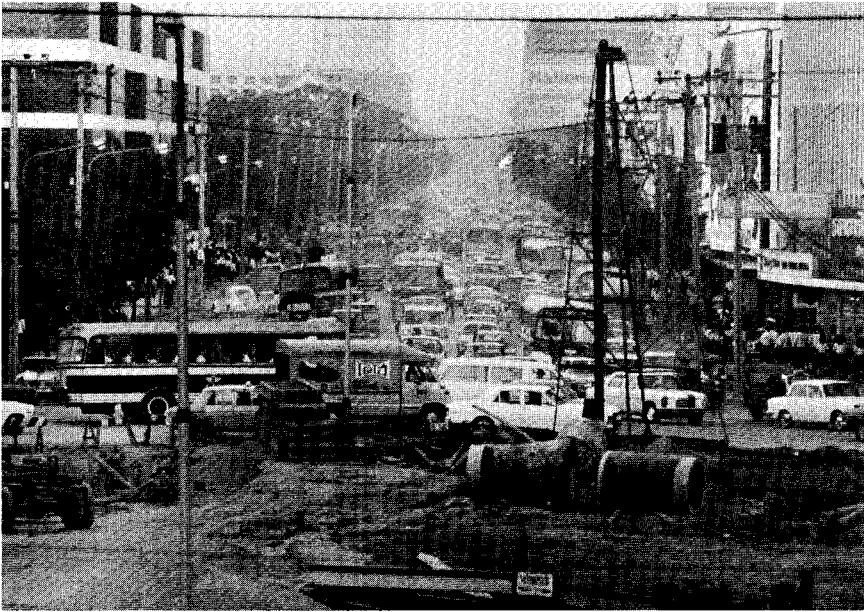
A similar rise in demand for health services may also be expected to occur as a result of rapid population growth; and again government resources will be severely tested. In 1970 there was one doctor for

every 1,000 persons in Bangkok, one doctor for every 30,000 persons outside Bangkok and only one doctor for 110,000 persons when both Bangkok, provincial capitals, or other urban centers were excluded from the calculations. To achieve the ratio throughout Thailand of one doctor to each 1,000 population, as in Bangkok, would require the training of 3,200 new doctors every year for the next 20 years. The country's current training of only 300 doctors a year clearly threatens a deterioration in health care in Thailand.

A final component of the general welfare in Thailand which may already be deteriorating is the Bangkok environment. The primacy of the city has, to a large extent, concentrated in it all of Thailand's urban problems. Real estate development is out of anyone's control. And the planning and administrative efforts that do exist seem utterly incapable of coping with the spiraling environmental problems. These include an inadequate water supply, inadequate drainage, severe traffic congestion, a lack of public transport, and highly inflated real estate values. Perhaps most threatening is the absence of a comprehensive national plan for urbanization. Thus there is little reason to expect an easing of pressures on Bangkok as a result of urban and industrial decentralization.

Migrants into Bangkok face not only employment problems but also serious housing shortages. Estimates of the number of persons living in slum and squatter areas run between 300,000 and 600,000, or 10-20 per cent of the city's population. No adequate surveys have been made, however, and even the government in its development plans admits to considerable guesswork as to the magnitude of the problem. It is certain that the present and projected level of government spending for public housing in Bangkok can only scratch the surface of the problem. During the current five-year plan the government expects to allocate a total of \$9,350,000 from the national budget for housing, while borrowing \$32,000,000 from abroad. This amount will provide money for the construction of fewer than 6,000 units of low-income housing for approximately 30,000 people—one-tenth the minimum estimate of current squatters and slum dwellers. It is reasonable to expect that these new housing units will not substantially affect the growing urban slums of Bangkok.

What is particularly distressing about the growing population pressures is that the economic



Bangkok rush hour.

Public transport at rush hour in Bangkok.



Seasonal flooding in Bangkok suburb.



and social problems we have been discussing continue to exist and threaten to become worse in spite of huge increases in government allocations aimed at their diminution. The threefold increase in national budget appropriations for education over the past ten years has already been noted. This has been equalled in the case of budgetary support for economic services (e.g., transportation, agriculture, power) over the same time period. Similarly, government expenditure in public health and utilities has more than doubled. In this context, it is easier to appreciate how some welfare improvements such as public housing are squeezed by the lack of funds.

Population and the Political Will

Thailand is fortunate in at least one important regard: its population density is still low by most Asian standards. Java contains over 500 people per square kilometer whereas extreme population densities in rural Thailand reach only 250 people per square kilometer, and this is rare. It is conceivable that Thailand can comfortably accommodate many more people so long as opportunities to produce and earn more increase with the population, especially for lower income groups. Thailand can, in

effect, buy off a Malthusian fate through employment-oriented economic growth in the immediate future and, in the long run, through the provision of adequate family planning services, the subject of Part III in this series of Reports. It may well be that success in one area will positively reinforce achievements in the other; that is, expansion of employment and earnings will greatly enhance current and future efforts to promote family sizes which do not debilitate economic welfare.

Neither programs for agriculture development nor industrial expansion, nor family planning, however, can be successful unless the Thai government and leadership is politically committed to them. Currently, corruption and economic and social elitism in the context of a rigid social structure are effective deterrents. Whether this will last beyond the point at which repairs of the social and economic damage can be carried out is in the realm of political conjecture. There are sprinkled throughout the bureaucracies, businesses, universities, and professions many individuals who perceive these issues. Whether they will achieve the power to formulate and implement policies and programs aimed at redistributing economic opportunities and incomes is the biggest question of all.



BIBLIOGRAPHY

Asian Development Bank. *Asian Agricultural Survey*, Manila, 1968.

Caldwell, J.C. "The Demographic Structure," in T.H. Silcock, ed., *Thailand: Social and Economic Studies in Development*, Canberra: Australian National University Press, 1967.

Evers, H.D., and T.H. Silcock. "Elites and Selection," T.H. Silcock, ed., *Thailand: Social and Economic Studies in Development*, Canberra: Australian National University Press, 1967.

Food and Agricultural Organization and the United Nations Development Program/Special Fund. "Project Working Paper No. 10: A Socio-economic Survey among Thai Farmers," *Soil Fertility Research Project in Thailand*, Bangkok, 1972.

Fuhs, Friedrich W. and Jan Vingerhoets. *Rural Manpower, Rural Institutions and Rural Employment in Thailand*, Bangkok: National Economic Development Board, 1972.

Goldstein, Sidney, Alice Goldstein, and Penpron Tirasawat. *The Influence of Labor Force Participation and Education on Fertility in Thailand* (Research Report No. 9), Bangkok: Institute of Population Studies, Chulalongkorn University, 1972.

Ingram, James. *Economic Change in Thailand, 1850-1970*, Stanford: Stanford University Press, 1971.

Marzouk, G.A. *Economic Development and Policies: Case Study of Thailand*, Rotterdam: Rotterdam University Press, 1972.

Prachuabmoh, Visid, John Knodel, Suchart Prasithrathsin, and Nibhon Debavalya. *The Rural and Urban Population of Thailand: Comparative Profiles* (Research Report No. 8), Bangkok: Institute of Population Studies, Chulalongkorn University, 1972.

Silcock, T.H. "Promotion of Industry and the Planning Process," in T.H. Silcock, ed., *Thailand: Social and Economic Studies in Development*, Canberra: Australian National University Press, 1967.

Silcock, T.H. *The Economic Development of Thai Agriculture*, Ithaca: Cornell University Press, 1970.

Thailand, Bureau of the Budget. *Thailand's Budget in Brief, Fiscal Year 1973*, 1973.

Thailand, Ministry of Agriculture. *Agricultural Statistics of Thailand*, 1970.

Thailand, National Economic Development Board. *Factbook on Manpower in Thailand*, 1967.

Thailand, National Statistical Office. *Preliminary Report of the 1970 Population and Housing Census of Thailand*, 1970.